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

Certificate of Accreditation

(Certificate No: LN0881-261020)

This is to certify that

National Measurement Laboratory, R. O. C.

National Measurement Laboratory, R. O. C. (Temperature, Humidity)

No.321, Sec. 2, Kuang Fu Rd., Hsinchu City, Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	:	ISO/IEC 17025: 2017; CNS 17025: 2018
Accreditation Number	:	N0881
Originally Accredited	:	May 15, 2002
Effective Period	:	May 15, 2026 to May 14, 2031
Accredited Scope	:	Calibration Field, see described in the Appendix
Specific Accreditation Program	:	Accreditation Program for National Metrology Institutes

Scan to verify

Yi-Ling Chen
President, Taiwan Accreditation Foundation
October 20, 2026

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

Accreditation Number : N0881
Laboratory Head : LAN, Yu-Ping

Temperature/Humidity

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
KE1002 Platinum resistance thermometer, Fixed-point Cell	Fixed-point cell FLUKE/5960A, ISOTECH/17924, FLUKE/5900E, Hart Scientific/5901A, Hart Scientific/5943, ISOTECH/17668, FLUKE/5904, NML/Sn, ISOTECH/17669, ISOTECH/17671, NML/Al, FLUKE/5907, ISOTECH/17673, FLUKE/5908	In house method: Instrument Calibration Technique for the Fixed-Point Calibration of Platinum Resistance Thermometer (Document No.: 07-3-82-0061)	-189.3442	℃	-189.3442	℃	TP of Ar	0.75	mK
			-38.8344	℃	-38.8344	℃	TP of Hg	0.38	mK
			0.01	℃	0.01	℃	TP of H2O	0.09	mK
			29.7646	℃	29.7646	℃	MP of Ga	0.43	mK
			156.5985	℃	156.5985	℃	FP of In	0.79	mK
			231.928	℃	231.928	℃	FP of Sn	0.64	mK
			419.527	℃	419.527	℃	FP of Zn	1.2	mK
			660.323	℃	660.323	℃	FP of Al	3.0	mK
			961.78	℃	961.78	℃	FP of Ag	4.6	mK
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									

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
KE1002 Resistance thermometer detector, Resistance thermometer, Thermometer containing display meter (Digital thermometer)	Standard platinum resistance thermometer FLUKE/5628, CHINO/R800-2	In house method: Instrument Calibration Technique for Resistance Temperature Thermometers (Document No.: 07-3-82-0060)	-30	℃	<-20	℃		6.7 (0.0067)	mK (℃)
			-20	℃	<0	℃		6.5 (0.0065)	mK (℃)
			0	℃	0	℃		6.1 (0.0061)	mK (℃)
			>0	℃	5	℃		6.8 (0.0068)	mK (℃)
			>5	℃	10	℃		6.5 (0.0065)	mK (℃)
			>10	℃	20	℃		6.3 (0.0063)	mK (℃)
			>20	℃	30	℃		6.5 (0.0065)	mK (℃)
			>30	℃	40	℃		6.6 (0.0066)	mK (℃)
			>40	℃	50	℃		6.4 (0.0064)	mK (℃)
			>50	℃	60	℃		6.8 (0.0068)	mK (℃)
			>60	℃	70	℃		6.9 (0.0069)	mK (℃)
			>70	℃	80	℃		7.1 (0.0071)	mK (℃)
			>80	℃	90	℃		6.8 (0.0068)	mK (℃)
			>90	℃	100	℃		11 (0.011)	mK (℃)
			>100	℃	150	℃		11 (0.011)	mK (℃)
			>150	℃	200	℃		9.0 (0.0090)	mK (℃)
			>200	℃	250	℃		8.8 (0.0088)	mK (℃)
			>250	℃	300	℃		12 (0.012)	mK (℃)
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									

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
KE1004 Type R, S, B, Pt/Pd thermocouple	Fixed-point cell Fluke/5943, CMS/Sn-1, Fluke/5906, Fluke/5907, Fluke/5908, Fluke/5909	In house method: Instrument Calibration Technique for the Fixed-Point Calibration of Noble Metal Thermocouple Thermometers and Pure Metal Thermocouple Thermometers (Document No.: 07-3-89-0009)	29.7646	℃	29.7646	℃	MP of Ga (Noble Metal Thermocouple)	0.14	℃
			29.7646	℃	29.7646	℃	MP of Ga (Pure Metal Thermocouple)	0.15	℃
			231.928	℃	231.928	℃	FP of Sn (Noble Metal Thermocouple)	0.11	℃
			231.928	℃	231.928	℃	FP of Sn (Pure Metal Thermocouple)	0.14	℃
			419.527	℃	419.527	℃	FP of Zn (Noble Metal Thermocouple)	0.12	℃
			419.527	℃	419.527	℃	FP of Zn (Pure Metal Thermocouple)	0.11	℃
			660.323	℃	660.323	℃	FP of Al (Noble Metal Thermocouple)	0.15	℃
			660.323	℃	660.323	℃	FP of Al (Pure Metal Thermocouple)	0.09	℃
			961.78	℃	961.78	℃	FP of Ag (Noble Metal Thermocouple)	0.19	℃
			961.78	℃	961.78	℃	FP of Ag (Pure Metal Thermocouple)	0.10	℃
			1084.62	℃	1084.62	℃	FP of Cu (Noble Metal Thermocouple)	0.22	℃
			1084.62	℃	1084.62	℃	FP of Cu (Pure Metal Thermocouple)	0.12	℃
			0	℃	1100	℃	(Noble Metal Thermocouple)	0.24	℃
			0	℃	1100	℃	(Pure Metal Thermocouple)	0.17	℃
			>1100	℃	1200	℃	(Noble Metal Thermocouple)	0.42	℃
			>1100	℃	1200	℃	(Pure Metal Thermocouple)	0.34	℃
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									

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
KE1004 Type R, S, B, Pt/Pd thermocouple	Eutectic fixed-point cell Co-C: NPL/2018, Pd-C: NPL/2018	In house method: Instrument Calibration Technique for the High Temperature Eutectic Fixed-Point Measurement for Noble Metal Thermocouple Thermometers and Pure Metal Thermocouple Thermometers (Document No.: 07-3-A9-0150)	1324	°C	1324	°C	MP of Co-C (Noble Metal Thermocouple)	0.52	°C
			1324	°C	1324	°C	MP of Co-C (Pure Metal Thermocouple)	0.46	°C
			1492	°C	1492	°C	MP of Pd-C (Noble Metal Thermocouple)	0.73	°C
			1492	°C	1492	°C	MP of Pd-C (Pure Metal Thermocouple)	0.68	°C
			1084.62	°C	1330	°C	(Noble Metal Thermocouple)	0.53	°C
			1084.62	°C	1330	°C	(Pure Metal Thermocouple)	0.47	°C
			1084.62	°C	1500	°C	(Noble Metal Thermocouple)	0.73	°C
			1084.62	°C	1500	°C	(Pure Metal Thermocouple)	0.68	°C
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									

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
KE1007 Standard Radiation thermometer, Infrared Digital Thermometer, Thermal Cameras, Non-contact thermometer	Standard radiation thermometer: CHINO/IR-RST16H, CHINO/IR-RST65H Linear Pyrometer: IKE/LP3, IKE/LP4, Platinum resistance thermometer: --/---/PT-1, ---/PT-100, Radiation thermometer: LUMASENSE/IGA 12, Multi-function digital meter: KEITHLEY/2001	In house method: Instrument Calibration Technique for the Comparative Calibration of Radiation Thermometers (Document No.: 07-3-79-0089)	90	°C	200	°C		0.24	°C
			>200	°C	400	°C		0.5	°C
			>400	°C	500	°C		0.6	°C
			>500	°C	700	°C		0.7	°C
			>700	°C	800	°C		0.5	°C
			>800	°C	1300	°C		0.6	°C
			>1300	°C	1400	°C		0.7	°C
			>1400	°C	1600	°C		0.8	°C
			>1600	°C	1700	°C		0.9	°C
			>1700	°C	2000	°C		1.2	°C
			>2000	°C	2500	°C		2.7	°C
			>2500	°C	3000	°C		4.8	°C
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									
KE1007 Standard Radiation thermometer, Infrared Digital Thermometer, Thermal Cameras, Non-contact thermometer, Ear thermometer	Platinum resistance thermometer ASL/T100-250-ID	In house method: Instrument Calibration Technique for the Comparative Calibration of Room Temperature Radiation Thermometer (Document No.: 07-3-97-0003)	-40	°C	-20	°C		0.03	°C
			>-20	°C	-10	°C		0.02	°C
			>-10	°C	20	°C		0.03	°C
			>20	°C	40	°C		0.02	°C
			>40	°C	50	°C		0.03	°C
			>50	°C	60	°C		0.11	°C
			>60	°C	70	°C		0.12	°C
			>70	°C	80	°C		0.13	°C
			>80	°C	90	°C		0.14	°C
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									

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
KE1007 Standard radiation thermometer, Linear Pyrometer, Pyrometer	Eutectic fixed-point blackbody CoC: CHINO/Co-C, NPL/Co-C, PtC: CHINO/Pt-C, ReC: CHINO/Re-C Fixed-point blackbody Cu: CHINO/RA-0193B0007	In house method: Instrument Calibration Technique for the Eutectic Fixed-Point Calibration System of the Radiation Thermometers (Document No.: 07-3-A9-0174)	1084.62	°C	1084.62	°C	650 nm	0.12	°C
			1084.62	°C	1084.62	°C	900 nm	0.22	°C
			1324.64	°C	1324.64	°C	650 nm-Co-C	0.27	°C
			1324.64	°C	1324.64	°C	900 nm-Co-C	0.28	°C
			1737.34	°C	1737.34	°C	650 nm-Pt-C	0.31	°C
			2474.04	°C	2474.04	°C	650 nm-Re-C	0.78	°C
			1085	°C	1085	°C	650 nm	0.14	°C
			1100	°C	1100	°C	650 nm	0.29	°C
			1200	°C	1200	°C	650 nm	0.30	°C
			1300	°C	1300	°C	650 nm	0.30	°C
			1324	°C	1324	°C	650 nm	0.29	°C
			1400	°C	1400	°C	650 nm	0.41	°C
			1500	°C	1500	°C	650 nm	0.41	°C
			1600	°C	1600	°C	650 nm	0.41	°C
			1700	°C	1700	°C	650 nm	0.41	°C
			1738	°C	1738	°C	650 nm	0.41	°C
			1800	°C	1800	°C	650 nm	0.86	°C
			1900	°C	1900	°C	650 nm	0.86	°C
			2000	°C	2000	°C	650 nm	0.87	°C
			2100	°C	2100	°C	650 nm	0.87	°C
			2200	°C	2274	°C	650 nm	0.87	°C
			2300	°C	2300	°C	650 nm	0.87	°C
			2400	°C	2400	°C	650 nm	0.88	°C
			2474	°C	2474	°C	650 nm	0.88	°C
			2500	°C	2500	°C	650 nm	1.2	°C
			2600	°C	2600	°C	650 nm	1.5	°C
			2700	°C	2700	°C	650 nm	1.9	°C
			2800	°C	2800	°C	650 nm	2.3	°C
			2900	°C	2900	°C	650 nm	2.9	°C
			3000	°C	3000	°C	650 nm	3.6	°C
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									

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
KE1007 Standard radiation thermometer, Linear Pyrometer, Pyrometer	Fixed-point blackbody Ag: CHINO/IR-RO-AG, CHINO/IR-R0A-UAG, Cu: CHINO/IR-R0A-UCU, Al: CHINO/IR-R0A-UAL, Zn: CHINO/IR-R0A-UZN, Sn: CHINO/IR-R0A-USN, In: CHINO/IR-R0A-UIN	In house method: Instrument Calibration Technique for the Fixed-Point Calibration of Radiation Thermometers (Document No.: 07-3-90-0113)	960	°C	960	°C	650 nm	0.25	°C
			1000	°C	1000	°C	650 nm	0.25	°C
			1085	°C	1085	°C	650 nm	0.14	°C
			660	°C	660	°C	900 nm	0.26	°C
			700	°C	700	°C	900 nm	0.24	°C
			800	°C	800	°C	900 nm	0.25	°C
			900	°C	900	°C	900 nm	0.25	°C
			960	°C	960	°C	900 nm	0.25	°C
			1000	°C	1000	°C	900 nm	0.25	°C
			1085	°C	1085	°C	900 nm	0.25	°C
			1100	°C	1100	°C	900 nm	0.27	°C
			1200	°C	1200	°C	900 nm	0.27	°C
			1300	°C	1300	°C	900 nm	0.28	°C
			1324	°C	1324	°C	900 nm	0.28	°C
			160	°C	160	°C	1600 nm	0.10	°C
			200	°C	200	°C	1600 nm	0.08	°C
			300	°C	300	°C	1600 nm	0.07	°C
			400	°C	400	°C	1600 nm	0.09	°C
			500	°C	500	°C	1600 nm	0.11	°C
			600	°C	600	°C	1600 nm	0.12	°C
			700	°C	700	°C	1600 nm	0.13	°C
			800	°C	800	°C	1600 nm	0.14	°C
			900	°C	900	°C	1600 nm	0.17	°C
			960	°C	960	°C	1600 nm	0.20	°C
			961.78	°C	961.78	°C	650 nm-FP of Ag	0.12	°C
			1084.62	°C	1084.62	°C	650 nm-FP of Cu	0.12	°C
			961.78	°C	961.78	°C	900 nm-FP of Ag	0.22	°C
			1084.62	°C	1084.62	°C	900 nm-FP of Cu	0.22	°C
			660.323	°C	660.323	°C	900 nm-FP of Al	0.24	°C
			419.527	°C	419.527	°C	900 nm-FP of Zn	0.16	°C
			961.78	°C	961.78	°C	1600 nm-FP of Ag	0.10	°C

calibration items	working standard brand /model	calibration method document name /no.	measurand level or range minimum value	units	maximum value	units	measurement conditions /independent variable explanation	smallest uncertainty value	units
KE1007 Standard radiation thermometer, Linear Pyrometer, Pyrometer	Fixed-point blackbody Ag: CHINO/IR-RO-AG, CHINO/IR-R0A-UAG, Cu: CHINO/IR-R0A-UCU, Al: CHINO/IR-R0A-UAL, Zn: CHINO/IR-R0A-UZN, Sn: CHINO/IR-R0A-USN, In: CHINO/IR-R0A-UIN	In house method: Instrument Calibration Technique for the Fixed-Point Calibration of Radiation Thermometers (Document No.: 07-3-90-0113)	660.323	°C	660.323	°C	1600 nm-FP of Al	0.12	°C
			419.527	°C	419.527	°C	1600 nm-FP of Zn	0.15	°C
			231.928	°C	231.928	°C	1600 nm-FP of Sn	0.13	°C
			156.5985	°C	156.5985	°C	1600 nm-FP of In	0.12	°C
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									
KE2001 Hygrometer, electronic psychrometer, Humidity transducer, Humidity transmitter, Digital humidity analyzer, Temperature and humidity recorder, Thermohygrometer, Humidity sensor	Two-pressure humidity generator Thunder Scientific 2500ST, Thunder Scientific 2500	In house method: Instrument Calibration Technique for Thermo-hygrometer and Dew Point Meter (Document No.: 07-3-99-5145)	10	%	98	%	Relative humidity (RH)	(0.0045×RH+ 0.0647)	%
			0	°C	70	°C	Temperature	0.030	°C
			-25	°C	0	°C	Dew point temperature /Frost point temperature	0.054	°C
			>0	°C	25	°C	Dew point temperature /Frost point temperature	0.076	°C
			>25	°C	69	°C	Dew point temperature	0.098	°C
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									

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
KE2003 Optical chilled dew point hygrometer, Dew point hygrometer, Low dew point hygrometer	Two-pressure humidity generator Thunder Scientific 2500ST, Thunder Scientific 2500	In house method: Instrument Calibration Technique for Thermo - hygrometer and Dew Point Meter (Document No.: 07-3-99-5145)	10	%	98	%	Relative humidity (RH)	(0.0045×RH+ 0.0647)	%
			0	°C	70	°C	Temperature	0.030	°C
			-25	°C	0	°C	Dew point temperature /Frost point temperature	0.054	°C
			>0	°C	25	°C	Dew point temperature /Frost point temperature	0.076	°C
			>25	°C	69	°C	Dew point temperature	0.098	°C
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									
KE2003 Optical chilled dew point hygrometer, Dew point hygrometer, Low dew point hygrometer	Low humidity generator Thunder Scientific 3900	In house method: Instrument Calibration Technique for Dew-Point Hygrometer at Low Dew/Frost Point Temperature (Document No.: 07-3-A9-0134)	-50	°C	<-40	°C	Dew point temperature /Frost point temperature	0.090	°C
			-40	°C	<-30	°C	Dew point temperature /Frost point temperature	0.080	°C
			-30	°C	<-20	°C	Dew point temperature /Frost point temperature	0.070	°C
			-20	°C	<-10	°C	Dew point temperature /Frost point temperature	0.058	°C
			-10	°C	<0	°C	Dew point temperature /Frost point temperature	0.052	°C
			0	°C	0	°C	Dew point temperature /Frost point temperature	0.052	°C
			>0	°C	10	°C	Dew point temperature /Frost point temperature	0.070	°C
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									

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
KE2004 Temperature and humidity recorder	Two-pressure humidity generator Thunder Scientific 2500ST, Thunder Scientific 2500	In house method: Instrument Calibration Technique for Thermo-hygrometer and Dew Point Meter (Document No.: 07-3-99-5145)	10	%	98	%	Relative humidity (RH)	(0.0045×RH+ 0.0647)	%
			0	°C	70	°C	Temperature	0.030	°C
			-25	°C	0	°C	Dew point temperature /Frost point temperature	0.054	°C
			>0	°C	25	°C	Dew point temperature /Frost point temperature	0.076	°C
			>25	°C	69	°C	Dew point temperature	0.098	°C
Approval Signatory: KO, Hsin-Yi; HSU, Wei-Hong; YEH, Chien-Chih									

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