
Appendix 9.1
Noise Meter Calibration
Certificates

Certificate of Calibration

Issued by University of Salford (Acoustic Calibration Laboratory)
UKAS ACCREDITED CALIBRATION LABORATORY NO. 0801

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Certificate Number: 05261/1

Date of Issue: 7/2/2021

MEASUREMENTS

The sound pressure level generated by the calibrator was measured using a calibrated, WS2P condenser microphone as specified in this certificate. The calibration was carried out with the calibrator in the half-inch configuration.

Five determinations of the sound pressure level, frequency and total distortion were made.

The results have been corrected to the reference pressure of 101.325 kPa using manufacturer's data.

RESULTS

Coupler configuration:	Half-inch
Microphone type:	B&K 4192
Output level (dB re 20 μ Pa):	94.11 dB \pm 0.09 dB
Frequency (Hz):	999.82 Hz \pm 0.12 Hz
Total Distortion (%):	0.52 % \pm 0.22 %

Average environmental conditions at the time of measurement were:

Pressure:	101.088 kPa \pm 0.015 kPa
Temperature:	21.5 °C \pm 0.4 °C
Relative humidity:	51.8 % \pm 2.1 %

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

All measurement results are retained at the acoustic calibration laboratory for at least four years.

-----END OF CERTIFICATE-----

CERTIFICATE OF CALIBRATION

No: CDK2101022

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 3006559	Id: - 3006559
Microphone:	Brüel & Kjær Type 4189	No: 3005134	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 05085	
Supplied Calibrator:	None		
Software version:	BZ7222 Version 4.5.2	Pattern Approval:	PTB1.63-40478500 / 1.63-4078502
Instruction manual:	BE1712-22		

CUSTOMER

Enfonic Ltd
Unit 2A, Century Business Park
Dublin
D11 T0HV
Ireland

CALIBRATION CONDITIONS

Preconditioning: 4 hours at 23°C ± 3°C
Environment conditions: *See actual values in **Environmental conditions** sections.*

SPECIFICATIONS

The Sound Level Meter Brüel & Kjær Type 2250 has been calibrated in accordance with the requirements as specified in IEC6162-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests. The accreditation assures the traceability of the international units system SI.

PROCEDURE

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 7.3 - DB: 7.30) by using procedure B&K proc 2250, 4189 (IEC61672:2013)

RESULTS

Calibration Mode: **Calibration as received.**

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of calibration: 2021-08-31

Date of issue: 2021-08-31



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK2101110

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250 - Light	No: 2602763	Id: -
Microphone:	Brüel & Kjær Type 4950	No: 2697054	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 12941	
Supplied Calibrator:	None		
Software version:	BZ7130 Version 4.7.2	Pattern Approval:	PTB1.63-40478500 / 1.63-4078502
Instruction manual:	BE1712-22		

CUSTOMER

Enfonic Ltd
Unit 2A, Century Business Park
Dublin
D11 T0HV
Ireland

CALIBRATION CONDITIONS

Preconditioning: 4 hours at 23°C ± 3°C
Environment conditions: *See actual values in **Environmental conditions** sections.*

SPECIFICATIONS

The Sound Level Meter Brüel & Kjær Type 2250 has been calibrated in accordance with the requirements as specified in IEC6162-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests. The accreditation assures the traceability of the international units system SI.

PROCEDURE

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 7.3 - DB: 7.30) by using procedure B&K proc 2250, 4189 (IEC61672:2013)

RESULTS

Calibration Mode: **Calibration as received.**

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of calibration: 2021-06-24

Date of issue: 2021-06-24



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK2106397

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250-Light	No: 2620746	Id: -
Microphone:	Brüel & Kjær Type 4950	No: 2606534	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 8767	
Supplied Calibrator:	None		
Software version:	BZ7222 Version 4.5.2	Pattern Approval:	PTB1.63-40478500 / 1.63-4078502
Instruction manual:	BE1712-22		

CUSTOMER

Enfonic Ltd
Unit 2A, Century Business Park
Dublin
D11 T0HV
Ireland

CALIBRATION CONDITIONS

Preconditioning: 4 hours at 23°C ± 3°C
Environment conditions: *See actual values in **Environmental conditions** sections.*

SPECIFICATIONS

The Sound Level Meter Brüel & Kjær Type 2250 has been calibrated in accordance with the requirements as specified in IEC6162-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests. The accreditation assures the traceability of the international units system SI.

PROCEDURE

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 7.3 - DB: 7.30) by using procedure B&K proc 2250, 4189 (IEC61672:2013)

RESULTS

Calibration Mode: **Calibration as received.**

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of calibration: 2021-06-10

Date of issue: 2021-06-10



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK2000408

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 2654662	Id: - 2654662
Microphone:	Brüel & Kjær Type 4950	No: 2626990	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 6822	
Supplied Calibrator:	Brüel & Kjær Type 4231	No: 2460008	
Software version:	BZ7222 Version 2.1	Pattern Approval:	PTB1.63-4046158
Instruction manual:	BE1712-18		

CUSTOMER

Enfonic Ltd
Unit 2A
Century Business Park
Dublin
D11 T0HV
Ireland

CALIBRATION CONDITIONS

Preconditioning: 4 hours at 23°C ± 3°C
Environment conditions: *See actual values in **Environmental conditions** sections.*

SPECIFICATIONS

The Sound Level Meter Brüel & Kjær Type 2250 has been calibrated in accordance with the requirements as specified in IEC61672-1:2002 class 1. Procedures from IEC 61672-3:2006 were used to perform the periodic tests. The accreditation assures the traceability to the international units system SI.

PROCEDURE

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 4.9 - DB: 4.90) by using procedure 2250-4189.

RESULTS

Calibration Mode: **Calibration as received.**

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of calibration: 2020-02-13

Date of issue: 2020-02-13



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK2104736

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 3001350	Id: -
Microphone:	Brüel & Kjær Type 4189	No: 3022867	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 23775	
Supplied Calibrator:	None		
Software version:	BZ7222 Version 4.5.2	Pattern Approval:	PTB1.63-40478500 / 1.63-4078502
Instruction manual:	BE1712-22		

CUSTOMER

Enfonic Ltd
Unit 2A, Century Business Park
Dublin
D11 T0HV
Ireland

CALIBRATION CONDITIONS

Preconditioning: 4 hours at 23°C ± 3°C
Environment conditions: *See actual values in **Environmental conditions** sections.*

SPECIFICATIONS

The Sound Level Meter Brüel & Kjær Type 2250 has been calibrated in accordance with the requirements as specified in IEC6162-1:2013 class 1. Procedures from IEC 61672-3:2013 were used perform the periodic tests. The accreditation assures the traceability of the international units system SI.

PROCEDURE

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 7.3 - DB: 7.30) by using procedure B&K proc 2250, 4189 (IEC61672:2013)

RESULTS

Calibration Mode: **Calibration as received.**

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of calibration: 2021-08-21

Date of issue: 2021-08-21



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK2101007

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CALIBRATION OFSound Level Meter: Brüel & Kjær Type 2250-Light
Microphone: Brüel & Kjær Type 4952No: 3008590 Id: - 3008590
No: 2788845

Supplied Calibrator: None

Software version: BZ7222 Version 4.5.2

Pattern Approval:

PTB1.63-40478500 / 1.63-4078502

Instruction manual: BE1712-22

CUSTOMEREnfonic Ltd
Unit 2A, Century Business Park
Dublin
D11 T0HV
Ireland**CALIBRATION CONDITIONS**

Preconditioning: 4 hours at 23°C ± 3°C

Environment conditions: *See actual values in **Environmental conditions** sections.***SPECIFICATIONS**

The Sound Level Meter Brüel & Kjær Type 2250 has been calibrated in accordance with the requirements as specified in IEC6162-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests. The accreditation assures the traceability of the international units system SI.

PROCEDURE

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 7.3 - DB: 7.30) by using procedure B&K proc 2250, 4189 (IEC61672:2013)

RESULTSCalibration Mode: **Calibration as received.**

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of calibration: 2021-06-24

Date of issue: 2021-06-24

Mikail Önder
Calibration TechnicianSusanne Jørgensen
Approved Signatory