

เอกสารการสอบเทียบเครื่องมือทดสอบ



**Metrology and Calibration Department**  
**Electrical Maintenance Division**  
**Electricity Generating Authority of Thailand**



81 Moo 11 Bangkruai - Sainoi Rd., Sainoi, Nonthaburi 11150 Tel. (662) 436-8789 Ext. 6155

## Certificate of Calibration

Issued by : Vibration Laboratory

Certificate No. : 22V012


Reference No. : CWATE01V001

Received Date : 25 January 2022

Calibrated Date : 28 January 2022

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**Client** : บจก. วอเตอร์ อินเด็กซ์ แอนด์ คอนซัลแทนท์  
**Address** : 229/7-8 หมู่บ้านมาลาพันธ์ ซอยจรัญสนิทวงศ์ 95/1 ถนนจรัญสนิทวงศ์  
แขวงบางอ้อ เขตบางพลัด กรุงเทพฯ 10700  
**Equipment** : VIBRATION METER  
**Manufacture /Brand** : INSTANTEL  
**Model** : Minimate Plus  
**Serial No./ ID No.** : BE19834

  
( Mr. Anusit Parsittipan )

Authorised Signatory

Issue Date 1 Feb. 2022

This certificate is issued in accordance with the conditions of accreditation granted by The National Accreditation Council of Thailand which has assessed the measurement capability of the laboratory and its traceability to recognised national standards and to the units of measurement realised at the corresponding national standards laboratory. This certificate may not be reproduced other than in full, except with the prior written approval of the head of calibration services and environmental analysis department.

FM-02/QP-MCC-09 Rev.3

e-mail : MCC@cgat.co.th



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**Standard Used**

The table below is described the calibrator through the International System of Unit.

Description	Manufacture/Model	Serial No.	Traceable No.	Due Date
Conditioning Amplifier Type 2626	Brue! & Kjaer	1242376	AV-0045-20	18 September 2022
Accelerometer Type 8305	Brue! & Kjaer	1262817	AV- 0043-20	02 December 2022
Digital Multimeter /8846A	FLUKE	4330020	21E287	20 September 2022

**Ambient Environment :**

The Calibration was performed in an environment of (  $23 \pm 2$  ) °C and (  $50 \pm 10$  ) % relative humidity.

**Measurement Method :**

The unit under calibration was calibrated by comparison with standard accelerometer. The calibration method is based on WI-MCC-E-301 by comparison with reference accelerometer standard .

**Measurement Results**

The measurement results, labeled in the following pages give the calibration results and associated with measurement uncertainties.

**Measurement Uncertainty**

The Measurement Uncertainty are labeled on the following pages Completed the expanded uncertainty, that was calculated in accordance with the method in M3003, using coverage factor  $k = 2$  . The value of the measured lies within the assigned ranges of values of confidence level of approximately 95%.

**Traceability :**

The measurement is traceable to the International System of Unit through

- The National Institute of Metrology (Thailand)
- Metrology and Calibration Department



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DESCRIPTION	INSTRUMENT VALUE		UNCERTAINTY
	STANDARD SETTING	UUC READING	
<b>Vertical</b>			
Frequency (Hz)	mm/s <sub>p</sub>	mm/s <sub>p</sub>	± mm/s <sub>p</sub>
* 20	10.00	10.10	0.15
40	10.00	10.00	0.14
50	10.00	10.00	0.14
80	10.00	10.00	0.14
100	10.00	9.99	0.14

\* Calibration made "Not TISI Accredited" in this Certificate have been included for completeness.

**Transducer** Part : 718A3301

S/N : BT2498

**Condition** : Installation by vertical direction



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DESCRIPTION	INSTRUMENT VALUE		UNCERTAINTY
	STANDARD SETTING	UUC READING	
<b>Transverse</b>			
Frequency (Hz)	mm/s <sub>p</sub>	mm/s <sub>p</sub>	± mm/s <sub>p</sub>
* 20	10.00	10.00	0.14
40	10.00	9.97	0.14
50	10.00	9.91	0.14
80	10.00	9.91	0.14
100	10.00	9.91	0.14

\* Calibration maked "Not TISI Accredited" in this Certificate have been included for completeness.

**Tranducer** Part : 718A3301

S/N : BT2498

**Condition** : Installation by Transverse direction



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DESCRIPTION	INSTRUMENT VALUE		UNCERTAINTY
	STANDARD SETTING	UUC READING	
<b>Longitude</b>			
Frequency (Hz)	mm/s <sub>p</sub>	mm/s <sub>p</sub>	± mm/s <sub>p</sub>
* 20	10.00	10.00	0.14
40	10.00	9.97	0.14
50	10.00	9.96	0.14
80	10.00	9.97	0.14
100	10.00	9.96	0.14

\* Calibration maked "Not TISI Accredited" in this Certificate have been included for completeness.

**Tranducer** Part : 718A3301

S/N : BT2498

**Condition** : Installation by Longitude direction

**End Certificate of Calibration**

บริษัท วอเตอร์ อินเด็กซ์ แอนด์ คอนซัลแทนท์ จำกัด

WATER INDEX & CONSULTANT CO.,LTD.

229/7-8 ถนนจรัญสนิทวงศ์ แขวงบางอ้อ เขตบางพลัด กทม. 10700 โทร. 02-885-5801-2 โทรสาร.02-885-5803

Calibration Report

A99-2022

Sound Level Meter Model BSWA309

Instrument : Sound level Meter

Manufacturer : bswa-tech.com

Date of Calibration : 22, November 2022

Dued Date of Calibrate : 22 – 25, November 2022

Calibrator

Instrument : Sound Calibrator

Manufacturer : Delta OHM srl

Model : HD-2020

Serial No. : 17021323

Range of Calibrator

Sound Pressure Level : 94.0 , 114 dB

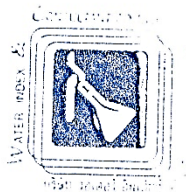
Frequency : 1000 ± 1 %

Calibration Report

No.	Serial No.	Before Adjust	After Adjust	Inspection Result
1	540049	93.4	94.0	Pass
2	090173	93.9	94.0	Pass
3	090164	93.7	94.0	Pass
4	540074	93.5	94.0	Pass

Calibrated by

ศิริยา  
(Mr.Suriya Suksalee)



Approved by

อาริต ปองสงคราม  
(Mr.Artit PongsngCram)

บริษัท วอเตอร์ อินเด็กซ์ แอนด์ คอนซัลแทนท์ จำกัด

WATER INDEX & CONSULTANT CO.,LTD.

229/7-8 ถนนเจริญสนิทวงศ์ แขวงบางอ้อ เขตบางพลัด กทม. 10700 โทร. 02-885-5801-2 โทรสาร.02-885-5803

High Volume Air Sampler Calibration Report

A99-2022

Calibration Method

Calibration Data

High Volume Air Sampler Data		Calibration Data		
Recorder No.	Blower No.	Date	Actual Flowrate	R <sup>2</sup>
1	17	22/11/2022	$y = 28.395x + 2.5113$	0.9951
2	11	22/11/2022	$y = 26.973x + 4.317$	0.9977
3	15	22/11/2022	$y = 27.176x + 4.0273$	0.9972
4	14	22/11/2022	$y = 27.353x + 3.7646$	0.9956
5	13	22/11/2022	$y = 26.132x + 5.6197$	1.0000
6	6	22/11/2022	$y = 26.53x + 5.2398$	0.9980
7	18	22/11/2022	$y = 27.737x + 3.304$	0.9923
8	16	22/11/2022	$y = 28.198x + 2.7992$	0.9975

/

Calibrated by

สุริยา  
(Mr.Suriya Suksalee)



Approved by

อาริต ปองสงคราม  
(Mr.Artit PongsngCram)