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Registration No. CNAS L0893

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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
Ⅰ Geometry measuring instrument							
1	Hand-held Laser Distance Meters	Geometric Quantity	V.R.of Hand-held Laser Distance Meters JJG 966	(0～50)m	U=0.59 mm+8×10^{-6}L		
2	Laser Tracker 3-Dimensional Measuring System	Geometric Quantity	C.S. for Laser Tracker 3-Dimensional Measuring System JJF 1242	(0～54.3)m	U=5 mm×10^{-4}+1.5×10^{-6}L		
3	Terrestrial Laser Scanners	Geometric Quantity	C. S. for Terrestrial Laser Scanners JJF 1406	(0～54.3)m	U=0.6 mm		
4	High-precision Line Scale	Length	V. R. of High-precision Line Scale JJG 73	(0～1000)mm	U=0.1 μm+1×10^{-7}L(k=3)		
5	Special Scale-bar’s Length	Length	C.S. for the Special Scale-bar’s Length JJF(chuan) 125	(0～5)m	U=7 μm+3×10^{-6}L		
6	*Laser Interferometric Comparators	length	C. S. for Laser Interferometric Comparators JJF 1913	(0～1000)mm	U=（0.11+0.4L） μm(k=3)		

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
7	Rotating Lasers	angle	C. S. for Rotating Lasers JJF 1166	(-3.4～+3.4)°	U=4″		
8	Laser Interferometers	Length	V. R.of Laser Interferometers JJG 739	（0~54.3） m	U=0.15 μm+1×$10^{-7}L$		
9	Laser Micrometers	Length	C.S. for Laser Micrometers JJF 1663	(-3～+3)mm	U=0.012%FS		
				(-100～+100)mm	U=0.008%FS		
10	Ball-bar Indicators	Length	C. S. for Ball-bar Indicators JJF 1978	(100～500)mm	U=0.25 μm+6×$10^{-7}L$		
11	Standard stick of Measuring spheres	Length	V. R.for Standard stick of Measuring spheres JJG（jun gong）177	(0～2000)mm	U=3.0 μm		
12	Frequency Modulated Laser Range Finder	length	C. S. for Frequency Modulated Laser Range Finder JJF(jun gong)172	(0～54.3)m	U=5×10^{-3}mm+2.7×$10^{-4}L$		
13	Laser tracker	length	C. S. for the large scale coordinate measurement system-laser tracker GJB 8624	(0～54.3)m	U=5 mm×10^{-4}+1.5×$10^{-6}L$		
14	Linear Displacement Measuring Device	Length	V. R.of Linear Displacement Measuring Device JJG 341	(0～1)m	U=0.27 μm		
				(＞1～54.3)m	U=1 μm+5×$10^{-7}L$		
15	Level Rod	Length	V. R. of Level Rod JJG 8	(0～5)m	U=5 μm+4×$10^{-6}L$		
16	Invar Bar-Coded Levelling Staffs	Length	V. R. of Invar Bar-Coded Levelling Staffs JJG(ce hui）2102	(0～5)m	U=5 μm+4×$10^{-6}L$		
17	Measuring wheels	length	C. S. for Measuring wheels JJF（liao）384	(0.1～100)m	U_{rel}=0.1%		
				measuring wheel diameter：(0～350)mm	U=0.03 mm		

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				diameter、axial runout，axial float：(0～10)mm	U=0.1 mm		
18	Water Level Gauge	Length	V. R. of Water Level Gauge JJG（jiao tong）168	（0～300)m	U=0.22 mm+2×$10^{-5}L$		
19	Large-Scale Laser Scanners Base on Spherical Coordinate	Length	Calibration Specification for Large-Scale Laser Scanners Base on Spherical Coordinate JJF（jun gong）283	(0～50）m	U=0.028 mm		
				flatness：(0～400)mm	U=0.042 mm		
				profile tolerance：(0～200)mm	U=0.042 mm		
Ⅱ Mechanics measuring instrument							
1	*Hydraulic Jacks	Force value	V. R. of Hydraulic Jacks JJG 621	10kN～30MN	U_{rel}=0.5%		
2	Standard Dynamometers	Force value	V. R. of Standard Dynamometers JJG 144	10N～1MN	U_{rel}=0.002%		
				(＞1～3)MN	U_{rel}=0.05%		
				(＞3～10)MN	U_{rel}=0.1%		
				(＞10～30)MN	U_{rel}=0.2%		
3	Load Cell	Mass	V. R. of Load Cell JJG 669	1kg～100t	U_{rel}=0.002%		
				(＞100～300)t	U_{rel}=0.05%		
				(＞300～500)t	U_{rel}=0.1%		
4	Force Transducers	Force value	V. R. of Force Transducers JJG 391	10N～1MN	U_{rel}=0.002%		
				(＞1～3)MN	U_{rel}=0.05%		
				(＞3～10)MN	U_{rel}=0.1%		
				(＞10～30)MN	U_{rel}=0.2%		

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
5	Working Dynamometers	Force value	V. R. of Working Dynamometers JJG 455	10N～1MN	U_{rel}=0.002%		
				(＞1～3)MN	U_{rel}=0.05%		
				(＞3～10)MN	U_{rel}=0.1%		
				(＞10～30)MN	U_{rel}=0.2%		
6	*Weights	Mass	V. R. of Weights JJG 99	50kg～3t	U=(0.1～15)g		
7	Electromagnetic Velocity Transducer	Velocity	V. R. of Electromagnetic Velocity Transducer JJG 134	(0.1～50)cm/s, 16.25Hz	U_{rel}=0.5%		
				(0.1～50)cm/s, (0.1～5000)Hz	U_{rel}=1.0%		
8	Vibration Displacement Transducer	Displacement	V. R. of Vibration Displacement Transducer JJG 644	Dynamic: (0.01～10)mm, 16.25Hz	U_{rel}=0.5%		
				Dynamic: (0.01～10)mm, (0.1～5000)Hz	U_{rel}=1.0%		
9	Environmental Vibration Instruments	Acceleration	V. R. of Environmental Vibration Instruments JJG 921	(0.1～30)m/s^2, (1～80)Hz	U_{rel}=1.0%		
10	Vibration Meters	Frequency	V. R. of Vibration Meters JJG 676	(0.1～5000)Hz	U_{rel}=0.2%		
		Acceleration		(0.1～300)m/s^2	U_{rel}=1.0%		
		Velocity		(0.1～50)cm/s	U_{rel}=1.0%		
		Displacement		(0.01～10)mm	U_{rel}=1.0%		
11	Piezoelectric Accelerometer	Acceleration	V. R. of Piezoelectric Accelerometer JJG 233	(0.1～300)m/s^2, 16.25Hz	U_{rel}=0.5%		
				(0.1～300)m/s^2, 160Hz	U_{rel}=0.5%		
				(0.1～300)m/s^2, (0.1～5000)Hz	U_{rel}=1.0%		

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
Ⅲ Acoustics measuring instrument							
1	Standard hydrophone	Sensitivity level	Verification Regulation of Standard Hydrophones in the Frequency Range 1 kHz~1 MHz JJG 1017,Standard Hydrophones in the Frequency Range 0.5 MHz to 5 MHz (Two-transducer Reciprocity Method) JJG 1070,Standard Hydrophones in the Frequency Range 500 Hz to 1 MHz(Free-field Comparison Method) JJG 185	(-220～-160)dB，(1～100)kHz	U=0.7dB		
				(-220～-160)dB，＞100kHz～5MHz	U=0.9dB		
				(-270～-180)dB，1kHz～1MHz	U=1.5dB		
2	Omnidirectional Sound Sources	directivity index	Calibration Specification for Omnidirectional Sound Sources JJF 1468	(-60～60)dB，(100～800)Hz	U=0.4dB		
				(-60～60)dB，(1～5)kHz	U=1.0dB		
		sound power level		(40～140)dB，(100Hz～5kHz)	U=0.6dB		
Ⅳ Electromagnetism measuring instrument							
1	*large current generator and tester	Alternating current	Calibration specification for large current generator and tester NIMTT(CM) 109	0.01A～100000A,（45Hz～65Hz）	U_{rel}=0.5%		
		Direct current		0.01A～10000A	U_{rel}=0.5%		
2	Absorbing Clamp	Insert Loss	calibration specification for Absorbing Clamp in the range of 30MHz-10GHz JJF1155	(0～30)dB,(30MHz～1GHz)	U=2.0dB		
3	Fluxgate Magenetometer	Magnetic induction intensity	Calibration Specification for Fluxgate Magenetometer JJF 1519	(10～250)μT	U_{rel}=0.05%		
				100nT～10μT	U=5nT		

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V Ionizing radiation measuring instrument							
1	ionization chamber dosimeters used in radiotherapy	Absorbed Dose Rate to Water	Calibration specification of water absorbed dose of dosimeters with ionization chambers as used in radiotherapy JJF 1743,verification regulation of ionization chamber dosimeters used in radiotherapy JJG 912	（0.01～10）Gy/min	U_{rel}=1.2%		
		Air Kerma Rate		（0.01～10）Gy/min	U_{rel}=0.8%		
		Kerma		(0.01～10)Gy	U_{rel}=1.8%		
2	phantom for Medical Spiral Computed Tomography(CT)	density	phantom for Medical Spiral Computed Tomography(CT) NIMTT(CM) 038	（0.1～3）g/cm^3	U=0.008g/cm^3		
		the CT number		-1000HU～1000HU	U=9.0HU		
		length		（0.15～20）mm	U=0.01mm		
3	Phantom used in Computed Radiography（CR）and Digital Radiography（DR）	low contrast	Calibration Specification for Phantoms Used in Computed Radiography (CR) and Digital Radiography (DR) JJF 1927	0.1%～20%	U=0.12%		
		length		（0.01～500）mm	U=0.002mm		
4	Image Quality Inspection Tool for X-ray	length	Image Quality Inspection Tool for X-ray NIMTT(CM) 034	（0.01～500）mm	U=0.002mm		
		Angle		（0～20）°	U=0.1°		
5	Daily Checker	Absorbed dose	Calibration Specification for Beam Quality Inspection Instruments of Radiation Therapy JJF 1928	0.5Gy～2.5Gy	U=0.024Gy		

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	Dosimetry system for β radiation Protection	Dose equivalents	Dosimetry system for β radiation Protection NIMTT(CM) 044	100 μSv～1 Sv	U_{rel}=5.6%		
7	Radon Measuring Instruments	Activity	verification regulation of Radon Measuring Instruments JJG 825	（100～12000）Bq/m^3	U_{rel}=7.1%		
Mechanics measuring instrument							
VI Flow measuring instrument							
1	Differential Pressure Flowmeters	flow	V. R. of Differential Pressure Flowmeters JJG 640	DN50～DN300,(16～6128)m^3/h	U_{rel}=0.45%～0.76%		
2	Vortex-shedding Flowmeter	flow	V. R. of Vortex-shedding Flowmeter JJG1029	DN50～DN300,(16～6128)m^3/h	U_{rel}=0.22%～0.30%		
3	Turbine Flowmeter	flow	V. R. of Turbine Flowmeter JJG 1037	DN50～DN300,(16～6128)m^3/h	U_{rel}=0.22%～0.31%		
4	Target Flowmeter	flow	V. R. of Target Flowmeter JJG 461	DN50～DN300,(16～6128)m^3/h	U_{rel}=0.28%～0.42%		
5	Ultrasonic Flowmeters	flow	V. R. of Ultrasonic Flowmeters JJG1030	DN50～DN300,(16～6128)m^3/h	U_{rel}=0.22%～0.30%		
6	Critical Flow Venturi Nozzle	flow	V. R. of Critical Flow Venturi Nozzle JJG 620	(0.016～1.6) m^3/h	U_{rel}=0.20%		
				(>1.6～1300) m^3/h	U_{rel}=0.16%		
7	Vortex Prscession Flowmeters	flow	V. R. of Vortex Precession Flowmeters JJG 1121	DN50～DN300,(16～6128)m^3/h	U_{rel}=0.22%～0.30%		

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8	Verification Facility of Compressed Natural Gas Dispensers	Flow	C. S. for Master Meter Method Verification Facility of Compressed Natural Gas Dispenser JJF 1583	（1～80）kg/min	U_{rel}=0.12%		
9	Verification Facility of Compressed Hydrogen Dispensers	Flow	C. S. of Verification Facility of Compressed Hydrogen Dispensers NIMTT(CM) 014	（0.1～10）kg/min	U_{rel}=0.24%		
10	Gas Displacement Meters	flow	V. R. of Gas Displacement Meters JJG 633	DN50～DN300,(16～6128)m^3/h	U_{rel}=0.28%～0.22%		
11	Thermal Mass Gas Flowmeters	flow	V. R. of Thermal Mass Gas Flowmeters JJG 1132	DN50～DN300,(16～6128)m^3/h	U_{rel}=0.22%～0.30%		
12	Verification Facility of Liquefied Natural Gas Dispensers	Flow	C. S. of Verification Facility of Liquefied Natural Gas Dispensers NIMTT(CM) 069	（1～80）kg/min	U_{rel}=0.13%		
13	Gas Mass Flow Meters	Flow	Calibration Specification of Gas Mass Flow Meters NIMTT(CM) 067	DN1～DN40,（0.1～80）kg/min	U_{rel}=0.16%		