

Name: Inner Mongolia Institute of Metrology and Testing

Address: No.1, Bo'ai North Alley, Xincheng District, Hohhot, Inner Mongolia, China

Registration No. CNAS L1645

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

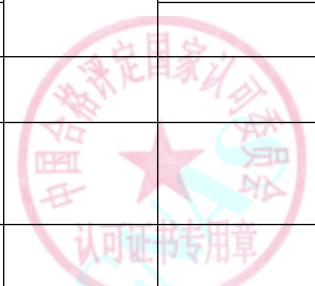
Effective Date: 2026-03-23 Expiry Date: 2030-11-06

CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT  
SCHEDULE OF ACCREDITATION CERTIFICATE

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、 Geometric quantity							
1	Third class standard metal linear ruler	Length	Verification regulation of third-class standard metal linear ruler JJG71	(0~100) mm	$U=4.0 \mu m$		
				(100~300) mm	$U=9.0 \mu m$		
				(300~500) mm	$U=11 \mu m$		
				(500~1000) mm	$U=15 \mu m$		
2	Steel Measuring Tapes	Length	Verification Regulation of Steel Measuring Tapes JJG 4	(0~200) m	$U=0.1mm+2 \times 10^{-5}L$		
3	*Toolmaker' s Microscope	Length	Verification Regulation of Toolmaker' s Microscope JJG56	(0~200) mm	$U=0.2 \mu m+4 \times 10^{-6}L$		
4	*Projector	Length	Calibration Specification for Projectors JJF 1093	(0 ~100)mm	$U=0.7 \mu m+8.7 \times 10^{-6}L$		
5	Gauge Blocks	Length	Verification Regulation of Gauge Blocks JJG146	(0.5~1000)mm	$U=0.20 \mu m+2 \times 10^{-6}Ln(k=2.6)$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	Micrometer	Length	Calibration Specification for Large Dimension Outside Micrometers JJF 1088, Verification Regulation of Micrometer JJG 21	(0~500)mm	$U=0.9 \mu m+7.4 \times 10^{-6}L$		
				(500~1000)mm	$U=1.1 \mu m+8 \times 10^{-6}L$		
7	*Dial Gauges	Length	Verification regulation of indicator (pointer type and digital display type) JJG34	div0.001mm: (0~1) mm	$U=2 \mu m$		
				div0.01mm: (0~10) mm	$U=6 \mu m$		
				div0.01mm: (10~100) mm	$U=8 \mu m$		
8	Dial Test Indicator	Length	Verification Regulation of Dial Test Indicator JJG 35	(0~1.0) mm	$U=2.6 \mu m$		
9	Bore Dial Indicators	Length	Calibration Specification for Bore Dial Indicators JJF 1102	div0.01mm: (10~100) mm	$U=4.0 \mu m$		
				div0.001mm: (10~100) mm	$U=2.0 \mu m$		
10	Current Calipers	Length	Verification Regulation of Current Calipers JJG 30	(0~1000) mm	$U=4 \mu m+2 \times 10^{-5}L$		
11	Height Caliper	Length	Verification Regulation of Height Caliper JJG 31	(0~1000) mm	$U=7 \mu m+1.6 \times 10^{-5}L$		
12	*Tester for Dial Indicator Gauges	Length	Verification Regulation of Testers for Dial Gauges JJG 201	(0~25) mm	$U=0.6 \mu m$		
13	Angle block	Angle	Verification regulation of angle block JJG70	15° 10' ~90°	$U=3''$		
14	*Optimeter	Length	Verification Regulation of Optimeter JJG 45	(-100~+100) $\mu m$	$U=0.08 \mu m$		
15	Autocollimators	Angle	Verification regulation of Autocollimator JJG202	(0~10) '	$U=0.6''$		



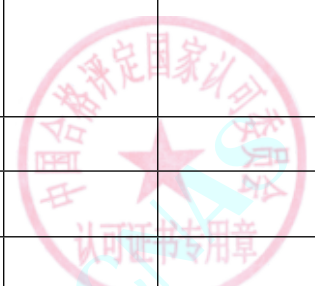
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
16	Universal Bevel Protractors	AngleGauge	Calibration specification for universal angle ruler JJF 1959	(0~360) °	$U=1'$		
17	Frame Levels and Shaft Levels	AngleGauge	Calibration Specification for Frame Levels and Shaft Levels JJF 1084	(0.02~0.10)mm/m	$U_{rel}=5.8\%$		
18	Electronic level and Coincidence Levels	Angle	Verification regulation of electronic level and combined image level JJG103	Electronic level: (-5~+5) mm/m	$U=0.5 \mu m/m$		
				Coincidence Levels: (-5~+5) mm/m	$U=3 \mu m/m$		
19	Straight Edges	Linearity	Calibration Specification for Straight Edges JJF 1097	(500~2000) mm	$U=0.3 \mu m+1 \times 10^{-6}L$		
20	Level Rules	AngleGauge	Calibration Specification for Level Rules JJF1085	(0.5~10) mm/m	$U_{rel}=4.8\%$		
21	Total Station	Angle	Verification regulation of total station electronic tachometer JJG100, Verification regulation of photoelectric rangefinder JJG703	(0~360) °	$U=0.20''$		
		Length		(24~1200) m	$U=0.5mm$ (additive constant), $U=0.8mm/km$ (multiplying constant)		
22	Global Navigation Satellite System	Length	Verification Regulations for Global Navigation Satellite System (GNSS) Receiver (Geodetic and Navigation) JJG 1200	6m~ 35.2km	$U= (0.8\sim 2.3) mm$ (static state), $U=1.9mm$ (dynamic)		
23	Levels	Angle	V.R.of Levels JJG 425	(-30~+30) ''	$U=1.7''$		
24	Optical Theodolite	Angle	V.R.of Optical Theodolites JJG 414	(0~360) °	$U=0.4''$		
25	Electronic theodolite	Angle	V. R.of Electronic Tachometer Total Station JJG 100	(0~360) °	$U=0.3''$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ( $k=2$ )	Note	Effective Date
26	Electro-optical Distance Meter	Length	Verification regulation of photoelectric rangefinder JJG703	(24~1200) m	$U=0.5\text{mm}$ (additive constant), $U=0.8\text{mm/km}$ (multiplying constant)		
27	Telescope Rangefinders	Length	Calibration specification for telescopic rangefinder JJF1704	(0~3) km	$U=0.1\text{m}$		
28	*Level Verification System	Angle	Verification regulation of level verification device JJG960	(-30~+30)''	$U=1.0''$		
29	Optical Flat	Flatness	Verification Regulation of Optical Flat JJG 28	Optical FlatD(30~150)mm	$U=0.01\ \mu\text{m}$		
		Parallelism		Optical FlatD(30~100)mm	$U=0.28\ \mu\text{m}$		
30	*Surface Plates	Flatness	Verification Regulation of Surface Plates JJG 117	(160×100)mm ~ (450×450)mm	$U=0.6\ \mu\text{m}$		
				(450×450)mm ~ (630×400)mm	$U=0.8\ \mu\text{m}$		
				(630×400)mm ~ (800×600)mm	$U=1.2\ \mu\text{m}$		
				(800×600)mm ~ (1000×800)mm	$U=1.5\ \mu\text{m}$		
				(1000×800)mm ~ (1500×1000)mm	$U=1.7\ \mu\text{m}$		
				(1500×1000)mm ~ (3000×2000)mm	$U=5.0\ \mu\text{m}$		
31	Feeler gauge	Length	Verification regulation of feeler gauge JJG62	(0.02~3.00) mm	$U=3.0\ \mu\text{m}$		
32	*Length Measuring Instrument	Length	Calibration Specification for Length Measuring Instrument JJF 1189	(0 ~100)mm	$U=0.2\ \mu\text{m} + 3.2 \times 10^{-6}L$		



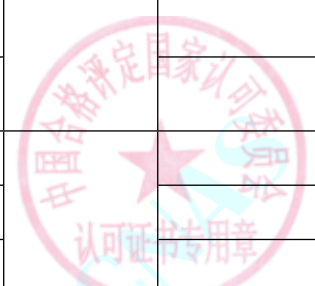
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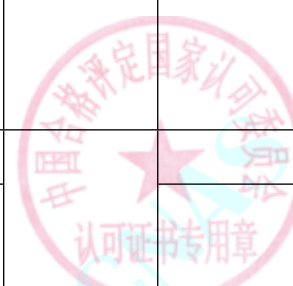
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
33	*Contact-type Interferometer	Length	Verification Regulation of Contact-type Interferometers JJG 101	(-5~+5) μm	U=0.012 μm		
34	*Length Measuring Machine	Length	Calibration Specification for Length Measuring Machine JJF 1066	(0~100) μm	U=0.08 μm		
				(0.1~100) mm	U=0.18 μm+1.2×10 <sup>-6</sup> L		
				(100~1000) mm	U=0.1 μm+2×10 <sup>-6</sup> L		
35	*Ultrasonic Thickness Instruments	Length	Calibration specification for ultrasonic thickness gauge JJF1126	(0.5~200) mm	U=0.04mm		
36	Steel ruler	length	Verification Regulation of Steel Rule JJG 1	(0~1000) mm	U=0.05mm+2×10 <sup>-5</sup> L		
37	*Dissolution Testers	Length	Calibration Specification for Dissolution Testers JJF (Inner Mongolia) 068	(0~3)mm	U=0.06mm		
38	Welding Inspection Callipers	Angle	Calibration Specification for Welding Inspection Callipers JJF 2161	Angle scale: 10° ~170°	U=7.4'		
		Length		Main scale: (0~60) mm	U=4.8 μm		
				Height scale: (0~25) mm	U=11 μm		
				Undercut depth scale: (0~35) mm	U=32 μm		
39	Thickness Gauges	length	Calibration Specification for Thickness Gauges JJF 1255	(0~1) mm	U=2.0 μm		
				(1~10) mm	U=2.8 μm		
				(10~30) mm	U=4.7 μm		
2、 Thermology							



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
1	Working Noble Metal Thermocouples	Temperature	Verification Regulation of Working Noble Metal Thermocouples JJG 141	(419.527~1084.62) °C	Zinc point: $U=0.4^{\circ}\text{C}$ Aluminum dot: $U=0.4^{\circ}\text{C}$ Copper point: $U=0.5^{\circ}\text{C}$	Accredited Only for Thermocouples of Type S and Class 2 and below	
2	Base Metal Thermocouples	Temperature	Calibration Specification for Base Metal Thermocouples JJF 1637	(100~1200) °C	$U=(0.26\sim0.91)^{\circ}\text{C}$		
3	Industry Platinum Resistance Thermometers	Temperature	Verification Regulation of Industrial Platinum and Copper Resistance Thermometers JJG 229	(-60~300) °C	$U=(0.02\sim0.04)^{\circ}\text{C}$		
4	Standard Mercury-in-Glass Thermometers	Temperature	Verification Regulation of Standard Mercury-in-Glass Thermometers JJG 161	(-60~300) °C	$U=(0.05\sim0.06)^{\circ}\text{C}$		
5	Temperature Transmitter	Temperature	Calibration Specification of the Temperature Transmitter JJF 1183	With Sensor: (-60~300) °C	$U=0.08^{\circ}\text{C}$		
6	*Thermostatic Baths for Temperature Calibration	Temperature	Measurement and Test Norm of Metrological Characteristics of Thermostatic Baths for Temperature Calibration JJF 1030	(-60~300) °C	$U=0.010^{\circ}\text{C}$ (Fluctuation)		
				(-60~300) °C	$U=0.010^{\circ}\text{C}$ (Uniformity)		
7	*Environmental testing equipment	Temperature	Calibration Specification for Environmental Testing Equipment for Temperature and Humidity Parameters JJF 1101	(-30~200) °C	$U=0.2^{\circ}\text{C}$		
		Humidity		30%RH~90%RH	$U=1.5\%RH$		

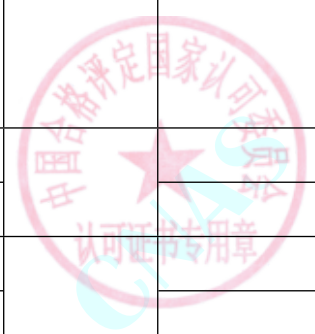


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
8	*Box-type Resistance Furnace	Temperature	Calibration Specification for Box-type Resistance Furnace JJF 1376	(300~1150) °C	U=(1.0~2.5)°C		
9	*Electrically-heated Thermostatic Water bath	Temperature	Measurement Specification for Temperature Performance of Liquid Constant Temperature Testing Equipment JJF 2019	(10~95) °C	U=0.2°C		
10	*High temperature and high pressure disinfection and sterilization equipment	Temperature	Calibration specification for high temperature and high pressure sterilization equipment JJF (蒙) 028	(30~134)°C	U=0.4°C		
		Pressure		(10~400)kPa abs	U=0.7kPa		
11	Heat Meters	flow	Verification Regulation of Heat Meters JJG 225	(1.2~600) m <sup>3</sup> /h, DN65~DN300	U <sub>rel</sub> =0.2%		
		temperature		(4~95) °C	U=0.03°C		
12	Radiation Thermometers	Radiation Temperature	Verification Regulation of Radiation Thermometers JJG 856	(30~700) °C	U= (1.8~3.0)°C		
13	*Infrared Thermometers for Measurement of Human Temperature	Temperature	Calibration Specification of Infrared Thermometers for Measurement of Human Temperature JJF 1107	(30~40) °C	U=0.17°C		
14	Mechanical Thermo-hygrometers	Temperature	Verification Regulation of Mechanical Thermo-hygrometerS JJG 205	(5~50) °C	U=0.6°C		
		Humidity		30%RH~95%RH	U=1.4%RH		
15	Digital Temperature-hygrometers	Temperature	Calibration Specification for Digital Temperature-hygrometers JJF 1076	(5~50) °C	U=0.2°C		
		Humidity		30%RH~95%RH	U=1.2%RH		

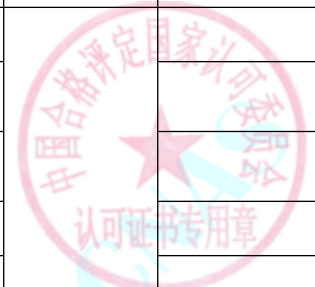


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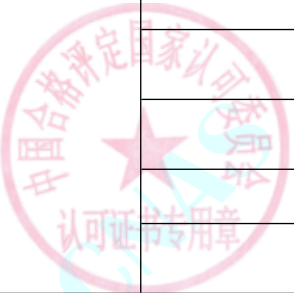
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
3、Mechanics							
1	Weights	Quality	Verification regulation of weights JJG99	1mg~500mg	U=0.002mg~0.004mg		
				1g~500g	U=0.006mg~0.17g		
				1kg~20kg	U=0.9mg~20mg		
				50kg	U=0.3g		
				500kg	U=6g		
				1000kg	U=11g		
2	*Electronic Balances	Quality	Calibration specification for electronic balance JJF1847	(0~100) g	U= (0.2~0.3) mg		
				(0.1~5) kg	U= (0.3~11) mg		
				(5~10) kg	U=11mg~0.03g		
				(10~20) kg	U= (0.03~0.16) g		
				(20~100) kg	U= (0.16~2.5) g		
				(100~300) kg	U= (2.5~21) g		
3	*Mass Comparators	Quality	Calibration specification for mass comparator JJF1326	1mg~10g	U=0.058 μ g (Repeatability)		
				1mg~10g	U=0.21 μ g~0.49 μ g (Eccentric load)		
				1mg~10g	U=1.2 μ g (Partial indication error)		
				10g~200g	U=0.58 μ g (Repeatability)		
				10g~200g	U=1.2 μ g~4.6 μ g (Eccentric load)		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				10g~200g	U=3.8 μg (Partial indication error)		
				200g~500g	U=5.8 μg (Repeatability)		
				200g~500g	U=15 μg~20 μg (Eccentric load)		
				200g~500g	U=16 μg~21 μg (Partial indication error)		
				500g~2kg	U=0.058mg (Repeatability)		
				500g~2kg	U=0.15mg~0.2mg (Eccentric load)		
				500g~2kg	U=0.15mg~0.2mg(Partial indication error)		
				2kg~5kg	U=0.58mg (Repeatability)		
				2kg~5kg	U=2.0mg~2.4mg(Eccentric load)		
				2kg~5kg	U=2.0mg~2.4mg(Partial indication error)		
				5kg~150kg	U=0.006g~0.03g (Repeatability)		
				5kg~150kg	U=0.02g~0.13g(Eccentric load)		
				5kg~150kg	U=0.02g~0.13g(Partial indication error)		
				150kg~300kg	U=0.058g (Repeatability)		
				150kg~300kg	U=0.24g~0.29g(Eccentric load)		

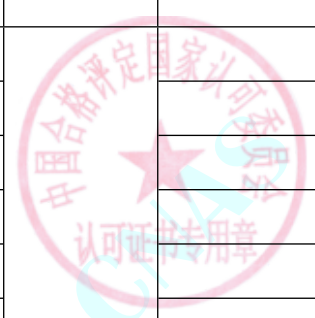


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				150kg~300kg	U=0.24g~0.29g(Partial indication error)		
4	*Table Balances	Quality	Verification regulation of rack and disk balance JJG156	100g~5kg	U=0.02g~2g		
5	*Concrete Batching Scales	Mass	Verification regulation of concrete batching scale JJG1171	(0~100) kg	U=0.02kg	Accredited only for Static weighing	
				(100~800) kg	U=0.12kg		
				(800~2000) kg	U=1.2kg		
6	*Continuous Totalizing Automatic Weighing Instruments (Belt Weighers)	Quality	Verification regulation of continuous accumulative automatic weighing instrument (belt scale) JJG195	(57.6~100) t/h	U <sub>rel</sub> =0.28%		
				(100~500) t/h	U <sub>rel</sub> =0.7%		
				(500~1500) t/h	U <sub>rel</sub> =1.2%		
7	*Automatic Gravimetric Filling Instruments	Quality	Verification regulation of gravity type automatic loading scale JJG564	2.5kg~50kg	U <sub>rel</sub> =0.06%		
				50kg~1t	U <sub>rel</sub> =0.3%		
				1t~20t	U <sub>rel</sub> =1.2%		
				20t~70t	U <sub>rel</sub> =2.9%		
8	*Digital Indicating Weighing Instruments	Quality	Verification regulation of digital indicating scale JJG539	2g~200g	U= (0.014~0.018) g		
				200g~1kg	U= (0.018~0.06) g		
				1kg~10kg	U= (0.06~0.6) g		
				10kg~100kg	U= (0.6~6) g		
				100kg~1t	U= (0.006~0.06) kg		
				1t~3t	U= (0.06~0.23) kg		

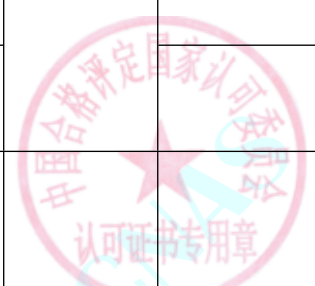


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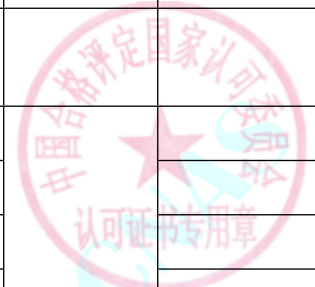
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				3t~15t	$U = (0.23 \sim 1.2) \text{ kg}$		
				15t~60t	$U = (1.2 \sim 5) \text{ kg}$		
				60t~200t	$U = (5 \sim 21) \text{ kg}$		
9	*Automatic Instruments for Weighing Road Vehicles in Motion	Quality	Verification regulation of dynamic highway vehicle automatic weighing instrument JJG907	Motion (5~31) t	$U = (0.21 \sim 1.0) \times 10^2 \text{ kg}$		
				Motion (31~49) t	$U = (0.1 \sim 0.15) \times 10^3 \text{ kg}$		
				Static (1~60) t	$U = (4 \sim 8) \text{ kg}$		
10	*Calibration Specification of Portable Weighing Instruments for Axles of Vehicle in Montion	Quality	Calibration specification for portable dynamic axle load meter JJF1212	Motion (5~31) t	$U = (0.09 \sim 0.19) \times 10^3 \text{ kg}$		
				Motion (31~49) t	$U = (0.19 \sim 0.26) \times 10^3 \text{ kg}$		
11	Standard glass float meter	Density	Verification regulation of standard glass float meter JJG86	Second class standard densitometer: (650~1500) kg/m <sup>3</sup>	$U = 0.15 \text{ kg/m}^3$		
				Second class standard petroleum densimeter: (650~1100) kg/m <sup>3</sup>	$U = 0.15 \text{ kg/m}^3$		
		Alcohol degree		Second class standard alcohol meter: (0~100) %	$U = 0.06\%$		
12	Working glass float meter	Density	Verification regulation of working glass float meter JJG42	Precision and common densitometer: (650~1500) kg/m <sup>3</sup> , $d = 0.5 \text{ kg/m}^3$	$U = 0.15 \text{ kg/m}^3$		



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			ilac-M	Precision and common densitometer: (1500~1800) kg/m <sup>3</sup> , d=1kg/m <sup>3</sup>	U=0.3kg/m <sup>3</sup>			
				Petroleum densimeter Milk meter: (650~1100) kg/m <sup>3</sup>	U=0.15kg/m <sup>3</sup>			
				Baume degrees	(0~70) Bh			U=0.3Bh
				Soil degree	(0~50) s°			U=0.25s°
				Milk degree	(15~40) m°			U=0.3m°
				Alcohol degree	Precision alcohol meter: (0~100) %			U=0.05%
				Alcohol meter: (0~100) %	U=0.3%			
13	Standard Metal Tank	Capacity	Verification Regulation of Standard Metal Tank JJG 259	2 Class Standard Metal Tank: (1~2500) L	U <sub>rel</sub> =0.0083%			
				3 Class Standard Metal Tank: (1~5000) L	U <sub>rel</sub> =0.03%			
14	*Verification Facility for Water Meters	Capacity	Verification Regulation of Verification Facility for Water Meters JJG 1113	(10~5000) L	U <sub>rel</sub> =0.03%			
15	Working Glass Container	Capacity	Verification regulation of common glass measuring instruments JJG196	(0.1~0.5) mL	U=0.002mL			
				(0.5~25) mL	U=0.006mL			
				(25~100) mL	U=0.03mL			
				(100~500) mL	U=0.09mL			



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				(500~1000) mL	$U=0.18\text{mL}$		
				(1000~2000) mL	$U=0.20\text{mL}$		
16	Special Glassware	Capacity	Verification regulation of special glass gauge JJG10	(5~100) mL	$U=0.02\text{mL}\sim 0.20\text{mL}$		
17	Locomotive Pipette	Capacity	Verification regulation of pipette JJG646	(0.5~10) $\mu\text{L}$	$U=(0.04\sim 0.26)\ \mu\text{L}$		
				(10~100) $\mu\text{L}$	$U=(0.26\sim 0.67)\ \mu\text{L}$		
				(100~1000) $\mu\text{L}$	$U=(0.67\sim 4.0)\ \mu\text{L}$		
				(1000~10000) $\mu\text{L}$	$U=(4.0\sim 16)\ \mu\text{L}$		
18	*Road Tankers Capacity	Capacity	Verification Regulation of Road Tankers Capacity JJG 133	(0.1~50) $\text{m}^3$	$U_{\text{rel}}=0.03\%$		
19	*Quantitative Filling Machine For Liquid Material	Capacity	Verification regulation of quantitative filling machine for liquid materials JJG 687	(10~50) mL	$U_{\text{rel}}=1.2\%$		
				(50~100) mL	$U_{\text{rel}}=0.7\%$		
				(100~500) mL	$U_{\text{rel}}=0.5\%$		
				(500~1000) mL	$U_{\text{rel}}=0.3\%$		
		Quality		(10~50) g	$U_{\text{rel}}=1.2\%$		
				(50~100) g	$U_{\text{rel}}=0.8\%$		
				(100~1000) g	$U_{\text{rel}}=0.4\%$		
20	*Standard Bell Porvers of Gas Flow	Flow	Verification Regulation of Standard Bell Porvers of Gas Flow JJG 165	(0.016~30) $\text{m}^3/\text{h}$	$U_{\text{rel}}=0.14\%$		
		Pressure		(0.001~2)kPa	$U_{\text{rel}}=1.2\%$		
		Temperature		(0~50) $^{\circ}\text{C}$	$U=0.12^{\circ}\text{C}$		

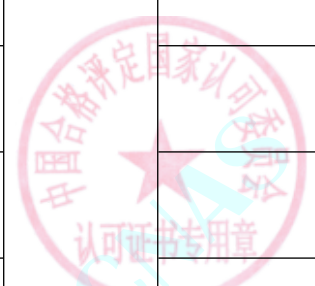


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Time		(10~3600)s	$U_{rel}=0.03\%$		
21	*Liquid Positive Displacement Flowmeter	Flow	Verification Regulation of Liquid Positive Displacement Flowmeter JJG 667, Online Calibration Specification for Electromagnetic Flowmeters JJF 2216	cold water: (0.5~1500)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				cold water: (0.015~100)m <sup>3</sup> /h, DN:(15~80)mm	$U_{rel}=0.32\%$ (Static mass method, Standard meter method)		
				hot water: (1.2~600)m <sup>3</sup> /h, DN:(65~300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				Liquid: (5.0-1000) m <sup>3</sup> /h	$U_{rel}=2\%$ (Standard meter method)		
22	Float Meter	Flow	Verification Regulation of Float Meter JJG 257	cold water: (0.5~1500)m <sup>3</sup> /h, DN:(15~100)mm	$U_{rel}=0.056\%$ (Static mass method)		
				Gas: (0.016~30) m <sup>3</sup> /h	$U_{rel}=1.1\%$ (Volumetric method)		
23	*Goriolis Mass Flow Meters	flow	Verification Regulation of Goriolis Mass Flow Meters JJG 1038, Online Calibration Specification for Electromagnetic Flowmeters JJF 2216	cold water: (0.03~100)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.32\%$ (Static mass method, Standard meter method)		
				hot water: (1.2~600)m <sup>3</sup> /h, DN:(65~300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				cold water: (0.5~1500)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				Liquid: (5.0-1000) m <sup>3</sup> /h	$U_{rel}=2\%$ (Standard meter method)		

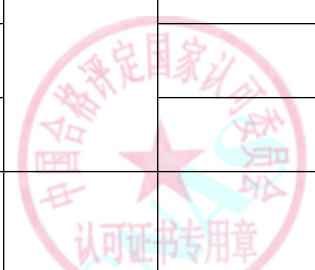


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
24	*Turbine Flowmeter	Flow	Verification Regulation of Turbine Flowmeter JJG 1037, Online Calibration Specification for Electromagnetic Flowmeters JJF 2216	Gas: (0.4~5000)m <sup>3</sup> /h, DN:(10~300)mm	$U_{rel}=0.33\%$ (Standard meter method)		
				cold water: (0.03~100)m <sup>3</sup> /h, DN:(15~80)mm	$U_{rel}=0.32\%$ (Static mass method, Standard meter method)		
				hot water:(1.2~600)m <sup>3</sup> /h, DN:(65~300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				cold water: (0.5~1500)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				Liquid: (5.0-1000) m <sup>3</sup> /h	$U_{rel}=2\%$ (Standard meter method)		
25	*Electromagnetic Flowmeters	Flow	Verification Regulation of Electromagnetic Flowmeters JJG 1033, Online Calibration Specification for Electromagnetic Flowmeters JJF 2216	cold water: (0.5~1500)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				cold water: (0.03~100)m <sup>3</sup> /h, DN:(15~80)mm	$U_{rel}=0.32\%$ (Static mass method, Standard meter method)		
				hot water: (1.2~600)m <sup>3</sup> /h, DN:(65~300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				Liquid: (5.0-10143.0) m <sup>3</sup> /h	$U_{rel}=2\%$ (Standard meter method)		
26	Gas Displacement Meters	Flow	Verification Regulation of Gas Displacement Meters JJG 633	(0.4~5000)m <sup>3</sup> /h, DN:(10~300)mm	$U_{rel}=0.33\%$		

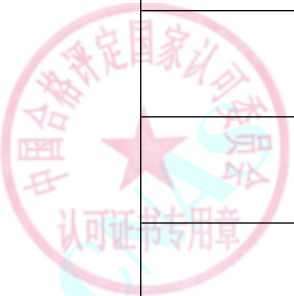


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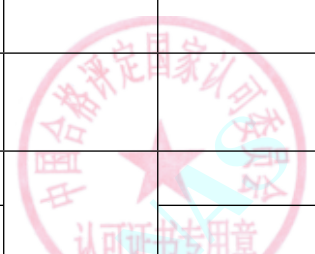
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
27	*Vortex-shedding Flowmeter	Flow	Verification Regulation of Vortex-shedding Flowmeter JJG 1029, Online Calibration Specification for Electromagnetic Flowmeters JJF 2216	Gas: (0.4~5000)m <sup>3</sup> /h, DN:(10~300)mm	$U_{rel}=0.33\%$ (Standard meter method)		
				cold water: (0.03~100)m <sup>3</sup> /h, DN:(15~80)mm	$U_{rel}=0.32\%$ (Static mass method, Standard meter method)		
				cold water: (0.5~1500)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				hot water: (1.2~600)m <sup>3</sup> /h, DN:(65~300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				Liquid: (5.0-1000) m <sup>3</sup> /h	$U_{rel}=2\%$ (Standard meter method)		
28	*Ultrasonic Flowmeters	flow	Verification Regulation of Ultrasonic Flowmeters JJG 1030, Online Calibration Specification for Electromagnetic Flowmeters JJF 2216	Gas: (0.4~5000)m <sup>3</sup> /h, DN:(10~300)mm	$U_{rel}=0.33\%$ (Standard meter method)		
				cold water: (0.03~100)m <sup>3</sup> /h, DN:(15~80)mm	$U_{rel}=0.32\%$ (Static mass method, Standard meter method)		
				cold water: (0.5~1500)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				hot water: (1.2~600)m <sup>3</sup> /h, DN:(65~300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				Liquid: (5.0-10143.0) m <sup>3</sup> /h	$U_{rel}=2\%$ (Standard meter method)		



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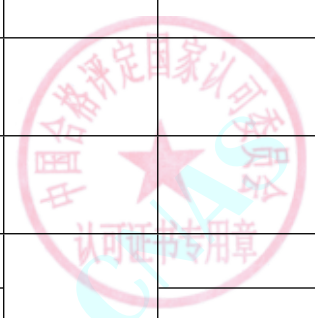
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
29	*Cold Potable Water Meters	Flow	Verification Regulation of Cold Potable Water Meters JJG 162, Online Calibration Specification for Electromagnetic Flowmeters JJF 2216	cold water: (0.5~1500)m <sup>3</sup> /h, DN: (15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				Liquid: (5.0-10143.0) m <sup>3</sup> /h	$U_{rel}=2\%$ (Standard meter method)		
30	Master Meter Method Verification Facility of Compressed Natural Gas Dispenser	Flow	Calibration Specification for Master Meter Method Verification Facility of Compressed Natural Gas Dispenser JJF 1583	(1~80)kg/min	$U_{rel}=0.09\%$		
31	Flow Integration Meters	Flow	Verification Regulation of Flow Integration Meters JJG 1003	(0.5~20000)m <sup>3</sup> /h	$U_{rel}=0.02\%$		
32	*Syringe Pumps and Infusion Pumps	Flow Rate	Calibration Specification for Syringe Pumps and Infusion Pumps JJF 1259	(5~20) mL/h	$U_{rel}=2.5\%$		
				(20~200) mL/h	$U_{rel}=1.4\%$		
				(200~1000) mL/h	$U_{rel}=2.5\%$		
		pressure	(0~200)kPa	$U=4kPa$			
33	Liquid-medium Piston Gauges	Pressure	Verification regulation of Liquid-medium Piston Gauges JJG 59	(0.04~60)MPa	$U_{rel}=0.0028\%$		
34	Piston Pressure Vacuum Gauge	Pressure	Verification regulation of piston pressure vacuum gauge JJG 236	(0.1~-0.01)MPa	$U_{rel}=0.0054\%$		
				(0.01~0.25) MPa	$U_{rel}=0.0054\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
35	Elastic Element Precise Pressure Gauges and Vacuum Gauges	pressure	Verification Regulation of Elastic Element Precise Pressure Gauges and Vacuum Gauges JJG 49	(-0.1~100)MPa	U=0.07%FS		
36	*Elastic Element Pressure Gauges, Pressur-Vacuum Gauges and Vacuum Gauges for General Use	pressure	Verification Regulation of Elastic Element Pressure Gauges, Pressure-Vacuum Gauges and Vacuum Gauges for General Use JJG 52	(-0.1~100)MPa	U=0.5%FS		
37	Digital Pressure Gauges	Pressure	Verification regulation of digital pressure gauge JJG 875	(-0.1~60)MPa	U=0.024%FS		
				(60~100)MPa	U=0.06%FS		
38	Aneroid Barometer & Aneroid Barograph	air pressure	Verification Regulation of Aneroid Barometer & Aneroid Barograph JJG 272	(800~1060)hPa	U=0.6hPa		
		Temperature Coefficient		(-0.14~0.25)hPa/°C	U=0.03hPa/°C		
39	Digital Barometers	air pressure	Verification Regulation of Digital Barometers JJG 1084	(800~1060)hPa	U=0.14hPa		
40	*Pressure Transmitters	Pressure	Verification regulation of pressure transmitter JJG882	(0~100)MPa	U=0.06%FS		
41	Compensated Micro-manometer	pressure	Verification regulation of compensated micro manometer JJG158	(-2.5~2.5)kPa	U=0.58Pa		
42	Tilting Tube Micromanometers	pressure	Verification regulation of inclined micro manometer JJG172	(-2.0~2.0)kPa	U=4.8Pa		
43	*Buoy type oxygen inhaler	Flow	Verification regulation of buoy oxygen inhaler JJG 913	(1~12)L/min	U=0.2L/min		
		Pressure		(0~10)MPa	U=0.3MPa		

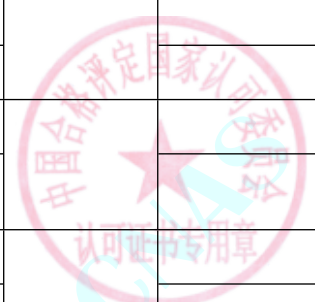


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
44	Standard Dynamometers	Force	Verification Regulation of Standard Dynamometers JJG144	(0.1~10)kN	$U_{rel}=0.06\%$		
				(10~60)kN	$U_{rel}=0.09\%$		
				(60~2000)kN	$U_{rel}=0.13\%$		
45	Working Dynamometers	Force	Verification Regulation of Working Dynamometer JJG455	(20~100)N	$U_{rel}=0.29\%$		
				(0.1~2000)kN	$U_{rel}=0.20\%$		
46	*Flexure Testing Machines	Force	Verification Regulation of Flexure Testing Machines JJG 476	5N~50kN	$U_{rel}=0.16\%$		
		Speed		(45~55)N/S	$U=0.17N/S$		
47	Hydraulic Jacks	Force	Verification Regulation of Hydraulic Jacks JJG 621	100N~5MN	$U_{rel}=0.41\%$		
48	*Building Material Testing Machine of Constant Loading Speed	Force	Verification Regulation of Building Material Testing Machine of Constant Loading Speed JJG 1025	100N~3MN	$U_{rel}=0.16\%$		
				3MN~5MN	$U_{rel}=0.36\%$		
		Afterburner speed		(2.4~22.5)kN/s	$U_{rel}=2.6\%$		
49	*Tension, Compression and Universal Testing Machines	Force	Verification Regulation of Tension, Compression and Universal Testing Machines JJG 139	1N~100N	$U_{rel}=0.35\%$		
				100N~3000kN	$U_{rel}=0.16\%$		
				3MN~5MN	$U_{rel}=0.35\%$		
50	*Electro-hydraulic Servo Universal Testing Machines	Force	Verification Regulation of Electro-hydraulic Servo Universal Testing Machines JJG 1063	100N~2000kN	$U_{rel}=0.16\%$		
		Coaxiality		(0.1~20)%	$U=3\%$		
51	*Electronic Universal Testing Machine	Force	Verification Regulation of Electronic Universal Testing Machine JJG 475	1N~100N	$U_{rel}=0.35\%$		
				100N~1000kN	$U_{rel}=0.16\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Coaxiality		(0.1~20)%	$U=3\%$		
52	*Oedometers	Force value	Calibration Specification for Oedometers JJF1311	(0.5~6)kN	$U_{rel}=1.0\%$		
		Length		(0~10)mm	$U=6\ \mu\text{m}$		
53	*Interface Tensionmeters	Tension	Calibration Specification for Interface Tensionmeters JJF1464	(1~200)mN/m	$U_{rel}=0.6\%$		
54	*Pendulum Impact Testing Machines	Impact energy	Verification Regulation of Pendulum Impact Testing Machines JJG145	Indirect method:(10~30)J	$U=1.0\text{J}$		
				Indirect method:(80~100)J	$U=2.3\text{J}$		
				Indirect method:(120~140)J	$U=2.2\text{J}$		
				Indirect method:(220~240)J	$U=4.4\text{J}$		
				Direct method:(0.1~300)J	$U_{rel}=0.4\%$		
55	Torque Wrenches	Torque	Verification Regulation of Torque Wrenches JJG707	(0.6~3000)Nm	$U_{rel}=0.4\%$		
56	Hydraulic Torque Bench	Torque	Verification Regulation of Hydraulic Torque Bench JJG(Xin)16	(700~20000)Nm	$U_{rel}=1.2\%$		
57	Working Torque- meters	Torque	Verification Regulation of Working Torque-meters JJG1146	(700~20000)Nm	$U_{rel}=1.2\%$		
58	*Metallic Brinell Hardness Testers	Hardness	Verification Regulation of Metallic Brinell Hardness Testers JJG150	(100~350)HBW	$U_{rel}=(0.8\sim 1.1)\%$		
59	*Metallic Rockwell	Hardness	Verification Regulation of Metallic Rockwell Hardness	(20~88) HRA	$U=0.6\text{HR}$	Accredited only for A、	



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Hardness Testing Machines (Scales A,B,C,D,E,F,G,H,K,N,T)		Testing Machines (Scales A,B,C,D,E,F,G,H,K,N,T) JJG112	(20~100) HRB	$U=0.8HR$	B、C scales.	
				(20~30) HRC	$U=0.9HR$		
				(35~55) HRC	$U=0.7HR$		
				(60~70) HRC	$U=0.6HR$		
60	*Equotip Hardness tester	Hardness	Verification Regulation of Equotip Hardness Tester JJG747	(490~830)HLD	$U_{rel}=(1.4\sim1.9)\%$		
61	*Metallic Vickers Hardness Testers	Hardness	Verification Regulation of Metallic Vickers Hardness Testers JJG151	(400~600)HV	$U_{rel}=(1.7\sim2.5)\%$		
62	Vibration Displacement Transducer	Displacement	Verification Regulation of Vibration Displacement Transducer JJG644	Dynamic:(0.01~2)mm	$U_{rel}=1.0\%$ , 80Hz		
				Dynamic:(0.01~2)mm	$U_{rel}=2.0\%$ , (20~500)Hz		
				Static:(0.01~50)mm	$U_{rel}=0.6\%$		
63	Electromagnetic Velocity Transducer	Speed	Verification Regulation of Electromagnetic Velocity Transducer JJG134	(0.1~200)m/s	$U_{rel}=1.0\%$ , 160Hz		
				(0.1~200)m/s	$U_{rel}=2.0\%$ , (20~2000)Hz		
64	piezoelectric Accelerometer	Acceleration	Verification Regulation of Piezoelectric Accelerometer JJG233	(1~100)m/s <sup>2</sup>	$U_{rel}=1.0\%$ , 160Hz		
				(1~100)m/s <sup>2</sup>	$U_{rel}=2.0\%$ , (20~2000)Hz		
65	*Hydraulic Vibration Testing System	Frequency	Verification Regulation of Hydraulic Vibration Testing System JJG 638	(20~2000)Hz	$U=0.2\text{ Hz}$		
		Acceleration		(1~100)m/s <sup>2</sup>	$U_{rel}=3.5\%$		
		Distortion Degree		(0.01~100)%	$U=2.0\%$		
66	*Mechanical Vibration	Frequency	Verification Regulation of Mechanical Vibration	(20~1000)Hz	$U=0.2\text{ Hz}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Generator for Testing	Acceleration	Generator for Testing JJG 189	(1~100)m/s <sup>2</sup>	$U_{rel}=3.5\%$		
		Distortion Degree		(0.01~100)%	$U=2.0\%$		
67	*Electrodynamic Horizontal Vibration Generator for Testing	Frequency	Verification Regulation of Electrodynamic Horizontal Vibration Generator for Testing JJG 1000	(20~4000)Hz	$U=0.2$ Hz		
		Acceleration		(1~100)m/s <sup>2</sup>	$U_{rel}=3.5\%$		
		Distortion Degree		(0.01~100)%	$U=2.0\%$		
68	*Electrodynamic Vibration Testing Systems	Frequency	Verification regulation of electric vibration test system JJG 948	(20~4000)Hz	$U_{rel}=0.2$ Hz		
		Acceleration		(1~100)m/s <sup>2</sup>	$U_{rel}=3.5\%$		
		Distortion Degree		(0.01~100)%	$U=2.0\%$		
69	Vibration Meters	Acceleration	Verification Regulation of Vibration Meters JJG 676	(0.1~100)m/s <sup>2</sup>	$U_{rel}=1.0\%$ , 160Hz		
				(1~100)m/s <sup>2</sup>	$U_{rel}=2.0\%$ , (20~2000)Hz		
		Speed		(0.1~100)m/s	$U_{rel}=1.0\%$ , 160Hz		
				(0.1~100)m/s	$U_{rel}=2.0\%$ , (20~2000)Hz		
		Displacement		(0.01~5)mm	$U_{rel}=1.0\%$ , 160Hz		
				(0.01~5)mm	$U_{rel}=2.0\%$ , (20~2000)Hz		
Frequency	(20~2000)Hz	$U=0.2$ Hz					
70	Measuring Instrument for Cement Bright Degumming Equipmng	Frequency	Verification Regulation of Measuring Instrument for Cement Bright Degumming Equipmng JJG974	(20~2000) Hz	$U_{rel}=0.1\%$		
		Rotating		(50~30000)r/min	$U_{rel}=0.2\%$		
		Acceleration		(0.1~100)m/s <sup>2</sup>	$U_{rel}=2.5\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Displacement		(0.1~10)mm	$U_{rel}=1.2\%$		
		Time		(0.1~3600)s	$U=0.12s$		
71	Pile Dynamic Measuring Instruments	Frequency	Verification Regulation of Pile Dynamic Measuring Instruments JJG930	(20~2000) Hz	$U_{rel}=0.3\%$	ExCept for impact method and pile dynamic measuring	
		Acceleration		(5~100)m/s <sup>2</sup>	$U_{rel}=2.0\%$		
72	Tachometers	Revolution	Verification Regulation of Tachometers JJG105	(30~30000)r/min	$U_{rel}=0.01\%$		
73	*Taximeters	Distance	Verification regulation of Taximeter JJG517	Used distance:(0.1~5)km	$U_{rel}=0.32\%$		
				Taximeters:(1~4)km	$U_{rel}=0.16\%$		
		Time		(300 ~900)s	$U_{rel}=0.1\%$		
74	Standard Equipment for Taximeter	Revolution	Verification Regulation of Standard Equipment for Taximeter JJG738	(500~4000)r/min	$U_{rel}=0.42\%$		
		Speed		(30~360)km/h	$U=0.7km/h$		
75	*Fixed Motor Vehicle Radar Velocimeter	frequency	Verification regulation of fixed motor vehicle radar velocimeter JJG 527	(10~40)GHz	$U=2MHz$		
		Speed		Simulated speed:(20~180)km/h	$U=1km/h$		
				Field speed:(20~100)km/h	$U=1km/h$		
76	*Mobile motor vehicle radar velocimeter	frequency	Verification regulation of mobile motor vehicle radar velocimeter JJG 528	(10~40)GHz	$U=2MHz$		
		Speed		Simulated speed:(20~180)km/h	$U=1km/h$		
				Field speed:(20~100)km/h	$U=1km/h$		



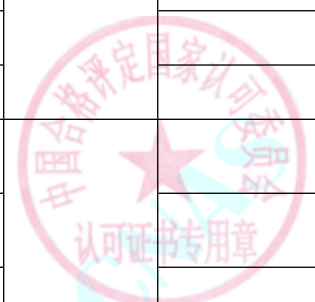
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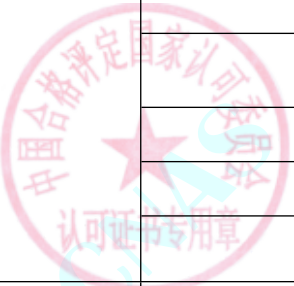
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
77	*Laboratory Centrifuge	Rotating Speed	Calibration Specification for Laboratory Centrifuge JJF(Meng)039	(500~30000)r/min	$U_{rel}=0.7\%$		
78	*Elevator Overspeed Governor Testers	Speed	Calibration Specification for Elevator Overspeed Governor Testers JJF1374	(1.000~5.000)m/s	$U_{rel}=0.4\%$		
4、Acoustics SCHEDULE OF ACCREDITATION CERTIFICATE							
1	Sound Level Meters	Sound Pressure Level	Verification regulation of Sound Level Meters JJG 188	Sound signal:(10~94)dB,(10~250)Hz	$U=0.5dB$		
				Sound signal:(10~94)dB,(315~3150)Hz	$U=0.4dB$		
				Sound signal:(10~94)dB,(4000~8000)Hz	$U=0.6dB$		
				Sound signal:(10~94)dB,(10~20)kHz	$U=0.7dB$		
				Electrical Signal:(1~140)dB,(1~8)kHz	$U=0.2dB$		
				Burst Signal:(1~140)dB, (0.25~1000)ms	$U=0.2dB$		
				F:(1~50)dB/s, 4kHz	$U=3.0dB/s$		
		S:1~50)dB/s, 4kHz		$U=0.3dB/s$			
2	Noise Level Statistical Analyzers	Sound Pressure Level	Verification regulation of Noise Level Statistical Analyzers JJG 778	Sound signal:(10~94)dB, (10~250)Hz	$U=0.5dB$		
				Sound signal:(10~94)dB, (315~3150)Hz	$U=0.4dB$		
				Sound signal:(10~94)dB, (4000~8000)Hz	$U=0.6dB$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	Sound signal:(10~94)dB, (10~20)kHz	$U=0.7\text{dB}$		
				Electrical Signal:(1~140)dB, (1~8)kHz	$U=0.2\text{dB}$		
				Burst Signal:(1~140)dB, (0.25~1000)ms	$U=0.2\text{dB}$		
				F:(1~50)dB/s, 4kHz	$U=3.0\text{dB/s}$		
		S:1~50)dB/s, 4kHz	$U=0.3\text{dB/s}$				
3	*Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment	Ultrasonic Power	Verification regulation of Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment JJG 639	(1~100)mW	$U_{\text{rel}}=20\%$		
5、 Electromagnetism							
1	*Amperemeters, Voltmeters, Wattmeters and Ohmmeters	DC Voltage	Verification Regulation of Amperemeters, Voltmeters, Wattmeters and Ohmmeters JJG 124	10mV~1000V	$U_{\text{rel}}=0.1\%$		
		AC Voltage		(0.1~1000)V, (50Hz、60Hz、400Hz)	$U_{\text{rel}}=0.1\%$		
		DC Current		1mA~20A	$U_{\text{rel}}=0.1\%$		
		AC Current		2mA~20A, (50Hz、60Hz、400Hz)	$U_{\text{rel}}=0.11\%$		
		DC Power		10W~7kW	$U_{\text{rel}}=0.2\%$		
		AC Power		10W~10kW, (50Hz)	$U_{\text{rel}}=0.2\%$		
		DC Resistance		1Ω~1MΩ	$U_{\text{rel}}=0.3\%$		
2	D.C. Potentiometers	DC Voltage	Verification Regulation of D.C. Potentiometers JJG 123	(0.1~0.211111)V	$U=2.4 \times 10^{-5} U_x + 0.024 \mu\text{V}$		



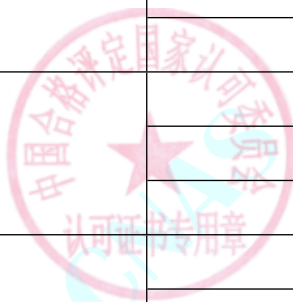
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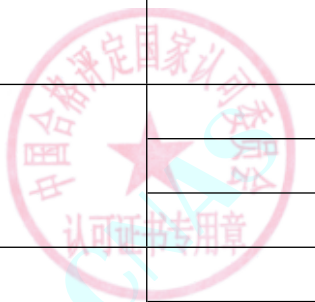
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.2111111~2.1111110)V	$U=1.2 \times 10^{-5} U_x + 0.12 \mu V$		
3	*Transformers Turn Ratio Test Sets	Ratio	Verification Regulation of Transformers Turn Ratio Test Sets JJG 970	1~1000	$U_{rel}=0.014\%$		
4	Instrument Voltage Transformers	Ratio	Verification Regulation of Instrument Voltage Transformers JJG 314	(2~10)kV/100V,	$U=0.020\%$		
				20% $U_n$	$U=0.012\%$		
		(2~10)kV/100V,		$U=0.8'$			
		(50%~120%) $U_n$		$U=0.4'$			
Phase				$\pm(0.001 \sim 100)'$ , (2~10)kV/100V, 20% $U_n$			
				$\pm(0.001 \sim 100)'$ , (2~10)kV/100V, (50%~120%) $U_n$			
5	*Withstanding Voltage Testers	DC Voltage	Verification Regulation of Withstanding Voltage Testers JJG 795	(0.5~15)kV	$U_{rel}=0.6\%$		
		AC Voltage		(0.5~15)kV, (50Hz)	$U_{rel}=0.6\%$		
		DC Current		(0.4~200)mA	$U_{rel}=0.8\%$		
		AC Current		(0.4~200)mA, (50Hz)	$U_{rel}=0.8\%$		
		Time		10s~99s	$U_{rel}=0.8\%$		
6	*Power Frequency High Voltage Test Device	AC Voltage	Calibration Specification for AC High Voltage Test Device JJF(Zhe) 1144	(10~100)kV, (50Hz)	$U_{rel}=1.4\%$		
		Frequency		(45~65)Hz	$U_{rel}=0.13\%$		
		Distortion		0.1%~5%, (50Hz)	$U_{rel}=3\%$		
7	Instrument Current Transformers	Ratio	Verification Regulation of Instrument Current Transformers JJG 313	(5~2000)A/5A, 5% $I_n$	$U=0.024\%$		
				(5~2000)A/5A, (20%~120%) $I_n$	$U=0.012\%$		



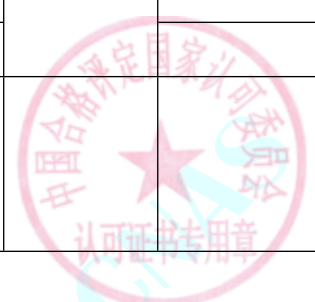
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Phase		(0.01~999.9)', (5~2000)A/5A, 5%I <sub>n</sub>	U=0.70'		
				(0.01~999.9)', (5~2000)A/5A, (20%~120%)I <sub>n</sub>	U=0.34'		
8	*High Current Generator	AC Current	Calibration Specification of High Current Generator JJF(JX) 1037	(5~2000)A, (50Hz)	U <sub>rel</sub> =0.1%		
9	DC Standard Resistors	DC Resistance	Verification Regulation of DC Standard Resistors JJG 166	1m Ω、10m Ω、100k Ω	U <sub>rel</sub> =5×10 <sup>-6</sup>		
				1 Ω	U <sub>rel</sub> =2×10 <sup>-6</sup>		
				0.1 Ω、10 Ω、100 Ω、1k Ω、10k Ω	U <sub>rel</sub> =3×10 <sup>-6</sup>		
10	*High Voltage and Value D.C.Resistors	DC Resistance	Verification Regulation of High Voltage and Value D.C.Resistors JJG 1072	100 Ω ~ 100M Ω	U <sub>rel</sub> =0.12%		
				100M Ω ~ 10G Ω	U <sub>rel</sub> =0.29%		
				10G Ω ~ 100G Ω	U <sub>rel</sub> =0.64%		
				100G Ω ~ 1T Ω	U <sub>rel</sub> =1.2%		
11	*DC Resistive Volt Ratio Box	Voltage Division Ratio	Verification Regulation of DC Resistive Volt Ratio Box JJG 531	10~500, (100mV~1000V)	U <sub>rel</sub> =3×10 <sup>-5</sup>		
12	D.C. Resistance Boxes	DC Resistance	Verification Regulation of D.C. Resistance Boxes JJG 982	10 Ω ~ 100k Ω	U <sub>rel</sub> =0.002%		
				100m Ω ~ 1 Ω	U <sub>rel</sub> =0.03%		
				1m Ω ~ 10m Ω	U <sub>rel</sub> =1%		
13	*D.C. Bridges	DC Resistance	Verification Regulation of D.C. Bridges JJG 125	100 Ω ~ 100k Ω	U <sub>rel</sub> =0.002%		
				(0.1~10) Ω	U <sub>rel</sub> =0.03%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				1m Ω ~ 10m Ω	$U_{rel}=1\%$		
14	*Megohmmeter	DC Resistance	Verification regulation of insulation resistance meter (megger) JJG 622	100 Ω ~ 10M Ω	$U_{rel}=0.24\%$		
				10M Ω ~ 100M Ω	$U_{rel}=0.58\%$		
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
				1G Ω ~ 1T Ω	$U_{rel}=2.4\%$		
		DC Voltage	(100~5000)V	$U_{rel}=1.7\%$			
15	*Electronic Insulation Resistance Meters	DC Resistance	Verification Regulation of Electronic Insulation Resistance Meters JJG 1005	100 Ω ~ 10M Ω	$U_{rel}=0.24\%$		
				10M Ω ~ 100M Ω	$U_{rel}=0.58\%$		
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
				1G Ω ~ 1T Ω	$U_{rel}=2.4\%$		
		DC Voltage	100V~10kV	$U_{rel}=1.7\%$			
16	*Earth Resistance Tester	Resistance	Verification Regulation of Earth Resistance Meters JJG 366	0.010 Ω ~ 0.1 Ω	$U_{rel}=12\%$		
				0.10 Ω ~ 1 Ω	$U_{rel}=1.4\%$		
				1 Ω ~ 2011.110 Ω	$U_{rel}=0.12\%$		
17	Electrical Meters for Measuring Alternating-current Electrical Energy	AC Electrical Energy	Verification Regulation of Electrical Meters for Measuring Alternating-current Electrical Energy JJG 596	Three-phase balance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ =1.0	$U_{rel}=0.058\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Three-phase balance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.8C	$U_{rel}=0.080\%$		
				Three-phase balance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5C	$U_{rel}=0.12\%$		
				Three-phase unbalance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=1.0	$U_{rel}=0.069\%$		
				Three-phase unbalance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5L	$U_{rel}=0.092\%$		
18	Electromechanical Meters for Measuring Alternating-current Electrical Energy	AC Electrical Energy	Verification Regulation of Electromechanical Meters for Measuring Alternating-current Electrical Energy JJG 307	Three-phase balance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=1.0	$U_{rel}=0.12\%$		
			Three-phase balance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5L、0.8C	$U_{rel}=0.18\%$			

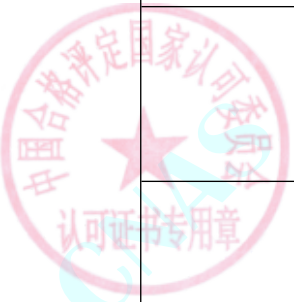


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Three-phase balance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5C	$U_{rel}=0.24\%$		
				Three-phase unbalance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=1.0	$U_{rel}=0.18\%$		
				Three-phase unbalance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5L	$U_{rel}=0.24\%$		
19	Reference Meters for Electrical Energy	AC Electrical Energy	Verification Regulation of Reference Meters for Electrical Energy JJG 1085	Three-phase balance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=1.0、0.5L、0.8C	$U_{rel}=0.024\%$		
				Three-phase balance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5C	$U_{rel}=0.035\%$		
				三相不平衡负载: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=1.0	$U_{rel}=0.024\%$		

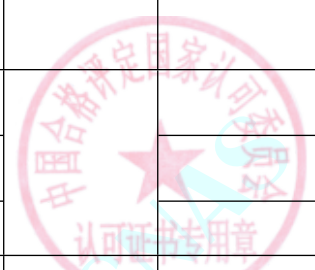


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				三相不平衡负载: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5L	$U_{rel}=0.035\%$		
20	*Verification Equipment for AC Electrical Energy Meters	AC Electrical Energy	Verification Regulation of Verification Equipment for AC Electrical Energy Meters JJG 597	Three-phase balance loads: 3×(60~380)V, 3×(0.1~100)A, 50Hz, cos φ=1.0、0.5L、0.8C	$U_{rel}=0.024\%$		
				Three-phase balance loads: 3×(60~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5C	$U_{rel}=0.035\%$		
				Three-phase unbalance loads: 3×(60~380)V, 3×(0.1~100)A, 50Hz, cos φ=1.0	$U_{rel}=0.024\%$		
				Three-phase unbalance loads: 3×(60~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5L	$U_{rel}=0.035\%$		
21	*Resistive Current Testers Zinc-oxide Surge Arrester	Alternating Voltage	Calibration Specification for Zinc-oxide Arrester Testers JJF2194	(10~400)V,50Hz	$U_{rel}=0.5\%$		
		Alternating Current		(1~20)mA,50Hz	$U_{rel}=0.5\%$		
		Phase Angle		(0~180)°,50Hz	$U=0.9^\circ$		
22	Process Calibrators	DC voltage (measurement)	Calibration specification for process instrument calibrators JJF1472	10mV~100V	$U_{rel}=4.6\times 10^{-5}$		



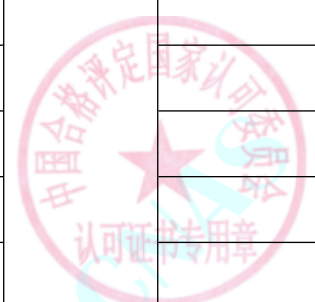
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC current (measurement)		$\pm (1\sim 100) \text{ mA}$	$U_{\text{rel}}=1.5 \times 10^{-4}$		
		Resistance (measurement)		$(10\sim 4000) \Omega$	$U_{\text{rel}}=2.9 \times 10^{-4}$		
		Frequency (measurement)		1Hz~100kHz	$U_{\text{rel}}=2 \times 10^{-4}$		
		Temperature(Thermal resistance measurement)		$(-200\sim 800) \text{ }^\circ\text{C}$	$U=0.058^\circ\text{C}$		
		Temperature(Thermocouple measurement)		$(100\sim 1000) \text{ }^\circ\text{C}$	$U=0.41 \text{ }^\circ\text{C}$		
				$(1000\sim 1700) \text{ }^\circ\text{C}$	$U=0.29 \text{ }^\circ\text{C}$		
		AC voltage (measurement)		100mV~300V, (40Hz~1kHz)	$U_{\text{rel}}=1.1 \times 10^{-4}$		
		AC current (measurement)		$(10\sim 200)\text{mA}$ , (40Hz~1kHz)	$U_{\text{rel}}=2.4 \times 10^{-4}$		
		DC voltage (output)		10mV~300V	$U_{\text{rel}}=5.2 \times 10^{-5}$		
		DC Current (Output)		$(1\sim 100)\text{mA}$	$U_{\text{rel}}=1.2 \times 10^{-4}$		
		Resistance (Output)		$(10\sim 4000) \Omega$	$U_{\text{rel}}=1.3 \times 10^{-4}$		
		Frequency (output)		1Hz~100kHz	$U_{\text{rel}}=2 \times 10^{-4}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature(Thermal resistance output)		(-200~800) °C	$U=0.058^{\circ}\text{C}$		
		Temperature(Thermocouple output)		(100~1000) °C	$U=0.41^{\circ}\text{C}$		
				(1000~1700) °C	$U=0.29^{\circ}\text{C}$		
23	Standard Multi-function source	DC voltage	Calibration Specification for Multifunction Standard Sources JJF1638	(0.1~1) V	$U=1.6 \times 10^{-5}R_d+0.7\mu\text{V}$		
				(1~10) V	$U=1.3 \times 10^{-5}R_d+5\mu\text{V}$		
				(10~100) V	$U=1.7 \times 10^{-5}R_d+70\mu\text{V}$		
				(100~1000) V	$U=1.6 \times 10^{-5}R_d+0.4\text{mV}$		
		DC current		100 μ A~10mA	$U_{\text{rel}}=2 \times 10^{-5}$		
				10mA~10A	$U_{\text{rel}}=0.012\%$		
				10A~9A	$U_{\text{rel}}=0.04\%$		
		AC voltage		(0.1~1) V, (40Hz~10kHz)	$U=1.8 \times 10^{-4}R_d+90\mu\text{V}$		
				(1~10) V, (40Hz~10kHz)	$U=2.6 \times 10^{-4}R_d+0.9\text{mV}$		
				(10~100) V, (40Hz~10kHz)	$U=3.2 \times 10^{-4}R_d+9\text{mV}$		
				(100~1000) V, (40Hz~10kHz)	$U=6 \times 10^{-6}R_d+0.09\text{V}$		
		A.C.Standard current source		100 μ A~19A, (40Hz~10kHz)	$U_{\text{rel}}=0.1\%$		
		Resistance		(1~2) Ω	$U=2.2 \times 10^{-5}R_d+5 \mu \Omega$		

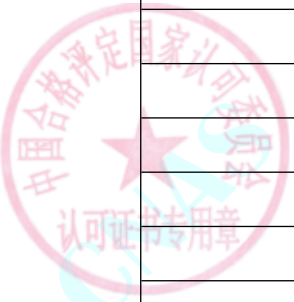


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(2~20) Ω	$U=1.2 \times 10^{-5} R_d + 18 \mu \Omega$		
				(20~200) Ω	$U=1.0 \times 10^{-5} R_d + 60 \mu \Omega$		
				200 Ω ~ 2k Ω	$U=1.0 \times 10^{-5} R_d + 0.6m \Omega$		
				2k Ω ~ 20k Ω	$U=1.0 \times 10^{-5} R_d + 6m \Omega$		
				20k Ω ~ 200k Ω	$U=1.0 \times 10^{-5} R_d + 60m \Omega$		
				200k Ω ~ 2M Ω	$U=1.2 \times 10^{-5} R_d + 1.2 \Omega$		
				2M Ω ~ 20M Ω	$U=2.5 \times 10^{-5} R_d + 0.12k \Omega$		
				20M Ω ~ 200M Ω	$U=1.5 \times 10^{-4} R_d + 12k \Omega$		
				200M Ω ~ 1G Ω	$U=1.9 \times 10^{-3} R_d + 1.2M \Omega$		
24	Digital multimeter	DC voltage	Calibration Specification for Multimeters JJF1587	100mV~220mV	$U=1.0 \times 10^{-5} R_d + 0.7 \mu V$		
				220mV~2.2V	$U=9 \times 10^{-6} R_d + 1.2 \mu V$		
				2.2V~11V	$U=9 \times 10^{-6} R_d + 80 \mu V$		
				11V~22V	$U=9 \times 10^{-6} R_d + 80 \mu V$		
				22V~220V	$U=1.0 \times 10^{-5} R_d + 0.10mV$		
				220V~1000V	$U=1.1 \times 10^{-5} R_d + 0.6mV$		
		DC current		100 μ A ~ 220 μ A	$U=6 \times 10^{-5} R_d + 10nA$		
				220 μ A ~ 2.2mA	$U=6 \times 10^{-5} R_d + 10nA$		
				2.2mA~22mA	$U=6 \times 10^{-5} R_d + 0.10 \mu A$		
				22mA~220mA	$U=7 \times 10^{-5} R_d + 1.0 \mu A$		

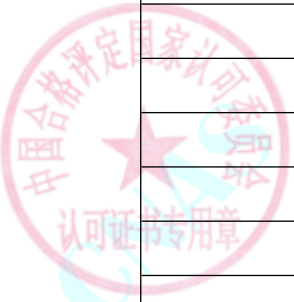


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
		AC voltage		220mA~2.2A	$U=1.0 \times 10^{-4} R_d + 30 \mu A$			
					2.2A~10A	$U=5 \times 10^{-4} R_d + 0.6 mA$		
					(0.5~2.2)V, (40Hz~20kHz)	$U=9 \times 10^{-5} R_d + 7 \mu V$		
					(2.2~22)V, (40Hz~20kHz)	$U=9 \times 10^{-5} R_d + 70 \mu V$		
					(22~220)V, (40Hz~20kHz)	$U=1.0 \times 10^{-4} R_d + 1.0 mV$		
		AC current		(220~1000)V, (40Hz~1kHz)	$U=1.0 \times 10^{-4} R_d + 5 mV$			
					(10~22)mA, (40Hz~1kHz)	$U=2.0 \times 10^{-4} R_d + 0.5 \mu A$		
					(22~220)mA, (40Hz~1kHz)	$U=2.0 \times 10^{-4} R_d + 5 \mu A$		
					220mA~2.2A, (40Hz~1kHz)	$U=8 \times 10^{-4} R_d + 50 \mu A$		
		DC ohmmeter		2.2A~10A, (40Hz~1kHz)	$U=6 \times 10^{-4} R_d + 0.2 mA$			
					10 Ω	$U_{rel}=4 \times 10^{-5}$		
					19 Ω	$U_{rel}=4 \times 10^{-5}$		
					100 Ω	$U_{rel}=2.0 \times 10^{-5}$		
					190 Ω	$U_{rel}=2.0 \times 10^{-5}$		
					1k Ω	$U_{rel}=1.6 \times 10^{-5}$		
			1.9k Ω	$U_{rel}=1.6 \times 10^{-5}$				

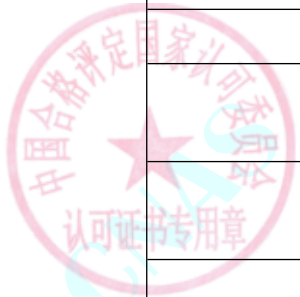


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				10k Ω	$U_{rel}=1.4 \times 10^{-5}$		
				19k Ω	$U_{rel}=1.4 \times 10^{-5}$		
				100k Ω	$U_{rel}=1.7 \times 10^{-5}$		
				190k Ω	$U_{rel}=1.7 \times 10^{-5}$		
				1M Ω	$U_{rel}=2.4 \times 10^{-5}$		
				1.9M Ω	$U_{rel}=2.5 \times 10^{-5}$		
				10M Ω	$U_{rel}=4.7 \times 10^{-5}$		
				19M Ω	$U_{rel}=5.5 \times 10^{-5}$		
				100M Ω	$U_{rel}=1.3 \times 10^{-4}$		
25	*Burden Box of Instrument Transformers	Impedance	Calibration Specification for Burden Box of Instrument Transformers JJF 1264	(0.06 ~ 10) Ω	$U_{rel}=0.24\%$		
		Admittance		(0.1 ~ 12)mS	$U_{rel}=0.24\%$		
26	*Transformer Characteristic Testers	Voltage	Calibration Specification for Transformer Characteristic Testers T/JJF (HUABEI) 5006	(0.1 ~ 1000)V, 50Hz	$U_{rel}=0.3\%$		
		Current		(0.1 ~ 20)A, 50Hz	$U_{rel}=0.3\%$		
		Ratio		1 ~ 400	$U_{rel}=0.16\%$		
		Secondary load (impedance)		(0.1 ~ 1.0) Ω	$U_{rel}=0.24\%$		
		Secondary load (admittance)		(0.1 ~ 1.0)mS	$U_{rel}=0.24\%$		
		Secondary winding resistance		(0.1 ~ 100) Ω	$U_{rel}=2\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
27	*Instrument Transformers Test Set	Ratio Error	Verification regulation of transformer calibrator JJG 169	-10%~-0.05%,0.02%~10%	$U_{rel}=0.24\%$		
		Phase difference		-50'~-0.5',0.5'~50'	$U_{rel}=0.24\%$		
6、 Radio							
1	*Dielectric loss and volume resistivity tester of insulating oil	Dielectric Loss	Calibration Specification for Insulating Oil Dielectric	(0.01~9.996)%	$U=0.6\%R_d+0.01\%$		
		Volume resistivity	Dissipation Factor and Volume Resistivity Testers JJF 1618	$(1.13 \times 10^6 \sim 1.13 \times 10^{12}) \Omega \cdot m$	$U_{rel}=0.5\%$		
		Capacity		100pF	$U_{rel}=0.6\%$		
		Voltage		(0.1~2)kV	$U_{rel}=0.6\%$		
		Temperature		(50~100)° C	$U=0.1^\circ C$		
2	*Dielectric Loss Tester	Dielectric Loss	Verification regulation of high voltage dielectric loss factor tester JJG 1126	(0.01~9.996)%	$U=0.6\%R_d+0.01\%$		
		Capacity		100pF	$U_{rel}=0.5\%$		
7、 Time frequency							
1	Quartz crystal oscillator in electronic measuring instrument	Frequency	Calibration Specification for Crystal Oscillators inside the Electrical Measurement JJF 1984	1MHz,2MHz,2.5MHz,5MHz,10MHz	$U_{rel}=1.1 \times 10^{-10}$		
2	*Clock Testers	Frequency	C. S. for Clock Testers JJF 1662	1Hz~10MHz	$U_{rel}=7 \times 10^{-8}$		
		Time		Daily timing error:-10s~10s	$U=0.01s$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
3	*Mechanical stopwatch	Time	Calibration Specification for Stopwatches JJF2195	MECHANICAL STOPWATCH:0.1s~15min, (Resolution 0.1s)	U=0.10s		
				Mechanical Stopwatch:0.2s~30min (Resolution 0.2s)	U=0.2s		
				Electronic Stopwatch: (0.01~3600) s			
8、 Optics							
1	*Water quality colorimeter	Chroma	Specification for calibration of water colorimeter JJF 1689	Digital display instrument: (0~500) degree	U= (1.7 ~4.4) degree		
				Visual instrument: (0~70) degree	U= (3.6 ~7.1) degree		
2	*Trial Case Lenses	Vertex power	Verification regulation of optometry lens box JJG579	(-20~+20) m <sup>-1</sup>	U=0.03m <sup>-1</sup>		
3	*Focimeters	Vertex power	Verification regulation of Focimeters JJG580	(-25~+25) m <sup>-1</sup>	U=0.03m <sup>-1</sup>		
4	*Eye Refractometers	Vertex power	Verification regulation of optometer JJG892	(-20~+20) m <sup>-1</sup>	U=0.16m <sup>-1</sup>		
		Corneal axial position		(45~135) °	U=0.4°		
9、 Chemistry							
1	*Ultraviolet、 visible spectrophotometer	Wavelength	Verification regulation of ultraviolet, visible and near infrared spectrophotometer JJG 178	(220~900) nm	U=0.4nm		
		Transmissivity		(5~35) %	U=0.4%		



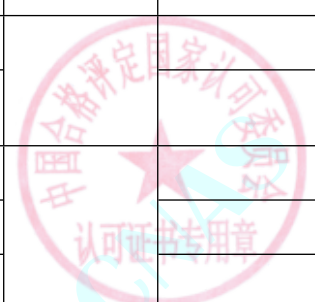
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
2	*Fourier Transform Infrared Spectrometers	Wave Number	Calibration specification for Fourier transform infrared spectrometer JJF 1319	( ) 4000~400) cm <sup>-1</sup>	U=0.53cm <sup>-1</sup>		
3	*Atomic absorption spectrophotometer	Wavelength	Verification regulation of atomic absorption spectrophotometer JJG 694	( 190~900) nm	U=0.09 nm		
		Detection limit		Determination by flame atomization (Cu) : ≤ 0.02 μg/mL	U=0.005 μg/mL		
		Concentration		Graphite furnace atomization method (Cd) : ≤ 4pg	U=0.4pg		
				Determination by flame atomizationCu: ( 0.50~5.00) μg/mL	U <sub>rel</sub> =5.4%		
				Graphite furnace atomization methodCd: ( 0.50~5.00) ng/mL	U <sub>rel</sub> =7.8%		
4	*Verification Regulation of Fluorescence Spectrophotometer	Detection limit	Verification regulation of fluorescence spectrophotometer JJG 537	Type A: ≤ 5 × 10 <sup>-10</sup> g/mL	U <sub>rel</sub> =45%		
5	*Atomic Fluorescence Spectrophotometer	Detection limit	Verification regulation of atomic fluorescence photometer JJG 939	As: ≤ 0.4ng	U <sub>rel</sub> =48%		
				Sb: ≤ 0.4ng	U <sub>rel</sub> =48%		
6	*ICP spectrometer	wave length	Verification regulation of emission spectrometer JJG 768	( 190~770) nm	U=0.01nm		
		Detection limit		Zn: ≤ 0.003mg/L	U <sub>rel</sub> =48%		
				Ni: ≤ 0.01mg/L	U <sub>rel</sub> =48%		
				Mn: ≤ 0.002mg/L	U <sub>rel</sub> =48%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Cr: $\leq 0.007\text{mg/L}$	$U_{\text{rel}}=48\%$		
				Cu: $\leq 0.007\text{mg/L}$	$U_{\text{rel}}=48\%$		
				Ba: $\leq 0.001\text{mg/L}$	$U_{\text{rel}}=48\%$		
7	*Flame Photometer	Concentration	Verification regulation of flame photometer JJG 630	K: (0~0.200) mmol/L	$U=0.0004\text{mmol/L}$		
				Na: (0~1.00) mmol/L	$U=0.034\text{mmol/L}$		
		Detection limit		K: $\leq 0.004\text{mmol/L}$	$U=0.001\text{mmol/L}$		
				Na: $\leq 0.008\text{mmol/L}$	$U=0.004\text{mmol/L}$		
8	*Polarimeter	Optical rotation	Verification regulation of polarimeter and polarimeter JJG 536	(-75~+75) °	$U=0.003^\circ \sim 0.005^\circ$		
9	*Mercury analyzers	Detection limit	Verification regulation of mercury measuring instrument JJG 548	Absorption class: $\leq 1.0\text{ng/s}$	$U_{\text{rel}}=47\%$		
				Fluorescence class: $\leq 0.1\text{ng}$	$U_{\text{rel}}=47\%$		
10	*Gas chromatographs	Sensitivity	Verification regulation of gas chromatograph JJG 700	TCD (Benzene in Toluene) : $\geq 800\text{mV}\cdot\text{mL/mg}$	$U_{\text{rel}}=11\%$		
				TCD (CH <sub>4</sub> -N <sub>2</sub> ) : $\geq 800\text{mV}\cdot\text{mL/mg}$	$U_{\text{rel}}=10\%$		
		Detection limit		ECD (lindane in isooctane) : $\leq 5\text{pg/mL}$	$U_{\text{rel}}=11\%$		
				FID (CH <sub>4</sub> -N <sub>2</sub> ) : $\leq 0.5\text{ng/s}$	$U_{\text{rel}}=11\%$		
				FID (n-Hexadecane in isooctane) : $\leq 0.5\text{ng/s}$	$U_{\text{rel}}=11\%$		

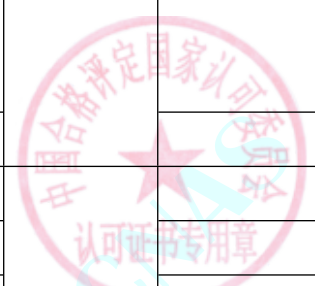


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				FPD (P) : $\leq 0.1 \text{ ng/s}$	$U_{\text{rel}}=16\%$		
				FPD (S) : $\leq 0.5 \text{ ng/s}$	$U_{\text{rel}}=11\%$		
				NPD (N) : $\leq 5 \text{ pg/s}$	$U_{\text{rel}}=11\%$		
				NPD (P) : $\leq 10 \text{ pg/s}$	$U_{\text{rel}}=11\%$		
11	*Liquid chromatographs	Minimum detection concentration	Verification regulation of liquid chromatograph JJG 705	UV VIS detector: $\leq 5 \times 10^{-8} \text{ g/mL}$	$U_{\text{rel}}=5.2\%$		
				DAD detector: $\leq 5 \times 10^{-8} \text{ g/mL}$	$U_{\text{rel}}=5.2\%$		
				FLD detector: $\leq 5 \times 10^{-9} \text{ g/mL}$	$U_{\text{rel}}=5.2\%$		
				DRD detector: $\leq 5 \times 10^{-6} \text{ g/mL}$	$U_{\text{rel}}=6.0\%$		
				Evaporative light scattering detector: $\leq 5 \times 10^{-6} \text{ g/mL}$	$U_{\text{rel}}=6.0\%$		
		Flow		(0.1~1.5)mL/min	$U_{\text{rel}}=0.3\%$		
12	*Ion Chromatographs	Minimum detection concentration	Verification regulation of ion chromatograph JJG 823	Conductance detector、 UV VIS detector、 Electrochemical detector: $\leq 0.02 \mu \text{ g/L}$	$U_{\text{rel}}=40\%$		
		Flow		(0.2~1.5)mL/min	$U_{\text{rel}}=0.2\%$		
13	*Quadrupole Inductively Coupled Plasma Mass spectrometers	Detection limit	Calibration specification for Quadrupole Inductively coupled plasma mass spectrometer JJF 1159	Be: $\leq 30 \text{ ng/L}$	$U_{\text{rel}}=48\%$		
				In: $\leq 10 \text{ ng/L}$	$U_{\text{rel}}=48\%$		
				Bi: $\leq 10 \text{ ng/L}$	$U_{\text{rel}}=48\%$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
14	*Gas chromatography-Mass spectrometries	Signal to Noise Ratio	Calibration specification for gas chromatography-mass spectrometry JJF 1164	Ion trap, single quadrupole (EI <sup>+</sup> , CI <sup>+</sup> , CI <sup>-</sup> ): S/N≥10:1	U <sub>rel</sub> =15%		
				Triple quadrupole (EI <sup>+</sup> , CI <sup>+</sup> ): S/N≥10: 1	U <sub>rel</sub> =15%		
				Time of flight, electrostatic orbit(EI <sup>+</sup> : S/N≥50: 1	U <sub>rel</sub> =15%		
		(50~700) u		U=0.06u			
		Atomic mass					
15	*Liquid Chromatography-Mass Spectrometers	Signal to Noise Ratio	Calibration specification for liquid chromatography-mass spectrometry JJF 1317	Triple quadrupole (ESI <sup>-</sup> ), Single quadrupole, ion trap (ESI <sup>-</sup> , ESI <sup>+</sup> , APCI <sup>+</sup> ): ≥10:1	U <sub>rel</sub> =10%		
		Atomic mass		Triple quadrupole (ESI <sup>+</sup> , APCI <sup>+</sup> ): ≥30:1 (190~2300) u	U=0.10u		
16	*Analyzers for Oil Content in Water	Concentration	Verification regulation of oil concentration analyzer in water JJG 950	(0.1~10) mg/L	U=0.1mg/L		
				(10~1000) mg/L	U <sub>rel</sub> =3.3%		
17	*Turbidimeters	Turbidity	Verification regulation of turbidimeter JJG 880	(0.1~20) NTU	U <sub>rel</sub> =3.2%		
				(20~2000) NTU	U <sub>rel</sub> =4.0%		
18	Dissolved Oxygen Meters	Concentration	Verification regulation of dissolved oxygen meter JJG 291	(5~12) mg/L	U=0.08mg/L		
19	*On-line Automatic Determinators of	Concentration	Verification regulation of chemical oxygen demand (COD) on-line automatic	(16~100) mg/L	U <sub>rel</sub> =2.2%		



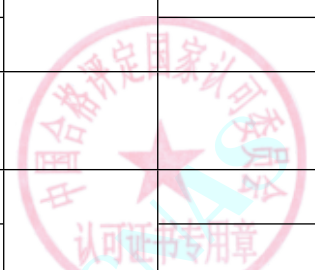
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Chemical Oxygen Demand (COD)		monitor JIG 1012	(100~1000) mg/L	$U_{rel}=1.0\%$		
20	*Chemical Oxygen Demand (COD) Meters	Concentration	Verification regulation of chemical oxygen demand (COD) tester JIG 975	Type A: (1~50) mg/L	$U_{rel}=2.6\%$		
				Type A: (50~1500) mg/L	$U_{rel}=1.9\%$		
		Temperature		(100~200)°C	$U=0.3^{\circ}C$		
21	*Total Organic Carbon Analyzers	Concentration	Verification regulation of total organic carbon analyzer JIG 821	organic carbon: (1~1000) mg/L	$U_{rel}=3\%$		
				inorganic carbon: (1~1000) mg/L	$U_{rel}=3\%$		
22	*Ammonia-Nitrogen Automatic Analyzers	Concentration	Verification regulation of ammonia nitrogen automatic monitor JIG 631	(0.1~2.0) mg/L	$U=0.12\text{mg/L}$		
				(2.0~100) mg/L	$U_{rel}=3\%$		
23	*Total nitrogen measuring instrument	Concentration	Calibration specification for total nitrogen analyzer T/JJF(North China)5001	(0.1~20) mg/L	$U_{rel}=3.4\%$		
				(20~500) mg/L	$U_{rel}=2\%$		
24	*Calibration Specification For Silicate Analyzers	Concentration	Calibration specification for silicate analyzer JJF 1539	(0.1~100) $\mu\text{g/L}$	$U=1.3\ \mu\text{g/L}$		
				(100~200) $\mu\text{g/L}$	$U_{rel}=2\%$		
25	*Calibration Specification For Silicate Analyzers	Concentration	Phosphate analyzer calibration specification JJF 1567	(0.1~50) mg/L	$U_{rel}=1.5\%$		
26	*Flow analyzers with Spectrophotography	Wavelength	Calibration specification for spectrophotometric flow analyzers JJF 1568	(360~1100) nm	$U=1.2\text{nm}$		
		Detection limit		Cyanide: $\leq 0.002\text{mg/L}$	$U=0.0003\text{mg/L}$		
				Volatile phenol in water: $\leq 0.002\text{mg/L}$	$U=0.0003\text{mg/L}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Hexavalent chromium: $\leq 0.004\text{mg/L}$	$U=0.0013\text{mg/L}$		
				Total phosphorus: $\leq$ $0.01\text{mg/L}$	$U=0.002\text{mg/L}$		
				Ammonia nitrogen: $\leq$ $0.04\text{mg/L}$	$U=0.003\text{mg/L}$		
				Total nitrogen: $\leq$ $0.04\text{mg/L}$	$U=0.003\text{mg/L}$		
				Sulfide: $\leq 0.005\text{mg/L}$	$U=0.0005\text{mg/L}$		
				Anionic surfactant: $\leq$ $0.05\text{mg/L}$	$U=0.003\text{mg/L}$		
27	*Copper Content Analyzers	Concentration	Calibration specification for copper and iron content analyzers JJF (Qian) 13	$(0.1\sim 200)\ \mu\text{g/L}$	$U=2.0\ \mu\text{g/L}$		
28	*Instrument for KF Coulometry Titration	Water content	Verification regulation of Karl Fischer coulometric micro moisture tester JJG 1044	$10\ \mu\text{g}$	$U_{\text{rel}}=6.6\%$		
				$100\ \mu\text{g}$	$U_{\text{rel}}=3.8\%$		
				$(1000\sim 5000)\ \mu\text{g}$	$U_{\text{rel}}=3.2\%$		
29	*Instrument for Karl Fischer Volumetric Titrators for Water Content	Water content	Verification regulation of Karl Fischer volumetric moisture meter JJG 1154	$(1\sim 5)\ \text{mg}$	$U_{\text{rel}}=6.2\%$		
				$(>5\sim 20)\ \text{mg}$	$U_{\text{rel}}=1.9\%$		
30	Flow Cup Viscometers	Viscosity	Verification regulation of outflow cup viscometer JJG743	$(2\sim 10^5)\text{mm}^2/\text{s}$	$U_{\text{rel}}=1.5\%$		
31	Rotational Viscometers	Viscosity	Verification regulation of rotary viscometer JJG1002	$(1\sim 1.2\times 10^5)\text{mPa}\cdot\text{s}$	$U_{\text{rel}}=0.3\%\sim 6.0\%$		
32	*Laboratory pH	pH	Verification regulation of	Potentiomet: $0\sim 14$	$U=0.001$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Meters		laboratory pH meter JJG 119	Meters: 4~10	U=0.02		
		Voltage		(-2000~2000) mV	U=0.02%FS		
33	*On-line pH Meters	pH	On line pH meter calibration specification JJF 1547	Electricity meter: 0~14	U=0.01		
				instrument: 4~10	U=0.02		
		Voltage		(-2000~2000)mV	U=0.02%FS		
34	*Laboratory Ion Meters	pX	Verification regulation of laboratory ion meter JJG 757	Potentiomet: 0~14	U=0.002		
				Meters: 2~4	U=0.003		
		Potential		(-2000~2000) mV	U=0.014%FS		
35	*Automatic Potentiometric Titrators	Potential	Verification regulation of automatic potentiometric titrator JJG 814	(-2000~2000) mV	U=0.02%FS		
		Concentration		0.1 mol/L	U <sub>rel</sub> =0.5%		
		capacity		(1~25) mL	U <sub>rel</sub> =0.1%		
36	pH meter calibrator	Electric potential	Verification Meter for pH Meters JJG 919	(-2000~2000) mV	U=0.005 mV		
		pH		0~14	U=0.0002		
37	*Electrolytic Conductivity Meters	Electrolytic Conductivity	Verification regulation of conductivity meter JJG 376	Potentiometers: (0.2~ 2×10 <sup>5</sup> ) μ S · cm <sup>-1</sup>	U <sub>rel</sub> =0.08%		
				Meters: (100~2000) μ S · cm <sup>-1</sup>	U <sub>rel</sub> =0.3%		
38	*Trace oxygen analyzer	Concentration	Verification regulation of trace oxygen analyzer JJG945	(10~100) μ mol/mol	U <sub>rel</sub> =2.0%		
		Time		(0.1~60)s	U=0.3s		
39	*Electrochemical Oxygen Meter	Concentration	Electrochemical oxygen meter JJG365	(5~25)×10 <sup>-2</sup> mol/mol	U <sub>rel</sub> =1.3%		

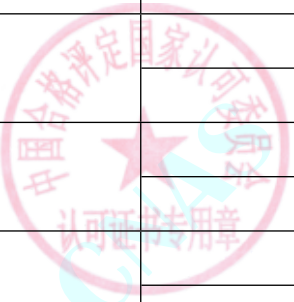


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Time		(0.1~30)s	$U=0.6s$		
40	*Thermal Conductivity Hydrogen Analyzer	Concentration	Verification regulation of thermal conductivity hydrogen analyzer JJG663	$(15\sim 85)\times 10^{-2}\text{mol/mol}$	$U_{\text{rel}}=1.8\%$		
		Time		(0.1~40)s	$U=0.6s$		
41	Formaldehyde gas detector	Concentration	Verification regulation of formaldehyde gas detector JJG1022	$(0.3\sim 1.2)\mu\text{mol/mol}$	$U_{\text{rel}}=2.8\%$		
		Time		(0.1~180)s	$U=0.4s$		
42	*Photoionization detector for volatile organic compounds	Concentration	Calibration specification for photoionization detector of volatile organic compounds JJF1172	$(20\sim 80)\mu\text{mol/mol}$	$U_{\text{rel}}=2.6\%$		
		Time		(0.1~20)s	$U=1.2s$		
43	*Carbon monoxide and carbon dioxide infrared gas analyzer	Concentration	Verification regulation of carbon monoxide and carbon dioxide infrared gas analyzers JJG635	CO: $(10\sim 200)\mu\text{mol/mol}$	$U_{\text{rel}}=1.8\%$		
				CO <sub>2</sub> : $(0.1\sim 16)\times 10^{-2}\text{mol/mol}$	$U_{\text{rel}}=1.6\%$		
		time		(0.1~90)s	$U=0.2s$		
44	*Carbon monoxide detection alarm	Concentration	Verification regulation of carbon monoxide detection alarm JJG915	$(10\sim 2000)\mu\text{mol/mol}$	$U_{\text{rel}}=1.5\%$		
		time		(0.1~60)s	$U=0.6s$		
45	*Combustible gas detection alarm	Concentration	Verification regulation of combustible gas detection alarm JJG693	$(10\sim 60)\%LEL$	$U_{\text{rel}}=2.4\%$		
		time		(0.1~60)s	$U=0.6s$		
46	*Sulfur dioxide gas detector	Concentration	Verification regulation of sulfur dioxide gas detector JJG 551	$(20\sim 100)\mu\text{mol/mol}$	$U_{\text{rel}}=1.9\%$		
		time		(0.1~60)s	$U=0.8s$		
47	*ammonia detector	Concentration	Verification regulation of ammonia detector JJG 1105	$(10\sim 100)\mu\text{mol/mol}$	$U_{\text{rel}}=2.4\%$		
		time		(0.1~180)s	$U=0.7s$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
48	*Hydrogen sulfide gas detector	Concentration	Verification regulation of hydrogen sulfide gas detector JJG695	(0.1~100) μ mol/mol	$U_{rel}=1.5\%$		
		time		(0.1~60)s	$U=0.2s$		
49	*Sulfur hexafluoride detector and alarm	Concentration	Calibration specification for sulfur hexafluoride detector and alarm JJF1263	(20~1000) μ mol/mol	$U_{rel}=1.5\%$		
		Time		(0.1~30)s	$U=0.8s$		
50	*Hydrogen chloride gas detection alarm	Concentration	Calibration Specification for Hydrogen Chloride Gas Detectors and Alarms JJF1888	(1~20) μ mol/mol	$U_{rel}=2.8\%$		
		Time		(0.1~120)s	$U=0.6s$		
51	*flue gas analyzer	Concentration	Verification regulation of flue gas analyzer JJG968	CO:(0.1~1.0)×10 <sup>-2</sup> mol/mol	$U_{rel}=1.1\%$		
				O <sub>2</sub> :(5~25)×10 <sup>-2</sup> mol/mol	$U_{rel}=1.2\%$		
				SO <sub>2</sub> :(0.1~0.5)×10 <sup>-2</sup> mol/mol	$U_{rel}=2.0\%$		
				NO: (0.1~0.4)×10 <sup>-2</sup> mol/mol	$U_{rel}=1.1\%$		
		time		(0.1~90)s	$U=0.2s$		
52	*Dust Sampler	Flow Rate	Verification Regulation of Dust Sampler JJG520	(2~80)L/min	$U_{rel}=1.2\%$		
		Time		(0.1~300)s	$U=0.16s$		
53	*Samplers for Stack Dust	Flow Rate	Verification Regulation of Samplers for Stack Dust JJG 680	(5~150)L/min	$U_{rel}=1.2\%$		
		Time		(0.1~300)s	$U=0.18s$		
		Temperature		(0~200)°C	$U=0.06^{\circ}C$		
54	*Air Samplers	Flow Rate	Verification Regulation of Air Samplers JJG956	(100~6000) mL/min	$U_{rel}=1.3\%$		
		Time		(0.1~600)s	$U=0.18s$		



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		Temperature		(0~200) °C	$U=0.05^{\circ}\text{C}$		
55	*Total Suspended Particulates Sampler	Flow Rate	Verification Regulation of Total Suspended Particulates Sampler JJG943	(5~150) L/min	$U_{\text{rel}}=1.2\%$		
				(800~1200) L/min	$U_{\text{rel}}=1.2\%$		
		Time		(0.1~3600)s	$U=0.16\text{s}$		
		Temperature		(0~200) °C	$U=0.06^{\circ}\text{C}$		
		air pressure		(80~106)kPa	$U=0.16\text{kPa}$		
		Length		(0.1~150)mm	$U=0.03\text{mm}$		
56	Airborne Particle counter	Concentration	Airborne Particle counter JJF 1190	(1000~1×10 <sup>5</sup> ) pieces / 28.3L	$U_{\text{rel}}=14\%$		
57	*Carbon dioxide detection alarm	Concentration	Calibration specification for carbon dioxide detection alarm JJF(ji)66	$(0.1\sim 16)\times 10^{-2}\text{mol/mol}$	$U_{\text{rel}}=2.6\%$		
		time		(0.1~60)s	$U=0.2\text{s}$		
58	*Vinyl chloride gas detector and alarm	Concentration	Vinyl chloride gas detector and alarm JJG1125	$(2\sim 100)\mu\text{mol/mol}$	$U_{\text{rel}}=2.5\%$		
		Time		(0.1~160)s	$U=0.5\text{s}$		
59	*nitric oxide and nitrogen dioxide gas detector	concentration	Verification regulation of nitric oxide and nitrogen dioxide gas detector JJG (xin) 01	NO: $(20\sim 60)\mu\text{mol/mol}$	$U_{\text{rel}}=2.2\%$		
				NO <sub>2</sub> : $(20\sim 60)\mu\text{mol/mol}$	$U_{\text{rel}}=2.2\%$		
		Time		(0.1~60)s	$U=0.6\text{s}$		
60	*Benzene gas detection alarm	Concentration	Calibration specification for benzene gas detection alarm JJF1674	$(2\sim 100)\mu\text{mol/mol}$	$U_{\text{rel}}=3.2\%$		
		Time		(0.1~60)s	$U=1.0\text{s}$		
61	*Chlorine gas detector and alarm	Concentration	Calibration specification for chlorine detector and alarm JJF1433	$(5\sim 20)\mu\text{mol/mol}$	$U_{\text{rel}}=2.7\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		time		(0.1~60)s	U=0.6s		
62	*Flue Gas Samplers	Flow Rate	Verification Regulation of Flue Gas Samplers JJG 1169	(100~2000) mL/min	U <sub>rel</sub> =1.2%		
		Temperature		(0~200) °C	U=0.06°C		
		Pressure		(-30~0) kPa	U=0.1kPa		
		Time		(0.1~3600)s	U=0.2s		
		air pressure		(80~106)kPa	U=0.16kPa		
63	Dust Concentration Measuring Instruments	Concentration	Verification Regulation of Dust Concentration Measuring Instruments JJG 846	(0~10)mg/m <sup>3</sup>	U=0.36mg/m <sup>3</sup>		
64	*Polymerase chain reaction analyzer	Temperature	Polymerase Chain Reaction Analyzers JJF 1527	(30~95) °C	U= (0.16~0.32) °C		
		Concentration		(1×10 <sup>2</sup> ~1×10 <sup>8</sup> ) copies/ μ L	U <sub>rel</sub> =10%		
65	*Melting-point Measurement instruments	Temperature	Verification regulation of melting point tester JJG 701	(50~300) °C	U=0.26°C		
66	*Open/ Close Cup Flash Point Testers	Temperatrue	Calibration specification for open / closed flash point tester JJF 1384	Close cup: (70~150) °C	U=3.2°C		
		Temperature		Open cup: (110~230) °C	U=7.0°C		
67	*Bomb Calorimeters	Calorific value	Verification regulation of oxygen bomb calorimeter JJG672	(26430~26490)J/g	U=34J/g		
68	*Determinators for Total sulfur in Coal	Sulfur content	Verification regulation of total sulfur analyzer in coal JJG1006	(0.36~4.40) %	U=0.05%		

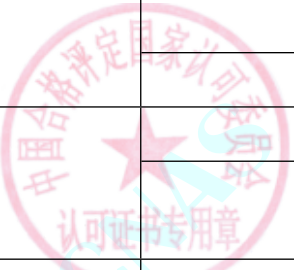


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
69	*Automatic Amino Acid Analyzer	Detection limit	Verification regulation of amino acid analyzer JJG 1064	≤1nmol (S/N=2, His)	U <sub>rel</sub> =58%		
70	*Elemental analyzers	Concentration	Calibration specification for elemental analyzers JJF 1321	kjeldahl apparatus N: 20%~50%	U <sub>rel</sub> =1.4%		
				Coal C: 40%~90%	U <sub>rel</sub> =1.4%		
				Coal H: 1.0%~5.0%	U <sub>rel</sub> =3.8%		
				Coal N: 0.2%~2.0%	U <sub>rel</sub> =6.0%		
				steel O: 0.002%~0.005%	U <sub>rel</sub> =6.6%		
				steel H: 0.0001%~0.0003%	U <sub>rel</sub> =16%		
				steel N: 0.02%~0.06%	U <sub>rel</sub> =4.2%		
71	*Residual chlorine tester	concentration	Calibration specification for determination of residual chlorine JJF1609	Total residual chlorine : (0.5~20)mg/L	U <sub>rel</sub> =2.3%		
				Simulated free residual chlorine: (0.5~20)mg/L	U <sub>rel</sub> =2.1%		
72	*Liquid chromatography-atomic fluorescence spectrometer	Minimum detection quantity	Verification regulation of liquid chromatography-atomic fluorescence instrument JJG1151	As(V): <1.0ng	U <sub>rel</sub> =15%		
				MMA: <0.7ng	U <sub>rel</sub> =14%		
				DMA: <0.7ng	U <sub>rel</sub> =14%		
73	*Ultraviolet spectrophotometry oil measuring instrument	concentration	Calibration specification for ultraviolet spectrophotometry oil gauges JJF(冀) 202	(0.1~200) mg/L	U <sub>rel</sub> =1.1%		
		Minimum detectable concentration		≤0.05mg/L	U <sub>rel</sub> =45%		
74	*Liquor analysis by gas chromatography	Detection limit	Calibration specification for gas chromatograph for liquor analysis JJF 2022	≤5.0×10 <sup>-3</sup> mg/mL	U <sub>rel</sub> =12%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
75	*Hydrogen fluoride gas detector and alarm	concentration	Calibration Specification for Hydrogen Fluoride Alarm Detectors JJF(Meng)069	(1.8~8.2) $\mu$ mol/mol	$U=0.4 \mu$ mol/mol		
10、 Ionizing radiation							
1	*X-ray flaw detectors	Kerma rate of air	Verification regulation of X-ray flaw detectors JJG 40	(0.01~19.9) cGy/min	$U_{rel}=3.6\%$		
2	*X-ray Security Inspection Equipment	Kerma rate of air	Calibration Specification for X-ray Security Inspection Equipment JJF 1275	(0.1~100) $\mu$ Gy/h	$U_{rel}=18\%$		
3	*Medical Diagnostic X-ray Radiation Source for Medical Digital Subtraction Angiography	Kerma rate of air	Verification regulation of Medical Diagnostic X-ray Radiation Source for Medical Digital Subtraction Angiography JJG 1067	1mGy/min ~1Gy/min	$U_{rel}=4.2\%$		
4	*X-ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System	air kerma	Verification Regulation of X-ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System JJG 1078	0.1mGy~1Gy	$U_{rel}=7\%$		
5	*Medical Diagnostic X-Ray Radiation Source for Spiral Computed Tomography (CT)	absorbed dose	Verification Regulation of Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography (CT) JJG 961	100 $\mu$ Gy~ 100mGy	$U_{rel}=8.8\%$		
11、 Special measuring instruments for motor vehicles							



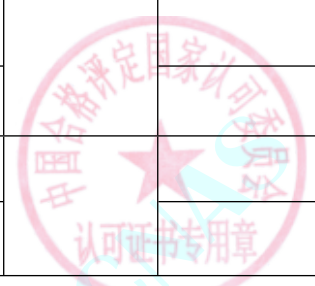
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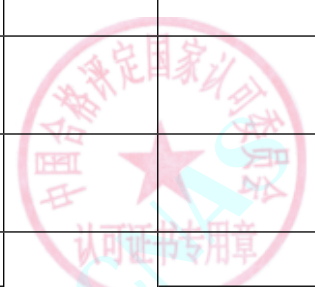
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
1	*Filter-Type Smokemeters	smoke	Verification Regulation of Filter-Type Smokemeters JJG847	(1.0~9.0) BSU	$U=0.2$ BSU		
2	*Opacimeters	opacity in the standard effective optical path length	Verification Regulation of Opacimeters JJG976	(0~99.0) %	$U=1.1\%$		
3	*Diesel Vehicle Nitrogen Oxides(NOx) Measuring Instruments	CO <sub>2</sub> concentration	Calibration Specification for Diesel Vehicle Nitrogen Oxides(NOx) Measuring Instruments JJF 1873	(2.0~12.0) × 10 <sup>-2</sup> mol/mol	$U_{rel}=1.4\%$		
		NOconcentration		(300~3000) × 10 <sup>-6</sup> mol/mol	$U_{rel}=1.4\%$		
		NO <sub>2</sub> concentration		(50~600) × 10 <sup>-6</sup> mol/mol	$U_{rel}=1.9\%$		
4	*Vehicle Exhaust Emissions Measuring Instruments	concentration	Verification Regulation of Vehicle Exhaust Emissions Measuring Instruments JJG 688	HC: (200~3200) × 10 <sup>-6</sup> mol/mol	$U_{rel}=1.1\%$		
				O <sub>2</sub> : (0.5~20.9) × 10 <sup>-2</sup> mol/mol	$U_{rel}=2.4\%$		
				NO: (300~3000) × 10 <sup>-6</sup> mol/mol	$U_{rel}=1.4\%$		
				CO <sub>2</sub> : (2.0~12.0) × 10 <sup>-2</sup> mol/mol	$U_{rel}=1.5\%$		
				CO: (0.5~4.8) × 10 <sup>-2</sup> mol/mol	$U_{rel}=1.3\%$		
5	*Headlamp Testers for Motor Vehicle	luminous intensity	Verification Regulation of Headlamp Testers for Motor Vehicle JJG745	(5~60) kcd	$U_{rel}=6.2\%$		
		angle		Up 1° ~Down 2° , Left 2° ~ Right 2°	$U=6'$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	*Roller Type Speedometer Tester	Speed	Verification Regulation of Roller Type Speedometer Tester JJG 909	(1~120) km/h	$U_{rel}=0.76\%$		
7	*Special Axle(Wheel) Load Scales for Motor Vehicle Test	Wheel weight	Verification Regulation of Special Axle(Wheel) Load Scales for Motor Vehicle Test JJG1014	(500~50000) kg	$U_{rel}=0.36\%$		
8	*Platform Brake Testers	Wheel weight	Verification Regulation of Platform Brake Testers JJG1020	(1~10000) kg	$U_{rel}=0.6\%$		
		Braking force		(1~3500) daN	$U_{rel}=0.54\%$		
9	*Roller Opposite Force Type Brake Testers	Wheel braking force	Verification Regulation of Roller Opposite Force Type Brake Testers JJG906	(500~4500) daN	$U_{rel}=0.8\%$		
10	*Loading Method Automobile Brake Testers	Wheel braking force	Verification Regulation of Loading Method Automobile Brake Testers JJG1160	(100~4500) daN	$U_{rel}=0.8\%$		
		Axle weight		(100~11500) kg	$U_{rel}=0.4\%$		
11	*Automobile Side Slip Tester	Sideslip	Verification Regulation of Automobile Side Slip Tester JJG908	(-10~10)m/km	$U=0.04m/km$		
12	*Four-wheel Aligners	Single wheel toe in angle	Calibration Specification for Four-wheel Aligners JJF1154	(-10~10)°	$U=1.4'$		
13	*Tread depth gauge	Length	Calibration Specification for Tire Tread Depth Gauges JJF1477	(0~50)mm	$U=0.02mm$		
14	Non-contact Automotive Speedometer	speed	Calibration Specification for Non-contact Automotive Speedometer JJF1193	(5~180) km/h	$U_{rel}=0.32\%$		
15	Motor Vehicle Testers for Steering Force and Steering Angle	Steering force	Calibration Specification of Motor Vehicle Testers for Steering Force and Steering Angle JJF1196	(100~500) N	$U_{rel}=0.72\%$		
		Steering angle		0° ~1080°	$U=0.78^\circ$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
16	*Tyre Pressure Gauges	Pressure	Verification Regulation of Tyre Pressure Gauges JJG927	(0~2.5) MPa	$U=0.5\%FS$		
17	*Portable Braking Performance Tester for Motor Vehicles	Retardation	Calibration Specification for Portable Braking Performance Tester for Motor Vehicles JJF1168	Static: (0~4.9) m/s <sup>2</sup>	$U=0.05 \text{ m/s}^2$		
				Static: (4.9~9.8) m/s <sup>2</sup>	$U_{rel}=0.66\%$		
				Dynamic: (1~9.8) m/s <sup>2</sup>	$U_{rel}=1.6\%$		
18	*Equipment of Power Measuring	Torsion	Verification Regulation of Equipment of Power Measuring JJG 653	(200~10000) N	$U_{rel}=0.5\%$		
		speed		(1~120) km/h	$U_{rel}=0.3\%$		
19	*Chassis Dynamometers for Automobile Emissions Testing	Speed	Calibration Specification for Chassis Dynamometers for Automobile Emissions Testing JJF1221	(1~100) km/h	$U_{rel}=0.11\%$		
		force value		(200~10000) N	$U_{rel}=0.34\%$		
		Time		(1~150) s	$U_{rel}=1.5\%$		
20	*Calibration Devices of Non-contact Automotive Speedmeters	Linear velocity	Calibration Specification for Calibration Devices of Non-contact Automotive Speedmeters JJF1486	(5.00~180.00) km/h	$U_{rel}=0.05\%$		
21	*Motor Vehicle Engine Speed Measuring Instruments	speed	Calibration Specification for Motor Vehicle Engine Speed Measuring Instruments JJF 1375	(500~6000) r/min	$U_{rel}=0.32\%$	Accredited only for calibration of the engine speed measuring instrument with vibration induction	



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
22	*Vehicle Contour Dimensions Testers	length	Calibration Specification for Vehicle Contour Dimensions Testers JJF 1749	(0.1~30) m	$U_{rel}=0.28\%$		
23	*Zero gas generator	concentration	Calibration Specification for Zero Gas Generators JJF2159	CO: (0~20) × 10 <sup>-6</sup> mol/mol	$U=0.32 \times 10^{-6}$ mol/mol		
				CO <sub>2</sub> : (0~40) × 10 <sup>-6</sup> mol/mol	$U=0.54 \times 10^{-6}$ mol/mol		
				HC: (0~40) × 10 <sup>-6</sup> mol/mol	$U=0.27 \times 10^{-6}$ mol/mol		
				NO: (0~20) × 10 <sup>-6</sup> mol/mol	$U=0.26 \times 10^{-6}$ mol/mol		
				NO <sub>2</sub> : (0~20) × 10 <sup>-6</sup> mol/mol	$U=0.36 \times 10^{-6}$ mol/mol		
				O <sub>2</sub> : (0~25) × 10 <sup>-2</sup> mol/mol	$U=0.13 \times 10^{-2}$ mol/mol		
12、 Special meteorological and marine measuring instruments							
1	Portable 3-cup Anemometers	Wind Speed	Verification regulation of portable 3- cup anemometers JJG431	(1~10) m/s	$U=0.09$ m/s		
				(10~20) m/s	$U=0.18$ m/s		
				(20~30) m/s	$U=0.26$ m/s		
2	Portable Induction Anemometer	Wind Speed	Verification regulation of portable Induction anemometer JJG515	(5~10) m/s	$U=0.15$ m/s		
				(10~20) m/s	$U=0.18$ m/s		
				(20~30) m/s	$U=0.26$ m/s		
3	Mine Anemometer	Wind Speed	Verification regulation of mine anemometer JJG (coal) 01	(0.2~10) m/s	$U=0.12$ m/s		
				(10~20) m/s	$U=0.18$ m/s		



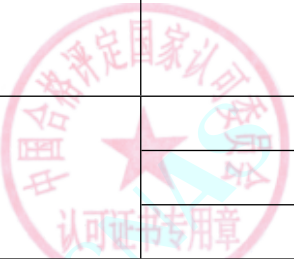
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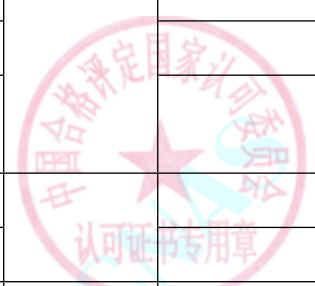
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(20~30) m/s	U=0.26m/s		
4	Contact Anemometer	Wind Speed	Verification regulation of contact anemometer JJG613	(2~10) m/s	U=0.09m/s		
				(10~20) m/s	U=0.18m/s		
				(20~40) m/s	U=0.36m/s		
13、 Special medical measuring instruments							
1	*Pulmonary Function Measuring Instrument	Vital Capacity	Calibration specification for pulmonary function measuring instrument JJF 1213	(1~8) L	U=0.05L		
		Peak Expiratory Flow		(1~12) L/s	U <sub>rel</sub> =3.5%		
		Ventilation Volume		(30~100) L/min	U <sub>rel</sub> =3.5%		
2	*ELISA Analytical Instruments	Absorbance	Verification Regulation of ELISA Analytical Instruments JJG 861	0.1~2.0	U=0.003		
		Wave Length		(400~700) nm	U=0.6nm		
3	Verification Instrument for Electrocardiograph and Electroencephalograph	Voltage	Verification Regulation of Verification Instrument for Electrocardiograph and Electroencephalograph JJG 749	0.1mV~30.0V	U <sub>rel</sub> =0.16%		
		Frequency		0.1Hz~200Hz	U <sub>rel</sub> =0.06%		
4	Calibration Device for Electric Cardiac Monitor	Voltage	Verification regulation of Calibration Device for Electric Cardiac Monitor JJG 1016	0.1mV~30.0V	U <sub>rel</sub> =0.16%		
		Heart Rate		(10.0~300)BPM	U <sub>rel</sub> =0.3%		
		Frequency		0.1Hz~100Hz	U <sub>rel</sub> =0.06%		
5	*Cardiac Defibrillators	Energy	Calibration specification for cardiac defibrillators JJF 1149	(1~360) J	U=2.4J		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Voltage		(0.1~4) mV	U=0.02 mV		
		Scanning Speed		25mm/s	U=0.5mm/s		
		Heart Rate		(30~200) BPM	U=0.5BPM		
6	*Medical Magnetic Resonance Imaging Systems	magnetic field strength	Calibration Specification for Medical Magnetic Resonance Imaging Systems JJF2151	(0.1~2.0) T	U=12mT	except for new installation and post-maintenance medical magnetic resonance imaging systems	
7	*Electrosurgical Generator	Power	Calibration specification for Electrosurgical Generator JJF 1217	(10~400) W	U <sub>rel</sub> =3.4%		
8	*Ventilators	Tidal Volume	Calibration specification for Ventilators JJF 1234	(400~1000) mL	U <sub>rel</sub> =3.8%		
		Frequency		(10~40)BPM	U <sub>rel</sub> =2.6%		
		Pressure		(0.2~3.0)kPa	U=0.05kPa		
		Inspiration Flow Oxygen Concentration		21%~100%	U=2.4%		
9	*Ultrasound Bone Sonometers	Speed of Sound	Calibration specification for ultrasound bone Sonometers JJF 1649	(1400~1700) m/s	U=28m/s		
				(2500~3000) m/s	U=28m/s		
10	*Baby incubator	Temperature	Calibration Specification for Baby Incubator JJF 1260	(20~50) °C	U=0.09°C		



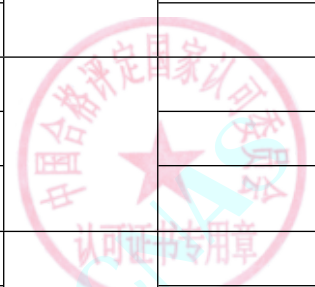
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Humidity		(30~90) %RH	$U=1.1\%RH$		
11	*Hemodialysis Equipment	conductivity	Calibration Specification for Hemodialysis Equipment JJF 1353	(12.5~15.5)mS/cm	$U=0.13mS/cm$		
		temperature		(25~40)°C	$U=0.13^{\circ}C$		
		heparin pump flow		(5~20) mL/h	$U_{rel}=2.8\%$		
		pressure		(0~450) mmHg	$U=2.8mmHg$		
		flow		(400~700)mL/min	$U_{rel}=1.9\%$		
12	*Urine Analyzers	pH	Calibration Specification of Urine Analyzers JJF 1129	5.5~7.5	$U=0.4$		
		RBC		(1~200) / $\mu L$	$U_{rel}=7.3\%$		
		WBC		(1~200) / $\mu L$	$U_{rel}=6.9\%$		
		PRO		(0.1~2.0) g/L	$U_{rel}=10\%$		
		GLU		(1~42) mmol/L	$U=0.16mmol/L$		
		SG		1.000~1.025	$U=0.005$		
13	*Automatic Urinary Sediment Analyzers	RBC	Calibration Specification for Automatic Urinary Sediment Analyzers JJF 1823	(150~2000) / $\mu L$	$U_{rel}=11\%$		
		WBC		(150~2000) / $\mu L$	$U_{rel}=10\%$		
14	*Non-invasive ventilator	Respiratory rate	Calibration Specification for Non-invasive Ventilators JJF 1997	(10~30)BPM	$U_{rel}=3.4\%$		
		Pressure		(0.4~2.0)kPa	$U=0.12kPa$		
		Inspiration Flow Oxygen Concentration		21%~60%	$U=2.4\%$		
15	*Blood Cell Analyzers	WBC	Verification Regulation of Blood Cell Analyzers JJG	WBC:(2~20) $\times 10^9/L$	$U_{rel}=2.7\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		PLT	714	PLT:(50~500)×10 <sup>9</sup> /L	U <sub>rel</sub> =2.4%		
		RBC		RBC:(2~10)×10 <sup>12</sup> /L	U <sub>rel</sub> =2.3%		
		HGB		HGB:(50~200)g/L	U <sub>rel</sub> =3.2%		
14、 Special measuring instruments for construction and transportation							
1	*Rebound Test Hammer	Length	Verification Regulation of Rebound Test Hammer JJG817	Pointer length: (19.8~20.2) mm	U=0.06mm	Do not calibrate the High Strength Concrete Hammer	
				Spherical radius of the end of the Striker: (24.0~26.0) mm	U=0.1mm		
				Working length of spring: (61.2~61.8) mm	U=0.06mm		
				Stretch length of spring: (74.7~75.3) mm	U=0.06mm		
		Force		(0.50~0.80)N	U=0.02N		
		Tension spring stiffness		(755~815)N/m	U=0.40N/m		
		Rate setting		78~82	U=0.7		
2	*Flow Table for Determine Cement Mortar Fluidity	Mass	Verification Regulation of Flow Table for Determine Cement Mortar Fluidity JJG (JT) 096	(4.2~4.5)kg	U=0.7g		
		Time		(24~26)s	U=0.2s		
		Landing Distance		(9.8~10.2)mm	U=0.12mm		
3	*Apparatus for Normal Consistency and	Mass	Calibration Specification for Nonmetal Building Materials Plastic Limit	(299~301)g	U=0.6g		
		length		Diameter: (1~11)mm	U=0.005mm		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Setting Time of Cement Paste		Measuring Instruments JJF1090	Ruler: (0~70)mm	U=0.2 mm		
				Other size:(0.1~80)mm	U=0.04mm		
4	*Tester for Mortar Consistency	Mass	Calibration Specification for Nonmetal Building Materials Plastic Limit Measuring Instruments JJF1090	(299~301)g	U=0.06g		
		Length		(0~145)mm	U=0.16mm		
				(179.8~180.2)mm	U=0.07mm		
				(29~31)°	U=0.10°		
5	*Pure Slurry Cement Mortar Mixer	Rotating Speed	Verification Regulation of Pure Slurry Cement Mortar Mixer JJG (Men) 2	(57~135) r/min	U=0.6 r/min		
		Time		(10~280)s	U=0.3s		
		Length		(1~3)mm	U=0.06mm		
6	*Cement Mortar Specimen Jolting Table	Time	Verification Regulation of Cement Mortar Specimen Jolting Table JJG (Meng) 4	(58~62)s	U=0.3s		
		Mass		(6~6.5)kg	U=0.28g		
		Amplitude		(14.7~15.3)mm	U=0.14mm		
7	*Asphalt Mixture's mixing Machine	Rotating Speed	Verification Regulation of Asphalt Mixture's mixing Machine JJG(JT)064	(40~80)r/min	U=0.6 r/min		
		Time		(179.1~180.9)s	U=0.22s		
		Temperature		(139~201)°C	U=0.12°C		
8	*Compaction Instrument of Soil	Mass	Verification Regulation of Compaction Instrument of Soil JJG(JT)058	(2495~4505)g	U=0.8g		
		Length		Gap :(2~2.5)mm	U=0.1mm		
				Diameter:(49.5~ 50.5) mm	U=0.06mm		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Falling height:(298~502)mm	U=0.3mm		
9	*Asphalt Mixture's Marshall Compaction Test Apparatus	Mass	Verification Regulation of Asphalt Mixture's Marshall Compaction Test Apparatus JJG(JT)065	(4527~10220)g	U=0.8g		
		Length		Diameter: (68~160)mm fall high:(455~460)mm	U=0.05mm U=0.3 mm		
		Compaction Frequency		(55~65)second/min	U=0.3second/min		
10	Reinforced Concrete Covermeter	Length	Calibration Specification for Reinforced Concrete Covermeter and Floor lab Thickness Tester JJF 1224	(0~100)mm	U=0.23mm		
11	*Soil liquid plastic limit tester	Mass	Calibration Specification for Nonmetal Building Materials Plastic Limit Measuring Instruments JJF1090	(75.8~100.2)g	U=0.06g		
		length		(0~22) mm 29.8° ~30.2°	U=0.03mm U=0.05°		
		Time		(4.9~5.1)s	U=0.2s		
12	*Apparatus for Determining Penetration of Bituminous Materials	Mass	Calibration Specification for Apparatus for Determining Penetration of Bituminous Materials JJF1208	(99~101)g	U=0.01g		
		Temperature		(24.7~25.3)°C	U=0.1°C		
		Length		(5~50) mm	U=0.018 mm		
13	*Asphalt Mixture Rut-depth Testing Instrument	The temperature	Calibration Specification for Asphalt Mixture Rut-depth Testing Instrument JJF(Zhe)1094	(57~63)°C	U=0.2°C		
		Length		(3~30)mm (14~205)mm	U=0.0022mm U=0.05mm		
		Pressure		(0.65~0.75)MPa	U=0.01MPa		

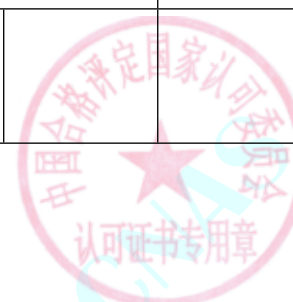


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Rubber hardness		(76~80)IRHD	$U=0.6IRHD$		
14	*Marshall Test Machine for Bituminous Mixtures	Force Value	Verification Regulation of Marshall Test Machine for Bituminous Mixtures JJG(JT)066	(5~50)kN	$U_{rel}=0.4\%$		
		Displacement		(0.5~10)mm	$U=0.03mm$		
		Rate of ascent		(45~55)mm/min	$U_{rel}=2.0\%$		
15	*Metal perforated plate test sieves	length	Calibration Specification for Test Sieves JJF 1175	$\omega : (1\sim4) mm$	$U=4 \mu m$	The test sieves $\omega : (1\sim4) mm$ is not calibrated on site.	
				$\omega : (4\sim125) mm$	$U=0.04mm$		
15、 Special measuring instruments for electronic, electrical and electrical appliances							
1	*Battery Internal Resistance Testers	Internal resistance of battery	Calibration Specification for Battery Internal Resistance Testers JJF 1620	$0.01 \Omega \sim 3k \Omega$	$U_{rel}=0.1\%$		
		DC Voltage		(0.1~800)V	$U_{rel}=0.04\%$		
16、 Textile and leather specific measuring instruments							
1	*Fiber Diameter Analyzer	Length	Calibration Specification for fiber diameter analyzer JJF (spinning and weaving) 065	(0~1000) $\mu m$	$U=0.36 \mu m$		



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