

Name: Inner Mongolia Institute of Metrology and Testing

Address: Hongsheng Industrial Park, Xincheng District, Hohhot, Inner Mongolia, China

Registration No. CNAS L1645

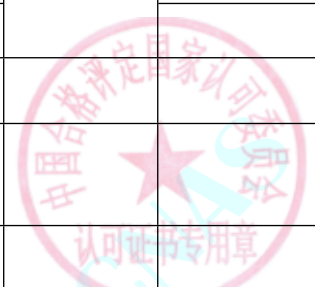
Accreditation Criteria: ISO/IEC 17025:2017 and relevant requirements of CNAS

Effective Date: 2024-11-11 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	*Tread depth gauge	Length	Calibration Specification for Tire Tread Depth Gauges JJF1477	(0~50)mm	$U=0.02mm$		
14	Angle block	Angle	Verification regulation of angle block JJG70	15° 10' ~90°	$U=3''$		
15	*Optimeter	Length	Verification Regulation of Optimeter JJG 45	(-100~+100) $\mu m$	$U=0.08 \mu m$		

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
16	Autocollimators	Angle	Verification regulation of Autocollimator JJG202	(0~10)'	$U=0.6''$		
17	Universal Bevel Protractors	AngleGauge	Calibration specification for universal angle ruler JJF 1959	(0~360)°	$U=1'$		
18	Frame Levels and Shaft Levels	AngleGauge	Calibration Specification for Frame Levels and Shaft Levels JJF 1084	(0.02~0.10)mm/m	$U_{rel}=5.8\%$		
19	Electronic level and Coincidence Levels	Angle	Verification regulation of electronic level and combined image level JJG103	Electronic level: (-5~+5) mm/m	$U=0.5 \mu\text{m/m}$		
				Coincidence Levels: (-5~+5) mm/m	$U=3 \mu\text{m/m}$		
20	Straight Edges	Linearity	Calibration Specification for Straight Edges JJF 1097	(500~2000) mm	$U=0.3 \mu\text{m}+1 \times 10^{-6}L$		
21	Level Rules	AngleGauge	Calibration Specification for Level Rules JJF1085	(0.5~10) mm/m	$U_{rel}=4.8\%$		
22	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	$U=0.5\text{mm}$ (additive constant), $U=0.8\text{mm/km}$ (multiplying constant)		
23	Global Navigation Satellite System	Length	Verification Regulations for Global Navigation Satellite System (GNSS) Receiver (Geodetic and Navigation) JJG 1200	6m~ 35.2km	$U=(0.8\sim 2.3) \text{mm}$ (static state), $U=1.9\text{mm}$ (dynamic)		
24	Levels	Angle	V.R.of Levels JJG 425	(-30~+30)''	$U=1.7''$		
25	Optical Theodolite	Angle	V.R.of Optical Theodolites JJG 414	(0~360)°	$U=0.4''$		

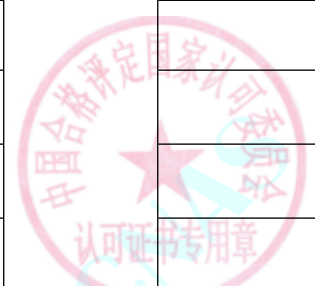


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
26	Electronic theodolite	Angle	V. R.of Electronic Tachometer Total Station JJG 100	(0~360)°	U=0.3"		
27	Electro-optical Distance Meter	Length	Verification regulation of photoelectric rangefinder JJG703	(24~1200) m	U=0.5mm (additive constant), U=0.8mm/km (multiplying constant)		
28	Telescope Rangefinders	Length	Calibration specification for telescopic rangefinder JJF1704	(0~3) km	U=0.1m		
29	*Level Verification System	Angle	Verification regulation of level verification device JJG960	(-30~+30)"	U=1.0"		
30	Optical Flat	Flatness	Verification Regulation of Optical Flat JJG 28	Optical FlatD(30~150)mm	U=0.01 μ m		
		Parallelism		Optical FlatD(30~100)mm	U=0.28 μ m		
31	*Surface Plates	Flatness	Verification Regulation of Surface Plates JJG 117	(160×100)mm ~ (450×450)mm	U=0.6 μ m		
				(450×450)mm ~ (630×400)mm	U=0.8 μ m		
				(630×400)mm ~ (800×600)mm	U=1.2 μ m		
				(800×600)mm ~ (1000×800)mm	U=1.5 μ m		
				(1000×800)mm ~ (1500×1000)mm	U=1.7 μ m		
(1500×1000)mm ~ (3000×2000)mm	U=5.0 μ m						
32	Feeler gauge	Length	Verification regulation of feeler gauge JJG62	(0.02~3.00) mm	U=3.0 μ m		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
33	*Length Measuring Instrument	Length	Calibration Specification for Length Measuring Instrument JJF 1189	(0 ~ 100)mm	$U=0.2 \mu m + 3.2 \times 10^{-6}L$		
34	*Contact-type Interferometer	Length	Verification Regulation of Contact-type Interferometers JJG 101	(-5~+5) $\mu m$	$U=0.012 \mu m$		
35	*Length Measuring Machine	Length	Calibration Specification for Length Measuring Machine JJF 1066	(0~100) $\mu m$	$U=0.08 \mu m$		
				(0.1~100) mm	$U=0.18 \mu m + 1.2 \times 10^{-6}L$		
				(100~1000) mm	$U=0.1 \mu m + 2 \times 10^{-6}L$		
36	*Ultrasonic Thickness Instruments	Length	Calibration specification for ultrasonic thickness gauge JJF1126	(0.5~200) mm	$U=0.04mm$		
37	*Dissolution Testers	Length	Calibration Specification for Dissolution Testers JJF (Inner Mongolia) 068	(0~3)mm	$U=0.06mm$		
2、 Thermology							
1	Working Noble Metal Thermocouples	Temperature	Verification Regulation of Working Noble Metal Thermocouples JJG 141	(419.527~1084.62)°C	Zinc point: $U=0.4^{\circ}C$ Aluminum dot: $U=0.4^{\circ}C$ Copper point: $U=0.5^{\circ}C$	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	$U=(0.26~0.91)^{\circ}C$		
3	Industry Platinum Resistance Thermometers	Temperature	Verification Regulation of Industrial Platinum and Copper Resistance Thermometers JJG 229	(-60~300) °C	$U=(0.02~0.04)^{\circ}C$		



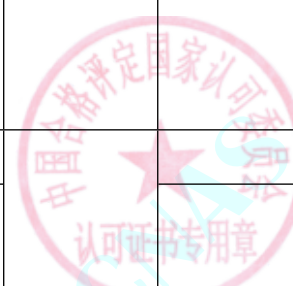
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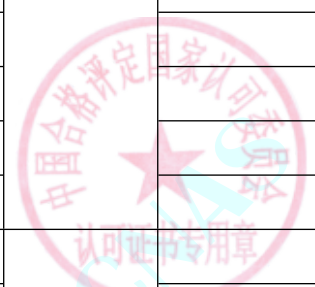
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
4	Standard Mercury-in-Glass Thermometers	Temperature	Verification Regulation of Standard Mercury-in-Glass Thermometers JJG 161	(-60~300) °C	U=(0.05~0.06)°C		
5	Temperature Transmitter	Temperature	Calibration Specification of the Temperature Transmitter JJF 1183	With Sensor: (-60~300) °C	U=0.08°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°C(Fluctuation)		
				(-60~300) °C	U=0.010°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°C		
		Humidity		30%RH~90%RH	U=1.5%RH		
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	U <sub>rel</sub> =0.2%		



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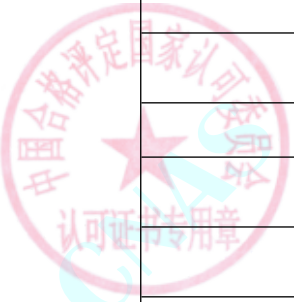
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		temperature		(4~95) °C			
12	Radiation Thermometers	Radiation Temperature	Verification Regulation of Radiation Thermometers JJG 856	(30~700) °C	U= (1.8~3.0)°C		
13	*Infrared Thermometers for Measurement 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		
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		



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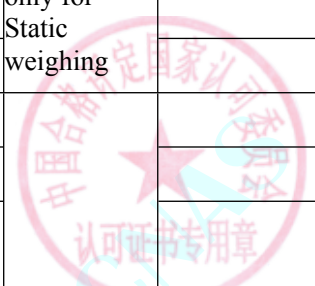
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
3	*Mass Comparators	Quality	Calibration specification for mass comparator JJF1326	(5~10) kg	U=11mg~0.03g		
				(10~20) kg	U= (0.03~0.16) g		
				(20~100) kg	U= (0.16~2.5) g		
				(100~300) kg	U= (2.5~21) g		
				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)		
				10g~200g	U=3.8 μ g (Partial indication error)		
				200g~500g	U=5.8 μ g (Repeatability)		
				200g~500g	U=15 μ g~20 μ g (Eccentric load)		
				200g~500g	U=16 μ g~21 μ g (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)						



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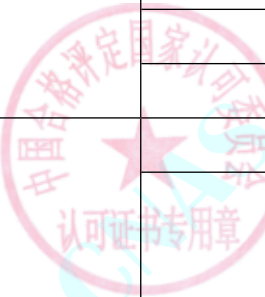


No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				2kg~5kg	U=2.0mg~2.4mg(Eccentric load)		
				2kg~5kg	U=2.0mg~2.4mg(Partial indication error)		
				5kg~150kg	U=0.006g~0.03g (Repeatability)		
				5kg~150kg	U=0.02g~0.13g(Eccentric load)		
				5kg~150kg	U=0.02g~0.13g(Partial indication error)		
				150kg~300kg	U=0.058g (Repeatability)		
				150kg~300kg	U=0.24g~0.29g(Eccentric load)		
				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	Quality	Verification regulation of gravity type automatic	2.5kg~50kg	U <sub>rel</sub> =0.06%		



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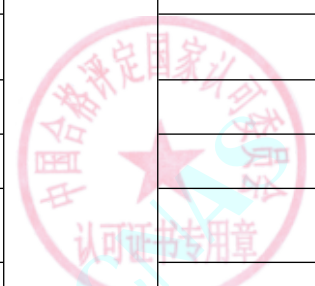
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Instruments		loading scale JJG564	50kg~1t	$U_{rel}=0.3\%$		
				1t~20t	$U_{rel}=1.2\%$		
				20t~70t	$U_{rel}=2.9\%$		
8	*Digital Indicating Weighing Instruments	Quality	Verification regulation of digital indicating scale JJG539	2g~200g	$U=(0.014\sim0.018)g$		
				200g~1kg	$U=(0.018\sim0.06)g$		
				1kg~10kg	$U=(0.06\sim0.6)g$		
				10kg~100kg	$U=(0.6\sim6)g$		
				100kg~1t	$U=(0.006\sim0.06)kg$		
				1t~3t	$U=(0.06\sim0.23)kg$		
				3t~15t	$U=(0.23\sim1.2)kg$		
				15t~60t	$U=(1.2\sim5)kg$		
9	*Automatic Instruments for Weighing Road Vehicles in Motion	Quality	Verification regulation of dynamic highway vehicle automatic weighing instrument JJG907	Motion (5~31) t	$U=(0.21\sim1.0)\times 10^2kg$		
				Motion (31~49) t	$U=(0.1\sim0.15)\times 10^3kg$		
				Static (1~60) t	$U=(4\sim8)kg$		
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	$U=(0.09\sim0.19)\times 10^3kg$		
				Motion (31~49) t	$U=(0.19\sim0.26)\times 10^3kg$		



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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=0.15kg/m <sup>3</sup>		
		Alcohol degree		Second class standard petroleum densitometer: (650~1100) kg/m <sup>3</sup>	U=0.15kg/m <sup>3</sup>		
				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=0.5kg/m <sup>3</sup>	U=0.15kg/m <sup>3</sup>		
				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 densitometer Milk meter: (650~1100) kg/m <sup>3</sup>	U=0.15kg/m <sup>3</sup>		
		(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%		

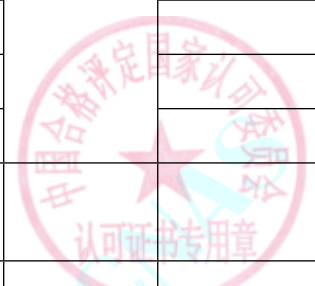


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13	Standard Metal Tank	Capacity	Verification Regulation of Standard Metal Tank JJG 259	2 Class Standard Metal Tank: (1~2500) L	$U_{rel}=0.0083\%$		
				3 Class Standard Metal Tank: (1~5000) L	$U_{rel}=0.03\%$		
14	*Verification Facility for Water Meters	Capacity	Verification Regulation of Verification Facility for Water Meters JJG 1113	(10~5000) L	$U_{rel}=0.03\%$		
15	Working Glass Container	Capacity	Verification regulation of common glass measuring instruments JJG196	(0.1~0.5) mL	$U=0.002\text{mL}$		
				(0.5~25) mL	$U=0.006\text{mL}$		
				(25~100) mL	$U=0.03\text{mL}$		
				(100~500) mL	$U=0.09\text{mL}$		
				(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) $\text{m}^3$	$U_{rel}=0.03\%$		
19	*Quantitative Filling Machine For Liquid	Capacity	Verification regulation of quantitative filling machine for liquid materials JJG 687	(10~50) mL	$U_{rel}=1.2\%$		
				(50~100) mL	$U_{rel}=0.7\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Material	Quality	Verification Regulation of Standard Bell Porvers of Gas Flow JJG 165	(100~500) mL	$U_{rel}=0.5\%$		
				(500~1000) mL	$U_{rel}=0.3\%$		
				(10~50) g	$U_{rel}=1.2\%$		
				(50~100) g	$U_{rel}=0.8\%$		
				(100~1000) g	$U_{rel}=0.4\%$		
20	*Standard Bell Porvers of Gas Flow	Flow	Verification Regulation of Standard Bell Porvers of Gas Flow JJG 165	(0.016~30) m <sup>3</sup> /h	$U_{rel}=0.14\%$		
		Pressure		(0.001~2)kPa	$U_{rel}=1.2\%$		
		Temperature		(0~50)°C	$U=0.12^{\circ}\text{C}$		
		Time		(10~3600)s	$U_{rel}=0.03\%$		
21	Liquid Positive Displacement Flowmeter	Flow	Verification Regulation of Liquid Positive Displacement Flowmeter JJG 667	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	$U_{rel}=0.32\%$ (Standard table method)		
				hot water: (1.2~ 600)m <sup>3</sup> /h,DN:(15~ 300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				(308.8~8471)m <sup>3</sup> /h DN:(50~2000)mm	$U_{rel}=0.5\%$ (Standard table 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)		



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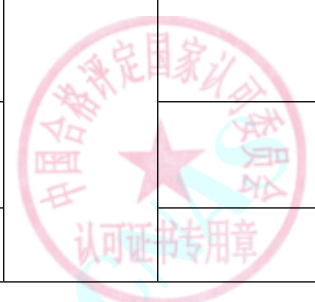
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Gas: (0.016~30) m <sup>3</sup> /h	$U_{rel}=1.1\%$ (Volumetric method)		
23	Goriolis Mass Flow Meters	flow	Verification Regulation of Goriolis Mass Flow Meters JJG 1038	hot water: (1.2~600)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				cold water: (0.03~100)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.32\%$ (Standard table method)		
				cold water: (0.5~1500)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				liquid: (308.8~8471) m <sup>3</sup> /h DN:(50~2000)mm	$U_{rel}=0.5\%$ (Standard table method)		
24	Turbine Flowmeter	Flow	Verification Regulation of Turbine Flowmeter JJG 1037	Gas: (0.4~5000)(m <sup>3</sup> /h, DN:(10~300)mm	$U_{rel}=0.33\%$ (Standard table method)		
				hot water:(1.2~600)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				cold water: (0.03~100)m <sup>3</sup> /h, DN:(15~80)mm	$U_{rel}=0.32\%$ (Standard table method)		
				cold water: (0.5~1500)m <sup>3</sup> /h, DN:(15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				liquid: (308.8~8471) m <sup>3</sup> /h DN:(50~2000)mm	$U_{rel}=0.5\%$ (Standard table method)		

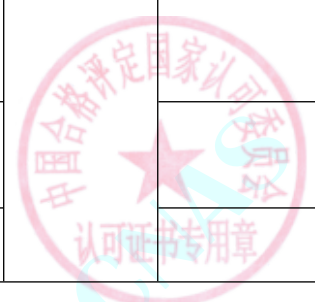


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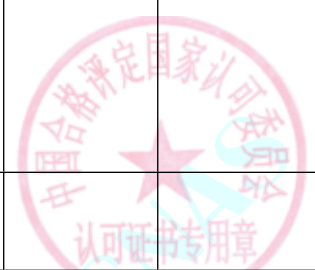
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
25	Electromagnetic Flowmeters	Flow	Verification Regulation of Electromagnetic Flowmeters JIG 1033	cold water: (0.5~1500)m <sup>3</sup> /h,DN:(15~300)mm	$U_{rel}=0.056\%$ (Static mass method)		
				hot water: (1.2~600)m <sup>3</sup> /h,DN:(15~300)mm	$U_{rel}=0.2\%$ (Static mass method)		
				cold water: (0.03~100)m <sup>3</sup> /h,DN:(15~80)mm	$U_{rel}=0.32\%$ (Standard table method)		
				liquid: (308.8~8471)m <sup>3</sup> /h DN:(50~2000)mm	$U_{rel}=0.3\%$ (Standard table method)		
26	Gas Displacement Meters	Flow	Verification Regulation of Gas Displacement Meters JIG 633	(0.4~5000)m <sup>3</sup> /h,DN:(10~300)mm	$U_{rel}=0.33\%$		
27	Vortex-shedding Flowmeter	Flow	Verification Regulation of Vortex-shedding Flowmeter JIG 1029	Gas: (0.4~5000)m <sup>3</sup> /h,DN:(10~300)mm	$U_{rel}=0.33\%$ (Standard table method)		
				cold water: (0.03~100)m <sup>3</sup> /h,DN:(15~80)mm	$U_{rel}=0.32\%$ (Standard table method)		
				hot water: (1.2~600)m <sup>3</sup> /h,DN:(15~300)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: (308.8~8471)m <sup>3</sup> /h DN:(50~2000)mm	$U_{rel}=0.5\%$ (Standard table method)		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
28	Ultrasonic Flowmeters	flow	Verification Regulation of Ultrasonic Flowmeters JJG 1030	cold water: (0.03~100)m <sup>3</sup> /h, DN:(15~80)mm	$U_{rel}=0.32\%$ (Standard table method)		
				hot water: (1.2~600)m <sup>3</sup> /h, DN:(15~300)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)		
				Gas: (0.4~5000)m <sup>3</sup> /h, DN:(10~300)mm	$U_{rel}=0.33\%$ (Standard table method)		
				liquid: (308.8~8471)m <sup>3</sup> /h DN:(50~2000)mm	$U_{rel}=0.5\%$ (Standard table method)		
29	Cold Potable Water Meters	Flow	Verification Regulation of Cold Potable Water Meters JJG 162	(0.5~1500)m <sup>3</sup> /h	$U_{rel}=0.056\%$		
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	$U_{rel}=2.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		pressure		(20~200) mL/h	$U_{rel}=1.4\%$		
				(200~1000) mL/h	$U_{rel}=2.5\%$		
				(0~200)kPa	$U=4\text{kPa}$		
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	$U_{rel}=0.0054\%$		
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	$U=0.6\text{hPa}$		
		Temperature Coefficient		(-0.14~0.25)hPa/°C	$U=0.03\text{hPa}/\text{°C}$		
39	Digital Barometers	air pressure	Verification Regulation of Digital Barometers JJG 1084	(800~1060)hPa	$U=0.14\text{hPa}$		



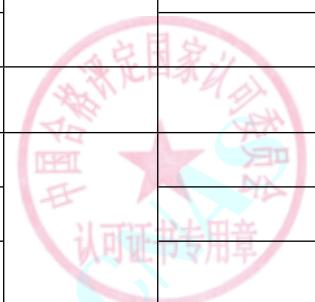
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
40	*Pressure Transmitters	Pressure	Verification regulation of pressure transmitter JJG882	(0~100)MPa	U=0.06%FS		
41	Compensated Micro-manometer	pressure	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		
44	Standard Dynamometers	Force	Verification Regulation of Standard Dynamometers JJG144	(0.1~10)kN	U <sub>rel</sub> =0.06%		
				(10~60)kN	U <sub>rel</sub> =0.09%		
				(60~2000)kN	U <sub>rel</sub> =0.13%		
45	Working Dynamometers	Force	Verification Regulation of Working Dynamometer JJG455	(20~100)N	U <sub>rel</sub> =0.29%		
				(0.1~2000)kN	U <sub>rel</sub> =0.20%		
46	*Flexure Testing Machines	Force	Verification Regulation of Flexure Testing Machines JJG 476	5N~50kN	U <sub>rel</sub> =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 <sub>rel</sub> =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 <sub>rel</sub> =0.16%		
				3MN~5MN	U <sub>rel</sub> =0.36%		
		Afterburner speed		(2.4~22.5)kN/s	U <sub>rel</sub> =2.6%		
			Verification Regulation of	1N~100N	U <sub>rel</sub> =0.35%		



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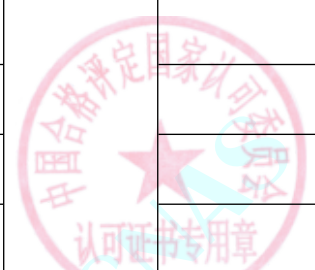
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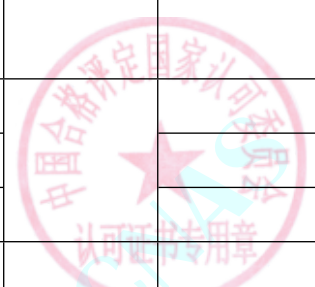
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Compression and Universal Testing Machines		Tension, Compression and Universal Testing Machines JJG 139	100N~3000kN	$U_{rel}=0.16\%$		
				3MN~5MN	$U_{rel}=0.35\%$		
50	*Electro-hydraulic Servo Universal Testing Machines	Force	Verification Regulation of Electro-hydraulic Servo Universal Testing Machines JJG 1063	100N~2000kN (0.1~20)%	$U_{rel}=0.16\%$		
		Coaxiality			$U=3\%$		
51	*Electronic Universal Testing Machine	Force	Verification Regulation of Electronic Universal Testing Machine JJG 475	1N~100N	$U_{rel}=0.35\%$		
		Coaxiality		100N~1000kN	$U_{rel}=0.16\%$		
				(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	$U=6 \mu m$		
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	$U=1.0J$		
				Indirect method:(80~100)J	$U=2.3J$		
				Indirect method:(120~140)J	$U=2.2J$		
				Indirect method:(220~240)J	$U=4.4J$		
				Direct method:(0.1~300)J	$U_{rel}=0.4\%$		
55	Torque Wrenches	Torque	Verification Regulation of Torque Wrenches JJG707	(0.6~3000)Nm	$U_{rel}=0.4\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
56	Hydraulic Torque Bench	Torque	Verification Regulation of Hydraulic Torque Bench JIG(Xin)16	(700~20000)Nm	$U_{rel}=1.2\%$		
57	Working Torque- meters	Torque	Verification Regulation of Working Torque-meters JIG1146	(700~20000)Nm	$U_{rel}=1.2\%$		
58	*Metallic Brinell Hardness Testers	Hardness	Verification Regulation of Metallic Brinell Hardness Testers JIG150	(100~350)HBW	$U_{rel}=(0.8\sim 1.1)\%$		
59	*Metallic Rockwell Hardness Testing Machines (Scales A,B,C,D,E,F,G,H, K,N,T)	Hardness	Verification Regulation of Metallic Rockwell Hardness Testing Machines (Scales A,B,C,D,E,F,G,H,K,N,T) JIG112	(20~88) HRA	$U=0.6HR$	Accredited only for A、B、 C scales.	
				(20~100) HRB	$U=0.8HR$		
				(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 JIG747	(490~830)HLD	$U_{rel}=(1.4\sim 1.9)\%$		
61	*Metallic Vickers Hardness Testers	Hardness	Verification Regulation of Metallic Vickers Hardness Testers JIG151	(400~600)HV	$U_{rel}=(1.7\sim 2.5)\%$		
62	Vibration Displacement Transducer	Displacement	Verification Regulation of Vibration Displacement Transducer JIG644	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 JIG134	(0.1~200)m/s	$U_{rel}=1.0\%$ , 160Hz		
				(0.1~200)m/s	$U_{rel}=2.0\%$ , (20~2000)Hz		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
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	$U=0.2$ Hz		
		Acceleration		(1~100)m/s <sup>2</sup>	$U_{rel}=3.5\%$		
		Distortion Degree		(0.01~100)%	$U=2.0\%$		
66	*Mechanical Vibration Generator for Testing	Frequency	Verification Regulation of Mechanical Vibration Generator for Testing JJG 189	(20~1000)Hz	$U=0.2$ Hz		
		Acceleration		(1~100)m/s <sup>2</sup>	$U_{rel}=3.5\%$		
		Distortion Degree		(0.01~100)%	$U=2.0\%$		
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		



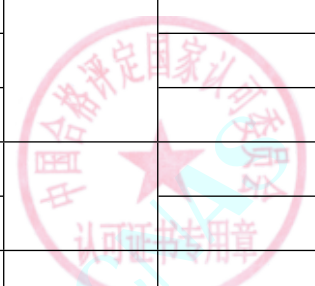
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Displacement		(0.01~5)mm	$U_{rel}=1.0\%$ , 160Hz		
				(0.01~5)mm	$U_{rel}=2.0\%$ , (20~2000)Hz		
		Frequency		(20~2000)Hz	$U=0.2$ Hz		
70	Measuring Instrument for Cement Bright Degumming Equipmeng	Frequency	Verification Regulation of Measuring Instrument for Cement Bright Degumming Equipmeng 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>	$U_{rel}=2.5\%$		
		Displacement		(0.1~10)mm	$U_{rel}=1.2\%$		
		Time		(0.1~3600)s	$U=0.12$ s		
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		
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	$U=0.7$ km/h		
75	*Fixed Motor Vehicle Radar Velocimeter	frequency	Verification regulation of fixed motor vehicle radar velocimeter JJG 527	(10~40)GHz	$U=2$ MHz		

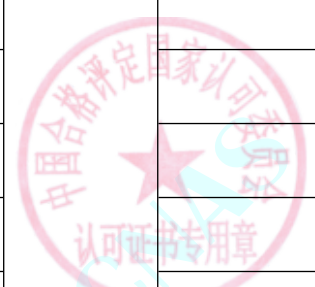


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Speed		Simulated speed:(20~180)km/h	U=1km/h		
				Field speed:(20~100)km/h	U=1km/h		
76	*Mobile motor vehicle radar velocimeter	frequency	Verification 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		
77	*Laboratory Centrifuge	Rotating Speed	Calibration Specification for Laboratory Centrifuge JJF(Meng)039	(500~30000)r/min	U <sub>rel</sub> =0.7%		
78	*Elevator Overspeed Governor Testers	Speed	Calibration Specification for Elevator Overspeed Governor Testers JJF 1374	(1.000~5.000)m/s	U <sub>rel</sub> =0.4%		
4、Acoustics							
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		



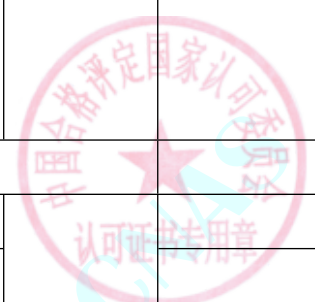
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		Time weighting		F:(1~50)dB/s, 4kHz S:1~50)dB/s, 4kHz	U=3.0dB/s U=0.3dB/s		
2	Noise Level Statistical Analyzers	Sound Pressure Level	Verification regulation of Noise Level Statistical Analyzers JJG 778	Sound signal:(10~94)dB, (10~250)Hz	U=0.5dB		
				Sound signal:(10~94)dB, (315~3150)Hz	U=0.4dB		
				Sound signal:(10~94)dB, (4000~8000)Hz	U=0.6dB		
				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		
		Time weighting		F:(1~50)dB/s, 4kHz S:1~50)dB/s, 4kHz	U=3.0dB/s U=0.3dB/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
5、 Electromagnetism							
1	*Amperemeters, Voltmeters, Wattmeters and Ohmmeters	DC Voltage	Verification Regulation of Amperemeters, Voltmeters, Wattmeters and Ohmmeters JJG	10mV~1000V	U <sub>rel</sub> =0.1%		
		AC Voltage		(0.1~1000)V, (50Hz、60Hz、400Hz)	U <sub>rel</sub> =0.1%		

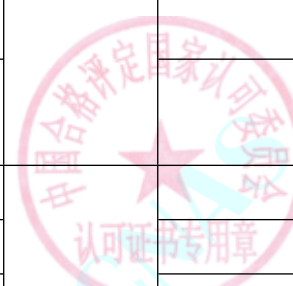


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC Current	124	1mA~20A	$U_{rel}=0.1\%$		
		AC Current		2mA~20A, (50Hz、60Hz、400Hz)	$U_{rel}=0.11\%$		
		DC Power		10W~7kW	$U_{rel}=0.2\%$		
		AC Power		10W~10kW, (50Hz)	$U_{rel}=0.2\%$		
		DC Resistance		1Ω~1MΩ	$U_{rel}=0.3\%$		
2	D.C. Potentiometers	DC Voltage	Verification Regulation of D.C. Potentiometers JJG 123	(0.1~0.2111111)V	$U=2.4 \times 10^{-5} U_x + 0.024 \mu V$		
				(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, 20% $U_n$	$U=0.020\%$		
				(2~10)kV/100V, (50%~120%) $U_n$	$U=0.012\%$		
		Phase		$\pm(0.001 \sim 100)'$ , (2~10)kV/100V, 20% $U_n$	$U=0.8'$		
				$\pm(0.001 \sim 100)'$ , (2~10)kV/100V, (50%~120%) $U_n$	$U=0.4'$		
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	$U_{rel}=0.8\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		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%) $I_n$	$U=0.012\%$		
		Phase		(0.01~999.9)' , (5~2000)A/5A, 5% $I_n$	$U=0.70'$		
				(0.01~999.9)' , (5~2000)A/5A, (20%~120%) $I_n$	$U=0.34'$		
8	*High Current Generator	AC Current	Calibration Specification of High Current Generator JJF(JX) 1037	(5~2000)A, (50Hz)	$U_{rel}=0.1\%$		
9	DC Standard Resistors	DC Resistance	Verification Regulation of DC Standard Resistors JJG 166	1m $\Omega$ 、10m $\Omega$ 、100k $\Omega$	$U_{rel}=5 \times 10^{-6}$		
				1 $\Omega$	$U_{rel}=2 \times 10^{-6}$		
				0.1 $\Omega$ 、10 $\Omega$ 、100 $\Omega$ 、1k $\Omega$ 、10k $\Omega$	$U_{rel}=3 \times 10^{-6}$		
10	*High Voltage and Value D.C.Resistors	DC Resistance	Verification Regulation of High Voltage and Value D.C.Resistors JJG 1072	100 $\Omega$ ~ 100M $\Omega$	$U_{rel}=0.12\%$		
				100M $\Omega$ ~ 10G $\Omega$	$U_{rel}=0.29\%$		
				10G $\Omega$ ~ 100G $\Omega$	$U_{rel}=0.64\%$		

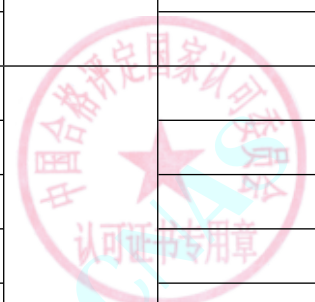


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				100GΩ ~ 1TΩ	$U_{rel}=1.2\%$		
11	*DC Resistive Volt Ratio Box	Voltage Division Ratio	Verification Regulation of DC Resistive Volt Ratio Box JJG 531	10~500, (100mV~1000V)	$U_{rel}=3 \times 10^{-5}$		
12	D.C. Resistance Boxes	DC Resistance	Verification Regulation of D.C. Resistance Boxes JJG 982	10Ω ~ 100kΩ	$U_{rel}=0.002\%$		
				100mΩ ~ 1Ω	$U_{rel}=0.03\%$		
				1mΩ ~ 10mΩ	$U_{rel}=1\%$		
13	*D.C. Bridges	DC Resistance	Verification Regulation of D.C. Bridges JJG 125	100Ω ~ 100kΩ	$U_{rel}=0.002\%$		
				(0.1~10)Ω	$U_{rel}=0.03\%$		
				1mΩ ~ 10mΩ	$U_{rel}=1\%$		
14	*Megohmmeter	DC Resistance	Verification regulation of insulation resistance meter (megger) JJG 622	100Ω ~ 10MΩ	$U_{rel}=0.24\%$		
				10MΩ ~ 100MΩ	$U_{rel}=0.58\%$		
				100MΩ ~ 1GΩ	$U_{rel}=1.2\%$		
				1GΩ ~ 1TΩ	$U_{rel}=2.4\%$		
		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	100Ω ~ 10MΩ	$U_{rel}=0.24\%$		
				10MΩ ~ 100MΩ	$U_{rel}=0.58\%$		
				100MΩ ~ 1GΩ	$U_{rel}=1.2\%$		
				1GΩ ~ 1TΩ	$U_{rel}=2.4\%$		
		DC Voltage		100V~10kV	$U_{rel}=1.7\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
16	*Earth Resistance Tester	Resistance	Verification Regulation of Earth Resistance Meters JJG 366	0.010 $\Omega$ ~ 0.1 $\Omega$	$U_{rel}=12\%$		
				0.10 $\Omega$ ~ 1 $\Omega$	$U_{rel}=1.4\%$		
				1 $\Omega$ ~ 2011.110 $\Omega$	$U_{rel}=0.12\%$		
17	*Loop Resistance Tester	DC Resistance	Verification Regulation of Loop Resistance Tester and DC Resistance Meters JJG 1052	1 $\mu$ $\Omega$ ~ 200 $\Omega$	$U_{rel}=0.24\%$		
		DC Current		(10~600)A	$U_{rel}=0.2\%$		
18	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 $\times$ (57.7 ~ 380)V, 3 $\times$ (0.1 ~ 100)A, 50Hz, $\cos \phi = 1.0$	$U_{rel}=0.058\%$		
				Three-phase balance loads: 3 $\times$ (57.7 ~ 380)V, 3 $\times$ (0.1 ~ 100)A, 50Hz, $\cos \phi = 0.8C$	$U_{rel}=0.080\%$		
				Three-phase balance loads: 3 $\times$ (57.7 ~ 380)V, 3 $\times$ (0.1 ~ 100)A, 50Hz, $\cos \phi = 0.5C$	$U_{rel}=0.12\%$		
				Three-phase unbalance loads: 3 $\times$ (57.7 ~ 380)V, 3 $\times$ (0.1 ~ 100)A, 50Hz, $\cos \phi = 1.0$	$U_{rel}=0.069\%$		



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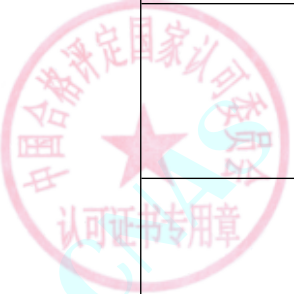
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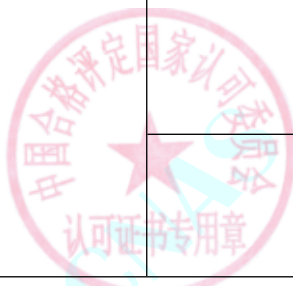
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
19	Electromechanical Meters for Measuring Alternating-current Electrical Energy	AC Electrical Energy	Verification Regulation of Electromechanical Meters for Measuring Alternating-current Electrical Energy JJG 307	Three-phase unbalance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5L	$U_{rel}=0.092\%$		
				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	$U_{rel}=0.18\%$		
				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	$U_{rel}=0.24\%$		



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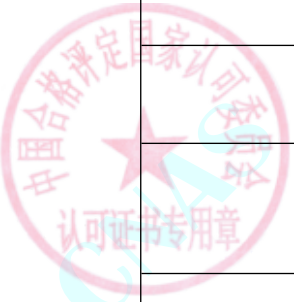
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20	Reference Meters for Electrical Energy	AC Electrical Energy	Verification Regulation of Reference Meters for Electrical Energy JJG 1085	Three-phase balance loads: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=1.0、0.5L、0.8C	$U_{rel}=0.024\%$		
				Three-phase 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	$U_{rel}=0.024\%$		
				三相不平衡负载: 3×(57.7~380)V, 3×(0.1~100)A, 50Hz, cos φ=0.5L	$U_{rel}=0.035\%$		
21	*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	$U_{rel}=0.035\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				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	$U_{rel}=0.035\%$		
22	*Resistive Current Testers Zinc-oxide Surge Arrester	Voltage	Calibration Specification for Resistive Current Testers Zinc-oxide Surge Arrester JJF (Zhe) 1082	(10~400)V,50Hz	$U_{rel}=0.5\%$		
		Current		(1~20)mA,50Hz	$U_{rel}=0.5\%$		
		Phase Angle		(0~180)°,50Hz	$U=0.9^\circ$		
23	Process Calibrators	DC voltage (measurement)	Calibration specification for process instrument calibrators JJF1472	10mV~100V	$U_{rel}=4.6 \times 10^{-5}$		
		DC current (measurement)		± (1~100) mA	$U_{rel}=1.5 \times 10^{-4}$		
		Resistance (measurement)		(10~4000) Ω	$U_{rel}=2.9 \times 10^{-4}$		
		Frequency (measurement)		1Hz~100kHz	$U_{rel}=2 \times 10^{-4}$		
		Temperature( Thermal resistance measurement)		(-200~800) °C	$U=0.058^\circ\text{C}$		
		Temperature( Thermocouple)		(100~1000) °C	$U=0.41^\circ\text{C}$		



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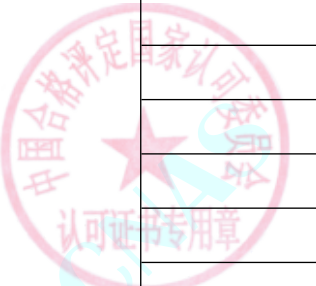
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		measurement)	ilac-MRA	(1000~1700) °C	$U=0.29\text{ }^{\circ}\text{C}$		
		AC voltage (measurement)		100mV~300V, (40Hz~1kHz)	$U_{\text{rel}}=1.1\times 10^{-4}$		
		AC current (measurement)		(10~200)mA, (40Hz~1kHz)	$U_{\text{rel}}=2.4\times 10^{-4}$		
		DC voltage (output)		10mV~300V	$U_{\text{rel}}=5.2\times 10^{-5}$		
		DC Current (Output)		(1~100)mA	$U_{\text{rel}}=1.2\times 10^{-4}$		
		Resistance (Output)		(10~4000) Ω	$U_{\text{rel}}=1.3\times 10^{-4}$		
		Frequency (output)		1Hz~100kHz	$U_{\text{rel}}=2\times 10^{-4}$		
		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	$U=0.29\text{ }^{\circ}\text{C}$
24	Standard Multi-function source	DC voltage	Calibration Specification for Multifunction Standard Sources JJF1638	(0.1~1) V	$U=1.6\times 10^{-5}R_d+0.7\mu\text{V}$	国家认可标志 中国合格评定国家认可委员会 认可证书专用章	
				(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	$U_{\text{rel}}=2\times 10^{-5}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				10mA~10A	$U_{rel}=0.012\%$		
				10A~9A	$U_{rel}=0.04\%$		
		AC voltage		(0.1~1) V, (40Hz~10kHz)	$U=1.8 \times 10^{-4} R_d + 90 \mu V$		
				(1~10) V, (40Hz~10kHz)	$U=2.6 \times 10^{-4} R_d + 0.9 mV$		
				(10~100) V, (40Hz~10kHz)	$U=3.2 \times 10^{-4} R_d + 9 mV$		
				(100~1000) V, (40Hz~10kHz)	$U=6 \times 10^{-6} R_d + 0.09 V$		
			A.C.Standard current source		100 μ A~19A, (40Hz~10kHz)	$U_{rel}=0.1\%$	
		Resistance		(1~2) Ω	$U=2.2 \times 10^{-5} R_d + 5 \mu \Omega$		
				(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	$U=1.0 \times 10^{-5} R_d + 0.6 m \Omega$		
				2k Ω ~20k Ω	$U=1.0 \times 10^{-5} R_d + 6 m \Omega$		
				20k Ω ~200k Ω	$U=1.0 \times 10^{-5} R_d + 60 m \Omega$		
				200k Ω ~2M Ω	$U=1.2 \times 10^{-5} R_d + 1.2 \Omega$		
				2M Ω ~20M Ω	$U=2.5 \times 10^{-5} R_d + 0.12 k \Omega$		
				20M Ω ~200M Ω	$U=1.5 \times 10^{-4} R_d + 12 k \Omega$		
				200M Ω ~1G Ω	$U=1.9 \times 10^{-3} R_d + 1.2 M \Omega$		

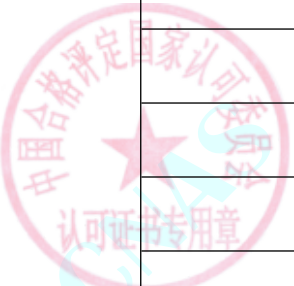


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
25	Digital multimeter	DC voltage	Calibration Specification for Multimeters JJF1587	100mV~220mV	$U=1.0 \times 10^{-5}R_d+0.7\mu V$		
				220mV~2.2V	$U=9 \times 10^{-6}R_d+1.2\mu V$		
				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 $\mu$ A ~ 220 $\mu$ A	$U=6 \times 10^{-5}R_d+10nA$		
				220 $\mu$ 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	$U=7 \times 10^{-5}R_d+1.0\mu A$		
				220mA~2.2A	$U=1.0 \times 10^{-4}R_d+30\mu A$		
				2.2A~10A	$U=5 \times 10^{-4}R_d+0.6mA$		
		AC voltage		(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)	$U=1.0 \times 10^{-4}R_d+1.0mV$		
				(220~1000)V, (40Hz~1kHz)	$U=1.0 \times 10^{-4}R_d+5mV$		
		AC current		(10~22)mA, (40Hz~1kHz)	$U=2.0 \times 10^{-4}R_d+0.5\mu A$		

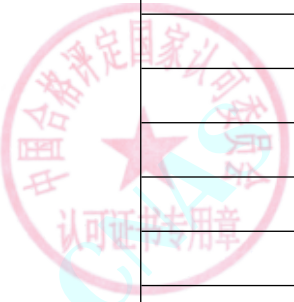


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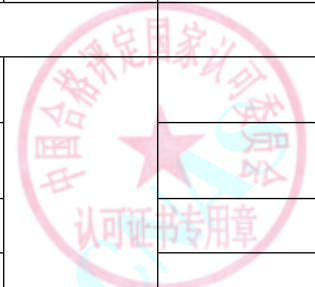
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(22~220)mA, (40Hz~1kHz)	$U=2.0 \times 10^{-4} R_d + 5 \mu A$		
				220mA~2.2A, (40Hz~1kHz)	$U=8 \times 10^{-4} R_d + 50 \mu A$		
				2.2A~10A, (40Hz~1kHz)	$U=6 \times 10^{-4} R_d + 0.2mA$		
		DC ohmmeter		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	$U_{rel}=1.6 \times 10^{-5}$		
				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	$U_{rel}=1.3 \times 10^{-4}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
26	*Burden Box of Instrument Transformers	Impedance	Calibration Specification for Burden Box of Instrument Transformers JJF 1264	$(0.06 \sim 10) \Omega$	$U_{rel}=0.24\%$		
		Admittance		$(0.1 \sim 12)mS$	$U_{rel}=0.24\%$		
27	*Transformer Characteristic Testers	Voltage	Calibration Specification for Transformer Characteristic Testers T/JJF (HUABEI) 5006	$(0.1 \sim 1000)V, 50Hz$	$U_{rel}=0.3\%$		
		Current		$(0.1 \sim 20)A, 50Hz$	$U_{rel}=0.3\%$		
		Ratio		$1 \sim 400$	$U_{rel}=0.16\%$		
		Secondary load (impedance)		$(0.1 \sim 1.0) \Omega$	$U_{rel}=0.24\%$		
		Secondary load (admittance)		$(0.1 \sim 1.0)mS$	$U_{rel}=0.24\%$		
		Secondary winding resistance		$(0.1 \sim 100) \Omega$	$U_{rel}=2\%$		
28	*Instrument Transformers Test Set	Ratio Error	Verification regulation of transformer calibrator JJG 169	$-10\% \sim -0.05\%, 0.02\% \sim 10\%$	$U_{rel}=0.24\%$		
		Phase difference		$-50' \sim -0.5', 0.5' \sim 50'$	$U_{rel}=0.24\%$		
6、 Radio							
1	*Dielectric loss and volume resistivity tester of insulating oil	Dielectric Loss	Calibration Specification for Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers JJF 1618	$(0.01 \sim 9.996)\%$	$U=0.6\%R_d+0.01\%$		
		Volume resistivity		$(1.13 \times 10^6 \sim 1.13 \times 10^{12}) \Omega \cdot m$	$U_{rel}=0.5\%$		
		Capacity		100pF	$U_{rel}=0.6\%$		
		Voltage		$(0.1 \sim 2)kV$	$U_{rel}=0.6\%$		



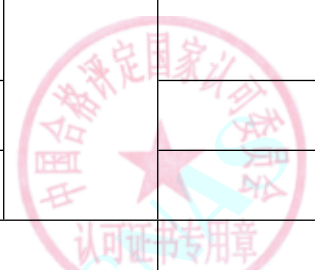
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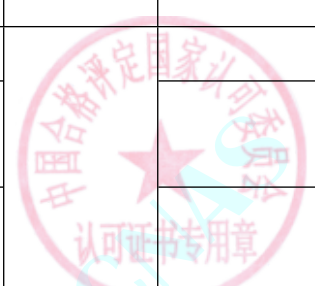
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature		(50~100)° C	$U=0.1^\circ\text{C}$		
2	*Dielectric Loss Tester	Dielectric Loss	Verification regulation of high voltage dielectric loss factor tester JJG 1126	(0.01~9.996)%	$U=0.6\%R_d+0.01\%$		
		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	$U=0.01\text{s}$		
3	*Mechanical stopwatch	Time	Verification regulation of stopwatch JJG 237	MECHANICAL STOPWATCH:0.1s~15min, (Resolution 0.1s)	$U=0.10\text{s}$		
				Mechanical Stopwatch:0.2s~30min (Resolution 0.2s)	$U=0.2\text{s}$		
				Electronic Stopwatch: (0.01~1739) s			
				Electronic Stopwatch: (1739~3600) s			
8、 Optics							



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
1	*Water quality colorimeter	Chroma	Specification for calibration of water colorimeter JJF 1689	Digital display instrument: (0~500) degree	$U = (1.7 \sim 4.4)$ degree		
				Visual instrument: (0~70) degree	$U = (3.6 \sim 7.1)$ degree		
2	*Trial Case Lenses	Vertex power	Verification regulation of optometry lens box JJG579	(-20~+20) m <sup>-1</sup>	$U=0.03\text{m}^{-1}$		
3	*Focimeters	Vertex power	Verification regulation of Focimeters JJG580	(-25~+25) m <sup>-1</sup>	$U=0.03\text{m}^{-1}$		
4	*Eye Refractometers	Vertex power	Verification regulation of optometer JJG892	(-20~+20) m <sup>-1</sup>	$U=0.16\text{m}^{-1}$		
		Corneal axial position		(45~135) °	$U=0.4^\circ$		
9、Chemistry							
1	*Ultraviolet、visible spectrophotometer	Wavelength	Verification regulation of ultraviolet, visible and near infrared spectrophotometer JJG 178	(220~900) nm	$U=0.4\text{nm}$		
		Transmissivity		(5~35) %	$U=0.4\%$		
2	*Fourier Transform Infrared Spectrometers	Wave Number	Calibration specification for Fourier transform infrared spectrometer JJF 1319	( ) 4000~400) cm <sup>-1</sup>	$U=0.53\text{cm}^{-1}$		
3	*Atomic absorption spectrophotometer	Wavelength	Verification regulation of atomic absorption spectrophotometer JJG 694	(190~900) nm	$U=0.09 \text{ nm}$		
		Detection limit		Determination by flame atomization (Cu) : ≤ 0.02 μg/mL	$U=0.005 \mu \text{g/mL}$		
				Graphite furnace atomization method (Cd) : ≤ 4pg	$U=0.4\text{pg}$		



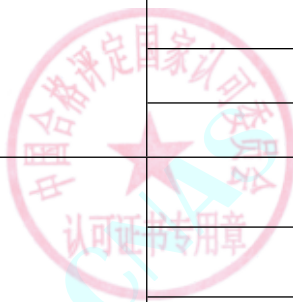
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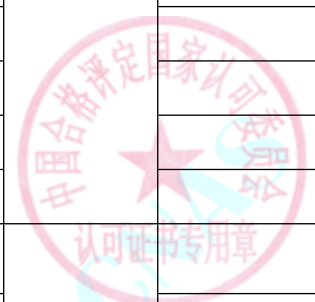


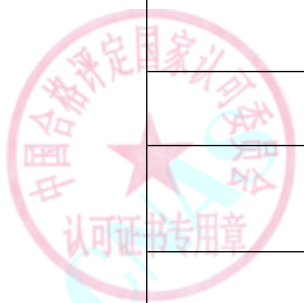
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Concentration		Determination by flame atomizationCu: (0.50~5.00) μg/mL	$U_{rel}=5.4\%$		
				Graphite furnace atomization methodCd: (0.50~5.00) ng/mL	$U_{rel}=7.8\%$		
4	*Verification Regulation of Fluorescence Spectrophotometer	Detection limit	Verification regulation of fluorescence spectrophotometer JJG 537	Type A: $\leq 5 \times 10^{-10}$ g/mL	$U_{rel}=45\%$		
5	*Atomic Fluorescence Spectrophotometer	Detection limit	Verification regulation of atomic fluorescence photometer JJG 939	As: $\leq 0.4$ ng	$U_{rel}=48\%$		
				Sb: $\leq 0.4$ ng	$U_{rel}=48\%$		
6	*ICP spectrometer	wave length		(190~770) nm	$U=0.01$ nm		
		Detection limit	Verification regulation of emission spectrometer JJG 768	Zn: $\leq 0.003$ mg/L	$U_{rel}=48\%$		
				Ni: $\leq 0.01$ mg/L	$U_{rel}=48\%$		
				Mn: $\leq 0.002$ mg/L	$U_{rel}=48\%$		
				Cr: $\leq 0.007$ mg/L	$U_{rel}=48\%$		
				Cu: $\leq 0.007$ mg/L	$U_{rel}=48\%$		
				Ba: $\leq 0.001$ mg/L	$U_{rel}=48\%$		
7	*Flame Photometer	Concentration	Verification regulation of flame photometer JJG 630	K: (0~0.200) mmol/L	$U=0.0004$ mmol/L		
				Na: (0~1.00) mmol/L	$U=0.034$ mmol/L		
		Detection limit		K: $\leq 0.004$ mmol/L	$U=0.001$ mmol/L		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Na: $\leq 0.008 \text{mmol/L}$	$U=0.004 \text{mmol/L}$		
8	*Polarimeter	Optical rotation	Verification regulation of polarimeter and polarimeter JIG 536	$(-75 \sim +75)^\circ$	$U=0.003^\circ \sim 0.005^\circ$		
9	*Mercury analyzers	Detection limit	Verification regulation of mercury measuring instrument JIG 548	Absorption class: $\leq 1.0 \text{ng/s}$ Fluorescence class: $\leq 0.1 \text{ng}$	$U_{\text{rel}}=47\%$ $U_{\text{rel}}=47\%$		
10	*Gas chromatographs	Sensitivity	Verification regulation of gas chromatograph JIG 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> ) : $\geq 800 \text{mV} \cdot \text{mL/mg}$	$U_{\text{rel}}=10\%$		
				ECD (lindane in isooctane) : $\leq 5 \text{pg/mL}$	$U_{\text{rel}}=11\%$		
				FID (CH <sub>4</sub> -N <sub>2</sub> ) : $\leq 0.5 \text{ng/s}$	$U_{\text{rel}}=11\%$		
		Detection limit		FID (n-Hexadecane in isooctane) : $\leq 0.5 \text{ng/s}$	$U_{\text{rel}}=11\%$		
				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 JIG 705	UV VIS detector: $\leq 5 \times 10^{-8} \text{g/mL}$	$U_{\text{rel}}=5.2\%$		
				DAD detector: $\leq 5 \times 10^{-8} \text{g/mL}$	$U_{\text{rel}}=5.2\%$		



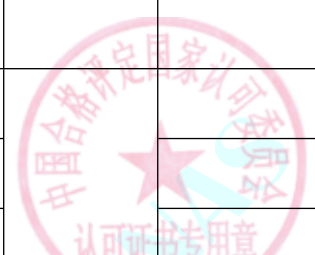
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			Verification regulation of ion chromatograph JJG 823	FLD detector: $\leq 5 \times 10^{-9}$ g/mL	$U_{rel}=5.2\%$		
				DRD detector: $\leq 5 \times 10^{-6}$ g/mL	$U_{rel}=6.0\%$		
				Evaporative light scattering detector: $\leq 5 \times 10^{-6}$ g/mL	$U_{rel}=6.0\%$		
		Flow		(0.1~1.5)mL/min	$U_{rel}=0.3\%$		
12	*Ion Chromatographs	Minimum detection concentration	Verification regulation of ion chromatograph JJG 823	Conductance detector、UV VIS detector、Electrochemical detector: $\leq 0.02 \mu$ g/L	$U_{rel}=40\%$		
Flow	(0.2~1.5)mL/min	$U_{rel}=0.2\%$					
13	*Quadrupole Inductively Coupled Plasma Mass spectrometers	Detection limit	Calibration specification for Quadrupole Inductively coupled plasma mass spectrometer JJF 1159	Be: $\leq 30$ ng/L	$U_{rel}=48\%$		
				In: $\leq 10$ ng/L	$U_{rel}=48\%$		
				Bi: $\leq 10$ ng/L	$U_{rel}=48\%$		
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> 、CF <sup>-</sup> ): S/N $\geq 10:1$	$U_{rel}=15\%$		
				Triple quadrupole (EI <sup>+</sup> 、CI <sup>+</sup> ): S/N $\geq 10:1$	$U_{rel}=15\%$		
				Time of flight, electrostatic orbit(EI <sup>+</sup> : S/N $\geq 50:1$	$U_{rel}=15\%$		
		Atomic mass		(50~700) u	$U=0.06u$		



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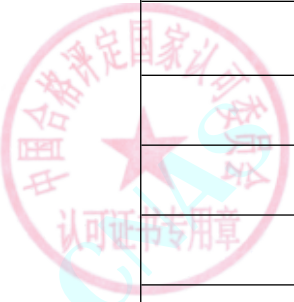
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
15	*Liquid Chromatography-Mass Spectrometers	Signal to Noise Ratio	Calibration specification for liquid chromatography-mass spectrometry JJF 1317	Triple quadrupole (ESI-), Single quadrupole, ion trap (ESI-, ESI+, APCI+) : $\geq 10:1$ Triple quadrupole (ESI+, APCI+) : $\geq 30:1$	$U_{rel}=10\%$		
		Atomic mass		(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	$U_{rel}=3.3\%$		
17	*Turbidimeters	Turbidity	Verification regulation of turbidimeter JJG 880	(0.1~20) NTU	$U_{rel}=3.2\%$		
				(20~2000) NTU	$U_{rel}=4.0\%$		
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 Chemical Oxygen Demand (COD)	Concentration	Verification regulation of chemical oxygen demand (COD) on-line automatic monitor JJG 1012	(16~100) mg/L	$U_{rel}=2.2\%$		
				(100~1000) mg/L	$U_{rel}=1.0\%$		
20	*Chemical Oxygen Demand (COD) Meters	Concentration	Verification regulation of chemical oxygen demand (COD) tester JJG 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 JJG 821	organic carbon: (1~1000) mg/L	$U_{rel}=3\%$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				inorganic carbon: (1~1000) mg/L	$U_{rel}=3\%$		
22	*Ammonia-Nitrogen Automatic Analyzers	Concentration	Verification regulation of ammonia nitrogen automatic monitor JJG 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: $\leq 0.002\text{mg/L}$	$U=0.0003\text{mg/L}$		
				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: $\leq 0.005\text{mg/L}$	$U=0.0005\text{mg/L}$		



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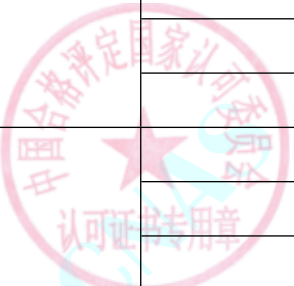
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Anionic surfactant: $\leq$ 0.05mg/L	$U=0.003\text{mg/L}$		
27	*Copper Content Analyzers	Concentration	Calibration specification for copper and iron content analyzers JJF (Qian) 13	(0.1~200) $\mu\text{g/L}$	$U=2.0\ \mu\text{g/L}$		
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 $\mu\text{g}$	$U_{\text{rel}}=3.8\%$		
				(1000~5000) $\mu\text{g}$	$U_{\text{rel}}=3.2\%$		
29	*Instrument for Karl Fischer Volumetric Titrators for Water Content	Water content	Verification regulation of Karl Fischer volumetric moisture meter JJG 1154	(1~5) mg	$U_{\text{rel}}=6.2\%$		
				(>5~20) mg	$U_{\text{rel}}=1.9\%$		
30	Flow Cup Viscometers	Viscosity	Verification regulation of outflow cup viscometer JJG743	(2~10 <sup>5</sup> )mm <sup>2</sup> /s	$U_{\text{rel}}=1.5\%$		
31	Rotational Viscometers	Viscosity	Verification regulation of rotary viscometer JJG1002	(1~1.2×10 <sup>5</sup> )mPa•s	$U_{\text{rel}}=0.3\%~6.0\%$		
32	*Laboratory pH Meters	pH	Verification regulation of laboratory pH meter JJG 119	Potentiomet: 0~14	$U=0.001$		
				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	$U=0.002$		

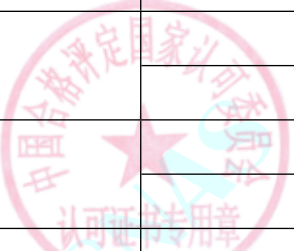


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Meters: 2~4	U=0.003		
		Potential		(-2000~2000) mV	U=0.014%FS		
35	*Automatic Potentiometric Titrators	Potential	Verification regulation of automatic potentiometric titrator JJG 814	(-2000~2000) mV	U=0.02%FS		
		Concentration		0.1 mol/L	$U_{rel}=0.5\%$		
		capacity		(1~25) mL	$U_{rel}=0.1\%$		
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~ $2 \times 10^5$ ) $\mu S \cdot cm^{-1}$	$U_{rel}=0.08\%$		
				Meters: (100~2000) $\mu S \cdot cm^{-1}$	$U_{rel}=0.3\%$		
38	*Trace oxygen analyzer	Concentration	Verification regulation of trace oxygen analyzer JJG945	(10~100) $\mu mol/mol$	$U_{rel}=2.0\%$		
		Time		(0.1~60)s	U=0.3s		
39	*Electrochemical Oxygen Meter	Concentration	Electrochemical oxygen meter JJG365	$(5 \sim 25) \times 10^{-2} mol/mol$	$U_{rel}=1.3\%$		
		Time		(0.1~30)s	U=0.6s		
40	*Thermal Conductivity Hydrogen Analyzer	Concentration	Verification regulation of thermal conductivity hydrogen analyzer JJG663	$(15 \sim 85) \times 10^{-2} mol/mol$	$U_{rel}=1.8\%$		
		Time		(0.1~40)s	U=0.6s		
41	Formaldehyde gas detector	Concentration	Verification regulation of formaldehyde gas detector JJG1022	(0.3~1.2) $\mu mol/mol$	$U_{rel}=2.8\%$		
		Time		(0.1~180)s	U=0.4s		
		Concentration	Calibration specification for	(20~80) $\mu mol/mol$	$U_{rel}=2.6\%$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	detector for volatile organic compounds	Time	photoionization detector of volatile organic compounds JJF1172	(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:(10~200) $\mu$ mol/mol	$U_{rel}=1.8\%$		
		time		CO <sub>2</sub> :(0.1~16) $\times 10^{-2}$ mol/mol	$U_{rel}=1.6\%$		
44	*Carbon monoxide detection alarm	Concentration	Verification regulation of carbon monoxide detection alarm JJG915	(10~2000) $\mu$ mol/mol	$U_{rel}=1.5\%$		
		time		(0.1~60)s	$U=0.6s$		
45	*Combustible gas detection alarm	Concentration	Verification regulation of combustible gas detection alarm JJG693	(10~60) %LEL	$U_{rel}=2.4\%$		
		time		(0.1~60)s	$U=0.6s$		
46	*Sulfur dioxide gas detector	Concentration	Verification regulation of sulfur dioxide gas detector JJG 551	(20~100) $\mu$ mol/mol	$U_{rel}=1.9\%$		
		time		(0.1~60)s	$U=0.8s$		
47	*ammonia detector	Concentration	Verification regulation of ammonia detector JJG 1105	(10~100) $\mu$ mol/mol	$U_{rel}=2.4\%$		
		time		(0.1~180)s	$U=0.7s$		
48	*Hydrogen sulfide gas detector	Concentration	Verification regulation of hydrogen sulfide gas detector JJG695	(0.1~100) $\mu$ 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) $\mu$ 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	(1~20) $\mu$ mol/mol	$U_{rel}=2.8\%$		



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		Time	JJF1888	(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	$U=0.18s$		
		Temperature		(0~200) °C	$U=0.05^{\circ}C$		
55	*Total Suspended Particulates Sampler	Flow Rate	Verification Regulation of Total Suspended Particulates Sampler JJG943	(5~150) L/min	$U_{rel}=1.2\%$		
				(800~1200) L/min	$U_{rel}=1.2\%$		
		Time		(0.1~3600)s	$U=0.16s$		
		Temperature		(0~200) °C	$U=0.06^{\circ}C$		



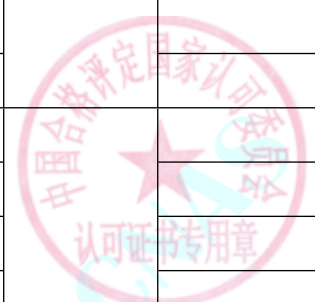
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		air pressure		(80~106)kPa	$U=0.16\text{kPa}$		
		Length		(0.1~150)mm	$U=0.03\text{mm}$		
56	Airborne Particle counter	Concentration	Airborne Particle counter JJF 1190	( $1000\sim 1\times 10^5$ ) pieces / 28.3L	$U_{\text{rel}}=14\%$		
57	*Carbon dioxide detection alarm	Concentration	Calibration specification for carbon dioxide detection alarm JJF(ji)66	( $0.1\sim 16$ ) $\times 10^{-2}$ 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	(2~100) $\mu$ 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: (20~60) $\mu$ mol/mol	$U_{\text{rel}}=2.2\%$		
		Time		NO <sub>2</sub> : (20~60) $\mu$ mol/mol	$U_{\text{rel}}=2.2\%$		
				(0.1~60)s	$U=0.6\text{s}$		
60	*Benzene gas detection alarm	Concentration	Calibration specification for benzene gas detection alarm JJF1674	(2~100) $\mu$ 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	(5~20) $\mu$ mol/mol	$U_{\text{rel}}=2.7\%$		
		time		(0.1~60)s	$U=0.6\text{s}$		
62	*Flue Gas Samplers	Flow Rate	Verification Regulation of Flue Gas Samplers JJG 1169	(100~2000) mL/min	$U_{\text{rel}}=1.2\%$		
		Temperature		(0~200) °C	$U=0.06\text{°C}$		
		Pressure		(-30~0) kPa	$U=0.1\text{kPa}$		
		Time		(0.1~3600)s	$U=0.2\text{s}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		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	Temperature	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%		
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%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Coal N: 0.2%~2.0%	$U_{rel}=6.0\%$		
				steel O: 0.002%~0.005%	$U_{rel}=6.6\%$		
				steel H: 0.0001%~0.0003%	$U_{rel}=16\%$		
				steel N: 0.02%~0.06%	$U_{rel}=4.2\%$		
71	*Residual chlorine tester	concentration	Calibration specification for determination of residual chlorine JJF1609	Total residual chlorine : (0.5~20)mg/L	$U_{rel}=2.3\%$		
				Simulated free residual chlorine: (0.5~20)mg/L	$U_{rel}=2.1\%$		
72	*Liquid chromatography-atomic fluorescence spectrometer	Minimum detection quantity	Verification regulation of liquid chromatography-atomic fluorescence instrument JJG1151	As(V):<1.0ng	$U_{rel}=15\%$		
				MMA:<0.7ng	$U_{rel}=14\%$		
				DMA:<0.7ng	$U_{rel}=14\%$		
73	*Ultraviolet spectrophotometry oil measuring instrument	concentration	Calibration specification for ultraviolet spectrophotometry oil gauges JJF(冀) 202	(0.1~200) mg/L	$U_{rel}=1.1\%$		
		Minimum detectable concentration		$\leq 0.05\text{mg/L}$	$U_{rel}=45\%$		
74	*Liquor analysis by gas chromatography	Detection limit	Calibration specification for gas chromatograph for liquor analysis JJF 2022	$\leq 5.0 \times 10^{-3}\text{mg/mL}$	$U_{rel}=12\%$		
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) $\mu\text{Gy/h}$	$U_{rel}=18\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
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 JIG 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 JIG 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) JIG 961	100 $\mu$ Gy ~ 100mGy	$U_{rel}=8.8\%$		
11、 Special measuring instruments for motor vehicles							
1	*Filter-Type Smokemeters	smoke	Verification Regulation of Filter-Type Smokemeters JIG847	(1.0~9.0) BSU	$U=0.2$ BSU		
2	*Opacimeters	opacity in the standard effective optical path length	Verification Regulation of Opacimeters JIG976	(0~99.0) %	$U=1.1\%$		
3	*Diesel Vehicle Nitrogen Oxides(NOx)	CO <sub>2</sub> concentration	Calibration Specification for Diesel Vehicle Nitrogen Oxides(NOx) Measuring	(2.0~12.0) $\times 10^{-2}$ mol/mol	$U_{rel}=1.4\%$		



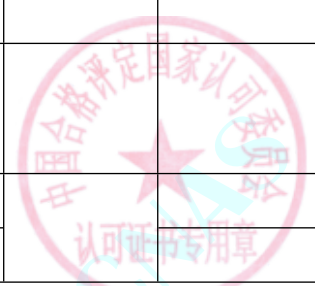
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Measuring Instruments	NO concentration	Instruments JJF 1873	$(300 \sim 3000) \times 10^{-6}$ mol/mol	$U_{rel}=1.4\%$		
		NO <sub>2</sub> concentration		$(50 \sim 600) \times 10^{-6}$ mol/mol	$U_{rel}=1.9\%$		
4	*Vehicle Exhaust Emissions Measuring Instruments	HC concentration	Verification Regulation of Vehicle Exhaust Emissions Measuring Instruments JJG 688	$(200 \sim 3200) \times 10^{-6}$ mol/mol	$U_{rel}=1.1\%$		
		O <sub>2</sub> concentration		$(0.5 \sim 20.9) \times 10^{-2}$ mol/mol	$U_{rel}=2.4\%$		
		NO concentration		$(300 \sim 3000) \times 10^{-6}$ mol/mol	$U_{rel}=1.4\%$		
		CO <sub>2</sub> concentration		$(3.6 \sim 12.00) \times 10^{-2}$ mol/mol	$U_{rel}=1.5\%$		
		CO concentration		$(0.5 \sim 4.8) \times 10^{-2}$ mol/mol	$U_{rel}=1.3\%$		
5	*Headlamp Testers for Motor Vehicle	luminous intensity	Verification Regulation of Headlamp Testers for Motor Vehicle JJG745	$(5 \sim 60)$ kcd	$U_{rel}=6.2\%$		
		angle		Up 1° ~ Down 2° , Left 2° ~ Right 2°	$U=6'$		
6	*Roller Type Speedometer Tester	Speed	Verification Regulation of Roller Type Speedometer Tester JJG 909	$(1 \sim 120)$ 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	$(500 \sim 50000)$ kg	$U_{rel}=0.36\%$		
8	*Platform Brake Testers	Wheel weight	Verification Regulation of Platform Brake Testers JJG1020	$(1 \sim 10000)$ kg	$U_{rel}=0.6\%$		
		Braking force		$(1 \sim 3500)$ daN	$U_{rel}=0.54\%$		

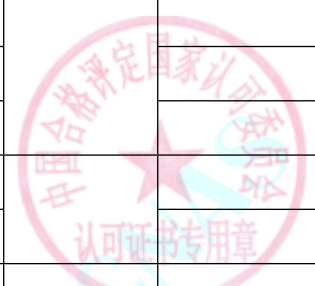


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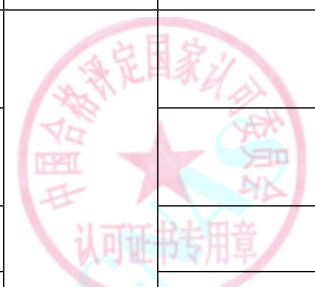
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
9	*Roller Opposite Force Type Brake Testers	Wheel braking force	Verification Regulation of Roller Opposite Force Type Brake Testers JJG906	(500~4500) daN	$U_{rel}=0.8\%$		
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	$U=0.04\text{m/km}$		
12	*Four-wheel Aligners	Single wheel toe in angle	Calibration Specification for Four-wheel Aligners JJF1154	(-10~10)°	$U=1.4'$		
13	Non-contact Automotive Speedmeter	speed	Calibration Specification for Non-contact Automotive Speedmeter JJF1193	(5~180) km/h	$U_{rel}=0.32\%$		
14	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) °	$U=0.78^\circ$		
15	*Tyre Pressure Gauges	Pressure	Verification Regulation of Tyre Pressure Gauges JJG927	(0~2.5) MPa	$U=0.5\%FS$		
16	*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>	$U_{rel}=1.6\%$		
17	*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	$U_{rel}=0.3\%$		
18	*Chassis Dynamometers for Automobile	Speed	Calibration Specification for Chassis Dynamometers for Automobile Emissions	(1~100) km/h	$U_{rel}=0.11\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Emissions Testing	Torsion	Testing JJF1221	(200~10000) N	$U_{rel}=0.34\%$		
		Time		(0.1~150) s	$U_{rel}=1.46\%$		
19	*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	$U_{rel}=0.05\%$		
20	*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	
21	*Vehicle Contour Dimensions Testers	length	Calibration Specification for Vehicle Contour Dimensions Testers JJF1749	(0.1~30) m	$U_{rel}=0.28\%$		
22	*Zero gas generator	carbon monoxide concentration	Calibration method for zero gas generator NMJL/FZ04/J-042-2024001	(0~20) × 10 <sup>-6</sup> mol/mol	$U=0.32 \times 10^{-6}$ mol/mol		
		carbon dioxide concentration		(0~40) × 10 <sup>-6</sup> mol/mol	$U=0.54 \times 10^{-6}$ mol/mol		
		Hydrocarbons concentration		(0~40) × 10 <sup>-6</sup> mol/mol	$U=0.27 \times 10^{-6}$ mol/mol		
		nitric oxide concentration		(0~20) × 10 <sup>-6</sup> mol/mol	$U=0.26 \times 10^{-6}$ mol/mol		



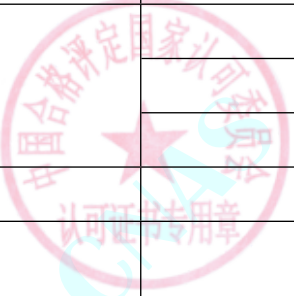
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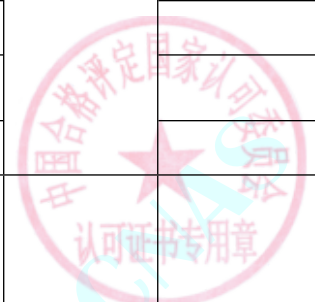
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Nitrogen dioxide concentration		(0~20) × 10 <sup>-6</sup> mol/mol	U=0.36 × 10 <sup>-6</sup> mol/mol		
		oxygen concentration		(0~25) × 10 <sup>-2</sup> mol/mol	U=0.13 × 10 <sup>-2</sup> 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=0.09m/s		
				(10~20) m/s	U=0.18m/s		
				(20~30) m/s	U=0.26m/s		
2	Portable Induction Anemometer	Wind Speed	Verification regulation of portable Induction anemometer JJG515	(2~10) m/s	U=0.09m/s		
				(10~20) m/s	U=0.18m/s		
				(20~30) m/s	U=0.26m/s		
3	Mine Anemometer	Wind Speed	Verification regulation of mine anemometer JJG (coal) 01	(0.2~10) m/s	U=0.12m/s		
				(10~20) m/s	U=0.18m/s		
				(20~30) m/s	U=0.26m/s		
4	Contact Anemorumbomete r	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		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Peak Expiratory Flow		(1~12) L/s	$U_{rel}=3.5\%$		
		Ventilation Volume		(30~100) L/min	$U_{rel}=3.5\%$		
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	$U_{rel}=0.16\%$		
		Frequency		0.1Hz~200Hz	$U_{rel}=0.06\%$		
4	Calibration Device for Electric Cardiac Monitor	Voltage	Verification regulation of Calibration Device for Electric Cardiac Monitor JJG 1016	0.1mV~30.0V	$U_{rel}=0.16\%$		
		Heart Rate		(10.0~300)BPM	$U_{rel}=0.3\%$		
		Frequency		0.1Hz~100Hz	$U_{rel}=0.06\%$		
5	*Cardiac Defibrillators	Energy	Calibration specification for cardiac defibrillators JJF 1149	(1~360) J	$U=2.4J$		
		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 (MRI)	Field Intensity	Verification regulation of medical magnetic resonance imaging (MRI) JJG (Meng) 027	(0.1~2.0) T	$U=12mT$		

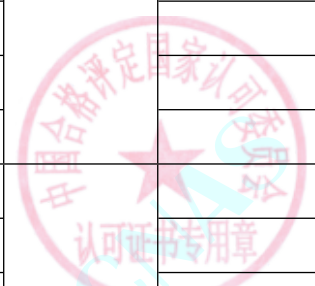


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
7	*Electrosurgical Generator	Power	Calibration specification for Electrosurgical Generator JJF 1217	(10~400) W	$U_{rel}=3.4\%$		
8	*Ventilators	Tidal Volume	Calibration specification for Ventilators JJF 1234	(400~1000) mL	$U_{rel}=3.8\%$		
		Frequency		(10~40)BPM	$U_{rel}=2.6\%$		
		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	$U=0.09^{\circ}C$		
		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	$U=0.13^{\circ}C$		
		pressure		(0~450) mmHg	$U=2.8mmHg$		
		flow		(400~700)mL/min	$U_{rel}=1.9\%$		
		pH value		4.0~10.0	$U=0.022$		
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) / $\mu L$	$U_{rel}=6.9\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		PRO		(0.1~2.0) g/L	$U_{rel}=10\%$		
		GLU		(1~42) mmol/L	$U=0.16\text{mmol/L}$		
		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) / $\mu\text{L}$	$U_{rel}=11\%$		
		WBC		(150~2000) / $\mu\text{L}$	$U_{rel}=10\%$		
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	$U=0.12\text{kPa}$		
		Inspiration Flow Oxygen Concentration		21%~60%	$U=2.4\%$		
15	*Blood Cell Analyzers	WBC	Verification Regulation of Blood Cell Analyzers JJG 714	WBC:(2~20) $\times 10^9/\text{L}$	$U_{rel}=2.7\%$		
		PLT		PLT:(50~500) $\times 10^9/\text{L}$	$U_{rel}=2.4\%$		
		RBC		RBC:(2~10) $\times 10^{12}/\text{L}$	$U_{rel}=2.3\%$		
		HGB		HGB:(50~200)g/L	$U_{rel}=3.2\%$		
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	$U=0.06\text{mm}$	Do not calibrate the High Strength Concrete Hammer	
				Spherical radius of the end of the Striker: (24.0~26.0) mm	$U=0.1\text{mm}$		
				Working length of spring: (61.2~61.8) mm	$U=0.06\text{mm}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	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 Setting Time of Cement Paste	Mass	Calibration Specification for Nonmetal Building Materials Plastic Limit Measuring Instruments JJF1090	(299~301)g	U=0.6g		
		length		Diameter: (1~11)mm	U=0.005mm		
				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		



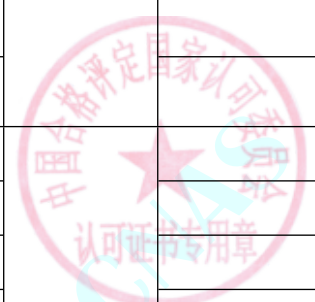
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Length		(1~3)mm	U=0.06mm		
6	*Gum Sand Cement Mortar Mixer	Rotating Speed	Verification Regulation of Gum Sand Cement Mortar Mixer JJG (Meng) 3	(57~135) r/min	U=0.6 r/min		
		Time		(20~300)s	U=0.3s		
		Length		(2~4)mm	U=0.06mm		
7	*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		
8	*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		
9	*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		
				Falling height:(298~ 502)mm	U=0.3mm		
10	*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	U=0.05mm		
				fall high:(455~460)mm	U=0.3 mm		
		Compaction Frequency		(55~65)second/min	U=0.3second/min		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
11	Reinforced Concrete Covermeter	Length	Calibration Specification for Reinforced Concrete Covermeter and Floor lab Thickness Tester JJF 1224	(0~100)mm	U=0.23mm		
12	*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	U=0.03mm		
				29.8° ~ 30.2°	U=0.05°		
		Time		(4.9~5.1)s	U=0.2s		
13	*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		
14	*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	U=0.0022mm		
				(14~205)mm	U=0.05mm		
		Pressure		(0.65~0.75)MPa	U=0.01MPa		
		Rubber hardness		(76~80)IRHD	U=0.6IRHD		
15	*Marshall Test Machine for Bituminous Mixtures	Force Value	Verification Regulation of Marshall Test Machine for Bituminous Mixtures JJG(JT)066	(5~50)kN	U <sub>rel</sub> =0.4%		
		Displacement		(0.5~10)mm	U=0.03mm		
		Rate of ascent		(45~55)mm/min	U <sub>rel</sub> =2.0%		
15、 Special measuring instruments for electronic, electrical and electrical appliances							



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
1	*Battery Internal Resistance Testers	Internal resistance of battery	Calibration Specification for Battery Internal Resistance Testers JJF 1620	0.01 Ω ~ 3k Ω	$U_{rel}=0.1\%$		
		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 065 (spinning and weaving)	(0~1000) μ m	$U=0.36 \mu m$		



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