

Name: Yokogawa Test & Measurement (Shanghai) Co., Ltd. Calibration Laboratory

Address: Room 603, No.799, Tianshan West Road, Changning District, Shanghai, China

Registration No. CNAS L3087

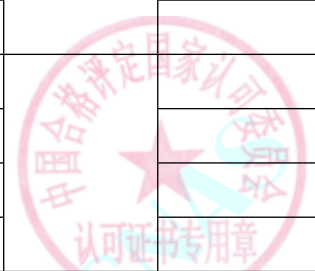
Accreditation Criteria: ISO/IEC 17025:2017 and relevant requirements of CNAS

Effective Date: 2022-09-26 Expiry Date: 2024-06-10

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.

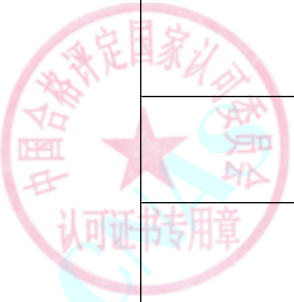
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
1	*AC Digital Power Meter	AC Power	Verification Regulation for AC Digital Power Meter JJG 780, Calibration Specification for Multimeters JJF 1587	1V~480V,(50Hz);10mA~50A,(50Hz)	$U_{rel}=0.02\%$		
		AC Voltage		1V~480V,(50Hz)	$U_{rel}=0.02\%$		
				480V~1000V,(50Hz)	$U_{rel}=0.03\%$		
		AC Current		10mA~50A,(50Hz)	$U_{rel}=0.02\%$		
2	*Digital Storage Oscilloscope	$\Delta t$ (Time)	Calibration Specification of Digital Storage Oscilloscope JJF 1057	10ns~40s	$U_{rel}=0.1\%$		
		$\Delta V$ (Voltage)		2mV ~30V	$U_{rel}=0.6\%$		
		Bandwidth		50kHz~3GHz	$U_{rel}=7\%$		
		Rise Time		0.12ns~3.5ns	$U_{rel}=8\%$		
3	*Digital Multimeter	DC Voltage	Calibration Specification for Multimeters JJF 1587	20mV~220mV	$U_{rel}=0.004\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC Current	ilac-M	220mV~22V	$U_{rel}=0.001\%$		
				22V~1000V	$U_{rel}=0.002\%$		
				20 μ A~220 μ A	$U_{rel}=0.05\%$		
				220 μ A~220mA	$U_{rel}=0.01\%$		
				220mA~2.2A	$U_{rel}=0.03\%$		
				2.2A~20A	$U_{rel}=0.1\%$		
		Resistance		1 Ω	$U_{rel}=0.01\%$		
				10 Ω , 100 Ω	$U_{rel}=0.003\%$		
				1k Ω , 10k Ω , 100k Ω	$U_{rel}=0.002\%$		
				1M Ω , 10M Ω	$U_{rel}=0.003\%$		
		AC Voltage		20mV~220mV,(50Hz~20kHz)	$U_{rel}=0.06\%$		
				20mV~220mV,(20kHz~50kHz)	$U_{rel}=0.08\%$		
				20mV~220mV,(50kHz~300kHz)	$U_{rel}=0.3\%$		
				20mV~220mV,(300kHz~500kHz)	$U_{rel}=0.4\%$		
				20mV~220mV,(500kHz~1MHz)	$U_{rel}=0.8\%$		

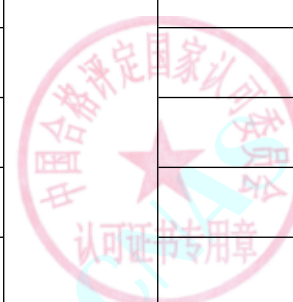


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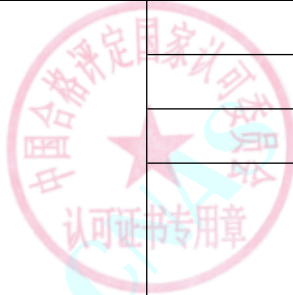
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				220mV~2.2V,(50Hz~20kHz)	$U_{rel}=0.01\%$		
				220mV~2.2V,(20kHz~50kHz)	$U_{rel}=0.02\%$		
				220mV~2.2V,(50kHz~100kHz)	$U_{rel}=0.04\%$		
				220mV~2.2V,(100kHz~300kHz)	$U_{rel}=0.08\%$		
				220mV~2.2V,(300kHz~500kHz)	$U_{rel}=0.2\%$		
				220mV~2.2V,(500kHz~1MHz)	$U_{rel}=0.4\%$		
				2.2V~22V,(50Hz~20kHz)	$U_{rel}=0.01\%$		
				2.2V~22V,(20kHz~50kHz)	$U_{rel}=0.02\%$		
				2.2V~22V,(50kHz~100kHz)	$U_{rel}=0.04\%$		
				2.2V~22V,(100kHz~300kHz)	$U_{rel}=0.08\%$		
				2.2V~22V,(300kHz~500kHz)	$U_{rel}=0.3\%$		
				2.2V~22V,(500kHz~1MHz)	$U_{rel}=0.6\%$		
				22V~220V,(50Hz~20kHz)	$U_{rel}=0.015\%$		
				22V~220V,(20kHz~50kHz)	$U_{rel}=0.03\%$		



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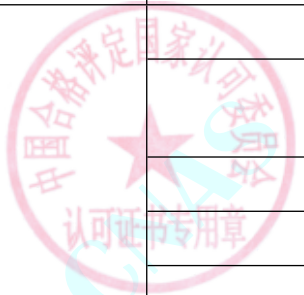
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Current	V. R. of Optical Spectrum Analyzers in Telecommunication JJJ 1035	22V~220V,(50kHz~100kHz)	$U_{rel}=0.08\%$		
				220V~1000V,(50Hz~1kHz)	$U_{rel}=0.01\%$		
				10mA~220mA,(50Hz~1kHz)	$U_{rel}=0.03\%$		
				10mA~220mA,(1kHz~5kHz)	$U_{rel}=0.15\%$		
				220mA~2.2A,(50Hz~1kHz)	$U_{rel}=0.1\%$		
				220mA~2.2A,(1kHz~5kHz)	$U_{rel}=0.15\%$		
				2.2A~3.2A,(50Hz~3kHz)	$U_{rel}=0.2\%$		
				2.2A~3.2A,(3kHz~5kHz)	$U_{rel}=0.6\%$		
				3.2A~20A,(50Hz~3kHz)	$U_{rel}=0.5\%$		
				3.2A~20A,(3kHz~5kHz)	$U_{rel}=1\%$		
4	*Optical Spectrum Analyzers in Telecommunication	Optical Wavelength	V. R. of Optical Spectrum Analyzers in Telecommunication JJJ 1035	633nm	$U=0.010nm$		
				700nm~900nm	$U=0.020nm$		
				1270nm~1630nm	$U=0.010nm$		
		-50dBm~+10dBm(Optical wavelength: 1260nm~1630nm)		$U_{rel}=4\%$			



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Resolution Bandwidth		0.05nm~2.0nm	$U=0.010\text{nm}$		
		Dynamic Range		35dB~78dB	$U=1.0\text{dB}$		
5	*Fiber Optical Power Meters	Optical Power	V. R. of Fiber Optical Power Meters JJG 813	-60dBm~+10dBm(1310nm, 1550nm)	$U_{\text{rel}}=3\%$		
6	*Optical Wavelength Counters in Telecommunication	Optical Wavelength	V. R. of Optical Wavelength Counters in Telecommunication JJG 963	1270nm~1360nm	$U_{\text{rel}}=3 \times 10^{-7}$		
				1552nm	$U_{\text{rel}}=2 \times 10^{-7}$		
				1440nm~1630nm	$U_{\text{rel}}=3 \times 10^{-7}$ (Except waveband 1552nm)		
7	*Recorder	temperature	Calibration Specification for Temperature Indicators JJF1664	-270°C~-100°C (Type T)	$U=0.5^\circ\text{C}$		
				-100°C~0°C (Type T)	$U=0.3^\circ\text{C}$		
				0°C~400°C (Type T)	$U=0.2^\circ\text{C}$		
				-200°C~100°C (Pt100)	$U=0.1^\circ\text{C}$		
				100°C~850°C (Pt100)	$U=0.2^\circ\text{C}$		
8	*ScopeCorder	Voltage test	DL850/DL850E/DL850V/DL850EV ScopeCorder Service Manual SM DL850-01EN	10mV~200V	$U_{\text{rel}}=0.1\%$		
		Frequency Characteristics		1kHz~21MHz (10mV/div~5V/div)	$U=0.4\text{dB}$		
		Frequency		0.1Hz~10Hz	$U=0.001\text{Hz}$		
				10Hz~2kHz	$U=(0.002\sim0.2)\text{Hz}$		
				2kHz~50kHz	$U=(0.2\sim5)\text{Hz}$		



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			Verification Regulation for DC Standard Voltage Sources JJG (Jungong) 193	50kHz~100kHz	U=10Hz		
				100kHz~200kHz	U=50Hz		
				200kHz~500kHz	U=0.20kHz		
		Time Base		1MHz	U=4Hz		
9	*DC Standard Voltage Source	DC Voltage	Verification Regulation for DC Standard Voltage Sources JJG (Jungong) 193	10mV~100mV	U=0.0009%R+0.0004mV	Accredited only for standard instrument methode	
				100mV~1V	U=0.0005%R+0.000002V		
				1V~10V	U=0.0005%R+0.00002V		
				10V~100V	U=0.0009%R+0.0002V		
				100V~1000V	U=0.0009%R+0.003V		
10	*Analogue Oscilloscope	Time scanning factor	Verification Regulation of Analogue Oscilloscope JJG 262	1ns/div~50s/div	U <sub>rel</sub> =0.2%		
		Factor of vertical run-out		2mV/div~5V/div	U <sub>rel</sub> =0.6%		
		Bandwidth		50kHz~3GHz	U <sub>rel</sub> =7%		
		Rise Time		0.12ns~3.5ns	U <sub>rel</sub> =8%		



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