Name: Inner Mongolia Institute of Metrology and Testing

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

Registration No. CNAS L1645

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

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SCHEDULE 5 ACCREDITED CALIBRATION AND MEASUREMENT CAPABILITY SCOPE

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

№	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 μm		
				（100～300）mm	U=9.0 μm		
				（300～500）mm	U=11 μm		
				（500～1000）mm	U=15 μm		
2	Steel Measuring Tapes	Length	Verification Regulation of Steel Measuring Tapes JJG 4	（0～200）m	U=0.1mm+2×$10^{-5}L$		
3	*Toolmaker’s Microscope	Length	Verification Regulation of Toolmaker’s Microscope JJG56	（0～200）mm	U=0.2 μm+4×$10^{-6}L$		
4	*Projector	Length	Calibration Specification for Projectors JJF 1093	(0 ～100)mm	U=0.7 μm+8.7×$10^{-6}L$		
5	Gauge Biocks	Length	Verification Regulation of Cauge Biocks JJG146	(0.5～1000)mm	U=0.20 μm+2×$10^{-6}Ln$(k=2.6)		

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№	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 μm+7.4×10^{-6}L		
				(500～1000)mm	U=1.1 μm+8×10^{-6}L		
7	*Dial Gauges	Length	Verification regulation of indicator (pointer type and digital display type) JJG34	div0.001mm：（0～1）mm	U=2 μm		
				div0.01mm：（0～10）mm	U=6 μm		
				div0.01mm：（10～100）mm	U=8 μm		
8	Dial Test Indicator	Length	Verification Regulation of Dial Test Indicator JJG 35	（0～1.0）mm	U=2.6 μm		
9	Bore Dial Indicators	Length	Calibration Specification for Bore Dial Indicators JJF 1102	div0.01mm：（10～100）mm	U=4.0 μm		
				div0.001mm：（10～100）mm	U=2.0 μm		
10	Current Calipers	Length	Verification Regulation of Current Calipers JJG 30	（0～1000）mm	U=4 μm+2×10^{-5}L		
11	Height Caliper	Length	Verification Regulation of Height Caliper JJG 31	（0～1000）mm	U=7 μm+1.6×10^{-5}L		
12	*Tester for Dial Indicator Gauges	Length	Verification Regulation of Testers for Dial Gauges JJG 201	（0～25）mm	U=0.6 μm		
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) μm	U=0.08 μm		

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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 μ m/m		
				Coincidence Levels：（-5～+5）mm/m	U=3 μ m/m		
20	Straight Edges	Linearity	Calibration Specification for Straight Edges JJF 1097	(500～2000）mm	U=0.3 μ m+1×$10^{-6}L$		
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=0.5mm（additive constant）， U=0.8mm/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=（0.8～2.3）mm（static state）, U=1.9mm（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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№	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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№	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 μ m +3.2×$10^{-6}L$		
34	*Contact-type Interferometer	Length	Verification Regulation of Contact-type Interferometers JJG 101	(-5～+5) μ m	U=0.012 μ m		
35	*Length Measuring Machine	Length	Calibration Specification for Length Measuring Machine JJF 1066	(0～100) μ m	U=0.08 μ m		
				（0.1～100）mm	U=0.18 μ m+1.2×$10^{-6}L$		
				（100～1000）mm	U=0.1 μ m+2×$10^{-6}L$		
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)℃	Zinc point： U=0.4℃ Aluminum dot： U=0.4℃ Copper point： U=0.5℃	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）℃	U=(0.26～0.91)℃		
3	Industry Platinum Resistance Thermometers	Temperature	Verification Regulation of Industrial Platinum and Copper Resistance Thermometers JJG 229	(-60～300) ℃	U=(0.02～0.04)℃		

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№	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) ℃	U=(0.05～0.06)℃		
5	Temperature Transmitter	Temperature	Calibration Specification of the Temperature Transmitter JJF 1183	With Sensor:（-60～300）℃	U=0.08℃		
6	*Thermostatic Baths for Temperature Calibration	Temperature	Measurement and Test Norm of Metrological Characteristics of Thermostatic Baths for Temperature Calibration JJF 1030	(-60～300) ℃	U=0.010℃(Fluctuation)		
				(-60～300) ℃	U=0.010℃(Uniformity)		
7	*Environmental testing equipment	Temperature	Calibration Specification for Environmental Testing Equipment for Temperature and Humidity Parameters JJF 1101	（-30～200）℃	U=0.2℃		
		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）℃	U=(1.0～2.5)℃		
9	*Electrically-heated Thermostatic Water bath	Temperature	Measurement Specification for Temperature Performance of Liquid Constant Temperature Testing Equipment JJF 2019	（10～95）℃	U=0.2℃		
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)℃	U=0.4℃		
		Pressure		(10～400)kPa abs	U=0.7kPa		
11	Heat Meters	flow	Verification Regulation of Heat Meters JJG 225	（1.2～600）m^3 /h	U_{rel}=0.2%		

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		temprature		（4～95）℃			
12	Radiation Thermometers	Radiation Temperature	Verification Regulation of Radiation Thermometers JJG 856	（30～700）℃	U=（1.8～3.0)℃		
13	*Infrared Thermometers for Measurement of Human Temperature	Temperature	Calibration Specification of Infrared Thermometers for Measurement of Human Temperature JJF 1107	（30～40）℃	U=0.17℃		
14	Mechanical Thermo-hygrometers	Temperature	Verification Regulation of Mechanical Thermo-hygrometerS JJG 205	（5～50）℃	U=0.6℃		
		Humidity		30%RH～95%RH	U=1.4%RH		
15	Digital Temperature-hygrometers	Temperature	Calibration Specification for Digital Temperature-hygrometers JJF 1076	（5～50）℃	U=0.2℃		
		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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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				（5～10）kg	U=11mg～0.03g		
				（10～20）kg	U=（0.03～0.16）g		
				（20～100）kg	U=（0.16～2.5）g		
				（100～300）kg	U=（2.5～21）g		
3	*Mass Comparators	Quality	Calibration specification for mass comparator JJF1326	1mg～10g	U=0.058 μ g (Repeatability)		
				1mg～10g	U=0.21 μ g～0.49 μ g (Eccentric load)		
				1mg～10g	U=1.2 μ g (Partial indication error)		
				10g～200g	U=0.58 μ g（Repeatability）		
				10g～200g	U=1.2 μ g～4.6 μ g (Eccentric load)		
				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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№	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_{rel}=0.28%		
				（100～500）t/h	U_{rel}=0.7%		
				（500～1500）t/h	U_{rel}=1.2%		
7	*Automatic Gravimetric Filling	Quality	Verification regulation of gravity type automatic	2.5kg～50kg	U_{rel}=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=（0.014～0.018）g		
				200g～1kg	U=（0.018～0.06）g		
				1kg～10kg	U=（0.06～0.6）g		
				10kg～100kg	U=（0.6～6）g		
				100kg～1t	U=（0.006～0.06）kg		
				1t～3t	U=（0.06～0.23）kg		
				3t～15t	U=（0.23～1.2）kg		
				15t～60t	U=（1.2～5）kg		
				60t～200t	U=（5～21）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=（0.21～1.0）×10^2kg		
				Motion（31～49）t	U=（0.1～0.15）×10^3kg		
				Static（1～60）t	U=（4～8）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=（0.09～0.19）×10^3kg		
				Motion（31～49）t	U=（0.19～0.26）×10^3kg		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
11	Standard glass float meter	Density	Verification regulation of standard glass float meter JJG86	Second class standard densitometer:（650～1500）kg/m^3	U=0.15kg/m^3		
				Second class standard petroleum densimeter:（650～1100）kg/m^3	U=0.15kg/m^3		
		Alcohol degree		Second class standard alcohol meter：（0～100）%	U=0.06%		
12	Working glass float meter	Density	Verification regulation of working glass float meter JJG42	Precision and common densitometer：（650～1500）kg/m^3，d=0.5kg/m^3	U=0.15kg/m^3		
				Precision and common densitometer：（1500～1800）kg/m^3 ，d=1kg/m^3	U=0.3kg/m^3		
				Petroleum densimeter Milk meter：（650～1100）kg/m^3	U=0.15kg/m^3		
		Baume degrees		（0～70）Bh	U=0.3Bh		
		Soil degree		（0～50）s°	U=0.25s°		
		Milk degree		（15～40）m°	U=0.3m°		
		Alcohol degree		Precision alcohol meter：（0～100）%	U=0.05%		
				Alcohol meter：（0～100）%	U=0.3%		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
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=0.002mL		
				（0.5～25）mL	U=0.006mL		
				（25～100）mL	U=0.03mL		
				（100～500）mL	U=0.09mL		
				（500～1000）mL	U=0.18mL		
				（1000～2000）mL	U=0.20mL		
16	Special Glassware	Capacity	Verification regulation of special glass gauge JJG10	（5～100）mL	U=0.02mL～0.20mL		
17	Locomotive Pipette	Capacity	Verification regulation of pipette JJG646	（0.5～10） μL	U=（0.04～0.26） μL		
				（10～100） μL	U=（0.26～0.67） μL		
				（100～1000） μL	U=（0.67～4.0） μL		
				（1000～10000） μL	U=（4.0～16） μL		
18	*Road Tankers Capacity	Capacity	Verification Regulation of Road Tankers Capacity JJG 133	(0.1～50)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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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Material			（100～500）mL	U_{rel}=0.5%		
				（500～1000）mL	U_{rel}=0.3%		
		Quality		（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^3/h	U_{rel}=0.14%		
		Pressure		(0.001～2)kPa	U_{rel}=1.2%		
		Temperature		(0～50)℃	U=0.12℃		
		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^3/h,DN:(15～300)mm	U_{rel}=0.056%（Static mass method）		
				cold water：(0.015～100)m^3/h,DN:(15～80)mm	U_{rel}=0.32%（Standard table method）		
				hot water：(1.2～600)m^3/h,DN:(15～300)mm	U_{rel}=0.2%（Static mass method）		
				(308.8～8471)m^3/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^3/h,DN:(15～100)mm	U_{rel}=0.056%（Static mass method）		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Gas：（0.016～30）m^3/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^3/h,DN:(15～300)mm	U_{rel}=0.2%（Static mass method）		
				cold water：(0.03～100)m^3/h,DN:(15～300)mm	U_{rel}=0.32%（Standard table method）		
				cold water：(0.5～1500)m^3/h,DN:(15～300)mm	U_{rel}=0.056%（Static mass method）		
				liquid：（308.8～8471）m^3/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^3h,DN:(10～300)mm	U_{rel}=0.33%（Standard table method）		
				hot water:(1.2～600)m^3/h,DN:(15～300)mm	U_{rel}=0.2%（Static mass method）		
				cold water：(0.03～100)m^3/h,DN:(15～80)mm	U_{rel}=0.32%（Standard table method）		
				cold water：(0.5～1500)m^3/h,DN:(15～300)mm	U_{rel}=0.056%（Static mass method）		
				liquid：（308.8～8471）m^3/h DN:(50～2000)mm	U_{rel}=0.5%（Standard table method）		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
25	Electromagnetic Flowmeters	Flow	Verification Regulation of Electromagnetic Flowmeters JJG 1033	cold water：(0.5～1500)m³/h,DN:(15～300)mm	U_{rel}=0.056%（Static mass method）		
				hot water：(1.2～600)m³/h,DN:(15～300)mm	U_{rel}=0.2%（Static mass method）		
				cold water：(0.03～100)m³/h,DN:(15～80)mm	U_{rel}=0.32%（Standard table method）		
				liquid：（308.8～8471）m³/h DN:(50～2000)mm	U_{rel}=0.3%（Standard table method）		
26	Gas Displacement Meters	Flow	Verification Regulation of Gas Displacement Meters JJG 633	(0.4～5000)m³/h,DN:(10～300)mm	U_{rel}=0.33%		
27	Vortex-shedding Flowmeter	Flow	Verification Regulation of Vortex-shedding Flowmeter JJG 1029	Gas：(0.4～5000)m³/h,DN:(10～300)mm	U_{rel}=0.33%（Standard table method）		
				cold water：(0.03～100)m³/h,DN:(15～80)mm	U_{rel}=0.32%（Standard table method）		
				hot water：(1.2～600)m³/h,DN:(15～300)mm	U_{rel}=0.2%（Static mass method）		
				cold water：(0.5～1500)m³/h,DN:(15～300)mm	U_{rel}=0.056%（Static mass method）		
				liquid：（308.8～8471）m³/h DN:(50～2000)mm	U_{rel}=0.5%（Standard table method）		

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28	Ultrasonic Flowmeters	flow	Verification Regulation of Ultrasonic Flowmeters JJG 1030	cold water：(0.03～100)m^3/h,DN:(15～80)mm	U_{rel}=0.32%（Standard table method）		
				hot water：(1.2～600)m^3/h,DN:(15～300)mm	U_{rel}=0.2%（Static mass method）		
				cold water：(0.5～1500)m^3/h,DN:(15～300)mm	U_{rel}=0.056%（Static mass method）		
				Gas：(0.4～5000)m^3/h,DN:(10～300)mm	U_{rel}=0.33%（Standard table method）		
				liquid：(308.8～8471)m^3/h DN:(50～2000)mm	U_{rel}=0.5%（Standard table method）		
29	Cold Potable Water Meters	Flow	Verification Rregulation of Cold Potable Water Meters JJG 162	(0.5～1500)m^3/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 Rgulation of Flow Integration Meters JJG 1003	(0.5～20000)m^3/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
				(20～200) mL/h	U_{rel}=1.4 %		
				(200～1000) mL/h	U_{rel}=2.5%		
		pressure		(0～200)kPa	U=4kPa		
33	Liquid-medium Piston Gauges	Pressure	Verification regulation of Liquid-medium Piston Gauges JJG 59	(0.04～60)MPa	U_{rel}=0.0028%		
34	Piston Pressure Vacuum Gauge	Pressure	Verification regulation of piston pressure vacuum gauge JJG 236	(0.1～-0.01)MPa	U_{rel}=0.0054%		
				(0.01～0.25）MPa	U_{rel}=0.0054%		
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 andVacuum Gauges for General Use	pressure	Verification Regulation of Elastic Element Pressure Gauges,Pressure-Vacuum Gauges and Vacuum Gauges for General Use JJG 52	(-0.1～100)MPa	U=0.5%FS		
37	Digital Pressure Gauges	Pressure	Verification regulation of digital pressure gauge JJG 875	(-0.1～60)MPa	U=0.024%FS		
				(60～100)MPa	U=0.06%FS		
38	Aneroid Barometer & Aneroid Barograph	air pressure	Verification Regulation of Aneroid Barometer & Aneroid Barograph JJG 272	(800～1060)hPa	U=0.6hPa		
		Temperature Coefficient		(-0.14～0.25)hPa/℃	U=0.03hPa/℃		
39	Digital Barometers	air pressure	Verification Regulation of Digital Barometers JJG 1084	(800～1060)hPa	U=0.14hPa		

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40	*Pressure Transmitters	Pressure	Verification regulation of pressure transmitter JJG882	(0～100)MPa	U=0.06%FS		
41	Compensated Micro-manomerer	pressure	Verification regulation of compensated micro manometer JJG158	(-2.5～2.5)kPa	U=0.58Pa		
42	TiIting 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_{rel}=0.06%		
				(10～60)kN	U_{rel}=0.09%		
				(60～2000)kN	U_{rel}=0.13%		
45	Working Dynamometers	Force	Verification Regulation of Working Dynamometer JJG455	(20～100)N	U_{rel}=0.29%		
				(0.1～2000)kN	U_{rel}=0.20%		
46	*Flexure Testing Machines	Force	Verification Regulation of Flexure Testing Machines JJG 476	5N～50kN	U_{rel}=0.16%		
		Speed		(45～55)N/S	U=0.17N/S		
47	Hydraulic Jacks	Force	Verification Regulation of Hydraulic Jacks JJG 621	100N～5MN	U_{rel}=0.41%		
48	*Building Material Testing Machine of Constant Loading Speed	Force	Verification Regulation of Building Material Testing Machine of Constant Loading Speed JJG 1025	100N～3MN	U_{rel}=0.16%		
				3MN～5MN	U_{rel}=0.36%		
		Afterburner speed		(2.4～22.5)kN/s	U_{rel}=2.6%		
			Verification Regulation of	1N～100N	U_{rel}=0.35%		

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	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	U_{rel}=0.16%		
		Coaxiality		(0.1～20)%	U=3%		
51	*Electronic Universal Testing Machine	Force	Verification Regulation of Electronic Universal Testing Machine JJG 475	1N～100N	U_{rel}=0.35%		
				100N～1000kN	U_{rel}=0.16%		
		Coaxiality		(0.1～20)%	U=3%		
52	*Oedometers	Force value	Calibration Specification for Oedometers JJF1311	(0.5～6)kN	U_{rel}=1.0%		
		Length		(0～10)mm	U=6 μ m		
53	*Interface Tensionmeters	Tension	Calibration Specification forInterface 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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56	Hydraulic Torque Bench	Torque	Verification Regulation of Hydraulic Torque Bench JJG(Xin)16	(700～20000)Nm	U_{rel}=1.2%		
57	Working Torque- meters	Torque	Verification Regulation of Working Torque-meters JJG1146	(700～20000)Nm	U_{rel}=1.2%		
58	*Metallic Brinell Hardness Testers	Hardness	Verification Regulation of Metallic Brinell Hardness Testers JJG150	(100～350)HBW	U_{rel}=(0.8～1.1)%		
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) JJG112	(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 JJG747	(490～830)HLD	U_{rel}=(1.4～1.9)%		
61	*Metallic Vickers Hardness Testers	Hardness	Verification Regulation of Metallic Vickers Hardness Testers JJG151	(400～600)HV	U_{rel}=(1.7～2.5)%		
62	Vibration Displacement Transducer	Displacement	Verification Regulation of Vibration Displacement Transducer JJG644	Dynamic:(0.01～2)mm	U_{rel}=1.0%，80Hz		
				Dynamic:(0.01～2)mm	U_{rel}=2.0%，(20～500)Hz		
				Static:(0.01～50)mm	U_{rel}=0.6%		
63	Electromagnetic Velocity Transducer	Speed	Verification Regulation of Electromagnetic Velocity Transducer JJG134	(0.1～200)m/s	U_{rel}=1.0%，160Hz		
				(0.1～200)m/s	U_{rel}=2.0%，(20～2000)Hz		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
64	piezoelectic Accelerometer	Acceleration	Verification Regulation of Piezoelectic Accelerometer JJG233	(1～100)m/s^2	U_{rel}=1.0%，160Hz		
				(1～100)m/s^2	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^2	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^2	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^2	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^2	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^2	U_{rel}=1.0%，160Hz		
				(1～100)m/s^2	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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		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^2	U_{rel}=2.5%		
		Displacement		(0.1～10)mm	U_{rel}=1.2%		
		Time		(0.1～3600)s	U=0.12s		
71	Pile Dynamic Measuring Instruments	Frequency	Verification Regulation of Pile Dynamic Measuring Instruments JJG930	(20～2000) Hz	U_{rel}=0.3%	ExCept for impact method and pile dynamic measuring	
		Acceleration		(5～100)m/s^2	U_{rel}=2.0%		
72	Tachometers	Revolution	Verification Regulation of Tachometers JJG105	(30～30000)r/min	U_{rel}=0.01%		
73	*Taximeters	Distance	Verification regulation of Taximeter JJG517	Used distance:(0.1～5)km	U_{rel}=0.32%		
				Taximeters:(1～4)km	U_{rel}=0.16%		
		Time		(300 ～900)s	U_{rel}=0.1%		
74	Standard Equipment for Taximeter	Revolution	Verification Regulation of Standard Equipment for Taximeter JJG738	(500～4000)r/min	U_{rel}=0.42%		
		Speed		(30～360)km/h	U=0.7km/h		
75	*Fixed Motor Vehicle Radar Velocimeter	frequency	Verification regulation of fixed motor vehicle radar velocimeter JJG 527	(10～40)GHz	U=2MHz		

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		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_{rel}=0.7%		
78	*Elevator Overspeed Governor Testers	Speed	Calibration Specification for Elevator Overspeed Governor Testers JJF1374	(1.000～5.000)m/s	U_{rel}=0.4%		
4、 Acoustics							
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	U=3.0dB/s		
				S:1～50)dB/s，4kHz	U=0.3dB/s		
2	Noise Level Statistical Analyzers	Sound Pressure Level	Verification regulation of Noise Level Statistical Analyzers JJG 778	Sound signal:(10～94)dB，(10～250)Hz	U=0.5dB		
				Sound signal:(10～94)dB，(315～3150)Hz	U=0.4dB		
				Sound signal:(10～94)dB，(4000～8000)Hz	U=0.6dB		
				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	U=3.0dB/s		
				S:1～50)dB/s，4kHz	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	U_{rel}=20%		
5、 Electromagnetism							
1	*Amperemeters,Voltmeters,Wattmeters and Ohmmeters	DC Voltage	Verification Regulation of Amperemeters,Voltmeters,Wattmeters and Ohmmeters JJG	10mV～1000V	U_{rel}=0.1%		
		AC Voltage		(0.1～1000)V，(50Hz、60Hz、400Hz)	U_{rel}=0.1%		

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№	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=2.4×10$^{-5}U_x$+0.024 μV		
				(0.2111111～2.1111110)V	U=1.2×10$^{-5}U_x$+0.12 μV		
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		±(0.001～100)'，(2～10)kV/100V，20%U_n	U=0.8'		
				±(0.001～100)'，(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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		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	1mΩ、10mΩ、100kΩ	U_{rel}=5×10^{-6}		
				1Ω	U_{rel}=2×10^{-6}		
				0.1Ω、10Ω、100Ω、1kΩ、10kΩ	U_{rel}=3×10^{-6}		
10	*High Voltage and Value D.C.Resistors	DC Resistance	Verification Regulation of High Voltage and Value D.C.Resistors JJG 1072	100Ω～100MΩ	U_{rel}=0.12%		
				100MΩ～10GΩ	U_{rel}=0.29%		
				10GΩ～100GΩ	U_{rel}=0.64%		

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№	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}=3×10^{-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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16	*Earth Resistance Tester	Resistance	Verification Regulation of Earth Resistance Meters JJG 366	0.010 Ω ～0.1 Ω	U_{rel}=12%		
				0.10 Ω ～1 Ω	U_{rel}=1.4%		
				1 Ω ～2011.110 Ω	U_{rel}=0.12%		
17	*Loop Resistance Tester	DC Resistance	Verification Regulation of Loop Resistance Tester and DC Resistance Meters JJG 1052	1 μ Ω ～200 Ω	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×(57.7～380)V，3×(0.1～100)A，50Hz，cos ϕ =1.0	U_{rel}=0.058%		
				Three-phase balance loads：3×(57.7～380)V，3×(0.1～100)A，50Hz，cos ϕ =0.8C	U_{rel}=0.080%		
				Three-phase balance loads：3×(57.7～380)V，3×(0.1～100)A，50Hz，cos ϕ =0.5C	U_{rel}=0.12%		
				Three-phase unbalance loads：3×(57.7～380)V，3×(0.1～100)A，50Hz，cos ϕ =1.0	U_{rel}=0.069%		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Three-phase unbalance loads：3×(57.7～380)V，3×(0.1～100)A，50Hz，cos ϕ =0.5L	U_{rel}=0.092%		
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 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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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
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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№	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°		
23	Process Calibrators	DC voltage (measurement)	Calibration specification for process instrument calibrators JJF1472	10mV～100V	U_{rel}=4.6×10^{-5}		
		DC current (measurement)		±（1～100）mA	U_{rel}=1.5×10^{-4}		
		Resistance (measurement)		(10～4000) Ω	U_{rel}=2.9×10^{-4}		
		Frequency (measurement)		1Hz～100kHz	U_{rel}=2×10^{-4}		
		Temperature(Thermal resistance measurement)		(-200～800) ℃	U=0.058℃		
		Temperature(Thermocouple		(100～1000) ℃	U=0.41 ℃		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		measurement)		(1000～1700) ℃	U=0.29 ℃		
		AC voltage (measurement)		100mV～300V, （40Hz～1kHz）	$U_{rel}=1.1\times10^{-4}$		
		AC current (measurement)		(10～200)mA, （40Hz～1kHz）	$U_{rel}=2.4\times10^{-4}$		
		DC voltage (output)		10mV～300V	$U_{rel}=5.2\times10^{-5}$		
		DC Current (Output)		(1～100)mA	$U_{rel}=1.2\times10^{-4}$		
		Resistance (Output)		(10～4000) Ω	$U_{rel}=1.3\times10^{-4}$		
		Frequency (output)		1Hz～100kHz	$U_{rel}=2\times10^{-4}$		
		Temperature(Thermal resistance output)		(-200～800) ℃	U=0.058℃		
		Temperature(Thermocouple output)		(100～1000) ℃	U=0.41℃		
				(1000～1700) ℃	U=0.29 ℃		
24	Standard Multi-function source	DC voltage	Calibration Specification for Multifunction Standard Sources JJF1638	（0.1～1）V	$U=1.6\times10^{-5}R_d+0.7\mu V$		
				（1～10）V	$U=1.3\times10^{-5}R_d+5\mu V$		
				（10～100）V	$U=1.7\times10^{-5}R_d+70\mu V$		
				（100～1000）V	$U=1.6\times10^{-5}R_d+0.4mV$		
		DC current		100 μA～10mA	$U_{rel}=2\times10^{-5}$		

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№	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=1.8×10^{-4}R_d+90μV		
				（1～10）V, (40Hz～10kHz)	U=2.6×10^{-4}R_d+0.9mV		
				（10～100）V，(40Hz～10kHz)	U=3.2×10^{-4}R_d+9mV		
				（100～1000）V，(40Hz～10kHz)	U=6×10^{-6}R_d+0.09V		
		A.C.Standard current source		100μA～19A，（40Hz～10kHz）	U_{rel}=0.1%		
		Resistance		（1～2）Ω	U=2.2×10^{-5}R_d+5μΩ		
				（2～20）Ω	U=1.2×10^{-5}R_d+18μΩ		
				（20～200）Ω	U=1.0×10^{-5}R_d+60μΩ		
				200Ω～2kΩ	U=1.0×10^{-5}R_d+0.6mΩ		
				2kΩ～20kΩ	U=1.0×10^{-5}R_d+6mΩ		
				20kΩ～200kΩ	U=1.0×10^{-5}R_d+60mΩ		
				200kΩ～2MΩ	U=1.2×10^{-5}R_d+1.2Ω		
				2MΩ～20MΩ	U=2.5×10^{-5}R_d+0.12kΩ		
				20MΩ～200MΩ	U=1.5×10^{-4}R_d+12kΩ		
				200MΩ～1GΩ	U=1.9×10^{-3}R_d+1.2MΩ		

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25	Digital multimeter	DC voltage	Calibration Specification for Multimeters JJF1587	100mV～220mV	$U=1.0\times10^{-5}R_d+0.7\mu V$		
				220mV～2.2V	$U=9\times10^{-6}R_d+1.2\mu V$		
				2.2V～11V	$U=9\times10^{-6}R_d+80\mu V$		
				11V～22V	$U=9\times10^{-6}R_d+80\mu V$		
				22V～220V	$U=1.0\times10^{-5}R_d+0.10mV$		
				220V～1000V	$U=1.1\times10^{-5}R_d+0.6mV$		
		DC current		100μA～220μA	$U=6\times10^{-5}R_d+10nA$		
				220μA ～2.2mA	$U=6\times10^{-5}R_d+10nA$		
				2.2mA～22mA	$U=6\times10^{-5}R_d+0.10\mu A$		
				22mA～220mA	$U=7\times10^{-5}R_d+1.0\mu A$		
				220mA～2.2A	$U=1.0\times10^{-4}R_d+30\mu A$		
				2.2A～10A	$U=5\times10^{-4}R_d+0.6mA$		
		AC voltage		(0.5～2.2)V,（40Hz～20kHz）	$U=9\times10^{-5}R_d+7\mu V$		
				(2.2～22)V,（40Hz～20kHz）	$U=9\times10^{-5}R_d+70\mu V$		
				(22～220)V,（40Hz～20kHz）	$U=1.0\times10^{-4}R_d+1.0mV$		
				(220～1000)V,（40Hz～1kHz）	$U=1.0\times10^{-4}R_d+5mV$		
		AC current		(10～22)mA,（40Hz～1kHz）	$U=2.0\times10^{-4}R_d+0.5\mu A$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(22～220)mA,（40Hz～1kHz）	U=2.0×10^{-4}R_d+5μA		
				220mA～2.2A,（40Hz～1kHz）	U=8×10^{-4}R_d+50μA		
				2.2A～10A,（40Hz～1kHz）	U=6×10^{-4}R_d+0.2mA		
		DC ohmmeter		10 Ω	U_{rel}=4×10^{-5}		
				19 Ω	U_{rel}=4×10^{-5}		
				100 Ω	U_{rel}=2.0×10^{-5}		
				190 Ω	U_{rel}=2.0×10^{-5}		
				1k Ω	U_{rel}=1.6×10^{-5}		
				1.9k Ω	U_{rel}=1.6×10^{-5}		
				10k Ω	U_{rel}=1.4×10^{-5}		
				19k Ω	U_{rel}=1.4×10^{-5}		
				100k Ω	U_{rel}=1.7×10^{-5}		
				190k Ω	U_{rel}=1.7×10^{-5}		
				1M Ω	U_{rel}=2.4×10^{-5}		
				1.9M Ω	U_{rel}=2.5×10^{-5}		
				10M Ω	U_{rel}=4.7×10^{-5}		
				19M Ω	U_{rel}=5.5×10^{-5}		
				100M Ω	U_{rel}=1.3×10^{-4}		

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26	*Burden Box of Instrument Transformers	Impedance	Calibration Specification for Burden Box of Instrument Transformers JJF 1264	(0.06～10) Ω	U_{rel}=0.24%		
		Admittance		(0.1～12)mS	U_{rel}=0.24%		
27	*Transformer Characteristic Testers	Voltage	Calibration Specification for Transformer Characteristic Testers T/JJF（HUABEI）5006	(0.1～1000)V,50Hz	U_{rel}=0.3%		
		Current		(0.1～20)A,50Hz	U_{rel}=0.3%		
		Ratio		1～400	U_{rel}=0.16%		
		Secondary load (impedance)		(0.1～1.0) Ω	U_{rel}=0.24%		
		Secondary load (admittance)		(0.1～1.0)mS	U_{rel}=0.24%		
		Secondary winding resistance		(0.1～100) Ω	U_{rel}=2%		
28	*Instrument Transformers Test Set	Ratio Error	Verification regulation of transformer calibrator JJG 169	-10%～-0.05%,0.02%～10%	U_{rel}=0.24%		
		Phase difference		-50'～-0.5',0.5'～50'	U_{rel}=0.24%		
6、 Radio							
1	*Dielectric loss and volume resistivity tester of insulating oil	Dielectric Loss	Calibration Specification for Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers JJF 1618	(0.01～9.996)%	U=0.6%R_d+0.01%		
		Volume resistivity		(1.13×10^6～1.13×10^{12}) Ω·m	U_{rel}=0.5%		
		Capacity		100pF	U_{rel}=0.6%		
		Voltage		(0.1～2)kV	U_{rel}=0.6%		

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		Temperature		(50～100)° C	U=0.1° 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}=1.1×10^{-10}		
2	*Clock Testers	Frequency	C. S. for Clock Testers JJF 1662	1Hz～10MHz	U_{rel}=7×10^{-8}		
		Time		Daily timing error:-10s～10s	U=0.01s		
3	*Mechanical stopwatch	Time	Verification regulation of stopwatch JJG 237	MECHANICAL STOPWATCH:0.1s～15min，（Resolution 0.1s）	U=0.10s		
				Mechanical Stopwatch:0.2s～30min（Resolution 0.2s）	U=0.2s		
				Electronic Stopwatch:（0.01～1739）s			
				Electronic Stopwatch:（1739～3600）s			
8、 Optics							

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1	*Water quality colorimeter	Chroma	Specification for calibration of water colorimeter JJF 1689	Digital display instrument:（0～500）degree	U=（1.7 ～4.4）degree		
				Visual instrument:（0～70）degree	U=（3.6 ～7.1）degree		
2	*Trial Case Lenses	Vertex power	Verification regulation of optometry lens box JJG579	（-20～+20）m^{-1}	U=0.03m^{-1}		
3	*Focimeters	Vertex power	Verification regulation of Focimeters JJG580	（-25～+25）m^{-1}	U=0.03m^{-1}		
4	*Eye Refractometers	Vertex power	Verification regulation of optometer JJG892	（-20～+20）m^{-1}	U=016m^{-1}		
		Corneal axial position		（45～135）º	U=0.4º		
9、 Chemistry							
1	*Ultraviolet、visible spectrophotometer	Wavelength	Verification regulation of ultraviolet, visible and near infrared spectrophotometer JJG 178	（220～900）nm	U=0.4nm		
		Transmissivity		（5～35）%	U=0.4%		
2	*Fourier Transform Infrared Spectrometers	Wave Number	Calibration specification for Fourier transform infrared spectrometer JJF 1319	（）4000～400）cm^{-1}	U=0.53cm^{-1}		
3	*Atomic absorption spectrophotometer	Wavelength	Verification regulation of atomic absorption spectrophotometer JJG 694	（190～900）nm	U=0.09 nm		
		Detection limit		Determination by flame atomization（Cu）:≤ 0.02 μg/mL	U=0.005 μg/mL		
				Graphite furnace atomization method（Cd）:≤4pg	U=0.4pg		

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№	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：≤5×10^{-10}g/mL	U_{rel}=45%		
5	*Atomic Fluorescence Spectrophotometers	Detection limit	Verification regulation of atomic fluorescence photometer JJG 939	As:≤0.4ng	U_{rel}=48%		
				Sb:≤0.4ng	U_{rel}=48%		
6	*ICP spectrometer	wave length	Verification regulation of emission spectrometer JJG 768	（190～770）nm	U=0.01nm		
		Detection limit		Zn:≤0.003mg/L	U_{rel}=48%		
				Ni:≤0.01mg/L	U_{rel}=48%		
				Mn:≤0.002mg/L	U_{rel}=48%		
				Cr:≤0.007mg/L	U_{rel}=48%		
				Cu:≤0.007mg/L	U_{rel}=48%		
				Ba:≤0.001mg/L	U_{rel}=48%		
7	*Flame Photometer	Concentration	Verification regulation of flame photometer JJG 630	K：（0～0.200）mmol/L	U=0.0004mmol/L		
				Na：（0～1.00）mmol/L	U=0.034 mmol/L		
		Detection limit		K：≤0.004mmol/L	U=0.001mmol/L		

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				Na：≤0.008mmol/L	U=0.004mmol/L		
8	*Polarimeter	Optical rotation	Verification regulation of polarimeter and polarimeter JJG 536	（-75～+75）°	U=0.003° ～0.005°		
9	*Mercury analyzers	Detection limit	Verification regulation of mercury measuring instrument JJG 548	Absorption class:≤1.0ng/s	U_{rel}=47%		
				Fluorescence class:≤0.1ng	U_{rel}=47%		
10	*Gas chromatographs	Senstitivity	Verification regulation of gas chromatograph JJG 700	TCD（Benzene in Toluene）：≥800mV•mL/mg	U_{rel}=11%		
				TCD（CH_4-N_2）：≥800mV•mL/mg	U_{rel}=10%		
		Detection limit		ECD（lindane in isooctane）：≤5pg/mL	U_{rel}=11%		
				FID（CH_4-N_2）：≤0.5ng/s	U_{rel}=11%		
				FID（n-Hexadecane in isooctane）：≤ 0.5ng/s"	U_{rel}=11%		
				FPD（P）：≤0.1ng/s	U_{rel}=16%		
				FPD（S）：≤0.5ng/s	U_{rel}=11%		
				NPD（N）：≤5pg/s	U_{rel}=11%		
				NPD（P）：≤10pg/s	U_{rel}=11%		
11	*Liquid chromatohraphs	Minimu m detection concentration	Verification regulation of liquid chromatograph JJG 705	UV VIS detector:≤5×10^{-8}g/mL	U_{rel}=5.2%		
				DAD detector:≤5×10^{-8}g/mL	U_{rel}=5.2%		

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				FLD detector:≤5×10^{-9}g/mL	U_{rel}=5.2%		
				DRD detector:≤5×10^{-6}g/mL	U_{rel}=6.0%		
				Evaporative light scattering detector:≤5×10^{-6}g/mL	U_{rel}=6.0%		
		Flow		(0.1～1.5)mL/min	U_{rel}=0.3%		
12	*Ion Chromatorgraphs	Minimum detection concentration	Verification regulation of ion chromatograph JJG 823	Conductance detector、UV VIS detector、Electrochemical detector:≤0.02 μg/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:≤30ng/L	U_{rel}=48%		
				In：≤10ng/L	U_{rel}=48%		
				Bi：≤10ng/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$^+$、CI$^+$、CI$^-$）： S/N≥10:1	U_{rel}=15%		
				Triple quadrupole (EI$^+$、CI$^+$)：S/N≥10：1	U_{rel}=15%		
				Time of flight, electrostatic orbit(EI$^+$：S/N≥50：1	U_{rel}=15%		
		Atomic mass		（50～700）u	U=0.06u		

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№	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+）:≥10:1Triple quadrupole（ESI+、APCI+）:≥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)℃	U=0.3℃		
21	*Total Organic Carbon Analyzers	Concentration	Verification regulation of total organic carbon analyzer JJG 821	organic carbon：（1～1000）mg/L	U_{rel}=3%		

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				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=0.12mg/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) μg/L	U=1.3 μg/L		
				(100～200) μg/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=1.2nm		
		Detection limit		Cyanide：≤0.002mg/L	U=0.0003mg/L		
				Volatile phenol in water：≤0.002mg/L	U=0.0003mg/L		
				Hexavalent chromium：≤0.004mg/L	U=0.0013mg/L		
				Total phosphorus：≤0.01mg/L	U=0.002mg/L		
				Ammonia nitrogen：≤0.04mg/L	U=0.003mg/L		
				Total nitrogen：≤0.04mg/L	U=0.003mg/L		
				Sulfide：≤0.005mg/L	U=0.0005mg/L		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Anionic surfactant：≤ 0.05mg/L	U=0.003mg/L		
27	*Copper Content Analyzers	Concentration	Calibration specification for copper and iron content analyzers JJF （Qian）13	(0.1～200) μg/L	U=2.0 μg/L		
28	*Instrument for KF Coulometry Titration	Water content	Verification regulation of Karl Fischer coulometric micro moisture tester JJG 1044	10 μg	U_{rel}=6.6%		
				100 μg	U_{rel}=3.8%		
				（1000～5000） μg	U_{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_{rel}=6.2%		
				（＞5～20）mg	U_{rel}=1.9%		
30	Flow Cup Viscometers	Viscosity	Verification regulation of outflow cup viscometer JJG743	(2～10^5)mm^2/s	U_{rel}=1.5%		
31	Rotational Viscometers	Viscosity	Verification regulation of rotary viscometer JJG1002	(1～1.2×10^5)mPa•s	U_{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		
		Votage		（-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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				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：（0.2～2×10^5）μS·cm^{-1}	U_{rel}=0.08%		
				Meters：(100～2000) μS·cm^{-1}	U_{rel}=0.3%		
38	*Trace oxygen analyzer	Concentration	Verification regulation of trace oxygen analyzer JJG945	（10～100） μmol/mol	U_{rel}=2.0%		
		Time		(0.1～60)s	U=0.3s		
39	*Electrochemical Oxygen Meter	Concentration	Electrochemical oxygen meter JJG365	(5～25)×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	(15～85)×10^{-2}mol/mol	U_{rel}=1.8%		
		Time		(0.1～40)s	U=0.6s		
41	Formaldehyde gas detctor	Concentration	Verification regulation of formaldehyde gas detector JJG1022	(0.3～1.2) μmol/mol	U_{rel}=2.8%		
		Time		(0.1～180)s	U=0.4s		
		Concentration	Calibration specification for	(20～80) μmol/mol	U_{rel}=2.6%		

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№	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) μ mol/mol	U_{rel}=1.8%		
				CO_2:(0.1～16)×10^{-2}mol/mol	U_{rel}=1.6%		
		time		(0.1～90)s	U=0.2s		
44	*Carbon monoxide detection alarm	Concentration	Verification regulation of carbon monoxide detection alarm JJG915	(10～2000) μ 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) μ 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) μ 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） μ mol/mol	U_{rel}=1.5%		
		time		(0.1～60)s	U=0.2s		
49	*Sulfur hexafluoride detector and alarm	Concentration	Calibration specification for sulfur hexafluoride detector and alarm JJF1263	(20～1000) μ mol/mol	U_{rel}=1.5%		
		Time		(0.1～30)s	U=0.8s		
50	*Hydrogen chloride gas detection alarm	Concentration	Calibration Specification for Hydrogen Chloride Gas Detectors and Alarms	（1～20） μ 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^{-2}mol/mol	U_{rel}=1.1%		
				O_2:(5～25)×10^{-2}mol/mol	U_{rel}=1.2%		
				SO_2:(0.1～0.5)×10^{-2}mol/mol	U_{rel}=2.0%		
				NO：(0.1～0.4)×10^{-2}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)℃	U=0.06℃		
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）℃	U=0.05℃		
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）℃	U=0.06℃		

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		air pressure		(80～106)kPa	U=0.16kPa		
		Length		(0.1～150)mm	U=0.03mm		
56	Airborne Particle counter	Concentration	Airborne Particle counter JJF 1190	（1000～1×10^5）pieces / 28.3L	U_{rel}=14%		
57	*Carbon dioxide detection alarm	Concentration	Calibration specification for carbon dioxide detection alarm JJF(ji)66	(0.1～16)$\times10^{-2}$mol/mol	U_{rel}=2.6%		
		time		(0.1～60)s	U=0.2s		
58	*Vinyl chloride gas detecor and alarm	Concentration	Vinyl chloride gas detector and alarm JJG1125	(2～100) μ mol/mol	U_{rel}=2.5%		
		Time		(0.1～160)s	U=0.5s		
59	*nitric oxide and nitrogen dioxide gas detector	concentratio	Verification regulation of nitric oxide and nitrogen dioxide gas detector JJG（xin）01	NO：(20～60) μ mol/mol	U_{rel}=2.2%		
				NO_2：(20～60) μ mol/mol	U_{rel}=2.2%		
		Time		(0.1～60)s	U=0.6s		
60	*Benzene gas detection alarm	Concentration	Calibration specification for benzene gas detection alarm JJF1674	(2～100) μ mol/mol	U_{rel}=3.2%		
		Time		(0.1～60)s	U=1.0s		
61	*Chlorine gas detector and alarm	Concentration	Calibration specification for chlorine detector and alarm JJF1433	（5～20） μ mol/mol	U_{rel}=2.7%		
		time		(0.1～60)s	U=0.6s		
62	*Flue Gas Samplers	Flow Rate	Verification Regulation of Flue Gas Samplers JJG 1169	（100～2000）mL/min	U_{rel}=1.2%		
		Temperature		（0～200）℃	U=0.06℃		
		Pressure		（-30～0）kPa	U=0.1kPa		
		Time		(0.1～3600)s	U=0.2s		

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		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^3	U=0.36mg/m^3		
64	*Polymerase chain reaction analyzer	Temperature	Polymerase Chain Reaction Analyzers JJF 1527	（30～95）℃	U=（0.16～0.32）℃		
		Concentration		（1×10^2～1×10^8）copies/μL	U_{rel}=10%		
65	*Melting-point Measurement instruments	Temperature	Verification regulation of melting point tester JJG 701	（50～300）℃	U=0.26℃		
66	*Open/ Close Cup Flash Point Testers	Temperatrue	Calibration specification for open / closed flash point tester JJF 1384	Close cup：（70～150）℃	U=3.2℃		
		Temperature		Open cup：（110～230）℃	U=7.0℃		
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_{rel}=58%		
70	*Elemental analyzers	Concentration	Calibration specification for elemental analyzers JJF 1321	kjeldahl apparatus N：20%～50%	U_{rel}=1.4%		
				Coal C：40%～90%	U_{rel}=1.4%		
				Coal H：1.0%～5.0%	U_{rel}=3.8%		

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				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		≤0.05mg/L	U_{rel}=45%		
74	*Liquor analysis by gas chromatography	Detection limit	Calibration specification for gas chromatograph for liquor analysis JJF 2022	≤5.0×10^{-3}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) μGy/h	U_{rel}=18%		

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№	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 JJG 1067	1mGy/min ～1Gy/min	U_{rel}=4.2%		
4	*X-ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System	air kerma	Verification Regulation of X-ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System JJG 1078	0.1mGy～1Gy	U_{rel}=7%		
5	*Medical Diagnostic X-Ray Radiation Source for Spiral Computed Tomography (CT)	absorbed dose	Verification Regulation of Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography (CT) JJG 961	100 μGy～ 100mGy	U_{rel}=8.8%		
11、 Special measuring instruments for motor vehicles							
1	*Filter-Type Smokemeters	smoke	Verification Regulation of Filter-Type Smokemeters JJG847	（1.0～9.0）BSU	U=0.2 BSU		
2	*Opacimeters	opacity in the standard effective optical path length	Verification Regulation of Opacimeters JJG976	（0～99.0）%	U=1.1%		
3	*Diesel Vehicle Nitrogen Oxides(NOx)	CO_2concentration	Calibration Specification for Diesel Vehicle Nitrogen Oxides(NOx) Measuring	（2.0～12.0）×10^{-2}mol/mol	U_{rel}=1.4 %		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Measuring Instruments	NOconcentration	Instruments JJF 1873	（300～3000）×10^{-6}mol/mol	U_{rel}=1.4 %		
		NO_2concentration		（50～600）×10^{-6}mol/mol	U_{rel}=1.9 %		
4	*Vehicle Exhaust Emissions Measuring Instruments	HCconcentration	Verification Regulation of Vehicle Exhaust Emissions Measuring Instruments JJG 688	（200～3200）×10^{-6}mol/mol	U_{rel}=1.1%		
		O_2concentration		（0.5～20.9）×10^{-2}mol/mol	U_{rel}=2.4%		
		NOconcentration		（300～3000）×10^{-6}mol/mol	U_{rel}=1.4%		
		CO_2concentration		（3.6～12.00）×10^{-2}mol/mol	U_{rel}=1.5%		
		COconcentration		（0.5～4.8）×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	（5～60）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	（1～120）km/h	U_{rel}=0.76%		
7	*Special Axle(Wheel) Load Scales for Motor Vehicle Test	Wheel weight	Verification Regulation of Special Axle(Wheel) Load Scales for Motor Vehicle Test JJG1014	（500～50000）kg	U_{rel}=0.36%		
8	*Platform Brake Testers	Wheel weight	Verification Regulation of Platform Brake Testers JJG1020	（1～10000）kg	U_{rel}=0.6%		
		Braking force		（1～3500）daN	U_{rel}=0.54%		

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№	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=0.04m/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°		
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^2	U=0.05 m/s^2		
				Static：（4.9～9.8）m/s^2	U_{rel}=0.66%		
				Dynamic:（1～9.8）m/s^2	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^{-6}mol/mol	U=0.32×10^{-6}mol/mol		
		carbon dioxide concentration		(0～40)×10^{-6}mol/mol	U=0.54×10^{-6}mol/mol		
		Hydrocarbons concentration		(0～40)×10^{-6}mol/mol	U=0.27×10^{-6}mol/mol		
		nitric oxide concentration		（0～20）×10^{-6}mol/mol	U=0.26×10^{-6}mol/mol		

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		Nitrogen dioxide concentration		（0～20）×10^{-6}mol/mol	U=0.36×10^{-6}mol/mol		
		oxygen concentration		（0～25）×10^{-2}mol/mol	U=0.13×10^{-2}mol/mol		
12、 Special meteorological and marine measuring instruments							
1	Portable 3-cup Anemometers	Wind Speed	Verification regulation of portable 3- cup anemometers JJG431	（1～10）m/s	U=0.09m/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 Anemorumbometer	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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№	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 ultrasoound 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）℃	U=0.09℃		
		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)℃	U=0.13℃		
		heparin pump flom		（5～20）mL/h	U_{rel}=2.8%		
		pressure		（0～450）mmHg	U=2.8mmHg		
		flow		(400～700)mL/min	U_{rel}=1.9%		
12	*Urine Analyzers	pH	Calibration Specification of Urine Analyzers JJF 1129	5.5～7.5	U=0.4		
		RBC		（1～200）/ μ L	U_{rel}=7.3%		
		WBC		（1～200）/ μ L	U_{rel}=6.9%		

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		PRO		（0.1～2.0）g/L	U_{rel}=10%		
		GLU		（1～42）mmol/L	U=0.16mmol/L		
		SG		1.000～1.025	U=0.005		
13	*Automatic Urinary Sediment Analyzers	RBC	Calibration Specification for Automatic Urinary Sediment Analyzers JJF 1823	（150～2000）/μL	U_{rel}=11%		
		WBC		（150～2000）/μL	U_{rel}=10%		
14	*Non-invasive ventilator	Respiratory rate	Calibration Specification for Non-invasive Ventilators JJF 1997	(10～30)BPM	U_{rel}=3.4%		
		Pressure		(0.4～2.0)kPa	U=0.12kPa		
		Inspiration Flow Oxygen Concentration		21%～60%	U=2.4%		
15	*Blood Cell Analyzers	WBC	Verification Regulation of Blood Cell Analyzers JJG 714	WBC:(2～20)×10^9/L	U_{rel}=2.7%		
		PLT		PLT:(50～500)×10^9/L	U_{rel}=2.4%		
		RBC		RBC:(2～10)×10^{12}/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=0.06mm	Do not calibrate the High Strength Concrete Hammer	
				Spherical radius of the end of the Striker:（24.0～26.0）mm	U=0.1mm		
				Working length of spring:（61.2～61.8）mm	U=0.06mm		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				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	*Apparatments 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 Morter 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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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Length		(1～3)mm	U=0.06mm		
6	*Gum Sand Cement Morter Mixer	Rotating Speed	Verification Regulation of Gum Sand Cement Morter 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 Morter Specimen Jolting Table	Time	Verification Regulation of Cement Morter 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)℃	U=0.12℃		
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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№	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)℃	U=0.1℃		
		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)℃	U=0.2℃		
		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_{rel}=0.4%		
		Displacement		(0.5～10)mm	U=0.03mm		
		Rate of ascent		(45～55)mm/min	U_{rel}=2.0%		
15、 Special measuring instruments for electronic, electrical and electrical appliances							

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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	CalibrationSpecificationforfiberdiameteranalyaer JJF（spinning and weaving）065	(0～1000) μ m	U=0.36 μ m		

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