

Appendix D

Calibration Certificate for
Construction Noise Monitoring
Equipment

Report no.: 212769CA211755

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CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Address : Room 723 & 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	: Sound Level Meter									
Manufacturer	: Casella									
Model No.	: <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>Meter</td> <td>Microphone</td> <td>Preamplifier</td> </tr> <tr> <td>CEL-63X</td> <td>CE-251</td> <td>CEL-495</td> </tr> <tr> <td>1488293</td> <td>04064</td> <td>004061</td> </tr> </table>	Meter	Microphone	Preamplifier	CEL-63X	CE-251	CEL-495	1488293	04064	004061
Meter	Microphone	Preamplifier								
CEL-63X	CE-251	CEL-495								
1488293	04064	004061								
Serial No.	: <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>Meter</td> <td>Microphone</td> <td>Preamplifier</td> </tr> <tr> <td>CEL-63X</td> <td>CE-251</td> <td>CEL-495</td> </tr> <tr> <td>1488293</td> <td>04064</td> <td>004061</td> </tr> </table>	Meter	Microphone	Preamplifier	CEL-63X	CE-251	CEL-495	1488293	04064	004061
Meter	Microphone	Preamplifier								
CEL-63X	CE-251	CEL-495								
1488293	04064	004061								
Equipment ID	: N/A									
Next Calibration Date	: 25-Jul-2022									
Specification Limit	: EN 61672-1: 2003 Class 1									

Laboratory Information

Details of Reference Equipment -

Description	: B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)
Equipment ID.	: R-108-1

Date of Calibration : 26-Jul-2021

Calibration Location : Calibration Laboratory of FTS Ambient Temperature : 20±2 °C

Method Used : By direct comparison Relative Humidity : <80% R.H.

Calibration Results :

Parameters	Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	1.0 2.6 to -0.6
	2000Hz	1.2 2.8 to -0.4
	1000Hz	0.0 1.1 to -1.1
	500Hz	-3.4 -1.8 to -4.6
	250Hz	-8.7 -7.2 to -10.0
	125Hz	-16.2 -14.6 to -17.6
	63Hz	-26.1 -24.7 to -27.7
	31.5Hz	-38.9 -37.4 to -41.4
Differential level linearity	94dB-104dB	± 0.6
	104dB-114dB	± 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. The expanded uncertainty is 0.3 dB with a coverage factor of 2 at a confidence level of 95%.
4. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast
5. The UUT does comply with EN 61672-1: 2003 Class 1 sound level meter for the above measurement.
6. The values given in this Calibration Certificate only relate to unit under test and the values measured at the time of the test. 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 : Cenny Date : 30-7-2021 Certified by : K.T. Leung Date : 30-7-2021
 CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

**** End of Report ****

Report no.: 212769CA212069(2)

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CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Address : Room 723 & 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

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.	1488295	01163	004064

Equipment ID : N-54

Next Calibration Date : 25-Aug-2022

Specification Limit : EN 61672-1: 2003 Class 1

Laboratory Information

Details of Reference Equipment -

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

Equipment ID. : R-108-1

Date of Calibration : 26-Aug-2021

Calibration Location : Calibration Laboratory of FTS Ambient Temperature : 20±2 °C

Method Used : By direct comparison Relative Humidity : <80% R.H.

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	2.3	2.6 to -0.6
	2000Hz	1.5	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	-16.3	-14.6 to -17.6
	63Hz	-26.3	-24.7 to -27.7
	31.5Hz	-39.0	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.1	± 0.6
	104dB-114dB	0.1	± 0.6

Remarks :

- The equipment used in this calibration is traceable to recognized National Standards.
- The mean value is the average of four measurements.
- The expanded uncertainty is 0.3 dB with a coverage factor of 2 at a confidence level of 95%.
- For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast
- The UUT does comply with EN 61672-1: 2003 Class 1 sound level meter for the above measurement.
- The values given in this Calibration Certificate only relate to unit under test and the values measured at the time of the test. 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 : Carmy Date : 27-8-2021 Certified by : K.T. Leung Date : 27-8-2021
 CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

**** End of Report ****

Report no.: 212769CA211664

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CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Client Supplied Information**Details of Unit Under Test, UUT**Description : Sound Calibrator
Manufacturer : Casella (Model CEL-120/1)
Serial No. : 5230758
Equipment ID : N/A

Next Calibration Date : 15-Jul-2022

Specification Limit : EN 60942: 2003 Class 1

Laboratory Information**Details of Calibration Equipment**Description : Reference Sound level meter
Equipment ID. : R-119-2

Date of Calibration : 16-Jul-2021

Calibration Location : Calibration Laboratory of FTS Ambient Temperature : 20±2 °C

Method Used : By direct comparison Relative Humidity : <80% R.H.

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.2 dB	±0.4dB
114dB	-0.2 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 expanded uncertainty is 0.3 dB with a coverage factor of 2 at a confidence level of 95%.
4. The unit under test complies with the specification limit.
5. The values given in this Calibration Certificate only relate to the unit-under-test and the values measured at the time of the test. Any uncertainties quoted will not include allowances for the environmental changes, variation and shock during transportation, or the capability of any other laboratory to repeat the measurement.

Checked by : Cmyy Date : 20-7-2021 Certified by : R.T. Leung Date : 20-7-2021
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)**** End of Report ****

Report no.: 212769CA212279(2)

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CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description : Sound Calibrator
 Manufacturer : Casella (Model CEL-120/1)
 Serial No. : 5230736
 Equipment ID : N/A

Next Calibration Date : 12-Sep-2022

Specification Limit : EN 60942: 2003 Class 1

Laboratory Information

Details of Calibration Equipment

Description : Reference Sound level meter
 Equipment ID. : R-119-2

Date of Calibration : 13-Sep-2021

Calibration Location : Calibration Laboratory of FTS Ambient Temperature : 20±2 °C

Method Used : By direct comparison Relative Humidity : <80% R.H.

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.1 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 unit under test complies with the specification limit.
4. The values given in this Calibration Certificate only relate to the unit-under-test and the values measured at the time of the test. Any uncertainties quoted will not include allowances for the environmental changes, variation and shock during transportation, or the capability of any other laboratory to repeat the measurement.

 Checked by : Conny Date : 17-9-2021 Certified by : E.T. Leung Date : 17-9-2021

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

**** End of Report ****