財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

(Certificate No：L0232-240621)

This is to certify that

I Pao Electronics Co., Ltd.

Calibration Center (Mass/Force Laboratory)

No. 2, Ln. 159, Jinxi Rd., Yangmei Dist., Taoyuan City 326, Taiwan

is accredited in respect of laboratory

Accreditation Criteria	：	ISO/IEC 17025:2017；CNS 17025:2018
Accreditation Number	：	0232
Originally Accredited	：	June 01, 1996
Effective Period	：	February 03, 2023 to February 02, 2026
Accredited Scope	：	Calibration Field, see described in the Appendix

Scan to verify

Yi-Ling Chen

Yi-Ling Chen
President, Taiwan Accreditation Foundation
June 21, 2024

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix

Accreditation Number ：0232

Laboratory Head ：CHEN, Cain-Yi

Mass/Force

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KC1001 Weight (stainless steel)	Referrence standards: Weight sets METTLER/1 mg~1 kg/E_2 METTLER/2 kg~5 kg/E_2 METTLER/10 kg/E_2 METTLER/20 kg/E_2	Weight Calibration Procedure (Document No.: MCP-009)	1	mg	1	mg	stainless steel	0.003	mg
			2	mg	2	mg	stainless steel	0.004	mg
			5	mg	5	mg	stainless steel	0.003	mg
			10	mg	10	mg	stainless steel	0.003	mg
			20	mg	20	mg	stainless steel	0.004	mg
			50	mg	50	mg	stainless steel	0.005	mg
			100	mg	100	mg	stainless steel	0.006	mg
			200	mg	200	mg	stainless steel	0.006	mg
			500	mg	500	mg	stainless steel	0.004	mg
			1	g	1	g	stainless steel	0.006	mg
			2	g	2	g	stainless steel	0.009	mg
			5	g	5	g	stainless steel	0.029	mg
			10	g	10	g	stainless steel	0.06	mg
			20	g	20	g	stainless steel	0.07	mg
			50	g	50	g	stainless steel	0.09	mg
			100	g	100	g	stainless steel	0.07	mg
			200	g	200	g	stainless steel	0.10	mg
			500	g	500	g	stainless steel	0.3	mg
			1	kg	1	kg	stainless steel	0.3	mg
			2	kg	2	kg	stainless steel	7	mg
			5	kg	5	kg	stainless steel	0.006	g
			10	kg	10	kg	stainless steel	0.007	g
			20	kg	20	kg	stainless steel	0.008	g

Approval Signatory: CHEN, Ren-Kai; CHEN, Cain-Yi

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KC1001 Weight (stainless steel, brass, cast iron)	Working standards: Weight set METTLER /1mg~20kg/E_2	Weight Calibration Procedure (Document No: MCP-009)	1	mg	1	mg	stainless steel	0.004	mg
			2	mg	2	mg	stainless steel	0.005	mg
			5	mg	5	mg	stainless steel	0.004	mg
			10	mg	10	mg	stainless steel	0.004	mg
			20	mg	20	mg	stainless steel	0.005	mg
			50	mg	50	mg	stainless steel	0.006	mg
			100	mg	100	mg	stainless steel	0.008	mg
			200	mg	200	mg	stainless steel	0.008	mg
			500	mg	500	mg	stainless steel	0.006	mg
			1	g	1	g	stainless steel	0.008	mg
			2	g	2	g	stainless steel	0.010	mg
			5	g	5	g	stainless steel	0.032	mg
			10	g	10	g	stainless steel	0.08	mg
			20	g	20	g	stainless steel	0.10	mg
			50	g	50	g	stainless steel	0.12	mg
			100	g	100	g	stainless steel	0.11	mg
			200	g	200	g	stainless steel	0.14	mg
			500	g	500	g	stainless steel	0.4	mg
			1	kg	1	kg	stainless steel	0.4	mg
			2	kg	2	kg	stainless steel	10	mg
			5	kg	5	kg	stainless steel	0.008	g
			10	kg	10	kg	stainless steel	0.009	g
			20	kg	20	kg	stainless steel	0.010	g
			1	g	1	g	brass	0.008	mg
			2	g	2	g	brass	0.010	mg
			5	g	5	g	brass	0.032	mg
			10	g	10	g	brass	0.08	mg
			20	g	20	g	brass	0.10	mg

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KC1001 Weight (stainless steel, brass, cast iron)	Working standards: Weight set METTLER /1mg~20kg/E_2	Weight Calibration Procedure (Document No: MCP-009)	50	g	50	g	brass	0.12	mg
			100	g	100	g	brass	0.13	mg
			200	g	200	g	brass	0.19	mg
			500	g	500	g	brass	0.5	mg
			1	kg	1	kg	brass	0.8	mg
			2	kg	2	kg	brass	10	mg
			5	kg	5	kg	brass	0.009	g
			10	kg	10	kg	brass	0.011	g
			20	kg	20	kg	brass	0.017	g
			200	g	200	g	cast iron	0.34	mg
			500	g	500	g	cast iron	0.9	mg
			1	kg	1	kg	cast iron	1.6	mg
			2	kg	2	kg	cast iron	10	mg
			5	kg	5	kg	cast iron	0.011	g
			10	kg	10	kg	cast iron	0.018	g
			20	kg	20	kg	cast iron	0.033	g
Approval Signatory: SONG, Jun-Yu; CHEN, Ren-Kai; CHEN, Cain-Yi									
KC1002 Balance (on-site calibration included)	Working standards: Weight sets METTLER/1mg~1kg/E_2 METTLER/1kg~20kg/E_2 DER HER/1mg~20kg/E_2	Self-formul Ate Calibration Procedure for Balance (Document No.: MCP-018)	1	mg	500	mg	Readability 0.001 mg	0.036	mg
			>500	mg	5	g	Readability 0.001 mg	0.048	mg
			1	mg	500	mg	Readability 0.01 mg	0.05	mg
			>500	mg	10	g	Readability 0.01 mg	0.08	mg
			>10	g	20	g	Readability 0.01 mg	0.11	mg
			>20	g	50	g	Readability 0.01 mg	0.17	mg
			>50	g	200	g	Readability 0.01 mg	0.46	mg
			>300	g	500	g	Readability 0.1 mg	1.1	mg
			>500	g	1	kg	Readability 0.1 mg	1.8	mg
			100	mg	500	g	Readability 1 mg	14	mg

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KC1002 Balance (on-site calibration included)	Working standards: Weight sets METTLER/1mg~1kg/E_2 METTLER/1kg~20kg/E_2 DER HER/1mg~20kg/E_2	Self-formul Ate Calibration Procedure for Balance (Document No.: MCP-018)	>500	g	5	kg	Readability 1 mg	20	mg
			>5	kg	10	kg	Readability 1 mg	0.021	g
			>10	kg	20	kg	Readability 1 mg	0.033	g
			>20	kg	25	kg	Readability 1 mg	0.042	g
			50	g	2	kg	Readability 5 mg	0.17	g
			>2	kg	10	kg	Readability 5 mg	0.19	g
			>10	kg	20	kg	Readability 5 mg	0.26	g
			>20	kg	30	kg	Readability 5 mg	0.35	g
			10	mg	20	g	Readability 0.1 mg	0.4	mg
			>20	g	300	g	Readability 0.1 mg	1.0	mg
Approval Signatory: CHEN, Ren-Kai; CHEN, Cain-Yi									
KC1004 Electronic weighing instrument (on-site calibration included)	Working standards: Weight sets METTLER/1 mg~1 kg/E_2 METTLER/1 kg~20 kg/E_2 METTLER/1 kg~5 kg/F_1 DER HER/1 mg~20 kg/E_2 DER HER/20 kg/F_1 Toheng/10 kg~20 kg/F_1	Self-formul Ate Calibration Procedure for Balance (Document No.: MCP-020)	50	g	60	kg	Readability 1 g	3	g
			100	g	75	kg	Readability 5 g	10	g
			500	g	150	kg	Readability 10 g	30	g
			500	g	300	kg	Readability 10 g	20	g
			1	kg	200	kg	Readability 50 g	0.10	kg
			>200	kg	400	kg	Readability 50 g	0.15	kg
			>400	kg	600	kg	Readability 50 g	0.20	kg
Approval Signatory: CHEN, Ren-Kai; CHEN, Cain-Yi									
KC1005 Weight (stainless steel, brass, cast iron)	Working standards: Weight set METTLER/1mg~20kg/E_2	Weight Calibration Procedure (Document No: MCP-010)	1	mg	1	mg	stainless steel	0.004	mg
			2	mg	2	mg	stainless steel	0.005	mg
			5	mg	5	mg	stainless steel	0.004	mg
			10	mg	10	mg	stainless steel	0.004	mg
			20	mg	20	mg	stainless steel	0.005	mg

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KC1005 Weight (stainless steel, brass, cast iron)	Working standards: Weight set METTLER/1mg~20kg/E_2	Weight Calibration Procedure (Document No: MCP-010)	50	mg	50	mg	stainless steel	0.006	mg
			100	mg	100	mg	stainless steel	0.008	mg
			200	mg	200	mg	stainless steel	0.008	mg
			500	mg	500	mg	stainless steel	0.006	mg
			1	g	1	g	stainless steel	0.008	mg
			2	g	2	g	stainless steel	0.010	mg
			5	g	5	g	stainless steel	0.032	mg
			10	g	10	g	stainless steel	0.08	mg
			20	g	20	g	stainless steel	0.10	mg
			50	g	50	g	stainless steel	0.12	mg
			60	g	60	g	stainless steel	0.17	mg
			100	g	100	g	stainless steel	0.11	mg
			200	g	200	g	stainless steel	0.14	mg
			300	g	300	g	stainless steel	0.5	mg
			500	g	500	g	stainless steel	0.4	mg
			1	kg	1	kg	stainless steel	0.4	mg
			2	kg	2	kg	stainless steel	10	mg
			4	kg	4	kg	stainless steel	25	mg
			5	kg	5	kg	stainless steel	0.008	g
			6	kg	6	kg	stainless steel	0.011	g
			10	kg	10	kg	stainless steel	0.009	g
			20	kg	20	kg	stainless steel	0.010	g
			25	kg	25	kg	stainless steel	0.014	g
			30	kg	30	kg	stainless steel	0.17	g
			1	g	1	g	brass	0.008	mg
			2	g	2	g	brass	0.010	mg
			5	g	5	g	brass	0.032	mg
			10	g	10	g	brass	0.08	mg

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KC1005 Weight (stainless steel, brass, cast iron)	Working standards: Weight set METTLER/1mg~20kg/E_2	Weight Calibration Procedure (Document No: MCP-010)	20	g	20	g	brass	0.10	mg
			50	g	50	g	brass	0.12	mg
			60	g	60	g	brass	0.18	mg
			100	g	100	g	brass	0.13	mg
			200	g	200	g	brass	0.19	mg
			300	g	300	g	brass	0.5	mg
			500	g	500	g	brass	0.5	mg
			1	kg	1	kg	brass	0.8	mg
			2	kg	2	kg	brass	10	mg
			4	kg	4	kg	brass	25	mg
			5	kg	5	kg	brass	0.009	g
			6	kg	6	kg	brass	0.012	g
			10	kg	10	kg	brass	0.011	g
			20	kg	20	kg	brass	0.017	g
			25	kg	25	kg	brass	0.022	g
			30	kg	30	kg	brass	0.17	g
			200	g	200	g	cast iron	0.34	mg
			300	g	300	g	cast iron	0.7	mg
			500	g	500	g	cast iron	0.9	mg
			1	kg	1	kg	cast iron	1.6	mg
			2	kg	2	kg	cast iron	10	mg
			4	kg	4	kg	cast iron	26	mg
			5	kg	5	kg	cast iron	0.011	g
			6	kg	6	kg	cast iron	0.014	g
			10	kg	10	kg	cast iron	0.018	g
			20	kg	20	kg	cast iron	0.033	g
			25	kg	25	kg	cast iron	0.041	g
			30	kg	30	kg	cast iron	0.18	g

Approval Signatory: CHEN, Ren-Kai; CHEN, Cain-Yi

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KC4001 Torque wrench	Torque transducer/NORBAR/50615.LOG Torque transducer/NORBAR/50620.LOG Torque transducer/NORBAR/50624.LOG Torque transducer/NORBAR/50702.LOG Torque transducer/NORBAR/50766.LOG Torque Tool Tester/NORBAR/43215	Torque Wrench Calibration Procedure (Document No.: RCP-001) Program Reference Document: ISO 6789-1: 2017 ISO 6789-2: 2017	0.5	N·m	5	N·m	CW	3.4	%
			0.5	N·m	5	N·m	CCW	3.3	%
			5	N·m	25	N·m	CW	1.3	%
			5	N·m	25	N·m	CCW	1.5	%
			20	N·m	100	N·m	CW	1.8	%
			20	N·m	100	N·m	CCW	2.1	%
			50	N·m	250	N·m	CW	0.5	%
			50	N·m	250	N·m	CCW	0.7	%
			200	N·m	1000	N·m	CW	0.4	%
			200	N·m	1000	N·m	CCW	0.4	%
Approval Signatory: CHEN, Cain-Yi; HUANG, Feng-Yu; LIU, Tai-Chun									
KC4003 Torque sensor/ Torque transducer/ Torque gauge	Torque calibration beam/ NORBAR/ 21400 Torque calibration beam/ NORBAR/ 21420 Torque calibration beam/ NORBAR/ 21428 Gravity weight / NORBAR/0.5N~100N Gravity weight/ Dongheng/5N~50N	Torque gauge Calibration Procedure (Document No.: RCP-002)	0.05	N·m	2	N·m	CW	0.0050	N·m
			0.05	N·m	2	N·m	CCW	0.0040	N·m
			0.5	N·m	5	N·m	CW	0.013	N·m
			0.5	N·m	5	N·m	CCW	0.014	N·m
			5	N·m	25	N·m	CW	0.036	N·m
			5	N·m	25	N·m	CCW	0.040	N·m
			20	N·m	100	N·m	CW	0.24	N·m
			20	N·m	100	N·m	CCW	0.32	N·m
			50	N·m	250	N·m	CW	0.16	N·m
			50	N·m	250	N·m	CCW	0.18	N·m
			100	N·m	500	N·m	CW	0.4	N·m
			100	N·m	500	N·m	CCW	0.6	N·m
			200	N·m	1000	N·m	CW	0.6	N·m
			200	N·m	1000	N·m	CCW	0.6	N·m
Approval Signatory: CHEN, Cain-Yi; HUANG, Feng-Yu									

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KC4004 Torque calibrator/ Torque tester	Torque calibration beam/ NORBAR/21400 Gravity weight /NORBAR/0.5N~100N Gravity weight/ Dongheng/5N~50N	Torque gauge Calibration Procedure (Document No.: RCP-004)	0.05	N·m	2	N·m	CW	0.0050	N·m
			0.05	N·m	2	N·m	CCW	0.0040	N·m
Approval Signatory: CHEN, Cain-Yi; HUANG, Feng-Yu									

Pressure/Vacuum

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KD1004 Pressure gauge (on-site calibration included) Digital pressure gauge (on-site calibration included)	Digital pressure gauge SI/PC6-PRO-0035-C-3	Pressure Gauge (Pneumatic) Calibration Procedure (Document No.: PCP-003)	20 (0.20)	kPa (kgf/cm^2)	100 (1.02)	kPa (kgf/cm^2)	pneumatic pressure gauge (gauge pressure)	2 (0.02)	kPa (kgf/cm^2)
			> 100 (>1.02)	kPa (kgf/cm^2)	1000 (10.2)	kPa (kgf/cm^2)	pneumatic pressure gauge (gauge pressure)	10 (0.1)	kPa (kgf/cm^2)
			> 1000 (>10.2)	kPa (kgf/cm^2)	3500 (35.7)	kPa (kgf/cm^2)	pneumatic pressure gauge (gauge pressure)	20 (0.2)	kPa (kgf/cm^2)
			20 (0.20)	kPa (kgf/cm^2)	3500 (35.7)	kPa (kgf/cm^2)	pneumatic digital pressure (gauge pressure) gauge	1.1 (0.011)	kPa (kgf/cm^2)
Approval Signatory: CHEN, Cain-Yi; HUANG, Feng-Yu									

Chemical

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KI9001 Volumetric flask	Balence METTLER TOLEDO/AX205 METTLER TOLEDO/PM5003 METTLER TOLEDO/KA30-3	Volumetric Flask Calibration Procedure (Document No.: MCP-032)	1	ml	1	ml		0.024	ml
			2	ml	2	ml		0.024	ml
			5	ml	5	ml		0.025	ml
			10	ml	10	ml		0.025	ml
			25	ml	25	ml		0.026	ml
			50	ml	50	ml		0.094	ml
			100	ml	100	ml		0.13	ml
			200	ml	200	ml		0.25	ml
			250	ml	250	ml		0.31	ml
			500	ml	500	ml		0.39	ml
			1000	ml	1000	ml		0.53	ml
			2000	ml	2000	ml		0.62	ml
Approval Signatory: CHEN, Ping-Ting; CHEN, Cain-Yi									
KI9002 Pipette	Balence METTLER TOLEDO/AX205	Pipette Calibration Procedure (Document No.: MCP-033)	2	ml	2	ml		0.013	ml
			3	ml	3	ml		0.013	ml
			4	ml	4	ml		0.013	ml
			5	ml	5	ml		0.013	ml
			6	ml	6	ml		0.013	ml
			7	ml	7	ml		0.020	ml
			8	ml	8	ml		0.020	ml
			9	ml	9	ml		0.020	ml
			10	ml	10	ml		0.020	ml
			15	ml	15	ml		0.026	ml
			20	ml	20	ml		0.026	ml
			25	ml	25	ml		0.026	ml

calibration items	working standard	calibration method	measurand level or range				measurement conditions /independent variable	smallest uncertainty	
	brand /model	document name /no.	minimum value	units	maximum value	units	explanation	value	units
KI9002 Pipette	Balence METTLER TOLEDO/AX205	Pipette Calibration Procedure (Document No.: MCP-033)	30	ml	30	ml		0.028	ml
			50	ml	50	ml		0.029	ml
			100	ml	100	ml		0.035	ml
Approval Signatory: CHEN, Ping-Ting; CHEN, Cain-Yi									
KI9003 Micro pipette	Balence METTLER TOLEDO/AX205 METTLER TOLEDO/MT-5	Micro Pipette Calibration Procedure (Document No.: MCP-030)	1	µl	10	µl	duplicate 5 times	0.10	µl
			10	µl	100	µl	duplicate 5 times	0.6	µl
			20	µl	200	µl	duplicate 5 times	0.7	µl
			100	µl	1000	µl	duplicate 5 times	2	µl
			500	µl	5000	µl	duplicate 5 times	8	µl
			1000	µl	10000	µl	duplicate 5 times	12	µl
Approval Signatory: CHEN, Ping-Ting; CHEN, Cain-Yi									
KI9004 Standard tank	Balence METTLER TOLEDO/AX205 METTLER TOLEDO/PM5003 METTLER TOLEDO/KA30-3	Standard Tank Calibration Procedure (Document No.: MCP-031)	1	ml	5	ml		0.047	ml
			2	ml	10	ml		0.05	ml
			5	ml	25	ml		0.19	ml
			10	ml	50	ml		0.37	ml
			10	ml	100	ml		0.38	ml
			30	ml	250	ml		0.5	ml
			50	ml	500	ml		0.6	ml
			100	ml	1000	ml		1.1	ml
			200	ml	2000	ml		3	ml
			500	ml	5000	ml		6	ml
Approval Signatory: CHEN, Ping-Ting; CHEN, Cain-Yi									

Note：Smallest uncertainty represents an expanded uncertainty using a coverage factor approximately 95 % level of confidence.
(Null Below)