

Name: Shenzhen Gaojian Metrology Testing Co., Ltd.

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Registration No. CNAS L23485

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

Effective Date: 2025-06-30 Expiry Date: 2031-06-29

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
Electromagnetism measuring instruments							
1	*AC Impedance Parameter Testers	AC Voltage	Calibration Specification for AC Impedance Parameter Testers JJF(Zhe) 1083	(10~600) V,(45~65) Hz	$U_{rel}=0.06\%$		
		AC Current		100 mA~20 A,(45~65) Hz	$U_{rel}=0.06\%$		
		AC Power		10 W~12 kW,(45~65) Hz	$U_{rel}=0.06\%$		
		Frequency		(45~65) Hz	$U=0.012$ Hz		
		Phase		(0~360)°, (45~65) Hz	$U=0.06^\circ$		
		Impedance		1 Ω~1 kΩ,(45~65) Hz	$U_{rel}=0.12\%$		
2	*AC High Voltage Test Device	AC Voltage	Calibration Specification for AC High Voltage Test Device JJF(Zhe) 1144	Power frequency high voltage test device: (1~200) kV,(50 Hz)	$U_{rel}=0.33\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	Power frequency high voltage test device: (200~500) kV,(50 Hz)	$U_{rel}=1.2\%$		
				Resonant high voltage test device: (1~500) kV,(30~300) Hz	$U_{rel}=1.2\%$		
		The total harmonic distortion		0.03%~30%,(30~300) Hz	$U_{rel}=12\%$		
		Frequency		(30~300) Hz	$U_{rel}=0.03\%$		
3	*DC High Voltage Test Device	DC Voltage	Calibration Specification for DC High Voltage Test Device JJF(Zhe) 1146	(1~100) kV	$U_{rel}=0.15\%$		
		DC Current		(0.01~100) mA	$U_{rel}=0.22\%$		
4	*Power Frequency High Current Generators	AC Current	Calibration Specification for Power Frequency High Current Generators JJF(Xin) 107	(1~5000) A,(50 Hz)	$U_{rel}=0.18\%$		
5	*Ohmmeter Tester and DC Ohmmeter Meters	Ohmmeter	Verification Regulation of Resistance Tester and DC Resistance Meters JJG 1052	(10~100) $\mu\Omega$	$U_{rel}=0.12\%$		
				(0.1~1) m $\Omega$	$U_{rel}=0.06\%$		
				1 m $\Omega$ ~200 $\Omega$	$U_{rel}=0.03\%$		
				200 $\Omega$ ~10 k $\Omega$	$U_{rel}=0.06\%$		
				(10~100) k $\Omega$	$U_{rel}=0.13\%$		
		Current		(1~100) mA	$U_{rel}=0.29\%$		
				100 mA~200 A	$U_{rel}=0.35\%$		
Time	(10~100) s	$U=0.30s$					



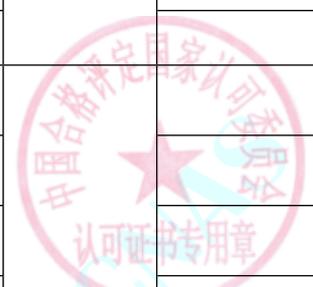
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	*Testers for Relaying Protection	AC Voltage	Verification Regulation of Testers for Relaying Protection JJG 1112	(1~800) V,(45~65) Hz	$U_{rel}=0.06\%$		
		DC Voltage		(1~1000) V	$U_{rel}=0.015\%$		
		AC Current		(0.1~100) A,(45~65) Hz	$U_{rel}=0.06\%$		
		DC Current		(0.1~10) A (10~50) A	$U_{rel}=0.16\%$ $U_{rel}=0.07\%$		
		Time		(1~1000) ms	$U=0.16$ ms		
				(1000~9999) ms	$U_{rel}=0.004\%$		
		Frequency		10 Hz~1 kHz	$U_{rel}=0.012\%$		
		Phase		(0~360)°, (45~65) Hz	$U=0.06^\circ$		
		Response time		(1~100) μs	$U_{rel}=3.0\%$		
7	*Testing Transformer Operating Box	AC Voltage	Calibration Specification for Testing Transformer Operating Box JJF(Min) 1090	(10~500) V,(45~65) Hz	$U_{rel}=0.20\%$		
		AC Current		(0.1~100) A,(45~65) Hz	$U_{rel}=0.16\%$		
		Time		(30~3600) s	$U_{rel}=1.6\%$		
8	*Double Clamp Digital Phase Volt-Ampere Meter	AC Voltage	Calibration Specification for Double Clamp Digital Phase Volt-Ampere Meter JJF(Xin) 11	(100~250) mV,(50 Hz,60 Hz)	$U=0.08\%U_x+0.08$ mV		
				(0.25~1) V,(50 Hz,60 Hz,400 Hz)	$U=0.09\%U_x+0.3$ mV		
				(1~2.5) V,(50 Hz,60 Hz,400 Hz)	$U=0.09\%U_x+0.8$ mV		
				(2.5~5) V,(50 Hz,60 Hz,400 Hz)	$U=0.08\%U_x+1.6$ mV		



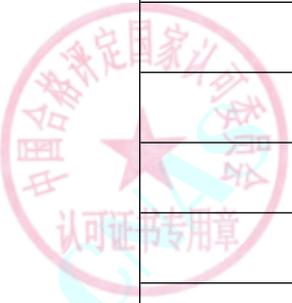
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Current		(5~10) V,(50 Hz,60 Hz,400 Hz)	$U=0.08\%U_x+3 \text{ mV}$		
				(10~25) V,(50 Hz,60 Hz,400 Hz)	$U=0.08\%U_x+8 \text{ mV}$		
				(25~50) V,(50 Hz,60 Hz,400 Hz)	$U=0.09\%U_x+14 \text{ mV}$		
				(50~100) V,(50 Hz,60 Hz,400 Hz)	$U=0.12\%U_x+18 \text{ mV}$		
				(100~500) V,(50 Hz,60 Hz,400 Hz)	$U=0.10\%U_x+0.05 \text{ V}$		
				(0.1~0.5) mA,(50 Hz,60 Hz,400 Hz)	$U=0.07\%I_x+0.17 \mu \text{ A}$		
				(0.5~2.5) mA,(50 Hz,60 Hz,400 Hz)	$U=0.07\%I_x+0.8 \mu \text{ A}$		
				(2.5~10) mA,(50 Hz,60 Hz,400 Hz)	$U=0.08\%I_x+3 \mu \text{ A}$		
				(10~25) mA,(50 Hz,60 Hz,400 Hz)	$U=0.08\%I_x+7 \mu \text{ A}$		
				(25~100) mA,(50 Hz,60 Hz,400 Hz)	$U=0.08\%I_x+0.03 \text{ mA}$		
				(100~250) mA,(50 Hz,60 Hz,400 Hz)	$U=0.09\%I_x+0.07 \text{ mA}$		
				(0.25~1) A,(50 Hz,60 Hz,400 Hz)	$U=0.12\%I_x+0.24 \text{ mA}$		
				(1~2.5) A,(50 Hz,60 Hz,400 Hz)	$U=0.09\%I_x+0.8 \text{ mA}$		
				(2.5~10) A,(50 Hz,60 Hz,400 Hz)	$U=0.10\%I_x+3 \text{ mA}$		
		Phase		(0~359.9)°, (45~65) Hz	$U=0.15^\circ$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
9	Electrical Meters for Measuring Alternating-current Electrical Energy	Electrical energy	Verification Regulation of Electrical Meters for Measuring Alternating-current Electrical Energy JJG 596	Three-phase load balancing: $3 \times (57.7 \sim 380) \text{ V}, 3 \times (0.1 \sim 20) \text{ A}, \cos \phi = 1.0$	$U_{\text{rel}}=0.06\%$		
				Three-phase load balancing: $3 \times (57.7 \sim 380) \text{ V}, 3 \times (0.1 \sim 20) \text{ A}, \cos \phi = 0.5\text{L}, 0.8\text{C}$	$U_{\text{rel}}=0.09\%$		
				Three-phase load balancing: $3 \times (57.7 \sim 380) \text{ V}, 3 \times (0.1 \sim 20) \text{ A}, \cos \phi = 0.5\text{C}$	$U_{\text{rel}}=0.12\%$		
				Three-phase unbalanced load: $3 \times (57.7 \sim 380) \text{ V}, 3 \times (0.1 \sim 20) \text{ A}, \cos \phi = 1.0$	$U_{\text{rel}}=0.08\%$		
				Three-phase unbalanced load: $3 \times (57.7 \sim 380) \text{ V}, 3 \times (0.1 \sim 20) \text{ A}, \cos \phi = 0.5\text{L}$	$U_{\text{rel}}=0.10\%$		
				Single phase: 220 V, (0.1 ~ 20) A, $\cos \phi = 1.0$	$U_{\text{rel}}=0.12\%$		
				Single phase: 220 V, (0.1 ~ 20) A, $\cos \phi = 0.5\text{L}, 0.8\text{C}$	$U_{\text{rel}}=0.13\%$		
				Single phase: 220 V, (0.1 ~ 20) A, $\cos \phi = 0.5\text{C}$	$U_{\text{rel}}=0.16\%$		

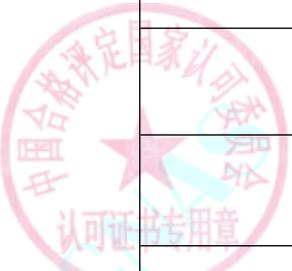


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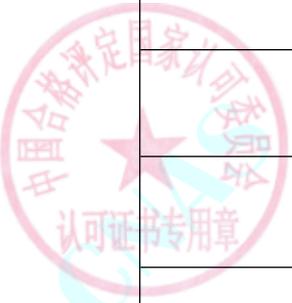
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Time		System error: (-10.00~10.00) s/d	$U=0.04$ s/d		
10	*Mutual Inductor Error and Volt-ampere characteristic tester	AC Voltage	Calibration Specification for Mutual Inductor Error and Volt-ampere characteristic tester JJF(Min) 1108	(1~1000) V,(50 Hz)	$U_{rel}=0.28\%$		
				(1~10) kV,(50 Hz)	$U_{rel}=0.30\%$		
		AC Current		(1~5000) A,(50 Hz)	$U_{rel}=0.10\%$		
				Ratio	Current transformer Ratio: 1~5000		
		Current ratio			Voltage transformers ratio: 1~10000		
				Current phase	(5~4000) A/5 A,(5~4000) A/1 A, $1\%I_n$		
		(5~4000) A/5 A,(5~4000) A/1 A, $5\%I_n$			$U=0.08\%$		
		(5~4000) A/5 A,(5~4000) A/1 A,( $20\%\sim 120\%$ ) $I_n$			$U=0.07\%$		
		Voltage ratio		(0.01~100)' ,(5~4000) A/5 A,(5~4000) A/1 A, $1\%I_n$	$U=5.8'$		
				(0.01~100)' ,(5~4000) A/5 A,(5~4000) A/1 A, $5\%I_n$	$U=2.9'$		
(0.01~100)' ,(5~4000) A/5 A,(5~4000) A/1 A,( $20\%\sim 120\%$ ) $I_n$	$U=2.6'$						
				(10/√3~220/√3) kV/100/√3 V, $20\%U_n$	$U=0.07\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(10/√3~220/√3) kV/100/√3 V,50%U <sub>n</sub>	U=0.04%		
				(10/√3~220/√3) kV/100/√3 V,(80%~120%)U <sub>n</sub>	U=0.04%		
				(10~35) kV/100 V,20%U <sub>n</sub>	U=0.07%		
				(10~35) kV/100 V,50%U <sub>n</sub>	U=0.04%		
				(10~35) kV/100 V,(80%~120%)U <sub>n</sub>	U=0.04%		
				(110/√3~220/√3) kV/100 V,20%U <sub>n</sub>	U=0.25%		
				(110/√3~220/√3) kV/100 V,50%U <sub>n</sub>	U=0.19%		
				(110/√3~220/√3) kV/100 V,(80%~120%)U <sub>n</sub>	U=0.13%		
		Voltage phase		(0.01~100)' ,(10/√3~220/√3) kV/100/√3 V,20%U <sub>n</sub>	U=2.4'		
				(0.01~100)' ,(10/√3~220/√3) kV/100/√3 V,50%U <sub>n</sub>	U=2.1'		
				(0.01~100)' ,(10/√3~220/√3) kV/100/√3 V,(80%~120%)U <sub>n</sub>	U=1.4'		
				(0.01~100)' ,(10~35) kV/100 V,20%U <sub>n</sub>	U=2.4'		

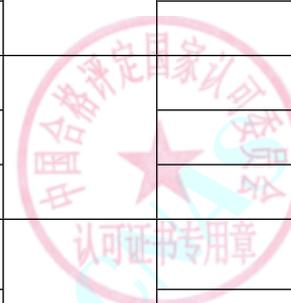


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.01~100)' , (10~35) kV/100 V, 50%U <sub>n</sub>	U=2.1'		
				(0.01~100)' , (10~35) kV/100 V, (80%~120%)U <sub>n</sub>	U=1.4'		
				(0.01~100)' , (110/√3~220/√3) kV/100 V, 20%U <sub>n</sub>	U=12'		
				(0.01~100)' , (110/√3~220/√3) kV/100 V, 50%U <sub>n</sub>	U=9'		
				(0.01~100)' , (110/√3~220/√3) kV/100 V, (80%~120%)U <sub>n</sub>	U=6'		
		AC Ohmmeter	(0.1~10) Ω , (50 Hz)	U <sub>rel</sub> =0.16%			
DC Ohmmeter	(0.1~100) Ω	U <sub>rel</sub> =0.04%					
11	*MOA DC Parameter Tester	DC Voltage	Calibration Specification for MOA DC Parameter Tester JJF(JX) 1070	(1~30) kV	U <sub>rel</sub> =0.18%		
		DC Current		(10~1000) μ A	U <sub>rel</sub> =0.08%		
12	*Transformer On-load Tap-changer Testers	Ohmmeter	Calibration Specification for Detector of On-load Tap-changers JJF(Ji) 113	(1~40) Ω	U <sub>rel</sub> =0.64%		
		Time		(1~100) ms	U=0.10 ms		
				(100~250) ms	U <sub>rel</sub> =0.10%		
13	*Instrument Current Transformers	Ratio	Verification Regulation of Instrument Current Transformers JJG 313	(5~4000) A/5 A, (5~4000) A/1 A, 1%I <sub>n</sub>	U=0.13%		
				(5~4000) A/5 A, (5~4000) A/1 A, 5%I <sub>n</sub>	U=0.07%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Phase		(5~4000) A/5 A,(5~4000) A/1 A,(20%~120%)I <sub>n</sub>	U=0.06%		
				(0.01~100)' ,(5~4000) A/5 A,(5~4000) A/1 A,1%I <sub>n</sub>	U=5.0'		
				(0.01~100)' ,(5~4000) A/5 A,(5~4000) A/1 A,5%I <sub>n</sub>	U=2.6'		
				(0.01~100)' ,(5~4000) A/5 A,(5~4000) A/1 A,(20%~120%)I <sub>n</sub>	U=2.5'		
14	*Instrument Voltage Transformers	Ratio	Verification Regulation of Instrument Voltage Transformers JJG 314	(10/√3~220/√3) kV/100/√3 V,20%U <sub>n</sub>	U=0.05%		
				(10/√3~220/√3) kV/100/√3 V,50%U <sub>n</sub>	U=0.04%		
				(10/√3~220/√3) kV/100/√3 V,(80%~120%)U <sub>n</sub>	U=0.03%		
				(10~35) kV/100 V,20%U <sub>n</sub>	U=0.05%		
				(10~35) kV/100 V,50%U <sub>n</sub>	U=0.04%		
				(10~35) kV/100 V,(80%~120%)U <sub>n</sub>	U=0.03%		
				(110/√3~220/√3) kV/100 V,20%U <sub>n</sub>	U=0.25%		
				(110/√3~220/√3) kV/100 V,50%U <sub>n</sub>	U=0.19%		

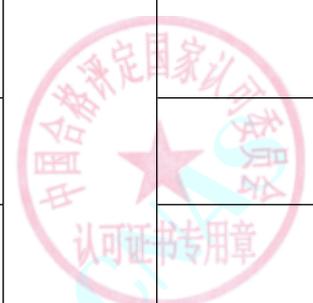


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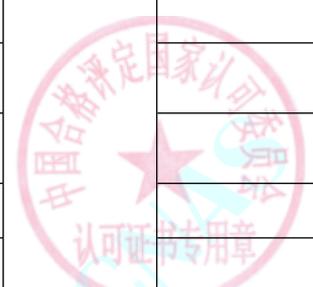
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				(110/√3~220/√3) kV/100 V,(80%~120%)U <sub>n</sub>	U=0.13%		
		Phase		(0.01~100)' ,(10/√3~220/√3) kV/100/√3 V,20%U <sub>n</sub>	U=1.6'		
				(0.01~100)' ,(10/√3~220/√3) kV/100/√3 V,50%U <sub>n</sub>	U=1.2'		
				(0.01~100)' ,(10/√3~220/√3) kV/100/√3 V,(80%~120%)U <sub>n</sub>	U=0.8'		
				(0.01~100)' ,(10~35) kV/100 V,20%U <sub>n</sub>	U=1.6'		
				(0.01~100)' ,(10~35) kV/100 V,50%U <sub>n</sub>	U=1.2'		
				(0.01~100)' ,(10~35) kV/100 V,(80%~120%)U <sub>n</sub>	U=0.8'		
				(0.01~100)' ,(110/√3~220/√3) kV/100 V,20%U <sub>n</sub>	U=12'		
				(0.01~100)' ,(110/√3~220/√3) kV/100 V,50%U <sub>n</sub>	U=9'		
				(0.01~100)' ,(110/√3~220/√3) kV/100 V,(80%~120%)U <sub>n</sub>	U=6'		



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15	DC High Voltage Dividers	Partial pressure ratio	Verification Regulation of DC High Voltage Dividers JJG 1007	50~10000,(1~100) kV	$U_{rel}=0.12\%$		
16	*Industry Frequency Single-Phase Phase Meter	Phase	Verification Regulation of Industry Frequency Single-Phase Phase Meter JJG 440	(0~360)°, (50Hz)	$U=0.10^\circ$		
		Power factor		(0~1),(45~65) Hz	$U=0.006$		
17	*Triple-frequency Generators	AC Voltage	Calibration Specification for Triple-frequency Generators JJF 2001	(10~1000) V,(150 Hz)	$U_{rel}=0.22\%$		
		Frequency		(148~152) Hz	$U_{rel}=0.07\%$		
		Time		(10~60) s	$U=0.30$ s		
		Crest factor		1.3~1.5	$U_{rel}=1.6\%$		
18	*Clamp Ammeters	DC Current	Calibration Specification for Clamp Ammeters JJF 1075	(0.1~1000) A	$U_{rel}=0.5\%$		
		AC Current		(0.1~1000) A,(50 Hz,60 Hz,400 Hz)	$U_{rel}=0.5\%$		
19	*Amperemeters, Voltmeters, Wattmeters and Ohmmeters	DC Current	Verification Regulation of Amperemeters, Voltmeters, Wattmeters and Ohmmeters JJG 124	50 μA~20 A	$U_{rel}=0.11\%$		
		AC Current		100 μA~20 A,(50 Hz,60 Hz,400 Hz)	$U_{rel}=0.16\%$		
		DC Voltage		100 mV~1000 V	$U_{rel}=0.11\%$		
		AC Voltage		100 mV~1000 V,(50 Hz,60 Hz,400 Hz)	$U_{rel}=0.11\%$		
		AC power		10 W~12 kW,(45~65) Hz	$U_{rel}=0.10\%$		
		Ohmmeter		1 Ω~10 kΩ	$U_{rel}=0.06\%$		
				10 kΩ~1 MΩ	$U_{rel}=0.23\%$		
20	*Megohmmeter	Ohmmeter	Verification Regulation of Megohmmeter JJG 622	(0.1~1) MΩ	$U_{rel}=2.9\%$		



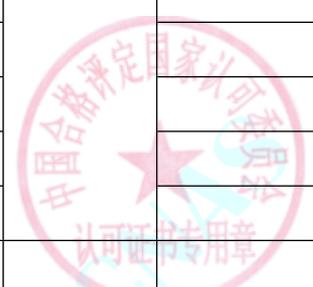
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		DC Voltage		(1~1000) MΩ	$U_{rel}=1.2\%$		
				(1000~5000) MΩ	$U_{rel}=2.4\%$		
				(50~5000) V	$U_{rel}=1.6\%$		
21	*Electronic Insulation Ohmmeter Meters	Ohmmeter	Verification Regulation of Electronic Insulation Resistance Meters JJG 1005	(0.1~10) MΩ	$U_{rel}=0.29\%$		
				(10~100) MΩ	$U_{rel}=0.6\%$		
				(100~1000) MΩ	$U_{rel}=1.2\%$		
				(1~10) GΩ	$U_{rel}=2.4\%$		
				(10~100) GΩ	$U_{rel}=6\%$		
		DC Voltage		(50~5000) V	$U_{rel}=1.6\%$		
		22		*Earth Ohmmeter Meters	Ohmmeter	Verification Regulation of Earth Resistance Meters JJG 366	(0.1~1) Ω
1 Ω ~ 10 kΩ	$U_{rel}=0.2\%$						
23	*Earth-Continuity Testers	DC Ohmmeter	Verification Regulation of Earth-Continuity Testers JJG 984	100 μΩ ~ 10 mΩ	$U_{rel}=0.09\%$		
				10 mΩ ~ 200 Ω	$U_{rel}=0.07\%$		
		AC Ohmmeter		(10~100) mΩ ,50 Hz	$U_{rel}=0.24\%$		
				100 mΩ ~ 10 Ω ,50 Hz	$U_{rel}=0.15\%$		
		DC Current		10 mA~100 A	$U_{rel}=0.5\%$		
AC Current	(1~25) A,50 Hz	$U_{rel}=0.6\%$					
24	*Single Phase AC Constant Voltage Power Supply	AC Voltage	Calibration Specification for Single Phase AC Constant Voltage Power Supply	(10~350) V,(45~440) Hz	$U_{rel}=0.24\%$		
		Frequency		(45~440) Hz	$U_{rel}=0.02\%$		



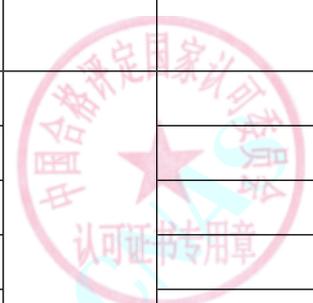
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		The total harmonic distortion	JJF(Liao) 194	0.03%~30%,(45~440) Hz	$U_{rel}=12\%$		
25	*Clamp Earth Ohmmeter Meters	Ohmmeter	Verification Regulation of Clamp Earth Resistance Meters JJG 1054	(0.1~1) $\Omega$ 1 $\Omega$ ~1 k $\Omega$	$U_{rel}=0.9\%$ $U_{rel}=0.22\%$		
26	*Digital AC Electrical Parameters Meter	AC Voltage	Calibration Specification for Digital AC Electrical Parameters Meter JJF 1491	(10~600) V,(45~65) Hz	$U_{rel}=0.06\%$		
		AC Current		(0.1~20) A,(45~65) Hz	$U_{rel}=0.06\%$		
		AC Power		10 W~12 kW,(45~65) Hz	$U_{rel}=0.06\%$		
		Frequency		(45~65) Hz	$U=0.012$ Hz		
		Phase		(0~360)°, (45~65) Hz	$U=0.06^\circ$		
		Power factor		(0~1),(45~65) Hz	$U=0.001$		
27	*Dielectric Detector of Insulating Oils	AC Voltage	Calibration Specification for Insulating Oil Dielectric Strength Tester JJF(Xin) 33	(20~80) kV,(50Hz)	$U_{rel}=1.6\%$		
		Boost speed		2 kV/s、3 kV/s	$U_{rel}=2.5\%$		
		The total harmonic distortion		0.03%~30%,(50Hz)	$U_{rel}=12\%$		
28	*Components of Lightning Testers	DC Voltage	Calibration Specification for Components of Lightning Testers JJF(Gui) 18	(1~1000) V	$U_{rel}=0.10\%$		
				(1000 ~2000) V	$U_{rel}=0.13\%$		
				(10~100) $\mu$ A	$U_{rel}=0.36\%$		
		(100~1000) $\mu$ A		$U_{rel}=0.15\%$			
		Boost speed		100 V/s	$U_{rel}=2.0\%$		



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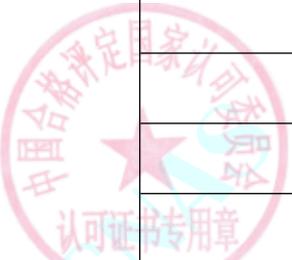
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
29	AC/DC Digital High Voltage Meters	DC Voltage	Verification Regulation of AC/DC Digital High Voltage Meters JJG(Yue) 041	(1~100) kV	$U_{rel}=0.14\%$		
		AC Voltage		(1~200) kV, 50 Hz	$U_{rel}=0.31\%$		
30	*D.C. Bridges	Ohmmeter	Verification Regulation of D.C. Bridges JJG 125	(0.1~1) $\Omega$	$U_{rel}=0.6\%$	Only single-arm D.C. Bridge	
				10 $\Omega$ ~ 10 k $\Omega$	$U_{rel}=0.06\%$		
				10 k $\Omega$ ~ 10 M $\Omega$	$U_{rel}=0.24\%$		
31	*Transformers Turn Ratio Test Sets	Ratio	Verification Regulation of Transformers Turn Ratio Test Sets JJG 970	Single phase: 1~10000	$U_{rel}=0.012\%$		
				Three-phase: 10、100、1000	$U_{rel}=0.06\%$		
32	High-voltage Divider at Power Frequency	Partial pressure ratio	Verification Regulation of High-voltage Divider at Power Frequency JJG 496	50~10000,(1~200) kV, 50 Hz	$U_{rel}=0.30\%$		
33	*Power Frequency A.C.Electrical Quantities Measuring Transducers	AC Voltage	Verification Regulation of Power Frequency A.C.Electrical Quantities Measuring Transducers JJG 126	(1~1000) V,(50 Hz,60 Hz)	$U_{rel}=0.11\%$		
		AC Current		(0.1~20) A,(50 Hz,60 Hz)	$U_{rel}=0.15\%$		
		AC Power		(20~5000) A,50 Hz	$U_{rel}=0.09\%$		
		Frequency		(10~600) V,(0.1~20) A,(45~65) Hz,cos $\phi$ =1.0,0.5L,0.5C	$U_{rel}=0.08\%$		
		Phase		(45~65) Hz	$U=0.015$ Hz		
		Power factor		(0~360)°, (45~65) Hz	$U=0.07^\circ$		
				(0~1),(45~65) Hz	$U=0.0007$		
34	*Measuring Transducers Converting DC	DC Voltage	Verification Regulation of Measuring Transducers Converting DC Electrical	(1~1000) V	$U_{rel}=0.11\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Electrical Quantities	DC Current	Quantities JJG(JG) 191	(0.1~20) A	$U_{rel}=0.10\%$		
35	*Transformer Core Grounding Current Tester	AC Current	Calibration Specification for Transformer Core Grounding Current Tester JJF(Zhe) 1143	1 mA~10 A,(50 Hz,60 Hz)	$U_{rel}=0.22\%$		
36	*Multimeters	DC Voltage	Calibration Specification for Multimeters JJF 1587	(25~250) mV	$U=0.03\%U_x+0.06\text{ mV}$		
				(0.25~1) V	$U=0.04\%U_x+0.24\text{ mV}$		
				(1~2.5) V	$U=0.03\%U_x+0.6\text{ mV}$		
				(2.5~5) V	$U=0.04\%U_x+1.2\text{ mV}$		
				(5~10) V	$U=0.04\%U_x+2.1\text{ mV}$		
				(10~25) V	$U=0.04\%U_x+6\text{ mV}$		
				(25~50) V	$U=0.04\%U_x+12\text{ mV}$		
				(50~100) V	$U=0.04\%U_x+0.021\text{ V}$		
				(100~250) V	$U=0.04\%U_x+0.06\text{ V}$		
				(250~500) V	$U=0.04\%U_x+0.11\text{ V}$		
		(500~1000) V		$U=0.04\%U_x+0.22\text{ V}$			
		AC Voltage		(100~250) mV,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+0.09\text{ mV}$		
				(0.25~1) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+0.4\text{ mV}$		
				(1~2.5) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+0.9\text{ mV}$		
(2.5~5) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+1.7\text{ mV}$						



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC Current		(5~10) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+4 \text{ mV}$		
				(10~25) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+9 \text{ mV}$		
				(25~50) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+17 \text{ mV}$		
				(50~100) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+0.04 \text{ V}$		
				(100~250) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+0.09 \text{ V}$		
				(250~500) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+0.17 \text{ V}$		
				(500~1000) V,(50 Hz,60 Hz,400 Hz)	$U=0.06\%U_x+0.4 \text{ V}$		
				(50~100) $\mu\text{A}$	$U=0.03\%I_x+0.027 \mu\text{A}$		
				(100~500) $\mu\text{A}$	$U=0.04\%I_x+0.11 \mu\text{A}$		
				(0.5~2.5) mA	$U=0.04\%I_x+0.6 \mu\text{A}$		
				(2.5~10) mA	$U=0.04\%I_x+2.3 \mu\text{A}$		
				(10~25) mA	$U=0.05\%I_x+5 \mu\text{A}$		
				(25~100) mA	$U=0.05\%I_x+0.02 \text{ mA}$		
				(100~250) mA	$U=0.04\%I_x+0.06 \text{ mA}$		
				(0.25~1) A	$U=0.04\%I_x+0.2 \text{ mA}$		
				(1~2.5) A	$U=0.04\%I_x+0.5 \text{ mA}$		
		(2.5~10) A	$U=0.04\%I_x+2.2 \text{ mA}$				



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Current		(10~20) A	$U=0.07\%I_x+8 \text{ mA}$		
				(100~500) $\mu$ A,(50 Hz,60 Hz,400 Hz)	$U=0.09\%I_x+0.15 \mu \text{ A}$		
				(0.5~2.5) mA,(50 Hz,60 Hz,400 Hz)	$U=0.06\%I_x+0.9 \mu \text{ A}$		
				(2.5~10) mA,(50 Hz,60 Hz,400 Hz)	$U=0.06\%I_x+4 \mu \text{ A}$		
				(10~25) mA,(50 Hz,60 Hz,400 Hz)	$U=0.07\%I_x+8 \mu \text{ A}$		
				(25~100) mA,(50 Hz,60 Hz,400 Hz)	$U=0.06\%I_x+0.04 \text{ mA}$		
				(100~250) mA,(50 Hz,60 Hz,400 Hz)	$U=0.07\%I_x+0.08 \text{ mA}$		
				(0.25~1) A,(50 Hz,60 Hz,400 Hz)	$U=0.06\%I_x+0.4 \text{ mA}$		
				(1~2.5) A,(50 Hz,60 Hz,400 Hz)	$U=0.06\%I_x+0.8 \text{ mA}$		
				(2.5~10) A,(50 Hz,60 Hz,400 Hz)	$U=0.06\%I_x+4 \text{ mA}$		
				(10~20) A,(50 Hz,60 Hz,400 Hz)	$U=0.09\%I_x+14 \text{ mA}$		
			DC Ohmmeter		24 $\Omega$ ~ 24 M $\Omega$	$U_{rel}=0.33\%$	
37	*Voltage Transformers in Power System	Ratio	Verification Regulation of Instrument Transformers—Part 4: Voltage Transformers in Power System JJG 1189.4	(10/ $\sqrt{3}$ ~ 220/ $\sqrt{3}$ ) kV/100/ $\sqrt{3}$ V,(80%~120%) $U_n$	$U=0.026\%$		
				(10~35) kV/100 V,(80%~120%) $U_n$	$U=0.026\%$		

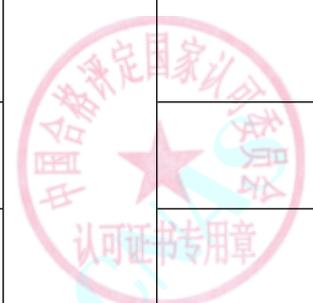


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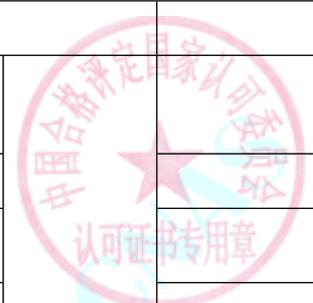
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Phase		(110/√3~220/√3) kV/100 V,(80%~120%)U <sub>n</sub>	U=0.13%		
				(0.01~100)' ,(10/√3~220/√3) kV/100/√3 V,(80~120)%U <sub>n</sub>	U=0.9'		
				(0.01~100)' ,(10~35) kV/100 V,(80%~120%)U <sub>n</sub>	U=0.9'		
				(0.01~100)' ,(110/√3~220/√3) kV/100 V,(80%~120%)U <sub>n</sub>	U=6'		
38	*Current Transformers in Power System	Ratio	Verification Regulation of Instrument Transformers— Part 3:Current Transformers in Power System JJG 1189.3	(5~4000) A/5 A,(5~4000) A/1 A,1%I <sub>n</sub>	U=0.13%		
				(5~4000) A/5 A,(5~4000) A/1 A,5%I <sub>n</sub>	U=0.07%		
				(5~4000) A/5 A,(5~4000) A/1 A,(20%~120%)I <sub>n</sub>	U=0.06%		
		(0.01~100)' ,(5~4000) A/5 A,(5~4000) A/1 A,1%I <sub>n</sub>		U=5.3'			
		(0.01~100)' ,(5~4000) A/5 A,(5~4000) A/1 A,5%I <sub>n</sub>		U=2.6'			
		(0.01~100)' ,(5~4000) A/5 A,(5~4000) A/1 A,(20%~120%)I <sub>n</sub>		U=2.5'			
Phase							



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
39	*Equipotential Testers	Ohmmeter	Calibration Specification for Equipotential Testers JJF(Ji) 3022	(10~100) mΩ	$U_{rel}=6\%$		
				(0.1~1) Ω	$U_{rel}=2.4\%$		
				(1~10) Ω	$U_{rel}=0.6\%$		
				(10 Ω ~100) Ω	$U_{rel}=0.12\%$		
				100 Ω ~3 kΩ	$U_{rel}=0.06\%$		
40	*Voltage Monitor	AC Voltage	Calibration Specification for Voltage Monitor JJF(Zhe) 1098	(10~456) V, 50 Hz	$U_{rel}=0.06\%$		
		Time		System error: (-10~10) s/d	$U=0.04$ s/d		
Time & Frequency measuring instruments							
1	Stopwatches	Time	Verification Regulation of Stopwatches JJG 237	Electronic stopwatch: (10~3600) s	$U=0.006$ s		
				Electronic stopwatch day error: (-10.00~10.00) s/d	$U=0.04$ s/d		
				Mechanical stopwatch: (3~1800) s	$U=0.01$ s		
Radio measuring instrument							
1	*Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers	Dielectric dissipation factor	Calibration Specification for Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers JJF 1618	0~10%, (50 Hz)	$U=0.6\%D_x+0.00004$		
		Capacitors		100 pF, (50 Hz)	$U_{rel}=0.11\%$		
		Insulating oil volume resistivity		$(1 \times 10^4 \sim 6.78 \times 10^8)$ Ω · m	$U_{rel}=0.26\%$		
				$(6.78 \times 10^8 \sim 6.78 \times 10^9)$ Ω · m	$U_{rel}=0.60\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			Verification Regulation of High Voltage Dielectric Loss Tester JJG 1126	$(6.78 \times 10^9 \sim 6.78 \times 10^{10})$ $\Omega \cdot m$	$U_{rel}=1.2\%$		
				$(6.78 \times 10^{10} \sim 6.78 \times 10^{11})$ $\Omega \cdot m$	$U_{rel}=2.4\%$		
				$(6.78 \times 10^{11} \sim 6.78 \times 10^{12})$ $\Omega \cdot m$	$U_{rel}=6\%$		
		Temperature		$(60 \sim 120)$ °C	$U=0.20^\circ C$		
		AC Voltage		$(100 \sim 1000)$ V,(50 Hz)	$U_{rel}=0.36\%$		
				$(1 \sim 5)$ kV,(50 Hz)	$U_{rel}=0.41\%$		
		DC Voltage		$(0.1 \sim 5)$ kV	$U_{rel}=0.16\%$		
2	*High Voltage Dielectric Loss Tester	Dielectric dissipation factor	Verification Regulation of High Voltage Dielectric Loss Tester JJG 1126	$(0 \sim 10)\%$ ,(50 Hz)	$U=0.6\%D_x+0.00004$		
		Capacitors		100 pF,(50 Hz)	$U_{rel}=0.11\%$		
		AC Voltage		$(1 \sim 10)$ kV,(50 Hz)	$U_{rel}=0.4\%$		



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