

CERTIFICATE OF CALIBRATION

No: CDK1399519

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CALIBRATION OFSound Level Meter: Brüel & Kjær Type 2238
Microphone: Brüel & Kjær Type 4188No: 2125128 Id: -
No: 2057896**CUSTOMER**Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Dublin 17
Ireland**CALIBRATION CONDITIONS**Preconditioning: 4 hours at $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$ Environment conditions: Pressure: $101,3\text{kPa} \pm 3\text{kPa}$. Humidity: 25% - 70% RH. Temperature: $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$.**SPECIFICATIONS**

The Sound Level Meter Brüel & Kjær Type 2238 has been calibrated in accordance with the requirements as specified in IEC 60651 and 60804 type 1. 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 5.0 - DB: 5.00) by using procedure 2238-4188-BZ7125.

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: 2016-11-11

Date of issue: 2016-11-11



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1359513

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CALIBRATION OFSound Level Meter: Brüel & Kjær Type 2238
Microphone: Brüel & Kjær Type 4188No: 2151874 Id: -
No: 2274039**CUSTOMER**Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Dublin 17
Ireland**CALIBRATION CONDITIONS**Preconditioning: 4 hours at $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$
Environment conditions: Pressure: $101,3\text{kPa} \pm 3\text{kPa}$. Humidity: 25% - 70% RH. Temperature: $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$.**SPECIFICATIONS**

The Sound Level Meter Brüel & Kjær Type 2238 has been calibrated in accordance with the requirements as specified in IEC 60651 and 60804 type 1. 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 5.0 - DB: 5.00) by using procedure 2238-4188-BZ7125.

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: 2015-11-11

Date of issue: 2015-11-11



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1399322

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CALIBRATION OFSound Level Meter: Brüel & Kjær Type 2238
Microphone: Brüel & Kjær Type 4188No: 2343753 Id: -
No: 2555128**CUSTOMER**Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Dublin 17
Ireland**CALIBRATION CONDITIONS**Preconditioning: 4 hours at $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$
Environment conditions: Pressure: $101,3\text{kPa} \pm 3\text{kPa}$. Humidity: 25% - 70% RH. Temperature: $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$.**SPECIFICATIONS**

The Sound Level Meter Brüel & Kjær Type 2238 has been calibrated in accordance with the requirements as specified in IEC 60651 and 60804 type 1. 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 5.0 - DB: 5.00) by using procedure 2238-4188-BZ7125.

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: 2016-11-11

Date of issue: 2016-11-11



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

CERTIFICATE OF CALIBRATION

Date of issue: 29 May 2015

Certificate Number: CDK1503969

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Brüel & Kjær



The Calibration Laboratory
Skodsborgvej 307, DK-2850 Nærum, Denmark
Tel: +45 45 800 500 Fax: +45 45 801 405
Email: ukservice@bksv.com

Erik Bruus

Approved Signatory

CALIBRATION OF:

Sound Level Meter:	Brüel & Kjær Type 2238	No: 2562556	Id: -
Microphone:	Brüel & Kjær Type 4188	No: 2274039	
Associated Calibrator:	Brüel & Kjær Type 4231	No: 2123002	
Calibrator Certificate:	CDK1503914	Calibrator Level:	93.98 dB SPL
SLM Software Version:	BZ7226 Version 1.1.0		

Date of calibration: 29 May 2015

CUSTOMER:

Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Clonshaugh
17 Dublin
Ireland

CALIBRATION CONDITIONS:

Preconditioning: 4 hours at 23°C ± 3°C
Environment conditions: Air Temperature: 23.0 °C, Air Pressure: 100.7 kPa, Relative Humidity: 41.0 %RH

SPECIFICATIONS:

The Sound Level Meter Brüel & Kjær Type 2238 has been calibrated in accordance with the requirements as specified in BS7580: Part 1: 1997.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 5.1 - DB: 4.60) by using procedure 2238-4188-BZ7126.

RESULTS:

Unless otherwise stated herein, the reported uncertainty is based upon a 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 DANAK requirements. The uncertainties refer to the measured values only with no account being taken of the ability of the device under test to maintain its calibration.

Note: Calibration as received.

This certificate is issued in accordance with the laboratory accreditation requirements of DANAK. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CERTIFICATE OF CALIBRATION

No: CDK1399341

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CALIBRATION OFSound Level Meter: Brüel & Kjær Type 2238
Microphone: Brüel & Kjær Type 4188No: 2756962 Id: -
No: 2746328**CUSTOMER**Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Dublin 17
Ireland**CALIBRATION CONDITIONS**Preconditioning: 4 hours at $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$ Environment conditions: Pressure: $101,3\text{kPa} \pm 3\text{kPa}$. Humidity: 25% - 70% RH. Temperature: $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$.**SPECIFICATIONS**

The Sound Level Meter Brüel & Kjær Type 2238 has been calibrated in accordance with the requirements as specified in IEC 60651 and 60804 type 1. 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 5.0 - DB: 5.00) by using procedure 2238-4188-BZ7125.

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: 2016-11-13

Date of issue: 2016-11-13



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1359690

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 2590440	Id: - 2590440
Microphone:	Brüel & Kjær Type 4189	No: 2589639	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 16110	
Supplied Calibrator:	Brüel & Kjær Type 4231	No: 2626210	
Software version:	BZ7222 Version 2.1	Pattern Approval:	PTB1.63-4046158
Instruction manual:	BE1712-18		

CUSTOMER

Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Dublin

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: 2015-12-12

Date of issue: 2015-12-12



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1608402

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 3010911	Id: -
Microphone:	Brüel & Kjær Type 4189	No: 3044415	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 25273	
Supplied Calibrator:	None		
Software version:	BZ7222 Version 4.7.1	Pattern Approval:	PENDING
Instruction manual:	BE1712-22		

CUSTOMER

Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Clonshaugh
D17 NX50 Dublin
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 IEC61672-1:2013 class 1. Procedures from IEC 61672-3:2013 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 6.0 - DB: 6.01) by using procedure B&K proc 2250, 4189 (IEC 61672:2013).

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: 2016-12-13

Date of issue: 2016-12-13



Lene Petersen
Calibration Technician



Mikail Önder
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1609406

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 2580156	Id: - 2580156
Microphone:	Brüel & Kjær Type 4950	No: 2698718	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 17445	
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
Tecpro House
IDA Business & Technology Park
Dublin
D17 NX50
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: 2017-02-13

Date of issue: 2017-02-13



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK14010525

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 2580156	Id: -
Microphone:	Brüel & Kjær Type 4950	No: 2698718	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 17445	
Supplied Calibrator:	Brüel & Kjær Type 4231	No: 2343370	
Software version:	BZ7222 Version 2.1	Pattern Approval:	PTB1.63-4046158
Instruction manual:	BE1712-18		

CUSTOMER

Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Dublin

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: 2015-07-21

Date of issue: 2015-07-21



Mikail Önder

Calibration Technician



Susanne Jørgensen

Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1609408

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 2654662	Id: - 2654662
Microphone:	Brüel & Kjær Type 4950	No: 2737145	
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
Tecpro House
IDA Business & Technology Park
Dublin
D17 NX50
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: 2017-02-13

Date of issue: 2017-02-13



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1410515

Page 1 of 10

CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 2654662	Id: - 2654662
Microphone:	Brüel & Kjær Type 4950	No: 2737145	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 6822	
Supplied Calibrator:	Brüel & Kjær Type 4231	No: 2123002	
Software version:	BZ7222 Version 2.1	Pattern Approval:	PTB1.63-4046158
Instruction manual:	BE1712-18		

CUSTOMER

Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Dublin

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: 2015-07-21

Date of issue: 2015-07-21



Mikail Önder

Calibration Technician



Susanne Jørgensen

Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1359391

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 3000855	Id: - 2626210
Microphone:	Brüel & Kjær Type 4950	No: 2778445	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 16743	
Supplied Calibrator:	Brüel & Kjær Type 4231	No: 2626210	
Software version:	BZ7222 Version 2.1	Pattern Approval:	PTB1.63-4046158
Instruction manual:	BE1712-18		

CUSTOMER

Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Dublin

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: 2015-11-21

Date of issue: 2015-11-21



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1609404

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 3002367	Id: - 3002367
Microphone:	Brüel & Kjær Type 4950	No: 2778447	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 17907	
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
Tecpro House
IDA Business & Technology Park
Dublin
D17 NX50
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: 2017-02-13

Date of issue: 2017-02-13



Mikail Önder
Calibration Technician



Susanne Jørgensen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1404221

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250 Light	No: 3002367	Id: -
Microphone:	Brüel & Kjær Type 4950	No: 2778447	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 17907	
Supplied Calibrator:	Brüel & Kjær Type 4231	No: 2460008	
Software version:	BZ7133 Version 4.3.2	Pattern Approval:	PTB
Instruction manual:	BE1853-11		

CUSTOMER

Enfonic Ltd
Tecpro House
IDA Business & Technology Park
Clonshaugh
17 Dublin
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 Light 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 5.1 - DB: 5.10) by using procedure B&K proc 2250-L-4950 (IEC61672).

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: 2015-06-09

Date of issue: 2015-06-09



Jonas Johannessen
Calibration Technician



Morten Hongård Hansen
Approved Signatory

CERTIFICATE OF CALIBRATION

No: CDK1360941

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CALIBRATION OF

Sound Level Meter:	Brüel & Kjær Type 2250	No: 3006895	Id: - 3006895
Microphone:	Brüel & Kjær Type 4952	No: 2550918	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 16530	
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
Tecpro House
IDA Business & Technology Park
Dublin

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: 2016-02-14

Date of issue: 2016-02-14



Mikail Önder

Calibration Technician



Susanne Jørgensen

Approved Signatory



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 03 March 2017

Certificate Number: UCRT17/1089

Issued by:

ANV Measurement Systems

Beaufort Court

17 Roebuck Way

Milton Keynes MK5 8HL

Telephone 01908 642846 Fax 01908 642814

E-Mail: info@noise-and-vibration.co.uk

Web: www.noise-and-vibration.co.uk

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

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Approved Signatory

K. Mistry

Customer ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes
 MK5 8HL

Order No.	ANVMS Hire			
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator			
Identification	Manufacturer	Instrument	Type	Serial No. / Version
	Rion	Sound Level Meter	NL-52	00610195
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	10189
	Rion	Microphone	UC-59	02537
	Rion	Calibrator	NC-74	34536109
		Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
 Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 02 March 2017 ANV Job No. UKAS17/03066
 Date Calibrated 03 March 2017

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	Dated	Certificate No.	Laboratory
	17 October 2016	UCRT16/1312	7623

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CERTIFICATE OF CALIBRATION

Certificate Number

UCRT17/1089

UKAS Accredited Calibration Laboratory No. 0653

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Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source	Manufacturer	
Internet download date if applicable		N/A
Case corrections available	Yes	
Uncertainties of case corrections	Yes	
Source of case data	Manufacturer	
Wind screen corrections available	Yes	
Uncertainties of wind screen corrections	Yes	
Source of wind screen data	Manufacturer	
Mic pressure to free field corrections	Yes	
Uncertainties of Mic to F.F. corrections	Yes	
Source of Mic to F.F. corrections	Manufacturer	
Total expanded uncertainties within the requirements of IEC 61672-1:2002	Yes	
Specified or equivalent Calibrator	Specified	
Customer or Lab Calibrator	Lab Calibrator	
Calibrator adaptor type if applicable	NC-74-002	
Calibrator cal. date	02 February 2017	
Calibrator cert. number	UCRT17/1050	
Calibrator cal cert issued by	7623	
Calibrator SPL @ STP	93.99	dB Calibration reference sound pressure level
Calibrator frequency	1001.94	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
 Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	21.32	22.27	± 0.20 °C
Humidity	38.6	36.7	± 3.00 %RH
Ambient Pressure	98.98	98.85	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.0	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±			0.10 dB		

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device - UR = Under Range indicated

Weighting	A	C	Z
	13.9 dB UR	18.1 dB UR	23.9 dB UR

Uncertainty of the electrical self generated noise ± 0.12 dB

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.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

..... END

Calibrated by: A Patel

R 1

Additional Comments

None



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 03 March 2017

Certificate Number: UCRT17/1093

Issued by:

ANV Measurement Systems

Beaufort Court

17 Roebuck Way

Milton Keynes MK5 8HL

Telephone 01908 642846 Fax 01908 642814

E-Mail: info@noise-and-vibration.co.uk

Web: www.noise-and-vibration.co.uk

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages
Approved Signatory
K. Mistry

Customer ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes
 MK5 8HL

Order No.	ANVMS Hire			
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator			
Identification	<i>Manufacturer</i>	<i>Instrument</i>	<i>Type</i>	<i>Serial No. / Version</i>
	Rion	Sound Level Meter	NL-52	00620802
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	20862
	Rion	Microphone	UC-59	03628
	Rion	Calibrator	NC-74	34536109
		Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
 Test Procedure TP 2.SLM 61672-3 TPS-49

Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02

If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 02 March 2017 ANV Job No. UKAS17/03066
 Date Calibrated 03 March 2017

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	<i>Dated</i>	<i>Certificate No.</i>	<i>Laboratory</i>
	13 January 2016	UCRT16/1030	7623

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CERTIFICATE OF CALIBRATION

Certificate Number

UCRT17/1093

UKAS Accredited Calibration Laboratory No. 0653

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Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source	Manufacturer	
Internet download date if applicable		N/A
Case corrections available	Yes	
Uncertainties of case corrections	Yes	
Source of case data	Manufacturer	
Wind screen corrections available	Yes	
Uncertainties of wind screen corrections	Yes	
Source of wind screen data	Manufacturer	
Mic pressure to free field corrections	Yes	
Uncertainties of Mic to F.F. corrections	Yes	
Source of Mic to F.F. corrections	Manufacturer	
Total expanded uncertainties within the requirements of IEC 61672-1:2002		Yes
Specified or equivalent Calibrator	Specified	
Customer or Lab Calibrator	Lab Calibrator	
Calibrator adaptor type if applicable	NC-74-002	
Calibrator cal. date	02 February 2017	
Calibrator cert. number	UCRT17/1050	
Calibrator cal cert issued by	7623	
Calibrator SPL @ STP	93.99	dB Calibration reference sound pressure level
Calibrator frequency	1001.94	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
 Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	22.60	22.67	± 0.20 °C
Humidity	34.2	32.9	± 3.00 %RH
Ambient Pressure	98.50	98.30	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	93.9	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±			0.10 dB		

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device - UR = Under Range indicated

Weighting	A	C	Z
	12.1	16.3	22.1
	dB	dB	dB
	UR	UR	UR

Uncertainty of the electrical self generated noise ±	0.12	dB
--	------	----

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.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

END

Calibrated by: A Patel

R 1

Additional Comments

None



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 03 March 2017

Certificate Number: UCRT17/1092

Issued by:

ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages
Approved Signatory
K. Mistry

Customer ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes
MK5 8HL

Order No.	ANVMS Hire			
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator			
Identification	<i>Manufacturer</i>	<i>Instrument</i>	<i>Type</i>	<i>Serial No. / Version</i>
	Rion	Sound Level Meter	NL-52	00732094
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	32122
	Rion	Microphone	UC-59	05633
	Rion	Calibrator	NC-74	34536109
		Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.
Type Approved to IEC 61672-1:2002 YES **Approval Number** 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003
Date Received 02 March 2017 **ANV Job No.** UKAS17/03066
Date Calibrated 03 March 2017

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	<i>Dated</i>	<i>Certificate No.</i>	<i>Laboratory</i>
	01 August 2016	UCRT16/1244	7623

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CERTIFICATE OF CALIBRATION

Certificate Number

UCRT17/1092

UKAS Accredited Calibration Laboratory No. 0653

Page 2 of 2 Pages

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source	Manufacturer	
Internet download date if applicable		N/A
Case corrections available	Yes	
Uncertainties of case corrections	Yes	
Source of case data	Manufacturer	
Wind screen corrections available	Yes	
Uncertainties of wind screen corrections	Yes	
Source of wind screen data	Manufacturer	
Mic pressure to free field corrections	Yes	
Uncertainties of Mic to F.F. corrections	Yes	
Source of Mic to F.F. corrections	Manufacturer	
Total expanded uncertainties within the requirements of IEC 61672-1:2002		Yes
Specified or equivalent Calibrator	Specified	
Customer or Lab Calibrator	Lab Calibrator	
Calibrator adaptor type if applicable	NC-74-002	
Calibrator cal. date	02 February 2017	
Calibrator cert. number	UCRT17/1050	
Calibrator cal cert issued by	7623	
Calibrator SPL @ STP	93.99	dB Calibration reference sound pressure level
Calibrator frequency	1001.94	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
 Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	22.36	22.60	± 0.20 °C
Humidity	36.8	34.4	± 3.00 %RH
Ambient Pressure	98.77	98.63	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.0	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±			0.10 dB		

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device -		UR = Under Range indicated			
Weighting	A	C	Z		
	14.7	18.9	24.6	dB	UR
				dB	UR
Uncertainty of the electrical self generated noise ±			0.12 dB		

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.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

END

Calibrated by: A Patel

R 1

Additional Comments

None