

# Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler


Description: Digital Dust Indicator Date of Calibration 1-Apr-21  
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 1-Jun-21  
 Model No.: LD-5R  
 Serial No.: 972778  
 Equipment No.: SA-01-07 Sensitivity 0.001 mg/m3  
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 735 CPM  
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 735 CPM

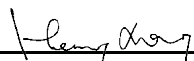
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	52.0	108.0
2	48.0	103.0
3	41.0	96.0
<b>Average</b>	<b>47.0</b>	<b>102.3</b>
<b>By Linear Regression of Y on X</b> Slope , mw = <u>1.0806</u> Intercept, bw = <u>51.5430</u> Correlation coefficient* = <u>0.9982</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	102.3	
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	47.0	
Measureing time, (min)	60.0	
Set Correlation Factor , SCF		
SCF = [ K=High Volume Sampler / Dust Meter, ( $\mu\text{g}/\text{m}^3$ ) ]	<u>2.2</u>	

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by:   
 Wong Shing Kwai

Approved by:   
 Henry Leung

# Certificate of Calibration

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Description: Digital Dust Indicator Date of Calibration 1-Apr-21  
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 1-Jun-21  
 Model No.: LD-5R  
 Serial No.: 972779  
 Equipment No.: SA-01-08 Sensitivity 0.001 mg/m3  
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 744 CPM  
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 744 CPM

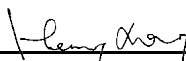
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	54.0	108.0
2	49.0	103.0
3	43.0	96.0
<b>Average</b>	<b>48.7</b>	<b>102.3</b>
<b>By Linear Regression of Y on X</b> Slope , mw = <u>1.0934</u> Intercept, bw = <u>49.1209</u> Correlation coefficient* = <u>0.9991</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	102.3	
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	48.7	
Measureing time, (min)	60.0	
Set Correlation Factor , SCF		
SCF = [ K=High Volume Sampler / Dust Meter, ( $\mu\text{g}/\text{m}^3$ ) ]	<u>2.1</u>	

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by:   
 Wong Shing Kwai

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 Henry Leung

# Certificate of Calibration

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
Description: Digital Dust Indicator Date of Calibration 1-Apr-21  
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 1-Jun-21  
 Model No.: LD-5R  
 Serial No.: 972780  
 Equipment No.: SA-01-09 Sensitivity 0.001 mg/m3  
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 739 CPM  
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 739 CPM

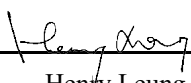
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	51.0	108.0
2	46.0	103.0
3	42.0	96.0
<b>Average</b>	<b>46.3</b>	<b>102.3</b>
<b>By Linear Regression of Y on X</b> Slope , mw = <u>1.3197</u> Intercept, bw = <u>41.1885</u> Correlation coefficient* = <u>0.9872</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	102.3	
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	46.3	
Measureing time, (min)	60.0	
Set Correlation Factor , SCF		
SCF = [ K=High Volume Sampler / Dust Meter, ( $\mu\text{g}/\text{m}^3$ ) ]	<u>2.2</u>	

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by:   
 · Wong Shing Kwai

Approved by:   
 Henry Leung

# Certificate of Calibration

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Description: Digital Dust Indicator Date of Calibration 1-Apr-21  
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 1-Jun-21  
 Model No.: LD-5R  
 Serial No.: 972781  
 Equipment No.: SA-01-10 Sensitivity 0.001 mg/m3  
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 734 CPM  
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 734 CPM

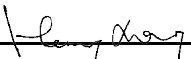
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	60.0	108.0
2	52.0	103.0
3	41.0	96.0
<b>Average</b>	<b>51.0</b>	<b>102.3</b>
<b>By Linear Regression of Y on X</b> Slope , mw = <u>0.6319</u> Intercept, bw = <u>70.1081</u> Correlation coefficient* = <u>1.0000</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	102.3	
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	51.0	
Measureing time, (min)	60.0	
Set Correlation Factor , SCF <b>SCF = [ K=High Volume Sampler / Dust Meter, (<math>\mu\text{g}/\text{m}^3</math>) ]</b> <u>2.0</u>		

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by:   
 Wong Shing Kwai

Approved by:   
 Henry Leung



# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET



File No. MA16034/05/0029

Project No. AM1 - Tin Hau Temple  
 Date: 10-Apr-21 Next Due Date: 10-Jun-21 Operator: SK  
 Equipment No.: A-01-05 Model No.: GS2310 Serial No. 10599

Ambient Condition			
Temperature, Ta (K)	<u>292.8</u>	Pressure, Pa (mmHg)	<u>764.9</u>

Orifice Transfer Standard Information					
Serial No.	<u>3864</u>	Slope, mc	<u>0.05846</u>	Intercept, bc	<u>-0.00313</u>
Last Calibration Date:	<u>11-Jan-21</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>11-Jan-22</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X-axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.0</u>	3.65	62.47	<u>8.9</u>	3.02
2	<u>9.4</u>	3.10	53.13	<u>6.4</u>	2.56
3	<u>7.5</u>	2.77	47.47	<u>4.8</u>	2.22
4	<u>4.8</u>	2.22	37.98	<u>3.1</u>	1.78
5	<u>2.5</u>	1.60	27.43	<u>1.9</u>	1.40

### By Linear Regression of Y on X

Slope, mw = 0.0469 Intercept, bw = 0.0516  
 Correlation coefficient\* = 0.9965

\*If Correlation Coefficient < 0.990, check and recalibrate.

### Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  4.18

Remarks: \_\_\_\_\_

Conducted by: SK Wong Signature: [Signature] Date: 10 April 2021

Checked by: Henry Leung Signature: [Signature] Date: 10 April 2021

# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET



File No. MA16034/08/0029

Project No. AM2 - Sai Tso Wan Recreation Ground  
 Date: 10-Apr-21 Next Due Date: 10-Jun-21 Operator: SK  
 Equipment No.: A-01-08 Model No.: GS2310 Serial No. 1287

Ambient Condition			
Temperature, Ta (K)	<u>292.8</u>	Pressure, Pa (mmHg)	<u>764.9</u>

Orifice Transfer Standard Information					
Serial No.	<u>3864</u>	Slope, mc	<u>0.05846</u>	Intercept, bc	<u>-0.00313</u>
Last Calibration Date:	<u>11-Jan-21</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>11-Jan-22</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.1</u>	3.66	62.71	<u>8.8</u>	3.00
2	<u>9.9</u>	3.18	54.53	<u>6.2</u>	2.52
3	<u>7.8</u>	2.83	48.40	<u>4.8</u>	2.22
4	<u>4.9</u>	2.24	38.38	<u>3.2</u>	1.81
5	<u>2.9</u>	1.72	29.54	<u>1.9</u>	1.40

### By Linear Regression of Y on X

Slope, mw = 0.0474 Intercept, bw = -0.0248  
 Correlation coefficient\* = 0.9974

\*If Correlation Coefficient < 0.990, check and recalibrate.

### Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  3.96

Remarks: \_\_\_\_\_

Conducted by: SK Wong Signature: \_\_\_\_\_ Date: 10 April 2021

Checked by: Henry Leung Signature: \_\_\_\_\_ Date: 10 April 2021

# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET



File No. MA16034/03/0029

Project No. AM3 - Yau Lai Estate, Bik Lai House  
 Date: 10-Apr-21 Next Due Date: 10-Jun-21 Operator: SK  
 Equipment No.: A-01-03 Model No.: GS2310 Serial No. 10379

Ambient Condition			
Temperature, Ta (K)	<u>292.8</u>	Pressure, Pa (mmHg)	<u>764.9</u>

Orifice Transfer Standard Information					
Serial No.	<u>3864</u>	Slope, mc	<u>0.05846</u>	Intercept, bc	<u>-0.00313</u>
Last Calibration Date:	<u>11-Jan-21</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>11-Jan-22</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X-axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.0</u>	3.65	62.47	<u>8.7</u>	2.99
2	<u>9.6</u>	3.14	53.69	<u>6.5</u>	2.58
3	<u>7.8</u>	2.83	48.40	<u>5.3</u>	2.33
4	<u>5.2</u>	2.31	39.53	<u>3.5</u>	1.89
5	<u>2.6</u>	1.63	27.97	<u>2.0</u>	1.42

### By Linear Regression of Y on X

Slope, mw = 0.0456 Intercept, bw = 0.1244  
 Correlation coefficient\* = 0.9993

\*If Correlation Coefficient < 0.990, check and recalibrate.

### Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  4.25

Remarks: \_\_\_\_\_

Conducted by: SK Wong Signature: [Signature] Date: 10 April 2021  
 Checked by: Henry Leung Signature: [Signature] Date: 10 April 2021

# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET



File No. MA16034/54/0029

Project No. AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office  
 Date: 10-Apr-21 Next Due Date: 10-Jun-21 Operator: SK  
 Equipment No.: A-01-54 Model No.: TE-5170 Serial No. 1536

Ambient Condition			
Temperature, Ta (K)	<u>292.8</u>	Pressure, Pa (mmHg)	<u>764.9</u>

Orifice Transfer Standard Information					
Serial No.	<u>3864</u>	Slope, mc	<u>0.05846</u>	Intercept, bc	<u>-0.00313</u>
Last Calibration Date:	<u>11-Jan-21</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>11-Jan-22</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X-axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.2</u>	3.68	62.95	<u>8.9</u>	3.02
2	<u>9.9</u>	3.18	54.53	<u>6.4</u>	2.56
3	<u>7.5</u>	2.77	47.47	<u>5.0</u>	2.26
4	<u>5.3</u>	2.33	39.91	<u>3.3</u>	1.84
5	<u>3.0</u>	1.75	30.04	<u>1.9</u>	1.40

**By Linear Regression of Y on X**

Slope, mw = 0.0493 Intercept, bw = -0.1022  
 Correlation coefficient\* = 0.9992

\*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  3.98

Remarks: \_\_\_\_\_

Conducted by: SK Wong Signature: [Signature] Date: 10 April 2021  
 Checked by: Henry Leung Signature: [Signature] Date: 10 April 2021

# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET



File No. MA16034/37/0029

Project No. AM5(A) - Tseung Kwan O DSD Desilting Compound  
 Date: 10-Apr-21 Next Due Date: 10-Jun-21 Operator: SK  
 Equipment No.: A-01-37 Model No.: GS2310 Serial No. 1704

Ambient Condition			
Temperature, Ta (K)	<u>292.8</u>	Pressure, Pa (mmHg)	<u>764.9</u>

Orifice Transfer Standard Information					
Serial No.	<u>3864</u>	Slope, mc	<u>0.05846</u>	Intercept, bc	<u>-0.00313</u>
Last Calibration Date:	<u>11-Jan-21</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>11-Jan-22</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.1</u>	3.66	62.71	<u>8.9</u>	3.02
2	<u>9.9</u>	3.18	54.53	<u>6.4</u>	2.56
3	<u>8.2</u>	2.90	49.63	<u>5.4</u>	2.35
4	<u>5.4</u>	2.35	40.28	<u>3.3</u>	1.84
5	<u>3.0</u>	1.75	30.04	<u>2.0</u>	1.43

### By Linear Regression of Y on X

Slope, mw = 0.0488 Intercept, bw = -0.0762  
 Correlation coefficient\* = 0.9980

\*If Correlation Coefficient < 0.990, check and recalibrate.

### Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  4.00

Remarks: \_\_\_\_\_  
 \_\_\_\_\_

Conducted by: SK Wong Signature:  Date: 10 April 2021  
 Checked by: Henry Leung Signature:  Date: 10 April 2021

# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET

File No. MA16034/07/0028

Project No. AM6 - Park Central  
 Date: 5-Mar-21 Next Due Date: 5-May-21 Operator: SK  
 Equipment No.: A-01-07 Model No.: GS2310 Serial No. 10592

Ambient Condition			
Temperature, Ta (K)	<u>292.9</u>	Pressure, Pa (mmHg)	<u>764.7</u>

Orifice Transfer Standard Information					
Serial No.	<u>3864</u>	Slope, mc	<u>0.05846</u>	Intercept, bc	<u>-0.00313</u>
Last Calibration Date:	<u>11-Jan-21</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>11-Jan-22</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.0</u>	3.65	62.46	<u>8.2</u>	2.90
2	<u>8.9</u>	3.02	51.69	<u>5.9</u>	2.46
3	<u>7.5</u>	2.77	47.45	<u>4.6</u>	2.17
4	<u>4.6</u>	2.17	37.17	<u>3.1</u>	1.78
5	<u>3.1</u>	1.78	30.53	<u>2.1</u>	1.47

### By Linear Regression of Y on X

Slope, mw = 0.0448 Intercept, bw = 0.0981  
 Correlation coefficient\* = 0.9980

\*If Correlation Coefficient < 0.990, check and recalibrate.

### Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  4.01

Remarks: \_\_\_\_\_  
 \_\_\_\_\_

Conducted by: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Checked by: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_



Equipment no.: N-13-01

**Calibration Certificate****0025247**

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001608 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Soundtek
Date of calibration: 05/11/2020 Date of the recommended re-calibration: 05/11/2021	Certificate No.: 0025247 Handle by: E0002

**Measuring results**

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

**Measuring equipment**

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

**Ambient conditions**

Temperature (20...26)°C Humidity (20...60)%RH

**Measuring procedure**

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source

**Uncertainty**

+/- 0.2dB for probability not less than 95%.

**Conformity**

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager



Equipment no. : N-13-02

**Calibration Certificate****0025249**

<b>Customer :</b> Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	<b>Object 1 :</b> ST-120 sound calibrator <b>Serial No. /Ref. No. :</b> 181001636 <b>Object 2 :</b> <b>Serial No. /Ref. No. :</b>
<b>Customer Code :</b> SVEC09005	<b>Manufacturer :</b> Soundtek
<b>Date of calibration:</b> 05/11/2020 <b>Date of the recommended re-calibration:</b> 05/11/2021	<b>Certificate No.:</b> 0025249 <b>Handle by:</b> E0002

**Measuring results**

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

**Measuring equipment**

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

**Ambient conditions**

Temperature (20...26)°C

Humidity (20...60)%RH

**Measuring procedure**

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

**Uncertainty**

+/- 0.2dB for probability not less than 95%.

**Conformity**

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

**Measured value(s)** **within** **the allowable deviation.**

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager





# Calibration Certificate

0025917

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : B&K4231 sound calibrator Serial No. /Ref. No. : 2326353 / N-02-01 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Bruel & Kjaer
Date of calibration: 22/01/2021 Date of the recommended re-calibration: 22/01/2022	Certificate No.: 0025917 Handle by: E0002

## Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	94.0dB	0.0dB	+/- 0.2dB	1
114.0dB	114.1dB	+0.1dB	+/- 0.2dB	1

## Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

## Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

## Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

## Uncertainty


+/- 0.2 dB for probability not less than 95%.

## Conformity


- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

  
Calibration Technician

Approved by

  
Quality Manager



## Calibration Certificate

0025914

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : SVAN957 SLM Serial No. /Ref. No. : 23851 / N-08-12 Object 2 : Microphone Serial No. /Ref. No. : 43676
Customer Code : SVEC09005	Manufacturer : Svantek
Date of calibration: 22/01/2021 Date of the recommended re-calibration: 22/01/2022	Certificate No.: 0025914 Handle by: E0002

### Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.6dB	-0.4dB	+/- 1.5dB	1
114.0dB	113.5dB	-0.5dB	+/- 1.5dB	1

### Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

### Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

### Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

### Uncertainty

+/- 0.2dB for probability not less than 95%.

### Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Approved by

Quality Manager



Equipment no.: N-12-01

**Calibration Certificate**

0024993

<b>Customer :</b> Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	<b>Object 1 :</b> BSWA 308 SLM <b>Serial No. /Ref. No. :</b> 570183 / 550233 <b>Object 2 :</b> <b>Serial No. /Ref. No. :</b>
<b>Customer Code :</b> SVEC09005	<b>Manufacturer :</b> BSWAtech
<b>Date of calibration:</b> 07/10/2020 <b>Date of the recommended re-calibration:</b> 07/10/2021	<b>Certificate No.:</b> 0024993 <b>Handle by:</b> E0002

**Measuring results**

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.4dB	-0.6dB	+/- 1.5dB	1
114.0dB	113.2dB	-0.8dB	+/- 1.5dB	1

**Measuring equipment**

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

**Ambient conditions**

Temperature (20...26)°C

Humidity (20..60)%RH

**Measuring procedure**

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

**Uncertainty**

+/- 0.2dB for probability not less than 95%.

**Conformity**

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Mr. K.S. Ng

Quality Manager



Equipment no.: N-12-02

## Calibration Certificate

0024995

<b>Customer :</b> Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong  Customer Code : SVEC09005	<b>Object 1 :</b> BSWA 308 SLM <b>Serial No. /Ref. No. :</b> 570187 / 550841 <b>Object 2 :</b> <b>Serial No. /Ref. No. :</b>  <b>Manufacturer :</b> BSWAtech
<b>Date of calibration:</b> 07/10/2020 <b>Date of the recommended re-calibration:</b> 07/10/2021	<b>Certificate No.:</b> 0024995 <b>Handle by:</b> E0002

### Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.1dB	-0.9dB	+/- 1.5dB	1
114.0dB	113.1dB	-0.9dB	+/- 1.5dB	1

### Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

### Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

### Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

### Uncertainty

+/- 0.2dB for probability not less than 95%.

### Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

Mr. K.S. Ng



Equipment no.: N-12-03

**Calibration Certificate****0024996**

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570188 / 550850 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : BSWAtech
Date of calibration: 07/10/2020 Date of the recommended re-calibration: 07/10/2021	Certificate No.: 0024996 Handle by: E0002

**Measuring results**

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	92.9dB	-1.1dB	+/- 1.5dB	1
114.0dB	112.8dB	-1.2dB	+/- 1.5dB	1

**Measuring equipment**

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

**Ambient conditions**

Temperature (20...26)°C

Humidity (20...60)%RH

**Measuring procedure**

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

**Uncertainty**

+/- 0.2dB for probability not less than 95%.

**Conformity**

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

Mr. K.S. Ng



**APPLICANT:**     **Cinotech Consultants Limited**  
                  **RM 1710, Technology Park,**  
                  **18 On Lai Street,**  
                  **Shatin, N.T., Hong Kong**

Test Report No.:	00092
Date of Issue:	2021-02-26
Date Received:	2021-02-17
Date Tested:	2021-02-17 to 2021-02-25
Date Completed:	2021-02-26

**ATTN:**            **Mr. Henry Leung**

<b>Certificate of Calibration</b>
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**Item for calibration**

YSI EXO1 Multi-parameter Sonde	Equipment No.: SW-08-166
Manufacturer:	YSI Incorporated, a Xylem brand
Description:	Serial No.
- EXO Optical DO Sensor, Ti	17K101625
- EXO conductivity/Temperature Sensor, Ti	17H103448
- EXO Turbidity Sensor, Ti	17K100333
- EXO pH Sensor Assembly, Guarded, Ti	17B100260

**Test conditions:**

Room Temperature            : 22-25 degree Celsius  
Relative Humidity             : 35-70%

**Test Specifications:**

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

**Method reference:**

According to manufacturer instruction manual, APHA 23rd Ed 4500-O G

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## Test Report

### Results:

#### Conductivity performance checking

Expected Reading (mS/cm)	Instrument Readings (mS/cm)	Acceptance Criteria	Comment
1332	1298	1265-1399	Pass
6075	6089	5771-6379	Pass
12150	12188	11543-12758	Pass

#### Temperature performance checking

Expected Reading (oC)	Instrument Readings (oC)	Acceptance Criteria	Comment
10.7	10.306	±2.0	Pass
25.0	24.953	±2.0	Pass
36.6	36.231	±2.0	Pass

#### pH performance checking

Expected Reading (pH unit)	Instrument Readings (pH unit)	Acceptance Criteria	Comment
4.0	4.11	4.0 ± 0.2	Pass
7.0	7.10	7.0 ± 0.2	Pass
10.0	10.02	10.0 ± 0.2	Pass

#### D.O. performance checking

Expected Reading	Instrument Readings (mg/L)	Acceptance Criteria	Comment
0.00	0.15	--	--
7.97	7.88	±0.20	Pass

#### Turbidity performance checking

Expected Reading(NTU)	Instrument Readings (NTU)	Acceptance Criteria	Comment
0	0.07	--	--
10	10.76	9.0-11.0	Pass
50	51.34	45.0-55.0	Pass
124	121.17	111.6-136.4	Pass

Remark: "Instrument Readings " presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures

-----**End of Report**-----

PREPARED AND CHECKED BY:

For and On Behalf of **High Precision Chemical Testing Limited**

Laboratory Director





<b>RECALIBRATION DUE DATE:</b>
<b>January 11, 2022</b>

# Certificate of Calibration

Calibration Certification Information			
Cal. Date: January 11, 2021	Rootsmeter S/N: 438320	Ta: 297	°K
Operator: Jim Tisch		Pa: 750.1	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: <b>3864</b>		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4470	3.2	2.00
2	3	4	1	1.0210	6.4	4.00
3	5	6	1	0.9140	8.0	5.00
4	7	8	1	0.8670	8.8	5.50
5	9	10	1	0.7140	12.9	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left( \frac{Ta}{Pa} \right)}$ (y-axis)
0.9860	0.6814	1.4073	0.9957	0.6881	0.8899
0.9818	0.9616	1.9902	0.9915	0.9711	1.2585
0.9797	1.0719	2.2251	0.9893	1.0824	1.4071
0.9786	1.1288	2.3337	0.9883	1.1399	1.4757
0.9732	1.3630	2.8146	0.9828	1.3765	1.7798
<b>QSTD</b>	m=	<b>2.06566</b>	<b>QA</b>	m=	<b>1.29348</b>
	b=	<b>0.00315</b>		b=	<b>0.00199</b>
	r=	<b>0.99996</b>		r=	<b>0.99996</b>

Calculations	
Vstd= $\Delta Vol \left( \frac{Pa - \Delta P}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)$	Va= $\Delta Vol \left( \frac{Pa - \Delta P}{Pa} \right)$
Qstd= $Vstd / \Delta Time$	Qa= $Va / \Delta Time$
For subsequent flow rate calculations:	
Qstd= $1/m \left( \left( \sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa= $1/m \left( \left( \sqrt{\Delta H \left( \frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH:	calibrator manometer reading (in H2O)
ΔP:	rootsmeter manometer reading (mm Hg)
Ta:	actual absolute temperature (°K)
Pa:	actual barometric pressure (mm Hg)
b:	intercept
m:	slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30



## Certificate of Calibration - Wind Monitoring Station

Description: Ng Wah Catholic Secondary School - Weather Stations  
 Manufacturer: Davis Instruments  
 Model No.: Davis 6152, Vantage Pro2  
 Serial No.: BC180522050  
 Equipment No.: SA-03-03  
 Date of Calibration 9-Apr-21  
 Next Due Date 9-Oct-21

### 1. Performance check of Wind Speed

Wind Speed, m/s		Difference D (m/s)
Wind Speed Reading (V1)	Anemometer Value (V1)	$D = V1 - V2$
0.0	0.0	0.0
1.6	1.5	0.1
2.0	2.0	0.0
3.0	3.1	-0.1

### 2. Performance check of Wind Direction

Wind Direction (°)		Difference D (°)
Wind Direction Reading (V1)	Marine Compass Value (V1)	$D = W1 - W2$
0	0	0.0
90	90	0.0
180	180	0.0
270	270	0.0

### Test Specification:

**1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer**

**2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction**

Calibrated by: \_\_\_\_\_ Approved by: \_\_\_\_\_  
 Wong Shing Kwai Henry Leung

**CALIBRATION CERTIFICATE**

Calibration Item: Minimate Plus Unit (Calibration with Geophone  
BG14852)  
 Model No.: 716A0403  
 Serial No.: BE15890  
 Calibration Date: 22 March 2021  
 Next Calibration Date: 22 March 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: \_\_\_\_\_



( Au Yeung Hang Chuen, Isaac)

Date: 22 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with  
 main unit BE15890)  
 Part Number: 714A9701  
 Serial No.: BG14852  
 Calibration Date: 22 March 2021  
 Next Calibration Date: 22 March 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 22 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit  
 BE15890)  
 Model No.: 714A9801  
 Serial No.: BH11455  
 Calibration Date: 22 March 2021  
 Next Calibration Date: 22 March 2022  
 Method Used: In-house Method MM-002  
 In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

\*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 22 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone BG16955)  
 Model No.: 716A0403  
 Serial No.: BE16223  
 Calibration Date: 22 March 2021  
 Next Calibration Date: 22 March 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac)

Date: 22 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with  
 main unit BE16223)  
 Part Number: 714A9701  
 Serial No.: BG16955  
 Calibration Date: 22 March 2021  
 Next Calibration Date: 22 March 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 22 March 2021



### CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit BE16223)  
 Model No.: 714A9801  
 Serial No.: BH11458  
 Calibration Date: 22 March 2021  
 Next Calibration Date: 22 March 2022  
 Method Used: In-house Method MM-002  
 In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

\*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 22 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone  
BG15353)  
Model No.: 716A0403  
Serial No.: BE15891  
Calibration Date: 11 March 2021  
Next Calibration Date: 11 March 2022  
Method Used: In-house Method B3-001  
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with main unit BE15891)  
Part Number: 714A9701  
Serial No.: BG15353  
Calibration Date: 11 March 2021  
Next Calibration Date: 11 March 2022  
Method Used: In-house Method B3-001  
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 11 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone BG15180)  
 Model No.: 716A0403  
 Serial No.: BE15894  
 Calibration Date: 1 March 2021  
 Next Calibration Date: 1 March 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac)

Date: 1 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with  
 main unit BE15894)  
 Part Number: 714A9701  
 Serial No.: BG15180  
 Calibration Date: 1 March 2021  
 Next Calibration Date: 1 March 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 1 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit BE15894)  
 Model No.: 714A9801  
 Serial No.: BH10228  
 Calibration Date: 1 March 2021  
 Next Calibration Date: 1 March 2022  
 Method Used: In-house Method MM-002  
 In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

  
 ( Au Yeung Hang Chuen, Isaac )

Date: 1 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone  
BG20673)  
Model No.: 716A0403  
Serial No.: BE13849  
Calibration Date: 11 March 2021  
Next Calibration Date: 11 March 2022  
Method Used: In-house Method B3-001  
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with main unit BE13849)  
Part Number: 714A9701  
Serial No.: BG20673  
Calibration Date: 11 March 2021  
Next Calibration Date: 11 March 2022  
Method Used: In-house Method B3-001  
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 11 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit BE13849)  
Model No.: 714A9801  
Serial No.: BH13154  
Calibration Date: 11 March 2021  
Next Calibration Date: 11 March 2022  
Method Used: In-house Method MM-002  
In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 11 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone  
 BG16512)  
 Model No.: 716A0403  
 Serial No.: BE13853  
 Calibration Date: 1 March 2021  
 Next Calibration Date: 1 March 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

  
 ( Au Yeung Hang Chuen, Isaac)

Date: 1 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with  
 main unit BE13853)  
 Part Number: 714A9701  
 Serial No.: BG16512  
 Calibration Date: 1 March 2021  
 Next Calibration Date: 1 March 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 1 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone BG17240)  
Model No.: 716A0403  
Serial No.: BE20015  
Calibration Date: 11 March 2021  
Next Calibration Date: 11 March 2022  
Method Used: In-house Method B3-001  
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with main unit BE20015)  
Part Number: 714A9701  
Serial No.: BG17240  
Calibration Date: 11 March 2021  
Next Calibration Date: 11 March 2022  
Method Used: In-house Method B3-001  
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

( Au Yeung Hang Chuen, Isaac )

Date: 11 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit BE20015)  
Model No.: 714A9801  
Serial No.: BH12658  
Calibration Date: 11 March 2021  
Next Calibration Date: 11 March 2022  
Method Used: In-house Method MM-002  
In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

  
( Au Yeung Hang Chuen, Isaac )

Date: 11 March 2021



## CALIBRATION CERTIFICATE

Calibration Item: Micromate System ISEE (Calibration with  
 Geophone UM13703)  
 Model No.: 721A2501  
 Serial No.: UM13703  
 Calibration Date: 14 April 2021  
 Next Calibration Date: 14 April 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

<b>Test References</b>	<b>Model</b>	<b>Serial No.</b>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

(Au Yeung Hang Chuen, Isaac)

Date: 14 April 2021



## CALIBRATION CERTIFICATE


Calibration Item: TRIAXIAL GEOPHONE (Calibration with  
 main unit UM13703)  
 Part Number: 721A2901  
 Serial No.: UM13703  
 Calibration Date: 14 April 2021  
 Next Calibration Date: 14 April 2022  
 Method Used: In-house Method B3-001  
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

\*References are traceable to NIST or equivalent.

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Authorized by: \_\_\_\_\_

  
 (Au Yeung Hang Chuen, Isaac)

Date: 14 April 2021