



Multi-Function Power Meter Calibration Report

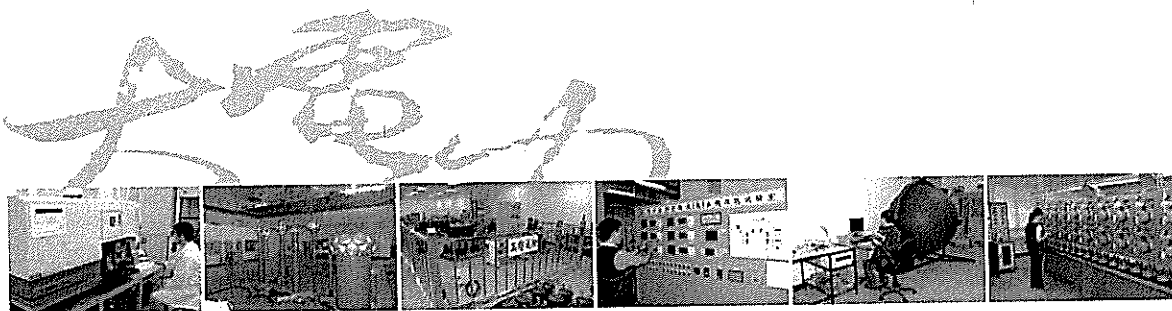
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Issued date : 2015/08/24

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Laboratory Accreditation Number : 0061



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Taiwan Electric Research & Testing Center

Electrical and Temperature Calibration Laboratory

Report No. : EC20150199D

Calibration Report

Applicant : ICP DAS Co.,Ltd

Issued Date : 2015/08/24

Address : No. 111, Guangfu N. Rd., Hukou Township, Hsinchu County 30351, Taiwan, R.O.C.

Calibration Date : 2015/08/13

Equipment : Multi-Channel Power Meter

Temperature : 23±2°C

Manufacturer : ICP DAS Co.,Ltd

Humidity : 50±10%

Model No. : PM-4324-100P

Procedure Used : 60I-07-1812, 60I-07-1818, 60I-07-1819

Serial No. : PM4324A000YEHHA00001

Remark : 1. Calibration items RS485 communication interface and manufacturer of computer software(ICP DAS PM-4324-100P v1.8) reader to indication value.

2. Calibration items with the same manufacturing number of the external CT (1~24).

Calibration Standard			
Equipment	Manufacturer / Model No.	I.D. Number	Cal. Source / Cal. Date/ Report No/Cycle
Three Phase Standard	RADIAN/RD-30-211	300130	TERTEC / 2015.03.18 / EC1040026 / 1 year
Multi Calibration Standard	FLUKE/5500A	1855004	Pink Technology/2014.12.04 / P411065-C/1 year.

The report issued by : *Bang-yen Lai*

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60T-07-1801D

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1. AC Power (50Hz)

Mode	Phase/Wire	Power Source Set Value			Standard Value(kW)	Indication Value(kW)	Error Value(%)
		Voltage(V)	Current(A)	P.F.			
CH1	3P4W	220	5	1.0	3.3000	3.2931	-0.21
CH2	3P4W	220	5	1.0	3.3000	3.2993	-0.02
CH3	3P4W	220	5	1.0	3.3000	3.2958	-0.13
CH4	3P4W	220	5	1.0	3.3000	3.2992	-0.03
CH5	3P4W	220	5	1.0	3.3000	3.2932	-0.21
CH6	3P4W	220	5	1.0	3.3000	3.2988	-0.04
CH7	3P4W	220	5	1.0	3.3000	3.3006	+0.02
CH8	3P4W	220	5	1.0	3.3000	3.3007	+0.02

2.AC Current (50Hz)

Mode	Standard Value (A)	Indication Value (A)	Error Value(%)
CH1A	5.0000	4.9902	-0.20
CH1B	5.0000	4.9927	-0.15
CH1C	5.0000	4.9997	-0.01
CH2A	5.0000	4.9989	-0.02
CH2B	5.0000	5.0104	+0.21
CH2C	5.0000	4.9993	-0.01
CH3A	5.0000	4.9992	-0.02
CH3B	5.0000	4.9969	-0.06
CH3C	5.0000	4.9909	-0.18
CH4A	5.0000	4.9987	-0.03
CH4B	5.0000	5.0098	+0.20
CH4C	5.0000	4.9955	-0.09
CH5A	5.0000	4.9877	-0.25
CH5B	5.0000	4.9906	-0.19
CH5C	5.0000	4.9893	-0.21
CH6A	5.0000	5.0090	+0.18
CH6B	5.0000	4.9927	-0.15
CH6C	5.0000	5.0031	+0.06
CH7A	5.0000	5.0069	+0.14
CH7B	5.0000	4.9923	-0.15
CH7C	5.0000	5.0062	+0.12
CH8A	5.0000	4.9983	-0.03
CH8B	5.0000	4.9904	-0.19
CH8C	5.0000	5.0242	+0.48

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3.AC Voltage(50Hz)

Mode	Standard Value (V)	Indication Value (V)	Error Value(%)
CH1A	220.0000	220.0143	+0.01
CH1B	220.0000	220.0168	+0.01
CH1C	220.0000	220.0193	+0.01
CH2A	220.0000	220.0035	0
CH2B	220.0000	220.0105	0
CH2C	220.0000	220.0352	+0.02
CH3A	220.0000	220.0049	0
CH3B	220.0000	220.0058	0
CH3C	220.0000	220.0052	0
CH4A	220.0000	220.0043	0
CH4B	220.0000	220.0024	0
CH4C	220.0000	220.0066	0
CH5A	220.0000	219.9903	0
CH5B	220.0000	219.9924	0
CH5C	220.0000	219.9931	0
CH6A	220.0000	219.9860	-0.01
CH6B	220.0000	219.9926	0
CH6C	220.0000	219.9872	-0.01
CH7A	220.0000	219.9899	0
CH7B	220.0000	219.9933	0
CH7C	220.0000	219.9962	0
CH8A	220.0000	220.0046	0
CH8B	220.0000	219.9927	0
CH8C	220.0000	219.9912	0

4.P.F.(60Hz)

Mode	Voltage	Standard Value (A)	Indication Value (A)	Error Value(%)
CH1	220V×5A	1.0000	1.0000	0
CH1	220V×5A(Lag)	0.5000	0.5082	+1.63
CH2	220V×5A	1.0000	0.9999	-0.01
CH2	220V×5A(Lag)	0.5000	0.5133	+2.65
CH3	220V×5A	1.0000	1.0000	0
CH3	220V×5A(Lag)	0.5000	0.5108	+2.16



4.P.F.(60Hz)

Mode	Voltage	Standard Value (A)	Indication Value (A)	Error Value(%)
CH4	220V×5A	1.0000	1.0000	0
CH4	220V×5A(Lag)	0.5000	0.5069	+1.38
CH5	220V×5A	1.0000	0.9999	-0.01
CH5	220V×5A(Lag)	0.5000	0.5055	+1.10
CH6	220V×5A	1.0000	0.9999	-0.01
CH6	220V×5A(Lag)	0.5000	0.5110	+2.20
CH7	220V×5A	1.0000	0.9999	-0.01
CH7	220V×5A(Lag)	0.5000	0.5057	+1.14
CH8	220V×5A	1.0000	1.0000	0
CH8	220V×5A(Lag)	0.5000	0.4992	-0.16

二、Instruction :

1. Calibration method : reference to the laboratory watt meter, watt-hour meter calibration instructions, use adjustable power factor of the power source is added to this Laboratory Watt / Watt-Varhour when the standard device and the calculation error (%)
2. Calibration method(AC current · AC Voltage) : reference to AC Current and AC Voltage calibration procedure, used of Multifunction Calibrator correction devices when the standard device and the calculation error (%)
3. $Error(\%) = ((EUUT - ESTD) / ESTD) \times 100\%$ · EUUT : 3Phase compact smart Meter Energy Standard · ESTD : Energy Standard
4. Expanded uncertainty the level of confidence is 95% and the coverage factor $k=2$.
5. The use of standard calibration devices traceable to national standards of weights and measurement laboratory(report No.E140566A, traceable data 2014.10.07, calibration cycle is one year) and Pink Technology Co.Ltd (report No.P411065-C, traceable data 2014.12.04, calibration cycle is one year)..