



## EU Type Examination Certificate CML 16ATEX2007X Issue 7

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 2 Equipment **dBADGE2**
- 3 Manufacturer **Casella Holdings Limited**
- 4 Address **Regent House  
Wolseley Road,  
Kempston, Bedford  
Bedfordshire MK42 7JY  
United Kingdom**
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 CML B.V., Chamber of Commerce No 67386717, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

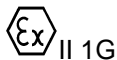
The examination and test results are recorded in the confidential reports listed in Section 12.

- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018

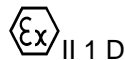
EN 60079-11:2012

- 10 The equipment shall be marked with the following:



Ex ia IIC T4 Ga

Ta= -20 °C to +45 °C



Ex ia IIIC T135°C Da

Ta=-20 °C to +45 °C



Ex ia I Ma

Ta= -20 °C to +45 °C



S. Roumbedakis  
Technical Manager



## 11 Description

The dBadge2 is an intrinsically safe, personal sound exposure meter (Dosimeter) for the measurement and recording of personal noise exposure.

The dBadge2 is intended to be carried on the person. It contains an internal rechargeable battery pack that is charged in the safe area only using the dedicated Docking Station part number 207107B. The Docking Station also includes a USB interface for downloading data from the dBadge2.

The dBadge2 provides measurement and status information on an OLED, and, action and alarm annunciation using LED's. The equipment is operated by 2 switches located on the side of the case.

The enclosure consists of a 2 part case manufactured from polycarbonate ABS. The top case has an acrylic window for viewing the internal OLED and a through case mounting for an Electret Condenser Microphone used for the noise measurement. An encapsulated rechargeable battery pack is located in a partition located in the bottom case. The case has contact pins for connecting the Charging and USB circuits when the equipment is located in the dedicated associated safe area Docking Station. A silicone gasket provides sealing between the top and bottom cases and for the two switches. The dBadge2 enclosure meets the environmental rating of IP 65.

The dBadge2 enclosure houses 2 PCB's, namely the PS PCB and Processor PCB. The PS PCB provides the connection between the safe area charger circuit and the battery pack, the case mounted switches, and, to the USB interface. The battery pack output is connected to an encapsulated power supply that provides limited power to the dBadge2 circuits during battery operation. The Processor PCB includes the Processor, Microphone Interface, Bluetooth and OLED interface circuits. Intrinsic safety is achieved in the dBadge2 by limiting energy storage and discharge.

The Docking Station is an intrinsically safe accessory that provides energy limitation to the dBadge2 during battery charging and data downloading when connected in the safe area only.

Ratings:

Docking Station (207107B)	
Charging and USB	Um = 60 V

### Variation 1

This variation introduced the following changes:

- i. Changes to the circuit in the charger.
- ii. Update of standard to EN IEC 60079-0:2018 / IEC 60079-0 2017 Ed.7.
- iii. To confirm the transfer of CML UK ATEX Certificate CML 16ATEX2007X to CML B.V., and subsequent issue of a corresponding CML B.V. certificate.
- iv. To update the certificate reference to the 2014/34/EU Directive.



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### Variation 2

This variation introduced the following changes:

- i. Change to charger Circuit.
- ii. Change to Clamping circuit.
- iii. Alternative CTI for all PCB's.
- iv. Alternative mechanical size for potting box.
- v. Change to IC's to incorporate alternatives.
- vi. Changes to component references in the BoM.

### Variation 3

This variation introduced the following change:

- i. Update to Applicant/Manufacturer name.

### Variation 4

This variation introduced the following change:

- i. Introduction of a non-safety related component.

### Variation 5

This variation introduced the following changes:

- i. To assess and permit a change to the material used for the acrylic window; as a result the specific conditions of use were amended.

### Variation 6

This variation introduced the following changes:

- i. Introduction of a new Bluetooth module.
- ii. Minor administrative changes.

## 12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	22 Feb 2016	R319A/00	Report for the prime certificate issue
1	19 Jun 2020	R13278A/00	Introduction of Variation 1
2	21 Aug 2020	-	Updated format. No report issued.
3	09 Feb 2022	R14785A/00	Introduction of Variation 2
4	26 Oct 2022	R15790A/00	Introduction of Variation 3
5	29 Jun 2023	R16720A/00	Introduction of Variation 4
6	12 Jul 2023	R16034A/00	Introduction of Variation 5
7	01 Nov 2023	R17077A/00	Introduction of Variation 6

Note: Drawings that describe the equipment or component are listed in the Annex.



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### **13 Conditions of Manufacture**

The following conditions are required of the manufacturing process for compliance with the certification.

- i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

### **14 Specific Conditions of Use (Special Conditions)**

The following conditions relate to safe installation and/or use of the equipment.

- i. Do not charge the batteries or download data from the instrument in a hazardous area.
- ii. The dBadge2 must only be charged using Docking Station, Casella part number 207107B connected to a PELV/SELV power adapter that meets the requirements for the rated Um (i.e. Casella part number PC18 or equivalent).
- iii. The dBadge2 data must only be downloaded using Docking Station Casella part number 207107B. The USB circuit must only be connected to a safety extra low-voltage circuit (SELV) or protective extra low-voltage circuit (PELV).
- iv. Do not remove the microphone in hazardous area.

# Certificate Annex

**Certificate Number** CML 16ATEX2007X  
**Equipment** dBADGE2  
**Manufacturer** Casella Holdings Limited



The following documents describe the equipment or component defined in this certificate:

## Issue 0

Drawing No	Sheets	Rev	Approved date	Title
93-207108C/IS	1 of 1	05	22 Feb 2016	dBadge2/IS - Charging Unit Circuit Diagram
05-207110B/IS	1 of 1	06	22 Feb 2016	dBadge2/IS - Charging Unit PCB S/A Parts List
05-207110B/IS	1 of 1	06	22 Feb 2016	dBadge2/IS - Charging Unit PCB S/A (Sub Assembly)
02-207109B/IS	1 of 1	04	22 Feb 2016	dBadge2/IS - Charging Unit PCB Profile & Drill
93-207101C/IS	1 of 1	04	22 Feb 2016	dBadge2/IS - PSU Board Circuit Diagram
05-207103B/IS	1 of 1	05	22 Feb 2016	dBadge2/IS - PSU Board PCB S/A Parts List
05-207103B/IS	1 of 1	05	22 Feb 2016	dBadge2/IS - PSU PCB S/A (Sub Assembly)
02-207102B/IS	1 of 1	03	22 Feb 2016	dBadge2/IS - PSU Board Profile & Drilled
93-207104D/IS	1 of 2	06	22 Feb 2016	dBadge2/IS - Analogue/Display Circuit Diagram
93-207104D/IS	2 of 2	06	22 Feb 2016	dBadge2/IS - Processor Stage Circuit Diagram
05-207106B/IS	1 to 2	07	22 Feb 2016	dBadge2/IS - Processor PCB S/A (Parts List)
05-207106B/IS	1 of 1	07	22 Feb 2016	dBadge2/IS - Processor PCB S/A (Sub Assembly Schematic)
02-207105B/IS	1 of 1	03	22 Feb 2016	dBadge2/IS - Processor PCB Profile & Drilled
04-207107B/IS	1 of 1	01	22 Feb 2016	dBadge2/IS - Docking Station G/A
04-207100D/IS	1 of 1	01	22 Feb 2016	dBadge2/IS - Case Body G/A
13-207111A/IS (CMLEx)	1 of 1	01	22 Feb 2016	dBadge2/IS – Docking Station Information / Serial No. Label
13-207112A/IS (CMLEx)	1 of 1	01	22 Feb 2016	dBadge2/IS – Main Unit Info. / Serial No. Label
QP40/IS	1 to 2	01	22 Feb 2016	dBadge2 - IS Controlled Plastic/Rubber Moulded Components Quality Plan
03-207002C/IS	1 of 1	01	22 Feb 2016	dBadge2 – IS Battery Cells S/A
17-207114A/IS	1 of 1	01	22 Feb 2016	dBadge2 IS – Bluetooth Module (BLE113) Information Drawing
17-193107A/IS (CMLEx)	1 of 1	01	22 Feb 2016	CEL-350 dBadge IS – Microphone Information
09-207045B/IS	1 of 1	01	22 Feb 2016	dBadge2/IS – PSU PCB Potting Box
0030K-MA1-A	1 of 1	02	22 Feb 2016	0030K Module Ass'y (OLED)
02-207109B	1 to 10	04	22 Feb 2016	dBadge2/IS Charging Unit Gerbers (see drawing 02-207109B/IS)

# Certificate Annex

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Drawing No	Sheets	Rev	Approved date	Title
02-207102B	1 to 14	03	22 Feb 2016	dBadge2/IS PSU Board Gerbers (see drawing 02-207102B/IS)
02-207105B	1 to 16	03	22 Feb 2016	dBadge2/IS Processor PCB Gerbers (see drawing 02-207105B/IS)

## Issue 1

Drawing No	Sheets	Rev	Approved date	Title
93-207108C/IS-06	1 of 1	06	19 Jun 2020	dBADGE2/IS Charging Unit Circuit Diagram
05-207110B/IS-07	1 of 1	07	19 Jun 2020	dBADGE2/IS Charging Unit PCB S/A
05-207110B/IS-07 PList	1 of 1	07	19 Jun 2020	dBADGE2/IS Charging Unit PCB S/A

## Issue 2

No documents introduced

## Issue 3

Drawing No	Sheets	Rev	Approved date	Title
02-207102B/IS	1 of 1	05	09 Feb 2022	dBadge2/IS - PSU Board Profile & Drilled
93-207104D/IS-08	1 of 2	08	09 Feb 2022	dBadge2/IS - Analogue/Display Circuit Diagram
93-207104D/IS-08	2 of 2	08	09 Feb 2022	dBadge2/IS - Processor Stage Circuit Diagram
05-207106B/IS-09	1 to 2	09	09 Feb 2022	dBadge2/IS - Processor PCB S/A (Parts List)
05-207106B/IS-09	1 of 1	09	09 Feb 2022	dBadge2/IS - Processor PCB S/A (Sub Assembly Schematic)
02-207105B/IS-06	1 of 1	06	09 Feb 2022	dBadge2/IS - Processor PCB Profile & Drilled
04-207100D/IS	1 of 1	02	09 Feb 2022	dBadge2/IS - Case Body G/A
09-207145B/IS	1 of 1	01	09 Feb 2022	dBadge2/IS – PSU PCB Potting Box
02-207109B/IS	1 of 1	05	09 Feb 2022	dBadge2/IS Charging Unit PCB Profile & Drill
93-207101C/IS	1 of 1	05	09 Feb 2022	dBadge2/IS - PSU Board Circuit Diagram
05-207103B/IS	1 of 1	06	09 Feb 2022	dBadge2/IS - PSU Board PCB S/A Parts List
05-207103B/IS	1 of 1	06	09 Feb 2022	dBadge2/IS - PSU PCB S/A (Sub Assembly)
93-207108C/IS	1 of 1	07	09 Feb 2022	dBadge2/IS - Charging Unit Circuit Diagram

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Drawing No	Sheets	Rev	Approved date	Title
05-207110B/IS	1 of 1	08	09 Feb 2022	dBadge2/IS Docking Station
05-207110B/IS	1 of 1	08	09 Feb 2022	dBadge2/IS - Charging Unit PCB S/A (Sub Assembly)
13-207112A/IS (cmlEx) -02	1 of 1	02	09 Feb 2022	dBadge2/IS – main unit info/ serial No. label

### Issue 4

No documents introduced

### Issue 5

Drawing No	Sheets	Rev	Approved date	Title
05-207151B/IS-01	1 of 1	01	29 June 2023	dBadge2/IS PSU PCB S/A Modification (See 'CON 654')

### Issue 6

Drawing No	Sheets	Rev	Approved date	Title
QP40/IS	1 to 2	02	12 Jul 2023	dBadge2 - IS Controlled Plastic/Rubber Moulded Components Quality Plan
04-207100D/IS-03	1 of 1	3	12 Jul 2023	dBADGE2/IS – Case Body G/A

### Issue 7

Drawing No	Sheets	Rev	Approved date	Title
02-207102B/IS-06	1 of 1	06	01 Nov 2023	dBADGE/IS PSU Board Profile & Drilled
93-207104D/IS-09	1 of 2	09	01 Nov 2023	dBADGE2 IS Analogue/Display Circuit Diagram
93-207104D/IS-09	2 of 2	09	01 Nov 2023	dBADGE2 IS Processor Stage Circuit Diagram
05-207106B/IS-10	1 to 2	10	01 Nov 2023	dBADGE2/IS Processor PCB S/A (Parts List)
05-207106B/IS-10	1 of 1	10	01 Nov 2023	dBADGE2/IS Processor PCB S/A (Sub Assembly Schematic)
02-207105B/IS-07	1 of 1	07	01 Nov 2023	dBADGE2/IS Processor PCB Profile & Drilled
93-207101C/IS-06	1 of 1	06	01 Nov 2023	dBADGE2 IS PSU PCB Circuit Diagram

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<b>Drawing No</b>	<b>Sheets</b>	<b>Rev</b>	<b>Approved date</b>	<b>Title</b>
05-207103B/IS-07	1 of 1	07	01 Nov 2023	dBADGE2/IS PSU Board S/A (PARTS LIST)
05-207103B/IS-07	1 of 1	07	01 Nov 2023	dBADGE2/IS PSU PCB S/A