



UniThai Group Co., Ltd.

301/57 SOI PANITCHANAN, SUKHUMVIT 71 RD. KLONGTON NUA  
WATTANA, BANGKOK 10110, THAILAND

TEL: 0 2713 0375 FAX: 0 2713 0377 [WWW.UNITHAI.CO.TH](http://WWW.UNITHAI.CO.TH)

Certificate No.: T24-0004

Page.: 1 of 3 Pages

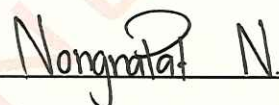
Issued by : Temperature Laboratory

## CALIBRATION CERTIFICATE

Equipment name : Black Body Calibrator  
Manufacturer : TEMPESENS  
Model : CALsys 37BB  
Serial number : C/37BB/2021/552  
TAG / ID number : INFR004  
Customer : National Healthcare Systems Co., Ltd.  
Address : 2301/2, New Petchburi Rd., Bangkapi  
Huaykwang, Bangkok  
10310

Calibrated by :

Approved by :



(Miss. Nongnat Nusod)

Calibration Engineer



  
(Mr. Thanasit Prakobkij)

Laboratory Manager

Date report issued : January 3, 2024

THE UNCERTAINTIES ARE FOR A CONFIDENCE PROBABILITY OF APPROXIMATELY 95%

THIS CERTIFICATE MAY NOT BE REPRODUCED EXCEPT IN FULL UNLESS PERMISSION  
FOR REPRODUCTION HAS BEEN OBTAINED IN WRITING FROM THE LABORATORY.

Certificate No.: T24-0004

Page.: 2 of 3 Pages

Equipment name : Black Body Calibrator  
Manufacturer : TEMPSSENS  
Model : CALsys 37BB  
Serial number : C/37BB/2021/552  
TAG / ID number : INFR004  
Received date : December 22, 2023  
Calibration date : January 3, 2024  
UniThai Job No.: T0004/23

**Reference Standards :**

1. Digital Temperature Indicator Model : DTI1000 S/N : 505727-01455 Due Date : 28 July 2024
2. Standard Platinum Resistance Thermometer Model : STS-100B150 S/N : 573919-01 Due Date : 07 June 2024

**Calibration Procedure :**

Calibration were conducted using in-house calibration method as Standard Operation Procedure, SOP-CAL-T11 according to comparison method with thermometer readout and standard temperature probe.  
The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025.

**Calibration Conditions :**

Ambient Temperature :  $(23 \pm 3)$  °C  
Relative Humidity :  $(50 \pm 15)$  %

**Measurement Uncertainty :**

This uncertainty calculation is consistent with the requirements of the ISO Guide to the Expression of Uncertainty in Measurement (the 'GUM') and UKAS M3003 : The Expression of Uncertainty and Confidence in Measurement and EA-4/02 • Evaluation of the Uncertainty of Measurement in calibration. The expanded uncertainties mentioned are calculated with a coverage factor (  $k$  ) which approximately corresponds to a probability of coverage of 95%.

**Traceability Information :**

This calibration certificate provides traceability of measurement to the International System of Units (SI) and/or to units of measurement realised at the National Institute of Metrology (THAILAND) or other recognised national metrology institute through the certification certificate number AMETEK / E 96337 and E 88321.



Certificate No.: T24-0004

Page.: 3 of 3 Pages

Result of calibration :- ( \* ) Without Adjustment

Function : Temperature measurement accuracy test.

Range : 35 °C to 50 °C

Table 1 Accuracy Performance Test

UUC* Setting (°C)	UUC* Reading (1) (°C)	Standard Reading		Deviation (1) - (2) (°C)
		As Found (2) (°C)	As Left (°C)	
35.0	35.0	35.092	-	-0.092
37.0	37.0	37.097	-	-0.097
39.0	39.0	39.090	-	-0.090
45.0	45.0	45.212	-	-0.212
50.0	50.0	50.242	-	-0.242

The uncertainty of measurement was =  $\pm 0.10$  °C

The reported expanded uncertainty is based upon a standard uncertainty multiplied by a coverage factor

$k = 2$ , providing a level of confidence of approximately 95%

**Notes and supplemental information :**

\*\*\* The emissivity of black body was  $0.98 \pm 0.01$

\*\*\* This result of calibration was found accurate as shown on date and place of calibration only.

\*\*\* This result of calibration was found accurate for this equipment only.

\*\*\* The temperature scale used was based on ITS-90.

\*\*\* UUC\* = Unit Under Calibration

