

# Appendix 10-2

## Calibration Certs

**CERTIFICATE OF CALIBRATION**

No: CDK1399519

Page 1 of 44

**CALIBRATION OF**Sound 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 &amp; 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 &amp; Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 5.0 - DB: 5.00) by using procedure 2238-4188-BZ7125.

**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: 2016-11-11

Date of issue: 2016-11-11



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

**CERTIFICATE OF CALIBRATION**

No: CDK1399520

Page 1 of 44

**CALIBRATION OF**Sound Level Meter: Brüel & Kjær Type 2238  
Microphone: Brüel & Kjær Type 4188No: 2151873 Id: -  
No: 2380127**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.

**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: 2016-11-11

Date of issue: 2016-11-11



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

**CERTIFICATE OF CALIBRATION**

No: CDK1691101

Page 1 of 44

**CALIBRATION OF**Sound Level Meter: Brüel & Kjær Type 2238  
Microphone: Brüel & Kjær Type 4188No: 2151874 Id: -  
No: 2746077**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.

**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: 2017-06-07

Date of issue: 2017-06-07

Mikail Önder  
Calibration TechnicianErik Bruus  
Approved Signatory

**CERTIFICATE OF CALIBRATION**

No: CDK1399522

Page 1 of 44

**CALIBRATION OF**Sound Level Meter: Brüel & Kjær Type 2238  
Microphone: Brüel & Kjær Type 4188No: 2285850 Id: -  
No: 2057893**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 &amp; 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 &amp; Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 5.0 - DB: 5.00) by using procedure 2238-4188-BZ7125.

**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: 2016-11-11

Date of issue: 2016-11-11



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

**CERTIFICATE OF CALIBRATION**

No: CDK1782708

Page 1 of 44

**CALIBRATION OF**Sound Level Meter: Brüel & Kjær Type 2238  
Microphone: Brüel & Kjær Type 4188No: 2343753 Id: -  
No: 2555128**CUSTOMER**Enfonic Ltd  
Charlestown Centre  
Dublin  
D11 KXC7  
Ireland**CALIBRATION CONDITIONS**

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

Environment conditions: Pressure: 101,3kPa ± 3kPa. Humidity: 25% - 70% RH. Temperature: 23°C ± 3°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.

**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.

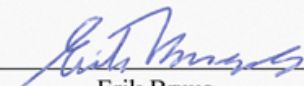
Date of calibration: 14-07-2018

Date of issue: 14-07-2018



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

**CERTIFICATE OF CALIBRATION**

No: CDK1782788

Page 1 of 44

**CALIBRATION OF**Sound Level Meter: Brüel & Kjær Type 2238  
Microphone: Brüel & Kjær Type 4188No: 2562556 Id: -  
No: 2274039**CUSTOMER**Enfonic Ltd  
Charlestown Centre  
Dublin  
D11 KXC7  
Ireland**CALIBRATION CONDITIONS**

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

Environment conditions: Pressure: 101,3kPa ± 3kPa. Humidity: 25% - 70% RH. Temperature: 23°C ± 3°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**

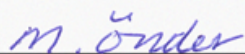
The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 5.0 - DB: 5.00) by using procedure 2238-4188-BZ7125.

**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.

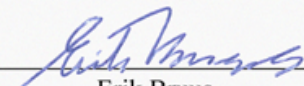
Date of calibration: 15-07-2018

Date of issue: 15-07-2018



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

**CERTIFICATE OF CALIBRATION**

No: CDK1399342

Page 1 of 44

**CALIBRATION OF**Sound Level Meter: Brüel & Kjær Type 2238  
Microphone: Brüel & Kjær Type 4188No: 2727942 Id: -  
No: 2746077**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.

**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: 2016-11-13

Date of issue: 2016-11-13



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory



**CERTIFICATE OF CALIBRATION**

No: CDK1399341

Page 1 of 44

**CALIBRATION OF**Sound 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 &amp; 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 &amp; Kjær Sound Level Meter Calibration System 3630 with application software type 7763 (version 5.0 - DB: 5.00) by using procedure 2238-4188-BZ7125.

**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: 2016-11-13

Date of issue: 2016-11-13



Mikail Önder

Calibration Technician



Erik Bruus

Approved Signatory

**CERTIFICATE OF CALIBRATION**

No: CDK1698999

Page 1 of 10

**CALIBRATION OF**

Sound Level Meter:	Brüel & Kjær Type 2250	No: 3000588	Id: - 3000855
Microphone:	Brüel & Kjær Type 4950	No: 2778445	
Preamplifier:	Brüel & Kjær Type ZC-0032	No: 16743	
Supplied Calibrator:	Brüel & Kjær Type 4231	No: 2615338	
Software version:	BZ7222 Version 2.1	Pattern Approval:	PTB1.63-4046158
Instruction manual:	BE1712-18		

**CUSTOMER**

Enfonic Ltd  
Tecpro House  
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: 2017-07-19

Date of issue: 2017-07-19



Mikail Önder  
Calibration Technician



Susanne Jørgensen  
Approved Signatory