

Name: South China National Centre of Metrology/Guangdong Institute of Metrology

Address: No. 30, Songbai East Street, Guangyuan Middle Road, Guangzhou, Guangdong, China

Registration No. CNAS L0730

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

Effective Date: 2025-01-26 Expiry Date: 2029-10-21

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
1 Geometry Measuring Instrument							
1	*Precise Angle Dividing Table	Angle	V.R.of Precise Angle Dividing Table JJG472	$0^{\circ} \sim 360^{\circ}$	$U=0.06''$		
2	*Angular Polygon	Angle	V.R.of Angular Polygon JJG283	$0^{\circ} \sim 360^{\circ}$	$U=0.4''$		
3	*Square	Angle	V.R.of Squares JJG7	(50~500)mm	$U=0.9 \mu m$		
				(500~1000)mm	$U=1.5 \mu m+3.5 \times 10^{-6}H$		
4	*Angle Gauge	Angle	V.R.of Angle Gauge Blocks JJG70	$0^{\circ} \sim 360^{\circ}$	$U=2.0''$		
5	*General Bevel Protractors	Angle	C.S. for General Bevel Protractors JJF1959	$0^{\circ} \sim 360^{\circ}$	$U=1'$		
6	*Frame Level and Shaft Level	Angle	C.S.for Frame Levels and Shaft Levels JJF1084	(0.02~0.10)mm/m	$U_{rel}=4\%$		
7	*Coincidence Level	Angle	V.R.of Electronic Levels and Coincidence Levels JJG103	(0~10)mm/m	$U=0.002mm/m$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
8	*Electronic Level	Angle	V.R.of Electronic Levels and Coincidence Levels JJG103	$(-5 \sim +5)\text{mm/m}$	$U=0.001\text{mm/m}$		
9	*Level Rule	Angle	C.S.for Level Rules JJF1085	$(0.5 \sim 10)\text{mm/m}$	$U_{\text{rel}}=8\%$		
		Length		$(0 \sim 20)\text{mm}$	$U=0.1\text{mm}$		
10	*Sine bars	Angle	V.R.of Sine Bars JJG37	$(0 \sim 90)^\circ, 100\text{mm}$	$U=2.2''$		
				$(0 \sim 90)^\circ, 200\text{mm}$	$U=2.0''$		
11	*Fineness of Grind Gauge	Length	V.R.of Fineness of Grind Gage JJG905	$(0 \sim 200) \mu\text{m}$	$U=0.6 \mu\text{m}$		
12	*Wedge-feed Calibrator for Micrometer	Length	V.R.of Wedge-feet Calibrator for Micrometers JJG525	$(0 \sim 10) \mu\text{m}$	$U=0.08 \mu\text{m}$		
				$(10 \sim 400) \mu\text{m}$	$U=0.23 \mu\text{m}$		
				$(400 \sim 2000) \mu\text{m}$	$U=0.26 \mu\text{m}$		
13	*Calibrator for Level	Perpendicularity	V.R.of Calibrator for Level JJG191	$(0.1 \sim 1.5)\text{mm/m}$	$U_{\text{rel}}=3.0\%$		
14	*Zero-Calibrator for Level	Perpendicularity	C.S.for Frame Levels and Shaft Levels JJF1084	$(0 \sim 2)''$	$U=1.3''$		
15	*Autocollimator	Angle	V.R.of Autocollimators JJG202	$0' \sim 10'$	$U=0.15''$		
				$(0 \sim 5)\text{mm/m}$	$U=0.0035\text{mm/m}$		
16	*Angle Meter (Angle Rule)	Angle	C.S. for General Bevel Protractors JJF1959	$(0 \sim 180)^\circ$	$U=0.2^\circ$		
17	Gauge Block	Length	V.R.of Gauge Blocks JJG146	$(0.5 \sim 100)\text{mm}$	$U=0.04 \mu\text{m}+0.4 \times 10^{-6}L$		
				$(>100 \sim 500)\text{mm}$	$U=0.05 \mu\text{m}+0.7 \times 10^{-6}L$		
				$(600 \sim 1000)\text{mm}$	$U=0.1 \mu\text{m}+1.3 \times 10^{-6}L$		
18	Accessories of Gauge Blocks	Length	C.M.of Accessories of Gauge Blocks FFC1502	$(2 \sim 35)\text{mm}$: difference of height	$U=0.3 \mu\text{m}$		

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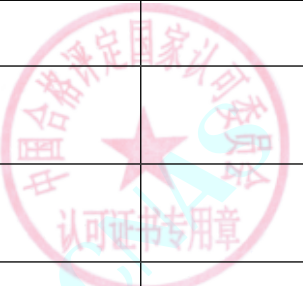
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(2~35)mm: eccentricity	$U=3 \mu\text{m}$		
19	Plane Optical Flat	Flatness	V.R.of Optical Flats JJG28	$\Phi 150\text{mm}$	$U=0.009 \mu\text{m}$		
				$\Phi 100\text{mm}$	$U=0.010 \mu\text{m}$		
				$\Phi 80\text{mm}$	$U=0.008 \mu\text{m}$		
				$\Phi (45\sim 60)\text{mm}$	$U=0.007 \mu\text{m}$		
				$\Phi 30\text{mm}$	$U=0.008 \mu\text{m}$		
20	Parallel Optical Flat	Flatness	V.R.of Optical Flats JJG28	(12~91)mm	$U=0.02 \mu\text{m}$		
		Parallelism		(12~91)mm	$U=0.2 \mu\text{m}$		
21	*Straight Edge	Straightness	C.S.for Straight Edges JJF1097	(300~3000)mm	$U=0.6 \mu\text{m}+0.8\times 10^{-6}L$		
22	*Flat Plate	Flatness	V.R.of Surface Plates JJG117	100mm×100mm~3000mm×2000mm	$U=0.5 \mu\text{m}+0.8\times 10^{-6}L$; L-Diagonal length of Flat Plate		
23	*Toolmaker' s Straight Edge	Straightness	V.R.of Straight Edge JJG63	(0~175)mm	$U=0.3 \mu\text{m}$		
				(200~300)mm	$U=0.6 \mu\text{m}$		
				(400~1000)mm	$U=1.2 \mu\text{m}$		
24	Milling Straight Edge	Flatness	V.R.of Milling Straight Edges JJG740	(200~330)mm	$U=0.02 \mu\text{m}$		
25	Equal Height Block	Length	V.R.of Gauge Blocks JJG146	(20~500)mm	$U=1.0 \mu\text{m}$		
26	*Vee Blocks	Parallelism	C.M.of Vee Blocks FFC1503	(0~300)mm	$U=0.9 \mu\text{m}$		
		Flatness		(0~300)mm	$U=2 \mu\text{m}$		
		Difference of Height		(0~300)mm	$U=1.0 \mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
27	Optical Theodolite	Angle	V.R.of Optical Theodolites JJG414	Horizontal(Objects):0° ~ 360°	$U=0.13''$		
				Horizontal(Angle Dividing Table):0° ~ 360°	$U=0.08''$		
				Vertical Angle:0° ~ 360°	$U=0.33''$		
28	Level	Angle	V.R.of Level JJG425	$(-8 \sim +8)'$	$U=2.0''$		
29	*Projector/ Video Measuring System	Length	C.S.for Projectors JJF1093	$(0 \sim 500)\text{mm}$	$U=1.1 \mu\text{m}+2.2 \times 10^{-6}L$		
30	*Horizontal Metroscope	Length	C.S.for Length Measuring Instrument JJF1189	$(0 \sim 500)\text{mm}$	$U=0.08 \mu\text{m}+0.1 \times 10^{-6}L$		
31	*Length Measuring Machine	Length	C.S.for Length Measuring Instruments JJF1066	$(-100 \sim 100) \mu\text{m}$	$U=0.09 \mu\text{m}$		
				$(>100 \sim 3000)\text{mm}$	$U=0.3 \mu\text{m}+2 \times 10^{-6}L$		
32	*Toolmaker' s Microscope	Length	V.R.of Universal Measuring Microscopes and Makers Microscopes JJG56	$(0 \sim 200)\text{mm}$	$U=0.3 \mu\text{m}+5 \times 10^{-6}L$		
33	*Optimeter	Length	V.R.of Optimeter JJG45	$(-100 \sim +100) \mu\text{m}$	$U=0.09 \mu\text{m}$		
34	*Contact Type Interferometer	Length	V.R.of Contact-type Interferometers JJG101	$(-10 \sim +10) \mu\text{m}$	$U=0.014 \mu\text{m}$		
35	*Measuring Microscope	Length	V.R.of Reading Microscope and Measuring Microscope JJG571	$(0 \sim 50)\text{mm}$	$U=0.7 \mu\text{m}+2 \times 10^{-6}L$		
36	*Microscope of Reading	Length	V.R.of Reading Microscope and Measuring Microscope JJG571	$(0 \sim 8)\text{mm}$	$U=0.3 \mu\text{m}$		
37	Electronic Theodolite	Angle	V.R.of Electronic Tachometer Total Station JJG100	$(0 \sim 360)^\circ$: Horizontal	$U=0.10''$		



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				(0~360)° : Vertical	$U=0.34''$		
38	Electronic Tachometer Total Station	Length	V.R.of Electronic Tachometer	(0~2)km	$U=0.4\text{mm}$		
		Angle	Total Station JJG100,Electro-optical distance meters JJG703	0° ~360° : Horizontal	$U=0.10''$		
				0° ~360° : Vertical	$U=0.34''$		
39	Optical Vertical Aiming Device	Angle	C.S. of Plumb Instruments JJF1081	(0~90)°	$U=0.4''$		
40	Pocket Laser Distance Meter	Length	V.R. of Hand-held Laser Distance Meter JJG966	(0~30)m	$U=0.34\text{mm}+5.6\times 10^{-6}L$		
				(>30~50)m	$U=0.40\text{mm}+8.4\times 10^{-6}L$		
				(>50~100)m	$U=0.34\text{mm}+0.12\times 10^{-6}L$		
41	Orbital (Optics) Radial Tester	length	V.R.of Vertical Metal Tank Diametrical Deviation Measuring Instrument JJG988	(0~200)mm	$U=2.5\text{ }\mu\text{m}$		
42	*Electronic Comparator	Length	C.S.for Inductive Micrometers JJF1331	(0~3) μm	$U=0.03\text{ }\mu\text{m}$		
				(3~300) μm	$U=2\text{ }\mu\text{m}$		
43	*Digital Inductance Comparator	Length	C.S.for Inductive Micrometers JJF1331	(0~10) μm	$U=0.02\text{ }\mu\text{m}$		
				(10~100) μm	$U=0.3\text{ }\mu\text{m}$		
				(100~1000) μm	$U=2\text{ }\mu\text{m}$		
44	*Ultrasonic Thickness Gauge	Length	C.S.for Ultrasonic Thickness Instruments JJF1126	(0~200)mm	$U=0.02\text{mm}$		
45	*Magnetic and Eddy Current Measuring	Length	V.R.of Magnetic and Eddy Current Measuring Instrument for Coating	$H:(0\sim 10)\text{mm}$	$U=0.3\text{ }\mu\text{m}+6.1\times 10^{-3}H$		
				Thickness sheet $H:(0\sim 50)\text{ }\mu\text{m}$	$U=0.2\text{ }\mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Instrument for Coating Thickness		Thickness JJG818	Thickness sheet H : (0.05~10) mm	$U_{rel}=0.3\%$		
46	*Magnetic Measuring Instrument for Coating Thickness (Coating Thickness Tester)	Length	V.R. of Magnetic and Eddy Current Measuring Instrument for Coating Thickness JJG818	(0~1250) μm	$U=0.25 \mu m+3 \times 10^{-3}H$		
				(1.250~10)mm	$U=0.4 \mu m+6.1 \times 10^{-3}H$		
47	*Three Coordinate Measuring Machine	Length	C.S. for Coordinate Measuring Machines JJF1064	(0~100)mm	$U=0.5 \mu m$		
				(100~250)mm	$U=0.3 \mu m+3 \times 10^{-6}L$		
				(250~1000)mm	$U=0.3 \mu m+3 \times 10^{-6}L$		
				(1~6)m	$U=0.5 \mu m+1.5 \times 10^{-6}L$		
		Probe error		25mm	$U=0.3 \mu m$		
48	Roughness Comparison Specimens	Roughness	C.S. for Roughness Comparison Specimens JJF1099	R_a : (0.012~100) μm	$U_{rel}=5.8\%$		
49	*Instrument for the Measurement of Surface Roughness	Roughness	C.S. for Contact (Stylus) Instruments of Surface Roughness Measurement by the Profile Method JJF1105	R_a : (0.09~0.13) μm	$U_{rel}=6.0\%$		
				R_a : (0.18~0.25) μm	$U_{rel}=5.0\%$		
				R_a : (0.35~0.50) μm	$U_{rel}=4.0\%$		
				R_a : (0.70~15) μm	$U_{rel}=2.5\%$		
50	*Profile Measuring Instrument	Length	C.M. of Profile Measuring Instrument FFC0103	(0~50)mm	$U=1.1 \mu m$		
51	*Swing Tester	Length	C.S for Concentricity Testers JJF1109	(0~500)mm	$U=1.3 \mu m$		



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52	*Roundness Measuring Instrument	Roundness	V.R.for Measurement Standard Instrument of Roundness and Cylindricity JJG429	(0.4~12) μm	$U_{\text{rel}}=3.6\%$		
53	*Digital Display Height Measuring Instrument	Length	C.S.for Height Measuring Instrument with Digital Display JJF1254	(0~600)mm	$U=1.0 \mu\text{m}$		
				(600~1000)mm	$U=1.4 \mu\text{m}$		
54	*Three-Coordinates Lineation Tester	Length	C.S. for Measuring System of Coordinate Position JJF1251	(0~6)m	$U=10 \mu\text{m}+2 \times 10^{-6}L$		
55	*Elongation Tester	Length	V.R. of Elongation Tester JJG(Guangdong)005	(0.1~500)mm	$U_{\text{rel}}=0.3\%$		
56	*Dynamometer for Measuring instrument	Force	C.S.for Working Force Measuring Machines for Special Purposes JJF1134	(0.1~15)N	$U=0.07\%FS$		
57	*Tester for Dial Indicator Gauge	Length	V.R.of Tester for Dial Indicator Gauges JJG201	(0~1)mm	$U=0.3 \mu\text{m}$		
				(1~100)mm	$U=0.4 \mu\text{m}$		
58	*Radial Bias Tester	Length	V.R.of Vertical Metal Tank Diametrical Deviation Measuring Instrument JJG988	(0~10)mm (Run-out)	$U=0.03\text{mm}$		
59	*Displacement Transducer	Length	C.S.for Displacement Transducer JJF1305	(-5~5)m	$U=0.8 \mu\text{m}+3.5 \times 10^{-6}L$		
60	*Laser Diameter Tester	Length	C.S. for Laser Diameter Measuring Gauges JJF1250	(0~30)mm	$U=0.26 \mu\text{m}$		
61	*Steel Tape	Length	V.R.of Steel Tape JJG4	(0~200)m	$U=0.05\text{mm}+1.5 \times 10^{-5}L$		
62	Standard Steel Tape	Length	V.R.of Standard Steel Tape JJG741	(0~50)m	$U=2 \mu\text{m}+2.5 \times 10^{-6}L$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
63	*Depth Steel Tape	Length	V.R.of Steel Tape JJG4	(0~200)m	$U=0.05\text{mm}+1.5\times 10^{-5}L$		
64	*Steel Rule	Length	V.R.of Steel Rule JJG1	(0~1000)mm	$U=0.05\text{mm}$		
				(>1000~2000)mm	$U=0.07\text{mm}$		
65	*Level Rod	Length	V.R.of Level Rod JJG8	(0~3)m Invar	$U=0.003\text{mm}$		
				(0~5)m Substandard	$U=0.9\text{mm}$		
66	*Grating Rule	Length	V.R.of Grating Liner JJG341	(0~3)m	$U=0.8\text{ }\mu\text{m}+3.5\times 10^{-6}L$		
67	Glass Line Measuring Instruments	Length	V.R.of High - precision Line Scale JJG73	(0~1000)mm	$U=0.75\text{ }\mu\text{m}+1.4\times 10^{-6}L$		
68	*Fiber Tapes and Measuring Ropes	Length	V.R.of Fiber Tapes and Measuring Ropes JJG5	(0~200)m	$U=0.4\text{mm}+10^{-4}L$		
69	Metallic Scale (Grade III)	Length	V.R.of Standard Metallic Scale (Grade III) JJG71	(0~1)m	$U=8\text{ }\mu\text{m}$		
70	Casing Coupling Meter	Length	V.R.of Casing Coupling Meter JJG473	(0.6~4.5)m	$U=0.03\text{mm}+7\times 10^{-5}L$		
71	Edge Tester	Test Force	C.M. for Edge Tester FFC0106	(4.45~8.90)N	$U=0.05\text{N}$		
		Roughness		Ra(0~0.4) μm	$U=0.05\text{ }\mu\text{m}$		
		Rotation speed		(0~40)mm/s	$U=0.3\text{mm/s}$		
		Hardness		(20~65)HR	$U=1.0\text{HR}$		
		Diameter		(5~25)mm	$U=0.005\text{mm}$		
72	*Metallic Sieve	Dimension of Sieve	C.S.for Test Sieves JJF1175	(0.02~4)mm	$U=5\text{ }\mu\text{m}$		
				(4~125)mm	$U=0.03\text{mm}$		



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73	Gauge for Plug Pins	Length	C.M. of standardized apparatus for Safety testing FFC0105	(0~150)mm	$U=1.5 \mu m$		
		Angle		$0^\circ \sim 180^\circ$	$U=3'$		
		Mass		(0~1000)g	$U=0.2g$		
74	*Force Lever	Length	V.R.of Calibration Instrument for Torque Wrenches JJG797	(50~1000)mm	$U=0.003mm+9 \times 10^{-5}L$		
				(1000~3000)mm	$U=0.017mm+5 \times 10^{-6}L$		
75	Small Components	Length	C.M. of Testers for Small Components FFC0002	(0~100)mm	$U=0.006mm$		
76	Bite Tester	Length	C.M. of standardized apparatus of safety for toys FFC0005	(0~200)mm	$U=0.02mm$		
		Angle		$0^\circ \sim 60^\circ$	$U=5'$		
77	Rattle Test Template	Length	C.M. of Rattle Test Fixture FFC0004	(0~100)mm	$U=5 \mu m$		
				(100~200)mm	$U=9 \mu m$		
78	Sharp Point Tester	Length	C.M. of Sharp Point Tester FFC9812	(0~10)mm	$U=5 \mu m$		
		Mass		(0.01~500)g	$U=0.2g$		
		Force Value		(0.1~10)N	$U=0.05N$		
79	Articulated Accessibility Probe	Length	C.M. for Articulated Accessibility Probe FFC0003	(0~105)mm	$U=5 \mu m$		
				(>105~500)mm	$U=0.10mm$		
80	Standard Ring Gauge	Length	V.R.of Standard Ring Gauge JJG894	$D:(1 \sim 200)mm$	$U=0.7 \mu m+6 \times 10^{-6}D$		
81	Smooth Limit Gauge	Length	V.R.of Smooth Limit Gauge JJG343	Plug Gauge $D:(1 \sim 500)mm$	$U=0.4 \mu m+5 \times 10^{-6}D$		
				Ring Gauge $D:(1 \sim 14)mm$	$U=1.0 \mu m$		



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				Ring Gauge <i>D</i> :(>14~260)mm	<i>U</i> =0.7 μ m+6×10 ⁻⁶ <i>D</i>		
				Caliper Gauge <i>D</i> :(1~14)mm	<i>U</i> =1.2 μ m		
				Caliper Gauge <i>D</i> :(>14~200)mm	<i>U</i> =0.8 μ m+6×10 ⁻⁶ <i>D</i>		
82	Cylindrical Thread Gauges	Length	C.S.for Cylindrical Thread Gauges JJF1345	Ring Gauge:(1~5)mm	<i>U</i> =4.0 μ m		
				Ring Gauge:(>5~500)mm	<i>U</i> =2.2 μ m +4×10 ⁻⁶ <i>L</i>		
				Plug Gauge:(1~500)mm	<i>U</i> =2.0 μ m+4×10 ⁻⁶ <i>L</i>		
83	Radius Gauge	Length	V.R.of Radius Gauges JJG58	<i>R</i> :(1~25)mm	<i>U</i> =6 μ m		
84	Screw Thread Gauge	Length	V.R.of Screw Templates JJG60	<i>P</i> :(0.40~6.350)mm	<i>U</i> =2.3 μ m		
85	Cylindrical Measuring Pin	Length	C.S.for Cylindrical Measuring Pin JJF1207	Φ (0.118~25)mm	<i>U</i> =0.2 μ m		
86	*Moulds	Length	C.S.for Moulds JJF1307	(40~70)mm	<i>U</i> =0.03mm		
				(>70~300)mm	<i>U</i> =0.06mm		
				(>300~600)mm	<i>U</i> =0.09mm		
		Verticality		<i>H</i> :(40~600)mm	<i>U</i> =0.1mm		
87	Single Graduation Sample and Multi-form Graduation Sample	Length	C.M. of Graduation Sample FFC9903	Single Cut Line Pattern <i>H</i> :(0.09~51) μ m	<i>U</i> =0.01 μ m+3×10 ⁻² <i>H</i>		
		Roughness		Multi-Line Pattern <i>R</i> _a :(0.09~0.1) μ m	<i>U</i> _{rel} =5.2%		
				Multi-Line Pattern <i>R</i> _a :(>0.1~2.0) μ m	<i>U</i> _{rel} =3.6%		



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				Multi-Line PatternRa:(>2.0~10.0) μ m	$U_{rel}=3.4\%$		
88	Depth Gauge Tester	Length	C.M. of master for length FFC9802	(10~300)mm	$U=0.7 \mu m$		
89	Internal Micrometer Tester	Length	C.M. of master for length FFC9802	(20~300)mm	$U=1.1 \mu m$		
90	Feeler Gauge	Length	V.R.of Feeler Gauge JJG62	d :(0.02~3.00)mm	$U=1 \mu m$		
91	*Current Calipers	Length	V.R.of Current Calipers JJG30	(0~600)mm	$U=0.002mm+2.5 \times 10^{-5}L$		
				(>600~2000)mm	$U=0.014mm+1.3 \times 10^{-5}L$		
92	*Micrometer	Length	V.R.of Micrometer JJG21	Outside Micrometer:(0~ 500)mm	$U=0.6 \mu m+4.0 \times 10^{-6}L$		
				Plate Thickness and Wall Thickness Micrometers:(0~25)mm	$U=1.1 \mu m$		
				Calibrating Rod:(25~ 475)mm	$U=0.31 \mu m+4.8 \times 10^{-6}L$		
93	*Micrometers for Measuring Inside Dimension	Length	C.S. for Micrometers for Measuring Inside Dimension JJF1411	Inside Micrometer:(5~ 50)mm	$U=2 \mu m$		
				Inside Micrometer:(50~ 125)mm	$U=3 \mu m$		
				Inside Micrometer:(125~ 200)mm	$U=4 \mu m$		
				Three Point Inside Micrometer:(6~100)mm	$U=2 \mu m$		
				Three Point Inside Micrometer:(100~ 200)mm	$U=3 \mu m$		



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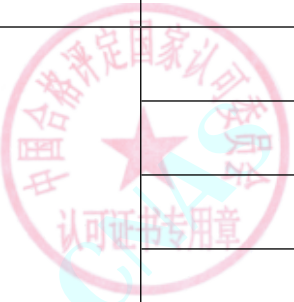
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Three Point Inside Micrometer:(200~ 300)mm	$U=4\text{ }\mu\text{m}$		
94	*Micrometers with Dial Comparator and Indication Snap Gauge	Length	V.R.of Micrometers with Dial Comparator and Indication Snap Gauge JJG26	Micrometers with Dial Comparator :(0~50)mm	$U=0.6\text{ }\mu\text{m}$		
				Micrometers with Dial Comparator:(50~75)mm	$U=0.7\text{ }\mu\text{m}$		
				Micrometers with Dial Comparator:(75~ 100)mm	$U=0.8\text{ }\mu\text{m}$		
				Micrometers with Indication Snap Gauge: (0~200)mm	$U=0.2\text{ }\mu\text{m}$		
95	*Dial Micro- meters	Length	V.R.of Micrometers with Gauge JJG427	(0~100)mm	$U=1.1\text{ }\mu\text{m}$		
96	*Depth Micrometer	Length	V.R.of Depth Micrometers JJG24	(0~300)mm	$U=1.6\text{ }\mu\text{m}+6.6\times 10^{-6}L$		
				Calibrated Rod:(25~ 275)mm	$U=0.25\text{ }\mu\text{m}+5.4\times 10^{-6}L$		
97	*Dial Gauges	Length	V.R.of Dial Gauges JJG34	Graduation Value0.001mm:(0~ 5)mm	$U=1.2\text{ }\mu\text{m}\sim 3.5\text{ }\mu\text{m}$		
				Graduation Value0.002mm:(0~ 10)mm	$U=1.2\text{ }\mu\text{m}\sim 3.5\text{ }\mu\text{m}$		
				Graduation Value0.01mm:(0~ 100)mm	$U=3\text{ }\mu\text{m}\sim 12\text{ }\mu\text{m}$		
				Graduation Value0.1mm:(0~ 100)mm	$U=0.01\text{mm}\sim 0.03\text{mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Resolution 0.001 mm: (0~30) mm	$U=2 \mu m$		
				Resolution 0.01 mm: (0~100) mm	$U=0.01 mm$		
98	Internal Micrometer	Length	V.R. of Internal Micrometer JJG22	(50~2000) mm	$U=0.8 \mu m + 4.3 \times 10^{-6} L$		
99	*Microcator	Length	V.R. of Microcator JJG118	Graduation Value 0.1 μm : (-10~+10) μm	$U=0.03 \mu m$		
				Graduation Value 0.2 μm : (-20~+20) μm	$U=0.04 \mu m$		
				Graduation Value 0.5 μm : (-50~+50) μm	$U=0.06 \mu m$		
				Graduation Value 1 μm : (-100~+100) μm	$U=0.2 \mu m$		
				Graduation Value 2 μm : (-120~+120) μm	$U=0.3 \mu m$		
				Graduation Value 5 μm : (-150~+150) μm	$U=0.5 \mu m$		
				Graduation Value 10 μm : (-300~+300) μm	$U=1 \mu m$		
100	*Comparator of Machinery Type	Length	V.R. of Comparators of Machine Type JJG39	Graduation Value 0.5 μm : (-50~+50) μm	$U=0.1 \mu m$		
				Graduation Value 1 μm : (-100~+100) μm	$U=0.3 \mu m$		
				Graduation Value 2 μm : (-200~+200) μm	$U=0.4 \mu m$		
				Graduation Value 5 μm : (-500~+500) μm	$U=0.8 \mu m$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Graduation Value $10\text{ }\mu\text{m}$: (-1~+1)mm	$U=2\text{ }\mu\text{m}$		
101	*Height Gauge	Length	V.R. of Height Gauge JJG31	(0~1000)mm	$U=0.002\text{mm} + 2.3 \times 10^{-5}L$		
				(>1000~1500)mm	$U=0.05\text{mm}$		
				(>1500~2000)mm	$U=0.07\text{mm}$		
102	*Wide Range Digital-Indicator Gauge	Length	C.M. for Digital Display Indicator FFC9907	(0~100)mm	$U=1\text{ }\mu\text{m} \sim 2\text{ }\mu\text{m}$		
103	*Thickness Gauge	Length	C.S. for Thickness Gauges JJF1255	Graduation Value 0.001mm : (0~1)mm	$U=1.0\text{ }\mu\text{m}$		
				Graduation Value 0.002mm : (0~10)mm	$U=1.2\text{ }\mu\text{m}$		
				Graduation Value 0.01mm : (0~30)mm	$U=2\text{ }\mu\text{m}$		
				Graduation Value 0.1mm : (0~30)mm	$U=0.01\text{mm}$		
				Resolution 0.001mm : (0~30)mm	$U=1\text{ }\mu\text{m} \sim 2\text{ }\mu\text{m}$		
				Resolution 0.01mm : (0~30)mm	$U=0.01\text{mm}$		
104	*Common Normal Micrometer	Length	V.R. of Common Normal Micrometer JJG82	(0~100)mm	$U=0.9\text{ }\mu\text{m} + 8.0 \times 10^{-6}L$		
				(>100~200)mm	$U=1.0\text{ }\mu\text{m} + 6.4 \times 10^{-6}L$		
				Calibrated Rod: (25~175)mm	$U=0.4\text{ }\mu\text{m} + 4.3 \times 10^{-6}L$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
105	*Dial Test Indicator	Length	V.R. of Dial Test Indicator JJG35	Graduation Value 0.001mm/0.002mm: (0~0.4)mm	$U=1.2 \mu\text{m}$		
				Graduation Value 0.01mm:(0~1)mm	$U=5 \mu\text{m}$		
				Resolution 0.001mm/0.002mm: (0~0.4)mm	$U=2 \mu\text{m}$		
				Resolution 0.01mm:(0~1)mm	$U=10 \mu\text{m}$		
106	*Bore Dial Indicator	Length	C.S. for Bore Dial Indicators JJF1102	Graduation Value 0.001mm:(2~450)mm	$U=1.4 \mu\text{m}$		
				Graduation Value 0.01mm:(2~450)mm	$U=4 \mu\text{m}$		
107	*Depth Dial Gauge in 0.01 mm	Length	V.R. of Depth Dial Gauge in 0.01 mm JJG830	Graduation Value 0.01mm:(0~100)mm	$U=5 \mu\text{m} \sim 9 \mu\text{m}$		
				Graduation Value 0.001mm:(0~30)mm	$U=2 \mu\text{m} \sim 4 \mu\text{m}$		
				Resolution 0.01mm:(0~100)mm	$U=10 \mu\text{m}$		
				Resolution 0.001mm:(0~50)mm	$U=1 \mu\text{m} \sim 3 \mu\text{m}$		
108	*Welding Measuring Rulers	Length	V.R. of Calipers for Welding Inspection JJG704	(0~60)mm	$U=0.05\text{mm}$		
		Angle		(30~150)°	$U=12'$		
109	*Test Finger	Length	C.M. of standardized apparatus for Safety testing	(0.1~300)mm	$U=0.03\text{mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			FFC0105	$R:(0.1\sim 30)\text{mm}$	$U=0.03\text{mm}$		
				$\phi(0.1\sim 200)\text{mm}$	$U=8\text{ }\mu\text{m}$		
		Angle		$(0\sim 100)^\circ$	$U=3'$		
		Force Value		$(1\sim 100)\text{N}$	$U=0.05\text{N}$		
110	Test Pin	Length	C.M. of standardized apparatus for Safety testing FFC0105	$(0.1\sim 20)\text{mm}$	$U=7\text{ }\mu\text{m}$		
				$\phi(0.1\sim 50)\text{mm}$	$U=7\text{ }\mu\text{m}$		
111	*Test Probe	Length	C.M. of standardized apparatus for Safety testing FFC0105	$(0.1\sim 150)\text{mm}$	$U=7\text{ }\mu\text{m}$		
				$\phi(0.1\sim 100)\text{mm}$	$U=7\text{ }\mu\text{m}$		
112	Test Block of Ultrasonic Flaw Detector	Dimension	V.R. of Blocks used in Ultrasonic Testing JJF1487	$(0\sim 500)\text{mm}$	$U=2\text{ }\mu\text{m}$		
				$R:(0.5\sim 150)\text{mm}$	$U=5\text{ }\mu\text{m}$		
		Angle		$(0\sim 180)^\circ$	$U=3'$		
113	Single Phase Plug and Socket-outlet	Length	C.M. of standardized apparatus for Safety testing FFC0105	$(0\sim 50)\text{mm}$	$U=1.5\text{ }\mu\text{m}$		
		Angle		$(0.1\sim 120)^\circ$	$U=3'$		
114	Lampholder Gauge	Length	C.M. of lampholder gauge FFC0501	$(0.02\sim 100)\text{mm}$	$U=1.5\text{ }\mu\text{m}$		
				$(0.1\sim 120)^\circ$	$U=3'$		
		Mass		$(0.01\sim 1000)\text{g}$	$U=0.2\text{g}$		
115	*Pneumatic Measuring Instruments for Micrometers	Length	V.R. of Pneumatic Measuring Instruments for Micrometers JJG356	Buoy Type/Graduation Value $1\text{ }\mu\text{m}:(-15\sim +15)\text{ }\mu\text{m}$	$U=0.4\text{ }\mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Electronic Column/Graduation Value1 μm :(-25 $\sim$ +25) μm	$U=0.4 \mu\text{m}$		
116	*Wedge-Shape Filler Gauges	Length	C.S.for Wedge-Shape Filler Gauges JJF1548	I Type:(0 $\sim$ 60)mm	$U=11 \mu\text{m}$		
				II Type:(0 $\sim$ 15)mm	$U=11 \mu\text{m}$		
				Digital Display:(0 $\sim$ 40)mm	$U=10 \mu\text{m}$		
117	Plumb Instruments	Angle	C.S. of Plumb Instruments JJF1081	(0 $\sim$ 200)"	$U=0.4''$		
118	Pressure Head	Length	C.M. of standardized apparatus of safety for toys FFC0005	(0 $\sim$ 50)mm	$U=0.05\text{mm}$		
119	Tester of sphere press	Length	C.M. of standardized apparatus for Safety testing FFC0105	(1 $\sim$ 5)mm	$U=0.03\text{mm}$		
		Mass		(0.1 $\sim$ 5)kg	$U=0.2\text{g}$		
120	Tester of nursing bottle	Length	C.M. of standardized apparatus of safety for toys FFC0005	(0 $\sim$ 150)mm	$U=10 \mu\text{m}$		
		Angle		(1 $\sim$ 45) $^{\circ}$	$U=2'$		
121	Flex tester	Length	C.M. of standardized apparatus of safety for toys FFC0005	(0 $\sim$ 20)mm	$U=8 \mu\text{m}$		
				R :(0.1 $\sim$ 20)mm	$U=0.03\text{mm}$		
		Angle		(59 $\sim$ 61) $^{\circ}$	$U=3'$		
122	Burner	Length	C.M. of standardized apparatus of safety for toys FFC0005	(0.1 $\sim$ 100)mm	$U=1.5 \mu\text{m}$		
		Angle		(0 $\sim$ 90) $^{\circ}$	$U=5'$		
123	Scraper thickness gauge	Length	C.M. of standardized apparatus for film thickness	(0 $\sim$ 10)mm	$U=5 \mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Angle for blade	of coatings FFC0605	$(0.1 \sim 150)^\circ$	$U=3'$		
124	*Metal tester	Length	C.M. of standardized apparatus for Safety testing FFC0105	$(0 \sim 500)\text{mm}$	$U=3\text{mm}$		
125	*GPS receiver	Length	V.R. of GNSS Receivers (Geodetic or Navigational Type) JJG1200	Geodesic Type $D:4\text{m} \sim 36\text{km}$	$U=2.1\text{mm}+4 \times 10^{-9}D(\text{Static})$		
				Geodesic Type $D:4\text{m} \sim 36\text{km}$	$U=3.5\text{mm}+4 \times 10^{-9}D(\text{Dynamic})$		
				Navigation Type $D:4\text{m} \sim 36\text{km}$	$U=0.18\text{m}$		
126	*Screw thread micrometer	Length	V.R. of Screw thread micrometer JJG25	$(0 \sim 100)\text{mm}$	$U=1.9 \mu\text{m}+8.0 \times 10^{-6}L$		
				$(100 \sim 200)\text{mm}$	$U=3.1 \mu\text{m}+3.2 \times 10^{-6}L$		
				Micrometer head: $(0 \sim 200)\text{mm}$	$U=0.7 \mu\text{m}+6.4 \times 10^{-6}L$		
				Calibrated Rod: $(25 \sim 175)\text{mm}$	$U=0.94 \mu\text{m}+4.9 \times 10^{-6}L$		
127	*Gear tooth caliper	Length	C.S. for Gear tooth caliper JJF1072	Modulus: $(1 \sim 50)\text{mm}$	$U=0.01\text{mm}$		
128	*Micrometer with brismatically arranged measuring faces	Length	V.R. of Micrometer with brismatically arranged measuring faces JJG182	$(1 \sim 35)\text{mm}$	$U=1.3 \mu\text{m}$		
				$(35 \sim 80)\text{mm}$	$U=1.4 \mu\text{m}$		
				Calibrating Gauge: $(5 \sim 65)\text{mm}$	$U=0.8 \mu\text{m}$		
129	*Gear involute measuring instruments	Length	C.S. for Gear involute measuring instruments JJF1124	$r_b: (24 \sim 105)\text{mm}$	$U=2.0 \mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
130	*Dual-Flank Meshing Measuring Instrument	Length	C.S.for Gear Dual-flank Meshing Measuring Instrument JJF1233	$m:(0.6\sim 1.0)\text{mm}; d:(38\sim 51.6)\text{mm}$	$U=2.8\text{ }\mu\text{m}$		
131	*Tire Tread Depth Gauges	Length	C.S.for Tire Tread Depth Gauges JJF1477	$(0\sim 50)\text{mm}$	$U=0.01\text{mm}$		
132	Scraper	Length	C.M. of standardized apparatus for film thickness of coatings FFC0605	Knife Spacing: $(1\sim 5)\text{mm}$	$U=3\text{ }\mu\text{m}$		
		Angle		$(20\sim 40)^{\circ}$	$U=3'$		
133	*Microscope for metallography	Magnification	C.S.for Metallurgical Microscopes JJF1914	Objective: $(0.6\sim 100)\text{X}$	$U_{\text{rel}}=0.8\%$		
		Length		$(0.01\sim 10)\text{mm}$	$U_{\text{rel}}=0.8\%+0.5\text{ }\mu\text{m}$		
134	Angle tester	Angle	C.M. for angle tester FFC0803	$(0\sim 360)^{\circ}$	$U=6'$		
135	*Box plate	Parallelism	V.R.of box plate JJG194	Side Long: $(100\sim 400)\text{mm}$	$U=2\text{ }\mu\text{m}$		
		Perpendicularity		$H:(100\sim 400)\text{mm}$	$U=2\text{ }\mu\text{m}$		
136	*Impact floor	Length	C.M. of standardized apparatus of safety for toys FFC0005	$(0\sim 100)\text{mm}$	$U=0.04\text{mm}$		
				$(>100\sim 610)\text{mm}$	$U=0.3\text{mm}$		
		Area		$(0\sim 1)\text{m}^2$	$U=0.5\text{cm}^2$		
		Hardness		$(0\sim 100)\text{HA}$	$U=2.4\text{HA}$		
137	*Tilt meter	Angle	C.S.for Borehole Clinometers JJF1550	$(-30\sim +30)^{\circ}$	$U=0.008\%\text{FS}$		
138	Burn testing instrument	Length	C.M. of standardized apparatus of safety for toys FFC0005	$(0\sim 400)\text{mm}$	$U=0.05\text{mm}$		
		Angle		$(0.1\sim 90)^{\circ}$	$U=13'$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
139	Triangle plate	Length	C.M. for triangle plate FFC0806	(0~200)mm	$U=0.05\text{mm}$		
		Angle		(0~180)°	$U=0.2^\circ$		
140	Annular Sword	Length	C.M. of Annular Sword FFC0901	(0.01~100)mm	$U=0.02\text{mm}$		
		Angle		(10~20)°	$U=8'$		
141	*Cable length meter	Length	V.R. of Cable length meter JJG987	(0.1~15)m	$U_{\text{rel}}=0.07\%$ (Offline Method)		
				(15~100)m	$U_{\text{rel}}=0.05\%$ (Offline Method)		
142	*Electrolytic(Coulometric)Coating Thickness Instruments	Thickness	C.S. for Electrolytic(Coulometric)Coating Thickness Instruments JJF1707	(0.48~13.2) μm	$U_{\text{rel}}=5\%$		
143	*X-ray Fluorescence Thickness Instruments	Thickness	C.S. for X-Ray Fluorescence Thickness Instruments JJF1306	(0~50) μm	$U=0.001 \mu\text{m}+6.2 \times 10^{-2}L$		
				Standard Foils:(0.01~50) μm	$U=0.001 \mu\text{m}+6.6 \times 10^{-2}L$		
144	*Tool presetting instrument	Length	V.R. of Tool presetting instrument JJG938	(0~1000)mm	$U=1.6 \mu\text{m}$		
145	*Large Dimension Outside Micrometers	Length	C.S. for Large Dimension Outside Micrometers JJF1088	(500~600)mm	$U=0.8 \mu\text{m} + 7.8 \times 10^{-6}L$		
				(600~1500)mm	$U=2.1 \mu\text{m}+5.0 \times 10^{-6}L$		
				Micrometer Head:(0~50)mm	$U=1.1 \mu\text{m}$		
				Calibrating Rod:(525~975)mm	$U=0.13 \mu\text{m}+5.4 \times 10^{-6}L$		
				Calibrating Rod:(1000~2000)mm	$U=1.7 \mu\text{m}+3.3 \times 10^{-6}L$		
146	*Grating Micrometer	Length	C.S. for Grating Micrometers JJF1682	0.2 μm Class:(0~25)mm	$U=0.10 \mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				0.5 μ m Class:(0~50)mm	$U=0.20 \mu$ m		
				1 μ m Class~10 μ m Class:(0~100)mm	$U=0.5 \mu$ m		
147	*Calibrator of Extensometer	Length	C.S. for Calibrator of Extensometers JJF1096	(0~0.3)mm (>0.3~50)mm	$U=0.10 \mu$ m $U_{rel}=0.04\%$		
148	Photoelectric Shaft Encoders	Angle	C.S. for Photoelectric Shaft Encoders JJF1115	(0~360) $^{\circ}$	$U=2''$		
149	*Level Verification System	Angle	V.R. of Level Verification System JJG960	$i:(-30\sim+30)''$	$U=0.4''$		
150	*GNSS Vehicle Travelling Data Recorders	Length	C.S. for GNSS Vehicle Travelling Data Recorders JJF1921	(0~9999999)m	$U=7.2$ m		
		Speed		(0~3600) m/s	$U=0.06$ m/s		
151	Laser alignment	Length	C.M. of Laser alignment FFC1001	(-20~+20)mm	$U=8 \mu$ m		
				(-360~+360) $^{\circ}$	$U=0.2^{\circ}$		
152	Laser tunnel section tester	Distance	C.M. of Laser tunnel section tester FFC1003	(0~30)m	$U=0.5\text{mm}+5\times 10^{-6}D$		
		Angle		-360 $^{\circ}$ ~360 $^{\circ}$	$U=10''$		
153	*Laser height tester	Length	V.R. of Laser Rangefinder and Altimeter JJG(Guangdong)012	Distance:(0~1200)m Height:(0~30)m	$U=0.01\text{m}+2\times 10^{-5}D$ $U=5.5\text{cm}$		
154	*Magnetic drop line	Length	C.M. of Magnetic drop line FFC1005	(0~10)m	$U=0.2\text{mm}$		
		Mass		(0.1~1000)g	$U=0.3\text{g}$		
155	*Step Gauge	Length	C.S. for Step Gauge JJF(ji)154	(-50~+50)mm	$U=0.01\text{mm}$		



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156	*Dial Snap Gauges	Length	C.S.for Dial Snap Gauges JJF1253	Span:(5~100)mm	$U=4.5 \mu\text{m}$		
157	*Rotating Lasers	Angle	C.S.for Rotating Lasers JJF1166	(0~60)°	$U=4.8''$		
158	3D Dial Gauges	Length	C.M. of 3D Dial Gauges FFC1201	(-4~+4)mm	$U=3 \mu\text{m}$		
159	Radian Apparatus	Length	C.M. of radian apparatus FFC1202	(-20~+20)D	$U=0.25D$		
160	Grinding Wheel	Angle	C.M. of Grinding Wheel FFC1203	0.1~120°	$U=1^\circ$		
		Length		(0~25)mm	$U=5 \mu\text{m}$		
161	Straight Cylindrical Involute Spline Gauges	Length	C.S.for Straight Cylindrical Involute Spline Gauges JJF1557	$d:(10\sim180)\text{mm}$	$U=2.1 \mu\text{m}(\text{Tooth Thickness})$		
				$d:(10\sim180)\text{mm}$	$U=2.1 \mu\text{m}(\text{Alveolar Width})$		
162	*Articulated arm coordinate measuring machine	Length	C.S.for Articulated Arm Coordinate Measuring Machine JJF1408	$R:(30\sim1500)\text{mm}$	$U=10 \mu\text{m}$		
163	π Pape	Length	C.S.for π Pape JJF1423	$D:9\text{mm}\sim16\text{m}$	$U=0.01\text{mm}+3 \times 10^{-6}D$		
164	Resolution target	Length	V.R.of Resolution Target JJG827	(0~50)mm	$U=1.0 \mu\text{m}$		
165	*Caliper	Length	C.M. of Caliper FFC1402	(0.2~2) m	$U=1.0\text{mm}$		
166	*Endoscopy Tester	Length	C.M. of Endoscopy Testers FFC1403	(0~320) μm	$U=5 \mu\text{m}$		
167	*Closed Circuit Television	Length	C.M. of Closed Circuit Television FFC1404	(0~100)m	$U=0.03\text{m}$		
		Angle		(-90~+90)°	$U=0.4^\circ$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
168	Laser Tester for Elevator Track Flatness	Length	C.M. of Laser Tester for Elevator Track Flatness FFC1405	(1~30)m	$U=0.01\text{mm}+5\times 10^{-5}L$		
169	Ball bar	Length	Calibration Specification for Ball-bar Indicators JJF1978	(0~5)mm	$U=0.25\text{ }\mu\text{m}$		
		Roundness		Standard Ball $D:(0\sim 15)\text{mm}$	$U=0.04\text{ }\mu\text{m}$		
170	*Bar Code Verifier	Length	V.R. of Bar Code Verifier JJG979	(0~10)mm	$U=1.2\text{ }\mu\text{m}$		
171	Taper Gauge	Angle	V.R. of Taper Gauge JJG177	Taper Angle: $(2\sim 40)^\circ$	$U=3''$		
172	*Measuring System of Coordinate Position	Length	C.S. for Measuring System of Coordinate Position JJF1251	(0~80)m	$U=0.4\text{ }\mu\text{m}+1.8\times 10^{-6}L$		
		Angle		$(0\sim 360)^\circ$	$U=1.5''$		
173	*Reinforced Concrete Covermeter and Floorslab Thickness Tester	Length	C.S. for Reinforced Concrete Covermeter and Floorslab Thickness Tester JJF1224	Reinforced Concrete Covermeter $H:(3.2\sim 200)\text{mm}$	$U=1\text{mm}$		
				Floorslab Thickness Tester $H:(20\sim 500)\text{mm}$	$U=1\text{mm}$		
174	*Copper layer Thickness Tester	Length	C.M. of Copper foil-Weighing Tester FFC1418	$(11.4\sim 97.3)\text{ }\mu\text{m}$	$U_{\text{rel}}=15\%$		
175	*Carbonation Depth Gauge and Test ruler	Length	C.S. for Carbonation Depth Gauge and Test ruler JJF1721	Carbonation Depth Gauge: $(0\sim 8)\text{mm}$	$U=0.08\text{mm}$		
				Test ruler: $(0\sim 70)\text{mm}$	$U=0.01\text{mm}$		
176	*Interferometer with Isoclinic Circle Fringe	Length	V.R. of Flatness Interferometer with Isoclinic Circle Fringe JJG661	$D:(0\sim 150)\text{mm}$	$U=0.009\text{ }\mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
177	*Flat Equal Thickness Interferometer	Length	C.S.for Flat Equal Thickness Interferometers JJF1100	$D:(0\sim 150)\text{mm}$	$U=0.007\ \mu\text{m}$		
178	Clinometers	Angle	C.S. for Clinometers JJF1915	Optical Clinometers($-120\sim+120$)° Digital Dipmeter:($0\sim 360$)°	$U=5''$ $U=0.007^\circ$		
179	*Scanning Electron Microscope	Length	C.S.for Scanning Electronic Microscopes (SEM) JJF1916	$L:50000\ \text{nm}$ $L:2000\ \text{nm}$ $L:1000\ \text{nm}$ $L:500\ \text{nm}$ $L:100\ \text{nm}$ $L:80\ \text{nm}$	$U=300.2\ \text{nm}$ $U=6.1\ \text{nm}$ $U=3.3\ \text{nm}$ $U=2.9\ \text{nm}$ $U=1.7\ \text{nm}$ $U=1.9\ \text{nm}$		
180	*Combined Type Angle Rules	Angle	C.S.for Combined Type Angle Rules JJF1132	$(0\sim 180)^\circ$	$U=3'$		
181	Coalpile-inventorying instrument	Length	C.M. for Coalpile-inventorying instrument FFC1408	$(0.01\sim 700)\text{m}$ $(0\sim 180)^\circ$	$U=0.01\text{m}$ $U=0.01^\circ$		
182	*Laser Pointer	Angle	C.M. of Laser Pointer FFC1410	$(-10\sim+10)\text{mm/m}$	$U=0.2\text{mm/m}$		
183	*Pipeline Detector	Length	C.M. of Pipeline Detector FFC1413	$(0\sim 10)\text{m}$	$U=5.8\text{cm}$		
184	Calibration Specification for Telescope Rangefinders	Length	C.S for Telescope Rangefinders JJF1704	Resolution $0.01\text{m}:(0\sim 1)\text{km}$ Resolution $0.1\text{m}:(0\sim 3)\text{km}$	$U=0.01\text{m}$ $U=0.1\text{m}$		



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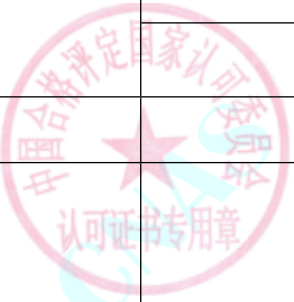
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
185	*Imaging Probe Measuring Machines	Length	C.S.for Imaging Probe Measuring Machines JJF1318	(0~1000)mm	$U=0.7 \mu m+2 \times 10^{-6}L$		
186	*Pulsed Laser Rangefinders	Length	C.S.for Pulsed Laser Rangefinders JJF1324	(0~3)km	$U=1m$		
187	Ultrasonic Ranger	Length	V.R. of Ultrasonic Ranger JJG928	(0~10)m	$U=0.01m$		
188	*Ultrasonic Sounder	Length	V.R. of Ultrasonic Sounder JJG(Water Conservancy)003	(0.1~200)m	$U_{rel}=0.08\%$		
189	*Theodolite Verification Devices	Angle	V.R. of Theodolite Verification Devices JJG949	(0~360)°	$U=0.04''$		
190	*Computer micrometer	Length	C.M. for Gage Blok Comparators JJF1304	(-100~+100) μm	$U=13nm$		
191	*Cable height meters	Length	C.M.for Cable height meters FFC1415	(1~23)m	$U=0.05m$		
192	*biological microscopes	Magnification	C.S.for Biological Microscopes JJF1402	Objective:(0.5~100)X	$U_{rel}=0.8\%$		
193	Coordinate Measuring Spheres	Length	C.S.for Coordinate Measuring Spheres JJF1422	$D:(10\sim 50)mm$	$U=0.3 \mu m(Diameter)$		
				$D:(10\sim 50)mm$	$U=0.04 \mu m(Roundness)$		
194	Ringelmann telesmoke	Length	C.M. for Ringelmann telesmoke FFC1416	0.1%~100%	$U=2.9\%$		
195	*Gap Tester(Gap Wedge)	Length	C.M. for Gap Tester(Gap Wedge) FFC1417	(0~25)mm	$U=5 \mu m$		
196	*Square Gauge	Perpendicularity	V.R.for Square Gauge JJG1046	$H:(100\sim 300)mm$	$U=0.5 \mu m$		
				$H:(>300\sim 630)mm$	$U=1.0 \mu m$		
197	*GPS Baseline	Length	C.S. for Baseline and Basenet JJF1214	Super Short Base LineD:(0.2~24)m	$U=0.4mm$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Short Base Line D : ($>24 \sim 2000$)mm	$U=1.2\text{mm}+0.6 \times 10^{-6}D$		
				Middle and Long Base Line D : ($>2 \sim 50$)km	$U=1.7\text{mm}+0.6 \times 10^{-6}D$		
198	*Gear Test Center	Length	C.S. for Gear Measuring Centers JJF1561	Tooth Profile: r_b : ($20 \sim 105$)mm	$U=2.0 \mu\text{m}$		
				Spiral: r_b : ($58.116 \sim 58.128$)mm; β : ($0 \sim 30$)°	$U=2.0 \mu\text{m}$		
				Pitch Deviation: m : ($0.6 \sim 1.0$)mm; d : ($38 \sim 51.6$)mm	$U=2.0 \mu\text{m}$		
199	Resolution Chart	Length	C.M. of Resolution Chart FFC1602	($0.2 \sim 5.0$)LP/mm	$U_{\text{rel}}=3.0\%$		
200	*Wet Film Thickness Gauges	Length	C.S. for Wet Film Thickness Gauges JJF1484	Comb Gauge: ($5 \sim 1000$) μm	$U=2 \mu\text{m}$		
				Comb Gauge: ($>1000 \sim 3000$) μm	$U=5 \mu\text{m}$		
				Wheel Gauge: ($0 \sim 125$) μm	$U=2 \mu\text{m}$		
				Wheel Gauge: ($>125 \sim 500$) μm	$U=3 \mu\text{m}$		
				Wheel Gauge: ($>500 \sim 1500$) μm	$U=5 \mu\text{m}$		
201	Evaluation Ruler	Length	C.M. of Evaluation Ruler FFC1604	($0 \sim 1000$)mm	$U=0.02\text{mm}$		
202	*Static Calibration Device for Portable Braking Performance Tester for Motor Vehicles	Angle	C.M. of Static Calibration Device for Portable Braking Performance Tester for Motor Vehicles FFC1605	($-120 \sim +120$)°	$U=0.03^\circ$		



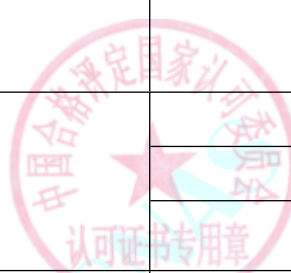
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
203	*Ground Penetrating Radar	Length	C.M.of Ground Penetrating Radar FFC1501	(0.1~3)m	$U_{rel}=10\%$		
204	*Tool Theodolites	Length	C.S.for Tool Theodolites JJF1349	(0~10)mm	$U=5.8 \mu m$		
205	*App-based Ride-hailing Mobile Satellite Position Terminal	Length	Test Method of Calculating Mileage and Time for App-based Ride-hailing Mobile Satellite Position Terminal (for trial implementation) JJF1578.2	(0.1~10000) km	$U_{rel}=0.3\%$		
206	*App-based Ride-hailing on-board Satellite Position Terminal	Length	Test Method of Calculating Mileage and Time for App-based Ride-hailing On-board Satellite Position Terminal (for Trial implementation) JJF1578.3	(0.1~10000) km	$U_{rel}=0.3\%$		
207	*App-based Ride-hailing Operation Service Platform	Length	Validation Method of Calculating Mileage and Time for App-based Ride-hailing Operation Service Platform (for trial implementation) JJF1578.1	(0.1~10000) km	$U_{rel}=0.3\%$		
208	Gyrotheodolites	Angle	C.S.for Gyrotheodolites JJF1350	(0~360)°	$U=1.8''$		
209	Invar Bar-coded Levelling Staffs	length	V.R.of Invar Bar-coded Levelling Staffs JJG(Guangdong)037	(0~3)m	$U=0.004 mm$		
210	Laser Line Marker	Length	V.R.of Laser Line Marker JJG(Guangdong)038	(-5~+5)mm/5m	$U=0.2 mm/5m$		
211	*Terrestrial Laser Scanners	Length	C.S.for Terrestrial Laser Scanners JJF1406	(1~100)m	$U=0.7mm$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
212	Step gauges	Length	C.S.for Step Gauges JJF1258	(0~1000)mm	<i>U</i> =1.2 μ m+3.0×10 ⁻⁶ <i>L</i>		
213	T square	Length	C.M.of T square FFC1608	(0~1200)mm	<i>U</i> =0.08 mm		
		Angle		(89~91)°	<i>U</i> =3'		
214	*Surface Profile Gauge	Length	C.S.for Surface Profile Gauges JJF1476	(0~6.5)mm	<i>U</i> =1.6 μ m		
215	*Rubber and Plastic Film Gage	Length	C.S.for Rubber and Plastic Film Gage JJF1488	Graduation Value0.01mm:(0~30)mm	<i>U</i> =2 μ m		
				Graduation Value0.001mm:(0~1)mm	<i>U</i> =1.2 μ m		
				Graduation Value0.002mm:(0~12.7)mm	<i>U</i> =2.0 μ m		
				Resolution0.001mm:(0~30)mm	<i>U</i> =1 μ m~2 μ m		
				Resolution0.01mm:(0~30)mm	<i>U</i> =0.01mm		
216	Wooden rule(wooden folded rule)	Length	V.R.of Wooden Rule (Wooden Folded Rule) JJG2	(0~5)m	<i>U</i> =0.1 mm+0.8×10 ⁻⁴ <i>L</i>		
217	*Calibration Device of Travelling Data Recorder	Speed	Calibration device of travelling data recorder FFC1901	(5~300) km/h	<i>U</i> _{rel} =0.1%		
		Length		(1~10) km	<i>U</i> _{rel} =0.1%		
				(0.006~36)km	<i>U</i> =1.4m (Error of Positioning)		
218	*Optical 3D Measuring SystemsBased on	Length	Calibration Specification for Optical 3D Measuring SystemsBased on Structured	(15~2000) mm	<i>U</i> =6 μ m		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
	Structured Light Scanning		Light Scanning JJF1951	Φ 38mm	<i>U</i> =6 μ m(Detection Error)			
219	Standard Grid Plate	Length	V.R.of Standard Grid Plate JJG832	(0~200)mm	<i>U</i> =2.0 μ m			
220	Laser interferometer (wave length)	Wave length	V.R.of 633nm Frequency Stabilized Lasers JJG353	633nm	<i>U</i> _{rel} =1×10 ⁻⁹			
221	Laser micrometers	Length	C.S.for Laser Micrometers JJF1663	(0~± 3)mm	<i>U</i> =0.015%FS			
				(± 3~± 10)mm	<i>U</i> =0.005%FS			
222	Inhibition zone tester artifact	Length	C.M.forInhibition zone tester artifact FFC1903	<i>D</i> :(10~100)mm	<i>U</i> =0.008 mm			
		Acreage		(75~8000) mm ²	<i>U</i> _{rel} =0.02%			
223	Electrical casing gauge	Length	C.M.for Electrical casing gauge FFC1904	(0~100) mm	<i>U</i> =6 μ m			
224	Main shaft dynamic tester	Run-out	C.M.forMain shaft dynamic tester FFC1905	(0~200) μ m	<i>U</i> =0.34 μ m+3.01×10 ⁻² <i>L</i>			
225	*Measuring Contact Angle with Image Method	Angle	Calibration Specification for Instrument for Measuring Contact Angle with Image Method JJF(Su)219	(6~180)°	<i>U</i> =0.1°			
				Standard Film:(3~165)°	<i>U</i> =0.03°			
226	*Scanning probe microscopes	Length	C.S.for Scanning Probe Microscopes JJF1351	<i>Z</i> :(0~800)nm	<i>U</i> =4.0nm			
				<i>X, Y</i> :(0~72) μ m	<i>U</i> =10nm			
227	*Two-Dimensional Code Verifier	reflectance	C.M.for Two-Dimensional Code Verifier FFK1902	2%~90%	<i>U</i> =2%(Maximum Reflectance)			
				2%~90%	<i>U</i> =2%(Minimum Reflectance)			
		Uniformity		0.00~1.00	<i>U</i> =0.01(Grid Nonuniformity)			
				0.00~1.00	<i>U</i> =0.01(Axial Nonuniformity)			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				0.00~1.00	$U=0.01$ (Contrast Uniformity)		
228	*Gear Helix Measuring Instruments	Length	C.S.for Gear Helix Measuring Instruments JJF1122	$r_b(58.116\sim58.128)\text{mm};$ $\beta:(0\sim30)^\circ$	$U=2.0\text{ }\mu\text{m}$	Only for Measuring instrument with base circle radius of 30mm or less	
229	*Hall effect Thickness Gauge	Length	C.M.for Hall effect Thickness Gauge JJG(粤)034	$(0\sim10)\text{ mm}$	$U=3\text{ }\mu\text{m}+10^{-2}H$		
230	*Capacitive Digital Scales Unit	Length	C.S.for Capacitive Digital Scale Units JJF1280	$(0\sim300)\text{ mm}$	$U=5\text{ }\mu\text{m}$		
				$(>300\sim1000)\text{mm}$	$U=12\text{ }\mu\text{m}$		
				$(>1000\sim2000)\text{mm}$	$U=24\text{ }\mu\text{m}$		
231	Standard Ball Bars	Length	C.S.for Standard Ball Bars JJF1859	$(0\sim1000)\text{mm}$	$U=2\text{ }\mu\text{m}+3\times10^{-6}L$		
232	*Medical Micro-image Analyzers	Optical Density	C.S.for Medical Micro-image Analyzers JJF1819	$0.0\sim3.0$	$U=0.03$		
		Magnification		Objective Lens: $(0.5\sim1000)\times$	$U_{\text{rel}}=0.8\%$		
233	Industrial Measurement Total Stations	Angle	V.R.of Industrial Measurement Total Stations JJG1152	$(0\sim360)^\circ$	$U=0.1''$		
		Length		$(0\sim200)\text{m}$	$U=0.16\text{mm}$		
234	*Pointed-contact micrometer with conical tips	Length	C.M.for Pointed-contact micrometer with conical tips JJF(Zhejiang)1045	$(0\sim50)\text{ mm}$	$U=1.1\text{ }\mu\text{m}$		
				$(50\sim100)\text{mm}$	$U=1.4\text{ }\mu\text{m}$		
				$(100\sim200)\text{mm}$	$U=2.1\text{ }\mu\text{m}$		



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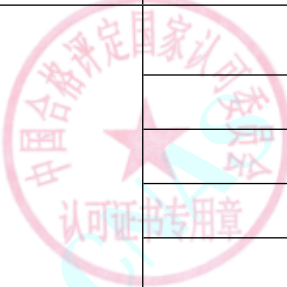
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date		
235	*Gear Tooth Micrometers	Length	V.R.for Gear Micrometers JJG(Yue)074	(0~300) mm	<i>U</i> =0.65 μ m +9.2×10 ⁻⁶ <i>L</i>				
236	Angular-Position Transducers/Sensor	angle	C.S.for Angular-Position Transducers/Sensors JJF1352	(0~360)°	<i>U</i> =0.08%FS				
237	10× Standard eyepiece	Length	C.S. for 10× Standard eyepieces FFC2201	(0~30)mm	<i>U</i> =1.5 μ m				
				Coaxiality:(0~30)mm	<i>U</i> =1.5 μ m				
238	GNSS Receivers Working at Navigation	Length	C.S.for GNSS Receivers Working at Navigation JJF1942	(0~36)km	<i>U</i> =0.2m				
				(36~200)km	<i>U</i> =0.3m				
				(200~1000)km	<i>U</i> =0.5m				
		Speed		(0~35)m/s	<i>U</i> =0.06m/s				
				(35~80)m/s	<i>U</i> =0.15m/s				
				(80~300)m/s	<i>U</i> =0.25m/s				
239	Calibrators for Gauge of Distance Between Inside Rim Faces of Wheels for Railway Locomotive and Vehicle	Length	V.R.of Calibrators for Gauge of Distance Between Inside Rim Faces of Wheels for Railway Locomotive and Vehicle JJG1159	Micrometer Head:(1345~1365)mm	<i>U</i> =1.1 μ m				
				Measuring Rod:(1345~1365)mm	<i>U</i> =19 μ m				
240	Laser Straightness and Flatness Testers	Length	C.S. for Laser Straightness and Flatness Testers FFC2117	(-50~50)mm	<i>U</i> =6 μ m				
		Angle		(0~360)°	<i>U</i> =0.04°				
		Straightness		(0~10)mm	<i>U</i> =0.016mm				

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Flatness		(0~10)mm	<i>U</i> =0.016mm		
		Perpendicularity		(0~10)mm/m	<i>U</i> =0.04mm/m		
241	*Thread Gauge Scanners	Length	C.S.for Thread Gauge Scanners JJF1950	(0~300)mm	<i>U</i> =0.6 μ m+6.0×10 ⁻⁶ <i>L</i> (Radial)		
		Angle		(29~60)°	<i>U</i> =0.06° (Lateral Angle of Teeth)		
242	Micropattern Standards	Length	C.S.for Micropattern Standards JJF1917	(0~100)mm	<i>U</i> =0.5 μ m+1.0×10 ⁻⁶ <i>L</i>		
		Angle		(0~360)°	<i>U</i> =4′		
243	*Digital Radius Testers	Length	C.S. for Digital Radius Testers FFC2116	Radius:(5~635)mm	<i>U</i> =0.02mm+1.2×10 ⁻⁴ <i>L</i>		
244	*Camshaft Measuring Instruments	Length	C.S. for Camshaft Measuring Instruments JJF1795	(0.5~100)mm	<i>U</i> =2.0 μ m		
245	*Optical Shaft Measuring Instrument	Length	C.S.for Optical Shaft Measuring Instrument JJF1933	Radial: φ (25~110)mm	<i>U</i> =0.8 μ m+4.4×10 ⁻⁶ <i>d</i>		
				Axial:(35~600)mm	<i>U</i> =1.6 μ m+5.8×10 ⁻⁶ <i>L</i>		
246	Water Level Gauge	Length	V.R.of Water Level Gauge JJG(JiaoTong)168	(0~200)m	<i>U</i> =0.4mm+1.0×10 ⁻⁴ <i>L</i>		
247	Material Measures of Length Measuring Instrument with Optical Principle	Flatness	C.S. for Material Measures of Length Measuring Instrument with Optical Principle JJF1941	Square Foot with Four Edges:(0~300)mm	<i>U</i> =0.06 μ m		
		Angle		Tetrahedron:90°	<i>U</i> =0.4″		
				Squares:90°	<i>U</i> =0.9″		
				Cone Mandrel:(2~30)°	<i>U</i> =2″		
		Length		Standard Mandrel <i>L</i> :(200~300)mm	<i>U</i> =0.4 μ m		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Cross Spindle: (100~200)mm	$U=2.0 \mu\text{m}$		
				Eccentric Mandrel: (20~30) μm	$U=0.8 \mu\text{m}$		
				Special Glass Scale: (0~400)mm	$U=2.0 \mu\text{m}+2.0 \times 10^{-6}L$		
248	*Pile Static Load Measuring Instrument	Length	V.R.of Pile Static Load	(0~100)mm	$U=0.03\%FS$		
		Pressure	Measuring Instrument JJG(交通)028	(60~250)MPa	$U=0.15\%FS$		
		Force		(50~1000)kN	$U=0.15\%FS$		
249	Taper Thread Gauge	Length	C.S.for Taper Thread Gauge JJF(湘)47	Plug Gauge: (1~200)mm	$U=2.8 \mu\text{m}+5 \times 10^{-6}L$		
				Ring Gauge: (3~200)mm	$U=3.2 \mu\text{m}+5 \times 10^{-6}L$		
250	Pupil Distance Meter Verification Devices	Length	C.S.for Pupil Distance Meter Verification Devices JJF1996	(55~75)mm	$U=0.02\text{mm}$		
251	*Coating Flexibility Testers	Length	C.S.for Coating Flexibility Testers JJF(石化)006	Shaft Rod Diameter: (4~15)mm	$U=8 \mu\text{m}$		
				Shaft Rod Thickness: (1.0~3.0)mm	$U=0.03\text{mm}$		
252	*Rebar Bending Testing Machines	Angle	C.S.for Rebar Bending Testing Machines JJF(鄂)77	Horizontal: (20~150)°	$U_{\text{rel}}=0.3\%$		
				Vertical: (20~60)°	$U_{\text{rel}}=0.8\%$		
253	*3D Area Measuring Instruments	Length	C.M.for 3D Area Measuring Instruments FFC2111	(2~100)cm ²	$U_{\text{rel}}=0.9\%$		
254	*Projector for Detecting The Notch of Test	Length	V.R.of Projector for Detecting The Notch of Test Piece JJG(粤)069	Sample: (0.225~2)mm	$U=2 \mu\text{m}$ (Magnification 50x)		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Piece	Angle		(43~47)°	U=10'		
255	*Calipers for Measuring Brick	Length	V.R.of Calipers for Measuring Brick JJG(粤)072	Bend Gauge:(-15~+30)mm	U=0.06mm		
				Main Ruler:(45~500)mm	U=0.17mm		
256	Measuring Wheels	Length	C.M.for Measuring Wheels FFC2101	(0.1~1000)m	U=0.08%		
257	Single Axis Inclination Sensors	Angle	C.S.for Single Axis Inclination Sensors JJF2015	(-45~+45)°	U=0.01°		
258	*Measurement Equipment of Optical Film Thickness	Length	V.R. for measurement equipment of optical film refractive index and thickness GJB 8687 item 6.6	H:(1.7~1120.1)nm	U=2.6nm+0.9×10 ⁻² H		
2 Thermology Measuring Instrument							
1	*Thermocouple Compensating Wire	Temperature	C.S.for Base Metal Thermocouples Appendix C C.S. for Thermocouple Compensating Wire JJF1637	(0~200)°C	U=0.1°C		
2	*Temperature Data Acquisition Instruments	Temperature	C.S.for Temperature Data Acquisition Instruments JJF1366	Internal Probe: (-80~+10)°C	U=(0.14~0.03)°C		
				Internal Probe: (10~180)°C	U=(0.03~0.08)°C		
				External Probe: (-80~0)°C	U=(0.011~0.009)°C		
				External Probe: (0~450)°C	U=(0.009~0.014)°C		
3	*Auto-measuring System of Thermocouples	Temperature	C.S.for Auto-measuring System of Thermocouples and Resistance Thermometers	Auto-measuring System of Thermocouples: (-200~+1700)°C	U=0.002°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	and Resistance Thermometers		JJF1098	Auto-measuring System of Resistance Thermometers :(-200~+850)°C	U=0.002°C		
4	Fixed-Point Devices for Standard Platinum Resistance Thermometer	Temperature	C.S.for Fixed-Point Devices for Standard Platinum Resistance Thermometer JJF1178	419.527°C	U=0.004°C		
				231.928°C	U=0.004°C		
				0.01°C	U=0.0021°C		
				-38.8344°C	U=0.0026°C		
				29.7646°C	U=0.004°C		
				156.5985°C	U=0.004°C		
				-189.3442°C	U=0.008°C		
5	*The Working Copper/Copper-Nickel Thermocouple	Temperature	V.R.of the Working Copper/Copper-Nickel Thermocouple JJG368	(-80~+300)°C	U=(0.06~0.04)°C		
6	Surface Thermometers	Temperature	C.S.for Surface Thermometer JJF1409	(30~200)°C	U=(0.21~0.7)°C		
				(200~400)°C	U=(0.7~1.6)°C		
7	*Thermistor Thermometers	Temperature	C.S.for Thermistor Thermometers JJF1379	(-50~0)°C	U=(0.011~0.009)°C		
				(0~200)°C	U=(0.009~0.012)°C		
8	Surface Calibrator	Temperature	C.S.for Surface Thermometer Appendix D Measurement method for temperature stability and uniformity of surface temperature source	Temperature Volatility:(30~400)°C	U=(0.2~0.3)°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
			JJF1409	Temperature Uniformity: (30~400) °C	<i>U</i> =(0.3~0.5)°C		
9	Humidity Generator	Humidity	Humidity Generators FFR1903	Deviation: (5~99)%RH	<i>U</i> =(0.6~0.9)%RH		
				Volatility: (5~60)%RH	<i>U</i> =(0.11~0.04)%RH		
				Volatility: (60~99)%RH	<i>U</i> =(0.04~0.12)%RH		
		Dew Point Temperature		Deviation: (-70~+20) °C	<i>U</i> =0.12°C		
				Temperature Volatility: (-70~+20)°C	<i>U</i> =0.09°C		
		Temperature		Deviation:(0~60)°C	<i>U</i> =(0.015~0.020)°C		
				Volatility:(0~60)°C	<i>U</i> =(0.014~0.024)°C		
10	*Infrared Thermometers for Measurement of Human Temperature	Temperature	C.S.for Infrared Thermometers for Measurement of Human Temperature JJF1107	(22~45)°C	<i>U</i> =0.06°C		
11	*Vacuum drying oven	Temperature	Calibration Method of Vacuum Drying Oven FFR1401	(30~130)°C	<i>U</i> =0.2°C		
		Pressure		(10~100)kPa abs	<i>U</i> =1.8kPa		
12	*Analogue Temperat Indicators And Controllers	Temperature	V.R.of Analogue Temperature Indicators and Controllers JJG951	Tc S (0~1600)°C	<i>U</i> =(0.1~0.2)°C		
				Tc R (0~1600)°C	<i>U</i> =(0.1~0.2)°C		
				Tc B (400~1800)°C	<i>U</i> =(0.1~0.3)°C		
				Tc N (-200~+1200)°C	<i>U</i> =0.1°C		



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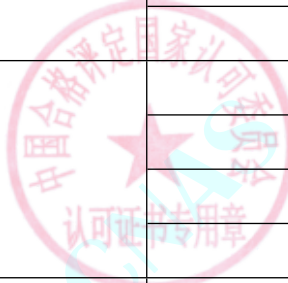
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Tc K (-200~+1200)°C	U=0.1°C		
				Tc J (-200~+1200)°C	U=0.1°C		
				Tc E (-200~+1000)°C	U=0.1°C		
				Tc T (-200~+400)°C	U=0.1°C		
				IPRT (-200~+800)°C	U=0.1°C		
13	*Box-type Resistance Furnace	Temperature	C.S.for Box-type Resistance Furnace JJF1376	(300~1100)°C	U=(1.1~1.3)°C		
14	Working Platinum-10% Rhodium /Platinum and Platinum-13% Rhodium/Platinum Thermocouple with Short Length	Temperature	V.R.of the Working Platinum-10% Rhodium/Platinum and Platinum-13% Rhodium/Platinum Thermocouple with Short Length JJG668	(300~1100)°C	U=0.7°C	Accredited only for length (200~700) mm	
15	Clinical Electronic Thermometer	Temperature	V .R. of Clinical Electronic Thermometers JJG1162	(35~45)°C	U=0.03°C		
16	Soldering Iron Thermometers	Temperature	C. S. for Soldering Iron Thermometers JJF1629	(100~350)°C	U=(0.9~1.3)°C		
17	Working Noble Metal Thermocouples	Temperature	V.R.of Working Noble Metal Thermocouples JJG141	Tc S (0~1100)°C	U= (0.5~0.6) °C		
				Tc R (0~1100)°C	U=0.6°C		
				Tc B(1100~1500)°C	U=2.6°C		
18	*Base Metal Thermocouples	Temperature	C.S.for for Base Metal Thermocouples JJF1637	(-40~+300)°C	U=0.1°C		
				(300~1100)°C	U=0.8°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
19	*Digital Temperature Indicators and Controllers	Temperature	V.R.of Digital Temperature Indicators and Controllers JJG617	Tc T (-200~+400)℃	U=0.1℃			
				Tc S (0~1600)℃	U=(0.1~0.2)℃			
				Tc R (0~1600)℃	U=(0.1~0.2)℃			
				Tc B (400~1800)℃	U=(0.1~0.3)℃			
				Tc N (-200~+1200)℃	U=0.1℃			
				Tc K (-200~+1200)℃	U=0.1℃			
				Tc J (-200~+1200)℃	U=0.1℃			
				Tc E (-200~+1000)℃	U=0.1℃			
				IPRT (-200~+800)℃	U=0.1℃			
				Resistance	(10 ~10 ⁴) Ω		U _{rel} =0.0006%	
		Voltage			(0~100)mV		U=0.2 μ V	
					(0~30)V		U=1 mV	
					Current		(0~100)mA	U=0.01mA
		(0~1)A		U=0.2 mA				
20	Liquid-in-Glass Thermometers for Working	Temperature	V.R.of Liquid-in-Glass Thermometers for Working JJG130	(-80~0)℃	U=(0.04~0.03)℃			
				(0~150)℃	U=(0.013~0.028)℃			
				(150~300)℃	U=(0.04~0.05)℃			
				(300~500)℃	U=(0.05~0.08)℃			
21	Standard Mercury-in-Glass	Temperature	V.R.of Standard Mercury-in- Glass Thermometers JJG161	(-60~+100)℃	U=0.03℃			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Thermometers			(100~300)°C	$U=0.04^{\circ}\text{C}$		
22	*Digital Thermometer	Temperature	Calibration Method of Digital Thermometer FFR9903	(-80~0)°C	$U=(0.011\sim0.009)^{\circ}\text{C}$		
				(0~300)°C	$U=(0.009\sim0.012)^{\circ}\text{C}$		
				(300~500)°C	$U=(0.012\sim0.019)^{\circ}\text{C}$		
23	Digital Calorimetric Thermometer	Temperature	V.R. of Digital Calorimetric Thermometer JJG855	(0~50)°C	$U=0.011^{\circ}\text{C}$		
24	Electric Contact Mercury-in-Glass Thermometer	Temperature	V.R. of the Electric Contact Mercury-in-Glass Thermometer JJG131	(-30~+100)°C	$U=0.03^{\circ}\text{C}$		
				(100~200)°C	$U=0.11^{\circ}\text{C}$		
				(200~300)°C	$U=0.5^{\circ}\text{C}$		
25	Radiance temperature Blackbody radiation source	Temperature	Calibration Method of Radiance temperature for Blackbody radiation source FFR1501	(-50~+30)°C	$U=(1.1\sim0.4)^{\circ}\text{C}$		
				(30~1800)°C	$U=(0.4\sim3.1)^{\circ}\text{C}$		
26	Standard Clinical Thermometer	Temperature	V.R. of Standard Clinical Thermometer JJG881	(35~45)°C	$U=0.014^{\circ}\text{C}$		
27	*Bimetal Thermometer	Temperature	C.S. for Bimetallic Thermometers JJF1908	(-80~+300)°C	$U=0.15^{\circ}\text{C}$		
				(300~500)°C	$U=0.28^{\circ}\text{C}$		
28	*Industrial Platinum and Copper Resistance Thermistor	Temperature	V.R. of Industry Platinum and Copper Resistance Thermometers JJG229	(-80~+100)°C	$U=0.016^{\circ}\text{C}$		
				(100~300)°C	$U=0.020^{\circ}\text{C}$		
				(300~500)°C	$U=0.023^{\circ}\text{C}$		
29	Standard Platinum	Temperature	V.R. of Standard Platinum Resistance Thermometer	419.527°C	$U=0.005^{\circ}\text{C}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Resistance Thermometer		JJG160	231.928℃	U=0.005℃		
				100℃	U=0.007℃		
				0.01℃	U=0.005℃		
				-38.8344℃	U=0.003℃		
				-189.3442℃	U=0.012℃		
30	*Temperature Itinerant Detecting Instrument	Temperature	C.S.for Temperature and Humidity Itinerant Detecting Instruments JJF1171	(-80~ 0)℃	U=(0.020~0.015)℃		
				(0~300)℃	U=(0.015~0.018)℃		
31	High Temperature Range Digital Thermometer	Temperature	C.M. for High Temperature Range Digital Thermometer FFR0105	(300~1500)℃	U= (0.8~2.6) °C		
32	Working Disappearing-Filament of Optical Pyrometer	Temperature	V.R. of Working Disappearing-Filament of Optical Pyrometer JJG68	(800~2000)℃	U=(6~11)℃		
33	*Recorders for Industrial - Process Measurement	Temperature	V.R.of the Recorders for Industrial-Process Measurement JJG74	Tc S (300~1500)℃	U=0.5℃		
				Tc R (300~1500)℃	U=0.5℃		
				Tc N (0~1200)℃	U=0.3℃		
				Tc K (-200~+1200)℃	U=0.3℃		
				Tc J (-200~+1200)℃	U=0.3℃		
				Tc E (0~800)℃	U=0.3℃		
				Tc T (0~400)℃	U=0.3℃		



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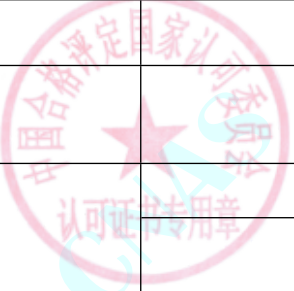
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
34	Mechanical Thermo - hygrometers	Temperature	V.R.of Mechanical Thermo - hygrometers JJG205	(5~50)℃	U=(0.8~1.0)℃		
		Humidity		(30~95)%RH	U=(1.4~1.7)%RH		
35	Digital Temperature-hygrometers	Humidity	C.S.for Digital Temperature-hygrometers JJF1076	(5~99)%RH	U=(0.3~0.8)%RH		
		Temperature		(-80~+10)℃	U=(0.14~0.03)℃		
				(10~180)℃	U=(0.03~0.08)℃		
36	*Radiation Thermometers	Temperature	V.R.of Radiation Thermometers JJG856	(-50~+50)℃	U=(0.5~0.2)℃		
				(50~1600)℃	U=(0.2~3.8)℃		
37	*Environmental Testing Equipment	Temperature	C.S.for Environmental Testing Equipment for Temperature and Humidity Parameters JJF1101	(-80~0)℃	U=(0.26~0.17)℃		
				(0~300)℃	U=(0.17~0.27)℃		
		Humidity		(5~99)%RH	U=(0.3~1.1)%RH		
38	*Thermocouple Calibration Furnaces	Temperature	Testing Specification of Temperature Uniformity in Thermocouple Calibration Furnaces JJF1184	(300~1500)℃	U=0.3℃		
39	*Salt Fog Testing Box	Temperature	Calibration Method of Salt Mist Testing Chambers FFR0501	(30~80)℃	U=0.3℃		
		SaltFogSedimentation		(0~10)mL/(80cm² · h)	U=0.2mL/(80cm² · h)		
40	*Thermostatic Bath	Temperature	Measurement and Test Norm of Metrological Characteristics of Thermostatic Baths for Temperature Calibration JJF1030	Temperature Uniformity (-80~+550)℃	U=(0.002~0.003)℃		
				Temperature Volatility(-80~+550)℃	U=(0.002~0.003)℃		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
41	Temperature Block Calibrator	Temperature	C.G.of the Temperature Block Calibrators JJF1257	$(-100\sim 0)^{\circ}\text{C}$ (SPRT as standard)	$U=(0.04\sim 0.03)^{\circ}\text{C}$		
				$(0\sim 660)^{\circ}\text{C}$ (SPRT as standard)	$U=(0.03\sim 0.07)^{\circ}\text{C}$		
				$(300\sim 1100)^{\circ}\text{C}$ (Tc S as standard)	$U=(0.8\sim 1.1)^{\circ}\text{C}$		
42	*Steam Sterilizer	Temperature	C.S.for Thermometers of Clinic Autoclave JJF1308	$(-40\sim +140)^{\circ}\text{C}$	$U=0.14^{\circ}\text{C}$		
		Pressure		$(0\sim 0.5)\text{MPa}$	$U=1.8\text{kPa}$		
43	*Temperature Tracker	Temperature	Calibration Method of Oven Temperature Tracker FFR0803	$(-60\sim +100)^{\circ}\text{C}$	$U=(0.15\sim 0.13)^{\circ}\text{C}$		
				$(100\sim 300)^{\circ}\text{C}$	$U=(0.13\sim 0.19)^{\circ}\text{C}$		
44	*Temperature Transmitter	Temperature	C.S.for the Temperature Transmitter JJF1183	with sensor: $(-80\sim +450)^{\circ}\text{C}$	$U=(0.02\sim 0.04)^{\circ}\text{C}$		
				with sensor: $(450\sim 1100)^{\circ}\text{C}$	$U=(1.0\sim 1.8)^{\circ}\text{C}$		
		Current		without sensor: $(0\sim 20)\text{mA}$	$U=0.007\text{mA}$		
		Voltage		without sensor: $(0\sim 10)\text{V}$	$U=0.004\text{V}$		
45	Precision Dew Point Hygrometers	Dew-point temperature	V.R.of Precision Dew point Hygrometers JJG499	$(-70\sim +20)^{\circ}\text{C}$	$U=0.13^{\circ}\text{C}$		
46	Resistance and Capacitance Dew Point Hygrometer	Dew-point temperature	C.S.for Resistance and Capacitance Dew Point Hygrometer JJF1272	$(-70\sim +20)^{\circ}\text{C}$	$U=0.5^{\circ}\text{C}$		
47	*Thermal Imagers	Temperature	C.S.for Thermal Imagers JJF1187	for Human: $(35\sim 41)^{\circ}\text{C}$	$U=0.18^{\circ}\text{C}$		
				for Industry: $(-50\sim +50)^{\circ}\text{C}$	$U=(0.5\sim 0.2)^{\circ}\text{C}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				for Industry: (50~1600) °C	$U=(0.2\sim3.8)^{\circ}\text{C}$		
48	Standard Platinum- 10%Rhodium/Plati num Thermocouples	Temperature	V.R.of the Standard Platinum- 10%Rhodium/Platinum Thermocouples JJG75	(0~1100)°C	$U=0.4^{\circ}\text{C}$		
49	Filled System Thermometers	Temperature	C.S.for Filled System Thermometers JJF1909	(-80~+300)°C (300~500)°C	$U=0.15^{\circ}\text{C}$ $U=(0.26\sim0.28)^{\circ}\text{C}$		
50	Electric Ventilation Psychrometer	Temperature Humidity	V.R.of Electric Ventilation Psychrometers JJG993	(0~20)°C (20~80)°C (10~95)%RH	$U=(0.05\sim0.026)^{\circ}\text{C}$ $U=(0.026\sim0.05)^{\circ}\text{C}$ $U=(0.4\sim0.7)\%\text{RH}$		
51	*Sheathed Thermocouples	Temperature	C.S.for Sheathed Thermocouples JJF1262	(-80~+300)°C (300~1100)°C	$U=0.1^{\circ}\text{C}$ $U=0.8^{\circ}\text{C}$		
52	Temperature Indicators and Simulators by Electrical Simulation and Measurement	Temperature	C.S.for Temperature Indicators and Simulators by Electrical Simulation and Measurement JJF1309	Tc S Input (0~1600)°C Tc R Input (0~1600)°C Tc B Input (400~1800) °C Tc N Input (-200~ +1200)°C Tc K Input (-200~ +1200)°C Tc J Input (-200~+1200) °C	$U=(0.08\sim0.17)^{\circ}\text{C}$ $U=(0.08\sim0.18)^{\circ}\text{C}$ $U=(0.08\sim0.23)^{\circ}\text{C}$ $U=(0.02\sim0.08)^{\circ}\text{C}$ $U=(0.03\sim0.08)^{\circ}\text{C}$ $U=(0.02\sim0.08)^{\circ}\text{C}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Tc E Input (-200~+1000) °C	$U=(0.02\sim0.07)^{\circ}\text{C}$		
				Tc T Input (-200~+400) °C	$U=(0.02\sim0.08)^{\circ}\text{C}$		
				IPRT Input (-200~+800) °C	$U=0.01^{\circ}\text{C}$		
				Tc S Output (0~1600)°C	$U=0.02^{\circ}\text{C}$		
				Tc R Output (0~1600)°C	$U=0.02^{\circ}\text{C}$		
				Tc B Output (400~1800) °C	$U=(0.02\sim0.03)^{\circ}\text{C}$		
				Tc N Output (-200~ +1200)°C	$U=(0.01\sim0.02)^{\circ}\text{C}$		
				Tc K Output (-200~ +1200)°C	$U=0.01^{\circ}\text{C}$		
				Tc J Output (-200~ +1200)°C	$U=0.01^{\circ}\text{C}$		
				Tc E Output (-200~ +1000)°C	$U=0.01^{\circ}\text{C}$		
				Tc T Output (-200~ +400)°C	$U=0.01^{\circ}\text{C}$		
				IPRT Output (-200~ +800)°C	$U=0.01^{\circ}\text{C}$		
		Voltage		Input (0~100)mV	$U=0.2\text{ }\mu\text{V}$		
				Input 100mV~10V	$U=1\text{ mV}$		
				Output (0~60)mV	$U=(0.1\sim0.5)\text{ }\mu\text{V}$		



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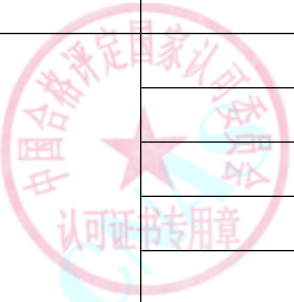
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Current	C.S.for Blackbody Radiation Sources of Radiation Thermometry from -10 °C to 200 °C JJF1552	Output 60mV~10V	<i>U</i> =1 mV		
				Input (0~100)mA	<i>U</i> =0.01mA		
				Input (0~1)A	<i>U</i> =0.2 mA		
				Output (0~20)mA	<i>U</i> =0.1mA		
		Resistance		Input (10~10000) Ω	<i>U</i> _{rel} =0.0006%		
				Output (0~1000) Ω	<i>U</i> =0.001 Ω		
53	*Blackbody radiation source	Temperature	C.S.for Blackbody Radiation Sources of Radiation Thermometry from -10 °C to 200 °C JJF1552	(-10~+20)°C	<i>U</i> =0.3 °C		
				(20~50)°C	<i>U</i> =0.07 °C		
				(50~200)°C	<i>U</i> =(0.3~0.5) °C		
54	*Temperature and Humidity Standard Chambers	Temperature	C.S. for Temperature and Humidity Standard Chambers JJF1564	Temperature Uniformity(5~50)°C	<i>U</i> =0.18 °C		
				Temperature Fluctuation(5~50)°C	<i>U</i> =0.04 °C		
				Temperature Change rate(0~10)°C/min	<i>U</i> =0.08 °C/min		
		Humidity		Humidity Uniformity(10~95)%RH	<i>U</i> =0.6%RH		
				Humidity Fluctuation(10~95)%RH	<i>U</i> =0.06%RH		
				Humidity Change rate(0~10)%RH/min	<i>U</i> =0.12%RH/min		
55	*Thermal Treatment Furnace	Temperature	Thermal Treatment Furnace FFR1606	Temperature Uniformity (100~1100)°C	<i>U</i> = (1.3~3.2)°C		
				Temperature Fluctuation (100~1100)°C	<i>U</i> = (1.3~3.2)°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
56	Standard Platinum-30% Rhodium/Platinum-6% Rhodium Thermocouple	Temperature	V.R.of Standard Platinum-30% Rhodium/Platinum-6% Rhodium Thermocouple JJG167	(1100~1500)°C	U=2.6°C		
57	*Plate heat conduction	Temperature	C.M.for Plate heat conduction FFR1604	(0~100)°C	U=0.3°C		
58	Outer scale liquid-in-glass thermometer	Temperature	C.M.for Outer scale liquid-in-glass thermometer FFR1603	(-80~+100)°C	U=0.3°C		
59	Clinical Thermometers	Temperature	V.R.of Clinical Thermometers JJG111	(30~43)°C	U=0.07°C		
60	Dipstick Thermometer	Temperature	C.M.of Dipstick Thermometer FFR1602	(-40~+200)°C	U=0.2°C		
61	Thermometers of WBGT-index Meters	Temperature	C.S. for Thermometers of WBGT-index Meters JJF1407	(5~60)°C	U=0.3°C		
				(60~120)°C	U=0.2°C		
62	*Heat Seal Tester	Temperature	C.M.for Heat Seal Tester FFR1901	(100~250)°C	U=0.8°C		
63	Passive Medical Cold Boxes	Temperature	C.S.for Temperature Parameter of Passive Medical Cold Boxes JJF1676	(-20~+20)°C	U=0.3°C		
64	*Temperature Indicators	Temperature	C.S.for Temperature Indicators JJF1664	Tc S (0~1600)°C	U=(0.1~0.2)°C		
				Tc R (0~1600)°C	U=(0.1~0.2)°C		
				Tc B (400~1800)°C	U=(0.1~0.3)°C		
				Tc N (-200~+1200)°C	U=0.1°C		
				Tc K (-200~+1200)°C	U=0.1°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			C.S.for Temperature Parameters of Temperature Switches JJF1632	Tc J (-200~+1200)°C	$U=0.1^{\circ}\text{C}$		
				Tc E (-200~+1000)°C	$U=0.1^{\circ}\text{C}$		
				Tc T (-200~+400)°C	$U=0.1^{\circ}\text{C}$		
				IPRT (-200~+800)°C	$U=0.1^{\circ}\text{C}$		
65	Temperature Switches	Temperature	C.S.for Temperature Parameters of Temperature Switches JJF1632	(-30~+300)°C	$U=0.4^{\circ}\text{C}$		
66	Surface Platinum Resistance Thermometer	Temperature	V.R.of Surface Platinum Resistance Thermometer JJG684	(0~200)°C	$U=(0.5\sim 2.3)^{\circ}\text{C}$		
67	Temperature Calibration Devices for Polymerase Chain Reaction Analyzers	Temperature	C.S.for Temperature Calibration Devices for Polymerase Chain Reaction Analyzers JJF1821	(0~120)°C	$U=0.06^{\circ}\text{C}$		
68	*Liquid Constant Temperature Testing Equipment	Temperature	Measurement Specification for Temperature Performance of Liquid Constant Temperature Testing Equipment JJF2019	Temperature Deviation(-80~+300)°C	$U=0.25^{\circ}\text{C}$		
				Temperature Uniformity(-80~+300)°C	$U=0.03^{\circ}\text{C}$		
				Temperature Fluctuation(-80~+300)°C	$U=0.017^{\circ}\text{C}$		
69	Digital Rail Thermometers	Temperature	V.R. of Rail Thermometers. Part 2:Digital Rail Thermometers JJG1158.2	(-40~+70)°C	$U=0.3^{\circ}\text{C}$		
70	Fiber-optic Distributed Thermometers	Temperature	C.S.for Fiber-optic Distributed Thermometers JJF1630	(-20~+100)°C	$U=0.3^{\circ}\text{C}$		



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71	Bimetallic Rail Thermometers	Temperature	V.R.of Rail Thermometers. Part 1:Bimetallic Rail Thermometers JJG1158.1	$(-40\sim+70)^{\circ}\text{C}$	$U=0.4^{\circ}\text{C}$		
72	Refrigerator Thermometers	Temperature	V.R.of Refrigerator Thermometers JJG(YUE)073	$(-40\sim+60)^{\circ}\text{C}$	$U=0.2^{\circ}\text{C}$		
73	Humidity Sensor of Automatic Meteorological Station	Humidity	V.R.of Humidity Sensor of Automatic Meteorological Station JJG(Meteorology)003	$(5\sim95)\%\text{RH}$	$U=(1.0\sim1.5)\%\text{RH}$		
74	Short Base Metal Thermocouples	Temperature	C.S. for Short Base Metal Thermocouples JJF1991	$(-40\sim+300)^{\circ}\text{C}$ $(300\sim1000)^{\circ}\text{C}$	$U=0.3^{\circ}\text{C}$ $U=1.0^{\circ}\text{C}$		
75	*Eight-Basket Ovens	Temperature	C.S. for Eight-Basket Ovens JJF(Textile)011	$(0\sim300)^{\circ}\text{C}$	$U=0.4^{\circ}\text{C}$		
76	*Infrared Devices for Instant Screening of Human Skin Temperature	Temperature	C.M.for Infrared Devices for Instant Screening of Human Skin Temperature FFR2302	$(33\sim40)^{\circ}\text{C}$	$U=0.1^{\circ}\text{C}$		
77	*Testing Equipment for Thermal Insulation Performance of Building Exterior Doors and Windows	Temperature	C.M.for Testing Equipment for Thermal Insulation Performance of Building Exterior Doors and Windows for Temperature Parameters FFR2303	$(-30\sim+50)^{\circ}\text{C}$	$U=0.4^{\circ}\text{C}$		
78	*Insulation Glass Dew Point Analyzer	Temperature	C.S. for Insulation Glass Dew Point Analyzer JJF(MIN)1112	$(-60\sim-40)^{\circ}\text{C}$	$U=0.1^{\circ}\text{C}$		

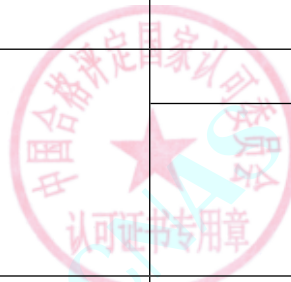


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
79	*Shaking Incubators	Temperature	C.M.for Shaking Incubators FFZ2110	Temperature Deviation: (2~100) °C	<i>U</i> =0.3 °C			
				Temperature Fluctuation: (2~100) °C	<i>U</i> =0.06 °C			
				Temperature Uniformity: (2~100) °C	<i>U</i> =0.4 °C			
		Frequency		(6~100) min ⁻¹	<i>U</i> =0.4 min ⁻¹			
				(100~300) min ⁻¹	<i>U</i> _{rel} =0.6%			
				Time	(0~3600) s			<i>U</i> =0.2 s
		Amplitude		(0~100) mm	<i>U</i> =0.2 mm			
80	*Hot Aging Test Oven	Temperature	C.M.for Hot aging test oven FFZ1907	(30~300) °C	<i>U</i> =(0.3~0.9) °C			
		Air exchange rate		(6~200)times/h	<i>U</i> _{rel} =2%			
		Rotating speed		(0~30)r/min	<i>U</i> =0.1r/min			
		3 Mechanics Measuring Instrument						
1	*Pendulum Impact Testing Machine	energy	V.R.of Pendulum Impact Testing Machines JJG145,Metallic materials -- Charpy pendulum impact test -- Part 2: Verification of testing machines ISO148-2 Item 1-10, Appendix A-C	(0.1~750)J	<i>U</i> _{rel} =0.12%			
		Length		(0.1~1)m	<i>U</i> _{rel} =0.11%			
2	*Cantilever-Beam (Izod-Type)	energy	V.R.of Cantilever-Beam (Izod-Type) Impact Testing	(0.1~100)J	<i>U</i> _{rel} =0.12%			

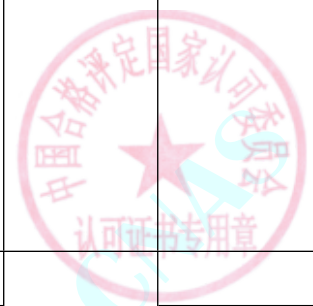


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Impact Testing Machine	Length	Machine JJG608	(0.1~1)m	<i>U</i> _{rel} =0.11%		
3	Hydraulic Tension Jack	Force	V.R.of Hydraulic Jacks JJG621	0.1kN~30MN	<i>U</i> _{rel} =0.35%		
4	*Flexure Testing Machine	Force	V.R.of Flexure Testing Machine JJG476	0.2N~30MN	<i>U</i> _{rel} =0.12%~0.3%		
5	*Working Force Measuring Machines for Special Purpose	Force	C.S.for Working Force Measuring Machines for Special Purposes JJF1134	0.2N~30MN	<i>U</i> _{rel} =0.12%~0.3%		
6	*Universal Material Tension and Compression Testing Machine	Force	Metallic materials - Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system ISO7500-1 Item 1-9, Appendix A-C, Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system GB/T16825.1 Item 1-9, Appendix A-D, V.R.of Tension, Compression and Universal Testing Machines JJG139	0.2N~30MN	<i>U</i> _{rel} =0.12%~0.3%		
		Displacement		0.1mm~1m	<i>U</i> _{rel} =0.01%		
		Speed		(0.01~1000)mm/min	<i>U</i> _{rel} =0.05%		
		Distortion		(0~300) μ m	<i>U</i> =0.9 μ m		
				>300 μ m~50mm	<i>U</i> _{rel} =0.18%		
		Coaxiality	(0~30) %	<i>U</i> =3%			
7	*Electro-hydraulic servo universal testing machines	Force	V.R.of Electronic Universal Testing Machine JJG475, Metallic materials -	0.2N~30MN	<i>U</i> _{rel} =0.12%~0.3%		
		Displacement	JJG475, Metallic materials -	0.1mm~1m	<i>U</i> _{rel} =0.01%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Speed	Verification of static uniaxial testing machines - Part 1:	(0.01~1000)mm/min	$U_{rel}=0.05\%$		
		Distortion	Tension/compression testing machines - Verification and calibration of the force-measuring system ISO7500-1	(0~300) μm	$U=0.9 \mu m$		
			Item 1-9, Appendix A-C, Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system GB/T16825.1 Item 1-9, Appendix A-D	>300 $\mu m \sim 50mm$	$U_{rel}=0.18\%$		
		Coaxiality		(0~30) %	$U=3\%$		
8	*Electro-hydraulic servo universal testing machines	Force	V.R.of Electro-hydraulic Servo Universal Testing machines JJG1063, Metallic materials - Verification of static uniaxial testing machines - Part 1:	0.2N~3MN	$U_{rel}=0.12\% \sim 0.3\%$		
		Displacement	Tension/compression testing machines - Verification and	0.1mm~1m	$U_{rel}=0.01\%$		
		Speed		(0.01~1000)mm/min	$U_{rel}=0.05\%$		
		Distortion		(0~300) μm	$U=0.9 \mu m$		
				>300 $\mu m \sim 50mm$	$U_{rel}=0.18\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
		Coaxiality	calibration of the force-measuring system ISO7500-1 Item 1-9, Appendix A-C, Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system GB/T16825.1 Item 1-9, Appendix A-D	(0~30)%	<i>U</i> =3%			
9	*Building Material Testing Machine of Constant Loading Speed	Force	V.R. of Building Material Testing Machine of Constant Loading Speed JJG1025	0.2N~2 MN	<i>U</i> _{rel} =0.12%~0.3%			
		Loading Speed		(20~50000)N/s	<i>U</i> _{rel} =0.1%			
10	*High-Temperature Creep and Stress-Rupture Testing Machines	Force	V.R. of High-Temperature Creep and Stress-Rupture Testing Machines JJG276	0.2N~1MN	<i>U</i> _{rel} =(0.12~0.15)%(Grade0.5)			
				0.2N~1MN	<i>U</i> _{rel} =(0.1~0.3)%(Grade1)			
				0.2N~1MN	<i>U</i> _{rel} =(0.2~0.5)%(Grade2)			
		Extensometer		(0~300) μ m	<i>U</i> =0.9 μ m			
				>300 μ m~25mm	<i>U</i> _{rel} =0.18%			
		Temperature		(0~1200)°C	<i>U</i> =1°C			
		Time		(0~24)h	<i>U</i> _{rel} =0.05%			
11	*Rotating Pure Bending Fatigue Testing Machines	Bending	V.R. of Rotating Pure Bending Fatigue Testing Machines JJG652	(0.2~1000) Nm	<i>U</i> _{rel} =0.3%			
		Temperature		(0~1200)°C	<i>U</i> =1°C			
12	*Four-ball Friction Testing Machine	Testing force	V.R. of Four-ball Friction Testing Machine JJG373	0.2N~60kN	<i>U</i> _{rel} =0.3%~0.4% (Grade1)			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				0.2N~60kN	$U_{rel}=0.3\%\sim 0.5\%$ (2 级)		
		Friction force		(0.2~300)N	$U_{rel}=1\%$		
13	*Cupping Testing Machine	Force	V.R. of Cupping Testing Machine JJG583	(0.2~100) kN	$U_{rel}=0.5\%$		
		Length		(0.75~70)mm	$U=0.04\text{mm}$		
		Cupping (IE)		(0~16)mm	$U=0.04\text{mm}$		
14	Standard Dynamo- meter	Force	V.R. of Standard Dynamometers JJG144	0.1cN~10MN	$U_{rel}=(0.03\sim 0.01)\%$		
				10MN~30MN	$U_{rel}=0.16\%$		
15	*Working Dynamo- meters	Force	V.R. of Working Dynamometers JJG455, Metallic materials. Calibration of force-proving instruments used for the verification of uniaxial testing machines ISO376 Item 1-9, Appendix A-C, Calibration of force - proving instruments used for the verification of uniaxial testing machines GB/T13634 Item 1-9, Appendix A,B	0.1cN~30MN	$U_{rel}=0.1\%\sim 0.3\%$		
16	*Consolidation apparatus	Force	C.S. for Oedometers JJF1311	20N~50kN	$U_{rel}=0.2\%\sim 0.1\%$		
		Displacement		(0~10)mm	$U=0.4\text{ }\mu\text{m}$		
		Mass		(0.1~10)kg	$U_{rel}=0.07\%$		
17	*Direct Shear Apparatus	Error of Indication (Force)	V.R. of Direct Shear Apparatus JJD 1025	0.2N~50kN	$U_{rel}=0.3\%\sim 0.1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Displacement		(0~10)mm	U=0.4 μ m		
		Mass		(0.1~10)kg	U _{rel} =0.07%		
18	*Extensometer	Elongation	Metallic materials - Calibration of extensometers used in uniaxial testing BS EN ISO9513 Item 1-12, Appendix A-H,V.R.for Extensometer JJG762	(0~1/3)mm	U=0.9 μ m		
		Scaledistance		(≥1/3~50)mm	U _{rel} =0.18%		
				(0~600)mm	U= (0.05~0.08) mm		
19	*Falling weight impact testing machines	weight	C.S.for Falling Weight Impact Testing Machines JJF1445	(0~150)kg	U=(0.8~10)g		
		height		(0~5000)mm	U=(0.5~1)mm		
20	*Taber Abrasion Tester	Force	Calibration Method of Taber Abrasion Tester FFL1420	(1~500)N	U _{rel} =0.3%		
		Moving Speed		(0~200)r/min	U=0.2r/min		
		Distance of Run		(0~200)mm	U=0.03mm		
		Dimension		(0~300)mm	U=0.03mm		
21	*Switch, Plugs and Sockets Life Tester	Force	Calibration Method of Switch, Plugs and Sockets Life Tester FFL1440	0.1N~10kN	U _{rel} =0.3%~0.16%		
		Frequency		(0~5000)records/min	U=(0.1~2)records/min		
		Time		(0~9999)s	U=0.3s		
		Distance		(0~1000)mm	U=(0.04~0.4)mm		
		Angle		0° ~180°	U=0.3°		
22	*Case and Bag Testing Machine for Shaking Impact	Mass of Hammer	Calibration Method of Case and Bag Testing Machine for Fall Down FFL1431	(10~28)kg	U=0.6kg		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Geometrical dimension of Apparatus hardware		(0~1000)mm	$U=0.04\text{mm}$		
		Height of Test		(1000~2000)mm	$U=1\text{mm}$		
		Angle of the bevel		$(45 \pm 2)^\circ$	$U=0.6^\circ$		
		Counter		(1000~3000)Times	$U=2\text{Times}$		
23	Films scratch tester	Mass	Calibration Method of Film Scratch Tester FFL1411	(0~2000)g	$U=0.06\text{g}$		
		length		(0~300) mm	$U=0.06\text{mm}$		
		speed		(20~40) mm/s	$U=0.4\text{mm/s}$		
		angle		$0^\circ \sim 30^\circ$	$U=4'$		
24	*Films bending tester	Length	Calibration Method of Film Bending Tester FFL1412	(0~300)mm	$U=0.05\text{mm}$		
25	*Films flexibility tester	length	Calibration Method of Flexibility of Paint Film Tester FFL1413	(0~300) mm	$U=0.05\text{mm}$		
26	*Coating abrasion instrument	Mass	Calibration Method of Coating Abrasion Tester FFL1414	(0~1000) g	$U=0.06\text{g}$		
		length		(0~600) mm	$U=0.2\text{mm}$		
		frequency		(0~60) times/min	$U=0.3\text{times/min}$		
27	*Film Adhesion Tester	length	Calibration Method of Film Adhesion Tester FFL1415	(0~10) mm	$U=0.04\text{mm}$		
		Mass		(0~2000)g	$U=0.06\text{g}$		
28	*The Safety Glass Impact Test Machine	Mass	V.R of The Safety Glass Impact Test Machine JJG(JianCai)128	(0~150) kg	$U=5\text{g}$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		length		(0~5000)mm	$U=3\text{mm}$		
29	*Special Detecting Instrument for Medical Syringe	Force	Calibration Method of Special Detecting Instrument for Medical Syringe FFL1425	(0.1~500)N	$U_{\text{rel}}=0.3\%$		
		Time		(1~99)s	$U=0.3\text{s}$		
		Pressure		(300~500)kPa	$U_{\text{rel}}=0.3\%$		
		Angle		(0~180)°	$U=0.3^\circ$		
		Speed		(0~100)mm/min	$U=(0.13\sim0.2)\text{mm/min}$		
30	*Calibrating Instrument for Torque Wrenches	Torque	V.R.of Calibration Instrument for Torque Wrenches JJG797	(0.02~3000)N·m	$U_{\text{rel}}=(0.3\sim0.6)\%$		
31	*Wrench for Measurement of Torque	Torque	V.R.of Torque Wrenches JJG707	(0.02~20000)N·m	$U_{\text{rel}}=(0.4\sim3.1)\%$		
32	Standardized Rubber Hardness Block	Hardness	C.S.for International Rubber Hardness Degrees Reference Blocks(Scales N,H,L) JJF2074	(30~95)IRHD	$U=0.4\text{IRHD}$		
33	*Metallic Rockwell Hardness Testers	Hardness	V.R.of Metallic Rockwell Hardness Testers (scales A,B,C,D,E,F,G,H,K,N,T) JJG112	(80~88)HRA	$U=0.4\text{HRA}$		
				(20~100)HRB	$U=0.7\text{HRB}$		
				(20~70)HRC	$U=(0.4\sim0.7)\text{HRC}$		
				(89~91) HR15N (42~80) HR30N (32~70) HR45N	$U=0.5\text{HRN}(\text{HRN})$		
				(87~93)HR15T(70~82)HR30T(45~72)HR45T	$U=0.8\text{HRT}(\text{HRT})$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Force		(10~5000) N	$U_{rel}=0.2\%$		
		Time		(0~30) s	$U=0.3s$		
		Angle		(119~121)°	$U=0.10^\circ$		
		Length		R:(0.1~1)mm	$U=3\mu m$		
34	*Metallic Brinell Hardness Testers	Hardness	V.R.of Metallic Brinell Hardness Testers JJG150	(85~650)HBS(W)	$U_{rel}=0.9\%, (225\sim650)HBW$		
				(85~650)HBS(W)	$U_{rel}=1.0\%, (125\sim225)HBW$		
				(85~650)HBS(W)	$U_{rel}=1.1\%, (85\sim125)HBW$		
		Force		(50~29420) N	$U_{rel}=0.2\%$		
		Time		(0~30) s	$U=0.3s$		
35	*Metallic Vickers Hardness Testers	Hardness	V.R.of Metallic Vickers Hardness Testers JJG151	(100~1000)HV	$U_{rel}=1.2\%\sim2.2\%$		
		Force		(0.4903~1000) N	$U_{rel}=0.2\%$		
		Time		(0~30) s	$U=0.3s$		
36	Shore A Durometer	Geometrical Dimension	V.R.of Shore A Durometers JJG304	(0~8)mm	$U=0.005\text{ mm}$		
				(0~40)°	$U=5'$		
		Force		(0.1~50)N	$U=(0.012\sim0.022)\text{ N}$		
37	Standard Rockwell Hardness Test Block	Hardness	V.R.of Metallic Rockwell Hardness Reference Blocks (scales A,B,C,D,E,F,G,H,K,N,T) JJG113	(80~88)HRA	$U=0.4HRA$		
				(85~95)HRB	$U=0.7HRB$		
				(20~70)HRC	$U=(0.7\sim0.4)HRC$		



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38	Metallic Brinell Hardness Reference Blocks	Hardness	V.R.of Metallic Brinell Hardness Reference Blocks JJG147	(150~600)HBW10/3000,(150~600)HBW5/750,(150~600)HBW2.5/187.5,(75~125)HBW10/1000,(75~125)HBW5/250	$U_{rel}=0.8\%$, (225~600)HBW		
				(150~600)HBW10/3000,(150~600)HBW5/750,(150~600)HBW2.5/187.5,(75~125)HBW10/1000,(75~125)HBW5/250	$U_{rel}=0.9\%$, (125~225)HBW		
				(150~600)HBW10/3000,(150~600)HBW5/750,(150~600)HBW2.5/187.5,(75~125)HBW10/1000,(75~125)HBW5/250	$U_{rel}=1.0\%$, (75~125)HBW		
39	Equotip Hardness Tester	Hardness	V.R.of Leeb Hardness Tester JJG747	(300~900)HLD(G)	$U=(5\sim6)HL$		
40	Metallic Webster Hardness Testing Machines	Hardness	V.R.of Metallic Webster Hardness Testing Machines JJG944	(5~18)HW	$U=0.6HW$		
41	Tension gauge for screen printing fabrics	Error of indication	C.S.for Screen Tension Meters JJF1465	(1~60)N/cm	$U=0.5N/cm$		
42	*Static Torque Measuring Devices	Torque	V.R.of Static Torque Measuring Devices JJG995	(0.1~3000)N·m	$U_{rel}=0.2\%$		
43	*Plastic rock well hardness testing	Force	V.R.of Plastic Rock Well Hardness Testing Machine	(0.05~2.0)kN	$U_{rel}=0.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	machine	Hardness	JJG884	(70~94)HRE	$U=0.7\text{HRE}$		
				(85~100)HRM	$U=0.5\text{HRM}$		
				(114~125)HRR	$U=0.6\text{HRR}$		
				(100~120)HRL	$U=0.5\text{HRL}$		
		Time		(0~30)min	$U=0.3\text{s}$		
44	*Torsion Testing Machines	Torque	V.R.of Torsion Machines JJG269	(0.1~3000)Nm	$U_{\text{rel}}=0.3\%$		
45	Shore AO Durometers	Force	C.S.for Shore AO Durometers JJF1312	(0.1~10)N	$U=0.024\text{N}$		
		Length		(0~10)mm	$U=0.0024\text{mm}$		
46	Film Hardness Testing Machine By Pencil	Force	Calibration Method of Film Hardness Testing Machine by Pencils FFL1403	(0.1~10)N	$U=0.029\text{N}$		
		Angel		(0~360)°	$U=0.3^\circ$		
47	*Weights	Mass	V.R.of Weights JJG99	1mg~3t	$U=0.6\mu\text{g}\sim 19\text{g}$		
48	*Thermogravimetric Moisture Meters	Mass	V.R. of Thermogravimetric Moisture Meters JJG658	1mg~50g	$U=(0.1\sim 0.2)\text{mg}$		
				(50~500)g	$U=(0.2\sim 1)\text{mg}$		
		Moisture content		0.01%~100%	$U_{\text{rel}}=0.03\%$		
49	*Digital Indicating Weighing Instruments	Mass	V.R.of Digital Indicating Weighing Instruments JJG539	2g~200t	$U=0.01\text{g}\sim 15\text{kg}$		
50	*Analogue Indication Weighing Instruments	Mass	V.R.of Analogue indication Weighing Instruments JJG13	5g~500kg	$U=0.01\text{g}\sim 0.6\text{kg}$		



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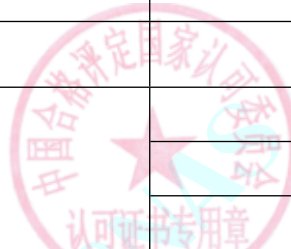
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
51	*Mobile Lever Scale	Mass	V.R.of Non-self-Indication Weighing Instruments JJG14	100g~100t	$U=0.07\text{g}\sim 1.5\text{kg}$		
52	*Automatic Gravimetric Filling Instruments	Mass	V.R.of Automatic Gravimetric Filling Instruments JJG564	0.1kg~5t	$U=0.03\text{g}\sim 0.35\text{kg}$		
53	*Electronic Belt weigher	Mass	V.R.of Continuous Totalizing Automatic Weighing Instruments JJG195	(0.1~6000)t/h	$U_{\text{rel}}=0.06\%$		
54	*Discontinuous Totalising Automatic Weighing Instrument	Mass	V.R.of of Discontinuous Totalizing Automatic Weighing Instruments(Totalizing Hopper Weighers) JJG648	0.1kg~50t	$U_{\text{rel}}=0.03\%$		
55	*Taking Blood Electronic Scale	Mass	V.R.of Taking Blood Electronic Scales JJG815	(2~1000)g	$U_{\text{rel}}=(0.06\sim 0.3)\text{g}$		
56	*Automatic Instruments for Weighing Road Vehicles in Motion	Mass	V.R.of Automatic Instruments for Weighting Road Vehicles in Motion JJG907	20kg~150t	$U_{\text{rel}}=0.06\%(\text{Dynamic})$		
57	*Portable Automatic Instruments for Weighing Axle Loads of Vehicle in Motion	Mass	C.S.for Portable Automatic Instruments for Weighing Axle Loads of Vehicle in Motion JJF1212	20kg~150t	$U_{\text{rel}}=0.06\%(\text{Dynamic})$		
58	*Measuring Instruments for Cereals Density	Measuring	V.R.of Measuring Instruments for Cereals Density JJG264	(0~1000) mL	$U=0.020\text{mL}$		
59	*Electronic Balance		C.S.for Electronic Balances JJF 1847,V.R.of Electronic Balance JJG 1036	0.1mg~5t	$U=0.3\mu\text{g}\sim 2.5\text{g}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
60	*Mechanical Balance	mass	V.R.of Mechanical Balance JJG98	0.1mg~2t	U=3 μ g~1.5 g		
61	*Table Balance	MASS	V.R.of Table Balances JJG156	0.1 g~20 kg	U=(0.02~2)g		
62	*Torsion Balance	Mass	V.R.of Torsion Balance JJG46	(1~2500)mg	U=(0.02~2)mg		
63	*Torsion Balance of Table	Mass	V.R.of Table Torsion Balance JJG1130	1mg~100g	U=1mg		
64	*Steelyard Scale	Mass	V.R.of Steelyard Scale JJG17	20g~200kg	U=(0.06~12)g		
65	*Mass Comparators	Standard deviation of repeatability	C.S.for Mass Comparators JJF1326	Repeatability: 1mg~5t	U=0.06 μ g~5.8g		
				Eccentricity test error: 1mg~5t	U=0.21 μ g~12g		
				Partial indication error: 1mg~5t	U=1.0 μ g~17g		
66	*Digital Weighing Indicator	Mass	V.R.of Digital Weighing Indicators (Weighing Indicators) JJG649	(20~10000)d	U=(0.08~0.2)d		
67	Standard Lever for Measuring Force	Force	V.R.of Standard Lever for Measuring Force JJG808	(0.1~5)kN	U _{rel} =0.03%		
		Mass		100mg~50kg	U=0.04mg~0.3g		
68	*Relative Density Balance for Liquid	Density	V.R.of Relative Density Balance for Liquid JJG171	0.0001~2.0000	U=0.00016		
69	*Axial Force Fatigue Testing Machines	Force	V.R.of Axial Force Fatigue Testing Machines JJG556	0.2N~30MN	U _{rel} =0.1%~0.3%		
		Length		(0~300) μ m	U=0.9 μ m		
				300 μ m~50mm	U _{rel} =0.18%		
70	*Dead-Load Hardness Testing Machine	Length	C.S.for International Rubber Hardness Degrees Testers(Scales N,H,L)	(0~150)mm	U=0.005mm		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	International Rubber Hardness Degree	Force	JJF2075	(0.05～10)N	<i>U</i> =0.0059N		
		Hardness		(30～95) IRHD	<i>U</i> =0.9IRHD		
71	*Microhardness Testing Machine in International Rubber Hardness Degree	Length	V.R.of Micro-Hardness Testing Machine in International Rubber Hardness Degree JJG898	(0～150)mm	<i>U</i> =0.0024mm		
		Force		(0.05～2)N	<i>U</i> =0.58mN		
		Hardness		(30～95) IRHD-M	<i>U</i> =1.1IRHD-M		
72	Fruit Pressure Tester	Force	V.R.of Fruit Pressure Tester JJG450	(0～58.84)N	<i>U</i> =0.022N		
				(58.85～200)N	<i>U</i> =0.015N		
		Length		(0～150)mm	<i>U</i> =0.010mm		
73	Type A Barcol Hardness Testers	Geometricdimensioning	V.R.of Type A Barcol Hardness Testers JJG610	(0～150)mm	<i>U</i> =0.0024mm		
				(0～60)°	<i>U</i> =3′		
		Hardness		(40～90)HBa	<i>U</i> =1.5Hba		
74	Ultrasonic Hardness Testers	Geometricdimensioning	C.S.forUltrasonic Hardness Testers JJF1436	(0～150)mm	<i>U</i> =0.0008mm		
				(0～60)°	<i>U</i> =10′		
	Force			(1～100)N	<i>U</i> _{rel} =1%		
	Hardness			(200～250)HV	<i>U</i> _{rel} =0.25%		
				(650～720)HV	<i>U</i> _{rel} =0.25%		
75	*Interface Tensiometers	Tension	C.S.for Interface Tensionmeters JJF1464	(0.01～5000)mN/m	<i>U</i> =(0.0068～0.3)mN/m		
				(0.01～5000)mN/m	<i>U</i> _{rel} =(0.01～0.14)%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
76	*Automatic catchweighing instruments	Mass	Automatic catchweighing instruments. Part 1: metrological and technical requirements - tests OIMLR51-1 Item 6	0.01g~2t	$U=0.15\text{mg}\sim 60\text{g}$		
77	*Hydraulic Adhesion Testers	Force	C.M.of Pull-Off Adhesion	1N~10kN	$U_{\text{rel}}=0.3\%$		
		Length	Tester FFL1601	(0~300)mm	$U=0.06\text{mm}$		
78	*Paint Film Scrub Resistance Testers	Mass	C.S.for Paint Film Scrub Resistance Testers JJF(ShiHua)001	(0~2000)g	$U=0.7\text{g}$		
		Length		(0~1000)mm	$U=0.5\text{mm}$		
		Movement frequency		(0~100)次/min	$U=0.1\text{ 次/min}$		
79	Measuring Instrumentations for Strain Gauge Transducer	Voltage ratio	C.S.for Measuring Instrumentations for Strain Gauge Transducer JJF1469	(-100~-0.08)mV/V	$U_{\text{rel}}=(0.0010\sim 0.0050)\%$		
				(0.08~100)mV/V	$U_{\text{rel}}=(0.0050\sim 0.0010)\%$		
80	*Metallic Knoop Hardness Testers	Hardness	V.R.of Matallic Knoop Hardness Testers JJG1047	(100~800)HK	$U_{\text{rel}}=(4.0\sim 8.7)\%$		
81	*High Strength Bolt Testers	Force	C.S.for High Strength Bolt Testers JJF1478	(5~600)kN	$U_{\text{rel}}=0.4\%$		
		Torque		(50~2000)Nm	$U_{\text{rel}}=0.4\%$		
82	Soil Compaction Tester	Force	V.R.of Working Dynamometers	(1~500)N	$U=0.5\text{N}$		
		Length	JJG455,V.R.of Smooth Limit Gauge JJG343	(0~700)mm	$U=1\text{mm}$		
83	Hardness Testers for Casting Moulds of Sand	Force	V.R.of Hardness Testers for Casting Moulds of Sand JJG831	(0.05~10)N	$U=0.022\text{N}$		
		Thickness		(0~3)mm	$U=0.01\text{mm}$		
		Length		R:(0~20)mm	$U=0.0022\text{mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
84	*Portable Brinell Hardness Tester	Hardness	C.S.for Portable Brinell Hardness Testers JJF1595	(100~400)HB	$U_{rel}=2.9\%$		
85	*Pocket Hardness Tester of International Rubber Hardness Degree	Length	V.R.of Pocket Hardness Meter of International Rubber Hardness Degree JJG594	(0~150)mm	$U=0.003\text{mm}$		
		Force		(0.05~10)N	$U=0.006\text{N}$		
		Hardness		(30~90)IRHD	$U=0.7\text{IRHD}$		
86	*Dynamic Scales For Portal Slewing (Overhead Type) Crane	Mass	V.R.of Dynamic Scales for Portal Slewing (Overhead Type) Crane JJG1124	1kg~60t	$U_{rel}=0.16\%$		
87	*Electronic Instruments For Front-end Loader	Mass	V.R.of Electronic Instruments for Front-end Loader JJG1123	1kg~60t	$U_{rel}=0.16\%$		
88	*Contact Force Tester	Force	C.M.for Contact Force Testers FFL1901	(5~200)N	$U_{rel}=0.3\%$		
89	*Elevator Door Deformation Tester	Force	C.M.for Elevator Door Deformation Testers FFL1902	(0.1~10)kN	$U_{rel}=0.3\%$		
		Length		(0.1~50)mm	$U_{rel}=0.3\%$		
90	*Static Coefficient of Friction Tester	Force	C.M.for Static Coefficient of Friction Testers FFL1903	(2~50)N	$U_{rel}=0.3\%$		
91	*Impact Tester for Glass Door and Car Wall of Elevator	Mass	C.M.for Impact Testers for Glass Door and Car Wall of Elevator FFL1904	(0~50)kg	$U=6\text{g}$		
		Length		(0~1)m	$U=0.4\text{mm}$		
92	Contact Type Belt Tension Gauge	Force	C.M.for Contact Type Belt Tension Gauge FFL1905	(100~1000)N	$U=15\text{N}$		
93	Deflection Tester for Poles	Force	C.M.for Deflection Tester for Poles FFL1907	(1~300)kN	$U_{rel}=0.3\%$		



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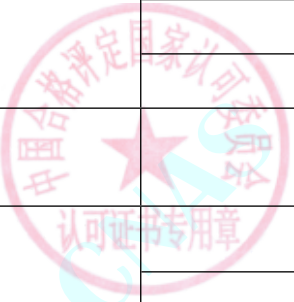
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Length		(0.1~50)mm	$U_{rel}=0.3\%$		
94	Spindle Drawbar Force Gauge	Force	C.M.for Spindle Drawbar Force Gauge FFL1908	(1~50)kN	$U_{rel}=0.3\%$		
95	*Working Torque-meter	Torque	V.R.of Working Torque-meters JJG1146	(0.005~3000)N·m	$U_{rel}=(0.3\sim3.2)\%$		
96	*Portable Rockwell Hardness Tester	Force	C.S.for Portable Rockwell Hardness Testers JJF1594	(20~3000) N	$U_{rel}=0.3\%$		
		Hardness		(20~100) HR	$U=(0.8\sim1.6)$ HR		
97	Very Low Rubber Hardness (VLRH) Durometer	Force	C.M.for Very Low Rubber Hardness (VLRH) Durometer FFL1910	(5~300)mN	$U=0.2$ mN		
		Length		R:(0~5) mm	$U=0.005$ mm		
		Length		(0.50~3.00)mm	$U=0.003$ mm		
98	Type-C Shore Durometer	Force	C.M.for Shore Durometer FFL1909	(1~10)N	$U=0.020$ N		
		Length		(0~5) mm	$U=0.005$ mm		
99	Shore D Durometer	Force	V.R.of Shore D Durometer JJG1039	(5~50)N	$U=0.050$ N		
		Angle		(20~40) °	$U=5'$		
		Length		(0~5) mm	$U=0.005$ mm		
100	*Force-proving instruments used for the verification of uniaxial testing machines	Force	Calibration of force - proving instruments used for the verification GB/T13634 GB/T13634, V.R.of Standard Dynamometers ISO376	0.1cN~10MN	$U_{rel}=(0.03\sim0.01)\%$		
				(>10~30)MN	$U_{rel}=0.16\%$		
101	*Cell Phone Button Life Tester	Force	Calibration Method of Cell Phone Button Life Tester FFL1442	0.1N~10kN	$U_{rel}=0.3\%\sim0.16\%$		
		Frequency		(0~5000)records/min	$U=(0.1\sim2)$ records/min		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Time		(0~9999)s	$U=0.3s$		
		Distance		(0~1000)mm	$U=(0.04\sim0.4)mm$		
		Angle		$0^{\circ} \sim 180^{\circ}$	$U=0.3^{\circ}$		
102	*Case and Bag Testing Machine for Shaking Impact	Mass of Hammer	Calibration Method of Case and Bag Testing Machine for Shaking Impact FFL1428	(10~28)kg	$U=0.6kg$		
		Geometrical dimension of Apparatus hardware		(0~1000)mm	$U=0.04mm$		
		Height of Test		(1000~2000)mm	$U=1mm$		
		Angle of the bevel		$(45\pm2)^{\circ}$	$U=0.6^{\circ}$		
		Counter		(1000~3000)Times	$U=2Times$		
103	*Special Detecting Instrument for the Injection Needle (Pipe)	Force	Calibration Method of Special Detecting Instrument for the Injection Needle (Pipe) FFL1427	(0.1~500)N	$U_{rel}=0.3\%$		
		Time		(1~99)s	$U=0.3s$		
		Pressure		(300~500)kPa	$U_{rel}=0.3\%$		
		Angle		$(0\sim180)^{\circ}$	$U=0.3^{\circ}$		
		Speed		(0~100)mm/min	$U=(0.13\sim0.2)mm/min$		
104	*Electric and Pneumatic torque wrench	Torque	C.S.for Electric and Pneumatic Torque wrenches JJF1610	(0.02~20000) Nm	$U_{rel}=1.3\%$		
105	*Film Pendulum Hardness Tester	Swinging Length	C.S.for Film Pendulum Hardness Testers JJF(ShiHua)008	(0~1000) mm	$U=0.2 mm$		
		Swinging mass		(0~2000) g	$U=0.14 g$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Timing Error		(0~900) s	$U=0.5$ s		
106	*Scratch Tester	Mass of Load Weight	C.S. for Scratch Testers JJF(ShiHua)009	(5~2000)g	$U=0.06$ g		
		Speed of the running needle		(5~50)mm/s	$U=0.02$ mm/s		
107	*Concrete Batching Scales	Mass	V.R.of Concrete Batching Scales JJG1171	(20~13000) kg	$U_{rel}=0.07\%\sim 0.2\%$		
108	Vibrating Wire Rebar Stress Meter	Force	V.R.of Vibrating Wire Rebar Stress Meter JJG(JiaoTong)035	(5~600) kN	$U=0.7\%$ FS		
109	Vibrating Wire Anchor Cable Load Cell	Force	V.R.of Vibrating Wire Anchor Rod Stress Gauge JJG(JiaoTong)036	(5~600) kN	$U=U_1=0.7\%$ FS		
110	Vibrating Wire Anchor Rod Stress Gauge	Force	V.R.of Vibrating Wire Anchor Rod Stress Gauge JJG(JiaoTong)037	(5~600) kN	$U=0.7\%$ FS		
111	Force Transducers	Force	V.R.of Force Transducers JJG391	0.4N~1MN	$U_{rel}=0.04\%$		
112	Load Cell	Force	V.R.of Load Cell JJG669	20N~10kN	$U_{rel}=0.012\%$		
113	Tablet Hardness Tester Needle Tube	Force	C.S.for Tablet Hardness Tester Needle Tube JJF(鄂)46	(20N~250N)	$U_{rel}=0.3\%$		
114	*Dial Weighing Instruments for Body	Mass	V.R.of Dial Weighing Instruments for Body JJG(粤)075	(0.2~200) kg	$U=(0.03\sim 0.23)$ kg		
115	*Automatic Checkweighers	Mass	V.R.of Automatic Checkweighers JJG(粤)070	3 kg ~ 4500 kg	$U=0.6$ g~1.3 kg		
4 Flow & Capacity & Rotational speed Measuring Instrument							



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
1	*Tachometer	RevolutionSpeed	V.R.of Tachometers JJG105	(10~50000)r/min	$U_{rel}=1.2 \times 10^{-4}$		
2	*Standard Equipment for Revolution Speed	RevolutionSpeed	V.R.of Standard Equipment for Revolution Speed JJG326	(2~2000)r/min	$U_{rel}=1.8 \times 10^{-4} \sim 9.0 \times 10^{-5}$		
		Frequency		(2000~60000)r/min	$U_{rel}=9.0 \times 10^{-5} \sim 8.7 \times 10^{-5}$		
				0.1Hz~25MHz	$U_{rel}=1 \times 10^{-6}$		
3	*Checker of Speed and Mileage Meter for Cars	RevolutionSpeed	V.R.of Speed and Mileage Meter for Standard Equipment JJG779	(100~6000)r/min	$U=(0.6 \sim 2.2)r/min$		
		Frequency		0.1Hz~10MHz	$U_{rel}=2 \times 10^{-5}$		
4	*Constant Revolution Speed Source	RevolutionSpeed	Calibration Method of Constant Revolution Speed Source FFN9902	(10~100000)r/min	$U_{rel}=0.12\%$		
5	*Speedometer	Speed	C.M.of Speedometer FFN9906	(0.1~100)m/min	$U=(0.2 \sim 0.6)m/min$		
				(100~2000)m/min	$U=(0.6 \sim 4)m/min$		
6	*Taxi Meter Standard equipment	RevolutionSpeed	V.R.of Standard Equipment for Taximeter JJG738	(50~1500)r/min	$U=0.6r/min$		
		RotationNumber		(1~100000)r	$U=0.8r$		
		Speed		(30~200)km/h	$U=0.6km/h$		
		Length		(0.50~2.00)m	$U_{rel}=0.09\%$		
7	*Electronic Taxi Meter	RotationNumber	V.R.of TaxiMeters JJG517	(0.1~99999.9)r	$U_{rel}=0.2\%$ (Distance)		
				(0.1~99999.9)r	$U_{rel}=0.05\%$ (Time)		
8	*Counting Meter	Counting	C.M.of Counting Meter FFN9904	(0~100000)r	$U=0.1r$		
9	*Equipment of Power Measuring	RevolutionSpeed	V.R.of Equipment of Power Measuring JJG653	(20~40000)r/min	$U=0.03\%FS$		



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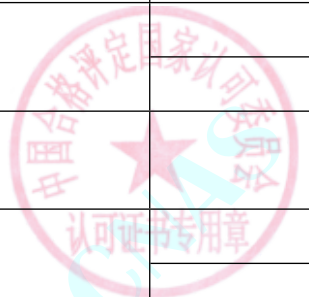
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Torque		(0.01~5000)N·m	$U=0.05\%FS$		
10	*Tacho- Torque Measuring Device	RevolutionSpeed	V.R.of Tacho-Torque Measuring Device JJG924	(20~40000)r/min	$U=0.03\%FS$		
		Torque		(0.01~5000)N·m	$U=0.05\%FS$		
11	*Mobile Radar Vehicle Speed Measurement Devices	Frequency		(1~40)GHz	$U=(8\sim32)MHz$		
		Speed	V.R.of Mobile Radar Vehicle Speed Measurement Devices JJG528	(20~<100)km/h	$U=0.7km/h$ (Analog), (0.6~1.2) km/h (On-line)		
				(100~180)km/h	$U=0.7km/h$ (Analog)		
				(>100~180)km/h	$U_{rel}=1.5\%$ (On-line)		
12	*Fixed Radar Vehicle Speed Measurement Devices	Speed	V.R.of Fixed Radar Vehicle Speed Measurement Devices JJG527	(5~<100)km/h	$U=0.7km/h$ (Analog), (0.6~1.2) km/h (On-line)		
				(100~250)km/h	$U=0.7km/h$ (Analog)		
				(100~250)km/h	$U_{rel}=1.5\%$ (On-line)		
		Frequency		(1~40)GHz	$U=(8\sim32)MHz$		
13	*Traffic Loop-based Speed Meters	Speed	V.R.of Traffic Loop-based Speed Meters JJG1122	(20~<100)km/h	$U=0.7km/h$ (Analog), (0.6~1.2) km/h (On-line)		
				(100~180)km/h	$U_{rel}=1.0\%$ (Analog), 1.5% (On-line)		
14	*Constant Acceleration Centrifugal Test Machines	Acceleration	V.R.of Constant Acceleration Centrifugal Test Machines JJG972	(1~99999)m/s ²	$U_{rel}=2.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
15	*Vibrate reed tachometer	Rotational speed	C.M.of Vibrate reed tachometer FFN1002	(1500～60000)r/min	$U_{rel}=2.5\%$		
16	*Vehicle Laser Speed measurement Device	Frequency	V.R.of Vehicle Laser Speed measurement Device JJG1074	1Hz～1MHz	$U_{rel}=0.03\%$		
		Speed		(20～<100)km/h	$U=1\text{km/h(Anolog)}$		
				(20～<100)km/h	$U=(0.6\sim 1.2)\text{km/h(On-line)}$		
				(100～250)km/h	$U=1\text{ km/h (Anolog)}$		
				(100～250)km/h	$U_{rel}=1.5\% \text{ (On-line)}$		
17	*Elevator Overspeed Governor Testers	Speed	C.S.for Elevator Overspeed Governor Testers JJF1374	(0.5～20)m/s	$U_{rel}=0.4\%$		
18	*Hydrological measuring instrument	Speed	C.M.of Hydrological Measuring Instrument FFN1401	(0.1～20)m/s	$U_{rel}=0.6\%$		
19	*Kinetic energy tester	Time	C.M.of Kinetic energy tester FFN1201	10ns～10s	$U_{rel}=0.05\%$		
		Length		(1～3000)mm	$U=(0.08\sim 0.20)\text{mm}$		
		Speed		(0.5～1000)m/s	$U=(0.001\sim 8.5)\text{m/s}$		
20	*Standard Metal Tank	Volume	V.R.of Standard Metal Tank JJG259	(1～2000)L	$U_{rel}=1.5\times 10^{-4}(k=3)$		
				(2000～5000)L	$U_{rel}=0.03\%(k=3)$		
21	*Liquid Positive Displacement flow meter	Flow	V.R.of Liquid Positive Displacement Flowmeter JJG667	(0.002～9999.999)m ³	$U_{rel}=0.04\%$		
22	*Tank and Barrels	Volume	V.R.of Tank and Barrels JJG647	(5～30)L	$U_{rel}=0.05\%$		
				(30～50000)L	$U_{rel}=0.06\%$		



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23	*Vertical Metal Tank	Volume	V.R.of Vertical Metal Tank Capacity JJG168	(10~500)m ³	$U_{rel}=1.3 \times 10^{-3}$		
				(500~200000)m ³	$U_{rel}=0.3 \times 10^{-3}$		
24	*Quantitative Filling Machine for Liquid state Material	Volume	V.R.of Quantitative Filling Machine for Liquid Material JJG687	1 mL~500 L	$U_{rel}=0.33\%$		
		Mass		1 g~500 kg	$U_{rel}=0.10\%$		
25	*Fuel Dispenser	Volume	V.R.of Fuel Dispensers (for Trial Implementation) JJG443	(5~200)L/min	$U_{rel}=0.07\%$		
26	*Verification Facility for Water Meters	Volume	V.R.of Verification Facility for Water Meters JJG1113	(5~500)L	$U_{rel}=0.07\%$		
27	*Standard bell porvers of gas flow	Flow	V.R.of Standard Bell Porvers of Gas Flow JJG165	(10~5000)L	$U_{rel}=0.04\%$		
28	Diaphragm Gas Meters	Flow	V.R.of Diaphragm Gas Meters JJG577	(0.0016~10)m ³ /h	$U_{rel}=0.27\%$		
29	*Rotameter	Flow	V.R.of Float Meter JJG257	(0.3~1) L/h	$U=0.5\%FS(Gas)$		
				(0.001~30)m ³ /h	$U=0.23\%FS(Gas)$		
30	*Gas Displacement Meter	Flow	V.R.for Gas Displacement Meters JJG633	(0.001~10)m ³ /h	$U_{rel}=0.27\%$		
31	*Tank Cars Capacity	Volume	V.R. of Tank cars capacity JJG133	(1~100)m ³	$U_{rel}=0.17\%$		
32	*Weirs and Flumes for Flow Measurement	Flow	V.R.of Weirs and Flumes for Flow Measurement JJG711	(0.001~93) m ³ /s	$U_{rel}=1.5\%$		
33	*Spherical Metal Tank Capacity	Volume	V.R. of Spherical Metal Tank Capacity JJG642	(50~10000)m ³	$U_{rel}=0.3\%$		
	*Calibration Devices of Non-	Linearspeed	C.S.for Calibration Devices of Non-contact Automotive	(5~50)km/h	$U=0.03km/h$		

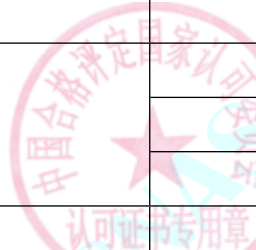


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	contact Automotive Speedmeters	Linearspeed	Speedmeters JJF1486	(50~180)km/h	$U_{rel}=5 \times 10^{-4}$		
		Lineardistance		(1.00~30.00)m	$U=0.02m$		
		Lineardistance		(30.00~999.99)m	$U_{rel}=5 \times 10^{-4}$		
35	*Locomotive Speedmeters	Speed	V.R.of Locomotive Speedmeters JJG1092	(5~450)km/h	$U=0.9km/h$		
		Resistance		(0~2000)M Ω	$U=1M \Omega$		
36	*Oil Consumption Meters of Mass Method	Quality	C.S. for Oil Consumption Meters of Mass Method JJF1670	(0.1~2200) g	$U_{rel}=2 \times 10^{-4}$		
37	CalibrationSpecification For Wet Gas Meters	Flow	C.S.of Magnetoelectricity Wind Sensor for Wind Farm JJF1357	(0.016~6)m³/h	$U_{rel}=0.22\%$		
38	*Rotational Speed Measuring Instruments	Frequency	V.R.of Rotational Speed Measuring Instruments JJG1134	0.1 Hz~25MHz	$U_{rel}=1.0 \times 10^{-6}$		
		Revolution Speed		(10~60000) r/min	$U_{rel}=4 \times 10^{-5}$		
39	*Length measuring instrument of counting type	Length	C.M.for Length measuring instrument of counting type FFN1901	(0.1~2000)m	$U_{rel}=0.2\%$		
40	*Point-to-Point Vehicle Speed Measurement Systems	Distance	C.M.for Point-to-Point Vehicle Speed Measurement Systems FFN1701	(1~50) km	$U_{rel}=0.7\%$		
		Speed		(20~180) km/h	$U=0.7km/h$ (Analog)		
				(20~180) km/h	$U_{rel}=1.0\%$ (On-line)		
41	*Linear velocity measuring instrument	Velocity	C.S.for Linear velocity measuring instrument JJF1801	(0.1~30) m/s	$U_{rel}=0.1\% \sim 0.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
42	*Electromagnetic sensors of rotational speed	Revolution Speed	C.S.for Electromagnetic sensors of rotational speed JJF1871	(10~10000)r/min	$U_{rel}=1.2 \times 10^{-4}$		
43	*Abrasion tester for paint films	Rotational speed	V.R.of Abrasion tester for paint films JJG (JiaoTong) 125	(10~200) r/min	$U=0.50r/min$		
		Hardness		(20~90) HD	$U=1.5HD$		
		Length		(1~150)mm	$U=(0.10 \sim 0.90)mm$		
		Mass		(0.1~100) g	$U=(0.01 \sim 0.10) g$		
44	*Heat meter (on line)	Flow	Online C. S. of heat meter with diameters bigger than DN50 JJF(津) 92	(0.1~20000)m ³ /h	$U_{rel}=0.9\%$	DN (50~1600)m m	
		Temperature		(0~100)°C	$U=0.04^{\circ}C$		
		Energy		(0.1~99999999) kWh	$U_{rel}=1.0\%$		
45	*Piping Liquid Flowmeter	Flow	Calibration Method of Piping Liquid Flowmeter FFJ1201	(0.1~50000)m ³ /h	$U_{rel}=1.4\%$ (Portable ultrasonic method) (DN15~DN3400)		
				(0.001~5)m ³ /h	$U_{rel}=0.26\%$ (Weighing method) (DN2~DN25)		
46	*Piping Gas Flowmeter	Flow	Calibration Method of Piping Gas Flowmeter FFJ1203	(0.2~30000)m ³ /h	$U_{rel}=2.5\%$	DN (10~600)mm	
47	*Liquid filling device	Flow	C.M.of Liquid filling device FFJ1601	(0.01~1000)L	$U_{rel}=0.3\%$		
				(0.1~1000)kg	$U_{rel}=0.3\%$		
48	*Energy Efficiency Testing Device for Gas	Temperature	C.S.for Energy Efficiency Testing Apparatuses of Gas Water Heaters JJF2052	(-20~200)°C	$U=0.10^{\circ}C$		
		Pressure		(0~10)MPa	$U=0.1\%FS$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Water Heater	Liquid flow	ilac-MRA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(0.01~100)m ³ /h	$U_{rel}=0.3\%$		
		Ambient temperature		(0~60)°C	$U=0.10^{\circ}\text{C}$		
		Ambient humidity		(30~99)%RH	$U=3.0\%\text{RH}$		
		Deviation of rated heat input		(0.01~20)%	$U_{rel}=1.8\%$		
		Repeatability		(0.01~10)%	$U_{rel}=0.5\%$		
49	*Flow Intergration Meters	Flow	V.R.of Flow Intergration Meters JJG1003	0 m ³ /h	$U=0.0002 \text{ m}^3/\text{h}$		
				(0.0001~1000000)m ³ /h	$U_{rel}=0.02\%$		
				0 t/h	$U=0.0004 \text{ t/h}$		
				(0.001~100000)t/h	$U_{rel}=0.04\%$		
		temperature		(-50~500) °C	$U=0.06^{\circ}\text{C}$		
		Pressure		(0~20)MPa	$U=0.03\%\text{FS}$		
		cumulative energy		(0.0001~2000)kWh	$U_{rel}=0.02\%$		
50	*Vapor Recovery System for Gasoline Dispensers	Air to liquid volume ratio	C.S.for Vapor Recovery System for Gasoline Dispensers JJF(皖)76	0.8~1.4	$U_{rel}=0.03\%$	Accredited only for electronic Soap Film Flow Meter	
51	*Soap Film Flow Meter	Flow	V.R.of Soap Film Flow Meter JJG586	(5~50000)mL/min	$U_{rel}=0.31\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
52	Piston gas flowmeter	Flow	C.M.for Piston Gas Flowmeters FFH2110	(5~50000)mL/min	$U_{rel}=0.31\%$		
53	*Special Glassware	Capacity	V.R.of Special Glassware JJG10	(1~50)mL	$U=0.005\text{mL}$		
				(50~100)mL	$U=0.03\text{mL}$		
54	*Standard Capacity Measures (glass)	Capacity	V.R.of Standard Capacity Measures (glass) JJG20	(0.05~50)ml	$U=0.0002\text{ml}$		
				(50~200)ml	$U=0.008\text{ml}$		
				(200~500)ml	$U=0.010\text{ml}$		
				(500~2000)ml	$U=0.030\text{ml}$		
55	Working Glass Container	Capacity	V.R.of Working Glass Container JJG196	(0.01~10)mL	$U=0.002\text{mL}$		
				(10~100)mL	$U=0.010\text{mL}$		
				(100~500)mL	$U=0.04\text{mL}$		
				(500~2000)mL	$U=0.12\text{mL}$		
56	*Plastic container	capacity	C.M.for Plastic Container FFH1906	(0.01~10)mL	$U=0.002\text{mL}$		
				(10~100)mL	$U=0.010\text{mL}$		
				(100~500)mL	$U=0.04\text{mL}$		
				(500~2000)mL	$U=0.12\text{mL}$		
57	*Pipetter	capacity	V.R.of Locomotive Pipette JJG646	Quantitative Adjustable Pipet: (0.1~1000) μL	$U_{rel}=(8.0\sim0.2)\%$		
				Quantitative Adjustable Pipet: (>1~100) mL	$U_{rel}=(0.2\sim0.01)\%$		
				Dispensette: (0.1~5)mL	$U=(0.029\sim0.058)\text{mL}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Dispensette: : ($>5\sim 100$)mL	$U=(0.058\sim 0.58)$ mL		
				titrator: ($0.1\sim 10$) mL	$U=0.005$ mL		
				titrator: ($>10\sim 50$) mL	$U=0.01$ mL		
				titrator: ($>50\sim 100$) mL	$U=0.05$ mL		
				microsyringe: ($0.1\sim 100$) μ L	$U=(0.01\sim 0.3)$ μ L		
				microsyringe: ($>100\sim 1000$) μ L	$U=(0.3\sim 2)$ μ L		
5 Pressure & Vacuum Measuring Instrument							
1	*SF6 Gas Density Monitors	Pressure	V.R.of Pressure Type SF6 Gas Density Monitors JJG1073	($-0.1\sim 1.6$) MPa	$U=0.004$ MPa		
2	*Liquid Level Measuring Devices	Length	V.R.of the Liquid Level Measuring Devices JJG971	buoyancy:($0\sim 2$)m	$U=0.5$ mm		
				pressure:($0\sim 600$)m	$U=0.5$ mm		
				reflective:($0\sim 5.5$)m	$U=0.5$ mm		
		Electric current		($0\sim 20$)mA	$U=0.012\%$ FS		
3	*Liquid Manometer for Working	Pressure	V.R.of Liquid Manometer for Working JJG540	($0\sim 25$)kPa	$U=2.6$ Pa		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
4	*Calibration Specification for Pressure Regulators with Bourdon Tube Pressure Gauge	Pressure	C.S.for Pressure Regulators with Bourdon Tube Pressure Gauge JJF1328	(0~25)MPa	$U=1.0\%FS$		
5	*Tilting Tube Micromanometers	Pressure	V.R.of Tilting Tube Micromanometers JJG172	Tilting tube : (-2000~2000)Pa	$U=1.8Pa$		
				Curved tube : (-2000~2000)Pa	$U=3.8Pa$		
6	*Pressure Transducer(Static)	Pressure	V.R.of Pressure Transducer (Static) JJG860	(-0.1~400)MPa	$U=0.012\%FS$		
7	*Pressure Controllers	Pressure	V.R.of Pressure Controllers JJG544	(-0.1~400)MPa	$U=0.14\%FS$		
8	Pneumatic Piston Gauge	pressure	V.R.of Pneumatic Piston Gauge JJG1086	(-0.1~-0.001)MPa	$U_{rel}=0.006\%$		
				(0.001~10)MPa	$U_{rel}=0.006\%$		
9	*Digital Pressure Gauges	Pressure	V.R.of the Digital Pressure Gauges JJG875	(-0.1~400)MPa	$U=0.006\%$		
10	*Pressure Transmitters	Pressure	V.R.of the Pressure Transmitter JJG882	(-0.1~400)MPa	$U=0.012\%FS$		
11	Liquid--medium Piston Gauges	pressure	V.R.of of Liquid-medium Piston Gauges JJG59	(0.04~500)MPa	$U_{rel}=0.004\%$		
12	Piston Pressure Vacuum Gauges	pressure	V.R.of Piston Pressure Vacuum Gauges JJG236	(-0.1~-0.001)MPa	$U_{rel}=0.009\%$		
				(0.001~0.6)MPa	$U_{rel}=0.009\%$		
13	Dual Piston Pressure Vacuum Gauges	pressure	V.R.of Dual Piston Pressure Vacuum Gauges JJG159	(-0.1~-0.001)MPa	$U_{rel}=0.009\%$		
				(0.001~1)MPa	$U_{rel}=0.009\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
14	Ball Pneumatic Dead Weight Testers	pressure	V.R.of Ball Pneumatic Dead Weight Testers JJG942	(0.002~10)MPa	$U_{rel}=0.009\%$		
15	Compensated Micro-manometer	Pressure	V.R.of Compensated Micro-manometer JJG158	(-2.5~+2.5)kPa	$U=0.62Pa$		
16	*Bourdon Tube Pressure Gauge, Pressure Vacuum and Vacuum Gauge for General Use	Pressure	V.R.of Elastic Element Pressure Gauges, Pressure-Vacuum Gauges and Vacuum Gauges for General Use JJG52	(-0.1~400)MPa	$U=0.3\%FS$		
17	*The Precise Bourdon Tube Pressure Gauge and Vacuum Gauge	Pressure	V.R.of Elastic Element Precise Pressure Gauges and Vacuum Gauges JJG49	(-0.1~400)MPa	$U=0.05\%FS$		
18	Aneroid Barometer (Aneroid Barograph)	Pressure	V.R.of Aneroid Barometers and Aneroid Barographs JJG272	(500~1100)hPa	$U=0.3hPa$		
19	*Tyre pressure gauges	Pressure	V.R.of Tyre Pressure Gauges JJG927	(0~2.5)MPa	$U=0.3\%FS$		
20	*Record Pressure Gauge, Pressure Vacuum and Vacuum Gauge	Pressure	V.R.of Record Pressure Gauges, Pressure Vacuum Gauges JJG926	(-0.1~400)MPa	$U=0.3\%FS$		
21	pressure leak	leak rate	C.M.for pressure leak FFR1601	$(1 \times 10^{-4} \sim 1 \times 10^{-9}) Pa \cdot m^3/s$	$U_{rel}=5\%$		
22	*Capacitance Diaphragm Vacuum Gauge	Pressure	C.S.for Capacitance Diaphragm Vacuum Gauges JJF1503	0.1Pa~133kPa	$U_{rel}=0.3\%$		



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23	*Piezoresistive Vacuum Gauge	Pressure	V.R.of Piezoresistive Vacuum Gauge JJG932	$10^5\text{Pa} \sim 10^3\text{Pa}$	$U_{\text{rel}}=0.6\%$		
24	Automatic Standard Pressure Generators	Pressure	V.R.of Automatic Standard Pressure Generators JJG1107	$(-0.1 \sim 400) \text{ MPa}$	$U=0.006\%FS$		
25	Liquid manometer for U-tube	Pressure	V.R.of Precision Liquid Manometers for Cistern and U-tube JJG241	$(-20 \sim 20)\text{kPa}$	$U=2.6\text{Pa}$		
26	*Pointer Type Micro-differential Pressure Gauge	Pressure	V.R.of Pointer Type Micro-differential Pressure Gauge JJG(粤)020	$(-30 \sim 30)\text{kPa}$	$U=0.6\%FS$		
27	*Helium mass spectrometer leak detector	Leak rate	C.S.for helium mass spectrometer leak detector JJF(Jungong)186	$(5 \times 10^{-13} \sim 1 \times 10^{-9})\text{Pa} \cdot \text{m}^3/\text{s}$	$U_{\text{rel}}=20\%$	Vacuum Standard leak group method	
		Calibration coefficient		$0.5 \sim 1.5$	$U_{\text{rel}}=13\%$		
28	Vacuum helium leaks	Leak rate	C.S.for vacuum helium leaks JJF1833	$(1 \times 10^{-10} \sim 2 \times 10^{-5})\text{Pa} \cdot \text{m}^3/\text{s}$	$U_{\text{rel}}=(35 \sim 12)\%$	Relative comparison method	
29	*Digital Pressure Display Instruments	Pressure	C.M.for Digital Pressure Display Instruments FFR2301	$(0 \sim 400)\text{MPa}$	$U=0.04\%FS$		
30	*Ionization Vacuum Gauges	Pressure	C.S.of Ionization Vacuum Gauges JJF1062	$(1 \times 10^{-4} \sim 0.1)\text{Pa}$	$U_{\text{rel}}=30\% \sim 10\%$		
31	*Electronic Pressure Controllers	Pressure	V.R.of Electronic Pressure Controllers JJG(Yue)028	$(-0.1 \sim 60) \text{ MPa}$	$U=0.15\%FS$		
32	Reference Leaks with Channel	Leak rate	C.S.for Reference Leaks by Soap Film Flowmeter JJF1627	$1\text{mL}/\text{min} \sim 10\text{L}/\text{min}$	$U_{\text{rel}}=5.1\%$		
33	Digital Barometers	Pressure	V.R.of Digital Barometers JJG1084	$(10 \sim 1200)\text{hPa}$	$U=0.08\text{hPa}$		



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34	*Industrial Thermal Conductivity Vacuum Gauges	Pressure	C.S.for Industrial Thermal Conductivity Vacuum Gauges JJF1050	$(1 \times 10^{-2} \sim 1 \times 10^5) \text{Pa}$	$U_{\text{rel}}=1.6\%$			
35	*Pressure Parameters for Anti-crazing Steamer for Glazed Ceramic Wall Tile	Pressure	C.S. for Pressure Parameters for Anti-crazing Steamer for Glazed Ceramic Wall Tile JJF1963	$(0 \sim 1) \text{MPa}$	$U=0.004 \text{MPa}$			
6 Acoustics & Vibrance Measuring Instrument								
1	*Mechanical Electrodynamic Vibration Generator For Testing	Displacement	V.R.of Mechanical Vibration Generator for Testing JJG189	$(5 \mu \text{m} \sim 120 \text{mm}), (1 \sim 20) \text{Hz}$	$U_{\text{rel}}=2.4\%$			
				$(5 \mu \text{m} \sim 120 \text{mm}), 20 \text{Hz}$	$U_{\text{rel}}=1.6\%$			
				$(5 \mu \text{m} \sim 120 \text{mm}), (20 \sim 500) \text{Hz}$	$U_{\text{rel}}=2.4\%$			
		Acceleration		$(0.01 \sim 100) \text{m/s}^2, (1 \text{Hz} \sim 500 \text{Hz})$	$U_{\text{rel}}=2.5\%$			
		Frequency		$(1 \sim 10) \text{Hz}$	$U_{\text{rel}}=3.2\%$			
				$(20 \sim 40) \text{Hz}$	$U_{\text{rel}}=0.8\%$			
				$(40 \sim 80) \text{Hz}$	$U_{\text{rel}}=0.4\%$			
				$(80 \sim 160) \text{Hz}$	$U_{\text{rel}}=0.2\%$			
				$(160 \sim 500) \text{Hz}$	$U_{\text{rel}}=0.1\%$			
				Distortion	$0.01\% \sim 100\%$		$U_{\text{rel}}=2.0\%$	
2	Tuning Scope	Frequency	C.S.for Tonometers JJF1136	Tone:C0 (16.532 Hz) ~ Tone:B2(123.47 Hz)	$U=0.25 \text{ cent}$			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Tone:C1(130.81 Hz)~ Tone:B8 (7902.1 Hz)	$U=0.20$ cent		
3	Telephone Analyzer	Frequency	V.R. of Tone Telephone Analyzer JJG(邮电)032	Tone Dialing frequency (697~1477) Hz Tone Dialing frequency (0~16) dB	$U_{rel}=0.0012\%$		
		Level		Tone Dialing frequency (697~1477) Hz Tone Dialing frequency (0~16) dB	$U=0.01$ dB		
4	Electro-Acoustical Measuring Instruments for Telephone Set	Voltage	V.R.of Electro- acoustical Measuring Instrument for Telephone Set JJG869	(-20 dB~20 dB), (100 Hz~ 8 kHz)	$U=0.34$ dB		
5	*Audio- meters	Audition zero level	V.R.of Audio logical Equipment Pure-tone Audiometers JJG388	Air Conduction (-10~120) dB,(125 Hz~10 kHz)	$U=1.2$ dB		
				Bone Conduction (-10~70) dB,(125 Hz~8 kHz)	$U=1.5$ dB		
		Frequency		125 Hz~10 kHz	$U_{rel}=0.1\%$		
		Distortion		0.01%~100%	$U_{rel}=2.0\%$		
6	Measuring Vibration Instrument	Acceleration	V.R.of Vibration Meters JJG676	(0.01~200)m/s ² , (0.1~160)Hz	$U_{rel}=2.4\%$		
				(0.01~200)m/s ² , 160 Hz	$U_{rel}=1.2\%$		
				(0.01~200)m/s ² , (160 Hz~10 kHz)	$U_{rel}=2.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Velocity		(0.1~500)mm/s, (0.1 Hz~1 kHz)	$U_{rel}=3.0\%$		
		Displacement		(0.1~25.4)mm, (0.1 Hz~1 kHz)	$U_{rel}=3.0\%$		
		Frequency		0.1 Hz~10 kHz	$U_{rel}=0.1\%$		
7	Environmental vibration instruments	Acceleration	V.R.of Environmental vibration instruments JJG921	(60~150)dB, (1 Hz~80 Hz)	$U=0.2$ dB		
8	Accelerometer	acceleration	V.R.for Piezoelectric Accelerometer JJG233	(0.01~200)m/s ² , (0.1~16)Hz	$U_{rel}=2.0\%$		
				(0.01~200)m/s ² , 16 Hz	$U_{rel}=1.0\%$		
				(0.01~200)m/s ² , (16~160)Hz	$U_{rel}=2.0\%$		
				(0.01~200)m/s ² , 160 Hz	$U_{rel}=1.0\%$		
				(0.01~200)m/s ² , (160 Hz~10 kHz)	$U_{rel}=2.0\%$		
				Impact acceleration: (50~5×10 ⁴)m/s ²	$U_{rel}=5\%$		
9	*Shock and Bump Testing Machines	Acceleration	V.R.of Shock and Bump Testing Machines JJG1174	(50~5×10 ⁴)m/s ²	$U_{rel}=5\%$		
		Pulse width		(0.1~30)ms	$U_{rel}=3.0\%$		
10	Sound Level Meter (Grade1)	Weighting Frequency	V.R.of Sound Level Meters JJG188	(-80~20)dB, Pressure field (10 Hz~200 Hz)	$U=0.4$ dB		
				(-80~20)dB, Pressure field(200 Hz~400 Hz)	$U=0.3$ dB		
				(-80~20)dB, Free field(400 Hz~1.25 kHz)	$U=0.3$ dB		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(-80~20)dB, Free field(1.25 kHz~10 kHz)	$U=0.5$ dB		
				(-80~20)dB, Free field(10 kHz~20 kHz)	$U=0.9$ dB		
		Sound pressure level		(5~150)dB,(reference 20 μ Pa)	$U=0.3$ dB		
		C-weighting、Z-weighting and A-weighting indicated level difference(1 kHz)		(-20~+20)dB	$U=0.2$ dB		
		Level linearity		(-20~+20)dB	$U=0.3$ dB		
		Level change error from 1 dB to 10 dB		(-20~+20)dB	$U=0.2$ dB		
		S SPL deviation reference to F SPL(1 kHz)		(-10~+10)dB	$U=0.2$ dB		
		Time weighting F attenuation rate		(0~90)dB	$U=3.5$ dB/s		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Time weighting S attenuation rate	ilac-MRA CNAS CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(0~90)dB/s	$U=0.4$ dB/s		
		Tone burst response		(-70~+20)dB	$U=0.3$ dB		
		Response to repeated tone burst		(-20~+20)dB	$U=0.3$ dB		
		Over loading indication		(0~10)dB	$U=0.2$ dB		
		C-weighting peak value		(-20~+20)dB	$U=0.3$ dB		
11	*Sound Calibrator	Sound pressure level	V.R.of Sound Calibrators JJG176	(70 dB ~ 130 dB), (10 Hz~160 Hz)	$U=0.20$ dB		
				(70 dB~ 130 dB), (160 Hz~1.25 kHz)	$U=0.08$ dB		
				(70 dB~ 130 dB), (1.25 kHz~4 kHz)	$U=0.25$ dB		
				(70 dB~ 130 dB), (4 kHz~8 kHz)	$U=0.35$ dB		
				(70 dB~ 130 dB), (8 kHz~16 kHz)	$U=0.50$ dB		
		Total distortion+noise		0.01%~30%	$U=0.4\%$		
		Frequency		10 Hz~16 kHz	$U_{rel}=0.1\%$		
12	*Ultrasonic Power Meter for Milliwatt Lever	Ultrasonic power	V.R.of Ultrasonic Power Meter for Milliwatt Level JJG665	(0.5~10)mW	$U_{rel}=5\%$		



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				(10~600)mW	$U_{rel}=4\%$		
13	*Ultrasonic Inspection Instruments	Attenuation	V.R.of Ultrasonic Flow Detectors JJG746, Non-destructive testing — Characterization and verification of ultrasonic test equipment — Part 1: Instruments EN ISO 22232-1 item 5~9	0 dB~120 dB	$U=0.2$ dB/12 dB		
				0 dB~120 dB	$U=0.3$ dB/20 dB		
		Linearity of time base		(0.1~10000)mm	$U_{rel}=0.15\%$		
		Linearity of vertical display		0~100%	$U=1.0\%$		
		Dynamic range		10 dB~40 dB	$U=1$ dB		
		Equivalent input noise		(0.1~1000) μ V	$U_{rel}=1\%$		
		Scan range		(0.1~10000)mm	$U_{rel}=0.5\%$		
		Resolution		(0~40)dB	$U=1$ dB		
		Permit overstep		(10~60)dB	$U=1$ dB		
		Amplifier frequency response		(0.001~80)MHz	$U=0.4$ dB		
		Transmitter		(0.01~1500)V	$U_{rel}=3\%$		
14	*Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment	Resolution of ultrasonic source	V.R.of Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment JJG639	(0~10)mW/cm ² , Resolution of Ultrasonic Source (2 mW~100 mW)	$U_{rel}=13\%$		
				(10~30)mW/cm ² , Resolution of Ultrasonic Source (100 mW~10 W)	$U_{rel}=12\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
15	*Ultrasonic Power Meters for Watt Level	Ultrasonic Power	V.R.of Ultrasonic Power Meters for Watt Level JJG448	(0.4~1)W (1~30)W	$U_{rel}=5\%$ $U_{rel}=4\%$		
16	Noise Level Statistical Analyzer	Weighting Frequency	V.R.of Noise Level Statistical Analyzers JJG778	(-80~20)dB, Pressure field(10 Hz~200 Hz)	$U=0.4$ dB		
				(-80~20)dB, Pressure field (200 Hz~400 Hz)	$U=0.3$ dB		
				(-80~20)dB, Free field (400 Hz~1.25 kHz)	$U=0.3$ dB		
				(-80~20)dB,Free field(1.25 kHz~10 kHz)	$U=0.5$ dB		
				(-80~20)dB, Free field(10 kHz~20 kHz)	$U=0.9$ dB		
		Sound pressure level		(5~150)dB, (reference 20 μ Pa)	$U=0.3$ dB		
		C-weighting、Z-weighting and A-weighting indicated level difference(1 kHz)		(-20~+20)dB	$U=0.2$ dB		
		Level linearity		(-20~+20)dB	$U=0.3$ dB		
		Level change error from 1 dB to 10 dB		(-20~+20)dB	$U=0.2$ dB		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		S SPL deviation reference to F SPL(1 kHz)	ilac-MRA CNAS NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(-10~+10)dB	$U=0.2$ dB		
		Time weighting F attenuation rate		(0~90)dB	$U=3.5$ dB/s		
		Time weighting S attenuation rate		(0~90) dB/s	$U=0.4$ dB/s		
		Tone burst response		(-70~+20)dB	$U=0.3$ dB		
		Response to repeated tone burst		(-20~+20)dB	$U=0.3$ dB		
		Calculation function		(50~130)dB	$U=0.4$ dB		
17	Condenser Microphone	Sound pressure sensitivity Ratio	V.R.of Working Standard Microphones (Electrostatic Actuator Method)	(-70~10)dB, (10 Hz~4 kHz), reference 1 V/Pa	$U=0.20$ dB	合格评定 国家认可 委员会 认可证书专用章	
			JJG175,C.M.for Condenser Project Measurement Microphones	(-70~10)dB, (4 kHz~20 kHz), reference 1 V/Pa	$U=0.50$ dB		
			JJF1653,Working Standard Microphones (Coupler Comparison Method) JJG1019	(-70~10)dB, (20 kHz~100 kHz), reference 1 V/Pa	$U=0.80$ dB		
18	Psophometer	Voltage	C.S.for Psophometers JJF1167	Zero Volt(0.01~20)V, (800 Hz,1 kHz)	$U=0.07$ dB		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date		
19	*Magnetic Particle Tester	Magnetizing current	C.S.for Magnetic Particle Flaw Detectors JJF1273	Time-weighting:(0.01～20)V, (10 Hz ～31.5 kHz)	<i>U</i> =0.34 dB				
				Effective value:(0.01～20)V,(10 Hz ～31.5 kHz)	<i>U</i> =0.20 dB				
		Magnetic induction intensity		(5～1000)A	<i>U</i> _{rel} =4%				
				(0.1～5)A	<i>U</i> =0.28 A				
		Sensitive		(0.1～2000)mT	<i>U</i> _{rel} =1.0%				
				(7/50～60/100)	<i>U</i> =5%				
20	Sonic Belt Tension Meters	Frequency	C.S.for Sonic Belt Tension Meters JJF1216	(10～1000)Hz	<i>U</i> _{rel} =0.1%～0.8%				
21	Vibration Calibrator	Acceleration	V.R. of Portable vibration Calibrator JJG1062	(0.1～100)m/s ² , (5 Hz～160 Hz)	<i>U</i> _{rel} =1.5%				
				(0.1～100)m/s ² , (160 Hz)	<i>U</i> _{rel} =1.2%				
				(0.1～100)m/s ² , (160 Hz～4 kHz)	<i>U</i> _{rel} =1.5%				
		Frequency		(5 Hz～4 kHz)	<i>U</i> _{rel} =0.1%				
		Distortion		0.01%～100%	<i>U</i> _{rel} =1.4%				
22	*Audio-frequency Signal Generator	Voltage	V.R.of Audio-Frequency Signal Generators JJG607	(1mV～100 V), (1 Hz～200 kHz)	<i>U</i> _{rel} =0.1%				
		Frequency		1 Hz～200 kHz	<i>U</i> _{rel} =0.01%				
		Distortion		0.01%～20%	<i>U</i> _{rel} =1.4%				
		Impedance		1 Ω ～10 M Ω	<i>U</i> _{rel} =0.1%				



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
23	*Measuring Instrument for Shock	Acceleration	C.S.for Shock Measuring Instruments JJF1943	$(50 \sim 5 \times 10^4) \text{ m/s}^2$	$U_{\text{rel}}=5\%$		
		Pulse width		$(0.1 \sim 30) \text{ ms}$	$U_{\text{rel}}=3.0\%$		
24	*Electrodynamic Vibration Testing Systems	Acceleration	V.R.of Electrodynamic Vibration Testing Systems JJG948	$(0.01 \sim 1000) \text{ m/s}^2$, $(1 \sim 160) \text{ Hz}$	$U_{\text{rel}}=2.5\%$		
				$(0.01 \sim 1000) \text{ m/s}^2$, 160 Hz	$U_{\text{rel}}=1.7\%$		
				$(0.01 \sim 1000) \text{ m/s}^2$, $(160 \text{ Hz} \sim 5 \text{ kHz})$	$U_{\text{rel}}=2.5\%$		
				Shock acceleration: $(50 \sim 2000) \text{ m/s}^2$	$U_{\text{rel}}=5\%$		
		Frequency		$(1 \text{ Hz} \sim 5 \text{ kHz})$	$U_{\text{rel}}=0.01\%$		
		Velocity		$(0.1 \sim 2000) \text{ mm/s}$, $(1 \text{ Hz} \sim 1 \text{ kHz})$	$U_{\text{rel}}=3.0\%$		
		Displacement		$(0.1 \sim 100) \text{ mm}$, $(1 \text{ Hz} \sim 1 \text{ kHz})$	$U_{\text{rel}}=3.0\%$		
25	*Audiometric Equipment-Instruments for the Measurement of Aural Acoustic Impedance/Admittance	Distortion	V.R.of Audiometric Equipment-Instruments for the Measurement of Aural Acoustic Impedance/Admittance JJG991	$0.01\% \sim 100\%$	$U_{\text{rel}}=2.0\%$		
		Pulse width		$(0.1 \sim 30) \text{ ms}$	$U_{\text{rel}}=3.0\%$		
		Sound pressure		$(10 \sim 130) \text{ dB}$, $(226 \text{ Hz} \sim 1 \text{ kHz})$	$U=0.8 \text{ dB}$		
		Pressure		$(-800 \sim +600) \text{ daPa}$	$U=0.01\% \text{ FS}$		
		Frequency		$(125 \text{ Hz} \sim 10 \text{ kHz})$	$U_{\text{rel}}=0.1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
26	*Ultrasonic Source for Ultrasonic Doppler Fetal Heart Beat Detector	Output power	V.R.of Ultrasonic Source of Ultrasonic Doppler Foetal Meters JJG893	(2~500)mW	<i>U</i> _{rel} =12%		
27	*Ultrasonic Source for Ultrasonic Doppler Fetal	Power	V.R.of Ultrasonic Source for Ultrasonic Doppler Fetal Heart Beat Detector JJG394	(2~500)mW	<i>U</i> _{rel} =12%		
		Heart rate		(60~300)min ⁻¹	<i>U</i> _{rel} =0.1%		
28	*Standard Vibrator	Frequency	V.R.of Standard Vibrators JJG298	(0.1 Hz~10 kHz)	<i>U</i> _{rel} =0.01%		
		Acceleration		(0.01~200)m/s ² , (0.1 Hz~10 kHz)	<i>U</i> _{rel} =3.0%		
		Distortion		0.01%~100%	<i>U</i> _{rel} =2.0%		
29	Digital Audio Generators	Level	V.R.of Digital Audio Generators JJG994	5 mV/div~5 V/div, Equilibrium	<i>U</i> _{rel} =0.3%~0.4%		
				5 mV/div~5V/div, Non equilibrium	<i>U</i> _{rel} =0.3%~1.2%		
30	*Electrodynamic Horizontal Vibration Generator for Testing	Acceleration	V.R.for Electrodynamic Horizontal Vibration Generator for Testing JJG1000	(0.01~1000)m/s ² , (1~160)Hz	<i>U</i> _{rel} =2.5%		
				(0.01~1000)m/s ² , 160 Hz	<i>U</i> _{rel} =1.7%		
				(0.01~1000)m/s ² , (160 Hz~2 kHz)	<i>U</i> _{rel} =2.5%		
		Frequency		(1 Hz~2 kHz)	<i>U</i> _{rel} =0.01%		
		Velocity		(0.1~2000)mm/s, (1 Hz~1 kHz)	<i>U</i> _{rel} =3.0%		
		Displacement		(0.1~100)mm, (1 Hz~1 kHz)	<i>U</i> _{rel} =3.0%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Distortion		0.01%~100%	$U_{rel}=2.0\%$		
31	*Hydraulic Vibration Generator	Acceleration	V.R. of Hydraulic Vibration Testing System JJG638	(0.01~1000)m/s ² , (0.1~160)Hz	$U_{rel}=2.5\%$		
				(0.01~1000)m/s ² , 160 Hz	$U_{rel}=1.7\%$		
				(0.01~1000)m/s ² , (160 Hz~2 kHz)	$U_{rel}=2.5\%$		
		Frequency		(0.1 Hz~2 kHz)	$U_{rel}=0.01\%$		
		Velocity		(0.1~2000)mm/s, (0.1 Hz~1 kHz)	$U_{rel}=3.0\%$		
		Displacement		(0.1~100)mm, (0.1 Hz~1 kHz)	$U_{rel}=3.0\%$		
		Distortion		0.01%~100%	$U_{rel}=2.0\%$		
32	Speaker/Microphone polarity testing machine	Frequency	Calibration Method of Speaker/Microphone Polarity Tester FFS0601	(8 Hz~2 kHz)	$U_{rel}=5.0 \times 10^{-5}$		
		Amplitude		0.1 V~100 V	$U_{rel}=0.6\%$		
33	*Reference Sound Source	Sound power level	V.R. of Reference Sound Source JJG277	(10~150)dB, (50 Hz~80 Hz)	$U=2.0$ dB		
				(10~150)dB, (80 Hz~630 Hz)	$U=1.5$ dB		
				(10~150)dB, (630 Hz~6.3 kHz)	$U=1.0$ dB		
				(10~150)dB, (6.3 kHz~20 kHz)	$U=1.5$ dB		
		Sound pressure level		(10~150)dB, (50 Hz~80 Hz)	$U=2.0$ dB		



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				(10~150)dB,(80 Hz~630 Hz)	$U=1.5$ dB		
				(10~150)dB,(630 Hz~6.3 kHz)	$U=1.0$ dB		
				(10~150)dB,(6.3 kHz~20 kHz)	$U=1.5$ dB		
34	Tone Burst Generator	sine wave duration	V.R.of Tone Burst Generator JJG199	(0.1~10)ms	$U_{rel}=0.36\%$		
				(10~200)ms	$U_{rel}=0.28\%$		
				0.2 s~10 s	$U_{rel}=0.24\%$		
		Frequency		10 Hz~20 kHz	$U_{rel}=0.01\%$		
		Voltage		1 mV~20 V	$U_{rel}=0.1\%$		
		Distortion		0.01%~100%	$U_{rel}=1.4\%$		
35	Noise Dosimeters	Weighting Frequency	V.R.of Noise Dosimeters JJG655	Sound pressure Pressure field :(-80~20)dB,(63~500)Hz	$U=0.3$ dB		
				Sound pressure Free field :(-80~20)dB,(500 Hz~2 kHz)	$U=0.3$ dB		
				Sound pressure Free field: (-80~20)dB,(2~4)kHz	$U=0.4$ dB		
				Sound pressure Free field: (-80~20)dB,(4~8)kHz	$U=0.4$ dB		
				Noise dose Pressure field: (-80~20)dB,(63~500)Hz	$U_{rel}=8.0\%$		



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			ilac-MAS CHINA NATIONAL ACCREDITATION FOR CONFORMITY ASSESSMENT SCHEDULE OF A CERTIFICATION CERTIFICATE	Noise dose Free field:(-80~20)dB,(500 Hz~2 kHz)	$U_{rel}=8.0\%$		
				Noise dose Free field:(-80~20)dB,(2~4)kHz	$U_{rel}=10\%$		
				Noise dose Free field:(-80~20)dB,(4~8)kHz	$U_{rel}=10\%$		
		Sound Pressure Level		(10~150)dB	$U=0.3$ dB		
36	Electret Microphone Instruments	Sound pressure sensitivity	C.S.for Electret Microphone Instruments JJF1145	(10~150)dB,(20 Hz~20 kHz)	$U=0.28$ dB		
37	Electromagnetic Velocity Transducers	Velocity	V.R.of Electromagnetic Velocity Transducers JJG134	(0.1 mm/s~100 mm/s),(0.1~40)Hz	$U_{rel}=3.0\%$		
				(0.1 mm/s~100 mm/s),40 Hz	$U_{rel}=1.5\%$		
				(0.1 mm/s~100 mm/s),(40 Hz~1 kHz)	$U_{rel}=3.0\%$		
38	*Acoustic Detector	Time of transmitted sound	V.R.of Acoustic Detector JJG990	Airborne sound:(1~1400) μ s,(60~300)mm	$U_{rel}=0.27\%$	合格评定国家认可委员会 认可证书专用章	
				Underwater sound:(1~1400) μ s,(200~900)mm	$U_{rel}=0.65\%$		
		Amplitude		Electric signal:(1~10000) μ s, (0~150)dB	$U_{rel}=0.12\%$ $U=0.3$ dB/6 dB		
		Emission Voltage Stability		(0.1~1500)V	$U_{rel}=1.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Frequency Response of receiving System		(10~250)kHz	<i>U</i> =0.3 dB		
		Channel Isolation		(10~250)kHz	<i>U</i> =0.3 dB		
39	Vibration Displacement Transducer	Displacement	Vibration Displacement Transducer JJG644	(0.01~25.4)mm,(0.1~80)Hz	<i>U</i> _{rel} =3.0%		
				(0.01~25.4)mm,(80~160)Hz	<i>U</i> _{rel} =1.8%		
				(0.01~25.4)mm,(160 Hz~2 kHz)	<i>U</i> _{rel} =1.6%		
40	Personal sound Exposure Meters	Sound Exposure	V.R.of Personal Sound Exposure Meters JJG980	(0.01~99.99)Pa ² h,(63~500)Hz	<i>U</i> _{rel} =13%		
				(0.01~99.99)Pa ² h,1 kHz	<i>U</i> _{rel} =8.6%		
				(0.01~99.99)Pa ² h,(2~8)kHz	<i>U</i> _{rel} =13%		
		Level linearity		(-20~+20)dB	<i>U</i> =0.3 dB		
		Weighting Frequency		Pressure field:(-80~20)dB,(63 Hz~200 Hz)	<i>U</i> =0.4 dB		
				Pressure field:(-80~20)dB,(200 Hz~400 Hz)	<i>U</i> =0.3 dB		
				Free field:(-80~20)dB,(400 Hz~1.25 kHz)	<i>U</i> =0.3 dB		
				Free field:(-80~20)dB,(1.25 kHz~8 kHz)	<i>U</i> =0.5 dB		
		Frequency	V.R.of Measuring Instrument	(20 Hz~2 kHz)	<i>U</i> _{rel} =0.1%		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Instrument for Cement bright Degumming Equipment	Displacement	for Cement Bright Degumming Equipment JIG974	(0.01~12.7) mm,(40 Hz~100 Hz)	$U_{rel}=3.0\%$		
		Acceleration		(0.1~100)m/s ² ,(20 Hz~2 kHz)	$U_{rel}=2.4\%$		
		Time		0.1 s~3600 s	$U=0.2$ s		
		Revolution		(20~100000)r/min	$U_{rel}=5 \times 10^{-5}$		
42	*Ultrasonic Therapeutic Equipment for Medical use	Ultrasonic power	V.R.of Ultrasonic Source of Ultrasonic Therapeutic Equipment for Medical Use JIG806	2 mW~100 mW	$U_{rel}=13\%$		
				100 mW~30 W	$U_{rel}=12\%$		
43	*Eddy current flaw detector	Excitation source output frequency	V.R.of Eddy current flaw detector JIG(民航)0061	10 Hz~20 MHz	$U_{rel}=0.1\%$		
		Excitation source output voltage		1 mV~30 V	$U_{rel}=1.4\%$		
		SNR		(0.1%~100%)	$U=3 \%$		
		Sensitivity		(0.1%~100%)	$U=3 \%$		
		Lift-off effect		(0.1%~100%)	$U=3 \%$		
		Edge effect		(0.1%~100%)	$U=3 \%$		
		Inclination performance		(0.1%~100%)	$U=3 \%$		
44	*Audio Power Amplifier	Frequency response	C.S.for Audio-frequency Power Amplifiers JJF1200	(-20 dB~20 dB),(20 Hz~20 kHz)	$U=0.03$ dB		
		Distortion		0.01%~100%	$U_{rel}=0.03\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
45	Architectural acoustics analyzer	Gain	C.S.for Building Acoustics Analyzers JJF1142	(-60 dB~100 dB),(20 Hz~20 kHz)	$U=0.05$ dB		
		Gain control		(-60 dB~100 dB), (20 Hz~20 kHz)	$U=0.05$ dB		
		Noise output voltage		(1mV~100 V),(20 Hz~20 kHz)	$U=0.05$ dB		
		Excess noise output voltage		(1 mV~100 V),(20 Hz~20 kHz)	$U=0.05$ dB		
		Gain inequality		(-60 dB~+120 dB)	$U=0.05$ dB		
		Crosstalk attenuation		(-60 dB~+120 dB)	$U=0.05$ dB		
		Separation degree		(-60 dB~+120 dB)	$U=0.05$ dB		
		Spectrum analysis		-10 dB~10 dB,(50 Hz~10 kHz)	$U=0.3$ dB		
		Reverberation time		0.01 s~30 s, (50 Hz~10 kHz)	$U_{rel}=1\%$		
		Effective value		-10 dB~10 dB,(50 Hz~10 kHz)	$U=0.2$ dB		
		Linearity		-10 dB~10 dB, (50 Hz~10 kHz)	$U=0.1$ dB		
		Average sound level		-10 dB~10 dB,(50 Hz~10 kHz)	$U=0.05$ dB		
		Noise spectrum uniformity		-10 dB~10 dB,(50 Hz~10 kHz)	$U=0.3$ dB		



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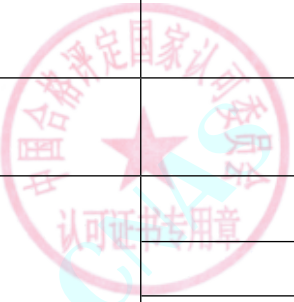
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Band spectrum amplitude stability		-10 dB~10 dB,(50 Hz~10 kHz)	$U=0.3$ dB		
46	*Octave-Band and Fractional-Octave-Band Filters	Relative attenuation	V.R.of Octave-Band and Fractional-Octave-Band Filters JJG449	(-20~150)dB	$U=0.05$ dB		
		Level Fluctuation		(0~80)dB,(1 Hz~500 MHz)	$U=0.05$ dB		
		Level linearity		(-60~+60)dB	$U=0.05$ dB		
47	*Dynamic Signal Analyzer	frequency	V.R.of Dynamical Signal Analyzer JJG834	0.1Hz~200 kHz	$U_{rel}=1 \times 10^{-5}$		
		Voltage		1 mV~50 V	$U_{rel}=0.1\%$		
48	*Measuring Amplifier	Voltage	C.S.for Measuring Amplifiers JJF1157	(1 mV~1000 V), Sensitivity	$U=0.04$ dB		
				(1 mV~1000 V), (Frequency Weighting)	$U=0.20$ dB		
				(1 mV~1000 V),(Linearity Weighting: 2 Hz ~ 10 Hz)	$U=0.11$ dB		
				(1 mV~1000 V), (Linearity Weighting: 10 Hz~50 kHz)	$U=0.04$ dB		
				(1 mV~1000 V), (Linearity Weighting: 50 kHz~200 kHz)	$U=0.11$ dB		
				0.01%~30%	$U_{rel}=2.0\%$		
		Distortion		(2 Hz~200 kHz)	$U_{rel}=0.01\%$		
		Frequency					



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
49	*Charge amplifier	voltage	V.R.of Charge Amplifiers JJG338	0.01 mV~10 V,(0.1Hz~100 kHz)	$U_{rel}=0.2\%$		
		Distortion		0.01%~20%	$U_{rel}=1.4\%$		
50	*Anechoic Room	Background noise	C.S for Acoustic Performance of Anechoic Rooms and Hemi-anechoic Rooms JJF1147	(-2.5 dB~114 dB),(50 Hz~1.25 kHz)	$U=0.5\text{dB}$		
				(-2.5 dB~114 dB),(1.25 kHz~10 kHz)	$U=0.6\text{ dB}$		
				(-2.5 dB~114 dB),(10 kHz~20 kHz)	$U=1.0\text{ dB}$		
		Frequency range and spatial range of a free sound field		-20 dB~20 dB , (50 Hz~20 kHz)	$U=0.5\text{ dB}$		
51	*Reverberation Room	Reverberation time	C.S.for Acoustic Performance of Reverberation Rooms JJF1143	0.01 s~25 s	$U_{rel}=9\%$		
		Background noise		-2.5 dB~50 dB,(20 Hz~20 kHz)	$U=1.0\text{ dB}$		
		The uniformity of sound pressure		-20 dB~20 dB,(50 Hz~20 kHz)	$U=0.7\text{ dB}$		
52	*Audiometry Rooms	Sound pressure level	C.S.for Acoustic Performance of Audiometry Rooms JJF1191	-20 dB~150 dB,(20 Hz~20 kHz)	$U=1.0\text{ dB}$		
53	*Electro-acoustical Measurement Instrument	Sound pressure level	C.S.for Electro-acoustical Measurement Instruments JJF1339	(10~150) dB	$U=0.3\text{ dB}$		
		Frequency		20 Hz~20 kHz	$U_{rel}=0.1\%$		
		Distortion		0.01%~100%	$U_{rel}=1.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
54	*Multi-Channels Sound Analyzer	Weighting Frequency	C.S.for Multi-Channels Sound Analyzers JJF1288	(-80~20) dB,(10 Hz~20 kHz)	$U=0.1$ dB		
		Sound Pressure Level		(5~150)dB	$U=0.2$ dB		
		Reverberation time		0.01 s~30 s,(50 Hz~10 kHz)	$U=1\%$		
		Voltage		1 mV~20 V,(10 Hz~20 kHz)	$U=0.1\%$		
		Level linearity		(10~150)dB	$U=0.2$ dB		
55	*Electro-acoustic Products(Loudspea kers) Power Life- span Measurement Equipment	Voltage	C.S.for Electro-acoustic Products (Loudspeakers) Power Life-span Measurement Equipments JJF1203	1mV~100 V,(10 Hz~20 kHz)	$U=0.2$ dB		
		Frequency		10 Hz~20 kHz	$U_{rel}=0.01\%$		
56	*Hearing Aids Measurement Instrument	Frequency	C.S.for Hearing Aids Measurement Instruments JJF1201	200 Hz~8 kHz	$U_{rel}=0.1\%$		
		Sound pressure level		(10~120)dB	$U=0.3$ dB		
		Distortion		0.01%~100%	$U_{rel}=1.4\%$		
57	*Measurement Instruments of Otoacoustic Emissions	Frequency	C.S.for Audiometric Equipment—Instruments for the Measurement of Otoacoustic Emissions JJF1289	125 Hz~10 kHz	$U_{rel}=0.1\%$		
		Sound pressure level		(0~80)dB	$U=1.2$ dB		
		Distortion		0.01%~100%	$U_{rel}=2.0\%$		
58	*Ultrasonic Phased Array Flaw Detectors	Geometry dimension	C.S.for Ultrasonic Phased Array Flaw Detectors JJF1338	(0.1~55)mm	$U_{rel}=2.0\%$		
		angle		$0.1^{\circ} \sim 90^{\circ}$	$U_{rel}=2.0\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Resolution		(0.9~8)mm	$U=0.3$ mm		
59	Standard Ultrasonic Sources for Milliwattlevel	Ultrasonic power	V.R.of Standard Ultrasonic Sources for Milliwatt Level JJG868	(0.5~600) mW,(0.2 MHz~30 MHz)	$U_{rel}=5\%$		
60	*Magnetic Yoke Detectors	Magnetizing current	C.S.for Magnetic Yoke Detectors JJF1458	(5~1000)A	$U_{rel}=4\%$		
		Lifting force		(0.1~5)A	$U=0.28$ A		
		Sensitive		(1~300)N	$U_{rel}=6\%$		
				(7/50~60/100)	$U=5\%$		
61	Microphone Preamplifiers	Transmission loss	C.S.for Microphone Preamplifiers JJF1137	-10 dB~10 dB,(10 Hz~100 kHz)	$U=0.09$ dB		
		Frequency response		-10 dB~10 dB,(10 Hz~100 kHz)	$U=0.22$ dB		
62	Electrostatic Actuators	Electrostatic exciter response	C.S.for Electrostatic Actuators JJF1293	-60 dB~10 dB,(10 Hz~100 kHz), reference 1 V/Pa	$U=0.10$ dB		
63	*Environmental Noise Automatic Monitors	Sound pressure level	V.R.of Environmental Noise Automatic Monitors JJG1095	Pressure Field:(10 dB~150 dB),(31.5 Hz~200 Hz)	$U=0.5$ dB		
				Pressure Field: (10 dB~150 dB),(200 Hz~400 Hz)	$U=0.4$ dB		
				Free Field:(10 dB~150 dB),(400 Hz~1.25 kHz)	$U=0.4$ dB		
				Free Field:(10 dB~150 dB),(1.25 kHz~10 kHz)	$U=0.6$ dB		
				Free Field:(10 dB~150 dB),(10 kHz~16 kHz)	$U=1.0$ dB		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
64	*Air Ultrasound Measuring Instruments	Minimum detectable signal	C.S.for Air Ultrasound Measuring Instruments JJF1504	-20 dB~90 dB,(20~40) kHz	<i>U</i> =2 dB		
				-20 dB~90 dB (40~50) kHz	<i>U</i> =3 dB		
		Sound pressure sensitivity level		-100 dB~100 dB,(20~40) kHz	<i>U</i> =2 dB		
				-100 dB~100 dB,(40~50) kHz	<i>U</i> =3 dB		
		Level linearity		-20 dB~20 dB,(20~50) kHz	<i>U</i> =0.3 dB		
65	*Electret Microphones	Sound pressure sensitivity level	C.S.for Electret Microphones JJF1202	-40 dB~40 dB,(1 kHz)	<i>U</i> =0.26 dB		
		Frequency response		-40 dB~40 dB,(10~400) Hz	<i>U</i> =0.7 dB		
				-40 dB~40 dB,(400 Hz~1 kHz)	<i>U</i> =0.5 dB		
				-40 dB~40 dB,(1 kHz)	<i>U</i> =0.3 dB		
				-40 dB~40 dB,(1~20) kHz	<i>U</i> =1.0 dB		
				66	*Simulation Test-bed for Road Transportation		Main peak frequency
(10~20)Hz	<i>U</i> _{rel} =0.8%						
(20~80)Hz	<i>U</i> _{rel} =0.4%						
(80~160)Hz	<i>U</i> _{rel} =0.2%						
(160~400)Hz	<i>U</i> _{rel} =0.1%						



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		The total root mean square value		(0.1~1000)m/s ²	$U_{rel}=2.5\%$		
67	*Dynamic Balance Measuring Instruments	Acceleration	C.S.for Dynamic Balance Measuring Instruments JJF1570	(0.1~200)m/s ² , (10~160)Hz	$U_{rel}=2.4\%$		
				(0.1~200)m/s ² , 160 Hz	$U_{rel}=1.2\%$		
				(0.1~200)m/s ² , (160 Hz~2 kHz)	$U_{rel}=2.4\%$		
		Velocity		(0.1~100)mm/s, (10 Hz~2 kHz)	$U_{rel}=3.0\%$		
		Displacement		(0.1~12.7)mm, (10 Hz~1 kHz)	$U_{rel}=3.0\%$		
		Revolution		(20~100000)r/min	$U_{rel}=5 \times 10^{-5}$		
68	*Head and Torso Simulator Used in Acoustical Measurement	Ear sensitivity level	C.S.for Head and Torso Simulator Used in Acoustical measurement JJF1520	-40 dB~40 dB, (250 Hz or 1 kHz)	$U=0.3$ dB		
		Ear mouth free-field frequency response		-40 dB~40 dB, (100 Hz~4 kHz)	$U=0.8$ dB		
				-40 dB~40 dB, (4~10) kHz	$U=1.0$ dB		
		Directional response of ear		-40 dB~40 dB, (100 Hz~4 kHz)	$U=0.8$ dB		
				-40 dB~40 dB, (4~10) kHz	$U=1.0$ dB		
		MRP frequency response		-40 dB~40 dB, (100 Hz~1 kHz)	$U=0.4$ dB		
				-40 dB~40 dB, (1 kHz)	$U=0.3$ dB		
				-40 dB~40 dB, (1~4) kHz	$U=0.4$ dB		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				-40 dB～40 dB,(4～10)kHz	<i>U</i> =0.8 dB		
		MRP harmonic distortion		0.01%～100%,(100 Hz～10 kHz)	<i>U</i> _{rel} =0.4 %		
		Mouth free-field frequency response		-40 dB～40 dB,(100 Hz～1 kHz)	<i>U</i> =0.4 dB		
				-40 dB～40 dB,(1 kHz)	<i>U</i> =0.3 dB		
				-40 dB～40 dB,(1～4)kHz	<i>U</i> =0.4 dB		
				-40 dB～40 dB,(4～10)kHz	<i>U</i> =0.8 dB		
		Sound Pressure Level		(10～150) dB, (100 Hz～10 kHz)	<i>U</i> =0.3 dB		
69	*Impedance Tubes	Spacing	C.S.for Impedance Tubes (Transfer Function Method) JJF1446	1 mm～1 m	<i>U</i> _{rel} =1.0%		
		sound pressure		0 dB～10 dB,(50 Hz～10 kHz)	<i>U</i> =0.1 dB		
		Sound source harmonic distortion		0.01%～100%	<i>U</i> _{rel} =2.0%		
		Sound absorption coefficient		-1～+1,(50 Hz～315 Hz)	<i>U</i> =0.01		
				-1～+1,(400 Hz～1 kHz)	<i>U</i> =0.02		
				-1～+1,(1 kHz～2 kHz)	<i>U</i> =0.03		
				-1～+1,(2 kHz～10 kHz)	<i>U</i> =0.05		
Signal to noise ratio	0 dB～120 dB,(50 Hz～10 kHz)	<i>U</i> =0.2 dB					



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Sound Pressure Level		(10~150) dB,(100 Hz~10 kHz)	$U=0.3$ dB		
70	*Omnidirectional Sound Sources	Directivity index	C.S.for Omnidirectional Sound Sources JJF1468	-20 dB~20 dB,(50 Hz~20 kHz)	$U=0.4$ dB		
		Sound power level of rated power		40 dB~130 dB,(50 Hz~20 kHz)	$U=1.0$ dB		
		Band fluctuation		0 dB~20 dB,(50 Hz~20 kHz)	$U=1.0$ dB		
		Input impedance		$0.1 \Omega \sim 1 \text{ k} \Omega$,(50 Hz~20 kHz)	$U_{\text{rel}}=2.0\%$		
71	*Constant Bandwidth Filter	Relative attenuation	C.S.for Constant Bandwidth Filters JJF1490	(-140~+140)dB	$U=0.24$ dB		
		Frequency		10 Hz~25 kHz	$U_{\text{rel}}=0.1\%$		
		Level linearity		(-140~+140)dB	$U=0.24$ dB		
72	*Calibration Specification for Transducers of Ultrasonic Flaw Detector	Pulse width	C.S.for Transducers of Ultrasonic Flaw Detector JJF1294	0.1 ns~1000 ms	$U_{\text{rel}}=4.5\%$		
		Frequency		10 Hz~80 MHz	$U_{\text{rel}}=0.1\%$		
		Relative Band width		10 Hz~80 MHz	$U_{\text{rel}}=0.1\%$		
		Relative pulse echo sensitivity		(-140~+140)dB	$U=0.5$ dB		
73	*Calibration Specification for Ultrasonic Flaw Detectors by Time-of-Flight	Band width of receiver	C.S.for Ultrasonic Flaw Detectors by Time-of-Flight Diffraction JJF1447	10 Hz~80 MHz	$U_{\text{rel}}=0.1\%$		
		Time of rising edge		0.1 ns~1000 ms	$U_{\text{rel}}=4.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	of-Flight Diffraction	Length of flaw		1 mm~400 mm	$U=5.6$ mm		
74	*IEPE Amplifiers	Attenuation	C.S.for IEPE Amplifiers JJF1269	1 mV~50 V	$U_{rel}=0.2\%$		
		Normalized Distortion		1 mV~50 V	$U_{rel}=0.2\%$		
		Nonlinear		0.01%~100%	$U_{rel}=2.0\%$		
		Frequency response		1 mV~50 V	$U_{rel}=0.2\%$		
		Excitation power supply voltage		1 mV~50 V,(0.1 Hz~100 kHz)	$U_{rel}=0.2\%$		
		Phase		1 mV~50 V	$U_{rel}=0.2\%$		
		Frequency characteristics		$-10^{\circ} \sim 10^{\circ}$	$U=0.1^{\circ}$		
75	*Conditioning Amplifiers	Linearity	C.S.for Conditioning Amplifiers JJF1506	1 mV~100 V	$U=0.1$ dB		
		frequency response		1 mV~100 V	$U=0.2$ dB		
		Level linearity		1 mV~100 V	$U=0.3$ dB		
		Frequency weighting		1 mV~100 V	$U=0.1$ dB		
		High and low pass filter characteristics		0.01%~100%	$U=0.1\%$		
76	*Temperature/Humidity/Vibration Combined	Total distortion	C.S.for Temperance/Humidity/Vibration Combined Environmental				
		Acceleration		(0.1~5000)m/s ² , (5 Hz~2 kHz)	$U_{rel}=2.5\%$		



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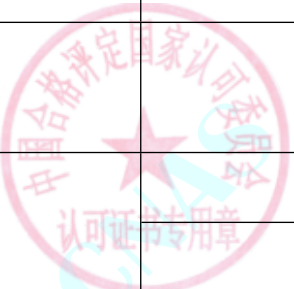
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Environmental Testing System	Temperature	Testing System JJF1270	(-75~+200)°C	$U=0.27\text{ }^{\circ}\text{C}$		
		Relative humidity		10%~98%	$U=1.1\%$		
77	Elevator Vibration and Noise Analyzer	Acceleration	C.S.for Elevator Vibration and Noise Analyzer JJF(闽)1058	(0.1~100)m/s ² , (5~100 Hz)	$U_{\text{rel}}=3.0\%$		
78	Ultrasonic test instrument of concrete	Air sound time	V.R.of Ultrasonic Test Instrument of Concrete JJG(交通)070	(100~1000) μs	$U_{\text{rel}}=0.27\%$		
		Amplitude accuracy		(1~750)V	$U_{\text{rel}}=0.9\%$		
79	*Large Multi-channel Ultrasonic Flaw Detector	Pulse repetition frequency	C.S.for Large Multi-channel Ultrasonic Flaw Detectors JJF1862	1Hz~1MHz	$U_{\text{rel}}=6\times 10^{-6}$		
		Time base linear		(0.1~10000)mm	$U_{\text{rel}}=0.3\%$		
		Gain linear		(0~120)dB	$U=0.3\text{ dB}/12\text{ dB}$		
		Detection sensitivity		(-140~140)dB	$U=0.5\text{ dB}$		
80	*Standing Wave Tubes(Method Using Standing Wave	Sound source sound pressure stability	C.S.for Standing Wave Tubes (Method Using Standing Wave Ratio) JJF1223	(20~140)dB, (50 Hz~10 kHz)	$U=0.09\text{ dB}$		
		Total harmonic distortion		0.01%~100%	$U_{\text{rel}}=1.2\%$		
		Probe tube microphone level linearity		(0~50)dB	$U=0.1\text{ dB}$		
		Sound pressure level		(20~130)dB, (50 Hz~10 kHz)	$U=0.3\text{ dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
81	Sound Level Recorder	Frequency response	C.S. for Sound Level Recorders JJF1241	(10~150)dB,(20 Hz~20 kHz)	$U=0.9$ dB		
		Dynamic Range		(10~150)dB,(20 Hz~20 kHz)	$U=0.9$ dB		
		Input attenuator		(-80~80)dB,(20 Hz~20 kHz)	$U=0.9$ dB		
82	Standard Sample in Impedance Tube Absorption	Sound absorption coefficient	C.S. for Standard Sample in Impedance Tube Absorption JJF1883	0.01~1,(50 Hz~315 Hz)	$U=0.01$		
				0.01~1,(315 Hz~1 kHz)	$U=0.02$		
				0.01~1,(1 kHz~2 kHz)	$U=0.03$		
				0.01~1,(2 kHz~10 kHz)	$U=0.05$		
83	Sound Intensity Calibrator	Sound pressure level	C.S. for Sound Intensity Calibrators JJF1853	(70~130)dB,(10 Hz~10 kHz)	$U=0.2$ dB		
		Sound intensity level		(70~130)dB,(10 Hz~10 kHz)	$U=0.2$ dB		
		Frequency		10 Hz~10 kHz	$U_{rel}=0.1\%$		
		Total harmonic distortion		0.01%~100%	$U=0.4\%$		
84	*Fixed Audiometric Equipment in Sound Field	Sound field audiometric signal sound pressure level	C.S. for Fixed Audiometric Equipment in Sound Field JJF1842	(0~120)dB,(20 Hz~20 kHz)	$U=2.0$ dB		
85	*Sound Insulation Measuring Room	Background noise	C.S. for Sound Insulation Measuring Rooms JJF1798	(-2.5~100)dB,(20 Hz~20 kHz)	$U=1.0$ dB		
		Sound field uniformity		(-20~20)dB,(20 Hz~20 kHz)	$U=0.7$ dB		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
		Reverberation time		(0.01～30)s	<i>U</i> _{rel} =9%			
		Measurable maximum sound insulation		(0～100)dB,(100 Hz～125 Hz)	<i>U</i> =2.0 dB			
				(0～100)dB,(125 Hz～630 Hz)	<i>U</i> =1.2 dB			
				(0～100)dB,(630 Hz～1.25 kHz)	<i>U</i> =0.8 dB			
				(0～100)dB,(1.25 kHz～5 kHz)	<i>U</i> =1.0 dB			
86	Active Coupler	Total coupler	C.S.for Active Couplers JJF1734	0.01%～100%	<i>U</i> =0.2 %			
		coupler amplitude consistency		(-20～+20)dB,(10 Hz～20 kHz)	<i>U</i> =0.2 dB			
		Effective sound pressure level		(30～140)dB,(10 Hz～20 kHz)	<i>U</i> =0.2 dB			
		Short-term drift		(0～20)dB,(10 Hz～20 kHz)	<i>U</i> =0.2 dB			
87	Human vibration meters	Acceleration	V.R.of Human vibration meters JJG1178	(0.01～100)m/s ² ,(0.2 Hz～20 Hz)	<i>U</i> _{rel} =5 %			
				(0.01～100)m/s ² ,(20 Hz～1 kHz)	<i>U</i> _{rel} =2 %			
88	*Detection systems for vehicle honking	Sound pressure level	V.R.of Detection systems for vehicle honking JJG1184	(20～130)dB	<i>U</i> =1.0 dB			
		Localization		X: (0.01～50)m	<i>U</i> =0.19 m			
				Y: (0.01～50)m	<i>U</i> =0.43 m			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Acousto-optic image time consistency		(1~9999)ms	<i>U</i> =15 ms		
89	Impact elastic wave measurement apparatus	Time of transmitted sound	C.S.for Impact Elastic Wave Measurement Apparatus JJF1969	(0.05~20)ms	<i>U</i> _{rel} =0.3 %		
		Frequency response		(0~80)dB	<i>U</i> =1.5 dB		
		Level linearity		(1~100)%	<i>U</i> _{rel} =2.1 %		
		Length		(0~0.5)m	<i>U</i> =0.009 m		
		Channel isolation		(0~80)dB	<i>U</i> =1.5 dB		
90	Working standard microphone	Sound pressure sensitivity level	V.R.of Working Standard Microphones(Free-field Comparison Method) JJG1172	(-70~10)dB,(10 Hz~4 kHz),ref.1 V/Pa	<i>U</i> =0.20 dB		
				(-70~10)dB,(4 kHz~20 kHz),ref.1 V/Pa	<i>U</i> =0.50 dB		
91	*Volume Sound Sources	Sound power level	C.S.for Volume Sound Sources JJF1954	(20~130)dB, (100 Hz~2 kHz)	<i>U</i> =0.6 dB		
				(20~130)dB, (2 kHz~8 kHz)	<i>U</i> =1.1 dB		
				(20~130)dB, (8 kHz~10 kHz)	<i>U</i> =1.3 dB		
				(20~130)dB, (10 kHz)	<i>U</i> =1.9 dB		
		Volume acceleration sensitivity		(-50~50)dB,(100 Hz~2 kHz)	<i>U</i> =0.6 dB		
				(-50~50)dB,(2 kHz~8 kHz)	<i>U</i> =1.1 dB		



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				(-50~50)dB,(8 kHz~10 kHz)	$U=1.3$ dB		
				(-50~50)dB,(10 kHz)	$U=1.9$ dB		
92	*Standard Tapping Machines	Sound pressure level	C.S.for Standard Tapping Machines JJF1652	(10~150)dB,(100 Hz~5 kHz)	$U=0.6$ dB		
		Tapping machines mass		(0~600)g	$U=0.10$ g		
		Tapping machines diameter and space		(30~130)mm	$U=0.03$ mm		
		free fall height of tapping machines		(30~130)mm	$U=0.03$ mm		
		spherical radius		(400~600)mm	$U=0.02$ mm		
		fall angle		(0~120)°	$U=0.3$ °		
		impact time		(50~200)ms,(100 Hz~5 kHz)	$U_{rel}=0.28\%$		
		impact velocity		(100~1000)mm/s	$U=6$ mm/s		
93	*Testing Sound Sources	Sound pressure level	C.S.for Testing Sound Sources JJF1970	(10~150)dB,(50 Hz~125 Hz)	$U=0.5$ dB		
				(10~150)dB,(125 Hz~10 kHz)	$U=0.4$ dB		
				(10~150)dB,(10 kHz~20 kHz)	$U=0.5$ dB		



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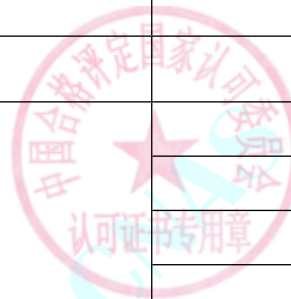
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date					
		Distortion		0.01%~100%	<i>U</i> _{rel} =2.7%							
		frequency response		(10~150)dB,(50 Hz~125 Hz)	<i>U</i> =0.5 dB							
				(10~150)dB,(125 Hz~10 kHz)	<i>U</i> =0.4 dB							
				(10~150)dB,(10 kHz~20 kHz)	<i>U</i> =0.5 dB							
				(10~150)dB,(50 Hz~125 Hz)	<i>U</i> =0.5 dB							
		Sound sources stability		(10~150)dB,(125 Hz~10 kHz)	<i>U</i> =0.4 dB							
				(10~150)dB,(10 kHz~20 kHz)	<i>U</i> =0.5 dB							
		94		Differential Accelerometer Amplifiers	Normalization			C.S.for Differential Accelerometer Amplifiers JJF1904	1 mV~50 V	<i>U</i> _{rel} =0.2%		
					Gain				1 mV~50 V	<i>U</i> _{rel} =0.2%		
Nolinerity error	1 mV~50 V		<i>U</i> _{rel} =0.2%									
Amplitude frequency characteristics	1 mV~50 V,(0.1 Hz~100 kHz)		<i>U</i> _{rel} =0.2%									
Phase frequency characteristics	-10° ~10°		<i>U</i> =0.1°									
Low pass filter characteristics	(-20~20)dB		<i>U</i> =0.2 dB									
background noise	1 μ V~50 V		<i>U</i> _{rel} =0.2%									



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Excitation voltage		1 mV~50 V	<i>U</i> _{rel} =0.2%		
95	Ultrasonic Partial Discharge Testers	Limit frequency	C.S.for Ultrasonic Partial Discharge Testers JJF1856	20 kHz~500 kHz	<i>U</i> _{rel} =0.1%		
		Voltage		(0.01~10)V	<i>U</i> _{rel} =1.9%		
96	Standard Ultrasonic Sources for Watt-level	Ultrasonic power	V.R.of Standard Ultrasonic Sources for Watt-level JJG1185	(0.4~22)W,(0.5 MHz~10 MHz)	<i>U</i> _{rel} =5%		
97	Reference bar in flight of time	Flight of time	C.M.for Reference Bar in Flight of Time FFS2301	(10~120) μ s	<i>U</i> =0.03 μ s		
		Length		(10~200)mm	<i>U</i> =0.2 mm		
7 Electromagnetic Measuring Instrument							
1	Standard Cell	Voltage	V.R.of Standard Cell JJG153	(1.01850~1.01867)V	<i>U</i> =2 μ V		
2	*D.C. Resistance Boxes	Resistance	V.R.of D.C. Resistance Boxes JJG982	(10 ⁻³ ~10 ⁻²) Ω	<i>U</i> _{rel} =1%		
				(10 ⁻² ~10 ⁻¹) Ω	<i>U</i> _{rel} =0.1%		
				(10 ⁻¹ ~10 ⁶) Ω	<i>U</i> _{rel} =0.0015%		
				(10 ⁶ ~10 ⁷) Ω	<i>U</i> _{rel} =0.005%		
3	*The DC Resistive Volt Ratio Box	Volt Ratio	V.R.of the DC Resistive Volt Ratio Box JJG531	Volt Ratio: 1~1000	<i>U</i> _{rel} =0.003%		
4	*DC Resistors	Resistance	V.R.of DC Standard Resistors JJG166	1μ Ω ~10μ Ω	<i>U</i> _{rel} =0.1%		
				10μ Ω ~100μ Ω	<i>U</i> _{rel} =0.015%		
				100μ Ω ~1m Ω	<i>U</i> _{rel} =0.01%		
				1m Ω ~100m Ω	<i>U</i> _{rel} =0.0003%		



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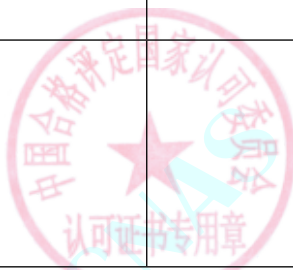
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				100m Ω ~ 1 Ω	$U_{rel}=0.00015\%$		
				1 Ω	$U_{rel}=0.00005\%$		
				1 Ω ~ 10k Ω	$U_{rel}=0.00015\%$		
				10k Ω ~ 100k Ω	$U_{rel}=0.0003\%$		
				100k Ω ~ 20M Ω	$U_{rel}=0.001\%$		
				20M Ω ~ 200M Ω	$U_{rel}=0.01\%$		
				200M Ω ~ 2G Ω	$U_{rel}=0.2\%$		
5	*DC Bridge	Resistance	V.R.of D.C.Bridges JJG125	($10^{-3} \sim 10^{-2}$) Ω	$U_{rel}=1\%$		
				($10^{-2} \sim 10^{-1}$) Ω	$U_{rel}=0.03\%$		
				($10^{-1} \sim 10^6$) Ω	$U_{rel}=0.0015\%$		
				($10^6 \sim 10^7$) Ω	$U_{rel}=0.005\%$		
		Ratio		$10^{-4} \sim 10^4$	$U_{rel}=0.01\% \sim 0.001\%$		
6	*DC Potentiometer	Voltage	V.R.of D.C. Potentiometer JJG123	0.1 μ V ~ 2.1V	$U_{rel}=10\% \sim 0.0002\%$		
7	*Amperemeter, Voltmeter, Wattmeter、 Ohmmeter	DCV	V.R.of Amperemeters, Voltmeters, Wattmeters and Ohmmeters JJG124	(0.75 ~ 750)V	$U_{rel}=0.018\%$	合格评定国家认可 证书专用章	
		DCA		(0.01 ~ 100)A	$U_{rel}=0.018\%$		
		DC Power		10mW ~ 75kW	$U_{rel}=0.018\%$		
		ACV		(0.75 ~ 750)V, (40Hz ~ 1kHz)	$U_{rel}=0.018\%$		
		ACA		(0.01 ~ 100)A, (40Hz ~ 1kHz)	$U_{rel}=0.018\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		AC Power		10mW~75kW, (40Hz~1kHz)	$U_{rel}=0.018\%$		
		OHM		1 Ω ~ 1M Ω	$U_{rel}=1\ \Omega \sim 1M\ \Omega$		
8	Electrical Meters for Measuring Alternating-current Electrical Energy	Electrical Energy	V.R.of Electrical Meters for Measuring Alternating- current Electrical Energy JJG596	Single: (57.7~ 380)V,(0.005~ 100)A,(45Hz~ 65Hz),(cos $\phi=0.5L$ 、 1.0、0.8C、0.5C)	$U_{rel}=0.02\%$		
				Balance Load: (57.7~ 380)V,(0.005~ 100)A,(45Hz~ 65Hz),(cos $\phi=0.5L$ 、 1.0、0.8C、0.5C)	$U_{rel}=0.02\%$		
				Unbalance Load: (57.7~380)V,(0.005~ 100)A,(45Hz~ 65Hz),(cos $\phi=0.5L$ 、 1.0、0.8C、0.5C)	$U_{rel}=0.02\%$		
		Time		(-99.99~99.99)s/d			
9	Electromechanical Meters for Measuring Alternating- current Electrical Energy	Electrical Energy	V.R.of Electromechanical Meters for Measuring Alternating-current Electrical Energy JJG307	Single: (57.7~ 380)V,(0.005~ 100)A,(45Hz~ 65Hz),(cos $\phi=0.5L$ 、 1.0、0.8C、0.5C)	$U_{rel}=0.04\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
10	*Verification Equipment for AC Electrical Energy Meter	Electrical Energy	V.R. of Verification Equipment for AC Electrical Energy Meter JJG597	Balance Load: (57.7~ 380)V,(0.005~ 100)A,(45Hz~ 65Hz),(cos ϕ =0.5L、 1.0、0.8C、0.5C)	$U_{rel}=0.04\%$		
				Unbalance Load: (57.7~380)V,(0.005~ 100)A,(45Hz~ 65Hz),(cos ϕ =0.5L、 1.0、0.8C、0.5C)	$U_{rel}=0.04\%$		
				(57.7~380)V,(0.005~ 0.01)A,(45Hz~65Hz),(cos ϕ =0.5L、1.0、 0.8C、0.5C)	$U_{rel}=0.014\%$		
				(57.7~380)V,(0.011~ 0.02)A,(45Hz~65Hz),(cos ϕ =0.5L、1.0、 0.8C、0.5C)	$U_{rel}=0.012\%$		
				(57.7~380)V,(0.021~ 0.1)A,(45Hz~65Hz),(cos ϕ =0.5L、1.0、 0.8C、0.5C)	$U_{rel}=0.009\%$		
				(57.7~380)V,(0.1~ 120)A,(45Hz~65Hz),(cos ϕ =0.5L、1.0、 0.8C、0.5C)	$U_{rel}=0.008\%$		
		ACV		(57.7~380)V,(45Hz~ 65Hz)	$U_{rel}=0.008\% \sim 0.014\%$		



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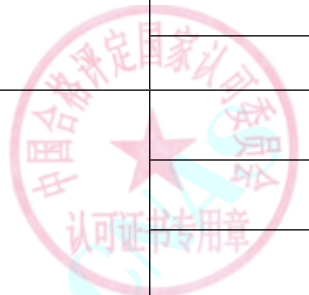
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		ACA	ilac-M	(0.005~120)A, (45Hz~65Hz)	$U_{rel}=0.008\%\sim 0.025\%$		
		AC Power		(0.2885~136800)W, (45Hz~65Hz), ($0^\circ\sim 360^\circ$)	$U_{rel}=0.008\%\sim 0.028\%$		
		PF		0.1~1.0	$U_{rel}=0.012\%$		
		Phase Angle		$0^\circ\sim 360^\circ$	$U=0.006^\circ$		
		Frequency		(45~65)Hz	$U_{rel}=0.003\%$		
11	*High Insulation Resistance Meter	Resistance	V.R.of High Insulation Resistance Meters JJG690	100 Ω ~ 10M Ω	$U_{rel}=0.24\%$		
				10M Ω ~ 100M Ω	$U_{rel}=0.32\%$		
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
				(1~100)G Ω	$U_{rel}=2.4\%$		
				100G Ω ~ 1T Ω	$U_{rel}=2.4\%$		
		Voltage		(1~1100)V	$U_{rel}=0.7\%$		
12	*Earth Resistance Meter	Resistance	V.R.of Earth Resistance Meter JJG366	0.001 Ω ~ 1 Ω	$U_{rel}=6\%\sim 0.6\%$		
				1 Ω ~ 10 Ω	$U_{rel}=0.6\%\sim 0.3\%$		
				10 Ω ~ 100 Ω	$U_{rel}=0.2\%\sim 0.5\%$		
				(0.1~10)k Ω	$U_{rel}=0.5\%\sim 0.2\%$		
13	*AC Low Ohm Tester	Current	V.R.of Earth-Continuity Testers JJG984	(1~60)A	$U_{rel}=0.1\%$		
				(1~60) A, (50Hz,60Hz)	$U_{rel}=0.15\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Resistance		(0.001~0.01) Ω	<i>U</i> _{rel} =1.0%		
				(0.001~0.01) Ω , (50Hz, 60Hz)	<i>U</i> _{rel} =1.0%		
				(0.01~0.1) Ω	<i>U</i> _{rel} =0.5%		
				(0.01~0.1) Ω , (50Hz,60Hz)	<i>U</i> _{rel} =0.5%		
				(0.1~1) Ω	<i>U</i> _{rel} =0.2%		
				(0.1~1) Ω , (50Hz,60Hz)	<i>U</i> _{rel} =0.2%		
				(1~10) Ω	<i>U</i> _{rel} =0.1%		
				(1~10) Ω , (50Hz,60Hz)	<i>U</i> _{rel} =0.15%		
14	*Insulation Resistance Meter Digital Megohm Meter	Voltage	V.R.of Megohm meter JJG622	(1~11000)V	<i>U</i> _{rel} =1.2%		
		Resistance		(0.01~1000)M Ω	<i>U</i> _{rel} =1.5%		
				(1~10)G Ω	<i>U</i> _{rel} =2.4%		
15	*Digital Ohmmeter	Resistance	V.R.of DC Low Resistance Meters JJG837	(10 ⁻³ ~10 ⁸) Ω	<i>U</i> _{rel} =0.015%		
				(10 ⁸ ~10 ⁹) Ω	<i>U</i> _{rel} =0.15%		
16	*Digital Power Meters	ACV	Calibration Specification for Power Analyzers JJF 2040	(0.01~1000)V,(16Hz~ 850Hz)	<i>U</i> _{rel} =0.006%~0.009%		
		ACA		1mA~100A, (16Hz~ 850Hz)	<i>U</i> _{rel} =0.006%~0.012%		
		AC Power		(0.01mW~100kW), (16Hz~850Hz),PF=1.0	<i>U</i> _{rel} =0.008%~0.018%		



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				(0.01mW~80kW), (16Hz~850Hz),PF=0.5	$U_{rel}=0.012\% \sim 0.020\%$		
		DCV		$\pm (0.01 \sim 1000)V$	$U_{rel}=0.005\% \sim 0.008\%$		
		DCA		$\pm (1mA \sim 100A)$	$U_{rel}=0.015\% \sim 0.017\%$		
		DC Power		(0.01mW~100kW)	$U_{rel}=0.012\% \sim 0.017\%$		
		frequency		40Hz~10kHz	$U_{rel}=0.003\%$		
		PF		0.01~1	$U_{rel}=0.008\%$		
		Phase		0° ~360°	$U=0.006^\circ$		
17	*Leakage Current Testers	Voltage	V.R.of Leakage Current Testers JJG843	AC:10V~750V(40Hz~60Hz)	$U_{rel}=0.2\%$		
		Current		AC:10 μ A~2A(40Hz~60Hz)	$U_{rel}=0.2\%$		
				DC:10 μ A~2A	$U_{rel}=0.05\%$		
		OHM		100 Ω ~3k Ω	$U_{rel}=0.1\%$		
		Impedance		100 Ω ~3k Ω (20Hz~1MHz)	$U_{rel}=0.2\%$		
		Transmission Characteristic s		AC:10 μ A~10mA(20Hz~1MHz)	$U_{rel}=0.2\%$		
18	*Industry Frequency Single-phase Phase Meter	PhaseAngle	V.R.of Industry Frequency Single-Phase Phase Meter JJG440	0° ~360°	$U=0.07^\circ$		
		PF		0.01~1	$U_{rel}=0.08\%$		
19	*Frequency Meter	Frequency	V.R.of Frequency Meters JJG603	Dial:(40~65)Hz	$U_{rel}=0.01\%$		
				Digital:40Hz~100kHz	$U_{rel}=0.003\%$		



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20	*DC Electronic Laod	DCV	C.S.for DC Electronic Loads JJF1462	(1~750)V	<i>U</i> _{rel} =0.01%~0.02%		
		DCA		(0.01~1000)A	<i>U</i> _{rel} =0.03%		
		DC Power		10mW~750kW	<i>U</i> _{rel} =0.03%		
		Resistance		1 Ω ~100k Ω	<i>U</i> _{rel} =0.06%		
21	*Clamp Meter	DCA	C.S.for Clamp Ammeters JJF1075	1mA~1000A	<i>U</i> _{rel} =0.08%~0.28%		
		ACA		1mA~1000A, (45Hz~400Hz)	<i>U</i> _{rel} =0.13%~0.4%		
22	*Multimeter Calibrator	DCV	C.S.for Calibrators for Electrical Meters JJF1284	±(1mV~1000V)	<i>U</i> _{rel} =0.013%~0.003%		
		DCA		±（10 μ A~20A）	<i>U</i> _{rel} =0.003%		
				±（20~100）A	<i>U</i> _{rel} =0.012%		
		ACV		(10mV~1000V), (40Hz~1kHz)	<i>U</i> _{rel} =0.010%		
		ACA		10 μ A~20A, (40Hz~1kHz)	<i>U</i> _{rel} =0.010%		
				20A~100A, (40Hz~1kHz)	<i>U</i> _{rel} =0.012%		
		Resistance		2 Ω ~100M Ω	<i>U</i> _{rel} =0.003%~0.06%		
FERQ	10Hz~2MHz	<i>U</i> _{rel} =0.0005%					
23	*Digital Multimeter	DCV	C.S. for Multimeters JJF1587	±（1 μ V~220mV）	<i>U</i> _{rel} =0.00036%		
				±(0.22~2.2)V	<i>U</i> _{rel} =0.00028%		
				±(2.2~11)V	<i>U</i> _{rel} =0.00028%		
				±(11~22)V	<i>U</i> _{rel} =0.00028%		



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				$\pm(22\sim 220)\text{V}$	$U_{\text{rel}}=0.00033\%$		
				$\pm(220\sim 1100)\text{V}$	$U_{\text{rel}}=0.00034\%$		
		ACV		$(2\sim 22)\text{mV}$, (10Hz $\sim$ 40Hz)	$U_{\text{rel}}=0.034\%\sim 0.022\%$		
				$(2\sim 22)\text{mV}$, (40Hz $\sim$ 20kHz)	$U_{\text{rel}}=0.013\%$		
				$(2\sim 22)\text{mV}$, (20kHz $\sim$ 100kHz)	$U_{\text{rel}}=0.025\%\sim 0.036\%$		
				$(2\sim 22)\text{mV}$, (100kHz $\sim$ 500kHz)	$U_{\text{rel}}=0.13\%\sim 0.17\%$		
				$(2\sim 22)\text{mV}$, (500kHz $\sim$ 1MHz)	$U_{\text{rel}}=0.32\%$		
				$(22\sim 220)\text{mV}$, (10Hz $\sim$ 40Hz)	$U_{\text{rel}}=0.024\%\sim 0.0095\%$		
				$(22\sim 220)\text{mV}$, (40Hz $\sim$ 20kHz)	$U_{\text{rel}}=0.004\%$		
				$(22\sim 220)\text{mV}$, (20kHz $\sim$ 100kHz)	$U_{\text{rel}}=0.008\%\sim 0.11\%$		
				$(22\sim 220)\text{mV}$, (100kHz $\sim$ 500kHz)	$U_{\text{rel}}=0.13\%\sim 0.17\%$		
				$(22\sim 220)\text{mV}$, (500kHz $\sim$ 1MHz)	$U_{\text{rel}}=0.32\%$		
				$(0.22\sim 2.2)\text{V}$, (10Hz $\sim$ 40Hz)	$U_{\text{rel}}=0.024\%\sim 0.0085\%$		
				$(0.22\sim 2.2)\text{V}$, (40Hz $\sim$ 20kHz)	$U_{\text{rel}}=0.0021\%$		
				$(0.22\sim 2.2)\text{V}$, (20kHz $\sim$ 100kHz)	$U_{\text{rel}}=0.0050\%\sim 0.097\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(0.22~2.2)V, (100kHz~500kHz)	$U_{rel}=0.13\% \sim 0.17\%$		
				(0.22~2.2)V, (500kHz~1MHz)	$U_{rel}=0.32\%$		
				(2.2~22)V, (10Hz~ 40Hz)	$U_{rel}=0.0073\% \sim 0.023\%$		
				(2.2~22)V, (40Hz~ 20kHz)	$U_{rel}=0.0025\%$		
				(2.2~22)V, (20kHz~ 100kHz)	$U_{rel}=0.0051\% \sim 0.082\%$		
				(2.2~22)V, (100kHz~ 500kHz)	$U_{rel}=0.13\% \sim 0.17\%$		
				(2.2~22)V, (500kHz~ 1MHz)	$U_{rel}=0.32\%$		
				(22~220)V, (10Hz~ 40Hz)	$U_{rel}=0.007\% \sim 0.023\%$		
				(22~220)V, (40Hz~ 20kHz)	$U_{rel}=0.0027\%$		
				(22~220)V, (20kHz~ 100kHz)	$U_{rel}=0.007\% \sim 0.08\%$		
				(22~220)V, (100kHz~ 500kHz)	$U_{rel}=0.13\% \sim 0.17\%$		
				(220~1000)V, (50Hz~ 1kHz)	$U_{rel}=0.004\%$		
				$\pm(10\sim 220)\mu A$	$U_{rel}=0.0027\%$		
				$\pm(0.22\sim 220)mA$	$U_{rel}=0.0012\%$		
				$\pm(0.22\sim 2.2)A$	$U_{rel}=0.0026\%$		
		DCA					



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				$\pm(2.2\sim 20)\text{A}$	$U_{\text{rel}}=0.0032\%$		
		ACA		$(10\sim 220)\mu\text{A}$, (40Hz $\sim$ 1kHz)	$U_{\text{rel}}=0.018\%$		
				$(10\sim 220)\mu\text{A}$, (1kHz $\sim$ 5kHz)	$U_{\text{rel}}=0.026\%$		
				$(10\sim 220)\mu\text{A}$, (5kHz $\sim$ 10kHz)	$U_{\text{rel}}=0.10\%$		
				$(0.22\sim 220)\text{mA}$, (10Hz $\sim$ 40Hz)	$U_{\text{rel}}=0.004\%\sim 0.0054\%$		
				$(0.22\sim 220)\text{mA}$, (40Hz $\sim$ 1kHz)	$U_{\text{rel}}=0.004\%\sim 0.0054\%$		
				$(0.22\sim 220)\text{mA}$, (1kHz $\sim$ 5kHz)	$U_{\text{rel}}=0.004\%\sim 0.0054\%$		
				$(0.22\sim 220)\text{mA}$, (5kHz $\sim$ 10kHz)	$U_{\text{rel}}=0.004\%\sim 0.0054\%$		
				$(0.22\sim 2.2)\text{A}$, (10Hz $\sim$ 40Hz)	$U_{\text{rel}}=0.023\%$		
				$(0.22\sim 2.2)\text{A}$, (40Hz $\sim$ 1kHz)	$U_{\text{rel}}=0.0038\%\sim 0.0054\%$		
				$(0.22\sim 2.2)\text{A}$, (1kHz $\sim$ 5kHz)	$U_{\text{rel}}=0.026\%$		
				$(2.2\sim 20)\text{A}$, (40Hz $\sim$ 1kHz)	$U_{\text{rel}}=0.0045\%$		
		Resistance		$(1\sim 1.9)\Omega$	$U_{\text{rel}}=0.001\%$		
				$1.9\Omega\sim 190\text{k}\Omega$	$U_{\text{rel}}=0.0004\%$		
				$190\text{k}\Omega\sim 190\text{M}\Omega$	$U_{\text{rel}}=0.0009\%\sim 0.0021\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(0.19~1)G Ω	$U_{rel}=0.014\%$		
24	*Multifunction Calibrator	ACV	C.S.for for Multifunction Standard Sources JJF1638	(2~20)mV, (10Hz~40Hz)	$U_{rel}=0.01\% \sim 0.024\%$		
				(2~20)mV, (40Hz~10kHz)	$U_{rel}=0.0040\%$		
				(2~20)mV, (10kHz~100kHz)	$U_{rel}=0.008\% \sim 0.31\%$		
				(20~200)mV, (10Hz~40Hz)	$U_{rel}=0.010\% \sim 0.025\%$		
				(20~200)mV, (40Hz~10kHz)	$U_{rel}=0.0040\%$		
				(20~200)mV, (10kHz~100kHz)	$U_{rel}=0.008\% \sim 0.11\%$		
				(0.2~2)V, (10Hz~40Hz)	$U_{rel}=0.007\% \sim 0.023\%$		
				(0.2~2)V, (40Hz~10kHz)	$U_{rel}=0.0021\%$		
				(0.2~2)V, (10kHz~100kHz)	$U_{rel}=0.0050\% \sim 0.10\%$		
				(2~20)V, (10Hz~40Hz)	$U_{rel}=0.007\% \sim 0.023\%$		
				(2~20)V, (40Hz~10kHz)	$U_{rel}=0.0025\%$		
				(2~20)V, (10kHz~100kHz)	$U_{rel}=0.005\% \sim 0.08\%$		
				(20~200)V, (10Hz~40Hz)	$U_{rel}=0.007\% \sim 0.023\%$		
				(20~200)V, (40Hz~10kHz)	$U_{rel}=0.0027\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
			ilac-M	(20~200)V, (10kHz~100kHz)	<i>U</i> _{rel} =0.007%~0.08%		
				(200~1000)V, (10Hz~40Hz)	<i>U</i> _{rel} =0.011%		
				(200~1000)V, (40Hz~10kHz)	<i>U</i> _{rel} =0.0038%		
				(200~1000)V, (10kHz~30kHz)	<i>U</i> _{rel} =0.0038%		
		ACA		10 μ A~20A, (10Hz~10kHz)	<i>U</i> _{rel} =0.0028%~0.007%		
		DCV		±(1~2)mV	<i>U</i> _{rel} =0.00029%		
				±(2~20)mV	<i>U</i> _{rel} =0.00024%		
				±(20~200)mV	<i>U</i> _{rel} =0.00024%		
				±(0.2~20)V	<i>U</i> _{rel} =0.00024%		
				±(20~1000)V	<i>U</i> _{rel} =0.00025%		
		DCA		±(10~20)μA	<i>U</i> _{rel} =0.0027%		
				±(20μA~20mA)	<i>U</i> _{rel} =0.0012%		
				±(20~200)mA	<i>U</i> _{rel} =0.0026%		
				±(0.2~20)A	<i>U</i> _{rel} =0.0032%		
		Resistance		(0.2~2)Ω	<i>U</i> _{rel} =0.008%		
				(2~20)Ω	<i>U</i> _{rel} =0.0006%		
				(20Ω~2MΩ)	<i>U</i> _{rel} =0.0006%~0.0015%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(2~20)M Ω	$U_{rel}=0.0006\%$		
				(20~200)M Ω	$U_{rel}=0.001\%$		
				(0.2~1)G Ω	$U_{rel}=0.014\%$		
25	*Withstanding Voltage Tester	Voltage	V.R. of Withstanding Voltage Testers JJG795	(0.5~15)kV, (50Hz,60Hz)	$U_{rel}=0.1\%\sim 0.2\%$		
				DCV:(0.5~15)kV	$U_{rel}=0.12\%\sim 0.14\%$		
		Current		(0.4~200)mA, (50Hz,60Hz)	$U_{rel}=0.1\%\sim 0.3\%$		
		Time		DCI:(0.4~200)mA	$U_{rel}=0.06\%\sim 0.3\%$		
26	High Voltage Meter	AC Voltage	V.R. of AC/DC Digital Hight Voltage Meter JJG(粤) 041	(0.5~100)kV,(50Hz)	$U_{rel}=0.15\%$		
		DC Voltage		(0.5~100)kV	$U_{rel}=0.12\%$		
27	*Spark Tester	Voltage	C.M. of Spark Tester FFD9802	(0.1~50)kV,DC,AC50Hz)	$U_{rel}=1.7\%$		
		Current		(0.1~1)mA,	$U_{rel}=1.3\%$		
28	*Turn tester	Circle Number	C.M. of Turn Tester FFD9904	1n~11110n	$U_{rel}=0.23\%$		
29	*Instrument Transformer Test Set	Voltage Transformer Instrument(Current Transformer Instrument) Dividerin Same Phase	V.R. of Transformers Test Set JJG169	$\pm (0.0001\sim 11.11) \%$	$U_{rel}=0.3\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Voltage Transformer Instrument (Current Transformer Instrument) Divider in Cross Phase		$\pm(0.001 \sim 500)'$	$U_{\text{rel}}=0.3\%$		
30	*Burden Box of Current Transformers	Impedance	C.S. for Burden Box of Instrument Transformers JJF1264	$0.01\text{m}\Omega \sim 100\Omega$, (0.01~1000)VA	$U_{\text{rel}}=0.6\%$		
		Admittance		(0.0001~1)S, (0.01~1000)VA	$U_{\text{rel}}=0.9\% \sim 0.4\%$		
31	*Current Transformers of Measuring Service	Ratio Difference	V.R. of Instrument Current Transformers JJG313	(-11.11~11.11)%, (0.1~5000)A/(5A, 1A), (50Hz, 60Hz)	$U=12 \times 10^{-6}(1\%I_n)$		
				(-11.11~11.11)%, (0.1~5000)A/(5A, 1A), (50Hz, 60Hz)	$U=9 \times 10^{-6}(5\%I_n)$		
				(-11.11~11.11)%, (0.1~5000)A/(5A, 1A), (50Hz, 60Hz)	$U=6 \times 10^{-6}(20\%I_n)$		
				(-11.11~11.11)%, (0.1~5000)A/(5A, 1A), (50Hz, 60Hz)	$U=6 \times 10^{-6}(100\%I_n)$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Phase Difference		(-11.11~11.11) %,(0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=6 \times 10^{-6}(120\%In)$		
				(-500~500)' , (0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=12 \times 10^{-6}rad(1\%In)$		
				(-500~500)' , (0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=9 \times 10^{-6}rad(5\%In)$		
				(-500~500)' , (0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=6 \times 10^{-6}rad(20\%In)$		
				(-500~500)' , (0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=6 \times 10^{-6}rad(100\%In)$		
				(-500~500)' , (0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=6 \times 10^{-6}rad(120\%In)$		
32	*Voltage Transformers of Measuring Service	Ratio Difference	V.R.of Instrument Voltage Transformers JJG314	(-11.11~11.11) %,(100V~1kV)/(0.01mV~1kV); (1~220/√3)kV/(100V,100/√3V,100/3V),(50Hz,60Hz)	$U=15 \times 10^{-6}(20\%Un)$		



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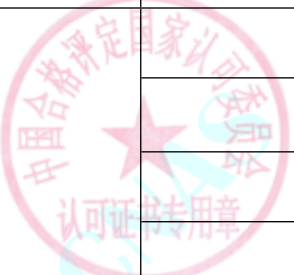
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(-11.11~11.11) %,(100V~ 1kV)/(0.01mV~1kV); (1~220/√ 3)kV/(100V,100/√ 3V,100/3V),(50Hz,60Hz)	$U=12 \times 10^{-6}(50\%U_n)$		
				(-11.11~11.11) %,(100V~ 1kV)/(0.01mV~1kV); (1~220/√ 3)kV/(100V,100/√ 3V,100/3V),(50Hz,60Hz)	$U=8 \times 10^{-6}(80\%U_n)$		
				(-11.11~11.11) %,(100V~ 1kV)/(0.01mV~1kV); (1~220/√ 3)kV/(100V,100/√ 3V,100/3V),(50Hz,60Hz)	$U=8 \times 10^{-6}(100\%U_n)$		
				(-11.11~11.11) %,(100V~ 1kV)/(0.01mV~1kV); (1~220/√ 3)kV/(100V,100/√ 3V,100/3V),(50Hz,60Hz)	$U=8 \times 10^{-6}(120\%U_n)$		
		Phase Difference		(-500~500)' , (100V~ 1kV)/(0.01mV~1kV); (1~220/√ 3)kV/(100V,100/√ 3V,100/3V),(50Hz,60Hz)	$U=15 \times 10^{-6}\text{rad}(20\%U_n)$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(-500~500)' , (100V~1kV)/(0.01mV~1kV); (1~220/√3)kV/(100V, 100/√3V, 100/3V), (50Hz, 60Hz)	$U=12 \times 10^{-6} \text{rad}(50\%U_n)$		
				(-500~500)' , (100V~1kV)/(0.01mV~1kV); (1~220/√3)kV/(100V, 100/√3V, 100/3V), (50Hz, 60Hz)	$U=8 \times 10^{-6} \text{rad}(80\%U_n)$		
				(-500~500)' , (100V~1kV)/(0.01mV~1kV); (1~220/√3)kV/(100V, 100/√3V, 100/3V), (50Hz, 60Hz)	$U=8 \times 10^{-6} \text{rad}(100\%U_n)$		
				(-500~500)' , (100V~1kV)/(0.01mV~1kV); (1~220/√3)kV/(100V, 100/√3V, 100/3V), (50Hz, 60Hz)	$U=8 \times 10^{-6} \text{rad}(120\%U_n)$		
33	Current Calibrator for Withstanding Voltage Tester	Current	C.M.of Current Calibrator of Withstanding Voltage Tester FFD9804	Dial: 0.1mA~100mA, (50Hz)	$U_{\text{rel}}=1.3\% \sim 0.15\%$		
				Digital: 0.1mA~100mA, (50Hz)	$U_{\text{rel}}=0.30\% \sim 0.15\%$		
				Dial: 0.1mA~100mA(DC)	$U_{\text{rel}}=0.85\% \sim 0.14\%$		
				Dial 0.1mA~100mA(DC)	$U_{\text{rel}}=0.25\% \sim 0.12\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
34	*Measuring Transducers	AC Voltage	V.R of Power Frequency A.C.Electrical Quantities Measuring Transducers JJG126	1mV~1000V, (45Hz~65Hz)	$U_{rel}=0.03\%$		
		AC Current		10mA~50A, (45Hz~65Hz)	$U_{rel}=0.03\%$		
		AC Power		(10mW~37500W) (45Hz~65Hz)	$U_{rel}=0.03\%$		
		Power Factor		0.5C~1~0.5L	$U_{rel}=0.04\%$		
		Frequency		45Hz~65Hz	$U_{rel}=0.01\%$		
35	*Resistance strain gauge indicator	Resistance Strain	V.R.of Resistance Strain Gauge Indicators JJG623	$\pm(1\sim10)\mu\epsilon$	$U_{rel}=1\%$		
				$\pm(10\sim10^4)\mu\epsilon$	$U_{rel}=0.3\%\sim0.03\%$		
				$\pm(10^4\sim10^5)\mu\epsilon$	$U_{rel}=0.03\%$		
		Voltage		$\pm(0.1mV\sim100V)$	$U_{rel}=1\%\sim0.03\%$		
36	*AC /DC Resistance Box	Resistance	C.S. of AC Resistance Box JJF1636	$10^{-3}\Omega\sim500k\Omega$, (20Hz~20kHz)	$U_{rel}=1.5\%\sim0.07\%$		
		Time Constant		$500k\Omega\sim22M\Omega$, (20Hz~500Hz)	$U_{rel}=0.07\%$		
		Induction		$(10^{-6}\sim10^6)s$	$U_{rel}=0.1\%$		
				$(10^{-6}\sim10^6)H$	$U_{rel}=0.1\%$		
37	Verifying Meters for pH Meters	pH value	V.R.of Verifying Meters for pH Meters JJG919	$(-14\sim14)pH$	$U=0.0002pH$		
		Resistance		$(0.5\sim3.5)G\Omega$	$U=0.01G\Omega$		
		Voltage		$\pm(0.01mV\sim3V)$	$U=0.01mV$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
38	*High- frequency withstanding voltage tester	Voltage	C.M.of High- frequency withstanding voltage tester FFD0503	(1~28)kV, (100Hz~ 100kHz)	<i>U</i> _{rel} =2.7%~1.7%		
39	*High voltage tester	Voltage at Power Frequency	C.M.of High voltage tester FFD0502	(1~100)kV	<i>U</i> _{rel} =0.3%		
		(100~600)kV		<i>U</i> _{rel} =1.5%~2.5%			
		DC voltage		(1~500)kV	<i>U</i> _{rel} =0.3%~1.5%		
40	*Transformers Turn Ratio Test Sets	Transformers Turn Ratio	V.R.of Transformers Turn Ratio Test Sets JJG970	0.5~1105	<i>U</i> _{rel} =0.03%		
		Error		± (0.01% ~3%)	<i>U</i> =0.026%		
41	*Power Analyzer	AC Voltage	Verification code for power quality analyzer DL/T1028,C.S. for Harmonics Analyzing Instruments at Power Frequency JJF1667	(1~1000)V(16~850)Hz	<i>U</i> _{rel} =0.006%~0.009%		
		AC Current		1mA~1000A, (16~ 850)Hz	<i>U</i> _{rel} =0.006%~0.4%		
		AC Power		1mW~1000kW,(16~ 850)Hz,PF=1.0	<i>U</i> _{rel} =0.008%~0.4%		
				0.5mW~ 500kW,(16Hz~ 850Hz),PF=0.5	<i>U</i> _{rel} =0.012%~0.020%		
		PF		0.1~1	<i>U</i> _{rel} =0.006%		
		Voltage Harmonics		(0.3~300)V, (50Hz~ 5kHz)	<i>U</i> _{rel} =0.06%~0.09%		
		Current Harmonics		3mA~24A, (50Hz~ 5kHz)	<i>U</i> _{rel} =0.06%~0.08%		
		Power Harmonics		0.9mW~ 7200W,(50Hz~5kHz)	<i>U</i> _{rel} =0.12%~0.15%		
		Short time Flicker		Pst=1	<i>U</i> _{rel} =0.7%		



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				Pst=5	<i>U</i> _{rel} =0.3%		
		FREQ		40Hz~10kHz	<i>U</i> _{rel} =0.0004%		
		Phase		0° ~360°	<i>U</i> =0.006°		
42	*Steel Bar Tarnish Measuring Instruments	DC Voltage	C.S.for Steel Bar Tarnish Measuring Instruments JJF1341	input: ± (20mV~20V)	<i>U</i> _{rel} =0.08%		
				output: ± (20mV~20V)	<i>U</i> _{rel} =0.12%		
		DC Current		output: ± (20 μ A~2A)	<i>U</i> _{rel} =0.14%		
43	*DC Stabilized Power Supplies	DCV	C.S. for DC Stabilized Power Supplies JJF1597	20mV~1000V	<i>U</i> _{rel} =0.014%~0.009%		
		DCA		10mA~1000A	<i>U</i> _{rel} =0.012%~0.03%		
44	*AC Stabilized Power Supplies	ACV	C.M.of AC/DC Voltage Stable Source FFD1621	20mV~2V,(40Hz~20kHz)	<i>U</i> _{rel} =0.02%~0.07%		
				(2~200)V,(40Hz~20kHz)	<i>U</i> _{rel} =0.02%~0.04%		
				(200~750)V,(40Hz~20kHz)	<i>U</i> _{rel} =0.02%~0.05%		
		ACA		10mA~1000A,(45Hz~65Hz)	<i>U</i> _{rel} =0.012%~0.20%		
				(10~200)mA,(65Hz~10kHz)	<i>U</i> _{rel} =0.21%~0.23%		
				200mA~1A,(65Hz~10kHz)	<i>U</i> _{rel} =0.29%~0.56%		
		AC Power		10mW~40kW,(40Hz~400Hz)	<i>U</i> _{rel} =0.14%		
		frequency		(40~400)Hz	<i>U</i> _{rel} =0.012%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
45	The Standard Specimen of Magnetic Sheet and Strip	Total Loss	V.R. of the Standard	(0.1~5.0)W/kg	$U_{rel}=1.2\%$		
		Magnetic Field Strength	Specimen of Magnetic Sheet and Strip JJG405	(1~3)T	$U_{rel}=0.6\%$		
46	DC High Voltage Dividers	Voltage Divider Ratio	V.R. of DC High Voltage Dividers JJG1007	1~10000 (1~100)kV	$U_{rel}=0.012\%$		
47	High Voltage Divider at Power Frequency	Voltage Divider Ratio	V.R. of High Voltage Divider at Power Frequency JJG496	1~10000 (1~10)kV	$U_{rel}=0.11\%$		
				1~10000 (10~100)kV	$U_{rel}=0.15\%$		
48	*High Voltage Switch Operation Characteristic Tester	Close Time	V. R. of High Voltage Switch Operation Characteristic Tester JJG1120	(1~1000)ms	$U=0.06\text{ms}\sim 0.10\text{ms}$		
		Open time		(1~1000)ms	$U=0.08\text{ms}\sim 0.10\text{ms}$		
		Spring time		(1~200)ms	$U=0.02\text{ms}\sim 0.10\text{ms}$		
49	Artificial Breakout Device of Spark Tester	Current	C.M. of Artificial Breakout Device of Spark Tester FFD0603	AC:(0.1~100.0)mA,(50Hz)	$U_{rel}=0.15\%\sim 1.3\%$		
				DC:(0.1~100.0)mA	$U_{rel}=0.12\%\sim 0.25\%$		
		Resistance		(1~10)M Ω	$U_{rel}=0.24\%\sim 1.0\%$		
		Capacitance		(100~1000)pF	$U_{rel}=0.26\%$		
		Time		0.5 ms~10s	$U_{rel}=3.3\%$		
50	DC Current Comparator	Current Ratio	C.S. of Calibration Specification for DC Current Comparator JJF(沪)62	(1~10 ⁴)A/A, (1~10 ⁴)A	$U_{rel}=2\times 10^{-6}\sim 5\times 10^{-6}$		
51	Shunt	Current	V.R. of DC Shunts JJG1069	(5~5000)A	$U_{rel}=0.006\%$		
		Resistance		0.5 $\mu\Omega$ ~ 1k Ω (0.1~5000)A	$U_{rel}=0.006\%$		
52	AC/DC Analogue Resistor	Resistance	C.S. of AC/DC Analogue Resistor JJF 1723	AC:1 $\mu\Omega$ ~ 10 ⁶ Ω (50Hz)	$U_{rel}=0.02\%$		



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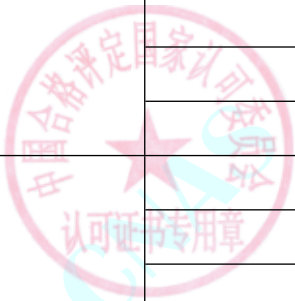
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				DC: $1\mu\Omega \sim 10^6\Omega$	$U_{rel}=0.006\%$		
		DC Current		$0.1A \sim 1000A$	$U_{rel}=0.006\%$		
		AC Current		$0.1A \sim 1000A$ (50Hz)	$U_{rel}=0.03\%$		
53	Standard Calibrator of Strain Analogue Quantity	Strain Analogue Quantity	V.R.of Calibrator of Standard Analogue Strain Quantity JJG533	$(1 \sim 10^5)\mu\varepsilon$, DC	$U_{rel}=0.05\%$		
54	High Resistance Box	Resistance	V.R.of High Voltage and Value D.C. Resistors JJG1072	$10^2\Omega \sim 10^6\Omega$	$U_{rel}=4 \times 10^{-6}$		
				$10^6\Omega \sim 10^7\Omega$	$U_{rel}=5 \times 10^{-5}$		
				$10^7\Omega \sim 10^8\Omega$	$U_{rel}=2 \times 10^{-4}$		
				$10^8\Omega \sim 10^9\Omega$	$U_{rel}=5 \times 10^{-4}$		
				$10^9\Omega \sim 10^{10}\Omega$	$U_{rel}=1 \times 10^{-3}$		
				$10^{10}\Omega \sim 10^{11}\Omega$	$U_{rel}=2 \times 10^{-3}$		
				$10^{11}\Omega \sim 10^{12}\Omega$	$U_{rel}=0.5\%$		
				$10^{12}\Omega \sim 10^{13}\Omega$	$U_{rel}=1.2\%$		
				$10^{12}\Omega$ (1V~1kV)	$U_{rel}=0.1\%$		
				$10^{13}\Omega$ (1V~1kV)	$U_{rel}=0.6\%$		
				$10^{14}\Omega$ (1V~1kV)	$U_{rel}=1.5\%$		
				$10^{15}\Omega$ (1V~1kV)	$U_{rel}=15\%$		
				$10^{16}\Omega$ (1V~1kV)	$U_{rel}=50\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
55	*Earth Resistance Tester Verification Device	Resistance	V.R.of DC Resistance Box JJG982	(10 ⁻³ ~10 ⁵) Ω	<i>U</i> _{rel} =3%~0.01%			
56	*Cable/ Harness Tester (Precision Cable Tester)	Voltage	Calibration Specification for Cable Testers JJF1457	(1~5000)V	<i>U</i> _{rel} =0.08%~0.7%;			
		Resistance		Insulation resistance:(10 ² ~10 ¹²) Ω	<i>U</i> _{rel} =1.2%~3.3%			
				Continuity resistance:(10 ⁻² ~10 ⁶) Ω	<i>U</i> _{rel} =0.7%			
				Open-short circuit resistance:(10 ⁻⁴ ~10 ¹²) Ω	<i>U</i> _{rel} =2.5%			
57	*Resistivity measuring instruments with four-Probe array method	Resistivity	V.R.of Resistivity Measuring Instruments with Four-Probe Array Method JJG508	(0.001~10 ³) Ω • cm	<i>U</i> _{rel} =0.5%			
58	*Clamp Earth Resistance Meter	Resistance	V.R.of Clamp Earth Resistance Meters JJG1054	(10 ⁻² ~10) Ω	<i>U</i> _{rel} =0.2%			
				(10~100) Ω	<i>U</i> _{rel} =0.6%			
				100 Ω ~10k Ω	<i>U</i> _{rel} =0.3%			
59	Wood Moisture Content Measuring Meters	Wood Moisture Content	V.R.of Wood Moisture Content Measuring Meters JJG986	(6~10)%	<i>U</i> =0.4%			
				(10~20)%	<i>U</i> =0.3%			
				(20~36)%	<i>U</i> =0.3%			
60	*System Tester, Surface Resistivity Meter, Wrist Strap/ Footwear Tester	Resistance	C.M.of System Tester, Surface Resistivity Meter, Wrist Strap/ Footwear Tester FFD1506	(10 ³ ~10 ⁸) Ω	<i>U</i> _{rel} =0.6%			
				(10 ⁸ ~10 ⁹) Ω	<i>U</i> _{rel} =2%			
				(10 ⁹ ~10 ¹⁰) Ω	<i>U</i> _{rel} =3%			



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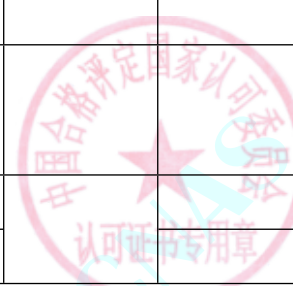
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				$(10^{10} \sim 10^{12}) \Omega$	$U_{\text{rel}}=6\%$		
		Voltage		$(1 \sim 5000)\text{V}$	$U_{\text{rel}}=1.2\%$		
61	*Low Resistance Meter, Micro-ohm Meter	Resistance	V.R.of DC Low Resistance Meters JJG837	$(10^{-6} \sim 10^{-5}) \Omega$	$U_{\text{rel}}=0.8\%$		
				$(10^{-5} \sim 10^{-4}) \Omega$	$U_{\text{rel}}=0.2\%$		
				$(10^{-4} \sim 10^{-5}) \Omega$	$U_{\text{rel}}=0.015\%$		
62	*Contact Resistance Tester	Resistance	C.M.of Contact Resistance Tester FFD1507	$(10^{-6} \sim 10^{-5}) \Omega$	$U_{\text{rel}}=0.8\%$		
				$(10^{-5} \sim 10^{-4}) \Omega$	$U_{\text{rel}}=0.2\%$		
				$(10^{-4} \sim 10^{-6}) \Omega$	$U_{\text{rel}}=0.016\%$		
63	*Conductor Resistance Tester	Resistance	C.M.of Conductor Resistance Tester FFD1508	$1 \mu \Omega \sim 10^6 \Omega$	$U_{\text{rel}}=0.8\% \sim 0.02\%$		
64	*Hot Line Coil Resistance & Temperature Meter	Resistance	C.S.for Online Testers of Winding Temperature Rise JJF1540	$1\text{m} \Omega \sim 100\text{k} \Omega$	$U_{\text{rel}}=0.02\% \sim 0.5\%$		
65	Chub-E4 Thermometer	Resistance	C.M.of Chub-E4 Thermometer FFD1510	$(10^{-1} \sim 10^5) \Omega$	$U_{\text{rel}}=0.0006\%$		
				$(10^5 \sim 10^6) \Omega$	$U_{\text{rel}}=0.003\%$		
66	Thermocouple and Hot Resistance Tester	Resistance	C.M.of Thermocouple and Hot Resistance Tester FFD1511	$(10^{-1} \sim 10^5) \Omega$	$U_{\text{rel}}=0.0006\%$		
				$(10^5 \sim 10^6) \Omega$	$U_{\text{rel}}=0.003\%$		
		Voltage		$\pm (0.1\text{mV} \sim 10\text{V})$	$U_{\text{rel}}=0.0014\%$		
67	*Loop Resistance Tester,	Resistance	V.R.of Loop Resistance Tester and DC Resistance Meters JJG1052	$(1 \sim 10) \mu \Omega$	$U_{\text{rel}}=0.6\%$		
				$(10 \sim 100) \mu \Omega$	$U_{\text{rel}}=0.2\%$		
				$100 \mu \Omega \sim 10 \Omega$	$U_{\text{rel}}=0.06\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Current		10A~1000A	$U_{rel}=0.09\%$		
68	*DC Low Resistance Tester	Resistance	C.M.of DC Low Resistance Tester FFD1512	$(1\sim 10)\mu\Omega$	$U_{rel}=0.6\%$		
				$(10\sim 100)\mu\Omega$	$U_{rel}=0.2\%$		
				$100\mu\Omega\sim 10\Omega$	$U_{rel}=0.06\%$		
		Current		1mA~100A	$U_{rel}=0.06\%$		
69	Voltage tester for Megohm meter	Voltage	C.M.of Voltage tester for Megohm meter FFD1513	(1V~10000V)	$U_{rel}=0.16\%$		
70	Charged Plate Monitor	DC Voltage	C.M.of Charged Plate Monitor FFD0802	$\pm (1\sim 1100)V$	$U_{rel}=0.5\%$		
				$\pm (1100\sim 5500)V$	$U_{rel}=0.3\%$		
		Time		(0.5~999)s	$U_{rel}=0.2\%$		
71	Coulomb Meter	Coulomb	C.M.of Coulomb Meter FFD0803	$\pm (1nC\sim 999\mu C)$	$U_{rel}=0.5\%$		
72	Appoarent Charge Calibrator for Partial Discharge Measurements	Charge quantity	V.R. of Apparent Chrg Calibrator for Partial Discharge Measurements JJG1115	$\pm (0.1\sim 5000)pC$	$U_{rel}=1.3\%$		
		Rise time		20ns~1000ns	$U=4ns$		
73	*Partial Discharge Testers Based Pulse Current Method	Charge	C.S of Partial Discharge Testers Based Pulse Current Method JJF1616	(0.1~20000)pC	$U_{rel}=1.6\%$		
74	*Ionizing Air Blower	Float Voltage	C.M.of Ionizing Air Blower FFD0804	$\pm (0.1\sim 1000)V$	$U=1.7V$		
		Decay Time		(1~999)s	$U=0.4s$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
75	*High Current Generator	AC Current	Calibration Specification of High Current Generator JJF(JX)1037	(1~5000)A, (50Hz)	$U_{rel}=0.2\%$		
76	*Variable Frequency In-series Resonance Tester	AC Voltage	C.M.of Variable Frequency In-Series Resonance Tester FFD0903	(1~600)kV,(30~300)Hz	$U_{rel}=0.3\%\sim 2.5\%$		
		Frequency		(30~350)Hz	$U_{rel}=0.1\%$		
77	*Zinc Oxide Arrester Tester	reference voltage	General technical conditions of resistive current tester for zinc oxide surge arrester DL/T987	(1~300)V,(45~65)Hz	$U_{rel}=0.3\%$		
		AC Current		(0.1~100)mA, (45Hz~65Hz)	$U_{rel}=0.3\%$		
		Resistance Current		(0.1~100)mA, (45Hz~65Hz)	$U_{rel}=0.3\%$		
		Capacitive Current		(0.1~100)mA, (45Hz~65Hz)	$U_{rel}=0.3\%$		
		Phase		$0^\circ \sim 360^\circ$	$U=0.03^\circ$		
78	*Relaying Protection Tester	AC Voltage	V.R. of Testers for Relaying Protection JJG1112	(1~750)V,(45Hz~65Hz)	$U_{rel}=0.03\%$		
		AC Current		(0.1~100)A,(45Hz~65Hz)	$U_{rel}=0.03\%$		
		DC Voltage		(1~750)V	$U_{rel}=0.03\%$		
		DC Current		(0.1~100)A	$U_{rel}=0.03\%$		
		Time		(0.001~100)s	$U_{rel}=0.02\%\sim 0.06\%$		
		Phase		$0^\circ \sim 360^\circ$, (45Hz~65Hz)	$U=0.03^\circ$		
		Freq		10Hz~10kHz	$U_{rel}=0.01\%$		



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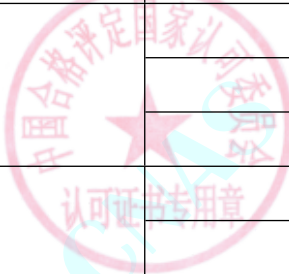
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
79	*Double clamp phase position voltmeter	ACA	C.M.of Double clamp phase position voltmeter FFD1301	20mA~20A,(16Hz~ 450Hz)	<i>U</i> _{rel} =0.10 %		
		ACV		(2~1000)V,(16Hz~ 450Hz)	<i>U</i> _{rel} =0.09%~0.13 %		
		Phase		0° ~360°	<i>U</i> =0.1°		
80	*RCD meter	Residual Current	C.S. for Residual Current Operated Protective Device Operated Characteristic Tester JJF1283	3mA~3A,(45Hz~65Hz)	<i>U</i> _{rel} =1.9%~1.8%		
		Time		20ms~5s	<i>U</i> =1ms		
81	*PXI/PCI Multimeter Module	DCV	C.M.of NI Multimeter Module FFD1001	(1~220)mV	<i>U</i> _{rel} =0.0023%		
				220mV~2.2V	<i>U</i> _{rel} =0.0022%		
				(2.2~22)V	<i>U</i> _{rel} =0.0021%		
				(22~1000)V	<i>U</i> _{rel} =0.0022%		
		ACV		(10~220)mV,(40Hz~ 20kHz)	<i>U</i> _{rel} =0.015%		
				(10~220)mV,(20kHz~ 50kHz)	<i>U</i> _{rel} =0.026%		
				(10~220)mV,(50kHz~ 100kHz)	<i>U</i> _{rel} =0.06%		
				220mV~220V,(40Hz~ 20kHz)	<i>U</i> _{rel} =0.013 %		
				220mV~220V,(20kHz~ 50kHz)	<i>U</i> _{rel} =0.015 %		
				220mV~220V,(50kHz~ 100kHz)	<i>U</i> _{rel} =0.018 %		
				(220~1000)V,(15Hz~ 50Hz)	<i>U</i> _{rel} =0.04%		



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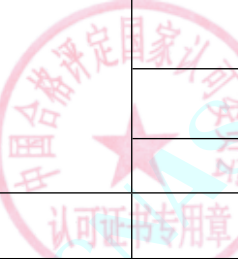
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(220~1000)V,(50Hz~1kHz)	$U_{rel}=0.015\%$		
		DCA		1μA~1A	$U_{rel}=0.006\%\sim 0.011\%$		
		ACA		10 μ A~220mA,(20Hz~40Hz)	$U_{rel}=0.024\%$		
				10 μ A~220mA,(40Hz~1kHz)	$U_{rel}=0.019\%$		
				10 μ A~220mA,(1kHz~5kHz)	$U_{rel}=0.03\%$		
				10 μ A~220mA,(5kHz~10kHz)	$U_{rel}=0.18\%$		
				220mA~1A,(20Hz~1kHz)	$U_{rel}=0.03\%$		
				220mA~1A,(1kHz~5kHz)	$U_{rel}=0.06\%$		
				220mA~1A,(5kHz~10kHz)	$U_{rel}=0.8\%$		
				Resistance	1 Ω ~19k Ω		
		19k Ω ~100M Ω			$U_{rel}=0.0013\%\sim 0.01\%$		
82	*PXI/PCI Data Acquisition Module	Voltage	C.M.of NI Data Acquisition Module FFD1002	input: 0.1mV~1000V	$U_{rel}=0.0018\%$		
				output: 0.1mV~1000V	$U_{rel}=0.005\%$		
		FREQ		10Hz~200MHz	$U_{rel}=0.004\%$		
83	*Combustion Tester	Length	C.S.for Vertical Combustion Tester JJF(F.Z.)068	(0.1~600)mm	$U=0.02\text{mm}$		
		mass		1g~1000g	$U_{rel}=0.2\%$		
		Angle		(0~90)°	$U=0.15^{\circ}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Time		(0.01~3600)s	<i>U</i> =0.07s		
		Temperature		(0~200)℃	<i>U</i> =0.7℃		
				(201~1000)℃	<i>U</i> =1.0℃		
84	*Winding Deformation of Power Transformers Meter	Frequency	C.M.of Transformer Winding Deformation of Power Transformers Meter FFD1005	1kHz~1MHz	<i>U</i> _{rel} =0.001%		
		Frequency response		(+10~-80)dB	<i>U</i> =0.1dB		
85	*Zinc Oxide Lightning Arrester DC Parameters Meter	Voltage	Zinc Oxide Lightning Arrester DC Parameters Meter FFD1203	(1~30)kV	<i>U</i> _{rel} =1.0%		
		Current		(100~2000) μ A	<i>U</i> _{rel} =1.4%		
86	*High Voltage DC Generator	Voltage	V.R. of DC Higt Voltage Generator JJG(粤)040	(1~300)kV	<i>U</i> _{rel} =1.0%~2.2%		
		Current		(10~6000) μ A	<i>U</i> _{rel} =1.0%		
87	Contactless Electrostatic Voltage Measuring Instruments	DC Voltage	C.S. for Contactless Electrostatic Voltage Measruing Instruments JJF1517	± (1~20) kV	<i>U</i> _{rel} =1.0%		
88	*Testing Transformer Operation Box	AC Voltage ratio	C.M.of Testing Transformer Operation Box FFD1204	10~10000, (50Hz,60Hz)	<i>U</i> _{rel} =1.0%		
		AC Current		Current:(0.1~40)A, (50Hz,60Hz)	<i>U</i> _{rel} =1.0%		
		Time		(1~300)s	<i>U</i> _{rel} =1.0%		
89	*Lightning Counter Calibrator	DC Voltage	C.M.of Lightning Counter Calibrator FFD1205	(10~5000)V	<i>U</i> _{rel} =2%		
90	*High-voltage Testing	Turns ratio	C.M.of High-voltage Testing Transformer	1~10000 (5~300)kV, (50Hz,60Hz)	<i>U</i> _{rel} =0.4%~0.7%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Transformer	Voltage ratio	FFD1201	1~10000 (5~300)kV, (50Hz,60Hz)	$U_{rel}=0.4\%\sim 0.7\%$		
91	*Verifying Meter For Chromatograph	DC Voltage	V.R. of Verifying Meter For Chromatograph JJG937	2mV~10V	$U_{rel}=0.01\%$		
		Resistance		(24~300) Ω	$U_{rel}=0.006\%$		
		DC Current		1mA	$U=3 \mu A$		
92	*Instrument Transformer Analyzer Voltage & Current Ratio	AC Voltage	C.M. of Instrument Transformer Analyzer Voltage & Current Ratio Calibrate standard FFD1206	1V~10kV,(50Hz)	$U_{rel}=0.15\%$		
		AC Current		(0.01~10)A,(50Hz)	$U_{rel}=0.15\%$		
		Transformers Turn Ratio		1~5000,(50Hz)	$U_{rel}=0.15\%$		
93	*Instrument Transformer Secondary of Transformer Secondary Loop Voltage Drops and Loads	In-phase component	Calibration Specification for Testing Instrument of Transformer Secondary Loop Voltage Drops and Loads JJF1619	$\pm(0.0001\sim 11.11\%)$	$U_{rel}=0.3\%$		
		Quadrature component		$\pm(0.001\sim 500)'$	$U_{rel}=0.3\%$		
		Resistance (Active component, reactive component)		$\pm(0.001\sim 10) \Omega$,(50Hz)	$U_{rel}=0.3\%$		
		Admittance (Active component, reactive component)		$\pm(0.001\sim 100)mS$,(50Hz)	$U_{rel}=0.3\%$		
94	*Battery charge and discharge tester	DCV	C.M. of Battery charge and discharge tester FFD1302	(0.1~450)V	$U_{rel}=0.01\%$		
		DCA		(0.1~1000)A	$U_{rel}=0.04\%\sim 0.12\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
95	*Chloride ion flux tester (Chloride ion diffusion coefficient tester)	DCV	C.M.of Chloride ion flux tester FFD1402	(0.1~100)V	<i>U</i> _{rel} =0.014%		
		DCA		(0.1~1000)mA	<i>U</i> _{rel} =0.024%		
96	*Process instrument calibrator	DC Voltage	C.S. for Process Calibrators JJF1472	Input: $\pm$ (1mV~1000V)	<i>U</i> _{rel} =0.0021%		
				Output: $\pm$ (20mV~1000V)	<i>U</i> _{rel} =0.0010%		
		AC Voltage		Input:0.1mV~1000V	<i>U</i> _{rel} =0.01 %		
		DC Current		Input: $\pm$ (20μA~100mA)	<i>U</i> _{rel} =0.006 %		
				Output: $\pm$ (20μA~100mA)	<i>U</i> _{rel} =0.0012%		
		AC Current		Input: 0.01mA~2.2A	<i>U</i> _{rel} =0.01 %		
		Resistance		Input: 1 Ω ~100k Ω	<i>U</i> _{rel} =0.0013%		
				Output: 1 Ω ~100k Ω	<i>U</i> _{rel} =0.002%		
		FREQ		Input: 10Hz~20MHz	<i>U</i> _{rel} =0.001%		
				Output: 10Hz~20MHz	<i>U</i> _{rel} =0.001%		
		RTD		Input: (-200~850)℃	<i>U</i> =0.03℃		
				Output: (-200~850)℃	<i>U</i> =0.03℃		
		TC		Input: (-100~1800)℃	<i>U</i> =0.18℃		
				Output: (-100~1800)℃	<i>U</i> =0.03℃		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
97	*Voltage quality monitoring terminal	Rated voltage	C.M.of Voltage quality monitoring terminal FFD1403	(2~500)V, (45Hz~65Hz)	$U_{rel}=0.09\%\sim 0.13\%$		
		Setting voltage		(2~500)V, (45Hz~65Hz)	$U_{rel}=0.09\%\sim 0.13\%$		
		Sensitivity		(2~500)V, (45Hz~65Hz)	$U_{rel}=0.09\%\sim 0.13\%$		
98	*Variable Voltage regulator	ACV	C.M.of Variable Voltage regulator FFD1404	(2~500)V, (45Hz~65Hz)	$U_{rel}=0.12\%\sim 0.16\%$		
99	*Generator AC impedance tester	ACV	C.M.of Generator AC impedance tester FFD1405	(10~600)V, (16Hz~450Hz)	$U_{rel}=0.020\%\sim 0.024\%$		
		ACA		(0.01~20)A, (16Hz~450Hz)	$U_{rel}=0.03\%$		
		AC Power		0.1W~12000W, (16Hz~450Hz)	$U_{rel}=0.024\%\sim 0.04\%$		
		Impedance		1 Ω ~ 1k Ω , (16Hz~450Hz)	$U_{rel}=0.05\%$		
100	*Power record analyzer	ACV	C.M.of Power record analyzer FFD1406	(1~600)V, (16Hz~450Hz)	$U_{rel}=0.018\%\sim 0.026\%$		
		ACA		1mA~20A, (16Hz~450Hz)	$U_{rel}=0.014\%\sim 0.015\%$		
		DCV		(1~1000)V	$U_{rel}=0.0017\%$		
101	*Digital Power Calibration	ACV	C.M.of Digital Power Calibration FFD1407	(20~200)mV, (40Hz~100Hz)	$U_{rel}=0.009\%\sim 0.021\%$		
				(20~200)mV, (100Hz~1kHz)	$U_{rel}=0.004\%$		
				200mV~1000V, (40Hz~1kHz)	$U_{rel}=0.004\%$		
		ACA		0.1mA~100A, (40Hz~1kHz)	$U_{rel}=0.006\%\sim 0.012\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Power	ilac-M	0.01W~75000W,(40Hz~400Hz)	$U_{rel}=0.012\%$		
		Phase		$0^{\circ} \sim 360^{\circ}$	$U=0.007^{\circ}$		
		PF		0.1~1	$U_{rel}=0.008\%$		
		FREQ		10Hz~2MHz	$U_{rel}=0.0003\%$		
		DCV		$\pm(0.1\text{mV}\sim 1000\text{V})$	$U_{rel}=0.001\%$		
		DCA		$\pm(10\mu\text{A}\sim 100\text{A})$	$U_{rel}=0.003\%\sim 0.012\%$		
		DC Power		0.1W~75000W	$U_{rel}=0.012\%\sim 0.02\%$		
		Harmonics voltage		(0.1~400)V,(40Hz~2.5kHz)	$U_{rel}=0.024\%$		
		Harmonics current		(0.1~20)A,(40Hz~2.5kHz)	$U_{rel}=0.024\%$		
102	*Phase Indicator	ACV	C.M.of Phase Indicator FFD1408	(30~600)V, (45Hz~65Hz)	$U_{rel}=0.13\%\sim 0.58\%$		
		F		40Hz~1kHz	$U_{rel}=0.1\%$		
103	*Galvanometer	Outside the critical resistance	V.R.of DC Magnetolectric Galvanometers JJG495	(1~100)k Ω	$U_{rel}=1.2\%$		
		Current division value or constant current		$(1\sim 900)\times 10^{-10}\text{A/div}$	$U_{rel}=1.0\%$		
		DCV		$\pm(0.03\sim 30)\text{mV}$	$U_{rel}=0.3\%$		
104	*Digital AC Electrical Parameters Meter	ACV	Calibration Specification for Digital AC Electrical Parameters Meter JJF1491	(0.01~1000)V,(16Hz~850Hz)	$U_{rel}=0.006\%\sim 0.009\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		ACA	JJF1491	1mA~100A, (16Hz~850Hz)	U _{rel} =0.006%~0.012%		
		AC Power		(0.01mW~100kW), (16Hz~850Hz),PF=1.0	U _{rel} =0.008%~0.018%		
				(0.01mW~80kW), (16Hz~850Hz),PF=0.5	U _{rel} =0.012%~0.020%		
		PF		0.1~1	U _{rel} =0.008%		
		FREQ		40Hz~1kHz	U _{rel} =0.003%		
		Phase		0° ~360°	U=0.006°		
105	*Breaker simulator	Time	C.M.of Breaker simulator FFD1410	(0.001~100)s	U _{rel} =0.06%		
106	*Secure socket tester	Leakage protection current	C.M.of Secure socket tester FFD1411	3mA~1A,(45Hz~65Hz)	U _{rel} =1.4%		
107	*Electronic Insulating Resistance Meters	Voltage	V.R.of Electronic Insulating Resistance Meters JJG1005	(1~11000)V	U _{rel} =1.2%		
		Resistance		100 Ω ~10M Ω	U _{rel} =0.24%		
				10M Ω ~100M Ω	U _{rel} =0.32%		
				100M Ω ~1G Ω	U _{rel} =1.2%		
				(1~100)G Ω	U _{rel} =2.4%		
				100G Ω ~1T Ω	U _{rel} =2.4%		
108	High Voltage Electrostatic Voltmeters	Voltage	V.R.of High Voltage Electrostatic Voltmeters JJG494	(0.1~10)kV	U _{rel} =0.29%		
				(0.1~10)kV,(50Hz)	U _{rel} =0.4%		
109	High Voltage divided Probe	Voltage Ratio	C.S.for the voltage probe of oscilloscope FFD1443	(1~10000) DC:(0.5~10)kV	U _{rel} =0.19%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(1~10000) AC;(0.5~10)kV	$U_{rel}=0.32\%$		
110	*Surface Meter	Resistance	C.S.for Surface Meter JJF1285	$(10^3 \sim 10^7) \Omega$	$U_{rel}=0.3\%$		
				$(10^7 \sim 10^8) \Omega$	$U_{rel}=0.6\%$		
				$(10^8 \sim 10^9) \Omega$	$U_{rel}=1.6\%$		
				$(10^9 \sim 10^{10}) \Omega$	$U_{rel}=3\%$		
				$(10^{10} \sim 10^{12}) \Omega$	$U_{rel}=6\%$		
		Voltage		(5~1100)V	$U_{rel}=1.4\%$		
		Weight		(1~3)kg	$U=0.05\text{kg}$		
		Diameter		(1~100)mm	$U=1\text{mm}$		
111	*DC Resistance Meter	Resistance	V.R.of Loop Resistance Tester an DC Resistance Meters JJG1052	$(10 \sim 100) \mu \Omega$	$U_{rel}=0.2\%$		
				$100 \mu \Omega \sim 1 \Omega$	$U_{rel}=0.06\%$		
				$1 \Omega \sim 20\text{k} \Omega$	$U_{rel}=0.016\%$		
		Current		1mA~100A	$U_{rel}=0.09\%$		
112	*Oil Insulation Tester	Voltage	C.M.of Oil Insulation Tester FFD1413	(5~20)kV,(50Hz)	$U_{rel}=3\%$		
				(20~40)kV,(50Hz)	$U_{rel}=2\%$		
				(40~100)kV,(50Hz)	$U_{rel}=1.4\%$		
		velocity		(0.2~10)kV/s	$U_{rel}=1.2\%$		
113	*Super low frequency withstanding	Voltage	C.M.of Super low frequency withstanding voltage tester FFD1414	(0.5~35)kV,(0.01Hz~1Hz)	$U_{rel}=3.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	voltage tester	frequency		(0.01~1)Hz	<i>U</i> _{rel} =0.24%		
114	*High voltage test system	Voltage	C.M.of High voltage test system FFD1415	(1~100)kV	<i>U</i> _{rel} =1.6%~0.2%		
				(1~100)kV, 50Hz	<i>U</i> _{rel} =1.6%~0.2%		
				(1~500)kV	<i>U</i> _{rel} =1.2%~2.5%		
				(1~600)kV,(50Hz)	<i>U</i> _{rel} =1.2%~2.5%		
		Current		(1~50)A,(50Hz)	<i>U</i> _{rel} =1.2%~0.3%		
		Time		(1~999)s	<i>U</i> _{rel} =0.8%~0.1%		
115	Primary test system	Voltage	C.M.of Primary test system FFD1416	(1~2000)V, (50Hz)	<i>U</i> _{rel} =0.05%		
		Current		1mA~600A, (50Hz)	<i>U</i> _{rel} =0.08%		
		frequency		45Hz~300Hz	<i>U</i> _{rel} =0.07%		
		Ratio		1~1000	<i>U</i> _{rel} =0.23%		
		Resistance		(10~100) μ Ω	<i>U</i> _{rel} =0.2%		
				100 μ Ω ~1 Ω	<i>U</i> _{rel} =0.06%		
				1 Ω ~10 Ω	<i>U</i> _{rel} =0.06%		
116	*Glove(Shoe)test Device	Voltage	C.M.of Glove(Shoe)test Device FFD1417	(1~50)kV, (50Hz,60Hz)	<i>U</i> _{rel} =1.5%~0.2%		
		Current		(1~30)mA, (50Hz,60Hz)	<i>U</i> _{rel} =1.7%~1.2%		
117	*High Voltage Dielectric Loss Tester	Loss	V.R. of High Voltage Dielectric Loss Tester JJG1126	0.0001~0.00200	<i>U</i> =0.00003		
				0.00200~0.0200	<i>U</i> =0.00006~0.00011		



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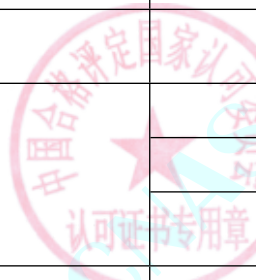
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				0.02000~0.1	$U=0.00022\sim0.00042$		
		Capacitance		(50~10000)pF	$U_{\text{rel}}=0.6\%\sim0.1\%$		
		Voltage		(1~12) kV	$U_{\text{rel}}=1.2\%$		
118	*Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers	Loss	C.S. of Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers JJF1618	0.00015~0.00200	$U=0.00005$		
				0.00200~0.0200	$U=0.00006\sim0.00011$		
				0.02000~0.09800	$U=0.00022\sim0.00042$		
		Resistivity		($10^3\sim10^{13}$) $\Omega \cdot \text{m}$	$U_{\text{rel}}=0.7\%\sim5.9\%$		
		Capacitance		(50~10000)pF	$U_{\text{rel}}=0.6\%\sim0.1\%$		
		Voltage		(0.5~3)kV	$U_{\text{rel}}=1.2\%$		
119	High probe for Oscilloscope	DC Ratio	C.S. for the voltage probe of oscilloscope FFD1443	(1~10000) (0.5~50)kV	$U_{\text{rel}}=0.19\%$		
		AC Ratio		(1~10000) (0.5~50)kV	$U_{\text{rel}}=0.32\%$		
120	*Loading connect switch tester	Resistance	C.M. of Loading connect switch tester FFD1420	(0.1~100) Ω	$U_{\text{rel}}=0.1\%$		
121	*Metal conductivity meter	Resistivity	C.S. of Eddy Current Conductivity Meters JJF1692	(0.5~64)MS/m	$U=(0.05\sim0.21)\text{MS/m}$		
				(0.9~110)%IACS	$U=(0.08\sim0.35)\% \text{IACS}$		
122	*Resistivity meter	Resistivity	C.M. of Resistivity meter FFD1423	($10^3\sim10^7$) $\Omega \cdot \text{cm}$	$U_{\text{rel}}=0.3\%$		
				($10^7\sim10^8$) $\Omega \cdot \text{cm}$	$U_{\text{rel}}=0.6\%$		
				($10^8\sim10^9$) $\Omega \cdot \text{cm}$	$U_{\text{rel}}=1.6\%$		
				($10^9\sim10^{10}$) $\Omega \cdot \text{cm}$	$U_{\text{rel}}=3\%$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
				(10 ¹⁰ ~10 ¹³) Ω • cm	<i>U</i> _{rel} =6%			
123	*Grounding-wire meter	Current	C.M.of Grounding-wire meter	100mA~60A	<i>U</i> _{rel} =0.1%			
		Resistance	FFD1424	100 μ Ω ~60 Ω	<i>U</i> _{rel} =0.1%			
124	*Battery capability tester	Current	C.M.of Battery capability tester FFD1425	(1~200)mA	<i>U</i> _{rel} =0.003%			
				200mA~5000A	<i>U</i> _{rel} =0.006%			
		Voltage		(1~10)mV	<i>U</i> _{rel} =0.1%			
				(10~100)mV	<i>U</i> _{rel} =0.01%			
				100mV~1000V	<i>U</i> _{rel} =0.004%			
				Resistance	1m Ω ~100k Ω			<i>U</i> _{rel} =0.02%
125	*Battery resistance tester	Voltage	C.S. for Battery Internal Resistance Testers JJF1620	(1~10)mV	<i>U</i> _{rel} =0.05%			
				(10~100)mV	<i>U</i> _{rel} =0.02%			
				100mV~1000V	<i>U</i> _{rel} =0.014%			
		Resistance		1m Ω ~3k Ω	<i>U</i> _{rel} =0.5%~0.12%			
126	*Voltage test pen	Voltage	C.M.of Voltage test pen FFD1427	(1~1000)V, (50Hz,60Hz)	<i>U</i> _{rel} =0.09%			
127	Loop tester	Resistance	C.M.of Loop tester FFD1428	(0.01~1) Ω	<i>U</i> =0.02 Ω			
				1 Ω ~100k Ω	<i>U</i> _{rel} =0.2%			
		Voltage		(80~300)V, (50Hz,60Hz)	<i>U</i> _{rel} =0.6%			
128	*Power Frequency	Resistance	Verification Regulation Power Frequency Ground	0.1 Ω ~200 Ω	<i>U</i> _{rel} =0.3%			



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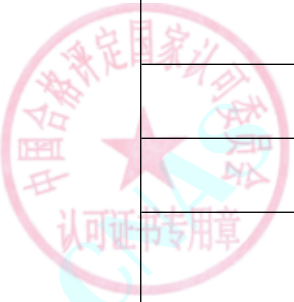
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Testers for Large Grounding Grid	Impedance	Impedance Testers for Large Grounding Grid JJG1180	$0.1\ \Omega \sim 200\ \Omega$	$U_{rel}=0.3\%$		
129	*DC Grounding fault Locator	Resistance	C.M.of DC Grounding fault Locator FFD1303	$(1 \sim 500)\text{k}\ \Omega$	$U_{rel}=2.4\%$		
		Voltage		$(10 \sim 300)\text{V}$	$U_{rel}=0.2\%$		
130	*Microcurrent meter	Current	C.M.of Microcurrent meter FFD1431	$1\text{pA} \sim 10\text{pA}$	$U_{rel}=5\%$		
				$10\text{pA} \sim 100\text{pA}$	$U_{rel}=2\%$		
				$100\text{pA} \sim 1\text{nA}$	$U_{rel}=1\%$		
				$(1 \sim 10)\text{nA}$	$U_{rel}=0.5\%$		
				$(10 \sim 100)\text{nA}$	$U_{rel}=0.1\%$		
				$(0.1 \sim 100)\ \mu\text{A}$	$U_{rel}=0.03\%$		
				$(0.1 \sim 100)\text{mA}$	$U_{rel}=0.003\%$		
131	No impedance resistance	Resistance	C.M.of No impedance resistance FFD1432	$(0.1\ \Omega \sim 1\text{M}\ \Omega)$	$U_{rel}=0.003\%$		
				$(0.1\ \Omega \sim 1\text{M}\ \Omega)$, $(20\text{Hz} \sim 1\text{MHz})$	$U_{rel}=0.06\% \sim 2\%$		
		Capacitance		$1\text{pF} \sim 1\text{mF}$, $(20\text{Hz} \sim 1\text{MHz})$	$U_{rel}=0.2\% \sim 2\%$		
		Inductance		$1\text{nH} \sim 100\text{mH}$, $(20\text{Hz} \sim 1\text{MHz})$	$U_{rel}=0.2\% \sim 2\%$		
132	Calibration device for Earth-Continuity Testers	Resistance	C.M.of Calibration device for Earth-Continuity Testers FFD1433	$10\text{m}\ \Omega \sim 2\ \Omega$	$U_{rel}=0.03\%$		
133	Verification device for Leakage current meter	Current	C.M.of Verification device for Leakage current meter FFD1434	$(20\ \mu\text{A} \sim 20\text{mA})$	$U_{rel}=0.04\%$		
				$(20\text{mA} \sim 200\text{mA})$	$U_{rel}=0.008\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Voltage	C.M.of Digital high resistance meter FFD1435	(200mA~2A)	$U_{rel}=0.025\%$		
				(20 μ A~200mA), (50Hz~20kHz)	$U_{rel}=0.05\%$		
				(200mA~2A)	$U_{rel}=0.1\%$		
				(50V~1000V)	$U_{rel}=0.002\%$		
				(50V~1000V), (50Hz~20kHz)	$U_{rel}=0.02\%$		
				2k Ω ~25M Ω	$U_{rel}=0.01\% \sim 0.1\%$		
134	Digital high resistance meter	Resistance	C.M.of Digital high resistance meter FFD1435	100 Ω ~10M Ω	$U_{rel}=0.013\%$		
				10M Ω ~1G Ω	$U_{rel}=0.03\%$		
				(1~10)G Ω	$U_{rel}=0.15\%$		
				(10~333)G Ω	$U_{rel}=0.3\%$		
				333G Ω ~1T Ω	$U_{rel}=0.6\%$		
		Voltage		(10~10000)V	$U_{rel}=0.015\%$		
135	AC Shunt	Current	C.M.of AC Shunt FFD1436	1mA~1A, (45Hz~65Hz)	$U_{rel}=0.05\%$		
				(1~100)A, (45Hz~65Hz)	$U_{rel}=0.03\%$		
				(100~1000)A, (45Hz~65Hz)	$U_{rel}=0.09\%$		
		Ratio		0.01m Ω ~1000 Ω , (1mA~1000A) (45Hz~65Hz)	$U_{rel}=0.03\% \sim 0.09\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
136	Wireless Phaser	Phase	C.M. of Wireless Phaser FFD1437	0 °~360 °(100V~10kV)	$U=1.0^{\circ}$		
		Angle		0 °~360 °(100V~10kV)	$U=1.0^{\circ}$		
137	Discharge Stick (Rod)	Resistance	C.M.of Discharge Stick FFD1438	1mΩ ~1GΩ	$U_{rel}=1\%$		
138	*Safety Analyzer	Output Voltage	Withstanding Voltage Testers JJG795,Earth-Continuity Testers JJG984,Electronic Insulation Resistance Meters JJG1005,Leakage Current Testers JJG843	(0.1~15)kV	$U_{rel}=0.12\%$		
				(0.1~15)kV, (50Hz~60Hz)	$U_{rel}=0.11\%$		
		Current		0.01 mA~10A	$U_{rel}=0.06\%$		
				0.01 mA~10A, (50Hz~60Hz)	$U_{rel}=0.10\%$		
		Time		(0.01~3600)s	$U_{rel}=0.01\%$		
		Current		10 μ A~2A	$U_{rel}=0.05\%$		
				10 μ A~2A,(40Hz~100kHz)	$U_{rel}=0.2\%$		
		Resistance		0.1 Ω ~10k Ω	$U_{rel}=0.2\%$		
		Testing Voltage		0.1V~750V,(40Hz~100kHz)	$U_{rel}=0.18\%$		
				(0.1~1000)V	$U_{rel}=0.03\%$		
		Continuity Resistance		(0.001~10) Ω	$U_{rel}=0.13\%$		
		Testing Current		(1~60)A	$U_{rel}=0.11\%$		
		Open circuit Voltage		(1~10000)V	$U_{rel}=1.2\%$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Resistance		100 Ω ~ 10M Ω	$U_{rel}=0.24\%$		
				10M Ω ~ 100M Ω	$U_{rel}=0.32\%$		
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
				(1~100)G Ω	$U_{rel}=2.4\%$		
				100G Ω ~ 1T Ω	$U_{rel}=2.4\%$		
139	*Current Transformers in Power System	Ratio Difference	Instrument Transformers-Part 3: Current Transformers in Power System JJG 1189.3	(-11.11~11.11) %, (0.1~5000)A/(5A,1A), (50Hz,60Hz)	$U=0.074\%(1\%In)$		
				(-11.11~11.11) %, (0.1~5000)A/(5A,1A), (50Hz,60Hz)	$U=0.038\%(5\%In)$		
				(-11.11~11.11) %, (0.1~5000)A/(5A,1A), (50Hz,60Hz)	$U=0.020\%(20\%In)$		
				(-11.11~11.11) %, (0.1~5000)A/(5A,1A), (50Hz,60Hz)	$U=0.020\%(100\%In)$		
				(-11.11~11.11) %, (0.1~5000)A/(5A,1A), (50Hz,60Hz)	$U=0.020\%(120\%In)$		
				(-500~500)' , (0.1~5000)A/(5A,1A), (50Hz,60Hz)	$U=2.81' (1\%In)$		
	Phase Difference			(-500~500)' , (0.1~5000)A/(5A,1A), (50Hz,60Hz)	$U=1.54' (5\%In)$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				$(-500 \sim 500)'$, $(0.1 \sim 5000)\text{A}/(5\text{A}, 1\text{A})$, (50Hz, 60Hz)	$U=0.99'$ (20%In)		
				$(-500 \sim 500)'$, $(0.1 \sim 5000)\text{A}/(5\text{A}, 1\text{A})$, (50Hz, 60Hz)	$U=0.99'$ (100%In)		
				$(-500 \sim 500)'$, $(0.1 \sim 5000)\text{A}/(5\text{A}, 1\text{A})$, (50Hz, 60Hz)	$U=0.99'$ (120%In)		
140	*Third-harmonic Power Generator	Voltage	Calibration Specification for Triple-frequency Generators JJF 2001	$(1 \sim 1000)\text{V}$, (50Hz~200Hz)	$U_{\text{rel}}=0.36\%$		
		Frequency		$(10 \sim 1000)\text{Hz}$	$U_{\text{rel}}=0.15\%$		
		Time		$(1 \sim 3600)\text{s}$	$U=0.07\text{s}$		
141	*Magnetized Material	Magnetic Field Strength	V.R.of Standard Sample of the Magnetic Properties of Permanent Magnet Materials JJG352	0.1mT~2T	$U_{\text{rel}}=1.2\%$		
142	Reference Meters for Electrical Energy	Electrical Energy	V.R.of Reference Meters for Electrical Energy JJG1085	$(57.7 \sim 380)\text{V}$, $(0.005 \sim 0.01)\text{A}$, $(45\text{Hz} \sim 65\text{Hz})$, $(\cos \phi=0.5\text{L}, 1.0, 0.8\text{C}, 0.5\text{C})$	$U_{\text{rel}}=0.014\%$		
				$(57.7 \sim 380)\text{V}$, $(0.011 \sim 0.02)\text{A}$, $(45\text{Hz} \sim 65\text{Hz})$, $(\cos \phi=0.5\text{L}, 1.0, 0.8\text{C}, 0.5\text{C})$	$U_{\text{rel}}=0.012\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(57.7~380)V,(0.021~0.1)A,(45Hz~65Hz),(cos $\phi=0.5L$ 、1.0、0.8C、0.5C)	$U_{rel}=0.009\%$		
				(57.7~380)V,(0.1~120)A,(45Hz~65Hz),(cos $\phi=0.5L$ 、1.0、0.8C、0.5C)	$U_{rel}=0.008\%$		
143	Weld Checker	ACA	C.M.of weld checker FFD1441	(0.2~0.5)kA,(50Hz,60Hz)	$U=0.01kA$		
				(0.5~2)kA,(50Hz,60Hz)	$U=0.02kA$		
				(2~10)kA,(50Hz,60Hz)	$U=0.05kA$		
144	*AC Charging Spot for Electric Vehicles	Electrical Energy	V.R. of AC Charge Spots for Electric Vehicles(for Trial Implementation) JJG1148	(57.7~380)V,(0.1~100)A,(45Hz~65Hz),(0°~360°),Class 1	$U_{rel}=0.09\%\sim 0.20\%$		
				(57.7~380)V,(0.1~100)A,(45Hz~65Hz),(0°~360°),Class 2	$U_{rel}=0.13\%\sim 0.30\%$		
		Time		(0~9999) s	$U=1s$		
145	*AC electrical energy Meters(real load)	Electrical Energy	C.M.of AC electrical energy meter onsite FFD1442	Single: (50~380)V,(0.01~100)A,(45Hz~65Hz),(cos $\phi=0.5L$ 、1.0、0.8C、0.5C)	$U_{rel}=0.07\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Balance Load: (50~380)V,(0.01~100)A,(45Hz~65Hz),($\cos \phi=0.5L$ 、1.0、0.8C、0.5C) Unbalance Load: (50~380)V,(0.01~100)A,(45Hz~65Hz),($\cos \phi=0.5L$ 、1.0、0.8C、0.5C)	$U_{rel}=0.07\%$ $U_{rel}=0.07\%$		
146	*Reference Ballasts	voltage current ratio pf	C.S.for Reference Ballasts JJF1502	1 Ω ~ 5000 Ω 0.1 ~ 1	$U_{rel}=0.066\%$ $U_{rel}=0.07\%$		
147	*Thermal relay calibrator	ACA Time	C.M.of Thermal relay calibrator FFD1501	0.1A~1000A, (45Hz~65Hz) 10ms~1000s	$U_{rel}=0.12\%$ $U_{rel}=0.08\%$		
148	*Fluorescent Lamp Integrated Standard Source	ACV ACA AC Power Frequency	C.M.of Fluorescent Lamp Integrated Standard Source FFD1502	1mV~600V,(20kHz~50kHz) 10 μ A~20A,(20kHz~50kHz) 0.1W~12000W,(20kHz~50kHz) 0.1Hz~1MHz	$U_{rel}=0.5\%$ $U_{rel}=0.6\%$ $U_{rel}=0.6\%$ $U_{rel}=0.13\%$		
149	*Programmable LED Test Power Supply	Voltage Current	C.M.of Programmable LED Test Power Supply FFD1503	0.001V~50V 0.1 μ A~1A	$U_{rel}=0.014\%$ $U_{rel}=0.012\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Time		(0.001~100)s	$U_{rel}=0.02\%$		
150	D.C Kilowatt-hour Meter	Electrical Energy	V.R.of Electronic Meters for Measuring Direct-current Electrical Energy JJG842	Small signal voltage input:0.75mV~5mV,10V~1100V	$U_{rel}=0.10\%$		
				Small signal voltage input: 5mV~1V,10V~1100V	$U_{rel}=0.03\%$		
				Direct access: 10V~1100V, 5mA~600A	$U_{rel}=0.03\%$		
		Time		(-99.99~99.99)s/d	$U=0.05s/d$		
151	Electric Spark Detector	Voltage	C.M of Electric Spark Detector FFD1504	(0.1~35)kV	$U_{rel}=2.5\%$		
152	*Motor economic operation tester	ACV	Motor economic operation tester FFD1601	1V~1000V,(16Hz~450Hz)	$U_{rel}=0.04\%$		
		ACA		1A~1000A,(16Hz~450Hz)	$U_{rel}=0.11\%$		
		Power		1W~1000kW,(16Hz~450Hz)	$U_{rel}=0.1\%$		
		FREQ		10Hz~100kHz	$U_{rel}=0.02\%$		
		PF		0.1~1	$U_{rel}=0.07\%$		
153	*Relay protection trip exit tester	Time	C.M.for Relay Protection Device Trip Exit Tester FFD1602	50ms~100s	$U=5ms$		
		DCV		5V~100v	$U_{rel}=0.2\%$		
154	*Motor start tester	ACV	Motor start tester FFD1603	2V~380V,(45Hz~1000Hz)	$U_{rel}=0.08\%~0.09\%$		
		ACA		1A~1000A,(45Hz~1000Hz)	$U_{rel}=0.1\%~0.6\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
155	*Voltage monitor verification device	ACV	Voltage monitor verification device FFD1604	0.1V~500V,(10Hz~100kHz)	$U_{rel}=0.005\%$		
		FREQ		10Hz~100kHz	$U_{rel}=0.001\%$		
		Apparent Power		1VA~100VA,(10Hz~100kHz)	$U_{rel}=0.014\%$		
		ACV Harmonic		(0.1~500)V(50Hz~5kHz)	$U_{rel}=0.03\%$		
156	*Relay protection tester verification device	ACA	Relay protection tester verification device FFD1605	1A~100A,(16Hz~450Hz)	$U_{rel}=0.01\%$		
		DCA		1A~100A	$U_{rel}=0.014\%$		
		ACV		1V~1000V,(16Hz~450Hz)	$U_{rel}=0.014\%$		
		DCV		1V~1000V	$U_{rel}=0.006\%$		
		Phase		$0^{\circ} \sim 360^{\circ}$	$U=0.01^{\circ}$		
		FREQ		40Hz~1000Hz	$U_{rel}=0.01\%$		
		ACV Harmonic		(0.3~300)V,(16Hz~6kHz)	$U_{rel}=0.06\% \sim 0.18\%$		
		ACA Harmonic		3mA~6A,(16Hz~6kHz)	$U_{rel}=0.06\% \sim 0.08\%$		
		Time		50ms~100s	$U_{rel}=0.02\% \sim 0.06\%$		
157	*Cable Detector	Current	Cable Detector FFD1608	1mA~10A	$U_{rel}=10\% \sim 1\%$		
158	*Equipotential Tester	Resistance	Equipotential Tester FFD1607	10m Ω ~ 20k Ω	$U_{rel}=1\% \sim 0.1\%$		
159	*Surge protector security device	Continuity resistance	Surge protector security device FFD1606	10m Ω ~ 100 Ω	$U_{rel}=6\% \sim 0.1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
160	*C.S.for Cable Fault Detector	Insulation Resistance	C.S.for Cable Fault Detector FFD1609	$1\text{M}\Omega \sim 500\text{M}\Omega$	$U_{\text{rel}}=1\%\sim 0.2\%$		
		Voltage		$1\text{V} \sim 2500\text{V}$	$U_{\text{rel}}=1\%\sim 0.3\%$		
		Current		$1\mu\text{A} \sim 2\text{mA}$	$U_{\text{rel}}=1\%\sim 0.1\%$		
		Time		$100\text{ns} \sim 1\text{s}$	$U_{\text{rel}}=10\%\sim 0.05\%$		
		Length		$10\text{m} \sim 100\text{km}$	$U_{\text{rel}}=10\%\sim 0.05\%$		
161	*Impulse Voltage Dividers	Voltage ratio	C.M.of Impulse Voltage Dividers FFD1610	$100 \sim 100000$	$U_{\text{rel}}=1.8 \times 10^{-2}$		
		Voltage amplitude		$(10 \sim 500)\text{kV}$	$U_{\text{rel}}=1.8 \times 10^{-2}$		
		Time		$10\text{ns} \sim 20\mu\text{s}$	$U_{\text{rel}}=3.5 \times 10^{-2}$		
162	*Digit D.C. Potentiometers	Voltage	Digit D.C. Potentiometers FFD1616	$1\text{mV} \sim 100\text{V}$	$U_{\text{rel}}=0.01\%$		
163	*Electrostatic Releaser	Resistance	Electrostatic Releaser FFD1617	$10^{-2}\Omega \sim 10^{12}\Omega$	$U_{\text{rel}}=2\%\sim 0.1\%$		
164	*DC Low Current Shunts	Resistance	DC Low Current Shunts FFD1618	$0.1\mu\Omega \sim 10\text{k}\Omega$	$U_{\text{rel}}=0.006\%$		
		Current		$0.1\text{mA} \sim 5\text{A}$	$U_{\text{rel}}=0.003\%\sim 0.05\%$		
165	*Ultra high resistance tester	Ultra high resistance	Ultra high resistance tester FFD1619	$(10^{11} \sim 10^{16})\Omega$	$U_{\text{rel}}=1.5\%\sim 30\%$		
		DC voltage		$(10 \sim 5000)\text{V}$	$U_{\text{rel}}=0.3\%\sim 1.7\%$		
166	Integral charge measuring instrument	Coulomb	Integral charge measuring instrument FFD1620	$1\text{nC} \sim 999\mu\text{C}$	$U_{\text{rel}}=0.5\%\sim 1.7\%$	合格评定国家认可委员会 认可证书专用章	
167	DC Reference Meters for Electrical Energy	Electrical Energy	Reference Meters for DC Electrical Energy JJG1187	direct connect mode: $(100\text{mV} \sim 1150\text{V})(1\text{mA} \sim 600\text{A})$	$U_{\text{rel}}=0.012\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				indirect connect mode of small signal voltage: (100mV~1150V)(0.75mV~10V)	$U_{rel}=0.012\%\sim 0.10\%$		
168	*Verification Equipment for DC Electrical Energy Meter	Electrical Energy	Verification Equipment for DC Electrical Energy Meters JJG1186	direct connect mode:(100mV~1150V)(1mA~600A)	$U_{rel}=0.012\%$		
				indirect connect mode of small signal voltage: (100mV~1150V)(0.75mV~10V)	$U_{rel}=0.012\%\sim 0.10\%$		
		DC Voltage		0.75mV~1150V	$U_{rel}=0.012\%\sim 0.10\%$		
		DC Current		1mA~600A	$U_{rel}=0.012\%$		
		DC Power		0.1W~690kW	$U_{rel}=0.012\%$		
169	*DC off-board Charger for Electric Vehicle	Electrical Energy	V.R. of Off-board Chargers for Electric Vehicles(for Trial Implementation) JJG1149	(10V~1000V)(1A~250A)	$U_{rel}=0.09\%\sim 0.14\%$		
		DC Voltage		10V~1000V	$U_{rel}=0.03\%$		
		DC Current		1A~250A	$U_{rel}=0.03\%$		
		DC Power		10W~250kW	$U_{rel}=0.03\%$		
		Time		(0~9999) s	$U=1s$		
170	Off-board Chargers for Electric Vehicles	Electrical Energy	Calibrator of Off-board Chargers for Electric Vehicles JJG1192	(10V~1150V)(10mA~600A)	$U_{rel}=0.012\%$		
		DC Voltage		10V~1150V	$U_{rel}=0.012\%$		
		DC Current		10mA~600A	$U_{rel}=0.012\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		clock time		(0.1~86400)s	$U=0.6s$		
171	Calibrator of AC charging piles for Electric Vehicles	Electrical Energy	Calibrator of AC Charging Piles for Electric Vehicles JJG1193	(50V~400V)(10mA~100A),(45Hz~65Hz)	$U_{rel}=0.013\%\sim0.026\%$		
		AC Voltage		50V~400V,(45Hz~65Hz)	$U_{rel}=0.012\%$		
		AC Current		10mA~100A,(45Hz~65Hz)	$U_{rel}=0.012\%\sim0.025\%$		
		phase angle		$0.01^\circ \sim 360^\circ$	$U=0.02^\circ$		
		Frequency		(45~65)Hz	$U_{rel}=0.01\%$		
		clock time		(0.1~86400)s	$U=0.6s$		
172	Pre-payment Electrical Meters for Measuring Alternating-current Electrical Energy	Electrical Energy	V.R.of Prepayment Electrical Meters for Measuring Alternating-current Electrical Energy JJG1099	(57.7~380)V,(0.005~120)A,(45Hz~65Hz),($0^\circ \sim 360^\circ$),Single phase:Class 1	$U_{rel}=0.06\%\sim0.10\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),($0^\circ \sim 360^\circ$),Single phase:Class 2	$U_{rel}=0.12\%\sim0.20\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),($0^\circ \sim 360^\circ$),Three phase four wire:Class 0.2S	$U_{rel}=0.02\%\sim0.03\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),($0^\circ \sim 360^\circ$),Three phase four wire:Class 0.5S	$U_{rel}=0.04\%\sim0.05\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase four wire:Class 1	$U_{rel}=0.06\%\sim 0.10\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase four wire:Class 2	$U_{rel}=0.12\%\sim 0.20\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase three wire:Class 0.2S	$U_{rel}=0.02\%\sim 0.03\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase three wire:Class 0.5S	$U_{rel}=0.04\%\sim 0.05\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase three wire:Class 1	$U_{rel}=0.06\%\sim 0.10\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz)(0°~360°),Three phase three wire:Class 2	$U_{rel}=0.12\%\sim 0.20\%$		
		Time		(-99.99~99.99)s/d	$U=0.05s/d$		
173	Multi-rate Electricity Meters for Measuring Alternating-current	Electrical Energy	V.R.of Multi-Rate Electricity Meters for Measuring Alternating-current Electrical Energy JJG691	(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Single phase:Class 1	$U_{rel}=0.06\%\sim 0.10\%$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Electrical Energy			(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Single phase:Class 2	$U_{rel}=0.12\%\sim 0.20\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase four wire:Class 0.2S	$U_{rel}=0.02\%\sim 0.03\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase four wire:Class 0.5S	$U_{rel}=0.04\%\sim 0.05\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase four wire:Class 1	$U_{rel}=0.06\%\sim 0.10\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase four wire:Class 2	$U_{rel}=0.12\%\sim 0.20\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase three wire:Class 0.2S	$U_{rel}=0.02\%\sim 0.03\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz)(0°~360°),Three phase three wire:Class 0.5S	$U_{rel}=0.04\%\sim 0.05\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			C.M.of Transformer open circuit voltage tester FFD1622	(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase three wire:Class 1	$U_{rel}=0.06\%\sim 0.10\%$		
				(57.7~380)V,(0.005~120)A,(45Hz~65Hz),(0°~360°),Three phase three wire:Class 2	$U_{rel}=0.12\%\sim 0.20\%$		
		Time		(-99.99~99.99)s/d	$U=0.05s/d$		
174	Transformer open circuit voltage tester	AC Voltage	C.M.of Transformer open circuit voltage tester FFD1622	0.1kV~10kV,(50Hz)	$U_{rel}=0.15\%$		
175	Peak voltage tester	AC Voltage	C.M.of Peak voltage tester FFD1623	0.1kV~10kV,(50Hz)	$U_{rel}=0.15\%$		
176	Transformer excitation characteristic tester	AC Voltage	C.M.of Transformer excitation characteristic tester FFD1624	1V~1000V,(50Hz)	$U_{rel}=0.15\%$		
		AC Current		0.01A~10A,(50Hz)	$U_{rel}=0.15\%$		
		Transformers Turn Ratio		Current transformer ratio: 1~5000, Voltage transformer ratio: 1~3000	$U_{rel}=0.15\%$		
177	Volt ampere characteristic ratio polarity comprehensive tester	AC Voltage	C.M.of Volt ampere characteristic ratio polarity comprehensive tester FFD1625	1V~1000V,(50Hz)	$U_{rel}=0.15\%$		
		AC Current		0.01A~10A,(50Hz)	$U_{rel}=0.15\%$		
		Transformers Turn Ratio		Current transformer ratio: 1~5000, Voltage transformer ratio: 1~3000	$U_{rel}=0.15\%$		
178	Transformer	AC Voltage	C.M.of Transformer	1V~1000V,(50Hz)	$U_{rel}=0.15\%$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	parameter analyzer	AC Current	parameter analyzer FFD1626	0.01A~10A,(50Hz)	$U_{rel}=0.15\%$		
		Transformers Turn Ratio		Current transformer ratio: 1~5000, Voltage transformer ratio: 1~ 3000	$U_{rel}=0.15\%$		
179	*High Voltage Standard Capacitors	Capacitance	V.R.of High Voltage Standard Capacitors JJG1075	10pF~100nF	$U_{rel}=6 \times 10^{-3} \sim 1 \times 10^{-3}$		
		loss		-0.00100~0.11000	$U=0.00003 \sim 0.00060$		
180	Soil resistivity tester	Resistivity	C.M.for Soil resistivity tester FFD1901	$1 \Omega \cdot m \sim 6280 k \Omega \cdot m$	$U_{rel}=0.6\% \sim 0.14\%$		
181	*Scribing rheostat	resistance	C.M.for Scribing rheostat FFD1902	0.01 $\Omega \sim 1 \Omega$	$U_{rel}=10\% \sim 1\%$		
				Resistance:1 $\Omega \sim 10 \Omega$	$U_{rel}=0.2\% \sim 0.3\%$		
				10 $\Omega \sim 10 M \Omega$	$U_{rel}=0.2\%$		
182	Fixed Resistor and Capacitor	resistance		0.01 $\Omega \sim 100 M \Omega$, (20Hz~1MHz)	$U_{rel}=0.02\% \sim 0.008\%$		
		Capcitanace	C.M.for Fixed Resistor and Capcitor FFD1903	0.1nF~100 μF , (20Hz~1MHz)	$U_{rel}=2.0\% \sim 0.14\%$		
		Inductance		0.1 $\mu H \sim 100 mH$, (20Hz~1MHz)	$U_{rel}=2.0\% \sim 0.14\%$		
183	*Concrete Resistivity Tester	Resistivity	V.R. of Concrete Resistivity Meter JJG(交通)159	(1~10)k $\Omega \cdot cm$	$U_{rel}=5\% \sim 2\%$		
				(10~100)k $\Omega \cdot cm$	$U_{rel}=2\% \sim 0.2\%$		
				(100~2000)k $\Omega \cdot cm$	$U_{rel}=0.13\%$		
184	*Iron Tester	Voltage		(0.1~100)mV	$U_{rel}=2.0\% \sim 0.3\%$		
		resistance	C.M.for Iron Tester FFD1905	(1~1000) Ω	$U_{rel}=10\% \sim 0.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
185	*DC High Current Generator	DC Current	C.M.for DC High Current Generator FFD1906	1A~5kA (5~10) kA	$U_{rel}=0.003\%$ $U_{rel}=0.1\%$		
186	*Transient Characteristics of Moulded case Circuit Breaker Tester	Current	C.M.for Transient Characteristics of Moulded case Circuit Breaker Tester FFD1907	(10~5000)A	$U_{rel}=0.5\%$		
		TimeInterval		1ms~1s	$U_{rel}=0.5\% \sim 0.02\%$		
187	*Point checker for withstand voltage tester	Current	C.M.for point checker for withstand voltage tester FFD1908	AC Current (0.1~100)mA DCI (0.1~100)mA	$U_{rel}=0.3\%$ $U_{rel}=0.15\%$		
188	*Point checker for leak current tester	Current	C.M.for point checker for leak current tester FFD1909	AC Current (0.1~100)mA	$U_{rel}=0.14\%$		
189	*Insulation tester point detector	resistance	C.M.for insulation tester point detector FFD1910	DCR: 1M Ω ~ 1T Ω	$U_{rel}=0.1\% \sim 0.5\%$		
190	*earth-continuity tester point detector	resistance	C.M.for earth-continuity tester point detector FFD1911	DCR: 10m Ω ~ 1 Ω	$U_{rel}=0.03\%$		
191	Dielectric response analyzer	Loss Factor	C.M.for Dielectric response analyzer FFD1912	(0.01~10)%	$U=0.006\% \sim 0.042\%$		
		Capacitance		100pF~10nF	$U_{rel}=0.4\% \sim 0.1\%$		
192	High frequency insulation tester	Voltage	C.M.for High frequency insulation tester FFD1913	(0.1~10)kV, (10kHz~500kHz)	$U_{rel}=3.3\%$		
193	Charging characteristics tester	DCV	C.M.for Charging characteristics tester FFD1914	1V~500V	$U_{rel}=0.02\% \sim 0.03\%$		
		DCI		0.1A~1000A	$U_{rel}=0.04\% \sim 0.09\%$		
		RIPPLE of VOLTAGE		0.1mV~10V	$U_{rel}=0.2\% \sim 0.7\%$		



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194	*AC Electronic Laod	ACV	C.M.for AC Electronic Laod FFD1915	(1~1000)V, 40Hz~1kHz	$U_{rel}=0.016\%$		
		ACI		(1~1000)A, 45Hz~65Hz	$U_{rel}=0.02\%\sim 0.30\%$		
		ACP		(1~1000)V/(0.01~1000)A, 40Hz~65Hz	$U_{rel}=0.024\%\sim 0.35\%$		
195	*Frequency on-line tester	ACV	C.M.for Frequency on-line tester FFD1918	0.1 V~ 500 V	$U_{rel}=0.008\%$		
		FREQ		10Hz ~ 100 kHz	$U_{rel}=0.002\%$		
		DCV		0.1 V~ 500 V	$U_{rel}=0.008\%$		
196	*chromacoder	ACV	C.M.for chromacoder FFD1919	0.1 V~1000 V, 45Hz~65Hz	$U_{rel}=0.012\%$		
		ACI		0.01A~100A, 45Hz~65Hz	$U_{rel}=0.012\%$		
		DCV		0.1 V~ 1000 V	$U_{rel}=0.004\%\sim 0.012\%$		
		DCI		0.01A~100A	$U_{rel}=0.012\%$		
197	Calirating Equipment for Hi-pot Tester	Voltage	C.M.for Calirating Equipment for Hi-pot Tester FFD1920	AC/DC Voltage (0.5~20)kV	$U_{rel}=0.16\%$		
		Current		AC/DC Current (0.5~400)mA	$U_{rel}=0.16\%$		
		Time		Time: (9~999)s	$U_{rel}=0.16\%$		
198	*High Voltage Paint Film Continuity Tester	DC Voltage	C.M.for High Voltage Paint Film Continuity Tester FFD1921	(1~5000)V	$U_{rel}=1.2\%$		
		DC Current		(1~100) μ A	$U_{rel}=1.0\%$		
		Velocity		(10~20)m/min	$U=0.3\text{m/min}$		
		Number of Repetition		(400~600) Sample/min	$U_{rel}=1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Time		(1~10)ms	$U_{rel}=5\%$		
		Voltage fluctuation		(0.1~10)%	$U=0.3\%$		
199	*Unidirectional Paint Scraping Tester	DC Voltage	C.M.for Unidirectional Paint Scraping Tester FFD1922	(1~10)V	$U_{rel}=0.2\%$		
		DC Current		(1~50)mA	$U_{rel}=0.2\%$		
		Distance		(50~200)mm	$U=1\text{mm}$		
		Velocity		(100~500)mm/min	$U_{rel}=1\%$		
200	Start Voltage Calibration for Electroscop	Voltage	C.M.for Start Voltage Calibration for Electroscop FFD1923	(0.1~200) kV	$U_{rel}=1.5\%$		
201	*Detection Device for High Voltage Distribution	ACA	C.M.for Detection Device for High Voltage Distribution FFD1924	0.1A~1kA, (45Hz~65Hz)	$U_{rel}=0.013\%$		
		ACV		50V~11kV, (45Hz~65Hz)	$U_{rel}=0.013\%$		
		Phase		0° ~360°	$U=0.02^\circ$		
		Electrical Energy		50V~11kV, 0.1A~1kA, (45Hz~65Hz)	$U_{rel}=0.014\%$		
		AC Power		5W~11MW	$U_{rel}=0.008\%\sim 0.022\%$		
202	*Low Voltage Metering Current Transformer Automatic Testing System	Ratio Difference	V.R.for Low Voltage Metering Current Transformer Automatic Testing System JJG1139	(0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.005\%(1\%In)$		
				(0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.003\%(5\%In)$		
				(0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.003\%(20\%In)$		
				(0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.003\%(100\%In)$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Phase Difference		(0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.003\%(120\%In)$		
				(-500~500)' , (0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.12' (1\%In)$		
				(-500~500)' , (0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.07' (5\%In)$		
				(-500~500)' , (0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.07' (20\%In)$		
				(-500~500)' , (0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.07' (100\%In)$		
				(-500~500)' , (0.1~1500)A (5A,1A),(50Hz,60Hz)	$U=0.07' (120\%In)$		
		Load		(0.01~1000)VA	$U_{rel}=3.2\%$		
		Resistance		0.1M Ω ~ 10G Ω	$U_{rel}=1.7\%$		
		AC Voltage		(0.01~10)kV, 45Hz~65Hz~	$U_{rel}=1.7\%$		
		AC current		(0.1~1000)mA, 45Hz~65Hz	$U_{rel}=1.3\%$		
203	*Verification Equipment for Transformers	Ratio Difference	V.R.of Verification Equipment for Transformers JJG(粤)046	(0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=0.005\%(1\%In)$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=0.003\%(5\%In)$		
				(0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=0.003\%(20\%In)$		
				(0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=0.003\%(100\%In)$		
				(0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=0.003\%(120\%In)$		
				(0.1~110/√3) kV (100V,100/√3V,100/3V), (50Hz,60Hz)	$U=0.005\%(20\%Un)$		
				(0.1~110/√3) kV (100V,100/√3V,100/3V), (50Hz,60Hz)	$U=0.004\%(50\%Un)$		
				(0.1~110/√3) kV (100V,100/√3V,100/3V), (50Hz,60Hz)	$U=0.003\%(80\%Un)$		
				(0.1~110/√3) kV (100V,100/√3V,100/3V), (50Hz,60Hz)	$U=0.003\%(100\%Un)$		
				(0.1~110/√3) kV (100V,100/√3V,100/3V), (50Hz,60Hz)	$U=0.003\%(120\%Un)$		
		Phase Difference		(-500~500)' , (0.1~5000)A/(5A,1A),(50Hz,60Hz)	$U=0.12' (1\%In)$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				$(-500 \sim 500)'$, $(0.1 \sim 5000)\text{A}/(5\text{A}, 1\text{A}), (50\text{Hz}, 60\text{Hz})$	$U=0.09'$ (5%In)		
				$(-500 \sim 500)'$, $(0.1 \sim 5000)\text{A}/(5\text{A}, 1\text{A}), (50\text{Hz}, 60\text{Hz})$	$U=0.07'$ (20%In)		
				$(-500 \sim 500)'$, $(0.1 \sim 5000)\text{A}/(5\text{A}, 1\text{A}), (50\text{Hz}, 60\text{Hz})$	$U=0.07'$ (100%In)		
				$(-500 \sim 500)'$, $(0.1 \sim 5000)\text{A}/(5\text{A}, 1\text{A}), (50\text{Hz}, 60\text{Hz})$	$U=0.07'$ (120%In)		
				$(-500 \sim 500)'$, $(0.1 \sim 110/\sqrt{3})\text{kV}/(100\text{V}, 100/\sqrt{3})\text{V}, 100/3\text{V}), (50\text{Hz}, 60\text{Hz})$	$U=0.12'$ (20%Un)		
				$(-500 \sim 500)'$, $(0.1 \sim 110/\sqrt{3})\text{kV}/(100\text{V}, 100/\sqrt{3})\text{V}, 100/3\text{V}), (50\text{Hz}, 60\text{Hz})$	$U=0.09'$ (50%Un)		
				$(-500 \sim 500)'$, $(0.1 \sim 110/\sqrt{3})\text{kV}/(100\text{V}, 100/\sqrt{3})\text{V}, 100/3\text{V}), (50\text{Hz}, 60\text{Hz})$	$U=0.07'$ (80%Un)		
				$(-500 \sim 500)'$, $(0.1 \sim 110/\sqrt{3})\text{kV}/(100\text{V}, 100/\sqrt{3})\text{V}, 100/3\text{V}), (50\text{Hz}, 60\text{Hz})$	$U=0.07'$ (100%Un)		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			ilac-MRA INTERNATIONAL ACCREDITATION SERVICE FOR COMPETENCY ASSESSMENT SCHEDULE OF APPROVED CERTIFICATE	$(-500 \sim 500)'$, $(0.1 \sim 110/\sqrt{3}) \text{ kV} / (100\text{V}, 100/\sqrt{3})\text{V}, 100/3\text{V}$, (50Hz, 60Hz)	$U=0.07'$ (120% U_n)		
		Admittance		$(0.0001 \sim 1)\text{S}$, $(0.01 \sim 1000)\text{VA}$	$U_{\text{rel}}=2.5\%$		
		Resistance		$0.01\text{m}\Omega \sim 100\Omega$, $(0.01 \sim 1000)\text{VA}$	$U_{\text{rel}}=2.5\%$		
204	Current Transformer Volt-Ampere Characteristic Meters	AC Voltage	C.S.for Current Transformer Volt-Ampere Characteristic Meters JJF1584	$1\text{V} \sim 8\text{kV}$, (50Hz)	$U_{\text{rel}}=0.2\%$		
		AC Current		$1\text{mA} \sim 1\text{A}$, (50Hz)	$U_{\text{rel}}=0.15\%$		
205	*Calibration device of Battery inner resistance tester	Impedance	C.M.for Calibration device of Battery inner resistance tester FFD1926	$0.1\text{m}\Omega \sim 10\text{k}\Omega$	$U_{\text{rel}}=0.2\% \sim 0.015\%$		
206	*Calibration device of Camp ammeter	DC Current	C.M.for Calibration device of Camp ammeter FFD1927	$1\text{mA} \sim 2000\text{A}$	$U_{\text{rel}}=0.005\% \sim 0.0026\%$		
		AC Current		$1\text{mA} \sim 2000\text{A}$, (50Hz $\sim$ 400Hz)	$U_{\text{rel}}=0.03\% \sim 0.0026\%$		
207	*Calibration device of Touch current tester	DC Current	C.M.for Calibration device of Touch current tester FFD1928	$2\mu\text{A} \sim 100\text{mA}$	$U_{\text{rel}}=0.012\%$	合格评定国家认可委员会 认可证书专用章	
		AC Current		$2\mu\text{A} \sim 100\text{mA}$ (20Hz $\sim$ 1MHz)	$U_{\text{rel}}=0.15\% \sim 0.016\%$		
		DC voltage		$1\text{mV} \sim 50\text{V}$	$U_{\text{rel}}=0.01\%$		
		AC Voltage		$1\text{mV} \sim 50\text{V}$ (20Hz $\sim$ 1MHz)	$U_{\text{rel}}=0.3\% \sim 0.017\%$		
		Resistance		$300\Omega \sim 3\text{k}\Omega$	$U_{\text{rel}}=0.005\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Impedance		$300\ \Omega \sim 3\text{k}\ \Omega$ (20Hz~1MHz)	$U_{\text{rel}}=0.07\%$		
208	*DC High Current Meters	DC Current	V.R.of DC High Current Meters JJG(军工) 195	0.1A~5kA	$U_{\text{rel}}=0.003\%$		
209	Inductive Voltage Divider	Divider in Same Phase	V.R.of Inductive Voltage Divider JJG244	$-0.1 \sim +0.1$, (1~1000)V/(0.1~1000)V	$U=1.5 \times 10^{-6}$		
		Divider in Cross Phase		$(-0.1 \sim +0.1)\text{rad}$, (1~1000)V/(0.1~1000)V	$U=1.5 \times 10^{-6}\text{rad}$		
210	*Voltage Transformers in Power System	Ratio Difference	Instrument Transformers-Part 4: Voltage Transformers in Power System JJG 1189.4	$(-11.11 \sim 11.11)\%$, (100V~1kV)/(0.01mV~1kV); (1~220/√3)kV/(100V, 100/√3V, 100/3V), (50Hz, 60Hz)	$U=0.021\%$ (80% U_n ~120% U_n)		
		Phase Difference		$(-500 \sim 500)'$, (100V~1kV)/(0.01mV~1kV); (1~220/√3)kV/(100V, 100/√3V, 100/3V), (50Hz, 60Hz)	$U=1.02'$ (80% U_n ~120% U_n)		
211	Calibration device for instrument transformer load box	Resistance	C.M.for Calibration device for instrument transformer load box FFD2121	$\pm(0.001\text{m}\ \Omega \sim 100\ \Omega)$	$U_{\text{rel}}=0.06\%$		
		Reactance		$\pm(0.001\text{m}\ \Omega \sim 100\ \Omega)$	$U_{\text{rel}}=0.05\%$		
		Conductance		$\pm(0.001\text{mS} \sim 100\text{mS})$	$U_{\text{rel}}=0.06\%$		
		Susceptance		$\pm(0.001\text{mS} \sim 100\text{mS})$	$U_{\text{rel}}=0.05\%$		
212	*Constant magnetic field	coil constant	C.S.for Constant magnetic field coils JJF1906	$(1 \times 10^{-5} \sim 1 \times 10^{-2})\text{T/A}$	$U_{\text{rel}}=0.16\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	coils	magnetic field uniformity		0.1%~10%	$U_{rel}=0.22\%$		
213	*Test devices for action characteristics of low voltage circuit breakers	AC Current	C.S.for Test devices for action characteristics of low voltage circuit breakers JJF1799	(1~5000)A,(50Hz)	$U_{rel}=1.3\%$		
		Time		10 ns~3600 s	$U_{rel}=1.3\%$		
214	*Ratio Tester for A High-Low Voltage Current Transformer	Primary AC Current	C.M.for Ratio Tester for A High-Low Voltage Current Transformer FFD2122	0.1A~1000A,(50Hz)	$U_{rel}=0.17\%$		
		Secondary AC Current		0.1A~6A,(50Hz)	$U_{rel}=0.13\%$		
		Ratio		1~1000	$U_{rel}=0.12\%$		
215	Medical Leakege Current Tester	Impedance	V.R.of Medical Leakage Current Testers JJG1188	(100~2200) Ω (10Hz~ 1MHz)	$U_{rel}=0.3\%\sim 1.5\%$		
		Frequency Response Characteristic s of Transfer Impedance		(0.00~-63)dB(10Hz~ 1MHz)	$U=0.1\text{dB}$		
		Voltage		(10~500)V(DC~1MHz)	$U_{rel}=0.3\%\sim 1.5\%$		
		Current		10 μA ~50mA(DC~ 1MHz)	$U_{rel}=0.3\%\sim 1.5\%$		
		Resistance		100 Ω ~2200 Ω	$U_{rel}=0.1\%$		
216	Hall Current Sensors	DC Current	C.M.for Hoare Current Sensor FFD2109	0.1A~10kA	$U_{rel}=0.014\%$		
		AC Current		0.1A~10kA (50Hz)	$U_{rel}=0.017\%$		
217	Loss Factor Standard	Loss	C.M.for Loss Factor Standard FFD2105	-0.00100~0.11000	$U=0.00003\sim 0.00060$		
		Capacitance		40pF~550nF	$U_{rel}=0.1\%$		



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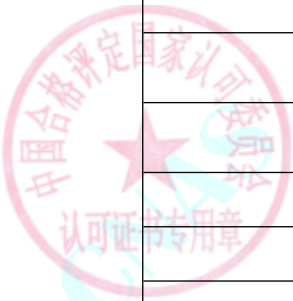
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
218	*Contactless Electrostatic Voltage Measuring Instruments Calibration Devices	Voltage	C.M.for Contactless Electrostatic Voltage Measuring Instruments Factor Calibration Device FFD2104	$\pm(0.1\sim 21)\text{kV}$	$U_{\text{rel}}=0.06\%$		
219	*AC High Voltage Test Devices	Voltage	V.R.of AC High Voltage Test Devices JJG(粤)059	$(1\sim 500)\text{kV}$	$U_{\text{rel}}=1.5\%$		
220	*High Voltage Wireless Phaser Calibration Device	Voltage	C.M.for Calibration Device for High Voltage Phase Comparators FFD2106	$5\text{V}\sim 11\text{kV}$	$U_{\text{rel}}=0.03\%$		
		Phase		$(0\sim 360)^\circ$	$U=0.04^\circ$		
221	*Electrical Meters in Service for Measuring	Electrical Energy	V.R.of Electrical Meters in Service for Measuring JJG(粤)062	Single: $(50\sim 380)\text{V}, (0.01\sim 100)\text{A}, (45\text{Hz}\sim 65\text{Hz}), (\cos\phi=0.5\text{L}, 1.0, 0.8\text{C}, 0.5\text{C})$	$U_{\text{rel}}=0.07\%$		
				Balance Load: $(50\sim 380)\text{V}, (0.01\sim 100)\text{A}, (45\text{Hz}\sim 65\text{Hz}), (\cos\phi=0.5\text{L}, 1.0, 0.8\text{C}, 0.5\text{C})$	$U_{\text{rel}}=0.07\%$		
				Unbalance Load: $(50\sim 380)\text{V}, (0.01\sim 100)\text{A}, (45\text{Hz}\sim 65\text{Hz}), (\cos\phi=0.5\text{L}, 1.0, 0.8\text{C}, 0.5\text{C})$	$U_{\text{rel}}=0.07\%$		
		Time		Day Error: $(-99.99\sim 99.99)\text{s/d}$	$U=0.05\text{s/d}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
222	*IV tester	Opencircuitvoltage	C.M.of IV tester FFJ1602	(0.02～80) V	<i>U</i> _{rel} =0.4%		
		Shortcircuitcurrent		(0.1～20) A	<i>U</i> _{rel} =0.8%		
223	*Electrical parameter monitor	Voltage	C.M.for Electrical parameter monitor FFJ1901	(1～600)V	<i>U</i> _{rel} =0.25%		
		Current		(0.05～1000)A	<i>U</i> _{rel} =0.25%		
		Power Factor		0.01～1	<i>U</i> _{rel} =0.25%		
		power		(0.01～660)kW	<i>U</i> _{rel} =0.25%		
		Energy		Voltage: (1～600)V	<i>U</i> _{rel} =0.25%		
				Current: (0.05～1000)A	<i>U</i> _{rel} =0.25%		
224	*Welding Power Sources of DC Electric Welding Machines	Voltage	C.S.for Welding Power Sources of DC Electric Welding Machines JJF1985	(0.1～600)V	<i>U</i> _{rel} =0.15%		
		Current		(0.1～3000)A	<i>U</i> _{rel} =0.1%		
8 Radio & Time-frequency Measuring Instrument							
1	*Alternating Current Bridge (LCR Meter、Impedance Meter、Capacitance Meter、inductance Meter、Low frequency impedance	Resistance(Im pedance)	V.R. of Low frequency impedance analyzers JJG(D.Z.)05007,V.R.of Alternating Current Bridge JJG441,V.R.for Wide Range Digital RLC Meter GJB/J 8817	0.001 Ω ～10M Ω (5Hz～13MHz)	<i>U</i> _{rel} =0.010%～5%		
		Capacitance		0.001pF～22mF(5Hz～13MHz)	<i>U</i> _{rel} =0.0005%～5%		
		Inductance		0.001 μ H～10kH(5Hz～1MHz)	<i>U</i> _{rel} =0.02%～5%		
		Frequency		5Hz～13MHz	<i>U</i> _{rel} =0.0005%		
		Voltage		1mV～3V(5Hz～13MHz)	<i>U</i> _{rel} =0.10%		
		D-Factor		0～10	<i>U</i> =0.0002		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	analyzer)	DC Bias Voltage	ilac-MKC	-50V~50V	$U=0.01\text{mV}$		
		DC Bias Current		-10A~10A	$U=0.01\text{mA}$		
2	*HF Q-Meter	Frequency	C.S.for HF Q-Meter JJF1073	5kHz~250MHz	$U_{\text{rel}}=8\times 10^{-6}\sim 4\times 10^{-5}$		
		Q Value		10~500	$U=3.2\sim 7.4$		
		Capacitance		10pF~500pF	$U=0.05\text{pF}\sim 1.0\text{pF}$		
3	*Wow Flutter Meter	Wow Flutter	C..S.for Wow Flutter Meters JJF1683	0.001%~3.999%	$U_{\text{rel}}=0.00006\%\sim 0.009\%$		
4	*Spectrum Analyzer	Frequency readout	C.S.for Spectrum Analyzer JJF1396	3Hz~40GHz	$U_{\text{rel}}=2\times 10^{-9}$		
		Reference Frequency		10MHz	$U_{\text{rel}}=2\times 10^{-9}$		
		Calibration Signal Level		(0~-40)dBm(10MHz~40GHz)	$U=0.2\text{dB}$		
		Span		100Hz~40GHz	$U_{\text{rel}}=0.5\%$		
		RBW		1Hz~30MHz	$U_{\text{rel}}=0.3\%$		
		Reference Level		(-80~+20)dBm(3Hz~40GHz)	$U=(0.01\sim 0.2)\text{dB}$		
		Vertical Scale		(-80~+20)dB(3Hz~40GHz)	$U=(0.01\sim 0.2)\text{dB}$		
		Input Attenuator Switching uncertainty		(-3dB~3dB)(0~80)dB(3Hz~40GHz)	$U=0.2\text{dB}$		
		RBW switching uncertainty		(-3dB~3dB)(-20~+20)dBm(1Hz~30MHz)	$U=0.2\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Frequency Response	ilac-M	(-20~+20)dBm(3Hz~44GHz)	$U=(0.2\sim 1.0)\text{dB}$		
		Absolute Amplitude		(-100~+25)dBm(3Hz~40GHz)	$U=(0.2\sim 1.0)\text{dB}$		
		Display average noise level		(-180~0)dBm(3Hz~40GHz)	$U=(0.2\sim 3.0)\text{dB}$		
		Sweep time		1ms~2000s(9kHz~40GHz)	$U_{\text{rel}}=2\times 10^{-6}$		
		VSWR		1.0~10.0(10MHz~43.5GHz)	$U_{\text{rel}}=3.0\%$		
		Noise sideband		(-150~-50)dBc/Hz, offset: 100Hz~1MHz(CW Frequency: 9kHz~67GHz)	$U=1.2\text{dB}$		
		Harmonic Distortion		(-80~-20)dBc, (9kHz~40GHz)	$U=(0.5\sim 2.0)\text{dB}$		
		Image Response		(-130~-70)dBc, 10MHz~50GHz	$U=3\text{dB}$		
		Remaining Response		(-150~-80)dBm, 100kHz~50GHz	$U=3\text{dB}$		
		Residual FM		(0.2~500)Hz (9kHz~67GHz)	$U=2\text{Hz}$		
5	*Frequency Response Test Set	Frequency	V.R.of 300MHz Frequency Response Test Set JJG359	(1~300)MHz	$U_{\text{rel}}=2\times 10^{-5}$		
		Output attenuation		(0~120)dB(1~300)MHz	$U=(0.5\sim 5)\text{dB}$		



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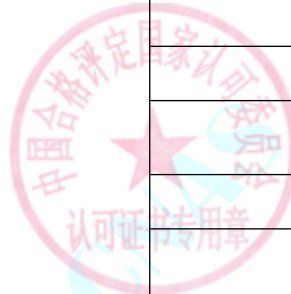
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
6	*Analog Oscilloscope	Vertical deflection coefficient	V.R.of Analogue Oscilloscope JJG262	0.1mV/div~500V/div	$U_{rel}=0.52\%\sim 0.26\%$		
		Sweep Time coefficient		0.5ns/div~50s/div	$U_{rel}=1.0\%\sim 0.26\%$		
		Frequency bandwidth		50kHz~1000MHz	$U_{rel}=1.9\%\sim 5.9\%$		
		Transient Response(Rise Time)		250ps~1000ns	$U_{rel}=4.6\%$		
		Transient Response(Overshoot)		0.01%~100%	$U_{rel}=2.0\%$		
		Amplitude(ΔV)		1mV~200V	$U_{rel}=0.52\%\sim 0.26\%$		
		Time(Δt)		0.5ns~50s	$U_{rel}=1.0\%\sim 0.26\%$		
		Calibration Signal Amplitude		0.01V~10V(1Hz~10MHz)	$U_{rel}=0.52\%\sim 0.26\%$		
		Calibration Signal Frequency		1Hz~10MHz	$U_{rel}=1\times 10^{-4}\sim 1\times 10^{-7}$		
		Input Impedance		10 Ω ~ 10M Ω	$U_{rel}=0.1\%$		
		Trigger sensitivity		1mV~1V(0.1div~2div)	$U_{rel}=5\%\sim 10\%$		
7	*Oscilloscope Calibrator	Square Voltage	V.R.of Oscilloscope Calibrators JJG278	$\pm(1mV\sim 200V)(10Hz\sim 100kHz)$	$U_{rel}=0.05\%\sim 0.02\%$		
		Direct Current Voltage		$\pm(1mV\sim 200V)$	$U_{rel}=0.03\%\sim 0.01\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		time scale		50ps~50s	<i>U</i> _{rel} =1×10 ⁻⁸		
		Rise/Fall Time		50ps~100ns(1kHz~10MHz)	<i>U</i> _{rel} =4.6%		
		Amplitude flatness		(0.01~6)V(9kHz~50GHz)	<i>U</i> =0.3dB~1.0dB		
		Sine wave Voltage		1mV~6V(50kHz~50GHz)	<i>U</i> =0.15dB~1.0dB		
		Sine Wave Frequency		1Hz~50GHz	<i>U</i> _{rel} =1×10 ⁻⁴ ~1×10 ⁻⁹		
		Singal Generator Amplitude		2mV~100V(10Hz~10kHz)	<i>U</i> _{rel} =0.05%~0.02%		
		Pulse Generator Period		1ns~1s	<i>U</i> _{rel} =1×10 ⁻⁸		
8	*Digital Oscilloscope、Scopemeter	DC Voltage(DC Gain)	C.S.for Digital Storage Oscilloscope JJF1057,V.R for Digital Oscilloscope GJB7691	±(1mV~6.6V)(1MΩ)	<i>U</i> _{rel} =1.2%~0.09%		
				±(6.6V~200V)(1MΩ)	<i>U</i> _{rel} =0.09%		
				±(1mV~6.6V)(50Ω)	<i>U</i> _{rel} =0.3%~1.3%		
		DC Offset		±(1mV~200V)(1MΩ)	<i>U</i> _{rel} =1.2%~0.09%		
				±(1mV~10V)(50Ω)	<i>U</i> _{rel} =0.3%~1.3%		
		Timebase		0.5ns/div~50s/div(0.5ns~10s)	<i>U</i> _{rel} =0.24%~3.0%		
		Bandwidth		50kHz~20GHz	<i>U</i> _{rel} =1.9%~5.9%		
		Transient Response(Rise Time)		17.5ps~350ns	<i>U</i> _{rel} =1.7%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Transient Response(Overshoot)		0.01%~100%	$U_{rel}=2.0\%$		
		Input Resistance		0.1 Ω ~ 30M Ω	$U_{rel}=0.2\%$		
		Amplitude(ΔV)		1mV~200V	$U_{rel}=0.52\%\sim 0.26\%$		
		Time(Δt)		0.5ns~50s	$U_{rel}=1.0\%\sim 0.26\%$		
		Frequency		1Hz~20GHz	$U_{rel}=1\times 10^{-4}\sim 1\times 10^{-8}$		
		Calibration Signal Amplitude		0.01V~10V	$U_{rel}=0.52\%\sim 0.26\%$		
		Calibration Signal Frequency		1Hz~10MHz	$U_{rel}=1\times 10^{-4}\sim 1\times 10^{-7}$		
		Random Noise		0.1mV~2V	$U_{rel}=0.52\%\sim 0.26\%$		
9	*High Voltage Probe for Oscilloscope (Oscilloscope Voltage Probes/Differential Probes)	DC voltage atetnuation ratio	C.S.for Oscilloscope Voltage Probes JJF1437,C.S.for High Voltage Probes of Oscilloscope JJF(D.Z.)30304,C.S.for Differential Probes of Oscilloscope JJF(D.Z.)30306	0.01~5000 $\pm$ (1mV~30kV)	$U_{rel}=0.007\%$		
		AC Voltage Attenuation Ratio		0.01~5000 $\pm$ (5mV~30kV)	$U_{rel}=0.1\%\sim 1.0\%$		
		Frequency Response		(0.5~5)V(9kHz~18GHz)	$U=0.3dB$		
		Rise time		50ps~1s	$U_{rel}=5\%$		
		Input Impedance		10 Ω ~ 10G Ω	$U_{rel}=0.1\%$		
		Bandwidth		9kHz~18GHz	$U_{rel}=1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		CMRR		(0~120)dB	$U=0.5\text{dB}$		
10	*Pulse High Voltage Tester	Rise Time(Front Time)	Calibration Method of Pulse High Voltage Tester FFW0102	$0.1\text{ }\mu\text{s}\sim 1\text{s}$	$U_{\text{rel}}=4\%$		
		Half-Peak Time(Duration Time)		$1\text{ }\mu\text{s}\sim 100\text{s}$	$U_{\text{rel}}=1.1\%$		
		Peak Voltage		$\pm(0.1\sim 40)\text{kV}$	$U_{\text{rel}}=1.3\%\sim 1.5\%$		
11	*Universal Counter	Frequency	V.R.of Universal Counters JJG349	$0.1\text{Hz}\sim 18\text{GHz}$	$U_{\text{rel}}=6\times 10^{-11}\sim 3\times 10^{-10}$		
		Frequency Accuracy		$0.1\text{MHz}, 1\text{MHz}, 5\text{MHz}, 10\text{MHz}$	$U_{\text{rel}}=7\times 10^{-11}$		
		Period		$1\text{ns}\sim 100\text{s}$	$U_{\text{rel}}=9\times 10^{-11}\sim 6\times 10^{-10}$		
		Time Interval		$2\text{ns}\sim 18000\text{s}$	$U_{\text{rel}}=9\times 10^{-11}\sim 6\times 10^{-10}$		
12	*Microwave Frequency Counter	Frequency	V.R.of Microwave Frequency Counters JJG841	$0.1\text{Hz}\sim 40\text{GHz}$	$U_{\text{rel}}=6\times 10^{-11}\sim 3\times 10^{-10}$		
		Frequency Accuracy		$0.1\text{MHz}, 1\text{MHz}, 5\text{MHz}, 10\text{MHz}$	$U_{\text{rel}}=7\times 10^{-11}$		
		Is frequency stability		$0.1\text{MHz}, 1\text{MHz}, 5\text{MHz}, 10\text{MHz}$	$U_{\text{rel}}=9\times 10^{-11}\sim 6\times 10^{-10}$		
		Input Sensitivity		$(-40\sim 20)\text{dBm}$	$U=0.3\text{dB}\sim 1.0\text{dB}$		
13	*Time Interval Meter	Time Interval	V.R.of Time Interval Meters JJG238	$0.1\text{ms}\sim 36000\text{s}$	$U=0.006\text{s}$		
14	*CALIBRATION WATCH ANALYZER(QU	frequency accuracy	V.R.of Instantaneous Daily Clock Time Difference Testers JJG488	$0.1\text{MHz}, 1\text{MHz}, 5\text{MHz}, 10\text{MHz}$	$U_{\text{rel}}=7\times 10^{-10}$		
		Day Error		$(-99\sim +99)\text{s/d}$	$U=0.006\text{s/d}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	ARTZ WATCH/CLOCK ANALYZER, STOPWATCH DAY ERROR VERIFICATION ANALYZER)	Month Error		$(-633 \sim +633)\text{s/m}$	$U=0.6\text{s/m}$		
15	*Stopwatch(Electronic stopwatch, Mechanical Stopwatch, Timer, Digital Electric Stopwatches)	Time Interval	V.R. of Stopwatches JJG237	Electronic Stopwatch(1~600)s	$U=3\text{ms}$		
				Mechanic Stopwatch(0.01~3600)s	$U=0.006\text{s}$		
				Electronic Stopwatch(0.001~99999)s	$U=(0.0006 \sim 0.008)\text{s}$		
				Digital Electric Stopwatches(0.001~200)s	$U=(0.0006 \sim 0.008)\text{s}$		
		Day error		Electronic Stopwatch(-21.09~+21.09)s/d	$U=0.05\text{s/d}$		
16	*Digital millisecond meter	Time Interval	V.R. of Time Interval Meters JJG238	$10 \mu\text{s} \sim 10000\text{s}$	$U=(0.006 \sim 0.3)\text{ms}$		
17	*Quartz Crystal Frequency Standard	Daily Aging Rate	C.S. for Quartz Crystal Frequency Standards JJF2090	0.1MHz, 1MHz, 5MHz, 10MHz	$U=1.2 \times 10^{-11}(1/\text{d})$		
		Short Time Frequency Stability		0.1MHz, 1MHz, 5MHz, 10MHz	$U_{\text{rel}}=7 \times 10^{-12}$		
		Frequency Accuracy		0.1MHz, 1MHz, 5MHz, 10MHz	$U_{\text{rel}}=7 \times 10^{-11}$		
18	*Time Relay	Delay Setting Error	C.S. for Electronic time relay JJF1282	$0.01\text{ms} \sim 99999.99\text{s}$	$U=(0.0004 \sim 0.07)\text{s}$		



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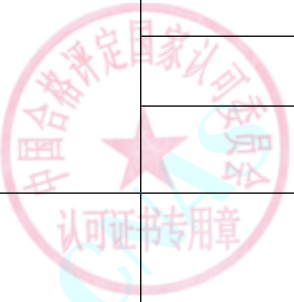
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
19	*Frequency Meter(Digital power frequency frequency meter)	Frequency	V.R.of Frequency Meters JJG603	(10.000~99.999)Hz	$U=0.0006\text{Hz}$		
20	*Television Video Signal Generator	Luminance Level	C.S.for Television Video Signal Generator JJF1235	50mV~1.4V	$U_{\text{rel}}=1.2\%$		
		Chrominance Level		50mV~1.4V	$U_{\text{rel}}=1.2\%$		
		sync signal level		10mV~500mV	$U_{\text{rel}}=1.2\%$		
		pulse Width		1ns~150 μs	$U_{\text{rel}}=0.4\%$		
		Phase		$0.1^\circ \sim 360^\circ$	$U=0.58^\circ$		
		Intermodulation from the chrominance signal into the luminance signal		-10%~10%	$U=0.3\%$		
		chrominance signal gain non-linearity distortion		0.1%~10%	$U=0.3\%$		
		chrominance signal phase non-linearity distortion		$0.1^\circ \sim 10^\circ$	$U=0.58^\circ$		
		luminance non-linearity distortion		0.1%~20%	$U=1\%$		
		group delay		-1 $\mu\text{s} \sim +1 \mu\text{s}$	$U=1\text{ns}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		K Factor(K-2T)	ilac-MKC CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	0.1%~10%	$U=0.3\%$		
		K Factor(K-PB)		-10%~5%	$U=0.3\%$		
		Rise/fall time		1ns~8 μ s	$U_{rel}=3\%$		
		Frequency		1Hz~1GHz	$U_{rel}=1 \times 10^{-4}$		
		amount		0~30	$U=1$		
		driving voltage		2V~4V	$U_{rel}=1\%$		
		Amplitude		10mV~1.4V	$U_{rel}=1.2\%$		
		Time		1ns~150 μ s	$U_{rel}=0.4\%$		
21	*TV Channel Generator	Frequency	V.R.of 363 Type Television Channel Signal Generator JJG(D.Z.)12004	50MHz~1GHz	$U_{rel}=7 \times 10^{-8}$		
		Level		(0~120)dB μ V(50MHz~1GHz)	$U=(0.5 \sim 2.4)$ dB		
		frequency Deviation		50kHz	$U_{rel}=0.4\%$		
22	*Attenuator(Coaxial Line,Limiter,Coupler,Power splitter,RF switch,Voltage probe)	Attenuation(Insert loss)	C.R.for Attenuators from Radio Frequency to Microwave Frequency JJF2092	0dB~120dB(5Hz~50GHz)	$U=(0.04 \sim 0.42)$ dB		
		Isolation		0dB~140dB(8kHz~50GHz)	$U=(0.5 \sim 2)$ dB		
		SWR		1.00~20.00(5Hz~43GHz)	$U=0.006 \sim 0.022$		
23	*Modulation Meter	AM	C.S.for Modulation Meters JJF1111	1%~99% (CW:0.15MHz~40GHz, fm:1Hz~1MHz)	$U_{rel}=0.20\% \sim 0.36\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		FM frequency deviation		0.1Hz~500kHz(CW:0.15MHz~40GHz, fm: 1Hz~1MHz)	$U_{rel}=0.2\%$		
				(0.1~400)kHz(CW:1GHz~26.5GHz, fm: 1Hz~1MHz)	$U_{rel}=2.8\%$		
		PM phase deviation		(0~500)rad(CW:0.15MHz~40GHz, fm: 1Hz~1MHz)	$U_{rel}=0.2\%$		
				(1~30)rad(CW:1GHz~26.5GHz, fm: 1Hz~1MHz)	$U_{rel}=2.8\%$		
		residual FM		(0.001~20)Hz(0.15MHz~40GHz)	$U=0.10\text{Hz}\sim 0.80\text{Hz}$		
		residual AM		0.001%~0.1%(0.15MHz~40GHz)	$U=0.001\%\sim 0.003\%$		
		Inherent spurious PM		(0.0001~0.01)rad(0.15MHz~40GHz)	$U_{rel}=10\%$		
		Suppression of FM to AM		0.001%~0.2%(0.15MHz~40GHz)	$U_{rel}=10\%$		
		Suppression of AM to FM		(0.001~10)Hz(0.15MHz~40GHz)	$U_{rel}=10\%$		
		Suppression of PM to AM		0.001%~0.2%(0.15MHz~40GHz)	$U_{rel}=10\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
24	*RF Communication Test Set	FM Demodulation Distortion	C.S.for RF Communication Test Set JJF1065	0.001%~2%(0.15MHz~ 40GHz)	$U_{rel}=30\%$		
		AM Demodulation Distortion		0.001%~5%(0.15MHz~ 40GHz)	$U_{rel}=27\%$		
		PM Demodulation Distortion		0.001%~2%(0.15MHz~ 40GHz)	$U_{rel}=30\%$		
		Reference Frequency	C.S.for RF Communication Test Set JJF1065	10MHz	$U_{rel}=1 \times 10^{-8}$		
		output Frequency		0.15MHz~26.5GHz	$U_{rel}=1 \times 10^{-8}$		
		Level		(+30~- 127)dBm(0.15MHz~ 26.5GHz)	$U=0.24\text{dB} \sim 0.36\text{dB}$		
		Input Frequency		0.15MHz~26.5GHz	$U_{rel}=1 \times 10^{-8}$		
		Input level		(+30~- 127)dBm(0.15MHz~ 26.5GHz)	$U=0.24\text{dB} \sim 0.36\text{dB}$		
		AM		0.1%~ 99%(CW:150kHz~ 26.5GHz, fm:1Hz~ 1MHz)	$U_{rel}=1.2\%$		
		FM		(0.1~400)kHz(150kHz~ 26.5GHz, fm:1Hz~ 1MHz)	$U_{rel}=1.2\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		PM	ilac-M	(0.1~30)rad(150kHz~26.5GHz, fm:1Hz~1MHz)	$U_{rel}=1.2\%$		
		Signal Analyzer AM		0.1%~99%(150kHz~26.5GHz, fm:1Hz~1MHz)	$U_{rel}=0.2\%$		
		Signal Analyzer FM		(0.1~400)kHz(150kHz~26.5GHz, fm:1Hz~1MHz)	$U_{rel}=0.2\%$		
		Signal Analyzer PM		(0.1~30)rad(150kHz~26.5GHz, fm:1Hz~1MHz)	$U_{rel}=0.2\%$		
		AF frequency		20Hz~100kHz	$U_{rel}=7 \times 10^{-6}$		
		AF level		(1~10000)mV(10Hz~500kHz)	$U_{rel}=1 \times 10^{-4}$		
		AF distortion		10%~0.01%(20Hz~100kHz)	$U_{rel}=14\% \sim 30\%$		
		audio analyzer frequency		20Hz~100kHz	$U_{rel}=7 \times 10^{-6}$		
		audio analyzer voltage		(5~10000)mV(10Hz~500kHz)	$U_{rel}=1.1 \times 10^{-3}$		
		audio analyzer distortion		0.01%~100%(20Hz~20kHz)	$U_{rel}=2.4\% \sim 5.8\%$		
25	*Network Analyzer(Include Calibration kit)	Signal generator Frequency	C.S.for Vector Network Analyzers JJF1495	1Hz~50GHz	$U_{rel}=1 \times 10^{-8}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
		Signal generator Power		20dBm~-110dBm(5Hz~50GHz)	U=0.16dB~0.36dB			
		Trace noise		Mag:(0~0.1)dB(5Hz~50GHz)	U=0.0013dB			
				Phase:(0~1)° (5Hz~50GHz)	U=0.012°			
		noise floor		(-140~-60)dB(5Hz~50GHz)	U=2dB			
		Crosstalk		(-150~-70)dB(5Hz~50GHz)	U=1.1dB~3.0dB			
		Magnitude dynamic accuracy		(0.0001~1)dB(10dBm~-140dBm)(5Hz~50GHz)	U=0.033dB			
		Reflection coefficient magnitude and phase		0~1(Open and Short)(5Hz~50GHz)	U=0.0048~0.0086			
				Phase:-180° ~180° (Open and short)(5Hz~50GHz)	U=0.012°			
				0~1(load)(5Hz~50GHz)	U=0.0029~0.0054			
				-180° ~180° (Load)(5Hz~50GHz)	U=0.012°			
		S parameters		0~1(S _{ij})(5Hz~50GHz)	U=0.0029~0.0054			
				0dB~70dB(S _{ij})(5Hz~50GHz)	U=0.0029~0.0054			
				Phase:-180° ~180° (5Hz~50GHz)	U=0.012°			
26	*Measuring Receiver	reference frequency	C.S.for Measuring Receivers JJF1173	10MHz	U _{rel} =1×10 ⁻⁹			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Frequency		1Hz~50GHz	$U_{\text{rel}}=8.2 \times 10^{-11}$		
		Tuning Level		0dB~-120dB(100kHz~40GHz)	$U=0.001\text{dB} \sim 0.18\text{dB}$		
				0dB~-110dB(40GHz~50GHz)	$U=0.18\text{dB} \sim 0.38\text{dB}$		
		Reference Level		0.9mW~1.1mW(50MHz)	$U_{\text{rel}}=0.82\%$		
		Residual AM		0.001%~1%(RMS)(100kHz~50GHz)	$U=0.001\% \sim 0.003\%$		
		Residual FM		0.01Hz~1kHz(RMS)(100kHz~50GHz)	$U=0.10\text{Hz} \sim 0.80\text{Hz}$		
		AM		0.1%~99.9% (0.15MHz~50GHz, fm: 1Hz~1MHz)	$U_{\text{rel}}=0.20\% \sim 0.36\%$		
		AM Demodulation Distortion		0.01%~10%(100kHz~50GHz)	$U_{\text{rel}}=27\%$		
		Suppression of FM		0.01%~10%(100kHz~50GHz)	$U_{\text{rel}}=10\%$		
		FM		0.1Hz~500kHz(0.15MHz~50GHz, fm: 1Hz~1MHz)	$U_{\text{rel}}=0.2\%$		
		FM Demodulation Distortion		0.001%~10%(RMS)0.01%~10%(100kHz~50GHz)	$U_{\text{rel}}=30\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Suppression of AM		0.01Hz~1kHz(RMS)0.01%~10%(100kHz~50GHz)	$U_{rel}=10\%$		
		PM		(0~500)rad(0.15MHz~50GHz, fm: 1Hz~1MHz)	$U_{rel}=0.2\%$		
27	*TV Field Strength Meter	CW Level	V.R.of TV Signal Field Strength Meter JJG1057	(0.1~130)dB μ V(1~6000)MHz	$U=0.5\text{dB}\sim 2.4\text{dB}$		
		Carrier Frequency		1MHz~6GHz	$U_{rel}=1\times 10^{-7}$		
		Range indication		(0.1~130)dB μ V(1~6000)MHz	$U=0.5\text{dB}\sim 2.4\text{dB}$		
		3dB test Bandwidth		250kHz~350kHz	$U_{rel}=1\%$		
		VSWR		1.0~3.0(1MHz~2.7GHz)	$U=0.06\sim 0.14$		
28	*Signal Generator	Frequency	C.S.for Signal Generators JJF1931	1Hz~50GHz	$U_{rel}=8.2\times 10^{-11}$		
		Reference Frequency		10MHz	$U_{rel}=1\times 10^{-8}$		
		Power		(-127~+30)dBm(100kHz~50GHz)	$U=(0.16\sim 0.36)\text{dB}$		
		harmonic		(-130~0)dBc(100kHz~50GHz)	$U=(1.1\sim 1.6)\text{dB}$		
		subharmonics		(-161~0)dBc(100kHz~50GHz)	$U=(1.1\sim 1.6)\text{dB}$		
		Non-harmonics		(-161~0)dBc(100kHz~50GHz)	$U=(1.1\sim 1.6)\text{dB}$		



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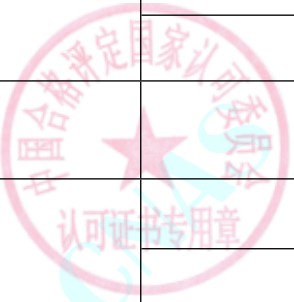
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		SSB phase noise		(-150~-100)dBc/Hz(100kHz~50GHz)	$U=1.2\text{dB}$		
		residual FM		0.01Hz~100kHz(0.15MHz~50GHz)	$U_{\text{rel}}=10\%$		
		residual AM		0.001%~20%(0.15MHz~50GHz)	$U_{\text{rel}}=10\%$		
		FM		(0.1~400)kHz(CW:0.15MHz~50GHz, fm: 1Hz~1MHz)	$U_{\text{rel}}=0.2\%$		
		AM		0.1%~99%(CW:0.15MHz~50GHz, fm: 1Hz~1MHz)	$U_{\text{rel}}=0.2\%$		
		PM		(1~30)rad(CW:0.15MHz~50GHz, fm: 1Hz~1MHz)	$U_{\text{rel}}=0.2\%$		
		Demodulation Distortion		0.01%~10%(150kHz~50GHz)	$U_{\text{rel}}=27\%$		
		Accompanied FM of AM		0.01Hz~100kHz(0.15MHz~50GHz)	$U_{\text{rel}}=10\%$		
		Accompanied AM of FM		0.001%~2%(0.15MHz~50GHz)	$U_{\text{rel}}=10\%$		
		Internal Modulation Frequency		1Hz~10MHz	$U_{\text{rel}}=1 \times 10^{-6}$		



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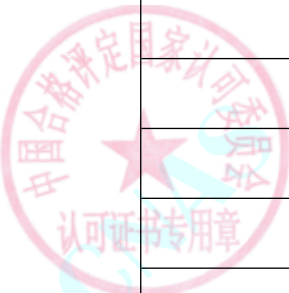
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Internal Modulation amplitude		0.1V~10V(1Hz~10MHz)	$U_{rel}=0.1\%$		
		Rise time		0.1ns~1s	$U_{rel}=1\%$		
		Pulse modulation on-off ratio		0dB~120dB	$U=(0.4\sim0.8)\text{dB}$		
29	*Pulse Generator	Pulse Amplitude	V.R. of Pulse Generators JJG490	1mV~200V(10Hz~6GHz)	$U_{rel}=1.1\%$		
		Pulse Width		4ns~300ms	$U_{rel}=0.05\%$		
		Rise/Fall time		0.1ns~1s	$U_{rel}=7\%$		
		Frequency		10Hz~6GHz	$U_{rel}=1.3\times 10^{-7}$		
		waveform distortion		0.1%~20%	$U=0.5\%$		
		Pulse delay		10ns~10ms	$U_{rel}=0.05\%$		
		Jitter		0.05%pulse width+20ps	$U_{rel}=0.01\%$		
		Burst		1~65280	$U=1$		
		DC offset voltage		1mV~20V	$U_{rel}=1\%$		
30	*Drop Out Signal Generator	Depth of Dropout Signal	Calibration Method of Dropout Signal Generator FFW0105	(10~24)dB	$U=(0.14\sim0.4)\text{dB}$		
31	*Video Noise Meter	Chorma Noise Level	V.R. of Colour Video Noise Meter (Model 925D/2) JJG(D.Z.)12042	(0.3~70)mV(3.43MHz~5.43MHz)	$U_{rel}=1.3\%$		
		Video Noise		(0.3~70)mV(0.1kHz~6MHz)	$U=(1\sim3)\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
32	*Electronic Volt Meter (Millivolt Meter)	Voltage	V.R.of RF Voltmeters JJG308, V.R.of Electronic Voltmeter JJG250, C.S. for Low-frequency Volt-meters JJF1925	1mV~100mV(1Hz~300kHz)	<i>U</i> _{rel} =1.2%~0.04%		
				1mV~100mV(300kHz~500MHz)	<i>U</i> _{rel} =1.2%~0.5%		
				100mV~1000V(1Hz~300kHz)	<i>U</i> _{rel} =0.04%		
				100mV~1V(300kHz~500MHz)	<i>U</i> _{rel} =0.6%		
		Frequency response		100mV~1V(2Hz~100kHz)	<i>U</i> _{rel} =0.04%~0.10%		
				100mV~1V(100kHz~10MHz)	<i>U</i> _{rel} =0.10%~3%		
				100mV~1V(10MHz~4GHz)	<i>U</i> _{rel} =3%		
		Isolation		(1~120)dB	<i>U</i> =0.1dB		
33	*Distortion Meter	Distortion	C.S. for Distortion Meters JJF1852	0.003%~0.01%(5Hz~20kHz)	<i>U</i> _{rel} =22%~15%		
				0.01%~0.03%(5Hz~20kHz)	<i>U</i> _{rel} =8.7%~6.7%		
				0.03%~0.1%(5Hz~20kHz)	<i>U</i> _{rel} =3.3%~2.6%		
				0.03%~0.1%(20kHz~200kHz)	<i>U</i> _{rel} =6.7%~6.0%		
				0.1%~30%(5Hz~200Hz)	<i>U</i> _{rel} =2.6%~2.3%		
				0.1%~30%(200Hz~1kHz)	<i>U</i> _{rel} =1.5%~1.2%		
				0.1%~30%(1kHz~20kHz)	<i>U</i> _{rel} =2.6%~2.3%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
34	*Audio Analyzer	Residual distortion	C.S.for Audio Analyzer JJF1395	0.1%~30%(20kHz~50kHz)	<i>U</i> _{rel} =3.8%~3.5%			
				0.1%~30%(50kHz~200kHz)	<i>U</i> _{rel} =6.1%~5.8%			
				0.0005%~1%	<i>U</i> =0.00020%~0.20%			
		Voltage		1mV~100mV(5Hz~200kHz)	<i>U</i> _{rel} =1.2%~0.04%			
				100mV~300V(5Hz~200kHz)	<i>U</i> _{rel} =0.04%			
				100mV~1V(5Hz~100kHz)	<i>U</i> _{rel} =0.04%~0.10%			
		Frequency response						
		analyzer Voltage		Output voltage	1mV~20V(10Hz~200kHz)		<i>U</i> _{rel} =0.10%~0.20%	
				Output frequency	10Hz~200kHz		<i>U</i> _{rel} =1×10 ⁻⁶	
				Output distortion	0.0001%~30%		<i>U</i> _{rel} =10%	
					1mV~100mV(20Hz~20kHz)		<i>U</i> _{rel} =1.2%~0.1%	
					100mV~300V(20Hz~20kHz)		<i>U</i> _{rel} =0.1%	
					100mV~10V(20Hz~20kHz)		<i>U</i> _{rel} =0.23%~0.1%	
					100mV~10V(20kHz~100kHz)		<i>U</i> _{rel} =0.1%~0.49%	
				analyzer Frequency	10Hz~200kHz		<i>U</i> _{rel} =1×10 ⁻⁵	
		analyzer Distortion		0.002%~0.1%	<i>U</i> _{rel} =2.2%~1.2%			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
				0.1%~31.6%	<i>U</i> _{rel} =1.2%			
35	*Turns Ratio and Phase Teste(Transformer-ratio bridge)	Turns	V.R.of Transformers Turn Ratio Test Sets JJG970	1%~10%(30Hz~100kHz)	<i>U</i> _{rel} =0.2%			
				10%~100%(30Hz~100kHz)	<i>U</i> _{rel} =0.06%			
		Phase		0°~60°	<i>U</i> =1°			
				60°~90°	<i>U</i> =2°			
				90°~270°	<i>U</i> =5°			
				270°~300°	<i>U</i> =2°			
				300°~360°	<i>U</i> =1°			
				36	*SINAD Meter			SINAD
37	*Telephone Automatic Charge Calibrator	Time Interval	V.R.of Verifying Instrument for Single and Dispersion Controlled Centrally Telephone Accounter JJG983	0.001s~9999.99s	<i>U</i> =(0.0006~0.0010)s			
38	*Telephone Automatic Charge Meter	Time Interval	V.R.of Single and Dispersion Controled Centrally Telephone Accounters JJG107	0.001s~240s	<i>U</i> =0.10s			
				240s~9999.99s	<i>U</i> =0.10s~0.18s			
39	*Capacitor	Capacitance	V.R.of Standard Capacitor JJG183	0.001pF~1F(5Hz~13MHz)	<i>U</i> _{rel} =0.0005%~5%			
		D-Factor		0~10	<i>U</i> =0.0001			
40	*Inductors	Inductance	V.R.of Standard Inductors JJG726	0.01 μH~10000H(5Hz~1MHz)	<i>U</i> _{rel} =0.02%~5%			
		Q factor		0.01~1000	<i>U</i> _{rel} =2%			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC Resistance		0.001 Ω ~ 10k Ω	$U_{rel}=2\%$		
41	*Transister Specificity Oscilloscope	Deflection Factor of Volatage(Deflection Factor of Base Volatage, Deflection Factor of Collector Volatage and Diode Voltage, Deflection Factor of Staircase Volatage, Deflection Factor of External Volatage)	C.S.for Semiconductor Device Curve Tracers JJF1236	(0.01~500)V/div	$U_{rel}=1.0\%$		



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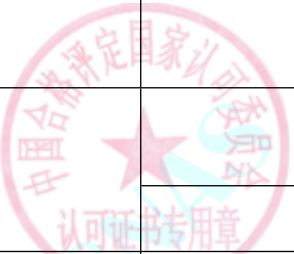
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Deflection Factor of Current (Deflection Factor of Collector Current and Diode Counter Current, Deflection Factor of Staircase Current)		0.1 μ A/div $\sim$ 5A/div	$U_{rel}=1.0\%$		
		Calibration Voltage		(0.01 $\sim$ 500)V	$U_{rel}=0.10\%$		
42	*Electrocardiograph	Sensitivity	V.R.of Electrocardiograph JIG543	(5 $\sim$ 20)mm/mV(calibration voltage: 1mV)	$U_{rel}=1.2\%$		
43	*Calibration Device For Electrocardiograph Device and Electric Cardiac Monitor, Interactive Biomedical Universal Signal Source	Amplitude(Voltage)	V.R.of Verification Instrument for Electrocardiograph and Electroencephalograph JIG749, V.R. of Calibration Device for Electric Cardiac Monitor JIG1016	8 μ V $\sim$ 30V	$U_{rel}=0.004\%\sim 0.6\%$		
		Period		1ms $\sim$ 50s	$U_{rel}=9\times 10^{-5}$		
		Frequency		0.01Hz $\sim$ 1000Hz	$U_{rel}=9\times 10^{-5}$		
		Wave Width		1ms $\sim$ 1s	$U_{rel}=1.0\%$		
		Polarization voltage		-10V $\sim$ 10V	$U=0.01$ mV		
		Resistance		0.1 $\Omega \sim 1$ M Ω	$U_{rel}=0.5\%$		
		Attenuation Ratio		1/100 $\sim$ 1/2000	$U_{rel}=0.10\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Distortion		0.001%~10%	$U=0.05\%$		
		heart rate		(10~300)bpm	$U_{rel}=0.5\%$		
44	*Multiparameter physiological simulator, ECG simulator, Vital sign simulator	Respiration basic impedance	C.S.for Multiparameter Physiological Simulators JJF1470	(100~3000) Ω	$U_{rel}=1.0\%$		
		heart rate		(10~300)bpm	$U_{rel}=0.5\%$		
		ECG Amplitude		0.05mV~10mV	$U_{rel}=1.0\%$		
		Blood pressure analog signal		(0.01~300)mV	$U_{rel}=1.0\%$		
		Cardiac output analog signal		(5~50)k Ω	$U_{rel}=0.5\%$		
		Temperature analog signal		(1~100)k Ω	$U_{rel}=0.5\%$		
		Amplitude of Reference Waves		0.05mV~10mV	$U_{rel}=1.0\%$		
		Frequency of Reference Waves		0.01Hz~1000Hz	$U_{rel}=0.10\%$		
45	*Leakage Current Instrument and Meter for Capacitor	DC Polarization voltage	V.R.of Electrolytic Capacitor Leakage Current Tester JJG(D.Z.)306003	(0.1~2000)V	$U_{rel}=0.8\%$		
		Leakage Current		0.2 μ A~100mA	$U_{rel}=1\%$		
46	*Inductance Bias Current Source	Current	C.S. for DC Stabilized Power Supplies JJF1597	1mA~50A	$U_{rel}=0.1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
47	*High Frequency Impedance Analyzer(RF Impedance Analyzer RF Impedance and Materials Analyzer)	Frequency	C.S.for RF Impedance/Material Analyzers JJF1127	1MHz~3GHz	$U_{\text{rel}}=1.2\times 10^{-7}$			
		Level		-60dBm~+20dBm(1MHz~3GHz)	$U=0.12\text{dB}$			
		Impedance(Include: Short); Admittance		Impedance:0.001mΩ ~ 100kΩ ;Admittance:0.01μ S~10S	$U_{\text{rel}}=0.4\%\sim 2.0\%$			
				Short:0Ω	$U=10\text{m}\Omega$			
		Phase		-180° ~+180° (-3.14159rad~+3.14159rad)	$U=(2\sim 15)\text{mrad}$			
48	*Harmonic /Flick Test System (Power Analyzer, Harmonious and Flicker Analyzer)	Voltage	C.S.for Harmonious and Flicker Analysis System JJF1205	10V~1000V	$U_{\text{rel}}=0.1\%$			
		Current		0.01A~3A	$U_{\text{rel}}=0.3\%$			
				3A~20A	$U_{\text{rel}}=0.5\%$			
				20A~50A	$U_{\text{rel}}=1.0\%$			
				Power	1W~20kW			$U_{\text{rel}}=0.3\%$
		Harmonic(Voltage/Current)			0.01%~100%			$U_{\text{rel}}=0.3\%$
		Reference Resistance			0.01Ω ~ 10Ω			$U_{\text{rel}}=2\%$
		Flick			0.01~10			$U_{\text{rel}}=2\%$
		Interharmonic			0.01%~100%			$U_{\text{rel}}=0.5\%$
		Total Harmonic Distortion			0.001%~10%			$U_{\text{rel}}=10\%$



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
49	*Discontinuous Interference Analyzer (Click Meter、Click analyzer)	Phase angle	C.S.for Discontinuous Interference Analyzers JJF1845	(0.1~360)°	$U=0.05^{\circ}$		
		Peak factor		1~2	$U_{\text{rel}}=0.2\%$		
		Peak phase angle		(45~135)°	$U_{\text{rel}}=3\%$		
		Central Frequency		(0.15~30)MHz	$U_{\text{rel}}=0.10\%$		
		level indicate		(40~120)dB μ V	$U=0.20\text{dB}$		
		6dB Bandwidth		8kHz~10kHz	$U=0.06\text{kHz}$		
		Burst Response characteristic		(0.1~1000)Hz	$U=0.20\text{dB}$		
50	*Triple-Loop Antenna	Click interference characteristic	Calibration Method of Loop Antenna FFW1416,C.S.for Triple-Loop Antenna Systems JJF(DZ) 0035	0.01ms~13s	$U_{\text{rel}}=0.5\%$		
		Antenna Factor		(60~100)dB Ω	$U=(2.0\sim1.5)\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
51	*Loop Antenna	Antenna Factor	Specification for radio disturbance and immunity measuring apparatus and methods-Part 1-6: Radio disturbance and immunity measuring apparatus-EMC antenna calibration (5.2) Calibration of loop antennas) CISPR 16-1-6 item 5.2, Specification for radio disturbance and immunity measuring apparatus and methods-Part 1-6: Radio disturbance and immunity measuring apparatus-EMC antenna calibration (5.2) GB/T 6113.106, Specification for calibration of antennas used for EMC measurements (8.3.4.2 TEM cell method for loop antenna calibration) GJB 8815 item 8.3.4.2	(0~100)dB1/m, (-51.5~48.5)dBs/m, 9kHz~30MHz	$U=0.8$ dB		
52	Magnetometer (Tesla-Meter、Magnetic Induction Meter、Gauss Meter)	Magnetic Induction/Magnetic flux density	C.S. for Fluxgate Magnetometer JJF1519, C.S. for (1 mT~2.5 T) Magnetometers JJF1832, Calibration Method of Magnetic Flux Density	1 μ T~200 μ T	$U_{rel}=1.5\%$		
				0.2mT~3mT	$U_{rel}=3\%$		
				3mT~100mT	$U_{rel}=0.5\%$		
				100mT~2.5T	$U_{rel}=0.3\%$		
		zero drift	FFW1415	1 μ T~100mT	$U_{rel}=0.1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		probe positive and negative indication value difference		1 μ T ~ 250mT	$U_{rel}=0.1\%$		
		elevation variation		0.01% ~ 100%	$U_{rel}=0.1\%$		
53	*Field Strength Meter(Electromagnetic Radiation Meter)	field intensity(electric field intensity,magnetic field intensity,power density)	Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9 kHz to 40 GHz IEEE1309 Item 1-9, Appendix A-E.	(0.1 ~ 1000)V/m;(0.01 ~ 50)A/m;(0.1 ~ 10)mW/cm ² (5Hz ~ 18GHz)	$U=2.0\text{dB} \sim 1.1\text{dB}$		
		Frequency Response		(0.1 ~ 1000)V/m;(0.01 ~ 50)A/m;(0.1 ~ 10)mW/cm ² (5Hz ~ 18GHz)	$U=1.1\text{dB} \sim 1.5\text{dB}$		
		Isotropic (Anisotropy)		(0.1 ~ 1000)V/m;(0.01 ~ 50)A/m;(0.1 ~ 10)mW/cm ² (5Hz ~ 18GHz)	$U=0.2\text{dB} \sim 1.0\text{dB}$		
54	*Near Zone Field Strength Meter	field intensity(electric field intensity)	V.R.of Near-Zone Electric-Field Measuring Instruments JJG561	(10 ~ 150)V/m;(100kHz ~ 200MHz)	$U=1.1\text{dB}$		
55	*Power Meter	Power calibration factor	CS.for RF and Microwave power meters JJF1885	10% ~ 300%(-30dBm ~ 20dBm,8kHz ~ 50GHz)	$U_{rel}=0.8\% \sim 3.0\%$		
		Reference Source Power		0.9mW ~ 1.1mW	$U_{rel}=0.30\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Linearity		+25dBm~-30dBm(100kHz~50MHz)	$U=0.04\text{dB}$		
		VSWR		1.00~10(5Hz~43GHz)	$U=0.006\sim0.022$		
56	*Artificial Mains Network(LISN)	Impedance	C.S.for Artificial Mains Networks JJF1705	(0.1~600) Ω (9kHz~200MHz)	$U_{\text{rel}}=0.5\%\sim10\%$		
		Phase		$0.1^\circ\sim\pm90^\circ$ (9kHz~200MHz)	$U=2.0^\circ$		
		Voltage division factor		(0~ ±60)dB(9kHz~200MHz)	$U=0.02\text{dB}\sim0.24\text{dB}$		
57	*EM-clamp	Clamp Factor	C.M.of EM Clamp FFW0502	-10dB~+10dB(100kHz~1GHz)	$U=1.0\text{dB}$		
58	*High Frequency Standard Resistor	HF resistance	C.M.of High Frequency Standard Resistors FFW0402	10 $\Omega\sim100\text{k}\Omega$ (1kHz~1MHz)	$U_{\text{rel}}=0.04\%\sim0.7\%$		
		DC resistance		10 $\Omega\sim100\text{k}\Omega$	$U_{\text{rel}}=0.06\%\sim0.6\%$		
59	*Absorbing-Clamp	Insertion Loss	C.S.for Absorbing Clamp in the Range of 30MHz to 1.0GHz JJF1155	(0~80)dB(30MHz~1GHz)	$U=1.7\text{dB}$		
60	*Current Probe	DC Current	C.S.for Current Probes of Oscilloscope JJF(D.Z.)30305,C.M. of Current Probe FFW0601	$\pm(0.001\sim1000)\text{A}$	$U_{\text{rel}}=0.1\%\sim1.0\%$		
		AC Current		(0.001~1000)A(10Hz~1.1GHz)	$U_{\text{rel}}=0.2\%\sim1.0\%$		
		Rise time		(0.25~350)ns	$U_{\text{rel}}=1.3\%$		
		Bandwidth		10Hz~1.1GHz	$U_{\text{rel}}=2\%\sim6\%$		
61	*High Voltage Dielectric Loss Instrument (High	Loss	High Voltage Capacitance Bridges JJG563,V.R.of High Voltage Dielectric Loss	0~0.11	$U=0.2\%\text{rdg}+0.0001$		
		Capacitance		100pF~10nF	$U_{\text{rel}}=0.05\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Voltage Capacitance Bridge)	Capacitance ratio	Tester JJG1126	0~1.11111	$U=0.00002$		
62	*Logic Analyzer	Minimum Glitch Width	V.R. of Logic Analyzer JJG957	(1~10)ns	$U=0.24\text{ns}$		
		Threshold Level		(-20~+20)V	$U=0.0028\text{V}$		
		Time Interval (Data Setup Time, Data Hold Time, Minimum Resolvable Width of Pluse)		(0~10)s	$U=0.24\text{ns}$		
		State clock maximum rate		250MHz	$U_{\text{rel}}=0.1\%$		
63	*SDH/PDH Transmission Analyzer	Internal frequency	C.S.for SDH/PDH Transmission Analyzer JJF1237	(2048~2488320)kbit/s (Wavelength: 1310nm、1550nm)	$U_{\text{rel}}=1 \times 10^{-8}$		
		Output waveform Amplitude		1mV~4V(2048~2488320)kbit/s	$U_{\text{rel}}=1\%$		
		Output waveform Rise/fall time		1ns~10ms	$U_{\text{rel}}=1\%$		
		Pulse Width		1ns~1s	$U_{\text{rel}}=1\%$		
		Internal Frequency offset		$(1 \sim 50) \times 10^{-6}$ (2048~2488320)kbit/s (Wavelength: 1310nm、1550nm)	$U_{\text{rel}}=1 \times 10^{-6}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Fixed jitter		0.1UI~64UI	$U=0.016\text{UI}\sim 0.12\text{UI}$		
		Jitter tolerance		0.1UI~64UI	$U=0.016\text{UI}\sim 0.12\text{UI}$		
		Optical output power		(10~60)dBm(Wavelength: 1310nm, 1550nm)(139264~2488320)kbit/s	$U=2\text{dB}$		
64	*DC and LF Characterization Tester for Transistor (Transistor Tester, Diode Tester, The Circular Parameter Sorter, MOS transistor sorter, Magnetic component sorter, Transistor multifunctional sorter)	Voltage	C.S. for Semiconductor Devices DC and Low Frequency Parameters Test Equipments JJF1895	(0.01~2000)V	$U_{\text{rel}}=0.3\%\sim 0.4\%$		
		Current		0.1 $\mu\text{A}\sim 10\text{A}$	$U_{\text{rel}}=0.5\%\sim 0.7\%$		
		Frequency		1Hz~100kHz	$U_{\text{rel}}=0.010\%$		
		HFE		2~1000	$U_{\text{rel}}=0.1\%\sim 2.0\%$		
65	*Surge immunity test generator (Surge immunity tester, Lightning surge immunity test generator, Lightning surge immunity test	Open-circuit peak voltage	C.S. for Surge Simulators JJF1741	$\pm(0.1\sim 40)\text{kV}$	$U_{\text{rel}}=1.5\%\sim 2.5\%$		
		Open-circuit voltage Front time		$(0.1\sim 100)\mu\text{s}$	$U_{\text{rel}}=2.0\%$		
		Open-circuit voltage Duration time		$(1\sim 1000)\mu\text{s}$	$U_{\text{rel}}=2.0\%$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	system)	Short-circuit peak current	ilac-MEAS	$\pm(0.001\sim 50)\text{kA}$	$U_{\text{rel}}=1.5\%\sim 3.0\%$		
		Short-circuit current front time		$(0.01\sim 100)\mu\text{s}$	$U_{\text{rel}}=2.0\%$		
		Short-circuit current duration time		$(1\sim 1000)\mu\text{s}$	$U_{\text{rel}}=2.0\%$		
		Phase		$(0.1\sim 360)^\circ$	$U=2^\circ$		
		Output Impedance		$1\Omega\sim 1\text{k}\Omega$	$U_{\text{rel}}=1.5\%\sim 3.0\%$		
		Voltage Overshoot/Undershoot		$0.1\%\sim 30\%$	$U_{\text{rel}}=2.0\%$		
		Current Overshoot/Undershoot		$0.1\%\sim 30\%$	$U_{\text{rel}}=2.0\%$		
66	*Electrical fast transient/burst immunity test generator (Electrical fast transient/burst immunity simulator, Burst immunity generator)	Impulse peak voltage amplitude	C.S.for Electrical Fast Transient/Burst Simulations JJF1672	$\pm(0.001\sim 8)\text{kV}$	$U_{\text{rel}}=1.0\%\sim 2.5\%$	合格评定国家认可委员会 认可证书专用章	
		Rise time		$(1\sim 10)\text{ns}$	$U_{\text{rel}}=2.0\%$		
		Impulse width		$(10\sim 200)\text{ns}$	$U_{\text{rel}}=2.0\%$		
		Burst Repetition Frequency		$10\text{Hz}\sim 10\text{MHz}$	$U_{\text{rel}}=0.2\%$		
		Burst duration time		$0.1\text{ms}\sim 10\text{s}$	$U_{\text{rel}}=0.2\%$		
		Burst Period		$0.1\text{ms}\sim 10\text{s}$	$U_{\text{rel}}=0.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
67	*High frequency noise simulator (High frequency noise generator)	Impulse peak voltage amplitude	High Frequency Noise Simulator JJF(D,Z)30810	$\pm(0.001\sim 8)\text{kV}$	$U_{\text{rel}}=1.0\%\sim 2.5\%$		
		Rise/Fall time		$(1\sim 10)\text{ns}$	$U_{\text{rel}}=2.0\%$		
		Impulse width		$(10\sim 2000)\text{ns}$	$U_{\text{rel}}=2.0\%$		
		Burst Repetition Frequency		$10\text{Hz}\sim 10\text{MHz}$	$U_{\text{rel}}=0.2\%$		
68	*Voltage dips, short interruptions and voltage variations immunity tests Generator (Voltage dips simulator, Voltage dips generator, Cycle dips generator)	Dip amplitude(Out put Voltage)	C.S. for Voltage Dips, Short Interruptions and Voltage Variations Test Generators JJF1673	$1\text{mV}\sim 750\text{V}$	$U_{\text{rel}}=0.3\%$		
		Dip duration time		$1\text{ms}\sim 100\text{s}$	$U_{\text{rel}}=2\%$		
		Drop Interval Time		$1\text{ms}\sim 100\text{s}$	$U_{\text{rel}}=2\%$		
		Dip voltage rise/fall time		$0.1\text{ }\mu\text{s}\sim 100\text{ }\mu\text{s}$	$U_{\text{rel}}=2.0\%$		
		Voltage overshoot/undershoot		$0.01\%\sim 20\%$	$U_{\text{rel}}=2.0\%$		
		Dip phase		$0.1^{\circ}\sim 360^{\circ}$	$U=1^{\circ}$		
		Load regulation factor		$0.01\%\sim 50\%$	$U_{\text{rel}}=0.6\%$		
		Inrush current		$50\text{A}\sim 2\text{kA}$	$U_{\text{rel}}=2.0\%$		
	*Electrostatic discharge immunity test generator	Open-circuit voltage	C.S.for Electrostatic Discharge Simulators JJF1397	$\pm(0.01\sim 40)\text{kV}$	$U_{\text{rel}}=1.0\%\sim 2.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	(Electrostatic discharge simulator, simulator, Electrostatic discharge tester, Electrostatic discharge generator)	First-peak discharge current amplitude	ilac-MRA CNAS CHINA NATIONAL ACCREDITATION FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	$\pm(0.5\sim 150)\text{A}$	$U_{\text{rel}}=2.0\%\sim 5\%$		
		Discharge current amplitude		$\pm(0.05\sim 100)\text{A}(1\text{ns}\sim 1\text{s})$	$U_{\text{rel}}=2.0\%\sim 5\%$		
		Rise time		$(0.1\sim 10)\text{ns}$	$U_{\text{rel}}=4\%$		
70	*Time Calibrator (Stopwatch Calibrator)	Relative Frequency Deviation	V.R.of Time Calibrators JYG601	0.1MHz,1MHz,5MHz,10 MHz	$U_{\text{rel}}=7\times 10^{-10}$		
		Time Interval		0.1ms $\sim$ 18000s	$U=(0.00004\sim 0.006)\text{ms}$		
71	*Frequency Comparator(Frequency Difference Multiplier)	Comparison Uncertainty	V.R.of Frequency Comparators JYG545	1MHz,2MHz,2.5MHz,5MHz,10MHz	$U_{\text{rel}}=3\times 10^{-12}$		
72	*Vibrating Wire Frequency Readout (Portable Frequency Readout, Measuring readout)	Frequency	C.S.for Vibrating Wire Frequency Readouts JJF1401,C.M. of Vibrating Wire Meter FFW0805	10Hz $\sim$ 10kHz	$U=0.006\text{Hz}$		
		Period		1 $\mu\text{s}\sim 1\text{s}$	$U=0.006\mu\text{s}$		
73	*Power range calibrator	Voltage	V. R. of Power range calibrator JJG(D.Z.)10005	10mV $\sim$ 50V	$U=0.06\mu\text{V}$		
		Resistance		10m $\Omega\sim$ 10k Ω	$U_{\text{rel}}=0.1\%$		
74	*EMI Test Receiver(Electromagnetic interference field)	Frequency readout	C.S. for EMI Testing Receivers JJF1144	9kHz $\sim$ 40GHz	$U_{\text{rel}}=8.2\times 10^{-8}$		
		reference frequency		10MHz	$U_{\text{rel}}=7\times 10^{-10}$		



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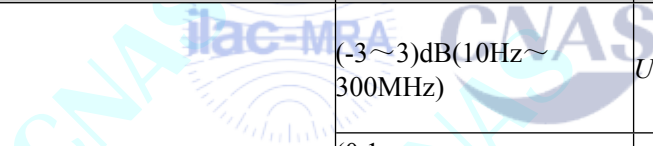
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	strength meter)	IF frequency	ilac-MRA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	1kHz~1GHz	$U_{rel}=1 \times 10^{-8}$		
		Level		(20~130)dB μ V	$U=0.42$ dB		
		Noise Indication		(-40~60)dB μ V	$U=0.20$ dB		
		IF image frequency response		(30~-100)dB(9kHz~1GHz)	$U=0.20$ dB~0.50dB		
		IF rejection ratio		(30~-100)dB(9kHz~1GHz)	$U=0.20$ dB~0.50dB		
		Attenuation		(0~90)dB	$U=0.10$ dB		
		6dB bandwidth		100Hz~2MHz	$U_{rel}=3.4\%$		
		Line Indication		(0~30)dB	$U=0.10$ dB		
				(0~60)dB	$U=0.20$ dB		
		Repeated Frequency Response of QPK		(-10~40)dB((20~80)dB μ V, 9kHz~1GHz)	$U=0.6$ dB~1.2dB		
		Burst Breadth connection		30dB~80dB	$U=0.6$ dB		
		VSWR		1~20(9kHz~40GHz)	$U=0.006 \sim 0.022$		
75	*Function Generator	frequency	V.R.of Function Generators JJG840	0.01Hz~100MHz	$U_{rel}=1 \times 10^{-7}$	合格评定国家认可委员会 认可证书专用章	
		Amplitude		1mV~20V(0.01Hz~300MHz)	$U_{rel}=0.62\%$		



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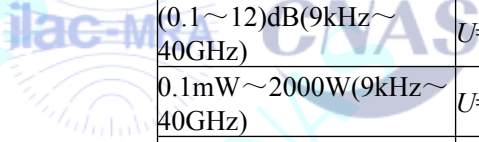
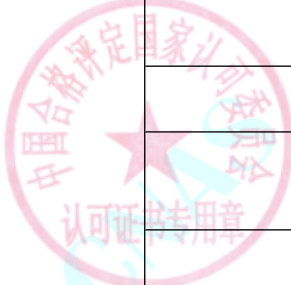
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Amplitude flatness(frequency response)	 CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(-3~3)dB(10Hz~300MHz)	<i>U</i> =0.05dB~0.2dB		
		FM		(0.1~400)kHz(CW:0.15MHz~300MHz, fm:1Hz~1MHz)	<i>U</i> _{rel} =1.2%		
		AM		1%~5%(CW:0.15MHz~300MHz, fm:1Hz~1MHz)	<i>U</i> _{rel} =1.2%		
				5%~99%(CW:0.15MHz~300MHz, fm:1Hz~1MHz)	<i>U</i> _{rel} =1.0%		
		PM		(1~30)rad(CW:0.15MHz~300MHz, fm:1Hz~1MHz)	<i>U</i> _{rel} =1.2%		
		Sine wave Distortion		30%~0.01%(20Hz~300MHz)	<i>U</i> _{rel} =14%~30%		
		Rise/fall time		1ns~1ms	<i>U</i> _{rel} =1.0%		
		Over shoot		1%~20%	<i>U</i> _{rel} =1.0%		
		Duty cycle		1%~99%	<i>U</i> _{rel} =1.0%		
		76		*Amplifier(Power Amplifier、Pre-amplifier、 Low	Gain		C.S.for RF & Microwave Power Amplifiers JJF1678



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Noise Amplifier)	Gain Flatness	 CHINA NATIONAL ACCREDITATION SERVICE FOR COMPETENCY ASSESSMENT SCHEDULE OF APPROVED CERTIFICATE	(0.1~12)dB(9kHz~40GHz)	<i>U</i> =0.5dB		
		Max output power		0.1mW~2000W(9kHz~40GHz)	<i>U</i> =0.8dB		
		Rated Output Power		0.1W~2000W(9kHz~1GHz)	<i>U</i> =0.3 dB		
				0.1W~300W(1GHz~18GHz)	<i>U</i> =0.3 dB		
				0.1W~5W(18GHz~40GHz)	<i>U</i> =0.3 dB		
		1dB compression power		0.1W~2000W(9kHz~1GHz)	<i>U</i> =0.3 dB		
				0.1W~300W(1GHz~18GHz)	<i>U</i> =0.3 dB		
				0.1W~5W(18GHz~40GHz)	<i>U</i> =0.3 dB		
		Range of Gain		0dB~63dB(9kHz~1GHz)	<i>U</i> =0.3 dB		
				0dB~55dB(1GHz~18GHz)	<i>U</i> =0.3 dB		
				0dB~30dB(18GHz~40GHz)	<i>U</i> =0.3 dB		
		Harmonic distortion		0dBc~-140dBc	<i>U</i> =0.5 dB		
		Third order intermodulation		0dBm~63dBm	<i>U</i> =0.5 dB		
		Niose Figure		3dB~15dB(10MHz~26.5GHz)	<i>U</i> =0.4 dB		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		VSWR		1.0~20.0(9kHz~40GHz)	$U=0.02\sim0.05$		
77	*Site Master(Cable and Antenna Analyzer)	SWR	C.S.for Cable and Antenna Analyzers JJF1740	1.00~3.00(300kHz~20GHz)	$U=0.06\sim0.14$		
		Frequency		1Hz~20GHz	$U_{rel}=8.2\times10^{-8}$		
		Output Power		20dBm~-30dBm(1MHz~18GHz)	$U=0.2\text{dB}$		
		attenuation		0~30dB	$U=0.2\text{dB}$		
		RF Power		20dBm~-30dBm(1MHz~18GHz)	$U=0.2\text{dB}$		
		Fault location distance		0.6m~1.5m(1MHz~18GHz)	$U_{rel}=2\%$		
78	*Coaxial Load(Mismatch Load)	VSWR	Calibration Method of Coaxial Load FFW1001	1.0~20.0(5Hz~43GHz)	$U=0.006\sim0.12$		
		Return Loss		0~80dB(5Hz~43GHz)	$U=0.046\text{dB}\sim0.20\text{dB}$		
		impedance		(0.1~1200) Ω (5Hz~43GHz)	$U_{rel}=0.6\%$		
79	*Digital Signal Generator (Vector Signal Generator)	Internal crystal oscillator frequency	C.S.for Vector Signal Generators JJF1174	10MHz	$U_{rel}=8.2\times10^{-10}$		
		Output frequency		8kHz~50GHz	$U_{rel}=8.2\times10^{-10}$		
		Output level		-127dBm~+30dBm(8kHz~50GHz)	$U=0.36\text{dB}\sim0.16\text{dB}$		
		harmonics		(-130~0)dBc(8kHz~50GHz)	$U=1.1\text{dB}\sim1.6\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		subharmonics		(-130~0)dBc(8kHz~50GHz)	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		Non-harmonics		(-161~0)dBc(8kHz~50GHz)	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		SSB phase noise		(-150~-100)dBc/Hz(8kHz~50GHz)	$U=1.2\text{dB}$		
		Residual AM		0.001%~2%(0.15MHz~50GHz)	$U_{\text{rel}}=10\%$		
		Residual FM		0.01Hz~100kHz(0.15MHz~50GHz)	$U_{\text{rel}}=10\%$		
		FM		(0.1~400)kHz(CW:0.15MHz~50GHz, fm: 1Hz~1MHz)	$U_{\text{rel}}=1.2\%$		
		AM		0.1%~99%(CW:0.15MHz~50GHz, fm: 1Hz~1MHz)	$U_{\text{rel}}=1.2\%$		
		FM demodulation distortion		0.01%~10%(CW:0.15MHz~50GHz)	$U_{\text{rel}}=27\%$		
		AM demodulation distortion		0.01%~10%(CW:0.15MHz~50GHz)	$U_{\text{rel}}=27\%$		
		PM		(1~30)rad(CW:0.15MHz~50GHz, fm: 1Hz~1MHz)	$U_{\text{rel}}=1.2\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		PM demodulation distortion		0.01%~10%(CW:0.15MHz~50GHz, fm:1Hz~1MHz)	$U_{rel}=27\%$		
		EVM		0.01%~50%	$U_{rel}=0.6\%\sim 1.2\%$		
		Phase Error		0.01°~60°	$U=0.35^\circ\sim 0.70^\circ$		
		Frequency Error		-1MHz~1MHz	$U=2.4\text{Hz}$		
		Waveform quality(Rho)		0~1.0	$U=0.0012$		
		Channel power		-70dBm~10dBm(CW:0.15MHz~50GHz)	$U=0.30\text{dB}$		
		ACPR		-80dBc~-170dBc(CW:0.15MHz~50GHz)	$U=0.5\text{dB}$		
		OBW		70kHz~160MHz(CW:0.15MHz~50GHz)	$U_{rel}=1.0\%$		
		PCDE		-70dB~-20dB(CW:0.15MHz~50GHz)	$U=0.5\text{dB}$		
		FSK Error		0.01%~2%(CW:0.15MHz~50GHz)	$U_{rel}=10\%$		
		FM/modulation index		(1~500)kHz/(0.25~0.7)(CW:0.15MHz~50GHz)	$U_{rel}=1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
80	*Vector Signal Analyzer	Clock Error	C.S. for Vector Signal Analyzers JJF1128	$1 \times 10^{-10} \sim 1 \times 10^{-5}$ (CW:0.15MHz~50GHz)	$U_{\text{rel}}=1 \times 10^{-10} \sim 1 \times 10^{-6}$		
		Internal modulation signal generator frequency		0.01Hz~100kHz(CW:0.15MHz~50GHz)	$U_{\text{rel}}=7 \times 10^{-6}$		
		Internal modulation signal generator amplitude		1mV~10V(fm:0.01Hz~100kHz,CW:0.15MHz~50GHz)	$U_{\text{rel}}=1 \times 10^{-4}$		
		Reference frequency	C.S. for Vector Signal Analyzers JJF1128	10MHz	$U_{\text{rel}}=8.2 \times 10^{-10}$		
		Frequency		2Hz~50GHz	$U_{\text{rel}}=8.2 \times 10^{-10}$		
		Carrier amplitude		(-110~20)dBm(8kHz~50GHz)	$U=0.47\text{dB} \sim 0.24\text{dB}$		
		Carrier amplitude measurement nonlinearity		(-110~0)dB(8kHz~50GHz)	$U=0.47\text{dB} \sim 0.24\text{dB}$		
		EVM		0.05%~10%(8kHz~50GHz)	$U_{\text{rel}}=0.58\%$		
		Phase Error		0.01°~2° (8kHz~50GHz)	$U=0.12^\circ$		
		Rho		0.9~1.0(8kHz~50GHz)	$U=0.0002$		
		IQ origin offset		0.01%~20%(8kHz~50GHz)	$U_{\text{rel}}=0.096\%$		
		Frequency Error		-1MHz~1MHz(8kHz~50GHz)	$U_{\text{rel}}=0.01\%$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
81	*TDMA-GSM Radio Communication Tester	signal generator Frequency	C.S.for TDMA-GSM Radio Communication Testers JJF1131	1MHz~3GHz	$U_{rel}=8.2 \times 10^{-8}$		
		signal generator Level		-120dBm~- 10dBm(1MHz~3GHz)	$U=0.10\text{dB} \sim 0.20\text{dB}$		
		Harmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		subharmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		non- harmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		SSB Phase noise		(-150~- 20)dBc/Hz(1MHz~ 3GHz)	$U=1.2\text{dB}$		
		GSM generator peak phase		$0.01^\circ \sim 10^\circ$	$U=0.90^\circ$		
		GSM generator RMS phase		$0.01^\circ \sim 3^\circ$	$U=0.35^\circ$		
		GSM generator frequency		-1MHz~1MHz	$U=2.4\text{Hz}$		
		RF Analyzer Frequency		1MHz~3GHz	$U_{rel}=1 \times 10^{-8}$		
		RF Analyzer Power		-120dBm~- 10dBm(1MHz~3GHz)	$U=0.16\text{dB} \sim 0.36\text{dB}$		
		GSM Analyzer peak phase		$0.01^\circ \sim 10^\circ$	$U=0.90^\circ$		



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		GSM Analyzer RMS phase	ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	$0.01^{\circ} \sim 3^{\circ}$	$U=0.35^{\circ}$		
		GSM Analyzer frequency		$\sim 1\text{MHz} \sim 1\text{MHz}$	$U=2.4\text{Hz}$		
		Audio generator frequency		$10\text{Hz} \sim 100\text{kHz}$	$U_{\text{rel}}=1 \times 10^{-8}$		
		Audio generator voltage		$1\text{mV} \sim 10\text{V}$	$U_{\text{rel}}=0.1\%$		
		Audio generator distortion		$0.001\% \sim 10\%$	$U_{\text{rel}}=14\% \sim 30\%$		
		Audio analyzer frequency		$10\text{Hz} \sim 100\text{kHz}$	$U_{\text{rel}}=1 \times 10^{-8}$		
		Audio analyzer voltage		$1\text{mV} \sim 10\text{V}$	$U_{\text{rel}}=0.1\%$		
		Audio analyzer distortion		$0.001\% \sim 10\%$	$U_{\text{rel}}=14\% \sim 30\%$		
		VSWR		$1.0 \sim 2.0 (1\text{MHz} \sim 3\text{GHz})$	$U=0.006 \sim 0.022$		
		signal generator Frequency		$100\text{MHz} \sim 2\text{GHz}$	$U_{\text{rel}}=1 \times 10^{-8}$		
		Reference Frequency		10MHz	$U_{\text{rel}}=1 \times 10^{-8}$		
82	*CDMA Digital Radio Communication Tester		C.S.for CDMA Digital Radio Communication Testers JJF1177				



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		signal generator Level		-120dBm ~ 0dBm(100MHz~2GHz)	$U=0.10\text{dB} \sim 0.20\text{dB}$		
		Harmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		subharmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		non-harmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		SSB Phase noise		(-150~-20)dBc/Hz(100MHz~2GHz)	$U=1.2\text{dB}$		
		CDMA generator RMS phase error		$0.01^\circ \sim 3^\circ$	$U=0.35^\circ$		
		CDMA generator RMS EVM		0.01%~10%	$U_{\text{rel}}=0.35\%$		
		CDMA generator peak EVM		0.01%~20%	$U_{\text{rel}}=0.90\%$		
		CDMA generator waveform quality		0.9~1	$U=0.0012$		
		CDMA generator frequency error		-1kHz~1kHz	$U=2.4\text{Hz}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		CDMA generator OBW		1.2MHz~1.3MHz	$U_{rel}=1.0\%$		
		CDMA generator code domain power		20dB~60dB	$U=0.50\text{dB}$		
		CDMA generator Adjacent Channel Power Ratio		20dB~80dB	$U=0.50\text{dB}$		
		CDMA generator output power		-120dBm~0dBm(100MHz~2GHz)	$U=0.50\text{dB}$		
		RF Analyzer Frequency		~1kHz~1kHz	$U=2.4\text{Hz}$		
		RF Analyzer Power		-50dBm~20dBm(100MHz~2GHz)	$U=0.20\text{dB}$		
		CDMA Analyzer waveform quality		0.9~1.0	$U=0.0012$		
		CDMA Analyzer RMS phase		$0.01^\circ \sim 10^\circ$	$U=0.35^\circ$		
		CDMA analyzer RMS EVM		0.01%~40%	$U=0.35\%$		
		CDMA analyzer peak EVM		0.01%~40%	$U=0.90\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Audio generator frequency		10Hz~100kHz	$U_{rel}=1 \times 10^{-8}$		
		Audio generator voltage		1mV~10V	$U_{rel}=0.1\%$		
		Audio analyzer frequency		10Hz~100kHz	$U_{rel}=1 \times 10^{-8}$		
		Audio analyzer voltage		1mV~10V	$U_{rel}=0.1\%$		
		VSWR		1.0~2.0(100MHz~2GHz)	$U=0.006 \sim 0.022$		
83	*WCDMA Digital Radio Communication Tester	signal generator Frequency	C.S.for WCDMA Digital Radio Communication Testers JJF1276	30MHz~2.7GHz	$U_{rel}=1 \times 10^{-8}$		
		Reference Frequency		10MHz	$U_{rel}=1 \times 10^{-8}$		
		signal generator Level		-120dBm~0dBm(30MHz~2.7GHz)	$U=0.10\text{dB} \sim 0.20\text{dB}$		
		Harmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		subharmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		non-harmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		SSB Phase noise		(-150~-20)dBc/Hz(30MHz~2.7GHz)	$U=1.2\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		WCDMA generator RMS EVM		0.01%~10%	$U=0.35\%$		
		WCDMA generator amplitude error		0.01%~20%	$U=1.0\%$		
		WCDMA generator waveform quality		0.9~1	$U=0.0012$		
		WCDMA generator RMS phase error		0.01° ~10°	$U=0.35^\circ$		
		WCDMA generator frequency error		-1kHz~1kHz	$U=2.4\text{Hz}$		
		WCDMA generator OBW		1MHz~5MHz	$U_{\text{rel}}=1.0\%$		
		WCDMA generator code domain power		20dB~60dB	$U=0.50\text{dB}$		
		WCDMA generator Adjacent Channel Power Ratio		20dB~80dB	$U=0.50\text{dB}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		WCDMA generator output power		-120dBm~0dBm(30MHz~2.7GHz)	$U=0.50\text{dB}$		
		RF Analyzer Power		-50dBm~20dBm(30MHz~2.7GHz)	$U=0.20\text{dB}$		
		WCDMA analyzer RMS EVM		0.01%~10%	$U=0.35\%$		
		WCDMA Analyzer RMS phase error		$0.01^\circ \sim 10^\circ$	$U=0.35^\circ$		
		WCDMA Analyzer waveform quality		0.9~1.0	$U=0.0012$		
		WCDMA Analyzer amplitude		$0.01^\circ \sim 10^\circ$	$U=0.90^\circ$		
		WCDMA Analyzer frequency		-1kHz~1kHz	$U=2.4\text{Hz}$		
		Audio generator frequency		10Hz~100kHz	$U_{\text{rel}}=1 \times 10^{-8}$		
		Audio generator voltage		1mV~10V	$U_{\text{rel}}=0.1\%$		
		Audio generator distortion		0.001%~10%	$U_{\text{rel}}=14\% \sim 30\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Audio analyzer frequency		10Hz~100kHz	$U_{rel}=1 \times 10^{-8}$		
		Audio analyzer voltage		1mV~10V	$U_{rel}=0.1\%$		
		Audio analyzer distortion		0.001%~10%	$U_{rel}=14\% \sim 30\%$		
		VSWR		1.0~2.0(30MHz~2.7GHz)	$U=0.006 \sim 0.022$		
84	*TD-SCDMA Digital Radio Communication Tester	signal generator Frequency	C.S.for TD-SCDMA Digital Radio Communication Testers JJF1204	30MHz~2.7GHz	$U_{rel}=1 \times 10^{-8}$		
		Reference Frequency		10MHz	$U_{rel}=1 \times 10^{-8}$		
		signal generator Level		-120dBm~0dBm(30MHz~2.7GHz)	$U=0.10\text{dB} \sim 0.20\text{dB}$		
		Harmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		subharmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		non-harmonics		(-150~-20)dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		SSB Phase noise		(-150~-20)dBc/Hz(30MHz~2.7GHz)	$U=1.2\text{dB}$		
		TD-SCDMA generator RMS EVM		0.01%~10%	$U_{rel}=0.35\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		TD-SCDMA generator peak EVM		0.01%~10%	$U_{rel}=0.90\%$		
		TD-SCDMA generator waveform quality		0.9~1	$U=0.0012$		
		TD-SCDMA generator RMS phase error		0.01° ~10°	$U=0.35^\circ$		
		TD-SCDMA generator frequency error		-1kHz~1kHz	$U=2.4\text{Hz}$		
		TD-SCDMA generator OBW		1MHz~2MHz	$U_{rel}=1.0\%$		
		TD-SCDMA generator code domain power		20dB~60dB	$U=0.50\text{dB}$		
		TD-SCDMA generator Adjacent Channel Power Ratio		20dB~80dB	$U=0.50\text{dB}$		
		TD-SCDMA generator output power		-120dBm~0dBm(30MHz~2.7GHz)	$U=0.50\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		RF Analyzer Power		-50dBm~ 20dBm(30MHz~ 2.7GHz)	$U=0.20\text{dB}$		
		TD-SCDMA analyzer RMS EVM		0.01%~40%	$U_{\text{rel}}=0.35\%$		
		TD-SCDMA analyzer peak EVM		0.01%~40%	$U_{\text{rel}}=0.90\%$		
		TD-SCDMA Analyzer RMS phase error		$0.01^\circ \sim 10^\circ$	$U=0.35^\circ$		
		TD-SCDMA Analyzer waveform quality		0.9~1.0	$U=0.0012$		
		TD-SCDMA Analyzer frequency error		~1kHz~1kHz	$U=2.4\text{Hz}$		
		Audio generator frequency		10Hz~100kHz	$U_{\text{rel}}=1 \times 10^{-8}$		
		Audio generator voltage		1mV~10V	$U_{\text{rel}}=0.1\%$		
		Audio analyzer frequency		10Hz~100kHz	$U_{\text{rel}}=1 \times 10^{-8}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Audio analyzer voltage		1mV~10V	$U_{rel}=0.1\%$		
		VSWR		1.0~2.0(30MHz~2.7GHz)	$U=0.006\sim0.022$		
85	*LTE Digital Radio Communication Tester	signal generator Frequency	C.S.for LTE Digital Radio Communication Tester JJF1443	600MHz~3.8GHz	$U_{rel}=1\times10^{-8}$		
		Reference Frequency		10MHz	$U_{rel}=1\times10^{-8}$		
		signal generator Level		-120dBm~0dBm(600MHz~3.8GHz)	$U=0.10\text{dB}\sim0.20\text{dB}$		
		Harmonics		(-150~-20)dBc	$U=1.1\text{dB}\sim1.6\text{dB}$		
		subharmonics		(-150~-20)dBc	$U=1.1\text{dB}\sim1.6\text{dB}$		
		non-harmonics		(-150~-20)dBc	$U=1.1\text{dB}\sim1.6\text{dB}$		
		SSB Phase noise		(-150~-20)dBc/Hz(600MHz~3.8GHz)	$U=1.2\text{dB}$		
		LTE generator RMS EVM		0.01%~10%	$U_{rel}=0.35\%$		
		LTE generator IQ origin offset		(-20~-80)dB	$U=0.24\text{dB}$		
		LTE generator frequency error		-1kHz~1kHz	$U=2.4\text{Hz}$		



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		LTE generator OBW	ilac-MRA CHINA NATIONAL ACCREDITATION FOR COMPETENCY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	1MHz~20MHz	$U_{rel}=1.0\%$		
		LTE generator Adjacent Channel Power Ratio		-80dB~-30dB	$U=0.50\text{dB}$		
		RF Analyzer Power		-50dBm~ 20dBm(600MHz~ 3.8GHz)	$U=0.20\text{dB}$		
		LTE analyzer EVM		0.01%~40%	$U_{rel}=0.35\%$		
		LTE Analyzer frequency error		~1kHz~1kHz	$U=2.4\text{Hz}$		
		VSWR		1.0~2.0(600MHz~ 3.8GHz)	$U=0.006\sim 0.022$		
86	*Ultra-low frequency signal generator (low- frequency signal generator, Audio signal generator)	Frequency	V.R.of Low-frequency Signal Generators JJG602	1mHz~1MHz	$U_{rel}=6\times 10^{-8}$	合格评定国家认可 CNAS 认可证书专用章	
		Voltage		1mV~300V(1mHz~ 1MHz)	$U_{rel}=1\%\sim 0.5\%$		
		Amplitude Flatness		(-3~3)dB(1mHz~ 1MHz)	$U_{rel}=0.05\text{dB}\sim 0.2\text{dB}$		
		Sine wave Distortion		30%~0.01%(20Hz~ 300MHz)	$U_{rel}=14\%\sim 30\%$		
		attenuation		0~100dB(1mHz~ 1MHz)	$U=0.05\text{dB}\sim 0.2\text{dB}$		
87	*Video Signal Analyzer	Amplitude	C.S.for Television Video Signal Analyzer JJF1455	luminance:0.1mV~1.4V	$U_{rel}=1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				chrominance:(0.01~1.5)V	$U_{rel}=1\%$		
				sync level:(0.01~0.5)V	$U_{rel}=1\%$		
		Time interval		1 μ s~8 μ s	$U_{rel}=0.3\%$		
		Phase		(0.1~360)°	$U=0.6^\circ$		
88	*Waveform Monitor	Square wave calibration signal Amplitude	Calibration Specification for Waveform Monitors JJF1898	(0.01~1)V(100kHz)	$U_{rel}=0.2\%$		
		Square wave calibration signal frequency		10Hz~100kHz	$U_{rel}=1 \times 10^{-6}$		
		voltage		(0.01~1)V(100kHz)	$U_{rel}=0.2\%$		
		Gain adjustment range		0.5~1.4	$U_{rel}=1.0\%$		
		amplitude frequency characteristic		-2%~2%(50kHz~6MHz)	$U=1.0\%$		
				-5%~2%(6MHz~10MHz)	$U=1.0\%$		
		Waveform distortion		0.01%~10%	$U_{rel}=10\%$		
89	*Bluetooth test set	Output frequency	C.S.for Bluetooth Test Set JJF1278	10MHz~6GHz	$U_{rel}=8.2 \times 10^{-10}$		
		Reference Frequency		10MHz	$U_{rel}=8.2 \times 10^{-10}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Output level		-127dBm ~ +30dBm(10MHz~6GHz)	$U=0.36\text{dB} \sim 0.16\text{dB}$		
		Harmonics、 subharmonics 、non- harmonics		-161dBc~-25dBc	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		output signal SSB phase noise		(-150~- 100)dBc/Hz(10MHz~ 6GHz)	$U=1.2\text{dB}$		
		GFSK frequency deviation		0.01Hz~ 350kHz(10MHz~6GHz)	$U_{\text{rel}}=0.1\%$		
		Modulated signal quality		GFSK Err:0.001%~ 1%(10MHz~6GHz)	$U_{\text{rel}}=1.0\%$		
				$\pi/4$ -DQPSK DEVM:0.01%~ 5%(10MHz~6GHz)	$U_{\text{rel}}=1.0\%$		
				8DPSK DEVM:0.01%~ 5%(10MHz~6GHz)	$U_{\text{rel}}=1.0\%$		
		-20dB bandwidth		(0.5~2)MHz(10MHz~ 6GHz)	$U_{\text{rel}}=1.0\%$		
		Signal Analyzer Frequency		250kHz~6GHz(- 136dBm~20dBm)	$U_{\text{rel}}=1 \times 10^{-8}$		
		Signal Analyzer Level		(-120~ 30)dBm(10MHz~6GHz)	$U=0.47\text{dB} \sim 0.24\text{dB}$		
		demodulation signal quality		GFSK Err:0.01%~ 1%(10MHz~6GHz)	$U_{\text{rel}}=1.0\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
90	*WLAN test set		C.S.for WLAN Test Set JJF1277	$\pi/4$ -DQPSK DEVM:0.01%~ 5%(10MHz~6GHz)	$U_{rel}=1.0\%$		
				8DPSK DEVM:0.01%~ 5%(10MHz~6GHz)	$U_{rel}=1.0\%$		
				VSWR 1.0~2.0(10MHz~6GHz)	$U=0.006\sim0.022$		
		Output frequency		10MHz~6GHz	$U_{rel}=8.2\times10^{-10}$		
		Reference Frequency		10MHz	$U_{rel}=8.2\times10^{-10}$		
		Output level		-127dBm~ +30dBm(10MHz~6GHz)	$U=0.36\text{dB}\sim0.16\text{dB}$		
		Harmonics、 subharmonics 、 non- harmonics		-161dBc~-25dBc	$U=1.1\text{dB}\sim1.6\text{dB}$		
		output signal SSB phase noise		(-150~- 60)dBc/Hz(10MHz~ 6GHz)	$U=1.2\text{dB}$		
		EVM		-40dB~-60dB(10MHz~ 6GHz)	$U=0.04\text{dB}$		
		Pilot EVM		-40dB~-60dB(10MHz~ 6GHz)	$U=0.04\text{dB}$		
		Frequency Error		$\pm(0.01\text{Hz}\sim$ $500)\text{kHz}(10\text{MHz}\sim6\text{GHz})$	$U_{rel}=1\times10^{-6}$		
		Clock Error		$(0.001\sim50)\times10^{-6}$ $(10\text{MHz}\sim6\text{GHz})$	$U_{rel}=1\times10^{-6}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Signal Analyzer Level	ilac-M	(-120~30)dBm(10MHz~6GHz)	$U=0.47\text{dB}\sim 0.24\text{dB}$		
		Signal Analyzer EVM		-40dB~-60dB(10MHz~6GHz)	$U=0.04\text{dB}$		
		Signal Analyzer Frequency		$\pm(0.001\text{Hz}\sim 500\text{kHz})(10\text{MHz}\sim 6\text{GHz})$	$U_{\text{rel}}=1\times 10^{-6}$		
		Signal Analyzer Clock Error		$(0.001\sim 50)\times 10^{-6}(10\text{MHz}\sim 6\text{GHz})$	$U_{\text{rel}}=1\times 10^{-6}$		
		VSWR		1.0~2.0(10MHz~6GHz)	$U=0.006\sim 0.022$		
91	*Network Cable Analyzer	Length	C.S.for Network cable Analyzers JJF1494	(0.1~150)m	$U_{\text{rel}}=0.3\%\sim 1.3\%$		
		Insertion loss/Attenuation		(0~40)dB(1MHz~500MHz)	$U=1.0\text{dB}$		
		Near-end crosstalk		20dB~70dB (1MHz~500MHz)	$U=1.0\text{ dB}$		
		Far end crosstalk		20dB~110dB (1MHz~500MHz)	$U=1.0\text{dB}$		
		Return loss		8dB~26dB (1MHz~500MHz)	$U=1.0\text{ dB}$		
		Transmission Time Delay		(1~1000)ns	$U_{\text{rel}}=0.8\%\sim 2\%$		
		Loop resistance		(0.1~300) Ω	$U_{\text{rel}}=1\%\sim 3\%$		
			Calibration Method of Exposure Level Tester FFW1419,V.R.of Alternating	0.8A/m~16A/m(5Hz~12Hz)	$U=0.24\text{A/m}$		



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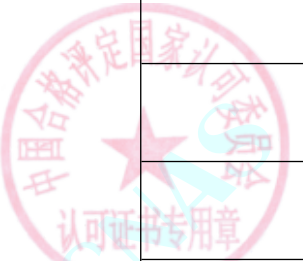
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Level Tester)		Tesla-Meter for Weak Magnetic Field	0.8A/m~16A/m(12Hz~400kHz)	$U_{rel}=2\%$		
			JJG1049, Calibration of power frequency Magnetic field	16A/m~240A/m(5Hz~400kHz)	$U_{rel}=1.5\%$		
			Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure	1 μ T~20 μ T(5Hz~12Hz)	$U=0.3 \mu$ T		
		magnetic flux density	Incorporating corrigendum EN62233 Item 5, Methods of measurement of power frequency electric field and magnetic field from high voltage overhead power transmission line and substation Annex B DL/T988 Annex B	1 μ T~20 μ T(12Hz~400kHz)	$U_{rel}=2\%$		
				20 μ T~300 μ T(5Hz~400kHz)	$U_{rel}=1.5\%$		
		Linearity		0.1%~500%(5Hz~400kHz)	$U_{rel}=0.3\%$		
		expose level isotropic or anisotropy		0.1%~500%(5Hz~400kHz)	$U_{rel}=0.3\%$		
93	*Time Synthesizer (Time interval generator, Metronome)	Pulse Period	Calibration Specification for Time Interval Generator JJF1902	0.02 μ s~1s	$U_{rel}=7 \times 10^{-11} \sim 2.9 \times 10^{-10}$		
		Frequency Accuracy		0.1MHz, 1MHz, 5MHz, 10MHz	$U_{rel}=7 \times 10^{-11}$		
		Pulse Amplitude		(0.1~10)V	$U_{rel}=2.4\%$		
		Pulse Rise Time		(1~11)ns	$U=0.1$ ns		
		Time Interval		0.02 μ s~1s	$U_{rel}=7 \times 10^{-11} \sim 2.9 \times 10^{-10}$		
		Beat		(40~200)bpm	$U=(0.6 \sim 0.7)$ bpm		
		Pulse Peak Voltage	Calibration Method of Road Vehicles Electrical Disturbances Tester	$\pm(0.001 \sim 2)$ kV	$U_{rel}=1.3\% \sim 2.0\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	immunity tester for road vehicles (Electronic equipment immunity test system)	Pulse width(Duration Time,interval time,repeat time)	FFW1003,Road Vehicles-Electrical disturbances from conduction and coupling-Part 2:Electrical transient conduction along supply lines only Test pulse generator calibration ISO7637-2 Annex D,Road vehicles.	0.1ns~200s	$U_{rel}=2\%$		
		Rise/Fall Time		0.1ns~10s	$U_{rel}=4\%$		
		Frequency	Environmental conditions and testing for electrical and electronic equipment. Part 2:Electrical loads ISO16750-2 Item 4,C.S. for Road Vehicles— Electrical Transient Conduction Disturbance Simulator JJF(电子)0019,C.S.for Road vehicles-Electrical Transient Disturbance Simulator in Communications JJF(通信)029	10Hz~1MHz	$U_{rel}=1 \times 10^{-6}$		
		DC Voltage(Supply Voltage)		(0.01~100)V	$U_{rel}=0.1\%$		
		Impedance		0.1 Ω ~1k Ω	$U_{rel}=0.2\%$		
95	*Electronic emission disturbance test system for road vehicles (Electronic emission disturbance switch for road	Pulse Peak Voltage	Calibration Method of Road Vehicles Electrical	$\pm(0.001\sim 2)\text{kV}$	$U_{rel}=1.3\%\sim 2.0\%$		
		Duration Time(Opening time)	Disturbances Tester FFW1003,Road Vehicles-Electrical disturbances from conduction and coupling-Part 2:Electrical transient conduction along supply lines only Test pulse generator calibration ISO7637-2 Annex	0.1ns~200s	$U_{rel}=2\%$		
		Interval time(Off time)		0.1ns~200s	$U_{rel}=2\%$		
		Rise time/Fall time		0.1ns~10s	$U_{rel}=4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	vehicles,Electronic switch,Machine switch)	Voltage drop of switch	D,Calibration Method of Electronic emission	(0.01~100)V	$U_{rel}=0.1\%$		
		Impedance	disturbance switch for road vehicles FFW2102-2021	$0.1\ \Omega \sim 1k\ \Omega$	$U_{rel}=0.2\%$		
96	*Harmonics and interharmonics generator	Harmonics and interharmonic s	Calibration Method of Harmonics and Interharmonics Generator FFW1004,Electromagnetic	$0.01\% \sim 100\%$	$U_{rel}=0.5\%$		
		flat-topped wave Voltage	compatibility (EMC) Testing and measurement techniques	(0.1~700)V	$U_{rel}=1.0\%$		
		phase	Harmonics and interharmonics including	$(0.1 \sim 360)^\circ$	$U=0.5^\circ$		
		Frequency	mains signaling at a.c. power port,low frequency immunity tests Calibration of the Generator IEC61000-4-13 Item 6.2	10Hz~5kHz	$U_{rel}=1 \times 10^{-6}$		
97	*Oscillatory waves generator (damp /decay oscillatory wave)	Open Circuit Peak Voltage	Calibration Method of Oscillatory waves generator FFW1005,Calibration Specification for Damped Oscillatory Wave Simulators JJF 2016	$\pm (0.05 \sim 40)kV$	$U_{rel}=1.5\% \sim 2.5\%$		
		Open Circuit Rise Time		0.1ns~100s	$U_{rel}=1.2\%$		
		Oscillating frequency		1kHz~30MHz	$U_{rel}=1.0\%$		
		Short Circuit Peak Current		$\pm (1 \sim 1000)A$	$U_{rel}=1.5\% \sim 3\%$		
		Short Circuit Current Rise Time		$0.1\ \mu s \sim 10\ \mu s$	$U_{rel}=4.0\%$		
		Output Impedance		$10\ \Omega \sim 1k\ \Omega$	$U_{rel}=2.0\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Burst Repetition Frequency		10Hz~1kHz	$U_{rel}=0.1\%$		
		Pulse Duration/interval Time		0.1s~100s	$U_{rel}=0.1\%$		
98	*Ringing waves generator (Ringing waves Test system)	Open Circuit Peak Voltage	C.S. for Ring wave Generator JJF(电子)0007, Calibration Method of Oscillatory waves generator FFW1005	$\pm(0.05\sim 40)\text{kV}$	$U_{rel}=1.5\%\sim 2.5\%$		
		Open Circuit Rise/Fall Time		0.1ns~100s	$U_{rel}=1.2\%$		
		Oscillating frequency		1kHz~10MHz	$U_{rel}=1.0\%$		
		Short Circuit Peak Current		$\pm(1\sim 1000)\text{A}$	$U_{rel}=1.5\%\sim 3\%$		
		Short Circuit Current Rise/Fall Time		$0.1\mu\text{s}\sim 10\mu\text{s}$	$U_{rel}=4.0\%$		
		Output Impedance		$10\Omega\sim 1\text{k}\Omega$	$U_{rel}=2.0\%$		
		Burst Repetition Frequency		10Hz~1kHz	$U_{rel}=0.1\%$		
		Pulse Duration/interval Time		0.1s~100s	$U_{rel}=0.1\%$		
99	*ESD Target	Insertion Loss	Calibration Method of Electrostatic Discharge Current Target FFW1201, C.S. for ESD	-70dB~-30dB(9kHz~1GHz)	$U=0.2\text{dB}$		
				-70dB~-30dB(1GHz~6GHz)	$U=0.3\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Transfer Impedance	current Targets JJF(Electron 0040\	(0.01~1.0)V/A	$U=0.004V/A$		
		Input Resistance		(0.1~10) Ω	$U_{rel}=0.1\%$		
100	Rubidium Atomic Frequency Standards (Rubidium Clocks, Rubidium Atomic Frequency Standards)	Relative Frequency Deviation	C.S.for Rubidium Atomic Frequency Standards JJF1957	0.1MHz, 1MHz, 5MHz, 10MHz	$U_{rel}=2.1 \times 10^{-11}$		
		Frequency Signal Amplitude		(0.01~5)V	$U_{rel}=2.4\%$		
		1s Frequency Stability		0.1MHz, 1MHz, 5MHz, 10MHz	$U_{rel}=2.1 \times 10^{-12}$		
		Day Frequency Drift Rate		0.1MHz, 1MHz, 5MHz, 10MHz	$U_{rel}=4 \times 10^{-13}(1/d)$		
		Second Pulse Signal Amplitude		2V~5V	$U_{rel}=2.4\%$		
		Second Pulse Signal Pulse Width		20 μs ~200ms	$U_{rel}=1\%$		
		Second Pulse Signal Rise Time		1ns~5ns	$U=0.04ns$		
101	*Crystal Impedance Meter	Frequency	V.R.of Crystal Impedance Meter JJG(D.Z.)05053	2kHz~200MHz	$U_{rel}=1 \times 10^{-6}$		
		Resistance		10 Ω ~ 500k Ω	$U_{rel}=3\%$		
102	*Measurement Apparatus of power-frequency electric fields	Electric Fields Strength	C.M.of Measurement Apparatus of power-frequency electric fields FFW1607, Methods of	1V/m~0.5kV/m(5Hz~400kHz)	$U=0.3dB$		
				0.5kV/m~4kV/m(5Hz~400kHz)	$U=0.4dB$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			measurement of power frequency electric field and magnetic field from high voltage overhead power transmission line and substation Annex B DL/T988 Annex B	4kV/m~30kV/m(5Hz~400kHz)	$U=0.6\text{dB}$		
103	*Current Clamp (Current Injection Clamp)	Insertion Loss	Calibration Method of Current Clamp	(0~±80)dB(9kHz~1GHz)	$U=0.5\text{dB}~0.3\text{dB}$		
		Transfer Impedance	FFW1413,Structure,Frequency Range and Calibration of Current Probe GB/T6113.102 Annex	(0~±80)dB Ω (9kHz~1GHz)	$U=0.5\text{dB}~0.3\text{dB}$		
		Transfer Admittance	A.8,Structure,Frequency Range and Calibration of Current Probe CISPR16-1-2 Annex A.8,Calibration specification for electromagnetic emission and susceptibility measuring apparatusPart 6 Current probes JJF(J.G.)27.6,Calibration specification for electromagnetic emission and susceptibility measuring apparatusPart 7 Current injection probes JJF(J.G.)27.7	(0~±80)dB(9kHz~1GHz)	$U=0.5\text{dB}~0.3\text{dB}$		
104	*Coupling Decoupling Network (Impedance	Impedance	Calibration Method of Coupling-Decoupling Network	(0.1~600) Ω (0.1MHz~300MHz)	$U_{\text{rel}}=6\%$		
		Phase	FFW1408,Specification for	$0.1^\circ \sim \pm 90^\circ$ (0.1MHz~300MHz)	$U=2^\circ$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Stable Network and Impedance adapter)	Insertion Loss	radio disturbance and immunity measuring apparatus and methods-Part 1-2:Radio disturbance and immunity measuring apparatus-Coupling devices for conducted disturbance measurements GB/T 6113.102 Item 4—9, Annex A-H	(0~120)dB(0.1MHz~300MHz)	$U=0.3\text{dB}$		
		Divide Voltage Coefficient		(0~±60)dB(0.1MHz~300MHz)	$U=0.3\text{dB}$		
		Longitudinal Transmission Loss		(0~100)dB(0.1MHz~300MHz)	$U=1.3\text{dB}$		
		Isolation		(0~120)dB(0.1MHz~300MHz)	$U=1.7\text{dB}$		
105	*Lamps and Lanterns Electromagnetic Radiation Emission Test System (Protection Network)	Divide Voltage Coefficient	Calibration Method of Electromagnetic Radiation Emission System of Lighting Equipment (Protection Network) FFW1401,Assessment of Lighting Equipment Related To Human Exposure To Electromagnetic Fields Calibration of the Protection Network IEC62493 Annex F	(0~±80)dB(0.01MHz~10MHz)	$U=0.40\text{dB}~0.20\text{dB}$		
106	*Calibrator of Transistor Specificity Oscilloscope	Voltage	Calibration Specification for Calibrators of Semiconductor Curve Tracers JJF1894	0.1V~5000V	$U_{\text{rel}}=0.10\%$	合格评定国家认可委员会 认可证书专用章	
		Current		1 μA~20A	$U_{\text{rel}}=0.12\%$		
107	*Air Line(Characteristic Impedance Analyzer)	Impedance	Calibration Method of Characteristic Impedance FFW1402	(10~200) Ω	$U_{\text{rel}}=0.7\%~1.0\%$		
108	*Flux meter	magnetic Flux	Calibration Specification for Magnetic Flux Meter JJF1905	0.01mWb~1mWb	$U_{\text{rel}}=0.3\%$		



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				1mWb~10Wb	<i>U</i> _{rel} =0.1%		
		zero drift		1 μ Wb~1Wb	<i>U</i> _{rel} =0.3%		
109	*Optical power meter(Fibre-optical identifier,Optical multimeter)	power Power Linearity	V.R.of Optical Power Meter in Telecommunication JJG965	(-80~+20)dBm(600nm~1700nm) (-90~+10)dB(600nm~1700nm)	<i>U</i> =0.2dB~0.1dB <i>U</i> =(0.2~0.03)dB		
110	*Light Source(Fiber fault locator)	Output Power Output Power stability wavelength FWHM	V.R.of Stabilized Laser Sources for Optical Transmitt JJG958,C.S.for Tunable Laser Sources for Telecommunications JJF1198	(-80~+30dBm(600nm~1700nm) (0.001~20)dB(600nm~1700nm) 600nm~1700nm 0.01nm~50nm	<i>U</i> =0.3dB~0.1dB <i>U</i> =0.01dB <i>U</i> _{rel} =1×10 ⁻⁶ <i>U</i> =0.02nm		
111	*Optical Time Domain Reflectometer	Distance(Len gth) Wavelength Distance scale coefficient Loss Loss scale coefficient	V.R.of Optical Time Domain Reflectometers JJG959	0~70km 600nm~1700nm 0.1~2 1310nm,(0~60)dB/km 1550nm,(0~60)dB/km 1310nm,(0~2)dB/dB 1550nm,(0~60)dB/dB	<i>U</i> =(0.2+(1.5×10 ⁻⁵ L))m <i>U</i> _{rel} =1×10 ⁻⁶ <i>U</i> _{rel} =2×10 ⁻⁵ <i>U</i> =0.02dB/km <i>U</i> =0.03dB/km <i>U</i> =0.02dB/dB <i>U</i> =0.03dB/dB		
112	*Optical Attenuator	attenuation	C.S.for Optical Attenuator for Telecommunications JJF1199	(0~80)dB,wavelength(600~1700)nm	<i>U</i> =0.03dB		



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		Insertion Loss		(0~80)dB,wavelength(600~1700)nm	$U=0.03\text{dB}$		
113	*Optical Return Loss Meters	Output Power Return Loss	C.S.for Optical Return Loss Meters for Telecommunication JJF1325	(-80~+10)dBm(600nm~1700nm) (0~70)dB(600nm~1700nm)	$U=0.3\text{dB}\sim 0.1\text{dB}$ $U=0.5\text{dB}$		
114	*Distortion Meter Calibrator	Output frequency	V.R.of Distortion Meter Calibrators JJG802	5Hz~200kHz	$U_{\text{rel}}=1\times 10^{-6}$		
		Output Voltage		(0.001~10)V	$U_{\text{rel}}=0.10\%\sim 0.20\%$		
		Frequency Response		(0.001~10)V(5Hz~200kHz)	$U_{\text{rel}}=0.10\%\sim 0.20\%$		
		Output Distortion		0.0001%~30%	$U_{\text{rel}}=10\%$		
		Output Voltage Stability		(1V~3V)/15min	$U_{\text{rel}}=0.1\%/15\text{min}$		
		Harmonic Voltage		(0.001~1)V(5Hz~200kHz)	$U_{\text{rel}}=0.2\%\sim 0.1\%$		
		Fundamental and harmonic wave superposition error		1%~120%	$U_{\text{rel}}=0.2\%\sim 0.1\%$		
		Distortion		0.01%~100%	$U_{\text{rel}}=2\%\sim 5\%$		
115	*Flux calibrator(Volt-second Generator)	Output Voltage	Calibration Method of Flux Calibrator FFW1403	1mV~10V	$U_{\text{rel}}=0.02\%$		
		Time interval		0.001s~10s	$U_{\text{rel}}=1\times 10^{-5}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		magnetic Flux		0.1mWb~10Wb	$U_{rel}=0.02\%$		
116	*Cable locator	Output Voltage	Calibration Method of Cable Locator FFW1404	1mV~100V(1Hz~500kHz)	$U_{rel}=0.1\%$		
		Output Current		1mA~10A(1Hz~500kHz)	$U_{rel}=0.2\%$		
		Output frequency		1Hz~500kHz	$U_{rel}=0.01\%$		
		Induced frequency		1Hz~500kHz	$U_{rel}=0.1\%$		
		depth		(0~10)m	$U=58\text{cm}$		
		phase		(0.1~360)°	$U=(1\sim2)^\circ$		
117	*Magnetic field simulator (Power frequency Magnetic field coil and field test set,Magnetic field generator)	magnetic field intensity	Calibration Method of Magnetic field inductive coil and generator FFW1405,C.S for Power Frequency Magnetic Field Simulators JJF1737	(0.01~8000)A/m	$U=0.25\text{dB}$		
		Coil factor		(0.1~1000)/m	$U_{rel}=4.5\%$		
		Current		(0.01~2000)A	$U_{rel}=0.2\%$		
		Current THD		0.01%~10%	$U_{rel}=1.5\%$		
118	*Magnetic field simulator(Pulse magnetic field generator, Pulse magnetic field tester)	coil factor	Calibration Method of Magnetic field inductive coil and generator FFW1405,C.S.for Pulse Magnetic field generators JJF(Electron) 0037	(0.1~1000)/m	$U_{rel}=4.5\%$		
		Front time		(1~50) μs	$U_{rel}=2\%$		
		Duration time		(1~50) μs	$U_{rel}=2\%$		
		Output Pulse Current Peak		±(0.1~5000)A	$U_{rel}=1.5\%$		
119	*Damped oscillation magnetic field	coil factor	Calibration Method of Magnetic field inductive coil and generator	(0.1~1000)/m	$U_{rel}=4.5\%$		
		Oscillating Frequency		1Hz~10MHz	$U_{rel}=0.1\%$		



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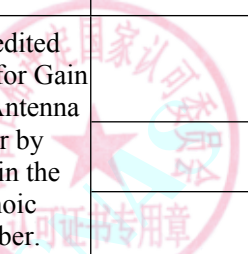
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	simulator (Damped oscillation magnetic field set, Damped oscillation magnetic field coil and generator)	Repeat Frequency	FFW1405,C.S.of Damped oscillatory magnetic field generators JJF(Electron) 0038	1Hz~10MHz	$U_{rel}=0.1\%$		
		Duration time		(0.1~100)s	$U_{rel}=2\%$		
		Output Current Peak		$\pm(0.1\sim5000)A$	$U_{rel}=1.5\%$		
120	Microwave Radiation And Leakage Energy Measuring Instrument	Power Density	V.R.of Microwave Radiation and Leakage Energy Measuring Instrument JJG776	(0.01~5)mW/cm ² (915MHz~2.45GHz)	$U=(1.0\sim0.8)dB$		
				(5~10)mW/cm ² (915MHz~2.45GHz)	$U=(0.8\sim1.3)dB$		
				(0.01~3)mW/cm ² ((2.45~18)GHz)	$U=(1.0\sim1.5)dB$		
121	Multiple antenna(Biconical Antenna,Log-periodic antenna,dipole antenna)	Antenna factor	Specification for calibration of antennas used for EMC measurements GJB 8815 item 1-9 Appendix A,Electromagnetic Interference Measurement Antennas; Standard Calibration Method SAE	(-30~90)dB/m(30MHz~10GHz)	$U=1.6dB,(f=30MHz\sim200MHz);1.5dB,(f=200MHz\sim10GHz)$		
		Antenna again		(-30~90)dB _i (30MHz~10GHz)	$U=1.6dB,(f=30MHz\sim200MHz);1.5dB,(f=200MHz\sim10GHz)$		
		VSWR		1~200(30MHz~10GHz)	$U_{rel}=1.2\%\sim4.5\%$		



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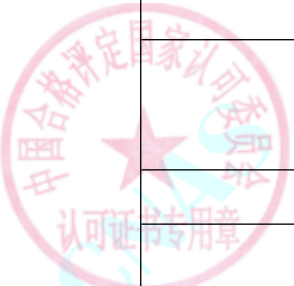
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Symmetry(Antenna Balance)	ARP 958 Item 1-7, Annex A-D, Electromagnetic Compatibility - Radiated Emission Measurements in Electromagnetic Interference (EMI) Control - Calibration of Antennas (9 kHz to 40 GHz) ANSIC63.5 Item 1-7, Appendix A-O, Specification for radio disturbance and immunity measuring apparatus and methods—Part 1-6: Radio disturbance and immunity measuring apparatus—EMC antenna calibration GB/T 6113.106 Item 4 -9, Annex A-H, 30MHz~1GHz Calibration specification for measurement antennas from 30MHz to 1GHz JJF1897	(-60~60)dB(30MHz~10GHz)	$U=0.2\text{dB}$		
122	Horn Antenna	Antenna factor	Electromagnetic Compatibility - Radiated Emission Measurements in	(-30~90)dB/m(0.2GHz~40GHz)	$U=(0.8\sim2.5)\text{dB}$	Accredited only for Gain and Antenna	
		Antenna gain	Electromagnetic Interference (EMI) Control - Calibration of Antennas (9 kHz to 40 GHz) ANSIC63.5 Item 1-7,	(-30~60)dB(0.2GHz~40GHz)	$U=(0.8\sim2.5)\text{dB}$	Factor by STA in the anechoic chamber.	
		VSWR		1~200(0.2GHz~40GHz)	$U_{\text{rel}}=1.2\%\sim4.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Direction Chart (Half Power Beam Width)	Appendix A-O, Specification for calibration of antennas used for EMC measurements GJB 8815 item 1-9 Appendix A, Electromagnetic Interference Measurement Antennas; Standard Calibration Method SAE ARP 958 Item 1-7, Annex A-D, Specification for radio disturbance and immunity measuring apparatus and methods—Part 1-6: Radio disturbance and immunity measuring apparatus—EMC antenna calibration GB/T 6113.106 Item 4 -9, Annex A-H, (0.2~40)GHz Calibration specification for EMC horn antenna JJF1893	(0.1~360)°	$U=2.0^\circ$		
123	*Road Vehicles-Electrostatic discharge immunity test generator (Road Vehicles ESD Generator /ESD Simulator)	Open-circuit voltage	Calibration Method of Road Vehicles-Electrostatic Discharge Generator FFW1406, Current target specification and verification of ESD ISO10605 Annex A	$\pm(0.01\sim40)\text{kV}$	$U_{\text{rel}}=1.0\%\sim2.5\%$		
		First-peak discharge current amplitude		$\pm(0.05\sim150)\text{A}$	$U_{\text{rel}}=2\%\sim5\%$		
		Rise/Fall time		(0.1~10)ns	$U_{\text{rel}}=4\%$		
		Discharge current amplitude		(0.1~10)A(0.1ns~1s)	$U_{\text{rel}}=2\%\sim5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
124	*Memory Recorder (Scope recorder, waveform Recorder, High-speed Recorder, Data Acquisition Recorder etc)	DC Voltage(DC Gain)	Calibration Specification for Waveform Recorders JJF1876	$\pm(1\text{mV}\sim 1000\text{V})$	$U_{\text{rel}}=0.5\%\sim 0.03\%$		
		Timebase/Delay timebase		$0.5\text{ns}\sim 10\text{s}$	$U_{\text{rel}}=1.0\%\sim 0.26\%$		
		Bandwidth		$50\text{kHz}\sim 100\text{MHz}$	$U_{\text{rel}}=2.0\%$		
		Rise time		$3.5\text{ns}\sim 350\text{ns}$	$U_{\text{rel}}=5\%$		
		Input Impedance		$1\text{k}\Omega\sim 100\text{M}\Omega$	$U_{\text{rel}}=0.1\%$		
		AC Voltage		$1\text{mV}\sim 200\text{V}(10\text{Hz}\sim 10\text{MHz})$	$U_{\text{rel}}=0.52\%\sim 0.26\%$		
125	*Impulse winding tester (Impulse Tester、Interturn surging tester、Interturn insulation tester)	Impulse peak voltage amplitude	Calibration Method of Impulse Winding Tester FFW1407,C.S.for Impulse Voltage testers for Winding Interturn Insulation JJF1691	$\pm(0.1\sim 5)\text{kV}$	$U_{\text{rel}}=1.5\%$		
		Front time		$\pm(5\sim 40)\text{kV}$	$U_{\text{rel}}=2.5\%$		
		Pulse Bandwidth		$(0.1\sim 100)\mu\text{s}$	$U_{\text{rel}}=2.0\%$		
				$(1\sim 1000)\text{ms}$	$U_{\text{rel}}=2.0\%$		
126	*Voltage dips ,short interruptions and voltage variations on d.c. input power port immunity tests Generator	Output Voltage	Calibration Method of Voltage Dips, Short Interruptions and Voltage Variations on D.C. Input Power Port Immunity Tests Generator FFW1414	$(0.001\sim 360)\text{V}$	$U_{\text{rel}}=0.3\%$		
		Dip duration time		$0.1\text{ms}\sim 100\text{s}$	$U_{\text{rel}}=0.5\%$		
		Dip Interval Time		$0.1\text{ms}\sim 100\text{s}$	$U_{\text{rel}}=0.5\%$		
		Dip voltage rise/fall time		$0.1\mu\text{s}\sim 100\mu\text{s}$	$U_{\text{rel}}=2.0\%$		
		Voltage overshoot/undershoot		$0.01\%\sim 20\%$	$U_{\text{rel}}=2.0\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Load regulation factor		0.01%~50%	$U_{rel}=0.6\%$		
		Inrush current		5A~2kA	$U_{rel}=2.0\%$		
127	*Variation of power frequency immunity tests Generator	power frequency voltage	Calibration Method of Variation of Power Frequency Immunity Test Generator FFW1409	(50~400)V	$U_{rel}=0.5\%$		
		phase		$0.1^\circ \sim 360^\circ$	$U=1^\circ$		
		power frequency		(5~500)Hz	$U_{rel}=0.1\%$		
		test period		(0.01~100)s	$U_{rel}=0.02\%$		
128	*Unbalance immunity test generator	Output voltage	Calibration Method of Unbalance Immunity Test Generator FFW1410	(50~400)V	$U_{rel}=0.5\%$		
		voltage rise/fall time		$0.1 \mu s \sim 100 \mu s$	$U_{rel}=2.0\%$		
		Voltage overshoot/undershoot		0.1%~50%	$U_{rel}=2.0\%$		
		Output voltage total harmonic		0.01%~50%	$U_{rel}=0.3\%$		
		phase		$0.1^\circ \sim 360^\circ$	$U=1.0^\circ$		
		Frequency		(40~500)Hz	$U_{rel}=0.02\%$		
129	*Ripple on d.c. input power immunity test Generator	Output voltage	Calibration Method of Ripple on D.C. Input Power Port Immunity Test Generator FFW1411	(5~360)V	$U_{rel}=0.5\%$		
		Output current		(1~100)A	$U_{rel}=2.0\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Load regulation factor		0.1%~50%	$U_{rel}=0.6\%$		
		Ripple frequency		1kHz~1MHz	$U_{rel}=0.2\%$		
130	*Transient break tester	Disconnection Time	Calibration Method of Instant Break Tester FFW1412	0.1 μ s~1s	$U_{rel}=1.0\%$		
		Decision Resistance		(0.01~10)k Ω	$U_{rel}=1.4\%$		
131	*High-frequency Electrosurgical Analyzer	Current	Calibration Method of High-frequency Electrosurgical Analyzer FFW1417	1mA~10A(50Hz~1MHz)	$U_{rel}=0.5\% \sim 1.0\%$		
		Voltage		1mV~750V(RMS)(50Hz~1MHz)	$U_{rel}=1.0\% \sim 2.0\%$		
		Power		(0.1~1000)W(50Hz~1MHz)	$U_{rel}=1.5\% \sim 3.0\%$		
		Resistance		(0.01~10)k Ω	$U_{rel}=0.1\%$		
		Bandwidth		1Hz~80MHz	$U_{rel}=4\%$		
132	*Noise Figure Analyzer(include noise source/Broadband coaxial noise generator)	frequency accuracy	C.S.for Noise Figure Analyzers JJF1460,C.S.for Broadband Coaxial Noise Generators JJF1442	10MHz~26.5GHz	$U_{rel}=8.2 \times 10^{-8}$		
		driving voltage		28V	$U=0.006V$		
		Noise figure		0dB~30dB(10MHz~26.5MHz)	$U=0.20dB$		
		Gain		0dB~40dB(50MHz)	$U=0.20dB$		
		Y factor Jitter		0.15dB(smoothing factor1)	$U=0.026dB$		
		system noise figure		0dB~30dB(10MHz~26.5MHz)	$U=0.30dB$		



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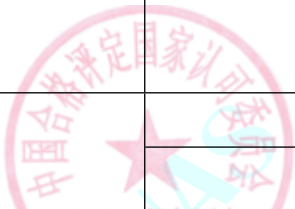
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		ENR of noise source		0dB~30dB(10MHz~26.5MHz)	$U=0.30\text{dB}$		
		SWR		1~20(10MHz~26.5MHz)	$U=0.06\sim 0.14$		
133	*Noise Signal Generator	Max output Power	C.S.for White Gaussian Noise Generators JJF1533	-28dBm~35dBm(10Hz~40GHz)	$U=0.10\text{dB}\sim 0.30\text{dB}$		
		attenuation		0dB~100dB(10Hz~6GHz)	$U=0.10\text{dB}$		
		amplitude frequency characteristic		-28dBm~35dBm(10Hz~40GHz)	$U=0.10\text{dB}\sim 0.50\text{dB}$		
		Flatness		-1dBm~1dBm(10Hz~40GHz)	$U=0.50\text{dB}$		
134	*Data Acquisition System	Acquisition rate	C.S.for Data Acquisition System JJF1048	$(0.1\sim 15)\times 10^{-6}\text{Sa/s}$	$U_{\text{rel}}=2.9\times 10^{-6}$		
		Voltage		10mV~100V	$U_{\text{rel}}=0.04\%\sim 1.2\%$		
135	*Arbitrary Waveform Generator	Sampling rate	C.S.for Arbitrary Waveform Generator JJF1152	1Sample/s~10GSample/s	$U_{\text{rel}}=2.9\times 10^{-6}$		
		frequency		0.01Hz~1GHz	$U_{\text{rel}}=2.9\times 10^{-6}$		
		Rise time		100ps~100ms	$U=17\text{ps}$		
		pulse width/time interval		1ns~10s	$U_{\text{rel}}=0.1\%$		
		sine wave Distortion		0.1%~10%(20Hz~100kHz)	$U_{\text{rel}}=14\%\sim 30\%$		
		amplitude		1mV~20V(10Hz~1GHz)	$U_{\text{rel}}=0.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		FM		(0.1～400)kHz(CW:0.15MHz～1000MHz, fm:1Hz～1MHz)	<i>U</i> _{rel} =1.2%		
		AM		1%～5%(CW:0.15MHz～1000MHz, fm:1Hz～1MHz)	<i>U</i> _{rel} =1.2%		
				5%～99%(CW:0.15MHz～1000MHz, fm:1Hz～1MHz)	<i>U</i> _{rel} =1.0%		
136	*Crystal Oscillators inside the Electrical Measuring Instruments	Relative Frequency Offset	C.S.for Crystal Oscillators inside the Electrical Measuring Instruments JJF1984	0.1MHz,1MHz,5MHz,10MHz	<i>U</i> _{rel} =7×10 ⁻¹¹		
		Warm up		0.1MHz,1MHz,5MHz,10MHz	<i>U</i> _{rel} =7×10 ⁻¹¹		
		Frequency Reproducibility		0.1MHz,1MHz,5MHz,10MHz	<i>U</i> _{rel} =7×10 ⁻¹¹		
137	light-tight Response Time Testing Instrument	Pulse Period	C.S.for light-tight Response Time Testing Instrument FFW1501	1.01ms～2s	<i>U</i> =0.1ms		
138	*EMI Calibration Pulse Generator	Pluse Area	Calibration Method for EMI Calibration Pulse Generator FFW1502, Radio	1.5Vs～0.0010 μ Vs	<i>U</i> _{rel} =1.5%		
		Pulse Frequency		0.1Hz～20kHz	<i>U</i> _{rel} =0.1%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency Response	disturbance and immunity measuring apparatus-millimicrosecond pulse generator GB/T6113.101 Annex C, Radio disturbance and immunity measuring apparatus-millimicrosecond pulse generator CISPR 16-1-1 Annex C	(0~20)dB(0.1Hz~20kHz)	$U=1.2\text{dB}$		
139	*GNSS Signal Simulators	Frequency deviation	C.S.for GNSS Signal Simulators JJF1471	(0.1~100)Hz	$U=4.4\text{Hz}$		
		power range		Max:(-60~-20)dBm; Min:(-170~-70)dBm(1GHz~2GHz)	$U=0.04\text{dB}$		
		power resolution		(0.1~2)dB(1GHz~2GHz)	$U=0.06\text{dB}$		
		power deviation		(0.1~2)dB(1GHz~2GHz)	$U=0.04\text{dB}$		
		harmonics, No n-harmonics		harmonics:(-60~-20)dBm; No-harmonics:(-60~-30)dBm	$U=1.8\text{dB}$		
		Frequency accuracy		$5 \times 10^{-8} \sim 5 \times 10^{-11}$	$U_{\text{rel}}=2 \times 10^{-8} \sim 2 \times 10^{-11}$		
		Second-Frequency Stability		$(1 \times 10^{-8} \sim 1 \times 10^{-12})/\text{s}$	$U_{\text{rel}}=2 \times 10^{-9} \sim 2 \times 10^{-13}$		
		EVM(rms)		2%~20%(1GHz~2GHz)	$U_{\text{rel}}=0.72\%$		
140	*Intermodulation Analyzers	Output Frequency	C.S.for Passive Intermodulation Analyzers JJF1463	10Hz~6GHz	$U_{\text{rel}}=1.2 \times 10^{-7}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Output Power		20dBm~48dBm(10Hz~6GHz)	<i>U</i> =0.24dB		
		Average background noise		-100dBm~-170dBm(10Hz~6GHz)	<i>U</i> =1.0dB		
		residual passive intermodulation		-80dBc~-170dBc(10Hz~6GHz)	<i>U</i> =1.0dB		
		passive intermodulation		(-60~-140)dBm(10Hz~6GHz)	<i>U</i> =0.3dB		
				(-60~-140)dBm(10Hz~6GHz)	<i>U</i> =0.4dB		
141	*Vectorscopes	Bandwidth	C.S.for Vectorscopes JJF1387	(0.1~10)MHz	<i>U</i> _{rel} =2.0%		
		Phase		(0.1~360)°	<i>U</i> =0.3°		
		Amplitude		1mV~10V	<i>U</i> _{rel} =1.0%		
142	*Testing Systems of Microcircuits Electro-static Discharge(ESD) Sensitivity	Peak current	C.S. for Testing Systems of Microcircuits Electro-static Discharge(ESD) Sensitivity JJF1238	±(0.01~50)A	<i>U</i> _{rel} =3.0%		
		Rise Time		0.1ns~10s	<i>U</i> _{rel} =5.0%		
		decay time		0.1ns~10s	<i>U</i> _{rel} =4.0%		
		Duration Time		0.1ns~10s	<i>U</i> _{rel} =4.0%		
		Open Circuit Voltage		±(0.01~10)kV	<i>U</i> _{rel} =0.5%		
143	*Coast-down Time Tester	Velocity	C.S.for Coast-down Time Testers JJF1360	(0.1~100)km/h	<i>U</i> =(0.001~0.005)km/h		
		Coast-down Time		(0~150)s	<i>U</i> =1ms		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Diameter		(0~300)mm	$U=0.03\text{mm}$		
144	*Pulse Counter	pulse count	C.S.for Pulse Counters JJF1686	(0~100000)counts	$U=1\text{counts}$		
145	*rod antenna	Antenna Factor	Calibration Specification for 9kHz~30MHz Rod Antennas JJF1706	(-70~90)dB/m(9kHz~ 30MHz)	$U=1.2\text{dB}$		
146	*Tester For Conducted and Radiated Immunity	Frequency Accuracy	C.M.of Test System For Conducted and Radiated Immunity FFW1602,C.S.for Continuous Wave Immunity Simulator JJF(D.Z.)30813	0.1MHz~1000MHz	$U_{\text{rel}}=2.4\times 10^{-8}$		
		Output Level		30dBm~-60dBm	$U=0.24\text{dB}$		
		Output Level Linearity Accuracy		30dBm~-60dBm	$U=0.24\text{dB}$		
		AM Accuracy		0.1%~ 99%(CW:0.15MHz~ 230MHz, fm:1Hz~ 1MHz)	$U_{\text{rel}}=1.3\%$		
		AM Distortion		0.01%~10%	$U_{\text{rel}}=33\%\sim 14\%$		
		modulation Frequency		0.1Hz~100kHz	$U_{\text{rel}}=1\times 10^{-6}$		
		Amplifier Gain		(0~60)dB	$U=1.0\text{dB}$		
		Power and Frequency Response Measurement		20dBm~- 60dBm(0.1MHz~ 1000MHz)	$U=0.50\text{dB}$		
		Output Power (Voltage) Accuracy		(0.01~200)W/(0.1~ 100)V	$U=0.8\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
147	RFID Tester	Frequency Accuracy	C.S.for Radio Frequency Identification Testers JJF1602	0.1MHz～3000MHz	$U_{rel}=1 \times 10^{-7}$		
		Output Power		30dBm～-60dBm(0.1MHz～3000MHz)	$U=0.24\text{dB}$		
		Output modulation		0.1%～100%(0.1MHz～3000MHz)	$U_{rel}=3\%$		
		Adjacent Channel Power		10dBm～-20dBm(±250kHz)(0.1MHz～3000MHz)	$U=1.0\text{dB}$		
				10dBm～-20dBm(500kHz(M-N =2))(0.1MHz～3000MHz)	$U=1.1\text{dB}$		
				10dBm～-20dBm(750kHz(M-N =3))(0.1MHz～3000MHz)	$U=1.2\text{dB}$		
				10dBm～-20dBm(750kHz 以上(M-N >3))(0.1MHz～3000MHz)	$U=1.5\text{dB}$		
		Signal Analyzer Frequency		0.1MHz～3000MHz	$U_{rel}=1 \times 10^{-7}$		
		Signal Analyzer Power		10dBm～-50dBm(0.1MHz～3000MHz)	$U=0.5\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Signal Analyzer modulation		0.1%~100%(0.1MHz~3000MHz)	$U_{rel}=3\%$		
148	*Magnetic Reference standard	Magnetic flux density	C.M.of Magnetic Reference standard FFW1604	1mT~3T	$U_{rel}=0.3\%$		
149	*Watch Magnetic resistant tester	Magnetic field intensity	C.M.of Watch Magnetic resistant tester FFW1605	(100~6000)A/m	$U_{rel}=0.5\%$		
150	*Lightning protection components Analyzer	Voltage	C.S.for Lightning protection components Analyzer JJF(G.)18,Lightning protection components Analyzer FFW1606	(10~2000)V	$U_{rel}=0.8\%$		
		Current		1 μ A~200mA	$U_{rel}=1.0\%$		
151	*magnetic field Loop Antenna	Antenna factor	Specification for calibration of antennas used for EMC measurements GJB 8815 Item 1-9 Appendix A	(-30~160)dBpT/ μ V(5Hz~1MHz)	$U=(0.6\sim 1.0)\text{dB}$		
152	*Loop Antenna	Antenna factor	Specification for radio disturbance and immunity measuring apparatus and methods-Part 1-6: Radio disturbance and immunity measuring apparatus-EMC antenna calibration GB 6113.106 Item 4-9, 附录 A-H	(-30~160)dBpT/ μ V(5Hz~1MHz)	$U=(0.6\sim 1.0)\text{dB}$		
153	*Radiation loop antenna	Magnetic flux density	Calibration Method of Loop Antenna	(60~180)dBpT(5Hz~1MHz)	$U=(1.0\sim 1.6)\text{dB}$		
		Antenna factor	FFW1416,Specification for radio disturbance and	(-30~160)dBpT/ μ V(5Hz~1MHz)	$U=(1.0\sim 1.6)\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Input Impedance	immunity measuring apparatus and methods-Part 1-6: Radio disturbance and immunity measuring apparatus-EMC antenna calibration GB 6113.106-Item 4-9, 附录 A-H	$0.01\ \Omega \sim 100\text{k}\ \Omega$ (5Hz~1MHz)	$U_{\text{rel}}=5.0\%\sim 1.0\%$		
154	*Frequency Response Analyzers	Output frequency	C.S.for Frequency Response Analyzers JJF1710	1mHz~50MHz	$U_{\text{rel}}=2.2\times 10^{-7}$		
		Output sine wave amplitude		10mV~10V	$U_{\text{rel}}=2\times 10^{-4}\sim 9\times 10^{-4}$		
		Output sine wave distortion		0.001%~10%(20Hz~100kHz)	$U_{\text{rel}}=5\%$		
		Output DC offset		-10V~-1mV	$U_{\text{rel}}=0.20\%$		
		input Impedance		1mV~10V	$U_{\text{rel}}=0.20\%$		
		single channel amplitude		50 $\Omega \sim 1\text{M}\ \Omega$	$U_{\text{rel}}=0.20\%$		
		single channel phase		10mV~500V(10Hz~50MHz)	$U_{\text{rel}}=0.06\%\sim 0.5\%$		
		amplitude ratio of channel		-180° ~ 180° (1Hz~1MHz)	$U=0.01^\circ$		
		phase deviation of channel		0dB~±80dB(1Hz~50MHz)	$U=0.01\text{dB}\sim 0.05\text{dB}$		
				-180° ~ 180° (1Hz~1MHz)	$U=0.01^\circ$		



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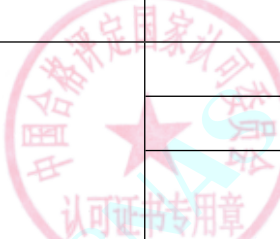
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
155	*Switch characters testers' time calibration	Opening time	C.M.for Switch characters testers' time calibration FFW1901	1ms~10s	$U=0.03 \mu s \sim 0.3 \mu s$		
		Closing time		1ms~10s	$U=0.03 \mu s \sim 0.3 \mu s$		
		springing time		1ms~10s	$U=0.03 \mu s \sim 0.3 \mu s$		
156	*Defibrillation Effect Testers	Peak-voltage	C.M.for Defibrillation Effect Testers FFW1902	$\pm(0.1 \sim 15)kV$	$U_{rel}=2.0\%$		
		Pulse width		1ms~10ms	$U_{rel}=3.0\%$		
		Rise time		$1 \mu s \sim 500 \mu s$	$U_{rel}=5\%$		
157	*Test System for Immunity to Conducted Differential Mode Disturbances of Low Frequency	Supply Voltage	C.M.for Test System for Immunity to Conducted Differential Mode Disturbances of Low Frequency FFW1903	100V~280V	$U_{rel}=0.2\%$		
		Supply Voltage Frequency		10Hz~500Hz	$U_{rel}=0.1\%$		
		Differential Voltage		10mV~50V(1kHz~ 150kHz)	$U_{rel}=3.0\%$		
		Differential Voltage Frequency		1kHz~150kHz	$U_{rel}=0.08\%$		
		Short Circuit Current		10mA~5A(1kHz~ 150kHz)	$U_{rel}=2.3\%$		
		Short Circuit Current Frequency		1kHz~150kHz	$U_{rel}=0.08\%$		
		Differential Current		10mA~10A(1kHz~ 150kHz)	$U_{rel}=2.3\%$		
		Differential Current Frequency		1kHz~150kHz	$U_{rel}=0.08\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Output Voltage		10mV~10V(1kHz~150kHz)	<i>U</i> _{rel} =3.0%		
		Output Voltage Frequency		1kHz~150kHz	<i>U</i> _{rel} =0.08%		
		Differential Voltage Impedance		0.1 Ω ~ 15 Ω	<i>U</i> _{rel} =0.08%		
		Differential Current Impedance		0.1 Ω ~ 15 Ω	<i>U</i> _{rel} =0.08%		
		Attenuation		-25dB~-55dB	<i>U</i> =1.7dB		
158	*SOE test signal generator	Trigger time	C.M.for SOE test signal generator FFW1904	1 μ s~2s	<i>U</i> =0.2 μ s		
159	*Magnetometers Based Magnetic Force(Gauss Meter, Magnetic Meter)	Magnetic flux density	C.M.for Magnetometers Based Magnetic Force JJF1656	0.1mT~10mT	<i>U</i> _{rel} =1.0%		
160	*Near field probe(Near field antenna)	Probe factor (Antenna factor)	C.M.for Near field probe FFW1905	(-30~160)dBpT/ μ V,(-30~160)dB/m,(5Hz~1GHz)	<i>U</i> =(0.6~3.0)dB		
161	*Optical Fiber(Fiber Length/Loss Standard, Optical Time Domain Reflection Standard, OTDR Standard, Standard Optical Fiber)	Length	C.M.for Optical Fiber(Fiber Length/Loss Standard, Optical Time Domain Reflection Standard, OTDR Standard, Standard Optical Fiber) FFW1906,C.M.for Optical Fiber Length JJF(通信)023	(0~100)km	<i>U</i> =(0.4+(1.5×10 ⁻⁴ L)m		
		Loss		1310nm,(0~60dB)	<i>U</i> =0.02dB		
				1550nm,(0~60dB)	<i>U</i> =0.03dB		



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162	*Directional Coupler and SWR Bridge	Return Loss	C.M. for Directional Coupler and SWR Bridges JJF1680	15dB~60dB (5Hz~43GHz)	$U=0.2\text{dB}$		
		insertion Loss		0~10dB(5Hz~43GHz)	$U=0.12\text{dB}$		
		VSWR/Reflection Coefficient		1.0~4.0/0~1.0 (9kHz~40GHz)	$U=0.01$		
		Coupling Coefficient		0.01dB~65dB (5Hz~43GHz)	$U=0.2\text{dB}$		
		Directivity		0.01dB~75dB (5Hz~43GHz)	$U=0.3\text{dB}$		
163	*Low Power Transfer Standard	calibration Factor	C.M. for Lower Power Transfer Standards JJF1461	30%~250%(8kHz~50GHz, 100 μW ~100mW)	$U_{\text{rel}}=0.8\%\sim 3\%$		
		VSWR/Reflection Coefficient		1.0~2.0/(0~0.25)(9kHz~40GHz)	$U=0.006\sim 0.022$		
164	*Power Meter	Power Range	Calibration Specification for Power Meters JJF1757	3 μW ~105mW	$U_{\text{rel}}=0.3\%$		
		reference Power		0.9mW~1.1mW	$U_{\text{rel}}=0.20\%$		
		Zero		$\pm(0.1\text{nW}\sim 100\text{nW})$	$U_{\text{rel}}=0.2\%$		
		Zero drift		0.2%FS	$U_{\text{rel}}=0.2\%$		
		calibration Factor		85%~115%	$U_{\text{rel}}=0.2\%$		
		Scale linearity		0.001mW~10mW	$U_{\text{rel}}=0.2\%$		
165	*RF Coaxial Filter	Filtration Characteristic	C.M. for RF Coaxial Filter JJF (通信) 028	0~110dB(1Hz~43GHz)	$U=0.1\text{dB}\sim 0.2\text{dB}$		
		VSWR		VSWR:1.00~20(5Hz~43GHz)	$U=0.006\sim 0.022$		



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		Reflection coefficient		Reflection coefficient:0.001~0.95(5Hz~43GHz)	$U=0.006\sim0.022$		
		Bandwidth		1Hz~18GHz	$U_{rel}=1\times10^{-6}$		
		Frequency		1Hz~18GHz	$U_{rel}=1\times10^{-6}$		
166	*TV Data Stream Analyzer	Pulse Width	C.S.for Digital Television Transport Stream Generators JJF(Electron) 0021	0.1ns~2s	$U_{rel}=7.4\times10^{-4}$		
		Line time		0~10000	$U=1$		
		Line frequency		1Hz~1GHz	$U_{rel}=7.4\times10^{-4}$		
		video signal lines		0~5000	$U=1$		
		video signal Line length		0~5000	$U=1$		
		Level		0~255	$U=1$		
		Phase		$0.1^{\circ}\sim360^{\circ}$	$U=0.6^{\circ}$		
167	*Power Sensor	Power calibration factor	CS.for RF and Microwave power Sensors JJF1887	10%~300%(-30dBm~20dBm,9kHz~50GHz)	$U_{rel}=0.8\%\sim3.0\%$		
		VSWR		1.00~20(5Hz~43GHz)	$U=0.006\sim0.022$		
168	*Medium Power Meter	calibration Factor/Power	C.S.for Medium Power Meters JJF1386	(30%~200%)/(0.1W~200W)(9kHz~1GHz)	$U_{rel}=2.0\%\sim4.0\%$		
				(30%~200%)/(0.1W~100W)(1GHz~6GHz)	$U_{rel}=2.0\%\sim4.0\%$		
				(30%~200%)/(0.1W~200W)(6GHz~18GHz)	$U_{rel}=2.0\%\sim4.0\%$		



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		VSWR		1.00~20(5Hz~43GHz)	$U=0.006\sim0.022$		
169	*Optical spectrum analyzer	Optical power	V.R.of Optical Spectrum Analyzers in Telecommunication JJG1035	(-80~+20)dBm(600nm~1700nm)	$U=0.2\text{dB}\sim0.1\text{dB}$		
		wavelength		600nm~1700nm	$U_{\text{rel}}=1\times10^{-6}$		
		Dynamic range		(0~100)dB	$U=0.2\text{dB}$		
170	*Optical Wavelength Meter	wavelength	V.R.of Optical Wavelength Meters in Telecommunication JJG963	600nm~1650nm	$U_{\text{rel}}=1\times10^{-6}$		
171	Bullet Speed Measuring Device	Speed Measuring Distance	C.S.for Bullet Speed Measuring Devices JJF1808	200mm~2000mm	$U=0.5\text{mm}$		
		Speed Measuring Range		10m/s~1000m/s	$U=0.10\text{m/s}$		
172	Parking Timer Calibrators	Current Time Error	C.S.or Verification Instruments of Parking Timers JJF1900	00 h 00 m 00 s~23 h 59 m 59 s	$U=0.08\text{s}\sim0.6\text{s}$		
		PPS timing deviation		-1.00s~+1.00s	$U=27\text{ns}$		
		Internal Crystal Oscillator Relative Frequency deviation		Frequency:10 kHz,100 kHz,10 MHz,20 MHz	$U_{\text{rel}}=2.8\times10^{-9}$		
		Internal Crystal Oscillator Frequency Stability		Frequency:10 kHz,100 kHz,10 MHz,20 MHz	$U_{\text{rel}}=2.8\times10^{-9}$		



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		Time Interval		1.00s~99999.99s	<i>U</i> =60 μ s		
173	Electric Field Probe	Electric Field Strength	C.S. for Electric Field Probes JJF1886	3V/m~60V/m(10MHz~1GHz)	<i>U</i> =(0.6~1.0)dB		
				3V/m~170V/m(1GHz~18GHz)	<i>U</i> =0.8dB		
		Isotropic		3V/m~60V/m(10MHz~1GHz)	<i>U</i> =(0.6~1.0)dB		
				3V/m~170V/m(1GHz~18GHz)	<i>U</i> =0.8dB		
174	Electromagnetic field probe	Electric Field Strength	C.M. for Electromagnetic Field Probes from 10 kHz to 100 MHz JJF1884	1V/m~100V/m(10kHz~100MHz)	<i>U</i> =0.6dB		
		Magnetic flux density		0.1 μ T~100 μ T(10kHz~300kHz)	<i>U</i> =0.5dB		
		Magnetic Filed Intensity		0.015A/m~0.5A/m(10kHz~100MHz)	<i>U</i> =0.6dB		
		Isotropic		1V/m~100V/m,0.1 μ T~100 μ T,0.015A/m~0.5A/m(10kHz~100MHz)	<i>U</i> =0.6dB		
175	*Selective Level Meter	Level	C.S. for Selective Level Meters JJF1761	(-110~20)dBm (20Hz~150MHz)	<i>U</i> =(0.1~0.3)dB		
		Frequency		20Hz~150MHz	<i>U</i> _{rel} =1×10 ⁻⁷		
176	*Level Oscillator	Frequency	Calibration Specification for Level Oscillators JJF 1982	20Hz~100MHz	<i>U</i> _{rel} =1×10 ⁻⁷		
		Level		(-60~30)dBm (20Hz~100MHz)	<i>U</i> =(0.1~0.3)dB		
177	*High Definition Video Signal	Amplitude (Level)	C.S. for High Definition Video Signal Generators	-1V~1V	<i>U</i> =1.2mV		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Generator	Pulse Width/Time	JJF1742	0.1ns~700ns	$U_{rel}=0.4\%$		
		Frequency		10Hz~500MHz	$U_{rel}=1 \times 10^{-6}$		
178	Fluxgate Magnetometer	Magnetic Induction/Magnetic flux density	C.S. for Fluxgate Magnetometer JJF1519, Calibration Method of Magnetic Flux Density FFW1415	0.1nT~200 μ T	$U_{rel}=1.5\%$		
		noise		0.2mT~3mT	$U_{rel}=3\%$		
		zero drift		0.1nT~100nT	$U_{rel}=1.0\%$		
		time drift		0.1nT~1000nT	$U_{rel}=1.0\%$		
		temperature drift		0.1nT~1000nT	$U_{rel}=1.0\%$		
		orthogonality		(0.001~2.0)°	$U=0.12^\circ$		
179	*Digital Television Test Signal Transmitters	Frequency	C.S. for Digital Television Test Signal Transmitters JJF1924	0.1MHz~3GHz	$U_{rel}=1 \times 10^{-8}$		
		Power		(-120~+20)dBm(0.1MHz~3GHz)	$U=0.16\text{dB} \sim 0.36\text{dB}$		
		Harmonic		(-0.1~-140)dBc(0.1MHz~3GHz)	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		Non-Harmonic		(-0.1~-140)dBc(0.1MHz~3GHz)	$U=1.1\text{dB} \sim 1.6\text{dB}$		
		SSB phase noise		(0~150)dBc(0.1MHz~3GHz)	$U=1.1\text{dB} \sim 1.6\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		modulation Frequency deviation	ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	0.01Hz~10MHz	$U=1.2\text{Hz}$		
		modulation In-bandpower		(-70~20)dBm	$U=1.0\text{dB}$		
		MER		(20~50)dB	$U=1.0\text{dB}$		
		EVM		0.01%~10%	$U_{\text{rel}}=0.3\%$		
		SNR		(15~60)dB	$U=0.5\text{dB}$		
		carrier suppression		(20~50)dB	$U=1.0\text{dB}$		
		Amplitude nonbalance		0.01%~10%	$U_{\text{rel}}=0.5\%$		
		Phase		$0^{\circ} \sim 5^{\circ}$	$U=0.1^{\circ}$		
180	Time Transfer Clocks	Current Time Error	C.M.for GNSS Time Transfer Clocks FFW2106	00 h 00 m 00.00 s~23 h 59 m 59.99 s	$U=0.12\text{s} \sim 0.60\text{s}$		
		Synchronizati on Error		-1.00s~+1.00s	$U=27\text{ns}$		
		Delay Amount		10ns~500ms	$U=40\text{ns}$		
181	Clock Tester	Daily Timing Error	C.S.for Clock Tester JJF1662	-10s~+10s	$U=0.01\text{s}$	合格评定国家认可 认证证书专用章	
		Frequency		1Hz~10MHz	$U_{\text{rel}}=1.0 \times 10^{-9}$		
		Power on Character		100kHz、50kHz、 10kHz、1kHz	$U_{\text{rel}}=4.9 \times 10^{-9}$		
		Relative Mean Frequency Error		100kHz、50kHz、 10kHz、1kHz	$U_{\text{rel}}=3.5 \times 10^{-9}$		



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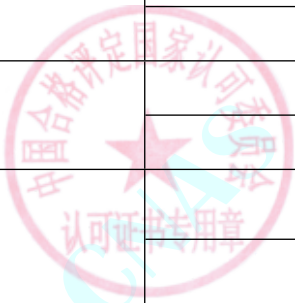
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Current Time Error		00 h 00 m 00.00 s ~ 23 h 59 m 59.99 s	$U=0.12\text{s}\sim 0.60\text{s}$		
182	*Click Pulse Generators (Discontinuous Disturbance Calibrators)	Duration time	C.M. for Click Pulse Generators (Discontinuous Disturbance Calibrators) FFW2101	0.1ms~100s	$U_{\text{rel}}=0.6\%$		
		Interval time		0.1ms~100s	$U_{\text{rel}}=0.6\%$		
		Rise time of Pulse		10ns~1 μ s	$U_{\text{rel}}=12\%$		
		carrier signal Frequency		10Hz~100MHz	$U_{\text{rel}}=4\times 10^{-8}$		
		carrier signal Level		(40~130)dB μ V	$U=0.15\text{dB}$		
183	*Switches for Transient Emission of Automotive Electronics (Mechanical Switch ,Electronics Switch)	Duration time	C.M. for Switches for Transient Emission of Automotive Electronics FFW2102	1ms~100s	$U_{\text{rel}}=1.6\%$		
		Interval time (Repetition time)		1ms~10s	$U_{\text{rel}}=1.6\%$		
		Rise time		10ns~1 μ s	$U_{\text{rel}}=5\%$		
		Fall time		10ns~1 μ s	$U_{\text{rel}}=5\%$		
		Peak Voltage		10V~2kV	$U_{\text{rel}}=2\%$		
		Drop voltage of switch		0.01V~10V	$U_{\text{rel}}=4\%$		
184	*Diode Surge Current Testers (Diode Surge Current Test Platform, Thyristor Surge Current Testers)	Peak Current	C.M. for Diode Surge Current Testers FFW2103	10A~5kA	$U_{\text{rel}}=1.5\%\sim 2.5\%$		
		Pulse Width		1ms~100ms	$U_{\text{rel}}=2.5\%$		
	*Harmonics and Flicker Generators	Harmonic Current	C.M. for Harmonics and Flicker Generators FFW2104	1mA~5A	$U_{\text{rel}}=0.40\%$		



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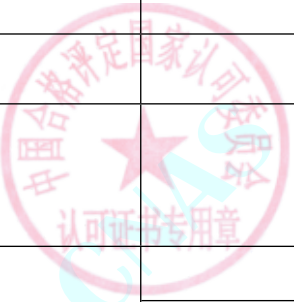
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	(Harmonics and Flicker signal Sources, Harmonics Signal Sources)	Harmonic Flicker impedance		10 Ω ∼ 1k Ω	<i>U</i> _{rel} =0.30%		
		Flicker		0.01 ∼ 10	<i>U</i> _{rel} =2%		
186	*Pulse Attenuators(Burst/EFT calibration Kit, Pulse Verification Kit)	Input resistance	C.M.for Pulse Attenuators FFW2105	0.01 Ω ∼ 1M Ω	<i>U</i> _{rel} =0.12%		
		Output resistance		10 Ω ∼ 1M Ω	<i>U</i> _{rel} =0.12%		
		Insertion Loss		(-100∼0)dB	<i>U</i> =0.10dB		
		Attenuation		(0∼100)dB	<i>U</i> =0.10dB		
187	*RF Shielding Box	Shielding Effectiveness	C.S.for RF Shielding Box JJF(TongXin)048	5dB∼140dB(10kHz∼18GHz)	<i>U</i> =4.0dB		
		VSWR		1∼20(10kHz∼18GHz)	<i>U</i> _{rel} =1.2%∼4.5%		
9 Optics Measuring Instrument							
1	*Trial Case Lenses	VertexPower	V.R.of Trial Case Lenses JJG579	(-25∼+25)m ⁻¹	<i>U</i> =0.03m ⁻¹		
2	*Whiteness- meter	R457	V.R.of the Whiteness Meters JJG512	0∼100	<i>U</i> =1.3		
				Whiteness plate:(0∼100)	<i>U</i> =1.4		
3	*Colorimeter	coloursurface	V.R.of Colorimeters and Colour Difference Meters JJG595	Y:(1∼100)	<i>U</i> =1.7		
				x,y:(0∼1)	<i>U</i> =0.006		
4	*Specular Gloss Meter and Specular Gloss Plates	Specular Gloss Value	V.R.of Specular Gloss Meters and Gloss Plates JJG696	Specular Gloss Plates:(0∼150)gloss unit	<i>U</i> =1.8gloss unit		
				Specular Gloss Meter:(0∼150)gloss unit	<i>U</i> =1.2gloss unit		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
5	Incandescent Standard Lamp	Luminous Flux	V.R.of Standard Incandescent Lamp for Total Luminous Flux JJG247	(0.1~20000)lm	$U_{rel}=2.0\%$		
6	Standard Fluorescent Lamp	Luminous Flux	V.R.of Standard Fluorescent Lamp of Total Luminous Flux JJG385	(0.1~3000)lm	$U_{rel}=2.6\%$		
7	*Diffuse Transmis- sion Visual Densito- meter	Optical Density	V.R.of Diffuse Transmission Visual Densitometer JJG920	0.0~2.0	$U=0.03$		
				2.0~4.0	$U=0.04$		
				4.0~5.0	$U=0.05$		
8	*Laser for Medicine	Laser Power	V.R.of Laser for Medicine JJG581	1mW~200W	$U_{rel}=3.7\%$		
9	*Abbe- Refracto- meter	Refractive	V.R.of Abbe Refractometer JJG625	1.300~1.700	$U=7 \times 10^{-5}$		
		Index		0.005~0.03	$U=9 \times 10^{-5}$		
10	Interference Filter	Wavelength	V.R.of Interference Filter JJG812	(300~800)nm	$U=0.5\text{nm}$		
11	Standard Bloks Of Abbe Refractom- eters	Refractio- nratio	V.R.of Standard Blocks for Abbe Refractometers JJG981	1.30~1.70	$U=2.8 \times 10^{-5}$		
		colordispersevalues		0.01~0.03	$U=4.0 \times 10^{-5}$		
12	*Lovibond meter	Lovibond chroma	V.R.of Lovibond Comparable Colorimeter JJG758	R:0.1~79.9Y:0.1~79.9;B:0.1~49.9	$U=0.7\text{Lovibond unit}$		
13	UV irradiance meter	Irradiance	V.R.of Ultraviolet Irradiance Meters JJG879	(0.001~199.9)mW/cm ² ;; (0.001~1.0) mW/cm ² /nm	$U_{rel}=14\%$		
14	*Standard Light Sources Chamber	illuminance	C.S.for Standard Light Sources Boxes JJF(纺织)055	(50~6000)lx	$U_{rel}=5\%$		
		Colour		(2500~2800)K	$U=11\text{K}$		

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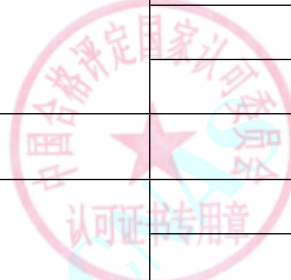
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature		(2800~3500)K	U=13K		
				(3500~4500)K	U=42K		
				(4500~7000)K	U=88K		
				(7000~7500)K	U=0.12kK		
15	Filter	Wavelength	V.R.of Reference Filter for Calibration Spectrophotometer JJG1034	(200~3000)nm	U=0.3nm		
		Transmission		(0.01~100)%;Wavelength: (200~900) nm	U _{rel} =0.5%		
				Wavelength: (900~3000) nm	U _{rel} =1.0%		
		Absorbance		0.0001~8.0000	U=0.002		
16	Calibrators for headlamp tester of motor vehicle	Luminescence Intensity	V.R.of Calibrators for Headlamp Tester of Motor Vehicle JJG967	(5000~120000)cd	U _{rel} =1.3%		
		Angle		Left3° ~right3° ,up3° ~down3°	U=1.7'		
17	Cathode Ray Tubes(CRT)color Analyzers	Brightness	C.S.forCathode Ray Tubes(CRT) Color Analyzers JJF1079	(0.1~3000)cd/m ²	U _{rel} =4%		
		Chroma		x,y:(0~1)	U=0.004		
18	Black and White Step Tablet	Optical Density	V.R.of Optical Step Tablet JJG452	0.00~2.00	U=0.02		
				2.00~4.00	U=0.03		
				4.00~5.20	U=0.04		
19	*Hazemeter	Haze Concentration	C.S.for Hazemeter JJF1303	0.1~40	U=0.32		
		Transmittance		0~1	U=0.009		



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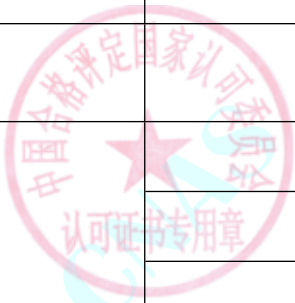
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
20	Illuminance meter	Illuminance	V.R.of Illuminance Meter JJG245	(0.1~3)lx	$U_{\text{rel}}=2.2\%$		
				(3~3000)lx	$U_{\text{rel}}=1.3\%$		
				(3000~60000)lx	$U_{\text{rel}}=2.5\%$		
21	*Focimeters	Spherical	V.R.of Focimeters JJG580	(-25~+25)m ⁻¹	$U=0.03\text{m}^{-1}$		
		cylindrical		(-1.5~+1.5)m ⁻¹	$U=0.02\text{m}^{-1}$		
		prismatic		(-~+25)cm/m	$U=0.02\text{cm/m}$		
22	*Eye Refracto- meters	Sphericity	V.R.of Eye Refractometers JJG892	(-20~+20)m ⁻¹	$U=0.08\text{m}^{-1}$		
		Cylindrical		-3m ⁻¹	$U=0.06\text{m}^{-1}$		
		Pupil Distance		(50~80) mm	$U=0.2\text{ mm}$		
		Corneal Radius of Curvature		(6.6~9.4) mm	$U=0.02\text{ mm}$		
23	Luminance Meter	Luminance	V.R.of Luminance Meters JJG211	(25~1200)cd/m ²	$U_{\text{rel}}=2.0\%$		
		color		x,y:(0.001~0.999)	$U=0.008$		
		Luminance		(0.001~10)cd/m ²	$U_{\text{rel}}=3.4\%$		
				(10~50000)cd/m ²	$U_{\text{rel}}=2.4\%$		
24	*Instrument for Reflectivity	Reflectivity	C.S.for Reflectometers JJF1232	0~100	$U=1.0$		
25	Color Standard Plates	Chroma	V.R.of Colour Standard Plates JJG453	Y: (0~105)	$U=1.1$		
				x,y: (0~1)	$U=0.005$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		spectral reflection factor		(0~105) %	<i>U</i> =1.1%		
26	*Spectral radiometer	Luminous Flux	C.S.for Instantaneous Spectral Instruments JJF1329	(200~1500)nm	<i>U</i> =0.2nm		
		luminous flux		(0.1~20000)lm	<i>U</i> _{rel} =2.0%		
		Color Temperature		(2500~7000) K	<i>U</i> =30K		
		Chroma		x,y: (0~1)	<i>U</i> =0.0015		
27	*Beer Colorimeter	Beer Colour	V.R.of Beer Colorimeters JJG923	(1.75~5.0) EBC	<i>U</i> =0.22EBC		
				(5.0~11.5) EBC	<i>U</i> =0.34EBC		
28	*Spectrocolorimeter	Wavelength	V.R.of Spectrocolorimeter JJG867	(200~900)nm	<i>U</i> =0.4nm		
		Transmittance		(0~100)%	<i>U</i> =0.5%		
		reflectance		(0~100)%	<i>U</i> =2.0%		
		Colour		Y: (0~100)	<i>U</i> =2.0		
				x,y: (0~1)	<i>U</i> =0.006		
29	Grey Scale	tristimulus values	Calibration Method of Grey Scale for Color Assessment FFH1402	0~100	<i>U</i> =2.3		
30	Ultraviolet Analyzer	Ultraviolet radiation intensity	C.S. for UV Analyzers JJF1936	UVA:(0.001~100)mW/cm ²	<i>U</i> _{rel} =10%		
				UVB,UVC:(0.001~1)mW/cm ²	<i>U</i> _{rel} =10%		
		Peak Wavelength		(250~380) nm	<i>U</i> =1.3 nm		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
31	*Petroleum Products Colorimeters	Transmittance	C.S.for Petroleum Products Colorimeters and Filters JJF1526	(0~100) %	$U=0.5\%$		
		wavelength		(200~900) nm	$U=0.4\text{nm}$		
		chroma		x,y: (0~1)	$U=0.006$		
32	UV Energy Meters	Ultraviolet Energy	Calibration Method of UV Power Meter FFH1426	(0.1~40000)mJ/cm ²	$U_{\text{rel}}=20\%$		
33	*Light intensity distribution tester	Intensity	Calibration Method of Light Intensity Distribution Tester FFH1501	(0.1~1000)cd	$U_{\text{rel}}=2.0\%$		
		Luminous flux		(0.1~15000)lm	$U_{\text{rel}}=2.0\%$		
34	*Optical radiation safety test system	wavelength	Calibration Method of Optical Radiation Safety Test System FFH1502	(200~1500)nm	$U=0.2\text{nm}$		
		Color Temperature		(2500~3500)K	$U=22\text{K}$		
		color coordinate		x=y:0.0100~1.0000	$U=0.0020$		
		Ultraviolet Irradiance		(0.1~1000) $\mu\text{W}/\text{cm}^2$	$U_{\text{rel}}=14\%$		
		Illumination		(0.1~3000) lx	$U_{\text{rel}}=2.0\%$		
		Luminance		(0.1~50000)cd/m ²	$U_{\text{rel}}=2.6\%$		
35	Irradiance Meter	UV irradiance	Irradiance Meters FFH1503	(0.001~100) $\mu\text{W}/\text{cm}^2/\text{nm}$	$U_{\text{rel}}=5.4\%$	only for 250~2500) nm	
				(0.001~100)mW/cm ²	$U_{\text{rel}}=5.4\%$		
36	*Retroreflectometer	Coefficient for retroreflection	C.S. for Retroreflectometers JJF1809	(0.1~400)cd·lx ⁻¹ ·m ⁻²	$U_{\text{rel}}=4.0\%$		
		Coefficient of retroreflected luminance		(0.1~1999) mcd·m ⁻² lx ⁻¹	$U_{\text{rel}}=15\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Coefficient of luminous intensity		(0.1~1999) mcd·lx ⁻¹	$U_{rel}=10\%$		
37	*Clarity Test Equipment	illuminance	C.S.for Clarity Test Equipment JJF1287	(10~4000)lx	$U_{rel}=10\%$		
		time		(0.1~60) s			
38	*Reflective Densitometer	Densitometer	C.S.for Reflection Densitometers JJF1492	0.05~2.20	$U=0.03$		
39	Colour Temperature Meters	Colour Temperature	C.S.for Color Temperature Meters JJF2100	(2000~9500) K	$U=6K\sim 1.6\times 10^2K$		
40	Standard Light Sources	Luminous flux	C.S.for Single Low Power LED JJF1501	(10~10000)lm	$U_{rel}=2.0\%$		
		Color Temperature		(2500~3500)K	$U=22K$		
		color coordinate		$x=y:0.0100\sim 1.0000$	$U=0.0015$		
41	*Distribution Analyzer for Luminescence Intensity	Current	Calibration Method of LED Light Intensity Distribution Tester FFH1425	(0.001~2)A	$U_{rel}=0.011\%$		
		Voltage		(0.1~50)V	$U_{rel}=0.02\%$		
		Luminescence Intensity		(0.1~300)cd	$U_{rel}=3.4\%$		
42	*Irradiance of Artificial Accelerated Weathering Apparatus of Xenon Arc Lamp	Irradiance	C.S.for Irradiance of Artificial Accelerated Weathering Apparatus of Xenon Arc Lamp JJF1525	(0.01~2.0)W/m ² /nm	$U_{rel}=12\%$		
					$U_{rel}=12\%$		
43	*Hairich Colorimeter	pH	C.M.for Hairich Colorimeter FFH1603	(3.6~7.0) pH	$U=0.17pH$		



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44	*Transmittance Measuring Equipment for Ophthalmic Products	Transmittance	C.S.for Transmittance Measuring Equipment for Ophthalmic Products JJF1106	(0.1~100)%	$U=1.2\%$		
45	gardner colormeter	tristimulus values	C.M.for gardner colormeter FFH1604	x,y:0.0100~0.9999	$U=0.004$		
46	*Detection System of Motor Vehicle External Lighting and Optical Signal Device (Optical Part)	Luminous Intensity	C.M.for Detection System of Motor Vehicle External Lighting and Optical Signal Device (Optical Part) FFH1601	(70~1500)cd	$U_{rel}=1.3\%$		
		Color		x,y: (0~1)	$U=0.008$		
		Illuminance		(1~3000) lx	$U_{rel}=1.4\%$		
		coefficient of luminous intensity		(0.1~120)cd/lx	$U_{rel}=1.3\%$		
		Color Temperature		2856K	$U=15\text{ K}$		
47	*Pupil Distance Meters	Interpupillary Distance	V.R.of Pupil Distance Meters JJG952	55mm~75mm	$U=0.2\text{mm}$		
48	UV light	UV Irradiance	C.M.for UV light FFH1602	(0.1~199.9)mW/cm ²	$U_{rel}=20\%$		
		spectrum		(200~1000)nm	$U=0.2\text{nm}$		
49	Polarimeters	Phase	C.M.of C.S.for Polarimeters JJF1497	0° ~1080°	$U=1.5^\circ$		
		spectral half width of light source		(380 ~ 780) nm	$U=0.3\text{nm}$		
50	*Smoke Density Testers of Building Materials	Opacity/Transmittance	C.M.for Smoke Density Testers of Building Materials FFH2104	(0~100) %	$U=0.7\%$		
51	*UV Solar	Irradiance	C.M.for UV Solar Simulators	(0.1~200) mW/cm ²	$U_{rel}=16\%$		



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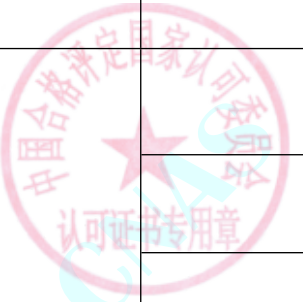
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Simulators	%RCEE	FFH2101	(0~100.0) %	$U=16\%$		
52	Printing Image Dot Testers	Dot	C.M.for Printing Image Dot Testers FFH2105	(0~100) %	$U=0.5\%$		
53	Platinum - Cobalt Colorimeters	Platinum - Cobalt Color	C.S. for Platinum-Cobalt Colorimeters JJF1947	(0.1~500) PCU	$U_{rel}=2.3\%$		
54	Laser Energy Meters	Laser energy	V.R of Laser Energy Meter JJG312	0.1mJ~3mJ	$U_{rel}=3.0\%$		
				3mJ~300mJ	$U_{rel}=2.5\%$		
				(0.3~10)J	$U_{rel}=3.3\%$		
55	Laser Power Meters	Laser power	V.R.of 0.1mW~200W Laser Power Meters JJG249	(0.1~100)mW	$U_{rel}=1.5\%$		
				(0.1~70)W	$U_{rel}=1.6\%$		
				(70~200)W	$U_{rel}=2.0\%$		
56	Electronic Snatching System of Black Smoke Vehicle	Ringmann blackness	C.S for Electronic Snatching System of Black Smoke Vehicle JJF(Jing)72	(0~5) Ringmann blackness	$U=0.12$ Ringmann blackness (Static measurement)		
				(0~5) Ringmann blackness	$U=0.16$ Ringmann blackness (Dynamic measurement)		
57	Haze tablets	Haze	C.S.for Haze Tablets JJF1814	(0~100)	$U=0.32$		
		Transmittance		(0~100)%	$U=1.0\%$		
58	Retroreflection Coefficient Meters for Motor Vehicle's Reflecting Marking	Coefficient of retroreflection	C.S.of Retroreflection Coefficient Meters for Motor Vehicles Reflecting Marking JJF1747	(0.1~400)cd·lx ⁻¹ ·m ⁻²	$U_{rel}=4.0\%$		
59	Spectoradiometers	Wavelength	C.S.for Spectoradiometers JJF1975	(250~2000)nm	$U=0.5\text{nm}$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Spectral radiance		$(0.001-30) \mu W \cdot cm^{-2} \cdot nm^{-1}$	$U_{rel}=6\%$		
		Spectral irradiance		$(0.001-30) \mu W \cdot cm^{-2} \cdot nm^{-1} sr^{-1}$	$U_{rel}=6\%$		
60	Standard Attenuators for Laser	Attenuation ratio	V.R. of Standard Attenuators for Laser JJG903	1~1000	$U_{rel}=1.9\%$		
				1~1000000	$U_{rel}=2.7\%$		
61	*Test Devices of Contact Lenses	Diameter	C.S. for Test Devices of Contact Lenses JJF1148	(8~16)mm	$U=0.02mm$		
		Radius of Curvature		(6.5~9.5)mm	$U=0.02mm$		
		Center Thickness		(0~1.0)mm	$U=0.003mm$		
62	*Digital Saccharimeter	Sugar concentration	C.M. for Digital Saccharimeter FFH1909	9%~11%	$U=0.2\%$		
				29%~31%	$U=0.4\%$		
				49%~51%	$U=0.6\%$		
63	*Water Colorimeters	Water Color	C.S. for Water Colorimeters JJF1689	(1~100)PCU	$U=0.6 PCU$		
64	*Diamond Refractometer	refractive index	C.M. for Diamond Refractometer FFH1902	Refractive index n_D : 1.3~1.8	$U=0.005$		
65	*Solar Simulator	Spectralmatch	Calibration Method of Solar Simulator JJF1615	(0.01~2) wavelength(300~1200)nm	$U_{rel}=8.2\%$		
		Irradiance non-uniformity		(0.02~10)%	$U_{rel}=2.8\%$		
		Irradiance instability		(0.02~10)%	$U_{rel}=2.8\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
66	*Gas-Float Spectral Transmission Station for PV Glass	Transmission Rate	Calibration Method of of Gas-Float Spectral Transmission Station for PV Glass FFJ1501	0.1~0.99	$U_{rel}=0.46\%$		
67	Radiation fluxmeters	Irradiance	C.S.for Radiation Fluxmeters JJF1572	(0.1~2) kW/m ²	$U_{rel}=4.8\%$		
68	*Photoaging box	Irradiance	C.M.for Photoaging box FFJ1905	(0.1~2000)W/m ²	$U_{rel}=14\%$		
		Irradiance non-uniformity		(0.1~50)%	$U_{rel}=12\%$		
69	*Array Spectrometer	Luminous intensity	C.M.for Array Spectrometer FFJ1904	(0.1~10)cd	$U_{rel}=4\%$		
		Chromaticity coordinates		x=y:(0.001~1)	$U=0.004$		
70	*Vehicular Head up Display Measuring Device	Luminance	Calibration Specifcation of Cathode Ray Tubes(CRT) Color Analyzers JJF1079	(0.005~5000)cd/m ²	$U_{rel}=4\%$		
		Chromaticity Coordinates		0.001~0.999	$U=0.004$		
71	*Hemispherical emittance measurement instrument	Emittance	C.M.for Hemispherical Emittance Measuring Instrument Based on Radiometer Method FFJ2302	0~1	$U=0.04$		
72	Textile far infrared emissivity testers	Emissivity	C.S.for Textile far infrared emissivity testers JJF(纺织)086	0~1	$U=0.04$		
		Length		(0.1~200)mm	$U=0.1\text{mm}$		
		Temperature		(0~100)°C	$U=0.3^{\circ}\text{C}$		
73	*Portable I-V Curve Tracer	Irradiance	C.M.for Portable I-V Curve Tracer FFJ1906	(0.1~2000)W/m ²	$U_{rel}=1.9\%$		
		Open circuit voltage		(0.1~100)V	$U_{rel}=0.9\%$		



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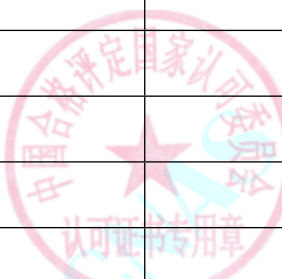
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Short-circuit current		(0.1~20)A	<i>U</i> _{rel} =1.4%		
		Maximum power		(0.1~2000)W	<i>U</i> _{rel} =1.6%		
74	*Photosynthetic active radiometer	Irradiance	C.M.for Photosynthetic Active Radiometer FFJ2301	(0.1~1300)W/m2	<i>U</i> _{rel} =5.6%	Only for Outdoor calibration	
		Voltage		0.1mV~10V	<i>U</i> _{rel} =3.0%		
10 Chemistry Measuring Instrument							
1	*Polymerase Chain Reaction Analyzer	concentration	C.S.for Polymerase Chain Reaction Analyzers JJF1527	(1×10~1×10 ⁷)copies/ μ L	<i>U</i> _{rel} =10%		
		Temperature		(15~100)℃	<i>U</i> =0.3℃		
2	*EIA Analytical Instruments	wavelength	C.S.for Fully Automated ELISA Analyzers JJF2089	(360~700) nm	<i>U</i> =0.6nm		
		absorbance		0.100~1.700	<i>U</i> =0.011		
		temperature		(0~100) ℃	<i>U</i> =0.5℃		
		Volume		(1~10) μ L	<i>U</i> =0.06 μ L		
				(>10~100) μ L	<i>U</i> =0.07 μ L		
				(>100~1000) μ L	<i>U</i> =0.24 μ L		
				(>1000~5000) μ L	<i>U</i> =0.47 μ L		
				(>5000~10000) μ L	<i>U</i> =2.4 μ L		
		residual volume		(0.1~10) μ L	<i>U</i> =0.10 μ L		
3	*Automatic Biochemical Analyzer	Absorbance	C.M.for Automatic Biochemical Analyzer JJF1720	0.4~1	<i>U</i> =0.006		
		concentration		ALT: (30~110)U/L	<i>U</i> _{rel} =6%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				GLU: (1~20)mmol/L	<i>U</i> _{rel} =3%		
4	*Blood Cell Analyzer	Concentration	V.R.of Blood Cell Analyzers JJG714	RBC:(0.01~99.9)×10 ¹² /L	<i>U</i> _{rel} =2.4%		
				WBC:(0.01~99.9)×10 ⁹ /L	<i>U</i> _{rel} =2.8%		
				PLT:(0.01~999.9)×10 ⁹ /L	<i>U</i> _{rel} =3.2%		
				HGB:(1~240)g/L	<i>U</i> _{rel} =2.5%		
5	*Ceinical Chemistry Analyzer	Wavelength	V.R.of Semiautomatic Clinical Chemistry Analyzers JJG464	(300~700)nm	<i>U</i> =0.7nm		
		Absorbency		0.400~1.000	<i>U</i> =0.006		
6	*Gold gauge utilizingX-ray fluorescence spectrometry	Concentra- tionofgold	C.S.forGold Gauge Utilizing X-ray Fluorescence Spectrometry JJF1133	44.02%~99.99%	<i>U</i> =0.2%		
7	*Microwave Dissolution Instrument	Watt	Calibration Method of Microwave Digestion System FFH1407	(400~3000)W	<i>U</i> _{rel} =4%		
		Temperatrue		(30~100)°C	<i>U</i> =0.5°C		
				(>100~250)°C	<i>U</i> =0.8°C		
8	Capillary Viscometer	Kinematie Viscosity	V.R.of Routine Capillary Viscometers JJG155	(2~1×10 ⁵)mm ² /s	<i>U</i> _{rel} =0.9%		
9	Rotational Viscometer	DynamicViscosity	V.R.of Rotational Viscometers JJG1002	(2~10 ⁶)mPa·s	<i>U</i> _{rel} =2.5%		
10	Flow Cupe Viscosi- meter	KinematieViscosity	V.R.of Flow Cups Viscosimeter JJG743	(2~1×10 ⁵)mm ² /s	<i>U</i> _{rel} =2.3%		
11	Engler Viscosi- meter	Time	V.R.of Engler Viscosimeter JJG742	(20~2000)s	<i>U</i> =0.1s		
12	Viscosity Standard Oil	KinematieViscosity	V.R.of Standard Capillary Viscometer JJG154	(2~5×10 ⁴)mm ² /s	<i>U</i> _{rel} =0.8%		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Dynamic Viscosity		$(2 \sim 5 \times 10^4) \text{ mPa} \cdot \text{s}$	$U_{\text{rel}}=0.8\%$		
13	*Monoxide and Carbon Dioxide Infrared Gas Analyzer	Concentration	V.R. for Carbon Monoxide and Carbon Dioxide Infrared Gas Analyzer JJG635	CO: $(0.1 \sim 10000) \mu \text{ mol/mol}$; CO ₂ : $(0.01 \sim 20) \times 10^{-2} \text{ mol/mol}$	$U=1.0\% \text{ FS}$ $U=1.2\% \text{ FS}$		
14	*Detector of Combustible Gases	Concentration	V.R. of Alarmer Detectors of Combustible Gas JJG693	$(0.1 \sim 100)\% \text{ LEL}$	$U=0.7\% \text{ FS}$		
15	*Vehicle Exhaust Emission Measuring Instruments	Concentration	V.R. of Vehicle Exhaust Emissions Measuring Instruments JJG688	HC: $(1 \sim 9999) \mu \text{ mol/mol}$ CO: $(0.01 \sim 16) \times 10^{-2} \text{ mol/mol}$ CO ₂ : $(0.1 \sim 18) \times 10^{-2} \text{ mol/mol}$ O ₂ : $(0.1 \sim 25) \times 10^{-2} \text{ mol/mol}$ NO: $(1 \sim 5000) \mu \text{ mol/mol}$	$U_{\text{rel}}=1.1\%$ $U_{\text{rel}}=1.1\%$ $U_{\text{rel}}=1.1\%$ $U_{\text{rel}}=1.1\%$ $U_{\text{rel}}=1.1\%$		
16	*Electrochemical Oxygen Meter	Concentration	V.R. of Electrochemical Oxygen Meter JJG365	$(0.1 \sim 25) \times 10^{-2} \text{ mol/mol}$ $(>25 \sim 100) \times 10^{-2} \text{ mol/mol}$	$U=0.7\% \text{ FS}$ $U=0.6\% \text{ FS}$		
17	*Sulfur Hydrogen Gas Detectors	Concentration	V.R. of Sulfur Hydrogen Gas Detectors JJG695	$(0.1 \sim 100) \mu \text{ mol/mol}$	$U_{\text{rel}}=2.2\%$		
18	*Carbon Monoxide Detector	Concentration	V.R. of Carbon Monoxide Detectors JJG915	$(1 \sim 2000) \mu \text{ mol/mol}$	$U_{\text{rel}}=1.2\%$		
19	*ELISA Analytical Instruments	Wavelength	V.R. of ELISA Analytical Instruments JJG861	$(330 \sim 800) \text{ nm}$	$U=0.6 \text{ nm}$		
		Absorbency		$0.001 \sim 2.000$	$U=0.011$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
20	densimeter	density	V.R.of Working Glass Hydrometers JJG42	(0.6500~1.8000)g/cm ³	U=0.00010 g/cm ³		
21	Soil meter	Soil Degree	V.R.of Working Glass Hydrometers JJG42	(0~50) s°	U=0.20s°		
		density		(1.0000~1.0300)g/cm ³	U=0.00020g/cm ³		
22	Working densimeter	Milky Degree	V.R.of Working Glass Hydrometers JJG42	(0~40)m°	U=0.3m°		
		density		(1.000~1.040)g/cm ³	U=0.00015g/cm ³		
23	Alcoholometer	Alcohol Content	V.R.of Working Glass Hydrometers JJG42	q: 0~100%	U=0.03%		
24	Concentration Meter	Baume degree	V.R.of Working Glass Hydrometers JJG42	(0~60)Bh	U=0.03Bh		
25	*Bomb Calorimeter	Heatvalue	V.R.of the Bomb Calorimeter JJG672	(26430~26490)J/g	U=40J/g		
26	*Laboratory pH Meters	pH	V.R.of Laboratory pH Meters JJG119	Electric Mete:pH: 0~14	U=0.002	Accredited except for grade 0.001 pH meters	
				Instrument: pH: 1.67~13.41	U=0.02		
				(-2000~2000) mV	U=0.5mV		
27	*Laboratory Ionometers	Ionic activity	V.R.of Laboratory Ionometers JJG757	Electric Meter: pX: 0~14	U=0.002		
				Instruement: pX: F(2~4)	U=0.02		
		potential		(-2000~2000) mV	U=0.5mV		
28	*Automatic Potentio- metric Titrator	potential	V.R.of Automatic Potentiometric Titrators JJG814	potential: (-2000~2000)mV	U=0,5mV		
		concentration		NaOH,HC:0.1mol/L	U _{rel} =0.4%		
		Volume		(0.1~100) ml	U=0.004 ml		



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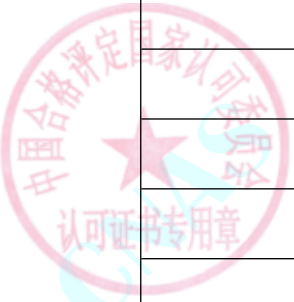
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
29	*Polarimeter and Polarimetric Saccharimeters	Polary	V.R.of Polarimeter and Polarimetric Saccharimeters	- 73° ~+73°	U=0.003°		
		Sugar degree	JJG536	(-20° Z~+105° Z)	U=0.017° Z		
30	*Electrolytic Conductivity Meters	Conductivity	V.R.of Electrolytic Conductivity Meters JJG376	(0.05~20000) μ S/cm	U=0.2%FS		
				(83.0~1420) μ S/cm(25 °C)	U=0.4%FS		
31	*Hand Sacchari- meter and Hand Refracto- meter	Refractive index	V.R.of Hand Saccharimeter (Content-meter)and Hand Refractometer JJG820	nD: 1.3330~1.5200	U=0.0004		
		sugar content		(0.1~60) %	U _{rel} =1.0%		
32	*Dust Sampler	Flow	V.R.of Dust Sampler JJG520	(0.1~60)L/min	U=2.0%FS		
33	*Atmosphere Sampler	Flow	V.R.of Air Samplers JJG956	(5~6000)mL/min	U _{rel} =1.7%		
		Temperature		(0~50)°C	U=0.5°C		
34	*Mercury Analyzers	Detection Limit	V.R.of Mercury Analyzers JJG548	cold atomic absorption: ≤1ng	U=0.1ng		
				cold atomic fluorescence: ≤0.1ng	U=0.01ng		
35	*Flame Photometer	Detection Limit	V.R.of Flame Photometer JJG630	Na:≤0.008mmol/L	U _{rel} =20%		
				K:≤0.004mmol/L	U _{rel} =20%		
36	*Melting- Point Measuring Instruments	Melting-point	V.R.of Melting-point Measurement Instruments JJG701	(50~300)°C	U=0.3°C		
37	*Turbidimeter	Turbidity	V.R.of Turbidimeter JJG880	(1~400)NTU	U _{rel} =3.3%		
38	*Visible Spectro- photometer	Wavelength	V.R.of Ultraviolet, Visible, Near-Infrared Spectrophotometers JJG178	(340~900)nm	U=0.2nm		
		Transmittance		(0~100)%	U=0.4%		



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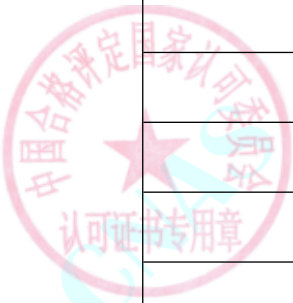
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
39	*Ultraviolet Visible Range Spectrophotometer	Wavelength	V.R.of Ultraviolet, Visible, Near-Infrared Spectrophotometers JJG178	(200~900)nm	$U=0.21\text{nm}$		
		Transmittance		(0~100)%	$U=0.4\%$		
40	*Double beam Ultraviolet Visible Range Spectrophotometer	Wavelength	V.R.of Ultraviolet, Visible, Near-Infrared Spectrophotometers JJG178	(200~900)nm	$U=0.21\text{nm}$		
				(900~2600)nm	$U=0.6\text{nm}$		
		Transmittance		(0~100)%	$U=0.4\%$		
41	*Atomic Absorption Spectrophotometer	Detection Limit	V.R.for Atomic Absorption Spectrophotometers JJG694	flame(Cu): $\leq 0.02 \mu\text{g/ml}$	$U=0.005 \mu\text{g/ml}$		
				Graphite furnace(Cd): $\leq 4\text{pg}$	$U=0.3\text{pg}$		
42	*Fluorescence Spectrophotometer	Detection Limit	V.R.of Fluorescence Spectrophotometer JJG537	Type, A: Quinine sulfate: $<5 \times 10^{-10}\text{g/ml}$	$U_{\text{rel}}=3.8\%$		
				B, Quinine sulfate: $<1 \times 10^{-8}\text{g/ml}$	$U_{\text{rel}}=3.8\%$		
43	*Atomic Fluorescence Spectrometer	Detection Limit	V.R.for Atomic Fluorescence Spectrophotometers JJG939	As: $\leq 0.4\text{ng}$	$U=0.10\text{ng}$		
				Sb: $\leq 0.4\text{ng}$	$U=0.10\text{ng}$		
44	*ICP Spectrometer	Detection Limit	V.R.of Emission Spectrometer JJG768	Zn213.856nm: $\leq 0.01\text{mg/L}$	$U=0.0011\text{mg/L}$		
				Ni231.604nm: $\leq 0.03\text{mg/L}$	$U=0.0027\text{mg/L}$		
				Mn257.610nm: $\leq 0.005\text{mg/L}$	$U=0.0006\text{mg/L}$		
				Cr267.716nm: $\leq 0.02\text{mg/L}$	$U=0.0013\text{mg/L}$		
				Cu324.754nm: $\leq 0.02\text{mg/L}$	$U=0.0015\text{mg/L}$		



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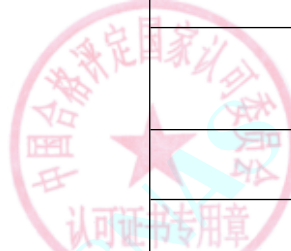
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Ba455.403nm: ≤ 0.005mg/L	U=0.0004mg/L		
45	Dissolved Oxygen Meter	Dissolved Oxygen Concentration	V.R.of Dissolved Oxygen Meters JJG291	(5~20)mg/L	U=0.09mg/L		
46	*Instrument for KF Coulometry Titration	quality	V.R.of Instrument for KF Coulometry Titration JJG1044	(10~5000) μ g	U _{rel} =1.8%		
47	*Carbon- sulfur Analyzer	Content of Carbon	V.R.of Carbon-Sulfur Analyzer JJG395	Infrared C:(1.00~4.00)%	U=0.024%		
				Infrared C:(0.100~1.000)%	U=0.008%		
				Infrared C:(0.010~0.100)%	U=0.004%		
				Infrared C:(0.005~0.010)%	U=0.0008%		
				Auto C:(1.000~4.000)%	U=0.024%		
				Auto C:(0.500~1.000)%	U=0.008%		
				Auto C:(0.100~0.500)%	U=0.006%		
				Auto C:(0.030~0.010)%	U=0.004%		
		Content of Sulfur		Infrared S:(0.100~0.200)%	U=0.004%		
				Infrared S:(0.010~0.100)%	U=0.002%		
				Infrared S:(0.003~0.010)%	U=0.0005%		
				Auto S:(0.100~0.200)%	U=0.004%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Auto S:(0.050~0.100)%	U=0.002%		
				Auto S:(0.010~0.050)%	U=0.002%		
				Auto S:(0.003~0.010)%	U=0.0005%		
48	*Extrusion Plastometer	Extrusionrate	V.R.of Extrusion Plastometer JJG878	PE: (1.00~ 4.50)g/10min PP: (1.00~8.00)g/10min	U _{rel} =3.6% U _{rel} =7.3%		
49	*Gas Chromato- graph	Sensitivity	V.R.of Gas Chromatographs JJG700	TCD: Benzene and methane: ≥ 800mV • mL/mg	U _{rel} =15%		
		Detection Limit		FID:n-hexadecane and methane: ≤5ng/s	U _{rel} =15%		
				FPD:(S)≤0.5ng/s;(P)≤ 0.1ng/s	U _{rel} =15%		
				NPD:(M)≤5pg/s;(P)≤ 10pg/s	U _{rel} =15%		
				ECD:r-666: ≤5pg/mL	U _{rel} =15%		
50	*Liquid Chromato- graph	The lowest Concentration Measured	V.R.of Liquid Chromatographs JJG705	UVD:Naphthalene:(Napht halene)≤1×10 ⁻⁷ g/mL	U _{rel} =10%		
				FLD:Quininesulfate:(Qui ninesulfate)≤5×10 ⁻⁹ g/mL	U _{rel} =10%		
				RID:Glycerol:(Glycerol) ≤5×10 ⁻⁶ g/mL	U _{rel} =10%		
				(Glucose)≤5×10 ⁻⁶ g/mL	U _{rel} =10%		
51	*Ion Chromato- graph	The lowest Concentration Measured	V.R.of Ion Chromatographs JJG823	Anion:Cl ⁻ ≤0.02 μ g/mL,Li ⁺ ≤0.02 μ g/mL	U _{rel} =11%		

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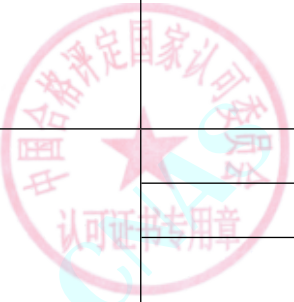
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				UV: NO ₂ ⁻ : ≤0.02 μg/mL	U _{rel} =11%		
				Chemistry: I ⁻ : ≤0.02 μg/mL	U _{rel} =11%		
52	*Cup for Dope Specific Gravity	capacity	V.R. of Coating Density Cup JJG(化)020	37 mL, 50 mL, 100 mL	U=0.1 mL		
53	*Total Organic Carbon Analyzer	Concentration	V.R. of Total Organic Carbon Analyzer JJG821	Organic carbon: (1~1000) mg/L	U _{rel} =2.8%		
				Inorganic carbon: (1~1000) mg/L	U _{rel} =2.8%		
54	*Oil Content in Water Analyzer	Oil Content in Water	V.R. of Analyzer for Oil Content in Water JJG950	(1~10) mg/L	U=0.4 mg/L		
				(>10~100) mg/L	U _{rel} =3.4%		
55	*Bench Top Gas Chromatography - SNR Mass Spectrometer		C.S. for Gas Chromatography - Mass Spectrometers JJF1164	Ion trap, Quadrupole, Triple-Quadrupole (EI ⁺): S/N ≥ 10:1	U _{rel} =16%		
				time of flight, electrostatic field orbital trap (EI ⁺): S/N ≥ 50:1	U _{rel} =16%		
				Ion trap, Quadrupole, Triple-Quadrupole (CI ⁺): S/N ≥ 10:1	U _{rel} =16%		
				Ion trap, Orbitrap (CI ⁻): S/N ≥ 10:1	U _{rel} =16%		
56	*Flue Gas Analyzer	Concentration	V.R. of Flue Gas Analyzers JJG968	O ₂ : (0.1~25) × 10 ⁻² mol/mol	U _{rel} =1.0%		
				CO: (1~2000) μ mol/mol	U _{rel} =2.2%		
				SO ₂ : (1~2000) μ mol/mol	U _{rel} =2.2%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				NO:(1~2000) μ mol/mol	$U_{rel}=2.2\%$		
				NO ₂ :(1~200) μ mol/mol	$U_{rel}=2.2\%$		
57	*Fourier Transform Infrared Spectrometer	Wave Number	C.S.for Fourier Transform Infrared Spectrometers JJF1319	(400~1029) cm^{-1} (>1029~4000) cm^{-1}	$U=0.32\text{cm}^{-1}$ $U=1.1\text{cm}^{-1}$		
58	*Differential Scanning Calorimeter	Melting Heat	V.R.of the Differential Scanning Calorimeter JJG936	(25~100)J/g	$U=0.34\text{J/g}$		
		Temperature		(150~430) $^{\circ}\text{C}$	$U=0.7^{\circ}\text{C}$		
59	*Amino Acid Analyzer	The lowest Concentration Measured	V.R.of Automatic Amino Acid Analyzer JJG1064	$\leq 1\text{nmol}$ (Histidine)	$U_{rel}=8\%$		
60	*Determinators for Total Sulfur in Coal	Content of Sulfur	V.R.of Determinators for Total Sulfur in Coal JJG1006	(0.1~1.00)%	$U=0.03\%$		
				(>1.00~4.00)%	$U=0.07\%$		
				(>4.00~6.00)%	$U=0.10\%$		
61	*Breath Alcohol Analyzers	Alcohol Concentration	V.R.of Breath Alcohol Analyzers JJG657	(0.01~0.40)mg/L	$U=0.008\text{mg/L}$		
				(>0.40~2.50)mg/L	$U_{rel}=3.5\%$		
62	*Wavelength Dispersive X-Ray Fluore-scenece Spectro -meters	Linearity of Counts	V.R.of Wavelength Dispersive X-Ray Fluorescence Spectrometers JJG810	(0.1~100)%	$U=0.03\%$		
63	*Survival Pesticide Determinator	Transmittance	C.S.for Rapid Pesticide Tester JJF 1729	(10~35)%	$U=0.6\%$		
		wavelength		(340~900) nm	$U=3.5\text{nm}$		
		inhibition ratio		(50~100)%	$U=6.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
64	*Dust Particles Counts	Number of dust	C.S.for Airborne Particle Counter JJF1190	(1~100000) /28.3L	$U_{rel}=12\%$		
		Size Distribution		(0~100)%	$U=8\%$		
65	*Formaldehyde Gas Analyzer	Formaldehyde Concentration	V.R.of Formaldehyde Gas Analyzers JJG1022	(0.01~0.50) $\mu\text{mol/mol}$	$U=0.02\mu\text{mol/mol}$		
				(>0.50~1.50) $\mu\text{mol/mol}$	$U_{rel}=4.2\%$		
66	*Direct- reading Spectrometer	Detection Limit	V.R.of Emission Spectrometer JJG768	C: $\leq 0.02\%$	$U=0.0011\%$		
				Si: $\leq 0.02\%$	$U=0.0015\%$		
				Mn: $\leq 0.02\%$	$U=0.0010\%$		
				Cr: $\leq 0.01\%$	$U=0.0013\%$		
				Ni: $\leq 0.02\%$	$U=0.0017\%$		
				V: $\leq 0.01\%$	$U=0.0007\%$		
67	*Quadrupole Inductively coupled Plasma mass Spectrometers	Detection Limit	C.S.for Quadrupole Inductively Coupled Plasma Mass Spectrometers JJF1159	Be: $\leq 30\text{ng/L}$	$U_{rel}=15\%$		
				In: $\leq 10\text{ng/L}$	$U_{rel}=15\%$		
				Bi: $\leq 10\text{ng/L}$	$U_{rel}=15\%$		
68	*Liquid chromatographs mass Spectrometers	Signal-to-Noise	C.S.for Liquid Chromatography-Mass Spectrometers JJF1317	Triple-Quadrupole(ESI+ / APCI+): S/N $\geq 30:1$	$U_{rel}=10\%$		
				Triple-Quadrupole(ESI-): S/N $\geq 10:1$	$U_{rel}=10\%$		
				Ion trap, Quadrupole(ESI+/ESI-/APCI+): S/N $\geq 10:1$	$U_{rel}=10\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
69	*Particulate laser analyzer	Grain diameter	C.S. for Static Light Scattering Particle Size Analyzers JJF1211	(1~100) μm	$U_{\text{rel}}=6.0\%$		
70	*Volatile Organic Compounds Photo Ionization Detector	Concentration	C.S. for Volatile Organic Compounds Photo Ionization Detectors JJF1172	(0.1~10) $\mu\text{mol/mol}$	$U=2.0\%\text{FS}$		
				(>10~100) $\mu\text{mol/mol}$	$U=1.3\%\text{FS}$		
				(>100~2000) $\mu\text{mol/mol}$	$U=1.3\%\text{FS}$		
71	*Oscilloscopic Polarograph	Detection limit	V.R. of Oscilloscopic Polarograph JJG748	$\text{Cd(II)}: \leq 20 \mu\text{g/L}$	$U_{\text{rel}}=3\%$		
72	*Gel Chromatograph	molecular weight	V.R. of Gel Permeation Chromatographs JJG342	molecular weight (water phase) : $(1 \times 10^4 \sim 3 \times 10^5) \text{g/mol}$	$U_{\text{rel}}=8.6\%$		
				molecular weight (Organic phase) : $(1 \times 10^4 \sim 7 \times 10^5) \text{g/mol}$	$U_{\text{rel}}=3.4\%$		
73	*Alarmer Detector of Sulfur Hexafluoride	Concentration	C.S. for the Alarmer Detector of Sulfur Hexafluoride JJF1263	(1~1000) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.6\%$		
74	*Paramagnetic Oxygen Analyzer	Concentration	V.R. of Paramagnetic Oxygen Analyzer JJG662	$(0.01 \sim 100) \times 10^{-2} \text{mol/mol}$	$U=0.9\%\text{FS}$		
75	*Zirconia Oxygen Analyzers	Concentration	V.R. of Zirconia Oxygen Analyzers JJG535	$(0.01 \sim 100) \times 10^{-2} \text{mol/mol}$	$U=0.9\%\text{FS}$		
76	*Sulfur Dioxide Gas Detectors	Concentration	V.R. of Sulfur Dioxide Gas Detectors JJG551	(1~2000) $\mu\text{mol/mol}$	$U=1.6\%\text{FS}$		
77	*Chemiluminescent NO/NO _x Analyzers	Concentration	V.R. of Chemiluminescent NO/NO _x Analyzers JJG801	(1~2000) $\mu\text{mol/mol}$	$U_{\text{rel}}=1.1\%$		
78	*Residual Chlorine Meter	Concentration	C.S. for Residual Chlorine Meters JJF1609	(0.05~5) mg/L	$U_{\text{rel}}=3.1\%$		

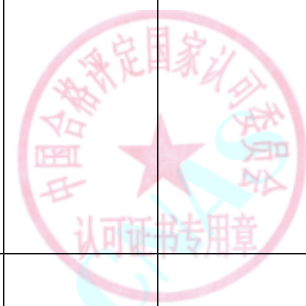


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
79	*On-line Gas Chromatograph	Sensitivity	V.R.of On-line Gas Chromatograph JJG1055	TCD: $\geq 1000\text{mV}\cdot\text{mL}/\text{mg}(\text{Butane})$	$U_{\text{rel}}=2.6\%$		
80	*micro oxygen analyzer	Concentration	V.R.of Micro Oxygen Analyzers JJG945	$(1\sim 100)\ \mu\text{mol}/\text{mol}$	$U=1.6\%\text{FS}$		
				$(100\sim 1000)\ \mu\text{mol}/\text{mol}$	$U=1.7\%\text{FS}$		
81	*Laboratory Oscillation-type Liquid Density meter	Density	V.R.of Laboratory Oscillation-type Liquid Density Meters JJG1058	$(650\sim 3000)\text{kg}/\text{m}^3$	$U=0.03\text{kg}/\text{m}^3$		
82	*Particulate Analyzer	Particulate Counts	C.S.for Particulate Analyzer JJF1290	$(900\sim 3000)\text{counts}/\text{mL}$	$U_{\text{rel}}=2.4\%$		
83	*Capillary Electrophoresis Instrument	Detection Limit	V.R.of Capillary Electrophoresis Instruments JJG964	$\leq 10^{-6}\text{g}/\text{mLg}/\text{mL}$	$U_{\text{rel}}=6.2\%$		
84	*Energy Dispersive X-ray Fluorescence Spectrometer	Concentration	Calibration Method of Energy Dispersive X-Ray Fluorescence Spectrometer FFH0602	Plastic: Cd: $(8\sim 110)\text{mg}/\text{kg}$, Cr: $(90\sim 1200)\text{mg}/\text{kg}$, Hg: $(90\sim 1100)\text{mg}/\text{kg}$, Pb: $(90\sim 1200)\text{mg}/\text{kg}$	$U_{\text{rel}}=6\%$		
				Metal: Cr: $(0.002\sim 26)\%$, Ni: $(0.002\sim 20)\%$, Mn: $(0.002\sim 2.0)\%$, V: $(0.002\sim 1.0)\%$, Si: $(0.002\sim 12)\%$, Mo: $(0.002\sim 3.0)\%$, Cu: $(0.002\sim 5.0)\%$, Fe: $(0.002\sim 2.0)\%$	$U_{\text{rel}}=5\%$		
85	*Chemical Oxygen Demand (COD) Meters	Concentration	V.R.of Chemical Oxygen Demand (COD) Meters JJG975	$(50\sim 300)\text{mg}/\text{L}$	$U_{\text{rel}}=2.6\%$		
				$(>300\sim 1000)\text{mg}/\text{L}$	$U_{\text{rel}}=1.1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
86	*Automatic Determinator of Chemical Oxygen Demand (COD)	Concentration	V.R.of On-line Automatic Determinator of Chemical Oxygen Demand (COD) JJG1012	(50~1000)mg/l	$U_{rel}=3.0\%$		
87	*Kjeldahl Analyzer Unit	content	C.S.for Elemental Analyzers JJF1321	(26~47)%	$U_{rel}=1.4\%$		
88	*Open/Closed Cup Flash Point Testers	Temperature of Flash Point	C.S.for Open/Closed Cup Flash Point Testers JJF1384	Open: (110~200)°C	$U=6.1^{\circ}\text{C}$		
				Open: (>200~240)°C	$U=7.5^{\circ}\text{C}$		
				Closed: (70~110)°C	$U=3.1^{\circ}\text{C}$		
				Closed: (>110~170)°C	$U=4.5^{\circ}\text{C}$		
89	*Chloride Ions Concentration Rapid Analyzer	Concentration	Calibration Method of Rapid Determination of chloride Ion content Instrument FFH1408	$(5 \times 10^{-5} \sim 5 \times 10^{-2})\text{mol/L}$	$U_{rel}=5\%$		
		potential		(-1000~1000) mV	$U=0.7\text{mV}$		
90	*Floating Bacteria Sampler	Sample volume	Calibration Method of Planktonic Bacteria Sampler FFH1410	(1~2000)L	$U_{rel}=2.9\%$		
91	*Total Suspended Particulates Samplerr	flow	V.R.of Total Suspended Particulates Sampler JJG943	(5~150) L/min	$U_{rel}=1.7\%$		
				(0.8~1.2)m ³ /min	$U_{rel}=1.7\%$		
		Temperature		(0~50)°C	$U=0.5^{\circ}\text{C}$		
		Atmospheric pressure		(800~1060)hPa	$U=1\text{hPa}$		
92	*Dust Sampler	Flow	V.R.of Samplers for Stack Dust JJG680	(5~120)L/min	$U_{rel}=1.7\%$		
		Temperature		(0~300)°C	$U=0.5^{\circ}\text{C}$		
		Pressure		(-50~50)kPa	$U=0.02\%\text{FS}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
93	*Water Activity Meter	WaterActivity	Calibration Method of Water Activity Meter FFH1411	(0.747~0.860)Aw	$U=0.004A_w$		
94	*Oxygen,Nitrogen and Hydrogen Determinator	Concentration of Oxygen, Nitrogen and Hydrogen in Steel	C.S.for Elemental Analyzers JJF1321	Oxygen: (0.0025~0.0050) %	$U_{rel}=10\%$		
				Nitrogen: (0.026~0.058) %	$U_{rel}=7\%$		
				Hydrogen: (0.00005~0.0002) %	$U_{rel}=50\%$		
95	*Multi-parameter Water Quality Analyzer with Colorimetric Method	Transmittance	Calibration Method of Multi-parameter Water Quality Analyzer with Colorimetric Method FFH1412	(0~100)%	$U=0.6\%$		
		absorbance		0.4~2	$U=0.010$		
96	*Carbon,Hydrogen and Nitrogen Analyzers	Concentration of Carbon,Nitrogen and Hydrogen in Coal	C.S.for Elemental Analyzers JJF1321	C:(68~80)%	$U_{rel}=0.7\%$		
				H:(2~5)%	$U_{rel}=2.1\%$		
				N:(0.8~2)%	$U_{rel}=5\%$		
97	*Liquid-borne Particle Counters	Particulate Counts	V.R.of Liquid-borne Particle Counters JJG1061	($10 \sim 10^7$)/mL	$U_{rel}=30\%$		
98	*Analyzers for Concentration of Sulfur and Chlorine in Oil	Concentration	Calibration Method of Sulfur Chloride Nitrogen Analyzer FFH1415	(1~10)mg/L	$U_{rel}=5.0\%$		
				(>10~1000)mg/L	$U_{rel}=3.5\%$		
99	*Silicate Analyzer	Concentration	C.S.for Silicate Analyzers JJF1539	(20~100) μ g/L	$U_{rel}=2.2\%$		
				(>100~500) μ g/L	$U_{rel}=2.2\%$		



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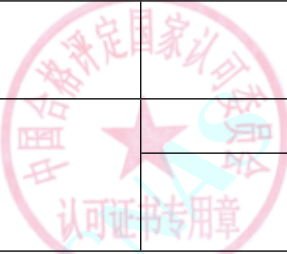
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
100	*Flow Analyzers with Spectrophotography	Detection Limit	C.S.for Flow Analyzers with Spectrophotography JJF1568	Cyanide $\leq 0.002\text{mg/L}$ Phenol $\leq 0.002\text{mg/L}$ Hexavalent chromium $\leq 0.004\text{mg/L}$ Sulfide $\leq 0.005\text{mg/L}$ T-P $\leq 0.01\text{mg/L}$ T-N $\leq 0.04\text{mg/L}$ Ammonia nitrogen $\leq 0.04\text{mg/L}$ Anion $\leq 0.05\text{mg/L}$	$U_{\text{rel}}=48\%$		
		Wavelength		Wavelength: (360~1100)nm	$U=1.6\text{nm}$		
101	*Osmometer	Osmolarity	V.R.of Osmometers JJG1089	(100~400)mOsmol/kg	$U=1.7\text{mOsmol/kg}$		
				(>400~700)mOsmol/kg	$U_{\text{rel}}=0.8\%$		
102	*Thin Layer Chromatography Scanners	concentration	C.S.for Thin Layer Chromatography Scanners JJF1712	(0.01~0.04)mg/mL	$U=0.002\text{mg/mL}$		
103	*Ash Fusibility Mester	Ash fusibility temperature	Calibration Method of Determining Instrument for Fusibility of Coal Ash FFH1420	(1000~1600) $^{\circ}\text{C}$	$U=30^{\circ}\text{C}$		
104	*Kinematic Viscosity Tester	Kinematic Viscosity	C.S.for Kinematic Viscosity Tester JJF1274	(1.2~30000)mm ² /s	$U_{\text{rel}}=2.0\%$		
		temperature		(20~100) $^{\circ}\text{C}$	$U=0.5^{\circ}\text{C}$		
105	*Sulfur hexafluoride Purity Analyzer	Concentration	Calibration Method of Purity Analyzer of Sulfur Hexafluoride FFH1421	(80.00~99.99)%mol/mol	$U=1.1\%\text{mol/mol}$		
106	*Ozone Gas Analyzer	Concentration	V.R.of Ozone Gas Analyzers JJG1077	(0.05~1.00) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				$(\geq 1.00 \sim 400) \mu \text{mol/mol}$	$U_{\text{rel}}=2.6\%$		
107	*Ammonin Gas Detector	Concentration	V.R.of Ammonia Gas Detectors JJG1105	$(1 \sim 1000) \mu \text{mol/mol}$	$U_{\text{rel}}=3.3\%$		
108	*Oxygen Alarm Detetor for Mining	Concentration	V.R.of Oxygen Alarm Detectors for Mining JJG1087	$(0.1 \sim 25.0) \times 10^{-2} \text{mol/mol}$	$U=0.5 \times 10^{-2} \text{mol/mol}$		
109	*Three Elemental Analyzer	Content	Calibration Method of Three Element Analyzer FFH1422	Mn: $(0.6 \sim 5)\%$	$U_{\text{rel}}=2.5\%$		
				P: $(0.01 \sim 0.2)\%$	$U_{\text{rel}}=3.6\%$		
				Si: $(0.05 \sim 2)\%$	$U_{\text{rel}}=5\%$		
110	*The Standard Glass Float	Density	Calibration Specification of standard Glass float JJF1709	$(0.650 \sim 1.800) \text{g/cm}^3$	$U=0.0002 \text{g/cm}^3$		
111	*Automated Distillation of Petroleum Products Analyzer	Distillation temperture	C.S.for Automatic Atmospheric Distillation Testers JJF2065	$(50 \sim 400)^\circ\text{C}$	$U_{\text{rel}}=4\%$		
		Fraction volume		$(5 \sim 100) \text{mL}$	$U_{\text{rel}}=3\%$		
112	*Automated Vapor Pressure Analyzer with Method	Vapor pressure	Calibration Method of Automated Vapor Pressure Analyzer with Mini Method FFH1507	$(5 \sim 80) \text{kPa}$	$U=0.4 \text{kPa}$		
113	*Polycrystalline X-Ray Diffractometes	2θ angle of diffraction	V.R.of Polycrystalline X-Ray Diffractometers JJG629	$(20 \sim 150)^\circ$	$U=0.004^\circ$		
114	*Thermomechanical Analyzers	temperature	C.S.for Thermomechanical Analyzers JJF2069	$(50 \sim 1800)^\circ\text{C}$	$U=0.7^\circ\text{C}$		
		Coefficient for Thermal expansion		$(3.0 \times 10^{-6} \sim 1.5 \times 10^{-2}) \text{K}^{-1}$	$U_{\text{rel}}=2.3\%$		



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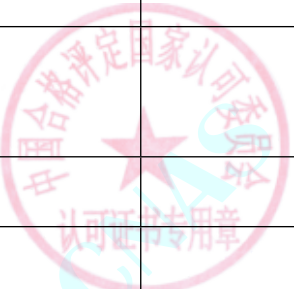
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
115	*Automated Analyzer for Surface Area	Specific surface area	Calibration Method of Automated Specific Analyzer for Surface Area FFH1509	(2~500)m ² /g	$U_{rel}=6\%$		
116	*Disintegration Analyzers	Disintegration time	C.S.for Disintegration Analyzers JJF1449	(0.1~3600)s	$U_{rel}=7\%$		
		Temperature		(0~100)°C			
117	*Chlorine Gas Detectors	Concentration	C.S.for Chlorine Alarm Detectors JJF1433	(0.1~100) μmol/mol	$U_{rel}=3.5\%$		
118	*Digital liquid density meter-weighed method	density	V.R. of Digital Liquid Density Meter-Weighed Method JJG 999	(0.650~1.800)g/cm ³	$U=0.00015\text{g/cm}^3$		
119	*Calibration Specification for Water Quality On-line Analyzers of Heavy Metals	Concentration	C.S.for Water Quality On-line Analyzers of Heavy Metals JJF1565	(0.001~1000)mg/L	$U_{rel}=3.3\%$		
120	*Water Quality On-line Analyzers of Total Phosphorus and Total Nitrogen	Concentration	C.S.for Water Quality On-Line Analyzers of Total Phosphorus and Total Nitrogen JJG1094	TN(0.01~2.0)mg/L	$U=0.04\text{mg/L}$		
				TN(2.0~500)mg/L	$U_{rel}=2.3\%$		
				TP(0.01~5.0)mg/L	$U=0.01\text{mg/L}$		
				TP(5.0~500)mg/L	$U_{rel}=2.4\%$		
121	*V.R Ammonia-Nitrogen Automatic Analyzers	Concentration	V.R.Ammonia-Nitrogen Automatic Analyzers JJG631	(0.01~2.0)mg/L	$U=0.03\text{mg/L}$		
				(≥2.0~100)mg/L	$U_{rel}=2.3\%$		
122	*Halogen Gas Leak Detector	leak Rate	Calibration Specification for Halogen Leak Detectors JJF 1964	(0.1~15.0)g/a	$U_{rel}=10\%$		
		Response time		(0~60) s			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
123	*Alarms and Detectors os Chloroethylene Gas	Concentration	V.R.of Alarms and Detectors of Chloroethylene Gas JJG1125	$(0.1 \sim 50) \mu \text{mol/mol}$	$U=2.0 \mu \text{mol/mol}$		
				$(>50 \sim 100) \mu \text{mol/mol}$	$U_{\text{rel}}=2.6\%$		
124	*Gas Permeability Analyzers	Through the quantity	C.M.for Gas Permeability Analyzers FFH1606	$4.7 \text{cm}^3/(\text{m}^2 \cdot 24\text{h} \cdot 0.1 \text{MPa})$	$U=1.5 \text{cm}^3/(\text{m}^2 \cdot 24\text{h} \cdot 0.1 \text{MPa})$		
				$11.2 \text{cm}^3/(\text{m}^2 \cdot 24\text{h} \cdot 0.1 \text{MPa})$	$U=2.5 \text{cm}^3/(\text{m}^2 \cdot 24\text{h} \cdot 0.1 \text{MPa})$		
125	*Oxygen Permeability Analyzers	Permeability	C.M.for Oxygen Permeability Analyzers FFH1607	$12.3 \text{cm}^3/(\text{m}^2 \cdot 24\text{h})$	$U=1.2 \text{cm}^3/(\text{m}^2 \cdot 24\text{h})$		
				$62.8 \text{cm}^3/(\text{m}^2 \cdot 24\text{h})$	$U=3.5 \text{cm}^3/(\text{m}^2 \cdot 24\text{h})$		
126	*Water Vapor Permeability Analyzers	Through the quantity	C.M.for Water Vapor Permeability Analyzers FFH1608	$1.8 \text{g}/(\text{m}^2 \cdot 24\text{h})$	$U=0.4 \text{g}/(\text{m}^2 \cdot 24\text{h})$		
				$4.4 \text{g}/(\text{m}^2 \cdot 24\text{h})$	$U=0.9 \text{g}/(\text{m}^2 \cdot 24\text{h})$		
127	*Incubator-CO ₂	Temperature	C.M.for Incubator-CO ₂ FFH1609	$(10 \sim 60)^\circ\text{C}$	$U=0.4^\circ\text{C}$		
		Concentration of CO ₂		CO ₂ : $(1 \sim 20)\% \text{mol/mol}$	$U=0.3\% \text{mol/mol}$		
128	*Raman spectrometer	Relative intensity	C.S.for Raman Spectrometers JJF1544	$0.1\% \sim 100\%$	$U_{\text{rel}}=6\%$		
		frequency shift		$(80 \sim 4000) \text{cm}^{-1}$	$U=2.2 \text{cm}^{-1}$		
129	*Atomic Fluorescence Spectrometer for Morphological Analysis	Detection Limit	C.M.for Atomic Fluorescence Spectrometer for Morphological Analysis FFH1610	Organic arsenic $\leq 0.7 \text{ng}$	$U_{\text{rel}}=11\%$		
130	*Organic Mercury Analyzers	Detection Limit	C.M.for Organic Mercury Analyzers FFH1611	Methylmercury, Ethylmercury $\leq 0.1 \text{ng/mL}$	$U=0.03 \text{ng/mL}$		
131	*Phosphate anion analyzer	Concentration	C.S.for Phosphate Analyzers JJF1567	$(1 \sim 200) \mu\text{g/mL}$	$U_{\text{rel}}=1.7\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
132	*Nitrate-Nitrogen Automatic Analyzers	Concentration	V.R.of Nitrate-Nitrogen Automatic Analyzers JJG656	(1~1000)μg/mL	$U_{rel}=3\%$		
133	*Electrode Salinometer	Salinity	C.M.for Electrode Salinometer FFH1613	Refractive method (0.01~28) %	$U_{rel}=1.7\%$		
				(Conductance method) (0.01~10) %	$U_{rel}=4.4\%$		
				(Conductance method) (0.01~25) μg/cm ²	$U_{rel}=4.4\%$		
				(Conductance method) (0.1~1000) mg/L	$U_{rel}=4.4\%$		
134	*On-line pH Meter	pH	C.S.for On-line pH Meters JJF1547	Electric Meter: pH: 0~14	$U=0.002$		
				Instrument: pH: 1.67~13.41	$U=0.02$		
135	*Ethylene Oxide Gas Detector	Concentration	C.M.for Ethylene Oxide Gas Detector FFH1910	(0.1~50)μmol/mol	$U=2.0\mu\text{mol/mol}$		
				(>50~100)μmol/mol	$U_{rel}=2.6\%$		
136	*Alarmer Detectors of Benzene	Concentration	C.S.for Alarmer Directors of Benzene JJF1674	(0.1~10)μmol/mol	$U=0.2\mu\text{mol/mol}$		
				(>10~100)μmol/mol	$U_{rel}=2.6\%$		
137	*Acrylonitrile Gas Detector	Concentration	C.M.for Acrylonitrile Gas Detector FFH1911	(1~100) μmol/mol	$U_{rel}=2.1\%$		
138	*Ozone Aging Chamber	Concentration	C.S.for Ozone Aging Test Chambers JJF2051	(0.1~100)μmol/mol	$U_{rel}=4.2\%$		
		Temperature		(0~200)°C	$U=0.4\text{°C}$		
139	*Thermogravimetric Analyzers	Curie point	V.R.of Thermogravimetric Analyzers JJG1135	(150~800)°C	$U=2.1\text{°C}$		
		Melting point		(150~500)°C	$U=((0.76\sim1.8)\text{°C})$		



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		mass		1mg、10mg、20mg	$U=(0.008\sim0.011)$ mg		
140	*Karl Fischer Volumetric Titrators for Water Contend	water content	V.R.of Karl Fischer Volumetric Titrators for Water Contend JJG1154	$(1\sim20000)$ μ g	$U_{rel}=1.7\%$		
141	*Permanganate Index Water Quality On-line Measuring Instrument	concentration	C.S.for On-line Automatic Monitors of Permanganate Index JJF1875 JJF1875	$(0.5\sim5.0)$ mg/L $(>5\sim200)$ mg/L	$U=0.16$ mg/L $U_{rel}=3.2\%$		
142	*Gas Chromatograph with Helium Ionization Detector	Detect Limit	C.M.for Gas Chromatograph with Helium Ionization Detector FFH1915	CH4: ≤ 1 pg/s	$U_{rel}=34\%$		
143	*Soluble Total Solid TDS Detector	concentration	C.M.for Soluble Total Solid TDS Detector FFH1916	$(0.1\sim2\times10^4)$ mg/L	$U_{rel}=1.0\%$		
144	*Sulfur X-ray Fluorescence Spectrometry Analyzers	Sulfur Content	C.M.for X-ray fluorescence spectrometric sulfur meter JJF1952	$(0.05\sim5)\%$ $(5\sim500)$ mg/kg	$U_{rel}=2.5\%$ $U_{rel}=2.5\%$		
145	*Auto Discrete Analyzer	Detect Limit	C.M.for Auto Discrete Analyzer FFH1914	Nitrite nitrogen ≤ 0.003 mg/L Ammonia nitrogen ≤ 0.01 mg/L	$U_{rel}=24\%$ $U_{rel}=24\%$		
146	*VOCs Hydrogen Ionization Detectors	Concentration	C.M.for VOCs Flame Ionization Detectors FFH1908	$(1\sim30000)$ μ mol/mol	$U_{rel}=3.4\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
147	*Liquid Chromatograph-Atomic Fluorescence Spectrometers	Detect Limit	V.R.of Liquid Chromatograph-Atomic Fluorescence Spectrometers JJG1151	arsenic $\leq 1\text{ng}$	$U_{\text{rel}}=15\%$		
148	*Textile formaldehyde tester	transmittance	V.R.of Photoelectric Colorimetry Formaldehyde Analyzers JJG(粤)025	8%~40%	$U=0.6\%$		
149	*Seawater Turbidity Analyzers	Turbidity	C.S.for Seawater Turbidity Analyzers JJF1571	(1~200) NTU	$U_{\text{rel}}=3.2\%$		
150	*Antibiotics Potency Analyzers	Length	C.S.for Antibiotics Potency Analyzers JJF1614	(16~21) mm	$U=0.02\text{mm}$		
		Absorbance		0.3~1.0	$U=0.007$		
151	*Automatic Quantitative Analyzers of Microorganism	Wavelength	C.S.for Automatic Quantitative Analyzers of Microorganism JJF1666	(200~800) nm	$U=0.7\text{nm}$		
		Pressure		($10^3\sim 10^5$) Pa	$U=10\text{Pa}$		
152	Wide-band Irradiance Meters	Irradiance	C.S.for Wide-band Irradiance Meters JJF1660	(0.01~1000)W/m ²	$U_{\text{rel}}=5.4\%$		
153	IR Irradiance Meters	Irradiance	C.M.for IR LED Irradiance Meters FFH1901	(0.01~100)W/m ²	$U_{\text{rel}}=8.2\%$	only for (250~2500)nm	
154	*Artificial Weathering Test Apparatus with UV Lamp	Ultraviolet irradiance	C.M.for Artificial Weathering Test Apparatus with UV Lamp FFH1903	(0.01~2.0)W/m ² /nm	$U_{\text{rel}}=12\%$		
		Temperature		(0~100)°C	$U=0.8^\circ\text{C}$		
155	Automatic refractometer	Refractive	C.M.for automatic refractometer FFH1904	nD(1.3~1.7)	$U=5\times 10^{-4}$		
156	Low Light Level Illuminance Meter	Illuminance	V.R.of Low Light Level Illuminance Meter JJG511	($1\times 10^{-7}\sim 0.1$) lx	$U_{\text{rel}}=2.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
157	*Resistivity/ Electrolytic Conductivity Meters of Pure Water Machine	Electrical Conductivity	C.M.for Resistivity/ Electrolytic Conductivity Meters of Pure Water Machine FFH1905	$(0.05 \sim 10) \mu S \cdot cm^{-1}$	$U_{rel}=4.6\%$		
		Resistivity		$(0.1 \sim 20) M \Omega \cdot cm$	$U_{rel}=4.6\%$		
158	*Nitrogen Trifluoride Gas Detector	Concentration	C.M.for Nitrogen Trifluoride Gas Detector FFH1917	$(1 \sim 400) \mu mol/mol$	$U_{rel}=3.0\%$		
159	Standard densimeter	Density	V.R.of Standard Glass Hydrometers JJG86	$(0.6500 \sim 1.8000) g/cm^3$	$U=0.00015 g/cm^3$	Only for Standard Density Meter (Grade II)、 Standard Petroleum Density Meter (Grade II)、 Standard Alcoholo- meter (Grade II)、	
		Alcohol Content		$q: (0 \sim 100)\%$	$U=0.06\%$		
160	*Gel Documentation Systems	Illuminance	C.S.for Gel Documentation Systems JJF1530	$(30 \sim 5000) lx$	$U_{rel}=1.6\%$	合格评定国家认可 委员会 CNAS 认可证书专用章	
161	*Colony Counters	Total colony count	C.S. for Colony Counters JJF1751	$(1 \sim 290) CFU$	$U_{rel}=3.0 \%$		
162	*Micro- spectrophotometer s	Concentration	C.S.for Micro- spectrophotometers JJF1836	$5mg/L \sim 2500mg/L$	$U_{rel}=8.5\%$		
163	*Flue Gas Sampler	Flow	V.R.of Flue Gas Samplers JJG1169	$(0.1 \sim 2.0) L/min$	$U_{rel}=1.7\%$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature		(0~50)℃	U=0.5℃		
		Pressure		(-40~40)kPa	U=0.2kPa		
		Atmospheric pressure		(800~1060)hPa	U=1hPa		
164	Le Chatelier Flask	Volume	V.R.of Le Chatelier Flask for Determining Density of Hydraulic Cement JJG(Yue)057	(220~250)mL	U=0.07mL		
				(0~24)mL	U=0.02mL		
165	*Pour Point and Cloud Point Testers of Petroleum Products	Temp	C.M.for Pour Point and Cloud Point Testers of Petroleum Products JJF1869	Pour Point: (-30.0~0)℃	U=4.2℃ (Pour Point)		
				Cloud Point: (-20.0~0)℃;	U=2.2℃ (Cloud Point)		
166	*Bacterial Endotoxin Analyzers	Temp	C.S.for bacterial Endotoxin Analyzers JJF1529	(20.0~50.0)℃	U=0.2℃		
167	*Calibration Specification for Bromine Number and Bromine Index Meters	Concentration	C.S.for Bromine Number and Bromine Index Meters JJF1569	(0.2~1000)mg/100g	U=(0.8~27)mg/100g (Bromine index)		
				(0.2~300)g/100g	U=(0.6~5.1)g/100g (Bromine valence)		
168	*Industrial analyzers	Content	V.R.of Industrial Analyzers JJG1140	Ad:(8~35)%	U=0.15% (Ad: <15.00%)		
				Ad:(8~35)%	U=0.23% (Ad: 15.00%~30.00%)		
				Ad:(8~35)%	U=0.34% (Ad: >30.00%)		
				Vd:(4~40)%	U=0.21% (Vd: <20.00%)		
				Vd:(4~40)%	U=0.46% (Vd: 20.00%~40.00%)		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
169	Immersion Oscillation-type Electronic Liquid Density Meters	Density	C.M. for Immersion Oscillation-type Electronic Liquid Density Meters JJF1866	(650~2000)kg/m ³	$U=0.2 \text{ kg/m}^3$		
170	Hydrogen Sulfide Gas Detectors for Mining	Concentration of Hydrogen Sulfide	V.R. of Hydrogen Sulfide Gas Detectors for Mining JJG1161	(1~100) $\mu \text{ mol/mol}$	$U_{\text{rel}}=2.6\%$		
171	Sulfur Hexafluoride Decomposition Products Detectors	Concentration of Sulfur Dioxide	C.S. for Sulfur Hexafluoride Decomposition Products Detectors JJF1711	(0.1~10) $\mu \text{ mol/mol}$	$U=0.24 \mu \text{ mol/mol}$		
		Concentration of Sulfur Dioxide		(>10~100) $\mu \text{ mol/mol}$	$U_{\text{rel}}=4.2\%$		
		Concentration of Hydrogen Sulfide		(0.1~10) $\mu \text{ mol/mol}$	$U=0.24 \mu \text{ mol/mol}$		
		Concentration of Hydrogen Sulfide		(>10~100) $\mu \text{ mol/mol}$	$U_{\text{rel}}=4.7\%$		
		Concentration of Carbon Monoxide		(0.1~50) $\mu \text{ mol/mol}$	$U=1.2 \mu \text{ mol/mol}$		
		Concentration of Carbon Monoxide		(>50~500) $\mu \text{ mol/mol}$	$U_{\text{rel}}=3.1\%$		
172	*Remote Sensing Measurement Systems	Concentration of HC	C.S. for Remote Sensing Measurement Systems of Vehicle Exhaust JJF1835	(1~5000) $\mu \text{ mol/mol}$	$U_{\text{rel}}=3.5\%$		
		Concentration of Carbon Monoxide		(0.01~10)%mol/mol	$U_{\text{rel}}=2.9\%$		



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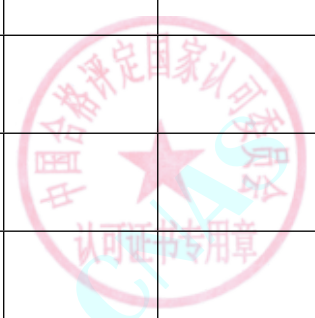
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Concentration of Carbon Dioxide		(0.01~16)%mol/mol	$U_{rel}=3.2\%$		
		Concentration of Nitric Oxide		(1~5000) μ mol/mol	$U_{rel}=3.9\%$		
		Opacity		(0.1~100)%	$U=0.7\%$		
		Temperature		(-30~50)°C	$U=1.0^{\circ}\text{C}$		
		Velocity		(0.1~100) km/h	$U=1.2$ km/h		
		Acceleration		(-5.0~5.0) m/s ²	$U=0.20$ m/s ²		
		Gradient		(-15.0~15.0) °	$U=0.07^{\circ}$		
		Relative Humidity		(5.0~95) %	$U=2.0\%$		
		Atmospheric Pressure		(70~106) kPa	$U=0.2$ kPa		
		Velocity of wind		(0.5~20) m/s	$U=1.0$ m/s		
173	*Vehicle Urea Detector	Concentration	C.M.for Vehicle Urea Detector FFH2121	32%~33%	$U=0.12\%$		
174	*Urea Analyzers of Water Sample Detection	Concentration	C.S.for Urea Analyzers of Water Sample Detection JJF1822	(0.1~10) mg/L	$U_{rel}=14\%$		
175	*Chemiluminescence Nitrogen	Concentration	C.M.for Chemiluminescence Nitrogen Analyzers FFH2119	(1~5) mg/L	$U=0.19$ mg/L		
				(5~2000)mg/L	$U_{rel}=4.4\%$		



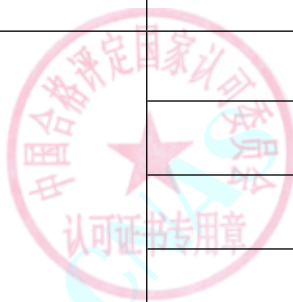
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
176	*Seawater Nutrients Analyzers	Concentration	C.M.for Seawater Nutrients Analyzers JJF1793	Nitrite、Nitrite nitrogen、Ammonia、Silicate、Phosphate: (1~1000) $\mu\text{g/L}$	$U_{\text{rel}}=2\%$		
177	*Gas Chromatographs with Sulfur Chemiluminescence Detector	Detection limit	C.M.for Gas Chromatographs with Sulfur Chemiluminescence Detector JJF1953	Liquid: $\leq 10\text{ pg/s}$	$U_{\text{rel}}=25\%$		
				Gas: $\leq 10\text{ pg/s}$	$U_{\text{rel}}=21\%$		
178	*	Content	C.M. for Determinators of Fluorine/Chlorine in Coal JJF1968	Fluorine: (50~500) $\mu\text{g/g}$	$U=20\text{ }\mu\text{g/g}$		
				Fluorine: (500~2000) $\mu\text{g/g}$	$U_{\text{rel}}=2.6\%$		
				Chlorine: (0.010~0.050) %	$U=0.005\%$		
				Chlorine: (0.050~0.300) %	$U_{\text{rel}}=11\%$		
179	*On-line Analyzers of Volatile Phenols in Water	Concentration	C.S.for On-line Analyzers of Volatile Phenols in Water JJF1977	(0.01~100) mg/L	$U_{\text{rel}}=3\%$		
180	Reference Filters for Opacimeters	Transmittance /Absorptance	C.M.for Reference Filters for Opacimeters FFH2108	(0~100) %	$U=0.5\%$		
181	*Raw-Milk Freezing Point Testers	Freezing Point	C.R.of for Raw-Milk Freezing Point Testers JJF1816	(-0.61~-0.39) $^{\circ}\text{C}$	$U=0.0012^{\circ}\text{C}$		
182	*McFarland Bacterial Turbidity Analyzers	turbidity	C.S.for McFarland Bacterial Turbidity Analyzers JJF1825	(0~4.0) MCF	$U=0.23\text{ MCF}$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
183	*Nucleic Acid Extractors	Temperature	C.S for (Automatic) Nucleic Acid Extractors JJF1874	(50~100) °C	$U=1.4\text{ }^{\circ}\text{C}$		
		Frequency		(0.1~50) Hz	$U=0.6\text{Hz}$		
		Volume		(10~300) μL	$U_{\text{rel}}=0.3\%$		
		Recovered Rate		(10~150) %	$U_{\text{rel}}=1.9\%$		
184	*ATP Fluorescence Detectors	Concentration	C.S. for Adenosine Triphosphate (ATP) Fluorescence Detectors JJF1828	$(1\times 10^{-10}\sim 1\times 10^{-16})\text{ mol/mL}$	$U_{\text{rel}}=3.6\%$		
		luminance		$(2\sim 2\times 10^{-5})\text{ cd/m}^2$	$U_{\text{rel}}=17\%$		
185	*Hydrogen Chloride Gas Detectors and Alarms	Concentration	C.S.for Hydrogen Chloride Gas Detectors and Alarms JJF1888	(0.1~100) $\mu\text{ mol/mol}$	$U_{\text{rel}}=2.5\%$		
186	Noble Gas (He、Ar) Analysers	Concentration	C.M.for Noble Gas Analysers FFH2125	He、Ar: (0.1~100) %	$U=1.0\%\text{FS}$		
187	*Nitrogen Dioxide Gas Detectors	Concentration	C.M.for Nitrogen Dioxide Gas Detectors FFH2126	(0.1~100) $\mu\text{ mol/mol}$	$U=1.4\%\text{FS}$		
188	*Methanol Gas Detectors	Concentration	C.M.for Methanol Gas Detectors FFH2127	(0.1~100) $\mu\text{ mol/mol}$	$U=2.0\%\text{FS}$		
189	*Continuous Emission Monitoring Systems of Flue Gas Emitted from Stationary Source	Concentration	C.S.for Continuous Emission Monitoring Systems of Flue Gas Emitted from Stationary Source JJF1585	Particulate matter: (5~500) mg/m^3	$U_{\text{rel}}=6.2\%$		
				Sulfur dioxide: (1~3000) $\mu\text{ mol/mol}$	$U_{\text{rel}}=6\%$		
				Oxynotride: (1~2000) $\mu\text{ mol/mol}$	$U_{\text{rel}}=6\%$		
				Oxygen: (0.1~25) %	$U_{\text{rel}}=6.2\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Velocity of flow		(1~30) m/s	$U_{rel}=3.4\%$		
		Temperature		(20~800) °C	$U=1.4^{\circ}\text{C}$		
190	*Water Hardness Meters	Concentration	C.S.for Water Hardness Meters JJF1949	(1~1000) mg/L	$U_{rel}=2.5\%$		
191	*Fluoride sampler	Flow	C.M.for Fluoride Samplers FFH2109	(10~120) L/min	$U_{rel}=1.5\%$		
192	*Breathing resistance and Airtightness Tester for Mask	Flow	V.R.of Breathing Resistance and Airtightness Testers for Mask JJG(粤)060	(5~130) L/min	$U_{rel}=1.9\%$		
		Pressure		(-1000~1200) Pa	$U=5.0\text{Pa}$		
		Time		(0~100) s	$U=0.1\text{s}$		
193	*Gas Chromatographs with Liquor Analysis	Detection limit	C.S.for Gas Chromatographs with Liquor Analysis JJF2022	$\leq 5 \mu\text{g/mL}$	$U_{rel}=20\%$		
194	*Gas-phase molecular absorption spectrometer	Limit Of Detection	C.S.for Gas-phase molecular absorption spectrometer JJF(Ji)113	$\text{NH}_4^+-\text{N}: (0\sim 100)\text{mg/L}$	$U=0.003\text{mg/L}$		
				$\text{TN}: (0\sim 500)\text{mg/L}$	$U=0.005\text{mg/L}$		
				$\text{NO}_2^--\text{N}: (0\sim 100)\text{mg/L}$	$U=0.003\text{mg/L}$		
				$\text{NO}_3^--\text{N}: (0\sim 1000)\text{mg/L}$	$U=0.005\text{mg/L}$		
				$\text{S}_2^-: (0\sim 162.5)\text{mg/L}$	$U=0.004\text{mg/L}$		
195	*Alarmer Detector of Halogen Gas	Concentration	C.M.for Alarmer Detectors of Halogen Gas FFH2301	(0.1~1000) $\mu\text{mol/mol}$	$U_{rel}=2.5\%$		
196	*Nitrous Oxide Gas Detector	Concentration	C.M.for Nitrous Oxide Gas Detectors FFH2302	(0.1~100) $\mu\text{mol/mol}$	$U_{rel}=3.0\%$		
197	*Biochemical Oxygen Demand (BOD5) Meter	Pressure	Biochemical Oxygen Demand (BOD5) Meter JJG824	(0~15) kPa	$U_{rel}=0.04\%$	Only For Pressure Meter	

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
11 Ionizing radiation Measuring Instrument							
1	*Installed Personnel α 、 β Surface Contamination Monitoring Assemblies	Activity	Installed Personnel α 、 β Surface Contamination Monitoring Assemblies JJG1102	α : $(1 \times 10^2 \sim 1 \times 10^5) \text{min}^{-1}$	$U_{\text{rel}}=7\%$		
				β : $(1 \times 10^2 \sim 1 \times 10^5) \text{min}^{-1}$	$U_{\text{rel}}=6\%$		
2	*X、gamma-ray Densitometry for Bone Mineral Density	Bone width	V.R.of X、gamma-ray Densitometry for Bone Mineral Density JJG1050	$(0.8 \sim 1.6) \text{ cm}$	$U_{\text{rel}}=1\%$		
		Bone mineral content		$(0.3 \sim 2.0) \text{ g/cm}$	$U_{\text{rel}}=1\%$		
		bone mineral density		$(0.5 \sim 1.5) \text{ g/cm}^2$	$U_{\text{rel}}=1.0\%$		
		Air Kerma Rate of Radiation		$0.1 \mu \text{ Gy/h} \sim 50 \text{ mGy/h}$	$U_{\text{rel}}=15\%$		
3	*Medical X-ray Radiation Sources for Mammographic Equipment	Absorbed dose	V.R.of Medical X-ray Radiation Sources for Mammographic Equipment JJG1145	$1 \mu \text{ Gy} \sim 1 \text{ Gy}$	$U_{\text{rel}}=7\%$		
		Tube Voltage		$(18 \sim 49) \text{ kV}$	$U_{\text{rel}}=3\%$		
4	*Gas-Flow Proportional Counter Gross Alpha and Gross Beta Measuring Instruments	Activity	V.R.of Gas-Flow Proportional Counter Gross Alpha and Gross Beta Measuring Instruments JJG1100	α : $(1 \times 10^4 \sim 1 \times 10^5) \text{min}^{-1}$	$U_{\text{rel}}=7\%$		
				β : $(1 \times 10^4 \sim 1 \times 10^5) \text{min}^{-1}$	$U_{\text{rel}}=4\%$		
5	*Alpha/Beta Surface Contamination Instruments	Activity	V.R.of α 、 β Surface Contamination Monitors JJG478	α : $(1 \times 10^3 \sim 1 \times 10^6) \text{min}^{-1}$	$U_{\text{rel}}=4\%$		
				β : $(1 \times 10^3 \sim 1 \times 10^6) \text{min}^{-1}$	$U_{\text{rel}}=7\%$		



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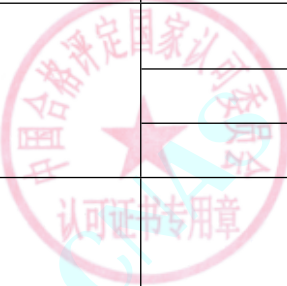
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	*X-Ray Industry Real Time Imaging System	Air Kerma Rate	C.S.for X-ray Industry Real Time Imaging System JJF1596	(0.01~10) Gy/min	$U_{rel}=5\%$		
		Leakage Ray		0.01 μ Gy/h~1mGy/h	$U_{rel}=14\%$		
		Resolution		(0.6~10) Lp/mm	$U_{rel}=4\%$		
7	*Radioactivity (specific) activity rapid detecting Instrument	Activity	C.S.for (Specific) Activity Rapid Detecting Instrument JJF1582	(10~1 $\times 10^4$) Bq	$U_{rel}=5\%$		
8	*Low Background Alpha Beta Measuring Instruments	Activity	V.R.of Low Background Alpha/Beta Measuring Instruments JJG853	α : (1 $\times 10^4$ ~1 $\times 10^5$) min ⁻¹	$U_{rel}=7\%$		
				β : (1 $\times 10^4$ ~1 $\times 10^5$)min ⁻¹	$U_{rel}=4\%$		
9	* γ Ray Spectrometers of Scintillation Detectors	Activity	C.S. of γ Ray Spectrometers of Scintillation Detectors JJF1744	(10~1 $\times 10^5$) Bq	$U_{rel}=7\%$		
10	*Gamma Radiomunoassay Couters	Count Rate	V.R.of Gamma Radioimmunoassay Counters JJG969	(3 $\times 10^3$ ~2 $\times 10^5$)min ⁻¹	$U_{rel}=3.0\%$		
11	*X-ray Security Inspection Equipment	Air Kerma Rate	C.S.for X-ray Security Inspection Equipment JJF1275	(0.1~230) μ Gy/h	$U_{rel}=15\%$		
12	*Medical Diagnostic X-ray Source for Dental Panorama	Air Kerma Rate of Radiation	V.R.of Medical Diagnostic X-ray Source for Dental Panorama JJG1101	0.1mGy/min~1Gy/min	$U_{rel}=6\%$		
		Tube Voltage		(50~150)kV	$U_{rel}=3\%$		
13	*Medical Diagnostical X-ray Radiation Source	Air Kerma Rate of Radiation	V.R.of Medical Diagnostic X-ray Radiation Source JJG744	0.1mGy/min~1Gy/min	$U_{rel}=6\%$		



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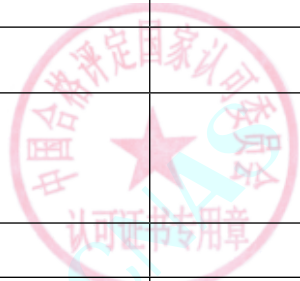
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Tube Voltage		(50~150)kV	$U_{\text{rel}}=3\%$		
14	*Radioactivity Meter	Activity	V.R.of Radioactivity Meter JJG377	$(3.7 \times 10^5 \sim 3.7 \times 10^{10})$ Bq	$U_{\text{rel}}=3.0\%$		
15	*Liquid-scintillation Counting System	Activity	C.S.for Liquid-scintillation Counting System JJF1480	$(1 \sim 1 \times 10^5)$ Bq	$U_{\text{rel}}=4.0\%$		
16	*Medical Diagnostical X-ray Radiation Source for Computer Tomography(CT)	Dose Index	V.R.of Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography(CT) JJG961	1mGy~1Gy	$U_{\text{rel}}=6\%$		
17	*Medical Electron Accelerator Radiation Source	Absorbed Dose	V.R.of Medical Electron Accelerator Radiation Source JJG589	1mGy~10Gy	$U_{\text{rel}}=2.8\%$		
18	*Medical Radiation Source of ^{60}Co Teletherapy	Absorbed Dose	V.R.of Medical Radiation Source for ^{60}Co Teietherapy JJG1027	1mGy~10Gy	$U_{\text{rel}}=2.7\%$		
19	*Apparatus for Gamma Radiography	Air Kerma Rate	V.R.of Apparatus for Gamma Radiography JJG933	$(1 \sim 1000)$ mGy/min	$U_{\text{rel}}=6\%$		
20	*X-ray Flaw Detectors	Air Kerma Rate	V.R.of X-ray Flaw Detectors JJG40	$0.01 \mu\text{Gy/h} \sim 10\text{Gy/min}$	$U_{\text{rel}}=5.0\%$		
		Sensitivity		$0.2\% \sim 32\%$	$U_{\text{rel}}=9\%$		
		Resolution		$(6 \sim 50)$ Lp/cm	$U_{\text{rel}}=4\%$		
21	*X-ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System JJG1078	Air Kerma	V.R.of X-ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System JJG1078	1mGy~1Gy	$U_{\text{rel}}=6\%$		

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Radiography System	Tube Voltage		(50~150)kV	<i>U</i> _{rel} =3.0%		
22	* γ Radiation Source Used in Head Stereotactic Radiosurgery Therapy	Absorb Dose	V.R.of γ Radiation Source Used in Head Stereotactic Radiosurgery Therapy JJG1013	1mGy~100Gy	<i>U</i> _{rel} =3%		
23	*X-ray Radiation Source for Radiotherapy Simulating Localization	Air Kerma Rate	V.R.of X ray Radiation Source for Radiotherapy Simulating Localization JJG1028	(1~100)mGy/min	<i>U</i> _{rel} =6%		
24	*Radiation Source used in 60 kV~300 kV X-ray Radiotherapy	Absorbed Dose	V.R.of Radiation Source used in 60kV~300kV X -ray Radiotherapy JJG1053	1mGy~10Gy	<i>U</i> _{rel} =2.8%		
25	*Medical Diagnostic X-ray Radiation Source for Medical Digital Subtraction Angiography	Air Kerma Rate	V.R.of Medical Diagnostic X-ray Radiation Source for Medical Digital Subtraction Angiography JJG1067	0.1mGy/min~1Gy/min	<i>U</i> _{rel} =6%		
		Tube Voltage		(50~150)kV	<i>U</i> _{rel} =3.0%		
26	*Alpha Spectrometers	Activity	C.S.for Alpha Spectrometers JJF1851	(30~1000)s ⁻¹	<i>U</i> _{rel} =3.1%		
27	*X-Ray energy dispersive spectrometer	Spectral resolution	V.R.for analytical scanning electron microscope JJG(Education commission)010	B ⁵ ~U ⁹²	<i>U</i> _{rel} =3.8%		
12 Specialized Measuring Instrument for Textile & Leather							
1	*Whole shoe abrasion testing	Length	Calibration Method of Whole Shoe Testing Machine	(0~150)mm	<i>U</i> =0.04mm		

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date		
	machine	Rotation Speed	FFZ1201	(10~300) r/min	U _{rel} =0.2%				
		Mass		(0~500) g	U=0.06 g				
				(>500~2000) g	U=0.12 g				
				(>2000~2200) g	U=0.18g				
		Time		(0~60)min	U=0.2s				
2	*Peeling Strength Tester	Length	C.M.of Peeling Strength Tester FFZ1203	(0~75)mm	U=0.01mm				
		Force		(0.1~1000)N	U _{rel} =0.4%				
		Speed		(0~30) mm/min	U=0.02 mm/min				
3	*Sunlight weather tester(Xenon test chamber)	Temperature	C.S.for Light and Weather Fastness Testers JJF(FZ)051	Black Standard: (0~100) °C	U=0.6°C				
				Balck Pannel: (0~100)°C	U=0.6°C				
				Humidity	30%RH~100%RH				U=1.4 %RH
				Time	(0 ~ 3600)s			U=0.3s	
		Irradiance		(0.01~130)W/m ²	U _{rel} =10%				
				Wavelength(300~400)nm	U _{rel} =10%				
				(0.01~200)W/m ²					
				Wavelength(300~800)nm	U _{rel} =10%				
				(0.01~1.3)W/m ²					
				Wavelength(340)nm	U _{rel} =10%				
				(0.01~2.4)W/m ²					
				Wavelength(420)nm	U _{rel} =10 %				



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Rotation Speed		(0~5)r/min	$U=0.02$ r/min		
4	*Washing Machine	Temperature	Calibrating Method of Reference Washing Machine FFZ0802	(0~100)°C	$U=0.6$ °C		
		Rotation Speed		Washing Speed(30~200) r/min Agitation Speed(0~200)min ⁻¹	$U=(0.1\sim0.3)$ r/min $U=(0.1\sim0.3))\text{min}^{-1}$		
		Time		Spin Speed(30~1400)r/min	$U=2$ r/min		
		Length		(0 ~3600) s	$U=0.3$ s		
		Capacity		Water Lever: (0~300) mm	$U=0.4$ mm		
				Size: (0~600) mm	$U=0.3$ mm		
				(1~100) L	$U=0.1$ L		
5	*Tester of color fastness to Hot Pressing/Dry heat	Surface temperature	C.S.for Scorch and Sublimation Tester JJF(FZ)029	(0~300)°C	$U=0.6$ °C		
		Time		(0 ~ 3600)s	$U=0.16$ s		
		Length		(0~150)mm	$U=0.1$ mm		
6	*Textile Dryer of the Rotary Tumble	Temperature	C. S. of Textile Dryer of the Rotary Tumble JJF(FZ)072	(0~100)°C	$U=0.6$ °C		
		Rotation Speed		(20~100) r/min	$U=0.5$ r/min		
		Time		(0~2)h	$U=0.1$ min		
		Size		(0~700)mm	$U=0.3$ mm		
7	*Condom Pinhole Tester	Capacity	Calibration Method of Condom Pinhole Tester	(50~350)mL	$U_{\text{rel}}=0.2\%$		



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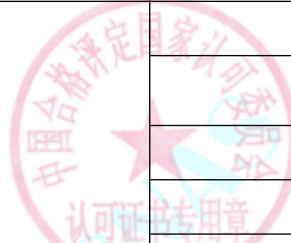
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Voltage	FFZ1410	(0.1~24)V	<i>U</i> _{rel} =0.2%		
		Resistance		(0.1~20)k Ω	<i>U</i> _{rel} =0.3%		
8	*Initial Viscosity Tester	length	Calibration Method of Initial Viscosity Tester	(0~30)mm	<i>U</i> =5 μ m		
		Angle	FFZ1502	(0~60)°	<i>U</i> =0.3°		
9	*Random Tumble Pilling Tester	Revolution Speed	C.M.of Random Tumble Pilling Testers FFZ1604	(20~1400)r/min	<i>U</i> _{rel} =0.2%		
		Time		(0~3)h	<i>U</i> =1.1 s		
		Pressure		(-100~100)kPa	<i>U</i> =0.10kPa		
		length		(0~300)mm	<i>U</i> =0.05mm		
				(>300~500)mm	<i>U</i> =0.08mm		
10	*Traveling Counting Glasses	Length	C.S.for Traveling Counting Glasses JJF(FZ)023	(0~50)mm	<i>U</i> =0.04 mm		
11	*Leather Folding Tester	Length	C.M.of Leather Folding Testers FFZ1619	(0~300) mm	<i>U</i> =0.05mm		
		Angle		(0~360) °	<i>U</i> =0.2 °		
		Frequency		(0~100)min ⁻¹	<i>U</i> =0.2min ⁻¹		
				(100~9999)min ⁻¹	<i>U</i> _{rel} =0.2%		
		Counting		0~1000	<i>U</i> =1		
12	*Leather Friction Tester	Length	C.M.of Leather Friction Testers FFZ1620	(0~300) mm	<i>U</i> =0.05 mm		
		Frequency		(0~100)min ⁻¹	<i>U</i> =0.5min ⁻¹		
				(100~9999)min ⁻¹	<i>U</i> _{rel} =0.1%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Mass		(0~0.5)kg	U=0.06g		
				(>0.5~2)kg	U=0.12g		
				(>2~5)kg	U=0.18g		
				(>5~20)kg	U=1.2g		
				(>20~30)kg	U=1.8g		
		Counting	0~99999	U=1			
13	*Foam Repeated Compression Testing Machine	Length	C.M.of Foam Repeated Compression Testing Machines FFZ1616	(0~600)mm	U=(0.005~0.2)mm		
		Force		(1~1010)N	U _{rel} =0.12%		
		Frequency		(0~100)min ⁻¹	U=0.5min ⁻¹		
				(100~1000)min ⁻¹	U _{rel} =0.1%		
14	*Fabrics Water Spray Testers	length	C. S.of Fabrics Water Spray Testers JJF(FZ)083	(0~300)mm	U=5 μ m~0.2mm		
		Angle		(0~90)°	U=0.3°		
		time		(0~60)s	U=0.3 s		
15	*Down Filling Power Tester	length	C.S of Down Filling Power Tester JJF(FZ)074	Caliper: (0~300) mm	U=0.05mm		
				Integer caliper: (220~320) mm	U=0.3mm		
				Steel Ruler: (0~600) mm	U=0.3mm		
		mass		(0~500) g	U=0.06g		
				(>500~1000) g	U=0.12 g		
16	*Safety Shoe	length	C.M.for Safety Shoe Impact	(0~2)m	U=1.0 mm		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Impact Testing Machine	mass	Testing Machines FFZ1613	(0~5) kg	$U=0.6$ g		
				(>5~20) kg	$U=1.2$ g		
				(>20~30) kg	$U=1.8$ g		
		Angle		(0~180)°	$U=0.3$ °		
		Impact Energy		(10~300)J	$U=0.3$ J		
17	*Foam Resilience Tester	Height	C.M.for Foam Resilience Testers FFZ1622	(1~510) mm	$U_{rel}=0.5\%$		
		Diameter		(10~20) mm	$U=5$ μ m		
		Mass		(10~20) g	$U=6$ mg		
18	*Calibration Specification For Fiber Diameter Analyzer	Length	C.S.for Fiber Diameter Analyzer JJF(FZ)065	(0~1000) μ m	$U=0.3$ μ m		
19	*Reciprocating Durability Tester	Frequency	C.M.for Reciprocating Durability Tester FFZ1901	(0~100)min ⁻¹	$U=0.5$ min ⁻¹		
		Length		(0~300)mm	$U=0.3$ mm		
		Force		(0.01~200) N	$U_{rel}=0.2\%$		
		Angle		(0~180)°	$U=0.3$ °		
		Length		(0~300)mm	$U=0.05$ mm		
		Counter		(0~9999)r	$U=1$ r		
20	*Shoe laces abrasion tester	Frequency	C.M.for Shoe laces abrasion tester FFZ1902	(0~100) min ⁻¹	$U=0.5$ min ⁻¹		
		Length		(0~500)mm	$U=0.2$ mm		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Mass		(0~0.5) kg	$U=0.06$ g		
				(>0.5~2) kg	$U=0.12$ g		
		Angle		(0~180)°	$U=0.2$ °		
21	*Shoe non-slip testing machine	Force	C.M.for Shoe non-slip testing machine FFZ1903	(0.1~2000)N	$U_{\text{rel}}=0.3\%$		
		Displacement		(1~510)mm	$U_{\text{rel}}=0.3\%$		
		Speed		(1~510)mm/s	$U_{\text{rel}}=1.0\%$		
		Angle		(0~180)°	$U=0.15$ °		
22	*Shoe heels fatigued tester	Frequency	C.M.for Shoe heels fatigued tester FFZ1904	(0~100)min ⁻¹	$U=0.3\text{min}^{-1}$		
		Torque		(0.2~1.05)Nm	$U=0.004\text{Nm}$		
		Impact energy		(0.2~1.05)J	$U=0.004\text{J}$		
		Length		(0~300)mm	$U=0.05\text{mm}$		
23	*Cloth Length Meter	Diameter	C.M.for Cloth Length Meter FFZ1905	(0~300)mm	$U=0.05$ mm		
		Length		(0.1~9999.9) m	$U_{\text{rel}}=0.06\%$		
24	*ROSS-Miles Foam Meter	Volume	C.M.for ROSS-Miles FFZ1906	(10~1500)mL	$U=(0.05\sim 2.4)\text{ml}$		
		Length		(0~1) m	$U=0.4$ mm		
		Temperature		(2~90)°C	$U=0.3$ °C		
25	*Differential Pressure Air Leak Tester	Leak Rate	V.R.of Differential Pressure Air Leak Tester JJG(Yue)042	(2~300)mL/min	$U_{\text{rel}}=(1.4\sim 1.2)\%$		
		Pressure		(-100~1000) kPa	$U=0.04\%$ FS		
	*Calibration Specification for	Pressure	C.S.for Fabric's Water Impermeability Tester	(0~1)Mpa	$U=0.07$ kPa		

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date			
27	Fabric' s Water Impermeability Tester	Pressure Rise Rate	JJF(FZ)077	(0~10)kPa/min	U=0.04 kPa/min					
		Time		(0~3600)s	U=0.3s					
		Area		(0~200)cm²	U=0.08cm²					
	*Fabrics Mace Snagging Resistance Tester	Radius	C.S.for Fabrics Mace Snagging Resistance Tester JJF(FZ)076	(0~2.5) mm	U=8 μ m					
		Size		(0~150)mm	U=0.04 mm					
		Distance		(0~300) mm	U=0.5 mm					
		Mass		(0~500) g	U=0.006) g					
				(>500~620) g	U=0.012 g					
		Rotate Speed		(10~50) r/min	U=0.1r/min					
				(>50~100) r/min	U=0.2 r/min					
		Counter		0~1000	U=1					
		28		*Textiles 45° Burning Rate Tester	Length			C.S.for Textiles 45° Combustion Testers JJF(FZ)087	Caliper: (0~150)mm	U=0.04mm
									Steel Rule: (0~300)mm	U=0.2mm
									Chamber Size: (0~300) mm	U=0.3 mm
									Chamber Size: (>300~600) mm	U=0.4 mm
Chamber Size: (>600~1000) mm	U=0.5 mm									
Time	(0~3600)s		U=0.2s							
angle	(0~90)°		U=0.2°							



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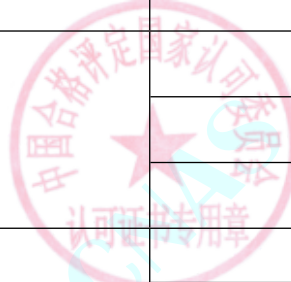
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Mass		(0~50) g (>50~200) g (>200~620) g	U=0.006 g U=0.012 g U=0.018 g		
29	*Textiles Horizontal Burning Rate Tester	Length	C.S.for Textiles Horizontal Burning Rate Testers JJF(FZ)094	Steel Rule: (0~600)mm Caliper: (0~150)mm Micrometer: (0~1)mm	U=0.3mm U=0.04mm U=4 μ m		
		Time		(0~3600)s	U=0.15s		
30	*Color Fastness to Rotary Crocking Tester	Size	C.S.for Colour Fastness to Rotary Crocking Testers JJF(FZ)096	(0~50)mm	U=0.04mm		
		Force		(0.1~15)N	U=0.01N		
		Angle		(0~720)°	U=0.2°		
31	*Mask Flame Resistant Testers	Length		Caliper: (0~150) mm Steel Rule: (0~300) mm	U=0.06 mm U=0.3 mm		
		Speed	C.M.for Mask Flame Resistant Testers FFZ2101	(40~80) mm./s	U _{rel} =2.1%		
		Time		(0~600) s	U=0.2 s		
		Temperature		(700~900) °C	U=7 °C		
32	*Low-temperature Durability Testers	Temperature	C.M.for Low-temperature Durability Testers FFZ2104	Temperature Deviation: (-60~30) °C Temperature Fluctuation: (2~100) °C	U=0.3°C U=0.10°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
		Length		Temperature Uniformity: (-60~30) °C	<i>U</i> =0.4 °C			
				Size: (0~300) mm	<i>U</i> =0.05 mm			
				Distance: (0~300) mm	<i>U</i> =0.07 mm			
				Radius: (0~50) mm	<i>U</i> =0.06 mm			
		Angle		(0~120) °	<i>U</i> =0.2 °			
		Frequency		(1~100) min ⁻¹	<i>U</i> =0.2 min ⁻¹			
				(>100~1000) min ⁻¹	<i>U</i> _{rel} =0.2%			
		Count		1~1000	<i>U</i> =1			
Time	(0~3600) s	<i>U</i> =0.2 s						
33	Fabric Density Glasses	Line	C.M.of Fabric Density Glasses FFC1603	(70~120)line/cm	<i>U</i> _{rel} =0.04%			
34	*Circle Sample Cutters	Length	C.S.for Circle Sample Cutters JJF(FZ)061	Diameter(0~150)mm	<i>U</i> =0.01mm			
				Difference of CutterHeight(0~10)mm	<i>U</i> =0.07mm			
35	*Yarn Length Tester	Length of Reel	C.S.for Wrap Reelers JJF(FZ)019	(0~1500) mm	<i>U</i> =0.4mm			
		IndicationError ofTension		0.1cN~10N	<i>U</i> _{rel} =2.3%			
		Guide bar travel		(0~300) mm	<i>U</i> =0.30mm			
36	*Fabric Thickness Tester	Mass	C.S.for Fabric Thickness Tester JJF(FZ)020	(0.1~500)g	<i>U</i> =0.3g			
		Force		(50~200)cN	<i>U</i> =0.3cN			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Time		(0~30) s	<i>U</i> =0.3s		
		Depth of parallelism		(0~1) mm	<i>U</i> =0.005mm		
		Thickness		(0~10) mm	<i>U</i> =0.005mm		
37	*Yarn Length Tester of Fabric	Length	C.S.for Texile Yarn Length Tester JJF(FangZhi)021	(0~800)mm	<i>U</i> =0.04mm		
		Tension		(0.1~175)cN	<i>U</i> _{rel} =1.4%		
38	*Fiber cutter	Length	C.S.for Fibre Cutter JJF(FangZhi)022	Clearance: (0~1) mm	<i>U</i> =6 μ m		
				Width: (10~30)mm	<i>U</i> =2 μ m		
39	*Colour Fastness to Friction Testers	Rev.of Crank	C.S.for Colour Fastness to Friction Testers JJF(FangZhi)027	(1~1000) r/min	<i>U</i> =0.8r/min		
		Length		End face size: (0~200)mm	<i>U</i> =0.03mm		
				Distance of run of Frictionalhead: (0~200) mm	<i>U</i> =0.2mm		
		Weight		(0.1~50) N	<i>U</i> =0.04N		
40	*Raw silk titer	Measuring	Calibration Specification of Raw Silk Size Testers JJF(FangZhi) 042	5D~99.5D	<i>U</i> =0.24D		
		Steadytime		(0~3)s	<i>U</i> =0.1s		
41	*Silk Length Measuring Machine	Perimeter of Machine frame	C.S.for Silk Length Measuring Machine JJF(FangZhi)043	(0~1500) mm	<i>U</i> =0.6mm		
		Rev.of Machine frame		(0~1000) r/min	<i>U</i> =1.2r/min		
42	*Textile Digital Fabric	Central	C.S.for Fabrics Bursting Tester JJF(FangZhi)048	(0~120) mm	<i>U</i> =0.04mm		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Bursting extended strength		(0.02~30)mm	$U=0.03\text{mm}$		
		Bursting strength		(0~10)MPa	$U=0.13\%\text{FS}$		
		Time		(1~50)s	$U=0.30\text{s}$		
43	*Yarn Abrasion Resistance Instrument	Reciprocate times of Frictional head	C.S.for Yarn Abrasion Measuring Instrument JJF(FangZhi)050	(0~60)Times/min	$U=0.4\text{Times/min}$		
		Frictional Length		(0~150) mm	$U=0.3\text{mm}$		
		Force of Tension weight		(0.01~20) cN	$U=0.05\text{ cN}$		
44	*Tester of Wash Fastness	Rotate Speed	C.S.for Colour Fastness to Washing Testers JJF(FangZhi)026	(0.1~100) r/min	$U=0.1\text{r/min}$		
		Time		1s~60min	$U=0.1\text{s}$		
		Temperature		(1~100)°C	$U=0.3\text{°C}$		
45	*Tester of Color fastness to Perspiration	Length	C.S.for Perspiration Fastness Instruments JJF(FangZhi)028	(0~150)mm	$U=0.04\text{mm}$		
		Planeness		(0~0.08)mm	$U=0.02\text{mm}$		
		Planeness		(0~0.06)mm	$U=0.02\text{mm}$		
		Force		(1~50)N	$U=0.06\text{N}$		
46	*Elasticity Wrinkle Apparatus (Vertical Method)	weight of hammer	C.S.for Vertical Fabric Crease Recovery Testers JJG(FangZhi)032	(1~10) N	$U=0.01\text{N}$		
		Length		(0~20)mm	$U=0.04\text{mm}$		
		Time		1s~5min	$U=0.1\text{s}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Angle		0° ~ 180°	U=4'		
47	*Fabrics Abrasion Resistance Apparatus	RotateSpeed	C.S.for Fabric Flat-Rubbing Tester JJF(FangZhi)036	(1~100) r/min	U=0.1r/min		
		Mass		(0.1~10) kg	U=0.6g		
48	*Falling-pendulum Apparatus for Tearing Strength of Fabric	Length	C.S.for Fabrics Tearing Tester JJF(FangZhi)049	(0~300) mm	U=0.04mm		
		force		(1~100)N	U _{rel} =0.3%		
49	*Woven Washing Shrinkage Tester	Speed	C.S.for Fabric Shrinkage Testers JJF(FangZhi)052	(30~1400)r/min	U=(0.1~1)r/min		
		Temperature		(0~100)°C	U=0.6°C		
		Time		1s~60min	U=0.3s		
		Length		(0~600) mm	U=0.3 mm		
50	*Tester of Effect of capillary Mensuration	Test Liquid Temperature	C.S.for Capillary Effect Teter JJF(FangZhi)056	(0~50) °C	U=0.3°C		
		Test time		1s~60min	U=0.1s		
		Weight of clamp		(0.01~100) g	U=0.06g		
		Length		(0~300)mm	U=0.04mm		
51	*Twist- machine of yarn	Length	C.S.for Yarn Twist Tester JJF(FangZhi)010	(1~600)mm	U=0.03mm		
		The right holder rotating speed		(1~2000)r/min	U _{rel} =1.2%		
		tension		0.2cN~4N	U _{rel} =0.6%		
52	*Horizontal-pulling hose machine	Length	C.S.for Sock Stretch Tester JJF(FangZhi)017	(0~300)mm	U=0.03mm		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Moving speed of the pulling staff		(0~100) mm/s	$U=0.4\text{mm/s}$		
		Constant pulling force		(0.2~500) N	$U_{\text{rel}}=0.16\%$		
53	*Fluffer (rolling box type)	Length	C.S.for Fuzzing and Pilling Tester JJF(FangZhi)053	(0~300)mm	$U=0.03\text{mm}$		
		Rotate speed of the box		(40~100) r/min	$U=1\text{r/min}$		
		Mass of the sample pipe		(0~3000)g	$U=0.06\text{g}$		
54	*Fabric rigidity and straighty tester (bevel method)	Length	C.S.for Fabric Stiffness Tester JJF(FangZhi)054	(0~300)mm	$U=0.03\text{mm}$		
		Angle of the bevel		$0^{\circ} \sim 90^{\circ}$	$U=4'$		
		Speed		(0~1000)mm/min	$U=0.5\text{mm/min}$		
55	*Whole Shoe Bending Test Machine	Flexionangle	Calibration Method of Whole Shoe Bending Test Machine FFL1432	(0~55) $^{\circ}$	$U=0.6^{\circ}$		
		Flexion frequency		(100~300)次/min	$U=2\text{records/min}$		
56	*Akron Abrasion Machine for Rubber	Length	C.S.for Akron Abrasion Machine for Rubber JJG(SH)039	(0~300) mm	$U=0.06\text{mm}$		
		Angle		(-90 $^{\circ}$ ~ +90 $^{\circ}$)	$U=4'$		
		Force		(1~50) N	$U=0.07\text{N}$		
		Speed		(1~1000) r/min	$U=0.8\text{r/min}$		
57	*Sliver and Roving Length Sampler	Length	C.S.for Sliver and Roving Length Sampler JJF(FangZhi)001	(0~600)mm	$U=0.45\text{mm}$		
		Angle		(0~5000)r/min	$U=0.3\text{r/min}$		
		Mass		(0~10)kg	$U=0.6\text{g}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
58	*Comb staple method fleece diagram machine	Length	C.S.for Wool Fiber Comb Stapling Sorter JJF(FangZhi)025	(0~300) mm	$U = (0.02 \sim 0.06) \text{ mm}$		
59	*Woven Pilling Tester	Diameter	C.S.for Circular Locus Method Fuzzing and Pilling Testers JJF(FangZhi)031	(0~300) mm	$U = 0.4 \text{ mm}$		
		Velocity		(1~60) 次/min	$U = 0.1 \text{ Times/min}$		
		Weight		(100~500)cN	$U = 0.3 \text{ cN}$		
60	*Board Winder	Dimension of the blackboard	C.S.for the Winding Black Board Tester JJF(FangZhi)012	(0~1500)mm	$U = 0.6 \text{ mm}$		
		Mass		(0.1~3)kg	$U = 0.06 \text{ g}$		
61	*Cotton Lap Evenness Measuring Machine	Mass	C.S.for Cotton Lap Evenness Measuring Machine JJF(FangZhi)003	(0~1)kg	$U = 0.8 \text{ g}$		
		Length		(0~1000)mm	$U = 0.6 \text{ mm}$		
		Speed		(0~3000)mm/min	$U = 28 \text{ mm/min}$		
62	*Hand Twist Tester	Height	C.S.for the Hand Twist Tester JJF(FangZhi)009	(0~100)g	$U = 0.3 \text{ g}$		
		Length		(0~300)mm	$U = 0.10 \text{ mm}$		
63	*Roller Fiber Length Analyzer	Force	C.S.for Roller Fiber Length Analyzer JJF(FangZhi)024	(2~50)N	$U_{\text{rel}} = 0.3\%$		
		Length		(0~300)mm	$U = 0.23 \text{ mm}$		
64	*Fabric Drapability Tester	Time	C.S.for Fabric Drapability Tester JJF(FangZhi)033	(0~3600)s	$U = 0.3 \text{ s}$		
		Length		(0~300)mm	$U = 0.06 \text{ mm}$		
		Rate		(0~1000)r/min	$U = 1.2 \text{ r/min}$		
65	*Pendulum Tear Instruments	Force	C.S.for Pendulum Tear Instruments JJF1553	(0.2~128)N	$U = 0.4\% \text{ FS}$		



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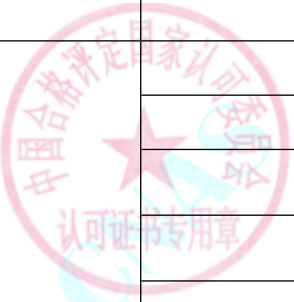
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Length		(0~300)mm	<i>U</i> =0.06mm		
66	*Tester for Down-proof Properties of Fabrics（Rubbing Test）	Length	C.S.for Tester for Down-proof Properties of Fabrics (Rubbing Test) JJF(FangZhi)064	(0~300)mm	<i>U</i> =0.06mm		
		Rate		(0~1000)r/min	<i>U</i> =1.2r/min		
67	*Footwear Outsoles Abrasion Tester	Force	Calibration Method of Footwear Outsoles Abrasion Tester FFL1422	(1~500)N	<i>U</i> _{rel} =0.3%		
		Moving Speed		(0~200)r/min	<i>U</i> =0.2r/min		
		Length		(0~300)mm	<i>U</i> =0.03mm		
68	*Sole Flexing Testing	Flexionangle	Calibration Method of Sole Flexing Testing FFL1435	(0~55)°	<i>U</i> =0.6°		
		Flexion frequency		(100~300)次/min	<i>U</i> =2records/min		
69	*Rotating Cylinder Drum Abrasion Machine	Rotation	C.S.for Rotating Cylinder Drum Abrasion Machine JJF（Min）1067	(20~1000) r/min	<i>U</i> =0.3 r/min		
		Time		(0~600) s	<i>U</i> =1.0 s		
		Length		Displacement: (0~450) mm	<i>U</i> =1.0 mm		
				Diameter: (50~300) mm	<i>U</i> =0.06 mm		
		Force		(0.1~20) N	<i>U</i> _{rel} =0.6%		
70	*Flexing Test Apparatus	Angle	Calibration Method of Flexing Test Apparatus FFZ1206	(0~120)°	<i>U</i> =0.2°		
		Frequency		(10~500)min ⁻¹	<i>U</i> _{rel} =0.2%		
13 Specialized Measuring Instrument for Motor Vehicle							
1	*Headlamp Testers for Motor Vehicle	Luminousintensity	V.R.of Headlamp Testers for Motor Vehicle JJG745	(5~100)kcd	<i>U</i> _{rel} =4.0%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Angel		up3° ~down3° left3° ~right3°	$U=4'$		
		Height		(0.1~1.5)m	$U=3\text{ mm}$		
2	*Axle (Wheel) Load Scale(Curb weight weighting instrument)	Mass	V.R.of Special Axle (Wheel Load Scale for Motor Vehicle Test JJG1014	(1~30000)kg	$U_{\text{rel}}=0.6\%$		
3	*Roller Type Speed- Meter Tester	Speed	V.R.of Roller Type Speedometer Tester JJG909	(1~120)km/h	$U_{\text{rel}}=0.8\%$		
		External diameter of drum		(0.02~500)mm	$U_{\text{rel}}=0.1\%$		
4	*Roller Opposite Forces Type Brake Tester	Force	V.R.of Roller Opposite Force Type Brake Testers JJG906	(0.4~40)kN	$U_{\text{rel}}=0.9\%$		
		Adhesion Coefficient		(0.01~1.00)	$U=0.06$		
5	*Automobile Side Slip Testers	Displacement	V.R.of Automobile Side Slip Testers JJG908	(-10~10)m/km	$U=0.06\text{ m/km}$		
		Force		(10~130)N	$U=3\text{ N}$		
6	*Brake Foot Plate Forces Meter for Automobile	Force	C.S.for Manipulating Force Tester for Automotive Brake JJF1169	(1~1000)N	$U_{\text{rel}}=0.8\%$		
7	*Automotive Chassis Dynamometer	Speed	V.R.of Equipment of Power Measuring JJG653	(1~120)km/h	$U_{\text{rel}}=0.20\%$		
		Driving Force		(200~10000)N	$U_{\text{rel}}=0.3\%$		
		Radial play eccentricity		(0.02~500)mm	$U_{\text{rel}}=0.1\%$		
		Radial play eccentricity		(0.01~10)mm	$U_{\text{rel}}=0.05\%$		
		Generatrix Parallelism		(0.02~500)mm/m	$U=0.3\text{ mm/m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
8	*Wheel Alignment Testers of Level Type	Angel	C.S.for Wheel Alignment Testers of Level Type JJF1377	Level Tester:(-5° ~16°)	<i>U</i> =0.12°		
		Length		Turntable:-50° ~50°	<i>U</i> =0.3°		
				Toe gauge:(-35~35)mm	<i>U</i> =0.3 mm		
9	*Motorcycle Wheel Deviation Testers	Displacement	V.R.of Motorcycle Wheel Deviation Testers JJG910	(-12~12)mm	<i>U</i> =0.06mm		
10	*Motor Vehicle Engine Speed Measuring Instruments	Ration	C.S.for Motor Vehicle Engine Speed Measuring Instruments JJF1375	(480~21000) r/min	<i>U</i> _{rel} =0.30%		
		Time		(0.1~60)s	<i>U</i> =1.0 s		
11	*flow analyzedr for short transient loaded mode of gasonline vehicles	Flow	C.S.for Flow Analyzer for Short Transient Loaded Mode of Gasoline Vehicles JJF1385	(80~200)L/s	<i>U</i> _{rel} =2%		
		Diluentoxyge nContent		(0.1~25.0)×10 ⁻²	<i>U</i> _{rel} =1%		
		Time		(1~60)s	<i>U</i> =1 s		
12	*Chassis Dynamometers for Automobile Emissions Testing	Ration	C.S.for Chassis Dynamometers for Automobile Emissions Testing JJF1221	(1~120)km/h	<i>U</i> _{rel} =0.20%		
				(0.2~10)kN	<i>U</i> _{rel} =0.3%		
				(0.1~200)s	<i>U</i> _{rel} =0.2%		
		Roller diameter		(100~500)mm	<i>U</i> _{rel} =0.1%		
		Radial play eccentricity		(0.01~10)mm	<i>U</i> _{rel} =0.05%		
		Generatrix Parallelism		(0.02~500)mm/m	<i>U</i> =0.3 mm/m		
		Power		(0.1~10)kW	<i>U</i> =0.3 kW		
		Inertia		(1~2000)kg	<i>U</i> _{rel} =1.2%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
13	*Loading Method Automobile Brake Tester	Weight	V.R.of Loading Method Automobile Brake Testers JJG1160	(1~30000)kg	$U_{rel}=0.6\%$		
		Bake Force		(0.4~40)kN	$U_{rel}=0.9\%$		
		Adhesion Coefficient		(0.01~1.00)	$U=0.06$		
		Lift Height		(0.02~200)mm	$U=0.4\text{ mm}$		
14	*Vehicle Fuel Consumption Instrument Based on Carbon Balance Method	Concentration	Calibration Specification for Fuel Consumption Instruments Based on Carbon Balance Method	$C_3H_8:(50\sim800)\times10^{-6}$ mol/mol	$U_{rel}=1.6\%$		
				$CO:(0.04\sim0.8)\times10^{-2}$ mol/mol	$U_{rel}=1.4\%$		
				$CO_2:(0.4\sim3.2)\times10^{-2}$ mol/mol	$U_{rel}=1.4\%$		
		Flow		(4~40)m ³ /min	$U_{rel}=1.2\%$		
15	*Parking Brake Performance Testers for Vehicles	Force	C.S.for Parking Brake Performance Testers for Vehicles JJF1671	(1~100)kN	$U_{rel}=0.4\%$		
16	*Diesel Vehicle Nitrogen Oxides (NO _x) Measuring Instrument	Concentration	C.S.for Diesel Vehicle Nitrogen Oxides(NO _x) Measuring JJF 1873	$NO:(1\sim4000)\times10^{-6}$ mol/mol	$U_{rel}=1.1\%$		
				$NO_2:(1\sim1000)\times10^{-6}$ mol/mol	$U_{rel}=3.0\%$		
				$CO_2:(0.1\sim18)\times10^{-2}$ mol/mol	$U_{rel}=1.7\%$		
		Conversion rate		0.1%~100%	$U_{rel}=3.2\%$		
		Response time		(1~60)s	$U=1s$		
17	*Adhesion Coefficient Testers	Adhesion Coefficient	C.S.for Adhesion Coefficient Testers JJF1551	0.00~1.00	$U=0.01$		



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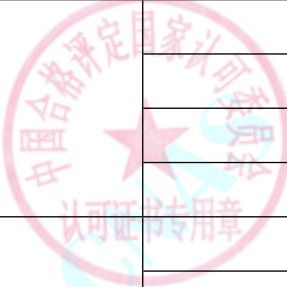
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Vertical Load of Wheel		(0.4~3)kN	$U_{rel}=0.2\%$		
18	*Platform Brake Testers	Force	V.R.of Platform Brake Testers JJG1020	(0.1~15)kN	$U_{rel}=0.9\%$		
		Mass		(1~10000)kg	$U_{rel}=0.6\%$		
19	*Exhaust Gas Analyzer for Short Transient Loaded Mode of Gasoline Vehicle	Gas concentration	C.M.for Exhaust Gas Analyzer for Short Transient Loaded Mode of Gasoline Vehicle FFY1901	HC:(1~3200) $\times 10^{-6}$ mol/mol	$U_{rel}=1.1\%$		
				CO:(0.01~16.00) $\times 10^{-2}$ mol/mol	$U_{rel}=1.1\%$		
				CO ₂ :(0.1~18.0) $\times 10^{-2}$ mol/mol	$U_{rel}=1.1\%$		
				O ₂ :(0.1~25.0) $\times 10^{-2}$ mol/mol	$U_{rel}=1.1\%$		
				NO:(1~5000) $\times 10^{-6}$ mol/mol	$U_{rel}=1.1\%$		
				NO ₂ :(1~400) $\times 10^{-6}$ mol/mol	$U_{rel}=2.4\%$		
		Conversion Rate		0.1%~100%	$U=3.2\%$		
		Response Time		(0.1~9999)s	$U=1.0$ s		
20	*Turning angle testers for automobile	Angle	C.S.for Turning Angle Testers for Automobile JJF1141	-50° ~+50°	$U=0.20^\circ$		
21	*Braking performance tester for motor vehicles	Acceleration	C. S. for Portable Braking Performance Testers of Vehicles JJF1168	Static:(0~4.9)m/s ²	$U=0.03$ m/s ²		
				Static:4.9m/s ² ~9.81m/s ²	$U_{rel}=0.5\%$		
				Dynamic:0.01m/s ² ~9.81m/s ²	$U_{rel}=1.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
22	*Measurement Device for Bus Gangway and Access Passage	Length	C.S. for Measurement Devices of Bus Gangway and Access Passage JJF2047	Thickness:(0~150) mm	U=0.1 mm		
				Diameter:(50~600) mm	U=0.3 mm		
				Height and width:(0~2000) mm	U=1 mm		
23	*Four-wheel alignmeter	Angle	C.S.for Four-wheel alignmeter JJF1154	-15° ~+23°	U=1.2'		
24	*Vehicle Dimensions Measuring Instruments	Length	C.S.for Vehicle Contour Dimensions Testers JJF1749	(0~2)m	U=0.006 m		
				(2~30)m	U _{rel} =0.3%		
25	*Four-wheel alignmeter devices	Angle	C.S.for Calibration Devices of Four-wheel Aligner JJF1489	0° ~360°	U=0.006°		
26	*Automotive Suspension Tester	Mass	C.S.for Automotive Suspension Tester JJF1192	(1~3000)kg	U _{rel} =1%		
27	Motor Vehicle Testers for Steering Force and Steering Angle	Torque	C.S.forMotor Vehicle Testers for Steering Force and Steering Angle JJF1196	(1~100)Nm	U _{rel} =1.0%		
		Force		(1~500)N	U _{rel} =1.0%		
		angle		0~1200°	U=0.8°		
28	*Non-contact Automotives Speedmeter	Speed	C.S.for Non-contact Automotives Speedmeter JJF1193	(5~50)km/h	U=0.13 km/h		
				(50~180)km/h	U _{rel} =0.3%		
		Distance		(1~30)m	U=0.09 m		
				(30~1000)m	U _{rel} =0.3%		
29	*Tester for Tyre Strength and Bead Unseating	force	C.S of Tester for Type Strength and Bead Unseating Resistance JJF1194	(0.5~100)kN	U _{rel} =0.4%		
		displacement		(0~400)mm	U=0.3 mm		



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	Resistance	speed		(1~50)mm/min	<i>U</i> =0.3 mm/min		
30	*Transmission Meters	Transmittance	C.S.for Transmittance Meter of Automobile JJF1225	0~100%	<i>U</i> =0.4%		
31	*Opacimeters	Absorptance	V.R.for Opacimeters JJG976	0~98.6%	<i>U</i> =0.6%		
32	*Filter-Type Smoke- meters	Smokevalue	V.R.of Filter Type Smokemeters JJG847	(0.8~10)BSU	<i>U</i> =0.22 BSU		
33	*Wheel Dynamic Balancer	Spindleaxialp ositioningplat eEndCircular Run-out	C.S.for Wheel Dynamic Balancers JJF1151	(0~12.7)mm	<i>U</i> =0.02 mm		
		SpindleRadial CircularRun- out		(0~12.7)mm	<i>U</i> =0.02 mm		
		Width		(0~500)mm	<i>U</i> =0.04 mm		
		Minimum achievable residualun balance		(0~121)g	<i>U</i> =4.3 g		
		Segregation ratio		(0~0.125)	<i>U</i> =0.05		
		Repeat installation card		(0~50)g	<i>U</i> =1 g		
		Phase		0~360°	<i>U</i> =1°		
34	*Close Speedmeter	Speed	C.M.for Close Speedmeter FFM1902	(0.15~10)m/s	<i>U</i> =0.02 m/s		
				(10~30)m/s	<i>U</i> _{rel} =0.3%		
14 Specialized Measuring Instrument for Meteorology & Marine Field							



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
1	Meteorological Liquid-in-glass Thermometers	Temperature	V.R.of Meteorological Liquid-in-Glass Thermometers JJG207	(-60~+80)℃	<i>U</i> =(0.025~0.028)℃		
2	Bucket Thermometers	Temperature	V.R.of Bucket Thermometers JJG289	(-5~+40)℃	<i>U</i> =0.09℃		
3	*Measuring apparatus for calibration of mine airspeed measuring instrumen	Length	V.R.of measuring apparatus for calibration of mine airspeed measuring instrument JJG(Meitan)02	(0~1000)mm	<i>U</i> =1mm		
		Velocity		Velocity (0.2~50)m/s	<i>U</i> =(0.05~0.25)m/s		
				Uniformity of velocity (0.01~2.00)%	<i>U</i> =0.20%		
				Stability of velocity (0.01~1.00)%	<i>U</i> =0.1%		
4	*Raingauge and graduated cylinder	length	V.R.of Raingauge and Measuring Cylinder JJG524	(0~300)mm	<i>U</i> =0.05 mm		
		Rainfall		(0~2)mm	<i>U</i> =0.010mm		
				(>2~10.5) mm	<i>U</i> =0.012mm		
5	*Hurricane Globe	Length	C.M.of Hurricane Globes FFZ1611	Bore Diameter: (1~3)mm	<i>U</i> =0.05mm		
		Occupied area		(0.003~10)m	<i>U</i> =0.7mm		
				10%~90%	<i>U</i> =2%		
6	*Tipping-Bucket Rainfall Recorder	Inner Diameter	V.R.of Tipping-Bucket Rainfall Recorder JJG(水利)005	(0~300)mm	<i>U</i> =0.05mm		
		Rainfall		(5~20) mm	<i>U</i> _{rel} =(0.6~0.1)%		
7	*Pyranometer	Sensitivity	Calibration Method of Pyranometer Sensor FFJ1409	(6~15) μ V • m ² /W	<i>U</i> _{rel} =3.7%	only for outdoor method	
		Irradiance		(0.1~2000)W/m ²	<i>U</i> _{rel} =3.7%		
8	Pyrheliometer	Sensitivity	V.R.of Pyrheliometer JJG456	(7~14) μ V/W/m ²	<i>U</i> _{rel} =11%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
15 Specialized Measuring Instrument for Papermaking & Paper and Board							
1	*Bursting strength tester	Bursting value	C.S.for Bursting Strength Testers for Paper (Board) JJF1811	(0~10)MPa	$U=0.13\%FS$		
2	*Absorption tester for paper and board	Acreage	V.R.of absorption tester for paper and board JJG(QingGong)55	(0~150) cm ²	$U=0.6mm^2$		
		length		(0~300) mm	$U=0.04mm$		
		weight		(0~10) kg	$U=0.05kg$		
3	*Stiffness tester for board	twistingforce	V.R.of stiffness tester for board JJG(QingGong)57	(10~500)mN • m	$U_{rel}=0.3\%$		
		velocity		(0~300) ° /min	$U=3^{\circ} /min$		
4	*Puncture Resistance Tester for Board	Length	V.R.of Puncture Resistance Tester for Board JJG(QingGong)56	(0~300)mm	$U=0.04mm$		
		Strength		(1~50)J	$U_{rel}=0.3\%$		
5	*MIT Type Folding Endurance Tester	Fold number	V.R.of MIT Type Folding Endurance Tester JJG(QingGong)59	(1~100)Times	$U=2Times$		
		Force		(0.01~50) N	$U=0.07N$		
		Folding angle		0° ~135°	$U=0.8^{\circ}$		
		Folding speed		(0~200)Times/min	$U=3Times/min$		
6	*Tensile Strength Testing Machines for Paper and Board	theaccuracyof theforcevalue	C.S. for Tensile Strength Testing Machines for Paper and Board JJF(QingGong)115	(1~1000)N	$U_{rel}=0.12\%$		
		The test of speed error		(1~500)mm/min	$U_{rel}=1.2\%$		
		Elongation		(1~500)mm	$U=0.10mm$		
7	*Horizontal tension tester for paper and board	theaccuracyof theforcevalue	V.R.of horizontal tension tester for paper and Board JJG(QingGong)58.2	(1~1000)N	$U_{rel}=0.12\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		the test of speed error		(1~500)mm/min	$U_{rel}=1.2\%$		
		Tensile energy absorption value measurement error		(0.2~2)J	$U_{rel}=0.3\%$		
8	*Ink Absorbency tester for paper and board	speed	V.R of Ink Absorbency tester for paper and board JJG(QingGong)68	(0~20) cm/min	$U=0.3\text{cm/min}$		
		Plate thickness		(0~2) mm	$U=3\text{ }\mu\text{m}$		
		Ink area		(0~30) cm ²	$U=0.6\text{mm}^2$		
9	*Schopper type folding endurance tester for paper	Tension	V.R of Schopper type folding endurance tester for paper JJG(QingGong)60	(0.1~50) N	$U=0.03\text{N}$		
		Folding rate		(0~200) 次/min	$U=3\text{times/min}$		
10	*Compression Strength Tester for Board	Force value	V.R of Compression Strength Tester for Board JJG(Yue)018	(0.1~50)kN	$U_{rel}=0.12\%$		
		Compression speed		(0~50) mm/min	$U=0.2\text{mm/min}$		
11	*Softness tester	force	V.R of softness tester JJG(QingGong)64	(10~1000)mN	$U_{rel}=0.14\%$		
		velocity		(0~2) mm/s	$U=0.06\text{mm/s}$		
12	*Paper and paperboard tearing tester	Length	V.R of Tear Tester for Paper and Board JJG(QingGong)63	(0~50) mm	$U=0.06\text{mm}$		
		force		(1~100)N	$U_{rel}=0.18\%$		
13	*Smoothness Tester	Pressure	C.M of Smoothness Testers FFZ1615	(-100~100)kPa	$U=0.2\text{ kPa}$		
		Time		(0~3600)s	$U=0.16\text{s}$		
14	*Carton Box Tester of Crush	Force	V.R of Carton Box Tester of Crush Resistance	(0.1~50)kN	$U_{rel}=0.3\%$		

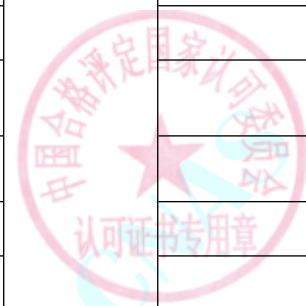
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Resistance	Distortion	JJG(Yue)043	(0~500)mm	$U=0.07\text{mm}$		
16 Specialized Measuring Instrument for Medical Device							
1	*Urine Analyzer	GLU	C.S.for Urine Analyzers JJF1129	(0.1~56)mmol/L	$U_{\text{rel}}=7\%$		
		pH		5.0~8.0	$U_{\text{rel}}=5\%$		
		Proteid		(0.1~3.0)g/L	$U_{\text{rel}}=8\%$		
2	*Cardiac Defibrillators	Delivered Energy	C.S.for Cardiac Defibrillators JJF1149	(1~50)J	$U=2.4\text{J}$		
				(50~360) J	$U_{\text{rel}}=5.6\%$		
		Heart Rate		(25~300)min ⁻¹	$U_{\text{rel}}=1.0\%$		
		Scan Speed		(5~60)mm/s	$U_{\text{rel}}=1.2\%$		
		Voltage		0.1mV~5mV	$U_{\text{rel}}=1.6\%$		
		Charge Time		0.1s~50s	$U=0.6\text{s}$		
		synchronizati on Delay Time		(1~80)ms	$U=2.4\text{ms}$		
		Pulse current amplitude of transcutaneou s pacing		(2~100) mA	$U_{\text{rel}}=4.8\%$		
		pacer pulse width		(100~150) mA	$U_{\text{rel}}=2.4\%$		
		Pulse rate of transcutaneou s pacing		(20~50) ms	$U_{\text{rel}}=2.4\%$		
	*Medical Injector	Flow	C.S.for Syringe Pumps and	(40~100) bpm	$U_{\text{rel}}=2.0\%$		
				(100~200) bpm	$U_{\text{rel}}=1.3\%$		
3	*Medical Injector	Flow	C.S.for Syringe Pumps and	(5~20)mL/h	$U_{\text{rel}}=2.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Pumps & Infusion Pumps	Pressure	Infusion Pumps JJF1259	(20~200) mL/h	$U_{rel}=1.3\%$		
				(200~1000) mL/h	$U_{rel}=2.5\%$		
				(1~200) kPa	$U=3.8\text{kPa}$		
4	*Baby Incubators	Temperature	C.S.for Baby Incubator JJF1260	(20~50)°C	$U=0.16^{\circ}\text{C}$		
		Relative humidity		(30~98)%RH	$U=2\%\text{RH}$		
		Noise		30dB~90dB	$U=2.0\text{dB}$		
		Oxygen Concentration		30%~40%	$U=2.4\%$		
5	*Digital Electrocardiographs	Voltage	V.R.for Digital Electrocardiographs JJG1041	0.1mV~6mV	$U_{rel}=1.6\%$		
		Amplitude Frequency Characteristic		(0.5~75)Hz	$U_{rel}=1.1\%$		
		Time		(3~10)s	$U_{rel}=0.6\%$		
		Heart Rate		(30~300)min ⁻¹	$U_{rel}=1.2\%$		
6	*Ambulatory Electrocardiographs	Voltage	V.R.for Ambulatory Electrocardiographs JJG1042	(0.1~6)mV	$U_{rel}=0.8\%$		
		Frequency Response		(0.5~40)Hz	$U_{rel}=1.1\%$		
		Timing		1min~24h	$U=3\text{s}$		
		Tracing Speed		25mm/s, 50mm/s	$U_{rel}=1.0\%$		
7	*Multi-Parameter Monitor	Pressure	V.R.of Multifunction Patient Monitoring Instruments JJG1163	(0~40)kPa	$U=0.2\text{kPa}$		
		Pulse Rate		(30~300)min ⁻¹	$U=1\text{min}^{-1}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Voltage		0.1mV~5mV	$U_{\text{rel}}=1.6\%$		
		Heart Rate		(30~200)min ⁻¹	$U_{\text{rel}}=1.2\%$		
8	*Ventilar	Tidal Volume	C.S.for Lung Ventilators JJF1234	(50~1000)mL	$U_{\text{rel}}=4.3\%$		
		pressure		(0.2~3.0)kPa	$U=0.1\text{kPa}$		
		Oxygen Concentration		21%~100%	$U=2.5\%$		
		Frequency		(10~40)min ⁻¹	$U_{\text{rel}}=2.6\%$		
9	*Electro Cardiac Monitor	Voltage	V.R.of Electro Cardiac Monitor JJG760	0.1mV~5mV	$U_{\text{rel}}=1.6\%$		
		Scan Speed		(10~50)mm/s	$U_{\text{rel}}=1.2\%$		
		Amplitude Frequency Characteristic		(1~60)Hz	$U_{\text{rel}}=1.2\%$		
		Heart Rate		(27~200)min ⁻¹	$U_{\text{rel}}=1.2\%$		
10	*Impression Tonometers	Mass	V.R.of Impression Tonometers JJG574	(2~20)g	$U=0.007\text{g}$		
		Impression depth		(0~1)mm	$U=0.008\text{mm}$		
11	*Buoy Type Oxygen Inhaler	Pressure	V.R.of Buoy type Oxygen inhalers JJG913	(0~25)MPa	$U=0.14\text{ MPa}$		
		Flow		(1~12)L/min	$U_{\text{rel}}=1.2\%$		
12	*Electronsorgical Generator	Current	C.S.for Electronsorgical Generator JJF1217	(1~500)mA	$U_{\text{rel}}=3.1\%$		
		Power		(1~400)W	$U_{\text{rel}}=6.2\%$		
13	*Electroencephalographs	Voltage	V.R.of Digital Electroencephalographs JJG954	5 μV ~2mV	$U_{\text{rel}}=1.6\%$		
		Time		0.05s~5s	$U_{\text{rel}}=1.8\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Amplitude Frequency Characteristic		(1~60)Hz	$U_{rel}=1.6\%$		
14	*Pulmonary Function Measuring Instrument	VitalCapacity	C.S.for the Pulmonary Measuring Instrument JJF1213	(0.5~10)L	$U_{rel}=1.2\%$		
		Maximal Voluntary Ventilation		(1~250)L/min	$U_{rel}=2.8\%$		
		Force Vital Capatity		(0.5~10)L	$U_{rel}=1.4\%$		
		Peak Expiratory Flow		(2~14)L/s	$U_{rel}=3.0\%$		
15	*Medical Diagnostic System of Magnetic Resonance Imaging (MRI)	Uniformity	Technical Specification of Measurement for Medical Magnetic Resonance Image(MRI) JJG(粤)009	1%~100%	$U=3\%$		
		Resolution		(1~11)Lp/cm	$U_{rel}=0.6\%$		
		Slice Thickness		(2~20)mm	$U=0.2\text{mm}$		
		Magnetic Strength		(0.5~2.0)T	$U_{rel}=1.5\%$		
16	*Hemodialysis machine	pH	C.S.for Hemodialysis Equipment JJF1353	0~14	$U=0.06$		
		Conductivity		(12.5~15.5)mS/cm	$U_{rel}=1.2\%$		
		Temperature		(30~50)°C	$U=0.3^{\circ}\text{C}$		
		Pressure		(-40~60)kPa	$U=0.3\text{kPa}$		
		Flow		(300~800)mL/min	$U_{rel}=1.9\%$		
17	*Pressure Simulator	Static Pressure	Calibration Specification for NIBP Simulators JJF1626	(0~53.3)kPa	$U=0.04\text{kPa}$		
		Pulse Rate		(30~200)min ⁻¹	$U_{rel}=0.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
18	*Anaesthetic machines	Tidal Volume	Calibration Method of Anaesthetic Machines FFY1401	(50~1000)ml	$U_{rel}=2.3\%$		
		Pressure		(0.2~3.0)kPa	$U=0.1\text{kPa}$		
		N ₂ O		1%~100%	$U=4.8\%$		
		Oxygen Concentration		21%~100%	$U=1.0\%$		
		Ventilation Frequency		(1~50)min ⁻¹	$U_{rel}=1.8\%$		
19	*Simulated Lung	Lung Compliance	Calibration Method of Lung Simulator FFY1402	(1~2000)mL/kPa	$U_{rel}=1.3\%$		
		Pressure		(0~40)kPa	$U=0.08\text{kPa}$		
20	*Infant Radiant Warmers	Temperature	Calibration Method of Infant Radiant Warmers FFY1403	(20~50)°C	$U=0.14^{\circ}\text{C}$		
		Noise		(40~90)dB	$U=1.4\text{dB}$		
21	*Electrolyte Analyzers	Ion Concentration	V.R.for Electrlyte Analyzers JJG1051	K ⁺ : (1.50~7.50) mmol/L	$U_{rel}=2.2\%$		
				Na ⁺ : (100.0~180.0) mmol/L	$U_{rel}=1.6\%$		
				Cl ⁻ : (80.0~160.0) mmol/L	$U_{rel}=1.4\%$		
				Li ⁺ : (0.4~2.0) mmol/L	$U_{rel}=2.5\%$		
				iCa ²⁺ : (0.50~2.50)mmol/L	$U_{rel}=2.5\%$		
22	*Medical Syringe Pump and Infusion Pump Analyzers	Flow Rate	V.R.of Medical Syringe Pump and Infusion Pump Analyzers JJG1098	(5~1000) mL/h	$U_{rel}=0.4\%$	Accredited only for comparative measurement method	
		Occlusion Pressure		(0~200) kPa	$U=0.2\text{kPa}$		
		Total Flow		(10~50) mL	$U_{rel}=0.4\%$		



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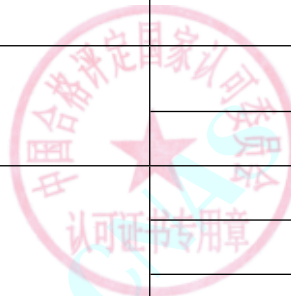
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
23	*Non-contact Tonometers	Pressure	Verification Regulation of Non-contact Tonometers JJG1143	(0.93~6.65) kPa	$U=0.3\text{kPa}$		
24	*Medical Suction Equipment	Pressure	Calibration Specification for Medical Suction Equipment JJF1810	(-100~-5)kPa	$U=1\text{kPa}$		
25	*Color Doppler Ultrasound Diagnostic Equipments(Blood Flow Measurement)	Blood Flow Velocity	C.S.for Color Doppler Ultrasound Diagnostic Equipments - Blood Flow Measurement JJF1438	(10~100) cm/s	$U=3.3\text{cm/s}$		
26	*Hemodialysis Equipment Tester	Pressure	C.S.for Hemodialysis Equipment Testers JJF1541	(0~100) kPa	$U=0.04\text{kPa}$		
		Temperature		(20~40) °C	$U=0.05^{\circ}\text{C}$		
		Conductivity		(1~50) mS/cm	$U=0.04\text{ mS/cm}$		
		Flow		(300~800) mL/min	$U_{\text{rel}}=0.7\%$		
		pH		0~14	$U=0.02$		
27	*SpO ₂ Simulator	Oxygen saturation	Calibration Specification for SpO ₂ Simulator JJF1542	35%~100%	$U=0.9\%$		
		Pulse rate		(30~300)min ⁻¹	$U=0.7\text{min}^{-1}$		
28	Ultrasound Phantoms	Sound Velocity	C.S.for Ultrasound Phantoms JJF1556	(1500~1600) m/s	$U_{\text{rel}}=0.4\%$		
		Attenuation Coefficient		(0.4~0.9) dB/cm	$U_{\text{rel}}=10\%$		
		Length		(1~30) mm	$U_{\text{rel}}=4.0\%$		
29	*Hemoperfusion Equipment	Flow Rate	C.S.for Hemoperfusion Equipment JJF1633	(300~800)mL/min	$U_{\text{rel}}=2.8\%$		



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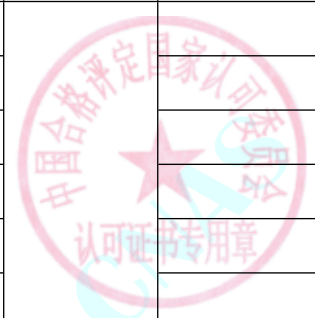
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Temperature		(25~50)℃	<i>U</i> =0.2 °C		
		Pressure		(-40~60)kPa	<i>U</i> =0.2 kPa		
		Soud Pressure Level		(30~100)dB	<i>U</i> =2.0dB		
30	*Phoropters	Spherical Equivalent	V.R.of Phoropters (Eye Chart Included) JJG1097	(-20.00~-15.00)m ⁻¹	<i>U</i> =0.05m ⁻¹		
				(>-15.00~<15.00)m ⁻¹	<i>U</i> =0.04m ⁻¹		
				(15.00~20.00)m ⁻¹	<i>U</i> =0.05m ⁻¹		
		Astigmatic Power		(-10.00~10.00)m ⁻¹	<i>U</i> =0.04m ⁻¹		
		Axial Position		(0~180) °	<i>U</i> =1 °		
		Optotype Size		(4~80) mm	<i>U</i> _{rel} =2.0%		
				(2~<4) mm	<i>U</i> _{rel} =3.0%		
		Illumination		(2~1000) lx	<i>U</i> _{rel} =9.4%		
		Luminance		(0.1~1000) cd/m ²	<i>U</i> _{rel} =12%		
		Prismatic degree		(0~1.0) cm/m	<i>U</i> =0.08cm/m		
31	*Ophthalmic instruments	Radius of Curvature	V.R.of Ophthal mometers JJG1011	(6.668~9.320)mm	<i>U</i> =0.01mm		
		Shaft Position		0° ~180°	<i>U</i> =2°		
32	*Calibration Specification for Continuous Blood Purification Equipment	Flow Rate	C.M.for Continuous Blood Purification Equipment JJF1844	(300~800) mL/min	<i>U</i> _{rel} =1.9%		
		Pressure		(-70~80) kPa	<i>U</i> =0.3kPa		
		Quality		(0~6) kg	<i>U</i> =0.5g		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
33	*Defibrillator Analyzer	Energy	C.S.for Defibrillator Analyzer JJF1860	(0.5~400)J	$U_{rel}=2.0\%$	Accredited only for Standard energy source device measurement method	
		Frequency		(1~25)Hz	$U_{rel}=0.12\%$		
		Heart Rate		(30~250)min ⁻¹	$U_{rel}=0.12\%$		
		Resistance		(20~250)Ω	$U_{rel}=0.2\%$		
34	*Insufflators	Pressure	C.S.for Insufflators JJF1892	(0~5.5)kPa	$U=86\text{Pa}$		
		Flow		(1~100)L/min	$U_{rel}=6.0\%$		
35	*Non-invasive Ventilators	Pressure	C.S.for Non-invasive Ventilators JJF1997	(0~10) kPa	$U=0.2\text{kPa}$		
		Oxygen Concentration		21%~60%	$U=3\%$		
		Respiratory Rate		(10~40) min ⁻¹	$U_{rel}=4\%$		
36	*Automatic Urinary Sediment Analyzers	Red Blood Cell	C.S.for Automatic Urinary Sediment Analyzers JJF1823	(150 ~ 2000) / μL	$U_{rel}=11\%$		
		White Blood Cell		(150 ~ 2000) / μL	$U_{rel}=11\%$		
37	*Applanation Tonometers	Acting Force	V.R.of Applanation Tonometers JJG1141	(0 ~ 30) mN	$U=0.32 \text{ mN}$		
				(30 ~ 40) mN	$U=0.36 \text{ mN}$		
				(40 ~ 50) mN	$U=0.42 \text{ mN}$		
				(50 ~ 60) mN	$U=0.47 \text{ mN}$		
				(60 ~ 70) mN	$U=0.53 \text{ mN}$		
				(70 ~ 80) mN	$U=0.60 \text{ mN}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
38	*Exercise Treadmills	Voltage	C.S.for Exercise Treadmills JJF1722	(0.1 ~ 5) mV	<i>U</i> _{rel} =2.2%		
		Heart Rate		(20 ~ 300) min ⁻¹	<i>U</i> _{rel} =1.4%		
		Treadmills Speed		(1~20)km/h	<i>U</i> _{rel} =1.5%		
39	*Cardiopulmonary Resuscitators	The Depth of Pressing	C.S.for Cardiopulmonary Resuscitators JJF1748	(30~50) mm	<i>U</i> _{rel} =1.2%		
		The Frequency of Pressing		(100~120) min ⁻¹	<i>U</i> _{rel} =3.4%		
		The Frequency of Individual Blowing		(10~20) min ⁻¹	<i>U</i> =0.8 min ⁻¹		
		The Tidal Volume		(200~1200) mL	<i>U</i> _{rel} =6.0%		
40	*Electromyographs and Evoked Response Equipments	Voltage	C.S.for Electromyographs and Evoked Response Equipments JJF1896	(100~5000) μ V	<i>U</i> _{rel} =4.2%		
		Frequency		(0.5~10) Hz	<i>U</i> _{rel} =1.5%		
				(10~100) Hz	<i>U</i> _{rel} =0.5%		
				(100~500) Hz	<i>U</i> _{rel} =0.3%		
				(500~3000) Hz	<i>U</i> _{rel} =0.2%		
		electrical stimulator singal frequency		(1~50)Hz	<i>U</i> _{rel} =1.8%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		electrical stimulator singal strength		(1~100) mA	$U_{rel}=10\%$		
		electrical stimulator pulse length		(0.1~1.0)ms	$U_{rel}=3.4\%$		
41	*Emergency and transport Ventilators	The Tidal Volume	C.S.for Emergency and transport Ventilators JJF1998	(50~1000) mL	$U_{rel}=6.8\%$		
		Frequency		(10~50)min ⁻¹	$U_{rel}=3.2\%$		
		Pressure		(0.2~3)kPa	$U=0.1\text{kPa}$		
42	*Ventilator Testers	Flow rate	C.M.for Ventilator Testers FFY2102	(0.5~180) L/min	$U_{rel}=1.3\%$		
		The Tidal Volume		(50~1000) mL	$U_{rel}=1.3\%$		
		Frequency		(10~50)min ⁻¹	$U_{rel}=1.3\%$		
		Pressure		(0~10)kPa	$U=0.04\text{kPa}$		
		Oxygen Concentration		21%~100%	$U=0.7\%$		
43	Blood cell counting plate (blood cell counting plate)	Flatness	V.R. of Blood cell counting plate JJG552	(0~1)mm	$U=0.001\text{mm}$		
		Length		(0~5)mm	$U=0.001\text{mm}$		
44	*Sphygmomanometer	Pressure	V.R.of Sphygmomanometer JJG270	(0~40)kPa	$U=0.3\text{ kPa}$		
45	*Non-invasive Automated Sphygmomanometers	Pressure	V.R.of Non-invasive Automated Sphygmomanometers JJG692	(0~40)kPa	$U=0.27\text{ kPa}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
46	*Dissolution Tester	Wobble	V.R.of Dissolution Tester JJG(粤)048	(0~10)mm	U=0.05 mm		
		Centering		(0~10)mm	U=0.08 mm		
		Rotate Speed		(6~200)r/min	U=0.4 r/min		
		Temperature		(0~50)℃	U=0.12 ℃		
17 Specialized Measuring Instrument for Railway							
1	*Track Gage for Standard Gauge Railway	Length	V.R. of Track Gage for Standard Gauge Railway JJG219	TrackGage:(1410~1470)mm	U=0.08mm		
				Hig Gage:(-175~+175)mm	U=0.09mm		
2	*Calibrators for Railway Track Gages	Length	V.R.of Calibrators for Railway Track Gages JJG404	(0~1500)mm	U=0.02mm		
3	*Railway Switch Offset Rule	Length	V.R.of Railway Switch Offset Rules JJG1108	(100~1400)mm	U=0.07mm		
4	Wheel Contour Gauge for Railway Locomotive and Vehicle	Length	V.R.of Wheel Contour Gauge for Railway Locomotive and Vehicle JJG(Railway)175	(0~200)mm	U=0.009mm		
5	*Measuring tools for wheel-diameter	Length	Measuring instrument for wheel-diameter of railway locomotivea and vehicles - part 2: V.R. of Measuring tools for wheel-diameter JJG1081.2	(760~1270)nm	U=0.15mm		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
6	Gauges for Measuring in side Rim Faces of Distance Between Railway Wheels	Length	V.R. for Calibrators of Wheel-Checkers for Railway Locomotives and Vehicles JJG1153	(1345~1365)mm	$U=0.040\text{mm}$		
7	Measuring Instrument for Straightness of Rail	Straightness Accuracy	V.R. for Measuring Instrument for Straightness of Rail JJG(Railway)167	(1000~3000)	$U=6\text{ }\mu\text{m}$		
8	Special Measurement Tools for Wheel-Diameter of Railway Locomotives and Vehicles	Length	V.R. for Special Measurement Tools for Wheel-Diameter of Railway Locomotives and Vehicles JJG(Railway)111	(0~2000)mm	$U=0.04\text{mm}$ (Wheel-Diameter Ruler)		
				(0~2000)mm	$U=0.08\text{mm}$ (Tester for Wheel-Diameter)		
9	*Calibrator for Railway Switch Offset Rule	Length	V.R. of Calibrators for Railway Switch Offset Rule JJG1109	(0~1290)mm	$U=0.04\text{mm}$		
10	*Wear Gauge for Rail	Length	V.R. of Railway Wear Gauge for Rail JJG1127	(9~19)mm	$U=0.03\text{mm}$ (Micrometer or Digital)		
				(9~19)mm	$U=0.10\text{mm}$ (Caliper)		
11	Ruler for Center Height of Coupler Railway	Length	V.R. for Rules for Measuring Center Height of Coupler for Railway Locomotive and Vehicle JJG1150		$U=0.16\text{mm}$		
					$U=0.14\text{mm}$		
12	*Wear Gauge for Fixed Railway Frog	Length	V.R. for Wear Gauge for Fixed Railway Frog JJG(Railway)187	(-10~+10)mm	$U=0.08\text{mm}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
13	Calibrators of wheel-checkers for railway locomotives and vehicles	Length	C.S.for Calibrators of Wheel-Checkers for Railway Locomotives and Vehicles JJG1155	(0~100)mm	$U=0.010\text{ mm}$		
14	*Ruler for Wheel-Diameter	Length	V.R. of Measuring Instrument for Wheel-Diameter of Railway Locomotives and Vehicles-Part 1: Ruler for Wheel-Diameter JJG1081.1	(760~1500) mm	$U=0.003\text{mm}+3\times 10^{-5}L$		
15	Means of Ruler for Wheel-Diameter	Length	V.R. of Means of Measuring Instrument for Wheel-Diameter of Railway Locomotives and Vehicles-Part 1: Means of Ruler for Wheel-Diameter JJG1082.1	(760~1270)mm	$U=0.01\text{mm}$		
16	Structure height gauges for Railway Frogs	Length	V.R. of Structure height gauges for Railway Frogs JJG1183	(-15~+15)mm	$U=0.01\text{mm}$		
18 Specialized Measuring Instrument for Building & Transportation							
1	Bituminous materials	Length	C.S. for Apparatus for Determining Penetration of Bituminous Materials	(0~100)mm	$U=0.003\text{mm}$	合格评定国家认可 证书专用章	
		Angle	JJF1208	$0^{\circ} \sim 100^{\circ}$	$U=10'$		
		Mass		(0~3000)g	$U=0.015\text{g}$		
2	Construction Quality Tester Sets	Angle	C.S. for Construction Quality Tester Sets JJF1110	(0~12)mm/m	$U=0.04\text{mm/m}$		
		Length		(0~600)mm	$U=0.08\text{mm}$		
3	*Crack depth tester	Length	C.S. for Concrete Crack Width and Depth Measuring Instruments JJF1334	Width(0~2)mm	$U=0.005\text{ mm}$		
				Depth (20~60) mm	$U=1.0\text{ mm}$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Scale(0.01~10)mm	U=0.002mm		
4	*Concrete slump constant tester	Length	V.R.of apparatus for concrete slump test JJG(Ji) 087	(0~100)mm	U=0.05mm		
				(100~300)mm	U=0.08mm		
5	*Sand tank	Length	V.R.of Sand-cone Density Apparatus JJG(JT) 120	(0~500)mm	U=0.06mm		
6	Test probe(Hook、Needle)	Length	C.M. of standardized apparatus for Safety testing FFC0105	(0~300)mm	U=0.0015mm		
7	*Deflection Instrument	Length	C.M. of Deflectometer FFC1409	(0~300)mm	U=0.05mm		
8	*Cement Mortar Specimen Jolting Table	Swing	C.S.for Jolting Table for Compacting Mortars Specimen JJF(JC)124	(0~20) mm	U=0.04mm		
		Time		(0~60) min	U=0.4s		
		Mass		(0~10)kg	U=0.03kg		
9	*Cement Mortar Mixer	Autorotation	C.S.for Mixer for Mixing Mortars JJF(JianCai)123	(1~999)r/min	U=(2~3)r/min		
		Time		(0~60)min	U=0.4s		
		Mass		(0~10)kg	U=0.3g		
		Length		(0~300)mm	U=0.04mm		
10	*Mixer for Cement Paste	Revolution	C.S.for Mixer for Cement Paste JJF(JianCai)104	(1~999)r/min	U=(2~3)r/min		
		Time		(0~60)min	U=0.4s		
		Dimension		(0~300)mm	U=0.04mm		
11	*Nonmetal Building Materials Plastic Limit	Angle	C.S.for Nonmetal Building Materials Plastic Limit Measuring Instruments	0° ~ 320°	U=0.10°		
		Dimension		(0~300)mm	U=0.04mm		



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	Measuring Instruments	Mass	JJF1090	(0~3)kg	U=0.06g		
12	*Cement Vibrator for Compacting Mortar Specimen	Swing	C.S. for Vibrator for Compacting Mortar Specimen	(0.1~1.0)mm	U=0.02mm		
		Frequency	JJF1867	(40~60)Hz	U=0.5Hz		
13	*Apparatus for Softening Point of Bitumen	Length	V.R.of Apparatus for Softening Point of Bitumen JJG(JiaoTong)057	(0~300) mm	U=0.04mm		
		Mass		(0~620) g	U=7mg		
		Thermometer		(0~300)°C	U=0.2°C		
		RisingSpeed of temperature		(0~100)°C/min	U=0.12°C/min		
14	*Portable Pendulum Tester	Mass	V.R.of Pendulum Friction Tester	(0~10) kg	U=0.7g		
		Length	JJG(JiaoTong)053,Pendulum	(0~600) mm	U=0.1mm		
		Static pressure	testers - Method of calibration BS7976-3 Item 1-11,Appendix A,B	(5~50)N	U=0.07N		
		Angle		(0~120) °	U=0.6°		
15	*Accelerated Polishing Machine	Length	V.R.of Accelerated Polishing Machine JJG(JiaoTong)054	(0~600) mm	U=0.04mm		
		Speed		(1~999) r/min	U=1.2r/min		
		Speed of affusing Carborundum		(0~100) g/min	U=0.25g/min		
		Load Pressure		(0.2~10000) N	U=0.4N		
16	*Lei' s clip Expand Value measuring	Various dimensions	Calibration Specification for the Expansion Tester for Cement Le Chatelier Needles JJG(JianCai)110	(0~600) mm	U=0.3mm		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	apparatus	Mass of Appropriative weight		(0~1000) g	U=0.02g		
		Relative error of staffgualscal e		(-50~+50) mm	U=0.04mm		
17	*Lei' s clip for cementinvariability test	Length	V.R.of Le-Chatelier apparatus for soundness test of the portland cement JJG(JianCai)111	(0~200) mm	U=0.04mm		
18	*Jolt Norm Sieve Shaker	Frequency	Calibration Method of Jolt Impact Sieve Shaker FFL0402	(1~999) min ⁻¹	U=2.6min ⁻¹		
		Length		(0~50) mm	U=0.06mm		
19	*Rebar Gauge Punching	Length	V.R.of Rebar Gauge Punching Machine JJG(JiaoTong)158	The adjacent mark points: (0~20) mm	U=0.05mm		
				The farthest difference mark point: (0~600) mm	U=0.10mm		
20	*Mixer (for Lab)	RotationRate	Calibration Method of Mixer(For Lab) FFL0406	(20~600) r/min	U=0.4r/min		
		Length		(0~1000) mm	U=0.3mm		
21	*Marshall test machine for bituminous mixtures	Speed	V.R.of marshall test machine for bituminous mixtures JJG(JiaoTong)066	(1~60)mm/min	U=0.3mm/min		
		Displacement		(0.5~100) mm	U=0.03mm		
		Force		(1~50)kN	U _{rel} =0.3%		
22	*Wearing machine for cement mortar	Rotatespeed	V.R.of Le-Chatelier apparatus for soundness test of the portland cement	(0~1000)r/min	U=0.2r/min		
		Force		(5~500)N	U _{rel} =0.3%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Time	JJG(JianCai)125	(0~60)min	<i>U</i> =1s		
23	*Rut-depth testing instrument	weight	Calibration Method of Rut-depth testing instrument	(0.1~30) kN	<i>U</i> _{rel} =0.13%		
		Pressure		(0~2)MPa	<i>U</i> =0.02MPa		
		displacement		(0~100) mm	<i>U</i> =0.005mm		
		Distance or Size		(0~300) mm	<i>U</i> =0.06mm		
		Crushing Speed		(0~100) time/min	<i>U</i> =0.3time/min		
24	*Asphalt mixture wheel grinding machine	pressure	Calibration Method of Asphalt Mixture Wheel Grinding Machine FFL1402	(0.1~30) kN	<i>U</i> _{rel} =0.3%		
		Temperature		(0~100)℃	<i>U</i> =0.3℃		
25	*Magnetic heating stirrer	Rate	Calibration Method of Magnetic Heating Stirrer FFL1408	(0~5000)r/min	<i>U</i> =(0.1~2)r/min		
		Temperature		(0~100)℃	<i>U</i> =0.3℃		
26	*Vibro-moulding Compactor	Mass	V.R.of Vibro-moulding Compactor JJG(JiaoTong)088	(0~10)kg	<i>U</i> =0.6g		
		Frequency		(0~100)Hz	<i>U</i> =0.2Hz		
		Force		(1000~2000)N	<i>U</i> _{rel} =0.2%		
		Length		(0~300)mm	<i>U</i> =0.06mm		
				(300~600)mm	<i>U</i> =0.10mm		
27	*On-Vehicle Bumping Integrator	Length	V.R.of On-vehicle Bumping Integrator JJG(JiaoTong)052	(0~200) mm	<i>U</i> =0.03mm		
				(0.2~100) m	<i>U</i> =0.1m		
28	*Inspecting Specifica- tion for Apparatus of	Dimension	V.R.of Apparatus of Fluidity of Cement Mortar JJG(JianCai)126	(0~300)mm	<i>U</i> =0.04mm		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Fluidity of Cement Mortar	Mass		(0~6.2)kg	<i>U</i> =1.0g		
29	*Compacting Instrument of Soil	Mass of Compacting Hammer	V.R.of Compaction Instrument of Soil JJG(JiaoTong)058	(0~10) kg	<i>U</i> =0.6g		
		Dia. of Compacting Hammer		(0~200) mm	<i>U</i> =0.04mm		
		Drop of high of Compacting Hammer		(0~1000) mm	<i>U</i> =0.4mm		
30	*Los Angeles Abrasion Testing Machine	Rotation Rate	V.R.of Los Angeles Abrasion JJG(JiaoTong)108	(1~50) r/min	<i>U</i> =0.4r/min		
		Length		(0~150) mm	<i>U</i> =0.03mm		
				(>150~1000) mm	<i>U</i> =0.6mm		
				Mass	(0~1000) g		
		(1~5.2) kg			<i>U</i> =1.2g		
31	Instrument of testing mortar-strength by penetration resistance method	Penetrating power	C.S.for Instrument of Testing Mortar-strength by Penetration Resistance Method JJF1372	(1~1500)N	<i>U</i> _{rel} =0.5%		
		Length		Impulse stroke (0~30) mm	<i>U</i> =0.04mm		
				Length (0~50) mm	<i>U</i> =0.04mm		
				The depth measuring device(0~20)mm	<i>U</i> =9 μ m		
32	*Tester for needle and slice	Length	C.S.for Needle and Flake Gages JJF1593	(0~100)mm	<i>U</i> =0.04mm		
33	*Boiling Box	Temperature	Calibration Method of Boiling Box FFR0503	(0~100) °C	<i>U</i> =0.8°C		

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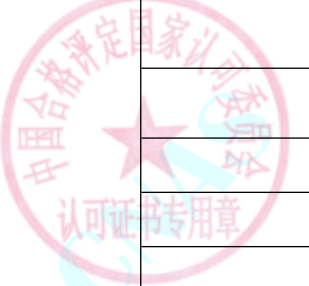
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Time		(0~3600)s	$U=(0.2\sim0.5)s$		
34	*Apparatus to Measure Water Permeability of Concrete	Pressure	C.S. for Bursting Strength Testers for Paper(Board) JJF1812	(0~4)MPa	$U=0.19\%FS$		
35	Test model of bituminous materials derermining ductility	Length	V.R.of Tester for Ductility of Bituminous Materials JJG(Communications)023	0mm~112mm	$U=0.03\text{ mm}$		
36	*Static Friction Coefficient Tester of Communication Conduct	Length	Vof static friction coefficient tester of communication conduct JJG(JiaoTong)081	(0~300) mm	$U=0.04\text{mm}$		
		Mass		(1~2000) g	$U=0.06\text{g}$		
		Roughness		Ra: (0.20~0.50) μm	$U_{\text{rel}}=5\%$		
37	*Measurer for Impact of Retroreflective sheeting	Length	V.R.of Measurer for Impact Resistance of Retroreflective sheeting JJG(JiaoTong)084	(0~300) mm	$U=0.04\text{mm}$		
		Weight of impacting ball		(0~2000) g	$U=0.2\text{g}$		
38	*Measurer for Resistance to Impact of Raised Pavement Markers	Height of stand	V.R.of Measurer for Resistance to Impact of Raised Pavement markers JJG(JiaoTong)080	(0~5000) mm	$U=3\text{mm}$		
		Weight of ball		(0~2000) g	$U=0.4\text{g}$		
39	*Measurer for Adhesion Performance of Retroreflective Sheeting	Mass	V.R of Measurer for Adhesion Performance of Retroreflective Sheeting JJG(JiaoTong)083	(0~2)kg	$U=0.06\text{g}$		
		Length		(0~600)mm	$U=0.07\text{mm}$		
40	*Drmn Tester for Tyre Endurance and High Speed	Drum diameter	C.S.forDrum Tester for Tyre Endurance and High Speed Test JJF1195	(1~1700) mm	$U=2\text{mm}$		
		test force		(0.5~60)kN	$U_{\text{rel}}=0.4\%$		



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	Test	test speed		(30~320)km/h	$U_{rel}=0.4\%$		
41	*Relative density instrument	Mass	V.R of Relative density instrument JJD1021	(0~10)kg	$U=0.7g$		
		Length		(0~300)mm	$U=0.04mm$		
		Dropofhigh		(0~1)m	$U=0.4mm$		
		Rate		(0~300)次/min	$U=0.1times/min$		
42	*Holding power tester	Mass	Calibration Method of Holding Power Tester FFL1416	(0~10)kg	$U=0.6g$		
		Length		(0~300)mm	$U=0.08mm$		
		Hardness		(0~100)HA	$U=2.8HA$		
43	Rebound of Hammer	Dimension	V.R.of Rebound of Hammer JJG817	(0~150)mm	$U=0.05mm$		
		Force		(0.2~1.0)N	$U=0.04N$		
		Rigidity		(60~900)N/m	$U=(0.2~2.3)N/m$		
44	*Daylight press	Force	C.M.of Press Vulcanizers FFZ1609	10kN~3MN	$U_{rel}=(0.12~0.38)\%$		
		Temperature		(0~220)°C	$U=0.6^{\circ}C$		
45	*Asphalt ductility instrument	Length	V.R.of Tester for Ductilily of Bituminous Materials JJG(JT)023	Streching Device: (0~2000) mm	$U=0.18\text{ mm}$		
				Streching Device Oscillation: (0~10) mm	$U=0.08\text{ mm}$		
				Mould: (0~150) mm	$U=0.04\text{ mm}$		
		Temperature		(0~90)°C	$U=0.06^{\circ}C$		
		rate		(10~300)mm/min	$U_{rel}=0.2\%$		



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46	*Coefficient of Friction Tester	Force	C.M.of Coefficient of Friction Testers FFZ1606	(0.1~500) N	$U_{rel}=0.12\%$		
		Speed		(1~500)mm/min	$U_{rel}=0.2\%$		
		length		(0.1~300) mm	$U=0.05\text{mm}$		
		Mass		(0~0.5) kg	$U=0.06\text{ g}$		
				(>0.5~2) kg	$U=0.12\text{ g}$		
				(>2~5) kg	$U=0.18\text{ g}$		
				(>5~20) kg	$U=1.2\text{ g}$		
				(>20~30) kg	$U=1.8\text{ g}$		
47	*Apparatus for impact test at low temperature	Length	Calibration Method of Impact Testing Apparatus At Low Temperature FFZ0613	(0~150) mm	$U=0.04\text{mm}$		
				(>150~300) mm	$U=0.06\text{mm}$		
		Mass		(0~0.5) kg	$U=0.06\text{g}$		
				(>0.5~2) kg	$U=0.12\text{g}$		
				(>2~5) kg	$U=0.6\text{g}$		
				(>5~10) kg	$U=1.2\text{g}$		
				Temperature	Temperature Deviation: (-60~40) °C		
		Temperature Fluctuation: (-60~40) °C			$U=0.10^{\circ}\text{C}$		
		Temperature Uniformity: (-60~40) °C			$U=0.4^{\circ}\text{C}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
48	*Heat Distortion Temperature and vicat softening temperature tester	Temperature	Calibrating Method of Heat Distortion Temperature and Vicat Softening Temperature Tester FFZ0801	(0~300)℃	U=0.16 ℃		
		Heating Rate		(10~150) ℃/h	U=0.4 ℃/h		
		Length		Displacement/Deflection: (0~2.0)mm	U=2 μm		
				Size: (0~300) mm	U=0.05 mm		
				Radius / Diameter: (0~5) mm	U=3 μm		
				(0~50) g	U=0.006g		
		Mass		(>50~200) g	U=0.012g		
				(>200~620) g	U=0.018g		
				(>620 ~2000) g	U=0.12g		
				(>2000~5200) g	U=0.18g		
				Force	(1~51) N		
49	*Unglazed Tiles Abrasion Tester	Revolution Speed	C.M. of Unglazed Tiles Abrasion Tester FFZ1603	(0~100)r/min	U=0.5 r/min		
		Force		(20~500)N	U _{rel} =0.3%		
		Length		(0~500)mm	U=0.05 mm		
50	*Faucets endurance testing machine	Temperature	C.M. of Faucets Endurance Testing Machines FFZ1605	(2~100)℃	U=0.2℃		
		Flow		(0.1~100)L/min	U _{rel} =(1.4~ 0.4)%		
		Pressure		-100 kPa~40MPa	U=0.10%FS		
		Force		(1~5000) N	U _{rel} =0.3%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Torque		(0.1~200) Nm	<i>U</i> _{rel} =0.3%		
		Angle		0~360°	<i>U</i> =0.2°		
51	*Measurer for Adhesion Performance of Zinc Coating of Steel Components	Geometrical dimension of Apparatus hardware	V.R of Measurer for Adhesion Performance of Zinc Coating of Steel Components	(0~300) mm	<i>U</i> =0.04mm		
		Mass of Hammer	JJG(JiaoTong)082	(0~2000) g	<i>U</i> =0.6g		
52	*Water seepage instrument of bituminous mixture	Mass	V.R of Water seepage instrument of road	(0~10)kg	<i>U</i> =0.6g		
		Length	JJG(JiaoTong)104	(0~600)mm	<i>U</i> =0.10mm		
53	*Mud Density Meter	Density	V.R.of Mud Density Meters JJG1045	(0.96~3)g/cm ³	<i>U</i> =(0.002~0.003)g/cm ³		
54	Pile Dynamic Measuring Instrument	Acceleration	V.R.of Pile Dynamic Measuring Instrument JJG930	(10~<160) Hz: (0.1~10000) m/s ²	<i>U</i> _{rel} =2.4%		
				160 Hz: (0.1~10000) m/s ²	<i>U</i> _{rel} =1.2%		
				(>160~2000) Hz: (0.1~10000) m/s ²	<i>U</i> _{rel} =2.4%		
		(10~2000) Hz		<i>U</i> _{rel} =0.1%			
		Strain Sensitivity		(100~1000) μ ε /mV/V	<i>U</i> _{rel} =2.0%		
55	*Pipe Burst Test Apparatus	Pressure	Calibration Method of Pipe Burst Test Apparatus FFZ1408	(0~4)MPa	<i>U</i> =0.8kPa		
				(>4~10) Mpa	<i>U</i> =3kPa		
				(>10~40) MPa	<i>U</i> =0.02MPa		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(>40~60) MPa	$U=0.03\text{MPa}$		
		Temperature		(5~100) °C	$U=0.3\text{°C}$		
		Time		(0~3600)s	$U=1\text{s}$		
56	*Testing Apparatu for Pavement Material Strength	Force	C.M.for Testing Apparatu for Pavement Material Strength FFL1906	(1~500)kN	$U_{\text{rel}}=0.3\%$		
		Length		(0.1~50)mm	$U_{\text{rel}}=0.3\%$		
57	*Lever Pressure Instrument	Force	V.R.of Lever pressure instrument JJG(JiaoTong)107	(0.1~5)kN	$U_{\text{rel}}=0.3\%$		
58	*Apparatus for Time of Setting of Concrete Mixture by penetration Resistance	Length	V.R.of Time of Setting of Concrete Mixture by Penetration Resistance JJG(JiaoTong)095	Pin Size: (0~25)mm	$U=6\text{ }\mu\text{m}$		
				Cylinder Size: (0~ 300)mm	$U=0.06\text{mm}$		
		Force		(0.1~5)kN	$U_{\text{rel}}=0.3\%$		
59	*Bitumen Toughness and Tenacity Testing Machine	Force	V.R.of Bitumen toughness and tenacity testing machine JJG(JiaoTong)118	(0.1~10)kN	$U_{\text{rel}}=0.12\%$		
		Displacement		(0.1~1000)mm	$U_{\text{rel}}=0.12\%$		
		Speed		(100~600)mm/min	$U=2\text{mm/min}$		
60	*Wet Track Abrasion Tester for Asphalt Emulsion Slurry Mixture	Rotation Speed	V.R.of Wet Track Abrasion Tester for Asphalt Emulsion Slurry Mixture JJG(JiaoTong)090	(50~999)r/min	$U=(0.3\sim 1.2)\text{r/min}$		
		Mass		(0~10)kg	$U=0.7\text{ g}$		
		Size		(0~300)mm	$U=0.06\text{mm}$		
61	*California Bearing Ratio Instrument	Force	V.R.of California Bearing Ratio Instrument JJG(JiaoTong)106	(1~1000)kN	$U_{\text{rel}}=0.3\%$		
		Mass		(0~10)kg	$U=0.7\text{ g}$		
		Size		(0~300)mm	$U=0.06\text{mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
62	*Test Instrument Timers	Time	C.M.for Test Instrument Timers FFZ2111	(0~10) s	U=0.13 s		
				>10s~10min	U=0.14 s		
				>10min~60min	U=0.17 s		
				>1h~24h	U=0.6 s		
63	*Cone Dynamic penetrometer	Drop weight	V.R.of Cone Dynamic Penetrometer JJG(JiaoTong)169	(0~300)kg	U=0.06kg		
		Probe diameter		(0~300)mm	U=0.06mm		
64	*Film Impact Testers	Mass	C.S. for Film Impact Testers JJF(ShiHua)002	(0~2000)g	U=0.3g		
		Slide cylinder scale		(0~600)mm	U=(0.16~0.22)mm		
65	Rebound Test Hammer Calibrators	Dimension	V.R.of Rebound Test Hammer Calibrators JJG(Zhe)135	(0~300)mm	U=0.05mm		
		Force		(0.4~250)N	$U_{rel}=0.13\%$		
		Friction Force		(0.2~1)N	U=0.04N		
		Hardness		(55~65)HRC	U=1HRC		
		Mass		10g~70kg	U=6mg~1.2g		
66	*Door and windows tester	Air volume	C.S.for Door and windows tester JJF (Ji) 095	(15~1200)m ³ /h	$U_{rel}=2.0\%$		
		Pressure		(0~100)kPa	U=0.4%FS		
		Displacement		(0.5~200) mm	U=0.01mm		
67	*Cement Finess Negative Pressure Screen Analyzer	Wheel speed	C. S.of Cement Finess Negative Pressure Screen Analyzers JJF 1827	(20~100) r/min	U=0.3r/min		
		Pressure		(-0.1~0)MPa	U=0.14%FS		



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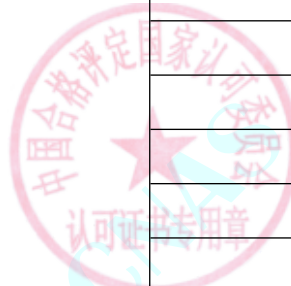
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
68	*Liquid petroleum products hydrocarbon meter	Length	C.M.of Liquid Petroleum Products Hydrocarbon Meters FFZ1608	(0~1200)mm	$U=0.3\text{mm}$		
		Pressure		(0~400)kPa	$U=0.5\%\text{FS}$		
69	*Beckman Beam Pavement Deflectometer	Length	V.R.Benkelman Beam Pavement Deflectometer JJG(JT)025	Dial Gauges: (0~10) mm	$U=0.003\text{ mm}$		
				Size: (0~300)mm	$U=0.05\text{mm}$		
		Lever Ratio		1~3	$U=0.003$		
70	*Wire Bending Testing Machine	Mass	V. R. of Wire Bending Testing Machine JJG(Yue)022	(0~50) g	$U=0.006\text{g}$		
				(>50~200) g	$U=0.012\text{ g}$		
				(>200~620) g	$U=0.018\text{g}$		
				(>620~2000) g	$U=0.12\text{g}$		
				(>2000~5200) g	$U=0.18\text{ g}$		
		Frequency		(0~150) min^{-1}	$U=0.2\text{min}^{-1}$		
		Angle		(0~360)°	$U=0.2^\circ$		
71	*Tumbling Barrel Test Apparatus	Length	Calibration Method of Tumbling-Barrel Testing Apparatus FFZ0607	Caliper: (0~300) mm	$U=0.05\text{mm}$		
				Steel Rule:(0~1) m	$U=0.4\text{mm}$		
		Rotation Speed		(0~30)r/min	$U=0.1\text{ r/min}$		
		Angle		(0~90)°	$U=0.3^\circ$		
		Count		0~1000	$U=1$		
72	*Device for measuring the resistance of a	Length	Calibration Method of Conductor-Resistance Testing Device FFZ0614	(0~150) mm	$U=0.04\text{mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	conductor	Length		(150~1500)mm	<i>U</i> =0.3mm		
73	*Torque of plugs testing device	Length	Calibration Method of Testing Device of Plugs Torque FFZ0601	(0~300) mm	<i>U</i> =0.05 mm		
		Mass		(0~500) g	<i>U</i> =0.06 g		
				(>500~2000) g	<i>U</i> =0.12 g		
74	*Drop Test Machine for Packages	Length	V. R. of Drop Test Machine for Packages JJG(Yue)045	(0~5) m	<i>U</i> =1.0mm +0.0002 <i>L</i> , <i>L</i> : mm		
		Angle		(0~90)°	<i>U</i> =0.3°		
75	Spring hammer	Length	C.S.for Spring Hammers JJF1475	(0~50)mm	<i>U</i> =0.02mm		
		Force		(0.1~100)N	<i>U</i> =0.7 N		
		Impact Energy		(0.1~2.2) J	<i>U</i> =(4 ~17)mJ		
76	*Baby Vehicle Durability Tester	Time	Calibration Method of Durability Tester for Wheeled Child Conveyances FFZ1405	(0~3600)s	<i>U</i> =1 s		
		Speed		(0.5~3) km/h	<i>U</i> _{rel} =0.1%		
				(>3~5) km/h	<i>U</i> _{rel} =0.3%		
				(>5~7) km/h	<i>U</i> _{rel} =0.5%		
				(>7~9) km/h	<i>U</i> _{rel} =0.8%		
				(>9~10) km/h	<i>U</i> _{rel} =1.0%		
		Length	Caliper: (0~300)mm	<i>U</i> =0.05 mm			
			Steel Rule: (0~1)m	<i>U</i> =0.3mm			
			Steel Tape: (0~5)m	<i>U</i> =2 mm			
77	*Waterproof Test Apparatus	Length	Calibration Method of Waterproof Test Equipment	Caliper: (0~150) mm	<i>U</i> =0.04mm		

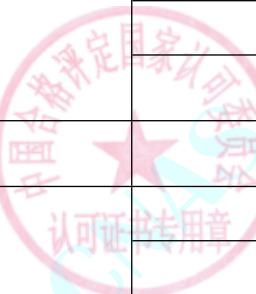
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
			FFZ1205	Steel Tape: (0~5)m	<i>U</i> =0.7 mm			
		Rotation Speed		(0~60) r/min	<i>U</i> =0.2 r/min			
		Time		(0 ~3600)s	<i>U</i> =0.16 s			
		Flow		water flow(0.01~110) L/min	<i>U</i> _{rel} =0.6 %			
				drops flow(0~10) mm/min	<i>U</i> =0.16 mm/min			
		Angle		(0~360)°	<i>U</i> =0.3°			
		Pressure		(0~40)MPa	<i>U</i> =0.15%FS			
78	*Hook Stiffness Tester	Length	C.M.of Hook Stiffness Tester FFZ1617	0~200 mm	<i>U</i> =0.03mm			
		Mass		0~500 g	<i>U</i> =0.10 g			
		Length		0~10 mm	<i>U</i> =6 μ m			
		Angle		0~360°	<i>U</i> =0.2°			
79	*Peristaltic Pump	Flow	C.M.of Peristaltic Pumps FFZ1618	0.1mL/min~50 L/min	<i>U</i> _{rel} =(0.7~0.2)%			
		Capacity		0.1mL~50L	<i>U</i> _{rel} =(0.6~0.2)%			
		Revolution Speed		(20~1000)r/min	<i>U</i> _{rel} =0.2%			
80	Impact Tester Calibration Device	Impact Energy	C.M.of Spring Hammer Calibrator FFZ1501	(0~2.1)J	<i>U</i> =(0.002~0.007)J			
81	*Condom Pinhole Tester	Time	Calibration Method of Ejection Kinetic Energy Tester FFZ1411	(0~500)ms	<i>U</i> =0.03ms			
		(>500~10000)ms		<i>U</i> _{rel} =0.006%				
		Length		Caliper: (0~300)mm	<i>U</i> =0.05mm			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Steel Rule: (0~600)mm	$U=0.3\text{mm}$		
		Speed		(0.01~100)m/s	$U_{\text{rel}}=0.3\%$		
82	*Mechanical strength tester for plug and socket	length	C.M.of Mechanical Strength Tester for Plug and Socket FFZ1621	(0~50)mm	$U=0.04\text{ mm}$		
				(50~1100)mm	$U=0.2\text{ mm}$		
		Mass		(0~500)g	$U=0.06\text{g}$		
				(>500~1000) g	$U=0.12\text{ g}$		
83	*Texture Analyzer	Angle	C.M.of Hurricane Globe FFZ1610	(0~360)°	$U=0.3^\circ$		
		Force		(0.01~500) N	$U_{\text{rel}}=0.3\%$		
		Length		Displacement: (0.1~200)mm	$U_{\text{rel}}=0.3\%$		
		Speed		Length: (0~100) mm	$U=0.01\text{mm}$		
84	*Mouth Acted Toys Tester		C.M.of Mouth Acted Toys Testers FFZ1612	(0.01~10.5)mm/s	$U_{\text{rel}}=0.3\%$		
		pressure		(-100~100)kPa	$U=0.2\text{ kPa}$		
		Time		(0~600)s	$U=0.2\text{s}$		
		Capacity		(200~400)mL	$U=3\text{mL}$		
85	*Mechanical testing machine for office furniture	Length	C.M.of Mechanical Testing Machine for Office Furniture FFZ1607	Caliper: (0~300)mm	$U=0.05\text{ mm}$		
				Caliper: (>300~600)mm	$U=0.09\text{mm}$		
				Steel Rule: (0~1000) mm	$U=0.4\text{mm}$		
		Mass		(0~5) kg	$U=0.6\text{g}$		



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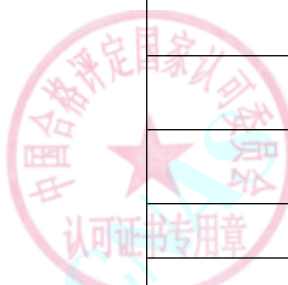
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				(>5~20) kg	<i>U</i> =1.2g		
				(>20~30) kg	<i>U</i> =1.8g		
		Angle		(0~360) °	<i>U</i> =0.3°		
		Time		(0~3600)s	<i>U</i> =0.16s		
		Force		1N~5kN	<i>U</i> _{rel} =0.12%		
		Frequency		(1~100) min ⁻¹	<i>U</i> =0.5min ⁻¹		
		Counting		(0~1000)	<i>U</i> =1		
86	*Stability test table	Length	Calibration Method of Stability Test Table FFZ0604	(0~3) m	<i>U</i> =0.4 mm		
		Rotation Speed		(0.1~50) r/min	<i>U</i> _{rel} =(0.1~0.3)%		
		Angle		(0~90)°	<i>U</i> =0.15°		
87	*Thread socket mechanical strength test apparatus	Length	Calibration Method of Thread Socket Mechanical Strength Test Apparatus FFZ0615	(0~300) mm	<i>U</i> =0.05 mm		
		Rotation Speed		(5~20) r/min	<i>U</i> =0.5 r/min		
		Mass		(0~500) g	<i>U</i> =0.06 g		
				(>500~2000) g	<i>U</i> =0.12 g		
				(>2000~2200) g	<i>U</i> =0.18g		
88	*Key Performance Test Apparatus	Mass	Calibration Method of Key Performance Test Apparatus FFZ1404	(0~0.5) kg	<i>U</i> =0.06 g		
				(>0.5~2.0) kg	<i>U</i> =0.12 g		
				(>2.0~2.2) kg	<i>U</i> =0.18 g		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency		(0~50) min ⁻¹	U=0.2min ⁻¹		
		(≥50~200) min ⁻¹		U _{rel} =0.5%			
		Length		(0~300) mm	U=0.05mm		
		Force		(0.1~200) N	U _{rel} =0.2%		
		Count		0~9999	U=1		
89	*Test Steel Ball	Mass	Calibration Method of Steel Test Ball FFZ0602	(0~500) g	U=0.06g		
		(≥500~2000) g		U=0.12 g			
		Length		(0~75) mm	U=0.01 mm		
90	*Sand And Dust Test Chamber	Temperature	Calibration Method of Sand and Dust Test Chamber FFZ1202	(5~95)℃	U=0.3℃		
		Humidity		5%RH~100%RH (5℃~80℃)	U=2.0%RH		
		Time		(0~72)h	U=1s		
91	*Climate Chamber for Determination of Volatile Organic Compounds	Temperature	Calibration Method of Climate Chamber for Determination of Volatile Organic Compounds FFZ1401	(0~100)℃	U=0.3℃		
		Humidity		5%RH~30%RH (5℃~80℃)	U=1.0 %RH		
				(≥30%RH~60%RH) (5℃~80℃)	U=1.1 %RH		
				(≥60%RH~100%RH (5℃~80℃)	U=1.4 %RH		
		Flow		(5~1200)L/min	U _{rel} =(1.3~1.4)%		
				(0~5)L/min	U=6mL/min~0.07L/min		



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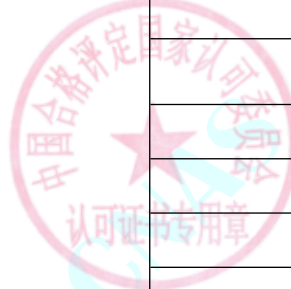
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Wind Velocity		(0~1)m/s	U=0.12m/s		
19 Specialized Measuring Instrument for Electrical & Electronic Appliance							
1	*Performance Testing Devices Of Solar Water Heating System	Pressure	Calibration Method of Performance Testing Devices of Solar Water Heating System FFJ1401	(0~10) Mpa	U=0.10%FS		
		Flow		(0.1~30) kg/min	U _{rel} =0.26%		
		Temperature		(-20~100) °C	U=0.10°C		
		The totalsolar radiation		(200~1500)W/m ²	U _{rel} =2.2%		
2	*Testing Devices Of Air Flow	Temperature	Calibration Method of Testing Devices Of Air Flow FFJ1403	(-20~200) °C	U=0.10°C		
		Humidity		30%RH~99%RH	U _{rel} =3.5%		
		Pressure		(-100~200) kPa	U=0.3%FS		
		Voltage		(50~1000) V	U _{rel} =0.04%		
		Voltage harmonic		(0.1~100) %	U _{rel} =5.4%		
		Current		(0.005~100) A	U _{rel} =0.06%		
		Frequency		(1~100) Hz	U _{rel} =0.04%		
		Power		(0.0001~30) kW	U _{rel} =0.08%		
		Powerfactor		0.01~1	U _{rel} =0.04%		
		Energy		(50~1000) V, (0.005~100) A	U _{rel} =0.5%		
		Speed of revolution		(30~50000)r/min	U=2.0r/min		
		Air volume		(0.2~20) m/s	U _{rel} =5.5%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
3	*Testing Devices Of electrical water heater	Temperature	Calibration Method of Testing Devices of Electrical Water Heater FFJ1404	(-20~200) °C	<i>U</i> =0.10°C		
		Pressure		(0~6) MPa	<i>U</i> =0.3%FS		
		Voltage		(50~1000) V	<i>U</i> _{rel} =0.04%		
		Voltageharmonic		(0.1~100) %	<i>U</i> _{rel} =5.4%		
		Current		(0.005~100) A	<i>U</i> _{rel} =0.06%		
		Frequency		(1~100) Hz	<i>U</i> _{rel} =0.04%		
		Power		(0.0001~30) kW	<i>U</i> _{rel} =0.08%		
		Powerfactor		0.01~1	<i>U</i> _{rel} =0.04%		
		Liquidflow		(0.01~50)m³/h	<i>U</i> _{rel} =1.4%(Portableultrasonicmethod)		
				(0.01~5)m³/h	<i>U</i> _{rel} =0.26%(Weighing method)		
4	*Testing Devices OfGas water heater and heating water heater	Temperature	Calibration Method of Testing Devices of Gas Water Heater and Gas Fired Heating-hot Water Combi- boiler FFJ1405	(-20~200) °C	<i>U</i> =0.10°C		
		Pressure		(0~10) MPa	<i>U</i> =0.3%FS		
		Voltage		(50~1000) V	<i>U</i> _{rel} =0.04%		
		Voltageharmonic		(0.1~100) %	<i>U</i> _{rel} =5.4%		
		Current		(0.005~100) A	<i>U</i> _{rel} =0.06%		
		Frequency		(1~100) Hz	<i>U</i> _{rel} =0.04%		
		Power		(0.0001~30) kW	<i>U</i> _{rel} =0.08%		
		Powerfactor		0.01~1	<i>U</i> _{rel} =0.04%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
5	*Performance Testing Devices Of Fan coil	Liquidflow	Calibration Method of Testing Devices of Fan-Coil unit FFJ1407	Portableultrasonicmethod: (0.01~100)m ³ /h	$U_{rel}=1.4\%$		
		Gasflow		Weighing method: (0.01~5)m ³ /h	$U_{rel}=0.26\%$		
				20~17000)L/h	$U_{rel}=0.50\%$		
		Temperature		(-20~200) °C	$U=0.10^{\circ}\text{C}$		
		Pressure		(0~10) MPa	$U=0.3\%\text{FS}$		
		Voltage		(50~1000) V	$U_{rel}=0.04\%$		
		Voltageharmoinic		(0.1~100) %	$U_{rel}=5.4\%$		
		Current		(0.005~100) A	$U_{rel}=0.06\%$		
		Frequency		(1~100) Hz	$U_{rel}=0.04\%$		
		Power		(0.0001~30) kW	$U_{rel}=0.08\%$		
		Powerfactor		0.01~1	$U_{rel}=0.04\%$		
		Humidity		(30~99) %RH	$U_{rel}=3.5\%$		
		Liquidflow		Portableultrasonicmethod: (0.01~100)m ³ /h	$U_{rel}=1.4\%$		
				Weighing method: (0.01~100)m ³ /h	$U_{rel}=0.26\%$		
		Gasflow		(20~17000)L/h	$U_{rel}=0.50\%$		
		Noise		(24~140) dB	$U=3.0\text{dB}$		



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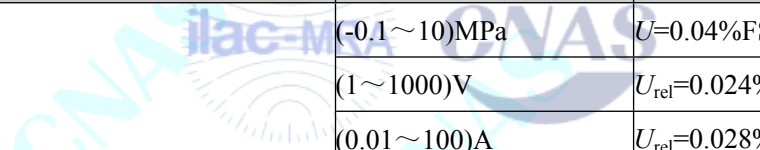
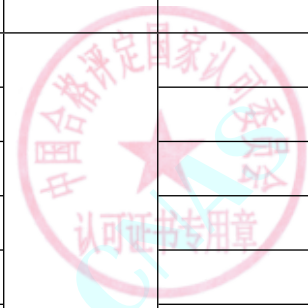
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Airspeed		(0.2~20) m/s	U _{rel} =5.5%		
6	*Performance Testing Devices Of Household Electrical Appliance	Temperature	Calibration Method of Performance Testing Devices Of Household Electrical Appliance FFJ1406	(-20~200) °C	U=0.10℃		
		Pressure		(0~10) MPa	U=0.3%FS		
		Voltage		(50~1000) V	U _{rel} =0.04%		
		Voltageharmonic		(0.001~100) %	U _{rel} =5.4%		
		Current		(0.005~100) A	U _{rel} =0.06%		
		Frequency		(1~100) Hz	U _{rel} =0.04%		
		Power		(0.0001~30) kW	U _{rel} =0.08%		
		Powerfactor		0.01~1	U _{rel} =0.04%		
		Humidity		(30~99) %RH	U _{rel} =3.5%		
		Liquidflow		Portableultrasonicmethod: (0.01~100)m³/h	U _{rel} =1.4%		
				Weighingmethod: (0.01~5)m³/h	U _{rel} =0.26%		
		Gasflow		(20~17000)L/h	U _{rel} =0.50%		
		Airspeed		(0.2~30) m/s	U _{rel} =5.5%		
7	*Energy Efficiency Testing Apparatus of Room Air Conditioners through Air-	Temperature	C.S.for Energy Efficiency Testing Apparatus of Room Air Conditioners Using Air-Enthalpy Test Method JJF1858	Temperature (Thermocouple: (-20~200)℃	U=0.02℃		
				Temperature thermocouple: (0~100)℃	U=0.10℃		



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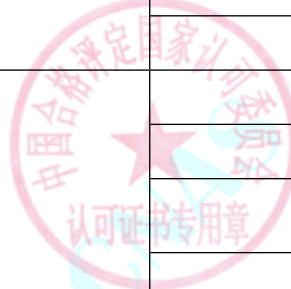
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Enthalpy	Pressure	 ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(-0.1～10)MPa	<i>U</i> =0.04%FS		
		Voltage		(1～1000)V	<i>U</i> _{rel} =0.024%		
		Current		(0.01～100)A	<i>U</i> _{rel} =0.028%		
		Power		(0.0001～20)kW	<i>U</i> _{rel} =0.04%		
		Flow		Ultrasonic flowmeter method: (0.01～50)m ³ /h	<i>U</i> _{rel} =1.4%		
				Weight method: (0.01～5)m ³ /h	<i>U</i> _{rel} =0.26%		
		Humidity		10%RH ～95%RH	<i>U</i> _{rel} =5.0%		
		Cooling (heating) amount		(0.1～10)kW	<i>U</i> _{rel} =2.7%		
8	*Hot-silk Tester	Temperature	Calibration Method of Glow-Wire Test Apparatus FFR0504	(500～1000)℃	<i>U</i> =3.2℃		
		Length		(0～150)mm	<i>U</i> =0.06mm		
		Time		(0～3600) s	<i>U</i> =0.3s		
		Speed		(10～25) mm/s	<i>U</i> =0.5mm/s		
9	*Proof tracking test apparatus	Voltage	Calibration Method of Proof Tracking Test Apparatus FFZ0608	(0.1～700) V	<i>U</i> _{rel} =0.6%～0.1%	 合格评定国家认可 认证证书专用章	
		Current		(0.1～1) A	<i>U</i> _{rel} =0.7 %～0.2%		
		Length		Micrometer: (0～5) mm	<i>U</i> =0.010 mm		
				Caliper: (0～150) mm	<i>U</i> =0.04mm		
		Angle		(0～180)°	<i>U</i> =0.2°		
		Time		(0～600) s	<i>U</i> =0.4 s		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Mass		(0~20) g	U=16mg		
		Force		(0.05~10)N	U=(0.01~0.02)N		
10	*Needle- flame testing device	Length	Calibration Method of Needle-Flame Testing Device FFZ0610	Caliper: (0~150) mm	U=0.04 mm		
				Steel Rule: (0~1) m	U=0.3 mm		
		Time		(0~3600)s	U=0.16s		
		Angle		(0~180)°	U=0.2°		
		Temperature		(0~1000) °C	U=0.3℃		
11	*Device for checking damage to conductors	length	Calibration Method of Device for Checking Damage To Conductors FFZ0603	(0~150) mm	U=0.04mm		
				(150~300) mm	U=0.05mm		
		Rotation Speed		(5~20) r/min	U=0.1 r/min		
		Mass		(0~0.5) kg	U=0.06g		
				(0.5~2) kg	U=0.12g		
				(2~5) kg	U=0.6g		
				(5~10) kg	U=1.2g		
12	*Energy Efficiency Testing Apparatus of Room Air Conditioners Using Balanced Ambient Room-	Temperature	Calibration Specification for Energy Efficiency Testing Apparatus of Room Air Conditioners Using Balanced Ambient Room-type Calorimeter Method JJF 1857	(-40~98)℃	U=0.03℃		
				(98~200)℃	U=0.04℃		
				Temperature(TC) (-40~200)℃	U=0.12℃		
				Secondary meter(TC) (-40~200)℃	U=0.3℃		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	type Calorimeter Method	Pressure		(-0.1~16)MPa	<i>U</i> =0.04%FS		
		Current		(0.001~330) mA (45Hz~65Hz)	<i>U</i> _{rel} =0.11%~0.04%		
				(0.33~20.5) A (45Hz~65Hz)	<i>U</i> _{rel} =0.04%~0.13%		
				Voltage	(33~1020)V (45Hz~65Hz)		<i>U</i> _{rel} =0.03%
		Power		(0.1~20.5)kW (45Hz~65Hz)	<i>U</i> _{rel} =0.13%		
		Frequency		(45~65)Hz	<i>U</i> _{rel} =0.02%		
		Mass		0.1g≤d≤50g Max:20g~150kg	<i>U</i> =0.01g~20g		
		Flow		(200~3000) L/h	<i>U</i> _{rel} =0.23%		
		13		*Compressor Refrigerating Capacity Measuring Apparatus	Temperature		Calibration Specification for Compressor Refrigerating Capacity Measuring Apparatus JJF(机械)1015
(98~200)℃	<i>U</i> =0.04℃						
Temperature(TC) (-40~200)℃	<i>U</i> =0.12℃						
Pressure	(-0.1~6) MPa		<i>U</i> =0.04% FS				
	Current		(0.5~40)A (45Hz~65Hz)		<i>U</i> _{rel} =0.13%		
(40~100) A (45Hz~65Hz)			<i>U</i> _{rel} =0.29%				
Voltage	Single-phase (50~280)V (45Hz~65Hz)		<i>U</i> _{rel} =0.13%				
	Three-phase (100~450)V (45Hz~65Hz)		<i>U</i> _{rel} =0.13%				

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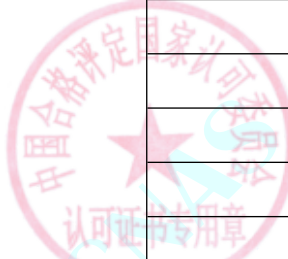
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Power		Single-phase (0.1~20)kW	<i>U</i> _{rel} =0.13%		
				Single-phase (0.3~60)kW	<i>U</i> _{rel} =0.13%		
		Frequency		(45~65)Hz	<i>U</i> _{rel} =0.02%		
		Power Factor		0.5~1.0	<i>U</i> =0.002		
		Resistance		(0.1~9.999) Ω	<i>U</i> =0.003 Ω		
				(10~0.999) Ω	<i>U</i> =0.008 Ω		
				(100~2000) Ω	<i>U</i> _{rel} =0.03%		
		Rev.		(30~20000)r/min	<i>U</i> _{rel} =0.2%		
		Flow		(0~17) t/h	<i>U</i> _{rel} =0.23%		
14	*Refrigerator Performance Measuring Apparatus	Temperature	Calibration Specification for Refrigerator Performance Measuring Apparatus JJF 1994	(-40~98)℃	<i>U</i> =0.03 ℃		
				Temperature(TC) (-40~98)℃	<i>U</i> =0.12℃		
				laboratory Temperature:(0~60)℃	<i>U</i> =0.16℃		
		Current		(0.33~20.5) A (45Hz~65Hz)	<i>U</i> _{rel} =0.04%~0.13%		
				(0.001~330) mA (45Hz~65Hz)	<i>U</i> _{rel} =0.11%~0.04%		
		Voltage		(33~300)V (45Hz~65Hz)	<i>U</i> _{rel} =0.03%		
		Power		(0.1~20.4) kW 45Hz~65Hz)	<i>U</i> _{rel} =0.13%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Pressure		(-0.1~16)MPa	U=0.03% FS		
		Frequency		(45~65)Hz	U _{rel} =0.02 %		
		Power Factor		-1.0~1.0	U=0.002		
		Humidity		(5~30)%RH (5℃~80℃)	U=1.0%RH		
				(30~60)%RH (5℃~80℃)	U=1.1 %RH		
				(60~95)%RH (5℃~80℃)	U=1.4 %RH		
		Wind Velocity		(0~1)m/s	U=0.12m/s		
15	*Battery Punctured and Crushed Machines	Length	C.M.for Battery Punctured and Crushed Machines FFZ2106	Micrometer:(0~25)mm	U=0.01 mm		
				Caliper: (0~150) mm	U=0.04 mm		
				Caliper: (150~300) mm	U=0.05mm		
				Steel Rule: (0~1000) mm	U=0.3 mm		
		Radius		(5~200) mm	U=0.06 mm		
		Angle		(0~180) °	U=0.3 °		
		Speed		(0.01~50) mm/s	U _{rel} =0.2%		
		Time		(5~120) min	U=0.4 s		
		Temperature		Thermometer(RTD): (-40~200) °C	U=0.04 °C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
				Thermometer(TC): (-40～200) °C	<i>U</i> =0.2 °C			
		Force		(0.1～1000) kN	<i>U</i> _{rel} =0.12%			
		Voltage		(0.1～1000) V	<i>U</i> _{rel} =0.02%			
16	*Battery Washing Machines	Length	C.M.for Battery Washing Machines FFZ2107	Caliper: (0～300) mm	<i>U</i> =0.05mm			
				Steel Rule: (0～600) mm	<i>U</i> =0.3 mm			
		Rotation Speed		(30～70) r/min	<i>U</i> =0.1 r/min			
				(70～120) r/min	<i>U</i> =0.2r/min			
				(120～1000) r/min	<i>U</i> _{rel} =0.2%			
		Temperature		Washing tank Temperature: (20～90) °C	<i>U</i> =0.3 °C			
				Drying Oven Temperatrue: (20～100) °C	<i>U</i> =0.3 °C			
				Time	(0～3600) s			<i>U</i> =0.3 s
17	*Electrothermal Digestion Instrument	Temperature	Calibration Method of Electrothermal Digestion Instruments FFZ1403	(0～400)°C	<i>U</i> =(0.2 ～0.6)°C			
		Time		(0～60)min	<i>U</i> =1s			



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