

Report no.: 183057CA196490

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## CALIBRATION CERTIFICATE OF SOUND LEVEL METER

### Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

### Details of Unit Under Test, UUT

 Description : Sound Level Meter  
 Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No.	CEL-63X	CE-251	CEL-495
Serial No.	1488304	02695	003984

Equipment ID : N/A

Next Calibration Date : 02-Dec-2020

Specification Limit : EN 61672: 2003 Type 1

### Laboratory Information

#### Details of Reference Equipment -

Description : B &amp; K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 03-Dec-2019

Calibration Location : Calibration Laboratory of FTS      Ambient Temperature : 22 °C

Method Used : By direct comparison

### Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	0.8	2.6 to -0.6
	2000Hz	1.8	2.8 to -0.4
	1000Hz	1.0	1.1 to -1.1
	500Hz	-2.2	-1.8 to -4.6
	250Hz	-7.6	-7.2 to -10.0
	125Hz	-15.0	-14.6 to -17.6
	63Hz	-25.1	-24.7 to -27.7
	31.5Hz	-38.0	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

### Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast
4. The UUT complies with EN 61672: 2003 Type 1 sound level meter for the above measurement.
5. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

 Checked by : William      Date : 12-12-2019      Certified by : K. J. Young      Date : 12-12-2019  
 CA-R-297 (22/07/2009)      Leung Kwok Tai (Assistant Manager)

**\*\* End of Report \*\***

## CALIBRATION CERTIFICATE OF SOUND LEVEL METER

### Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

### Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No.	CEL-63X	CE-251	CEL-495
Serial No.	1488306	03999	002748

Equipment ID : N-56

Next Calibration Date : 19-Dec-2020

Specification Limit : EN 61672: 2003 Type 1

### Laboratory Information

#### Details of Reference Equipment -

Description : B &amp; K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 20-Dec-2019

Calibration Location : Calibration Laboratory of FTS      Ambient Temperature : 22 °C

Method Used : By direct comparison

### Calibration Results :

Parameters	Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	1.3      2.6 to -0.6
	2000Hz	1.3      2.8 to -0.4
	1000Hz	0.0      1.1 to -1.1
	500Hz	-3.4      -1.8 to -4.6
	250Hz	-8.8      -7.2 to -10.0
	125Hz	-16.2      -14.6 to -17.6
	63Hz	-26.3      -24.7 to -27.7
	31.5Hz	-39.3      -37.4 to -41.4
Differential level linearity	94dB-104dB	0.0      ± 0.6
	104dB-114dB	0.0      ± 0.6

### Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast
4. The UUT complies with EN 61672: 2003 Type 1 sound level meter for the above measurement.
5. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

 Checked by : William      Date : 30-12-2019      Certified by : F.T. Leung      Date : 30-12-2019  
 CA-R-297 (22/07/2009)      Leung Kwok Tai (Assistant Manager)

**\*\* End of Report \*\***

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**CALIBRATION CERTIFICATE OF SOUND CALIBRATOR****Client Supplied Information**

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Calibrator  
Manufacturer : Casella (Model CEL-120/1)  
Serial No. : 2383884  
Equipment ID : N/A  
Next Calibration Date : 12-Jan-2021  
Specification Limit : EN 60942: 2003 Type 1

**Laboratory Information**

Description : Reference Sound level meter  
Equipment ID. : R-119-1  
Date of Calibration : 13-Jan-2020 Ambient Temperature : 22 °C  
Calibration Location : Calibration Laboratory of FTS  
Method Used : By direct comparison

**Calibration Results :**

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.2 dB	±0.4dB
114dB	-0.1 dB	

**Remarks :**

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with the specification limit.
4. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by : William Date : 20-1-2020 Certified by : K. I. Young Date : 21-1-2020  
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

**\*\* End of Report \*\***

# FUGRO TECHNICAL SERVICES LIMITED

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# MaterialLab

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## CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

### Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Calibrator  
Manufacturer : Casella (Model CEL-120/1)  
Serial No. : 4358289  
Equipment ID : N-35  
Next Calibration Date : 25-Jul-2020  
Specification Limit : EN 60942: 2003 Type 1

### Laboratory Information

Description : Reference Sound level meter  
Equipment ID. : R-119-1  
Date of Calibration : 26-Jul-2019 Ambient Temperature : 22 °C  
Calibration Location : Calibration Laboratory of FTS  
Method Used : By direct comparison

### Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	0.1 dB	±0.4dB
114dB	0.0 dB	

### Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with the specification limit.
4. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by : William Date : 26-7-2019 Certified by : RT Leung Date : 26-7-2019  
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

\*\* End of Report \*\*

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
Room 1710, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	32151
Date of Issue:	2019-09-27
Date Received:	2019-09-26
Date Tested:	2019-09-26
Date Completed:	2019-09-27
Next Due Date:	2020-09-26

**ATTN:** Mr. Henry Leung

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### Certificate of Calibration

**Item for calibration:**

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21455
Microphone No.	: 43730
Equipment No.	: N-08-07

**Test conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications:**

Performance checking at 94 and 114 dB

**Methodology:**

In-house method, according to manufacturer instruction manual

**Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**

Laboratory Manager



# Calibration Certificate

0023002

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : SV30A sound calibrator Serial No. /Ref. No. : 10965 / N-09-02 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Svantek
Date of calibration: 19/12/2019 Date of the recommended re-calibration: 19/12/2020	Certificate No.: 0023002 Handle by: E0002

## Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.9dB	-0.1dB	+/- 0.3dB	1
114.0dB	114.2dB	+0.2dB	+/- 0.3dB	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

Approved by

Quality Manager