

**SINGAPORE LABORATORY
ACCREDITATION SCHEME**



Number : **LA-2002-0265-C-2**

Date of Issue : **21 April 2020**

Date of Expiry : **10 November 2022**

Certificate of Accreditation

This certifies that

**Cairnhill Metrology (Thai) Ltd
89 Cosmo Office Park
7th Floor, Unit N
Popular Road, Tambol Ban Mai
Amphur Pakkret, Nonthaburi
11120 Thailand**

is accredited by the Singapore Accreditation Council to

ISO / IEC 17025 : 2017

for specific scope within the field of

Calibration & Measurement

as detailed in the attached schedule.

A handwritten signature in black ink, appearing to read "Yeoh Ah Kuan", written over a horizontal line.

Chairman

This Certificate is awarded subject to the organisation's compliance with the stated criteria and terms and conditions laid down by the Singapore Accreditation Council.

This Certificate may not be reproduced except with the written permission of the Chairman.

Schedule

Cairnhill Metrology (Thai) Ltd
89 Cosmo Office Park
7th Floor Unit N
Popular Road, Ban Mai
Pakkret, Nonthaburi
11120, Thailand

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FIELD OF TESTING : Calibration and Measurement

MEASURED QUANTITIES/RANGE/ INSTRUMENTS TO BE CALIBRATED	METHOD OF CALIBRATION / INSTRUMENTS USED	CALIBRATION & MEASUREMENT CAPABILITY (CMC *)
1. Starrett Measurement Projector Travel : 300 mm x 200 mm Resolution : 1 to 5 μ m	In-house Calibration Procedure (WI 15-10 V7)	2.0 μ m
2. Universal Length Metroscope ULM Calibration Range of Measuring Headstock: $X \leq 100$ mm Resolution : 0.01 μ m	In-house Calibration Procedure (WI 15-08 V7)	0.10 μ m
3. Optical / Non-Contact Co-ordinate Measuring Machine Starrett Non-Contact CMM Range: X ≤ 350 mm Y ≤ 350 mm Z ≤ 250 mm Resolution : 0.1 to 0.5 μ m X and Y- axes Z-axis (For Contact Probe)	In-house Calibration Procedure (WI 15-11 V1)	2.0 μ m 1.0 μ m

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MEASURED QUANTITIES/RANGE/ INSTRUMENTS TO BE CALIBRATED	METHOD OF CALIBRATION / INSTRUMENTS USED	CALIBRATION & MEASUREMENT CAPABILITY (CMC *)
<p>4. (#) Portable Co-ordinate</p> <p>Measuring Machine (Hexagon) (Hexagon Absolute RA7 and older) Resolution : 1 μm</p> <p>(a) Error Indication of Single Point Articulated Test (SPAT) is determined using Steel Trihedral Length Bar</p> <p>(b) Error indication of Volumetric Performance Test is determined using Steel Trihedral Length bar: 1. 185, 390, 580 and 800 mm 2. 220, 410, 610, 805, 1005 and 1200 mm</p>	<p>In-house Calibration Procedure (WI 15-06, V1) ASME B89.4.22-2004 (R2014)</p>	<p>4 μm</p> <p>4 μm</p>
<p>5. (#) Portable Co-ordinate</p> <p>Measuring Machine (Hexagon Absolute RA8 and newer) Resolution : 1 μm</p> <p>(a) Length measurement error, E_{UNI}, is determined using Silicon Ceramic Cone Bar with the following location: 187, 387, 587, 787, 987, 1187, 1387, 1587, 1787, 1987, 2187, 2387, 2587, 2787 and 2974 mm</p>	<p>In-house Calibration Procedure (WI 15-18, V1) ISO 10360-12 V2016</p>	<p>5.0 + (0.0040 * L) μm (L in mm)</p>

* CMC is expressed as an expanded uncertainty estimated at a level of confidence of approximately 95 %.

(#) Calibration Facility located at: 89 Cosmo Office Park, 1st Floor Unit 6, Popular Road, Ban Mai, Pakkret, Nonthaburi, 11120 Thailand.

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Approved Signatories:

- Mr Loh Kum Seng - For Item 1 to 4
- Mr Tan Peng - For Item 1, 2, & 3
- Mr Lim Seng Hoo - For Item 1, 2, & 3
- Mr Lim Chen Kee - For all Calibration Items

Note :

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. A laboratory's fulfilment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid calibration results. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.