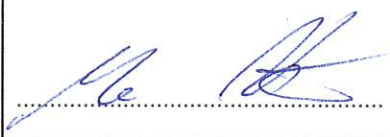


| EMC TEST REPORT                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title 47 CFR Part 15B, ISED ICES-003 Issue 7 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Report Reference No                          | G0M-2112-1200-EF0115B-V01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Testing Laboratory                           | Eurofins Product Service GmbH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Address                                      | Storkower Str. 38c<br>15526 Reichenwalde<br>Germany                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Accreditation                                |     <p>A2LA - Registration number: 1983.01 (ISED)<br/>ISED wireless device testing laboratory: CN 3470A<br/>DAkkS - Registration number : D-PL-12092-01-04 (FCC)<br/>FCC Filed Test Laboratory, Reg.-No.: 96970</p> |
| Applicant                                    | Robert Bosch GmbH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Address                                      | Markwiesenstraße 58<br>72770 Reutlingen<br>Germany                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Test Specification<br>Standard(s)            | Title 47 CFR Part 15 Subpart B<br>ISED ICES-Gen Issue 1 ; Amendment 1 (February 2021)<br>ISED ICES-003 Issue 7<br>ANSI C63.4:2014+A1:2017                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Non-Standard Test Method                     | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Equipment under Test (EUT):</b>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Product Description                          | System controller                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Model(s)                                     | BRC3100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Additional Model(s)                          | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Brand Name(s)                                | Bosch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Hardware Version(s)                          | H-PCB V3.0.1 V-PCB V4.1.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Software Version(s)                          | AppSW V4.1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| FCC-ID                                       | 2AWRC-BRC3100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| IC                                           | 26294-BRC3100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Test Result                                  | <b>PASSED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------|
| <b>Possible test case verdicts:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                            |                  |                                                                                      |
| required by standard but not tested                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/T              |                                                                                      |
| not required by standard                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/R              |                                                                                      |
| required by standard but not appl. to test object                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A              |                                                                                      |
| test object does meet the requirement                                                                                                                                                                                                                                                                                                                                                                                                                                          | P(PASS)          |                                                                                      |
| test object does not meet the requirement                                                                                                                                                                                                                                                                                                                                                                                                                                      | F(FAIL)          |                                                                                      |
| <b>Testing:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                      |
| Date of receipt of test item                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2022-03-04       |                                                                                      |
| <b>Report:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                                                                                      |
| Compiled by                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Brahima Drabo    |                                                                                      |
| Tested by (+ signature)                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Marco Neuner     |    |
| Tested by (+ signature)<br>(Responsible for Test)                                                                                                                                                                                                                                                                                                                                                                                                                              | Jens Marquardt   |  |
| Approved by (+ signature)<br>(Senior Test Lab Technician)                                                                                                                                                                                                                                                                                                                                                                                                                      | Matthias Handrik |  |
| Date of Issue                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2022-08-24       |                                                                                      |
| Total number of pages                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 39               |                                                                                      |
| <b>General Remarks:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                  |                                                                                      |
| <p>The test results presented in this report relate only to the object tested.</p> <p>The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> |                  |                                                                                      |
| <b>Additional Comments:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                                                                                      |
| None                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |                                                                                      |

## ABBREVIATIONS AND ACRONYMS

| Acronyms         |                                                     |
|------------------|-----------------------------------------------------|
| Acronym          | Description                                         |
| EUT              | Equipment Under Test                                |
| FCC              | Federal Communications Commission                   |
| ISED             | Innovation, Science and Economic Development Canada |
| T <sub>NOM</sub> | Nominal operating temperature                       |
| V <sub>NOM</sub> | Nominal supply voltage                              |

## VERSION HISTORY

| Version History |            |                 |            |
|-----------------|------------|-----------------|------------|
| Version         | Issue Date | Remarks         | Revised By |
| 01              | 2022-08-24 | Initial Release | -          |

## REPORT INDEX

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## 1 Equipment (Test Item) Under Test

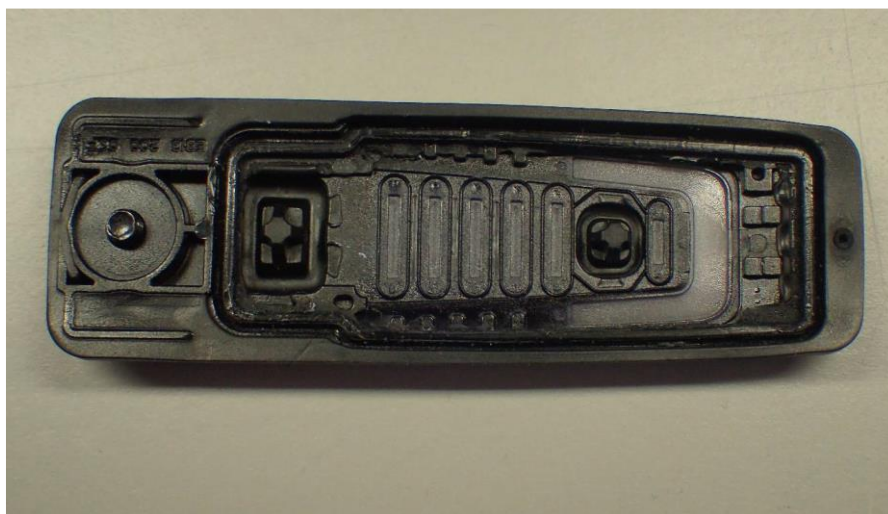
|                                  |                                                                                                                                                                                                   |                                                                                                           |                   |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------|
| Description                      | System controller                                                                                                                                                                                 |                                                                                                           |                   |
| Intended Use                     | SystemController (abbreviation “BRC3100” used for the rest of the document) is a remote control unit for the Bosch eBike system and is intended to be mounted in the top tube of the eBike frame. |                                                                                                           |                   |
| Model                            | BRC3100                                                                                                                                                                                           |                                                                                                           |                   |
| Additional Model(s)              | None                                                                                                                                                                                              |                                                                                                           |                   |
| Brand Name(s)                    | Bosch                                                                                                                                                                                             |                                                                                                           |                   |
| Hardware Version(s)              | H-PCB V3.0.1 V-PCB V4.1.3                                                                                                                                                                         |                                                                                                           |                   |
| Software Version(s)              | AppSW V4.1.0                                                                                                                                                                                      |                                                                                                           |                   |
| Number of tested samples         | 1                                                                                                                                                                                                 |                                                                                                           |                   |
| Sample Identification            | EUT #                                                                                                                                                                                             | Sample-ID                                                                                                 | Serial Number     |
|                                  | EUT 1                                                                                                                                                                                             | 40169                                                                                                     | 18023 0013 01 368 |
| EUT Dimensions [cm]              | 8.8 x 2.8 x 2.7                                                                                                                                                                                   |                                                                                                           |                   |
| FCC-ID                           | 2AWRC-BRC3100                                                                                                                                                                                     |                                                                                                           |                   |
| IC                               | 26294-BRC3100                                                                                                                                                                                     |                                                                                                           |                   |
| Class                            | Class B                                                                                                                                                                                           |                                                                                                           |                   |
| Equipment type                   | Table top                                                                                                                                                                                         |                                                                                                           |                   |
| Highest internal frequency [MHz] | 2483.5 (Radio frequency)<br>110 (Clock frequency)                                                                                                                                                 |                                                                                                           |                   |
| Protective Earth                 | No                                                                                                                                                                                                |                                                                                                           |                   |
| Radio Module                     | Type                                                                                                                                                                                              | Bluetooth Low Energy (LE)                                                                                 |                   |
|                                  | Model                                                                                                                                                                                             | DA14585                                                                                                   |                   |
|                                  | Manufacturer                                                                                                                                                                                      | Dialog Semiconductor                                                                                      |                   |
|                                  | FCC-ID                                                                                                                                                                                            | 2AWRC-BRC3100                                                                                             |                   |
|                                  | IC                                                                                                                                                                                                | 26294-BRC3100                                                                                             |                   |
| Supply Voltage                   | V <sub>NOM</sub>                                                                                                                                                                                  | 13.5 V DC via RSD simulator<br>5 V DC via AC/DC adapter<br>3.7 V DC rechargeable internal Lithium battery |                   |
| Manufacturer                     | Bosch (Zhuhai) Security Systems Ltd.<br>20 Ji Chang Bei Road- Qingwan Indu. Est. Sanzao<br>519070 Zhuhai<br>China                                                                                 |                                                                                                           |                   |

## 1.1 Equipment Ports

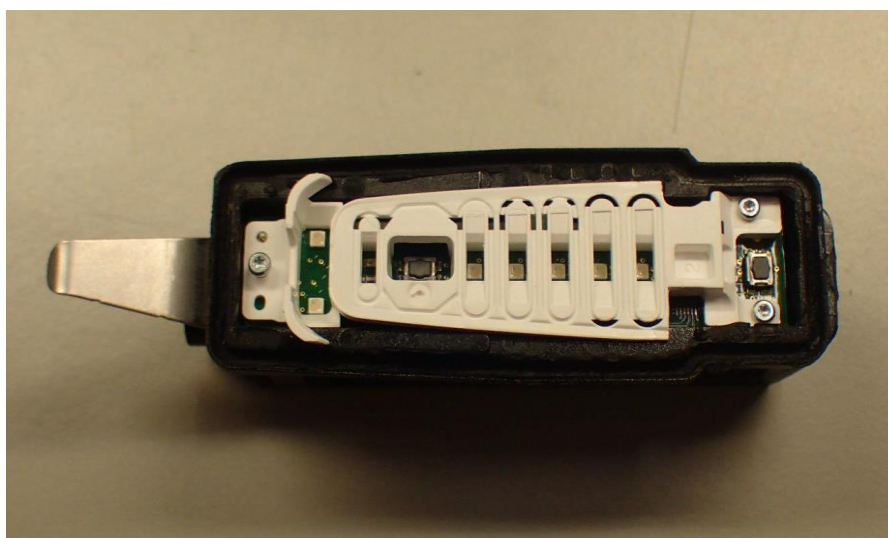
| Name         | Type                                              | Attributes                                                                                                             | Comment                                                                            |
|--------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| HMI Port     | DC / IO                                           | Count: 1<br>Direction: IO<br>Max. cable length [m]: 3<br>Connected to outdoor: No<br>Shielded: Yes<br>Service only: No | 13.5V power supply and CAN                                                         |
| USB-C Port   | IO                                                | Count: 1<br>Direction: IO<br>Max. cable length [m]: 3<br>Connected to outdoor: No<br>Shielded: Yes<br>Service only: No | used for charging the internal pouch battery but does not provide any output power |
| Description: |                                                   |                                                                                                                        |                                                                                    |
| AC           | AC mains power input/output port                  |                                                                                                                        |                                                                                    |
| DC           | DC power input/output port                        |                                                                                                                        |                                                                                    |
| BAT          | DC power input port connected to external battery |                                                                                                                        |                                                                                    |
| IO           | Input/Output port                                 |                                                                                                                        |                                                                                    |
| TP           | Telecommunication port                            |                                                                                                                        |                                                                                    |
| NE           | Non-electrical port                               |                                                                                                                        |                                                                                    |

## 1.2 Equipment Photos – Internal

**EUT TOP COVER OPEN – TOP SIDE**

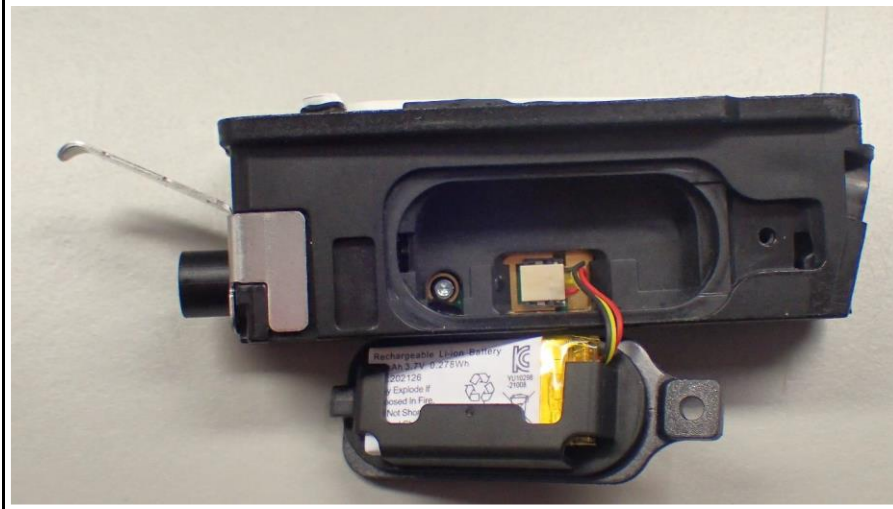


**EUT TOP COVER OPEN – BOTTOM SIDE**

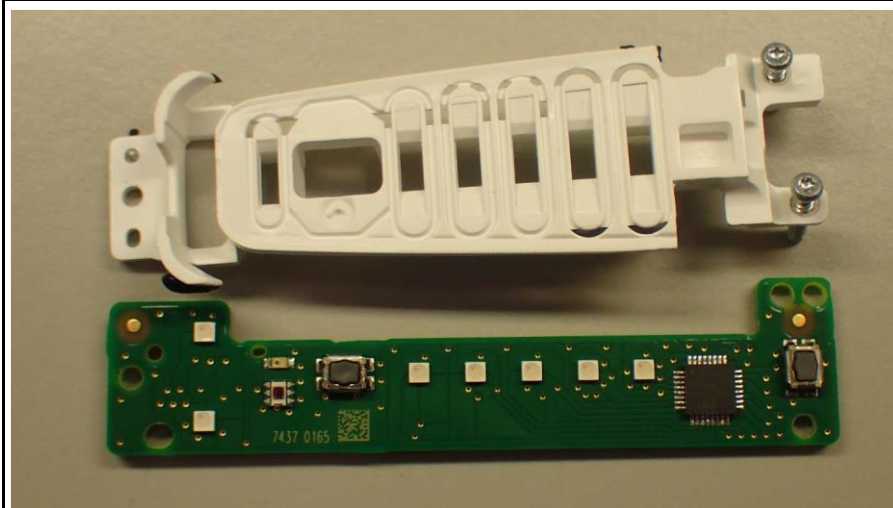




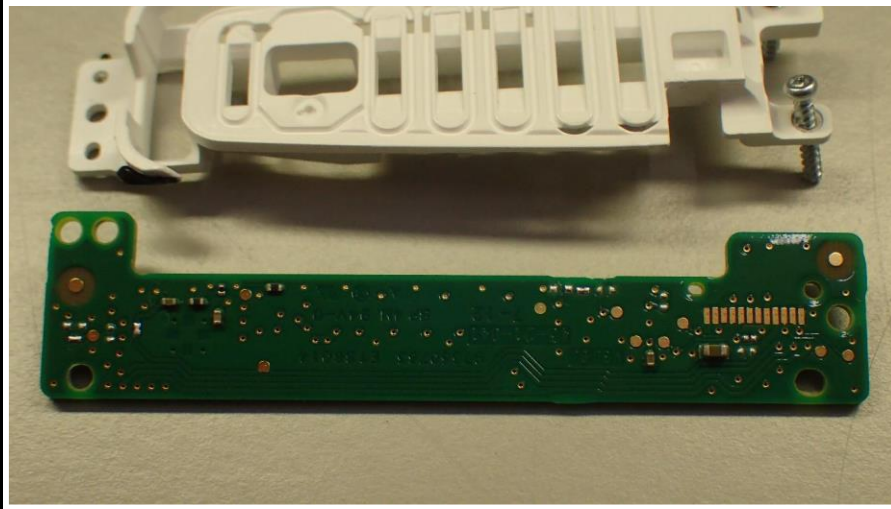
**EUT BATTERY SIDE**



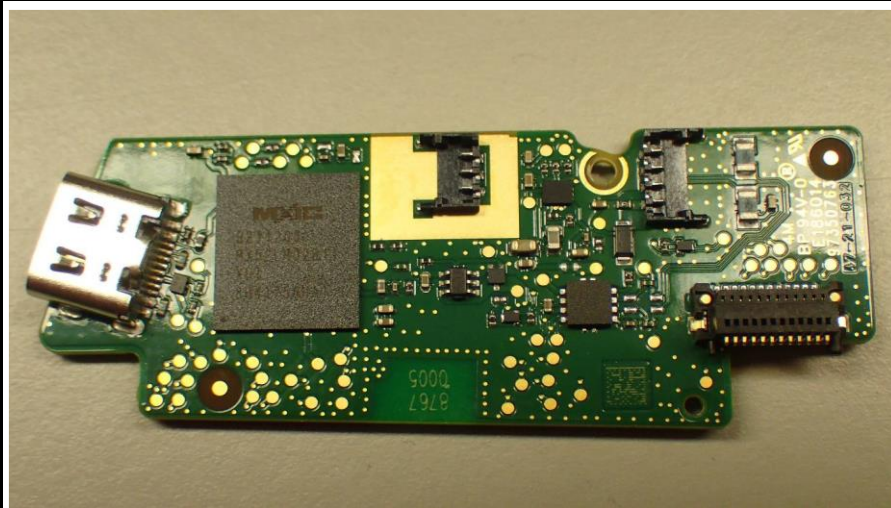
**EUT HORIZONTAL PCB UPSIDE**



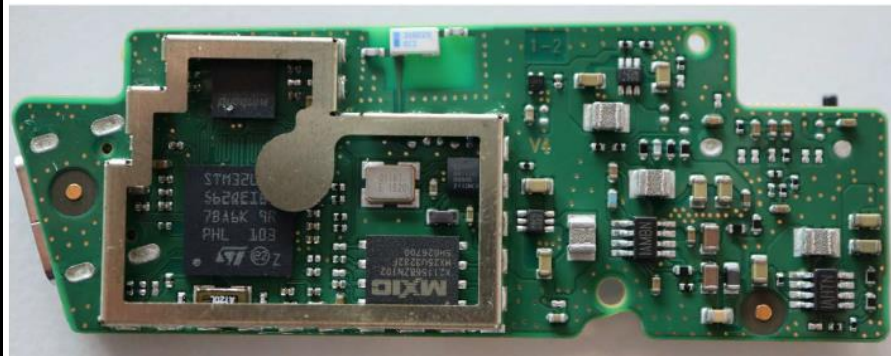
EUT HORIZONTAL PCB - DOWNSIDE



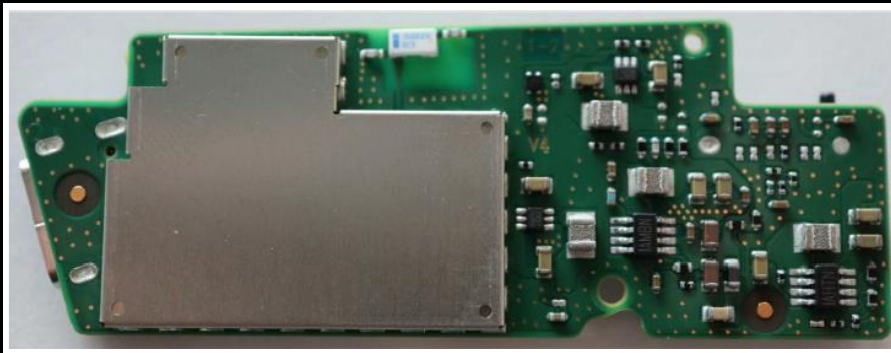
EUT VERTICAL PCB - UPSIDE



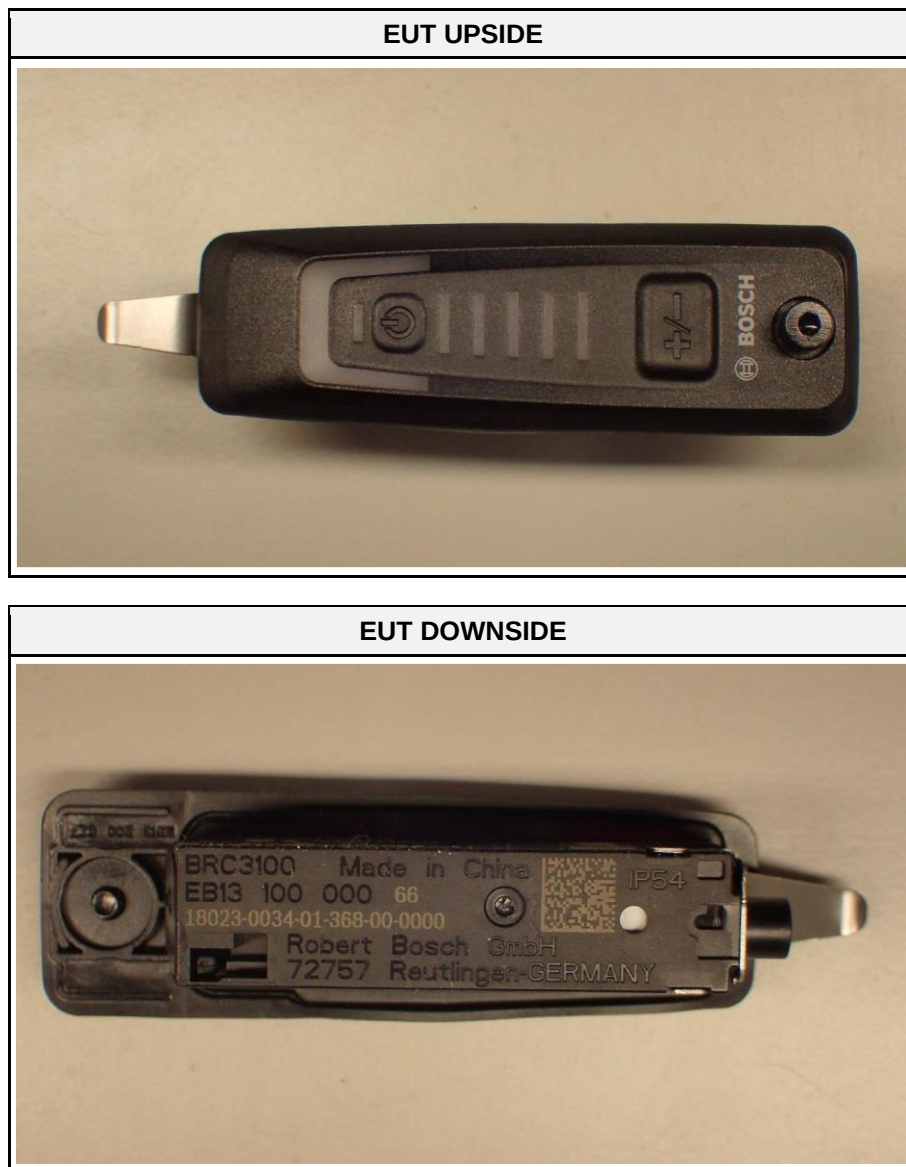
**EUT VERTICAL PCB – DOWNSIDE – RADIO COMPONENTS**



**EUT VERTICAL PCB - DOWNSIDE**



### 1.3 Equipment Photos – External





EUT RIGHT SIDE



EUT LEFT SIDE



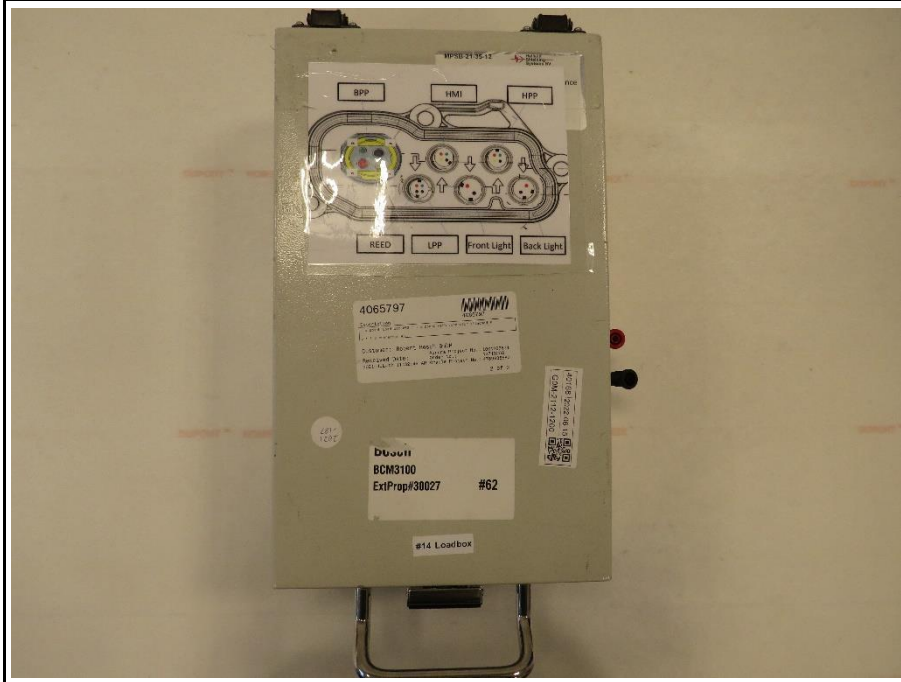
**EUT System Connector**



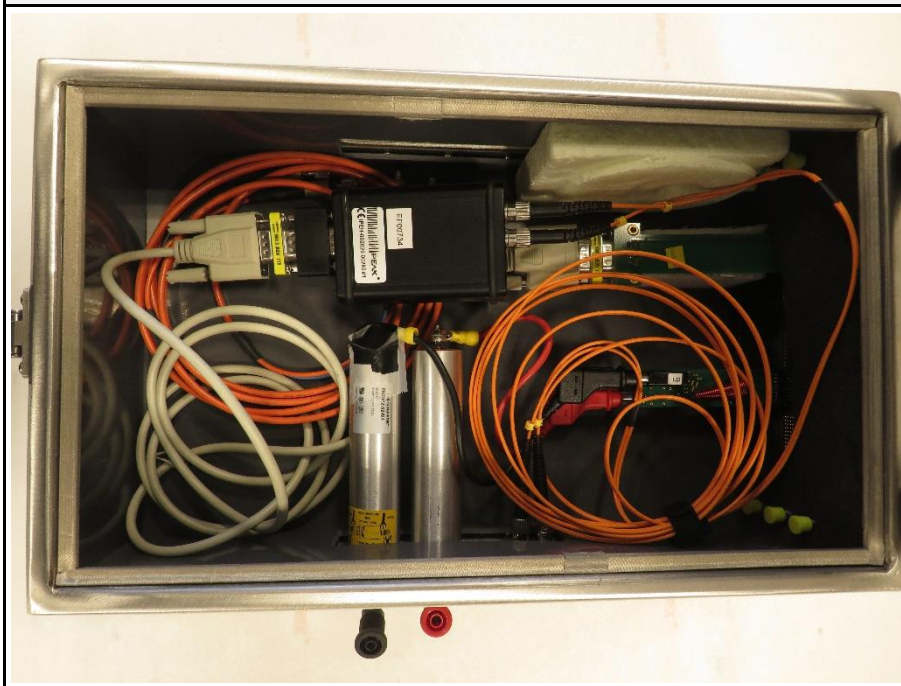
**EUT BACKSIDE – USB CONNECTOR - COVER OPEN**



RDS Box



RDS Box internal



Label with serial number



Label from internal battery





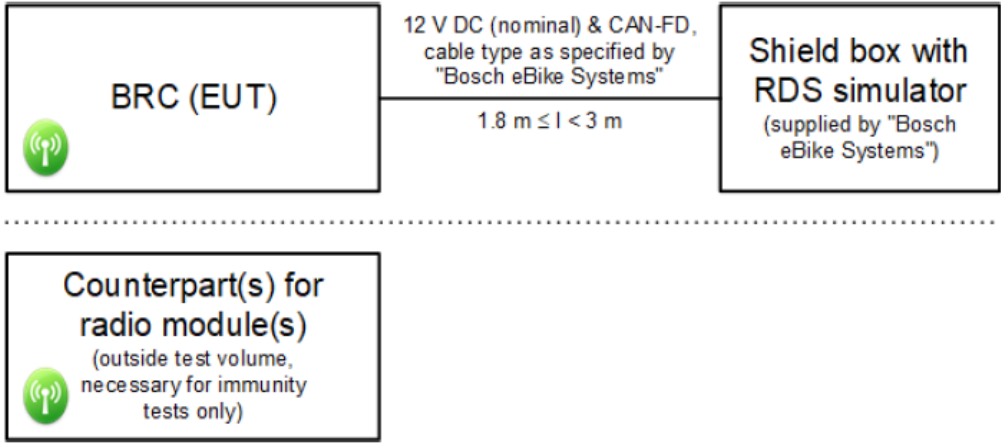
#### 1.4 Support Equipment

| Product Type | Device                        | Manufacturer      | Model                                       | Comment                                                                 |
|--------------|-------------------------------|-------------------|---------------------------------------------|-------------------------------------------------------------------------|
| CBL          | System cable                  | Robert Bosch GmbH | Bosch BCH 3611-1500                         | Customer Equipment; Sample-ID: 38504<br>Cable Length: 1.5 m             |
| AE           | Laptop 1                      | HP                | EliteBook 820                               | Customer Equipment; Sample-ID: 40170<br>Bosch measurement tools LAIKA 1 |
| AE           | Laptop 2                      | HP                | EliteBook 820                               | Customer Equipment; Sample-ID: 40171<br>Bosch measurement tools LAIKA 2 |
| AE           | Smartphone                    | Samsung           | SM-A415F/DSN                                | Customer Equipment; Sample-ID: 40175<br>FlowApp                         |
| AE           | AC/DC-adapter                 | unknown           | S82A40                                      | In: 100-240 V 50/60 Hz 0.3 A<br>Out: 5.0 V 2.0 A 10.0 W                 |
| AE           | Shield box with RDS simulator | Robert Bosch GmbH | BCN3100                                     | Customer Equipment; Sample-ID: 40168                                    |
| SW           | Bluetooth- CAN-application    | Robert Bosch GmbH | ITF_EMC_MONITOR_START                       | Customer Equipment                                                      |
| SW           | Bluetooth- CAN-application    | Robert Bosch GmbH | BRC_EMC_MONITOR_START<br>Version: c0ae96bfa | Customer Equipment                                                      |
| SW           | APP: Flow Dev                 | Robert Bosch GmbH | BLE Test communication stack                | Customer Equipment                                                      |
| Description: |                               |                   |                                             |                                                                         |
| AE           | Auxiliary Equipment           |                   |                                             |                                                                         |
| SIM          | Simulator                     |                   |                                             |                                                                         |
| MON          | Monitoring Equipment          |                   |                                             |                                                                         |
| CBL          | Connecting Cable              |                   |                                             |                                                                         |
| SW           | Software                      |                   |                                             |                                                                         |
| Comment: --  |                               |                   |                                             |                                                                         |

## 1.5 Operational Modes

| Mode #      | Description                                                                                                                                                                                                                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1           | <ul style="list-style-type: none"> <li>• CAN-FD communication between EUT and RDS simulator</li> <li>• BLE communication between EUT and counterpart (Smartphone)</li> <li>• Walk assist request signal off</li> <li>• RDS simulator sends/receives data to Laptop1 and Laptop 2 via CAN connection.</li> <li>• USB power charging</li> </ul> |
| Comment: -- |                                                                                                                                                                                                                                                                                                                                               |

## 1.6 EUT Configuration

| Configuration # | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1               | <ul style="list-style-type: none"> <li>EUT powered by RDS simulator.</li> <li>RDS simulator powered by external laboratory power supply unit.</li> <li>The EUT is connected via BLE with the Smartphone.</li> <li>The EUT is connected via CAN with the RDS simulator.</li> <li>RDS simulator is connected with Laptop 1 and Laptop 2 via CAN connection.</li> <li>The EUT is connected with AC/DC-adapter via USB-C connection.</li> <li>The housing of the RDS simulator is connected to ground.</li> </ul> <p>EUT = BRC</p>  <p>→ No BRC button pressed</p> |
| Comment: --     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## 1.7 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyser in dB $\mu$ V. Any external preamplifiers used are taken into account through internal analyser settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyser. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

$$\text{Reading on Analyser (dB}\mu\text{V)} + \text{A.F. (dB/m)} = \text{Net field strength (dB}\mu\text{V/m)}$$

Net:

This is the net field strength measurement (as shown above).

Limit:

This is the FCC Class B radiated emission limit (in units of dB $\mu$ V/m). The FCC limits are given in units of  $\mu$ V/m. The following formula is used to convert the units of  $\mu$ V/m to dB $\mu$ V/m:

$$\text{Limit (dB}\mu\text{V/m)} = 20 \cdot \log(\mu\text{V/m})$$

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:

|                            |                     |   |                                       |           |
|----------------------------|---------------------|---|---------------------------------------|-----------|
| Reading + AF               | = Net Reading       | : | Net reading - FCC limit               | = Margin  |
| +21.5 dB $\mu$ V + 26 dB/m | = 47.5 dB $\mu$ V/m | : | 47.5 dB $\mu$ V/m - 57.0 dB $\mu$ V/m | = -9.5 dB |

## 2 Result Summary

| Title 47 CFR Part 15B, ISED ICES-003 Issue 7 |                                   |                             |        |         |
|----------------------------------------------|-----------------------------------|-----------------------------|--------|---------|
| Reference                                    | Requirement                       | Reference Method            | Result | Remarks |
| Emission                                     |                                   |                             |        |         |
| FCC 15.109<br>ICES-003, 3.2.2                | Radiated emissions                | ANSI C63.4:2014<br>+A1:2017 | PASS   | --      |
| FCC 15.107<br>ICES-003, 3.2.1                | AC power line conducted emissions | ANSI C63.4:2014<br>+A1:2017 | PASS   | --      |
| Comment: --                                  |                                   |                             |        |         |

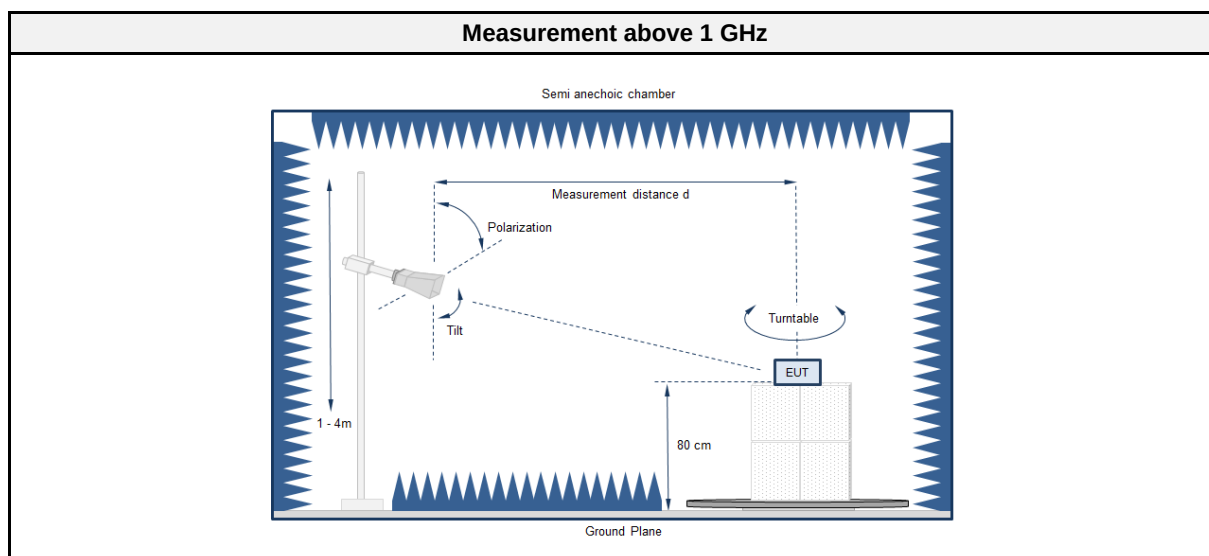
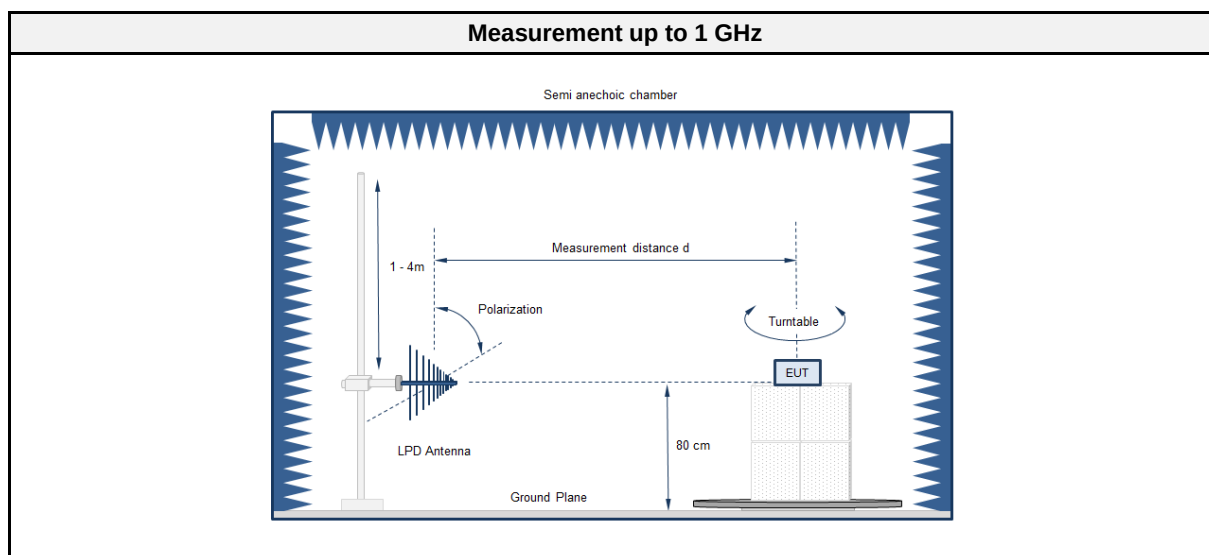
| Possible Test Case Verdicts |                                              |
|-----------------------------|----------------------------------------------|
| PASS                        | Test object does meet the requirements       |
| FAIL                        | Test object does not meet the requirements   |
| N/T                         | Required by standard but not tested          |
| N/R                         | Not required by standard for the test object |

## 2.1 Test Conditions and Results - Radiated emissions acc. to ANSI C63.4

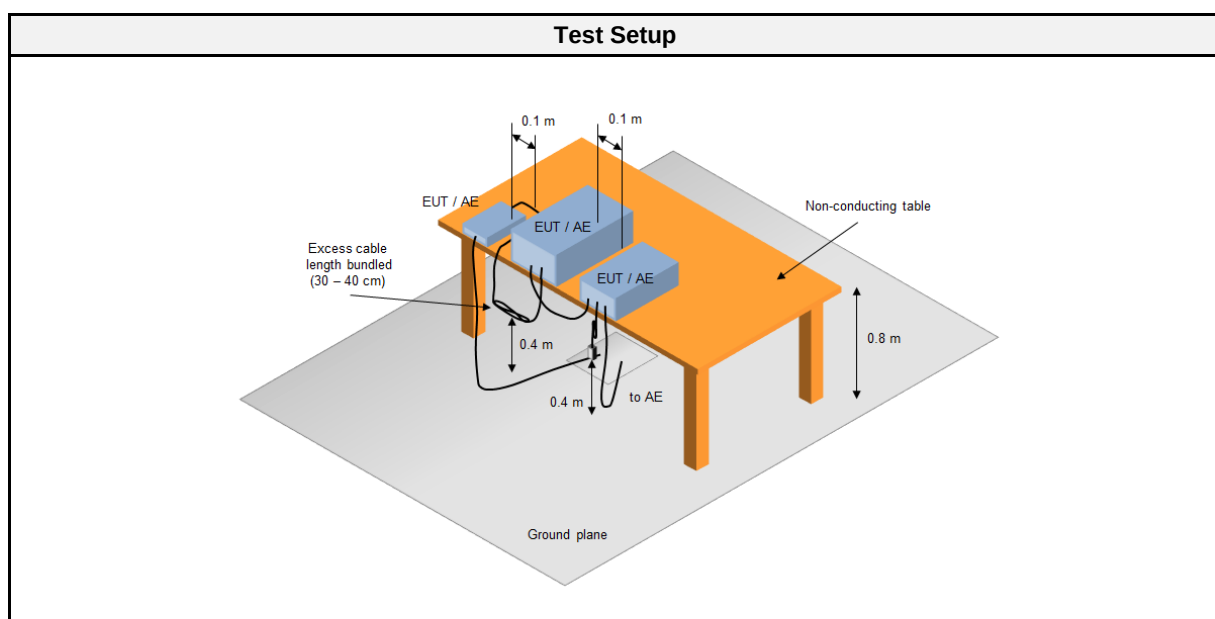
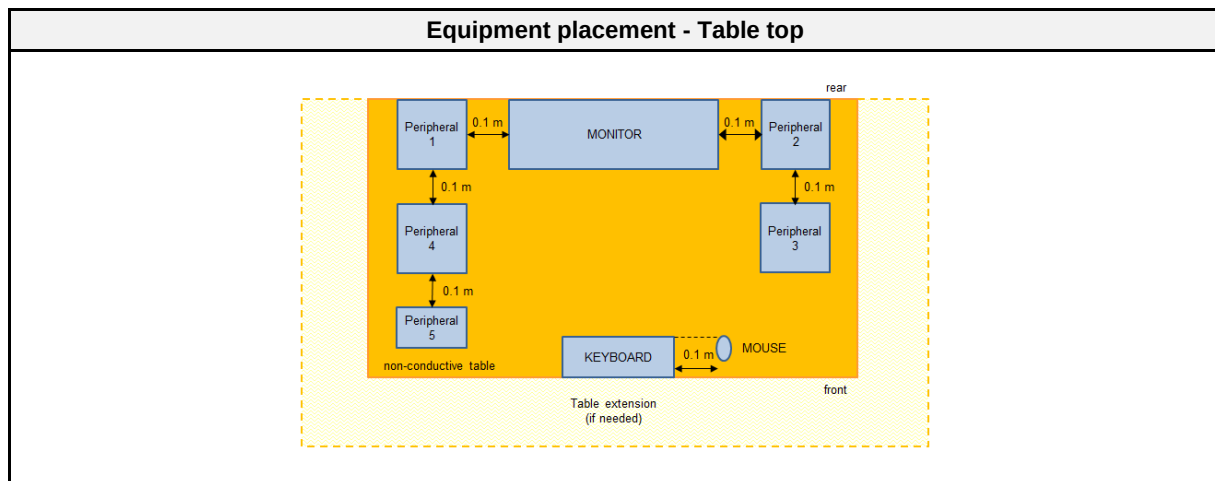
### 2.1.1 Information

| Test Information                 |                                                   |
|----------------------------------|---------------------------------------------------|
| Reference                        | FCC 15.109, ICES-003, 3.2.2                       |
| Reference method                 | ANSI C63.4:2014+A1:2017 Section 8                 |
| Equipment class                  | Class B                                           |
| Equipment type                   | Table top                                         |
| Highest internal frequency [MHz] | 2483.5 (Radio Frequency)<br>110 (Clock frequency) |
| Measurement range                | 30 MHz to 13000 MHz                               |
| Temperature [°C]                 | 21 – 23                                           |
| Humidity [%]                     | 58 – 63                                           |
| Operator                         | Marco Neuner                                      |
| Date                             | 2022-07-22                                        |

### 2.1.2 Setup







### 2.1.3 Equipment

| Test Software |                  |            |          |
|---------------|------------------|------------|----------|
| Description   | Manufacturer     | Name       | Version  |
| EMC Software  | DARE Instruments | Radimation | 2022.1.3 |

| Test Equipment           |                             |                   |            |           |          |
|--------------------------|-----------------------------|-------------------|------------|-----------|----------|
| Description              | Manufacturer                | Model             | Identifier | Cal. Date | Cal. Due |
| Anechoic chamber (NSA)   | Frankonia                   | AC1               | EF00062    | 2021-02   | 2024-02  |
| Anechoic chamber (SVSWR) | Frankonia                   | AC 1              | EF01011    | 2022-06   | 2025-06  |
| Programmable AC Source   | Chroma ATE Inc.             | 61604             | EF01068    | 2021-07   | 2022-07  |
| EMI Test Receiver        | Keysight                    | N9038A-526/WXP    | EF01070    | 2021-07   | 2022-07  |
| Biconical Antenna        | R&S                         | HK 116            | EF00030    | 2021-05   | 2024-05  |
| LPD Antenna              | R&S                         | HL 223            | EF00187    | 2022-06   | 2025-06  |
| Horn Antenna             | Schwarzbeck                 | BBHA9120D         | EF00018    | 2019-10   | 2022-10  |
| Climatic Sensor          | Embedded Data Systems, LLC. | 2800100000254 17E | EF01054    | 2022-04   | 2023-04  |

Test Report No.: G0M-2112-1200-EF0115B-V01

Eurofins Product Service GmbH  
Storkower Str. 38c, D-15526 Reichenwalde, Germany

## 2.1.4 Procedure

| Exploratory measurement |                                                                                                                                                                                |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                      | The EUT was placed on a non-conductive table at a height of 0.8m.                                                                                                              |
| 2.                      | The EUT and support equipment, if needed, were set up to simulate typical usage.                                                                                               |
| 3.                      | Cables, of type and length specified by the manufacturer, were connected to at least one port of each type and were terminated by a device or simulating load of actual usage. |
| 4.                      | The antenna was placed at a distance of 3 or 10 m.                                                                                                                             |
| 5.                      | The received signal was monitored at the measurement receiver.                                                                                                                 |
| 6.                      | This procedure has to be performed in both antenna polarizations, horizontal and vertical.                                                                                     |
| 7.                      | The arrangement of the equipment with the maximum emission level is shown on the setup picture at item 2.1.2                                                                   |

| Final measurement |                                                                                                                                                                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                | The EUT was placed on a 0.8 m non-conductive table at a 3 m distance from the receive antenna. The antenna output was connected to the measurement receiver.                                                                                                                            |
| 2.                | A biconical antenna was used for the frequency range 30 – 200 MHz, a logarithmic periodical antenna was used for the frequency range from 200 – 1000 MHz. Above one 1 GHz a Double Ridged Broadband Horn antenna was used. The antenna was placed on an adjustable height antenna mast. |
| 3.                | The EUT and cable arrangement were based on the exploratory measurement results.                                                                                                                                                                                                        |
| 4.                | Emissions were maximized at each frequency by rotating the EUT and adjusting the receive antenna height and polarization. The maximum values were recorded.                                                                                                                             |
| 5.                | The test data of the worst-case conditions were recorded and shown on the next pages.                                                                                                                                                                                                   |

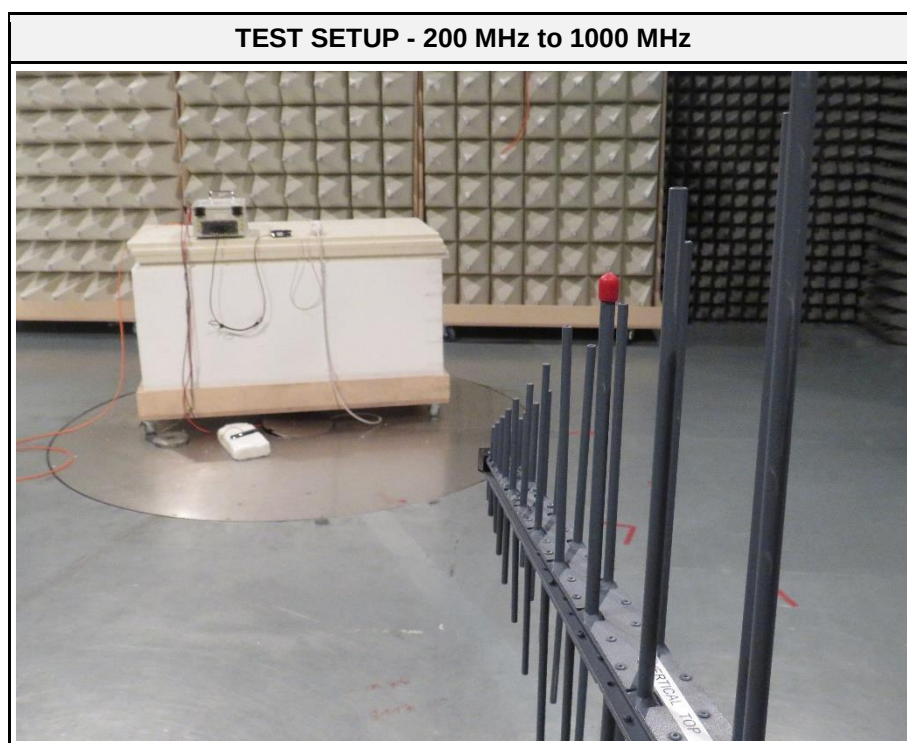
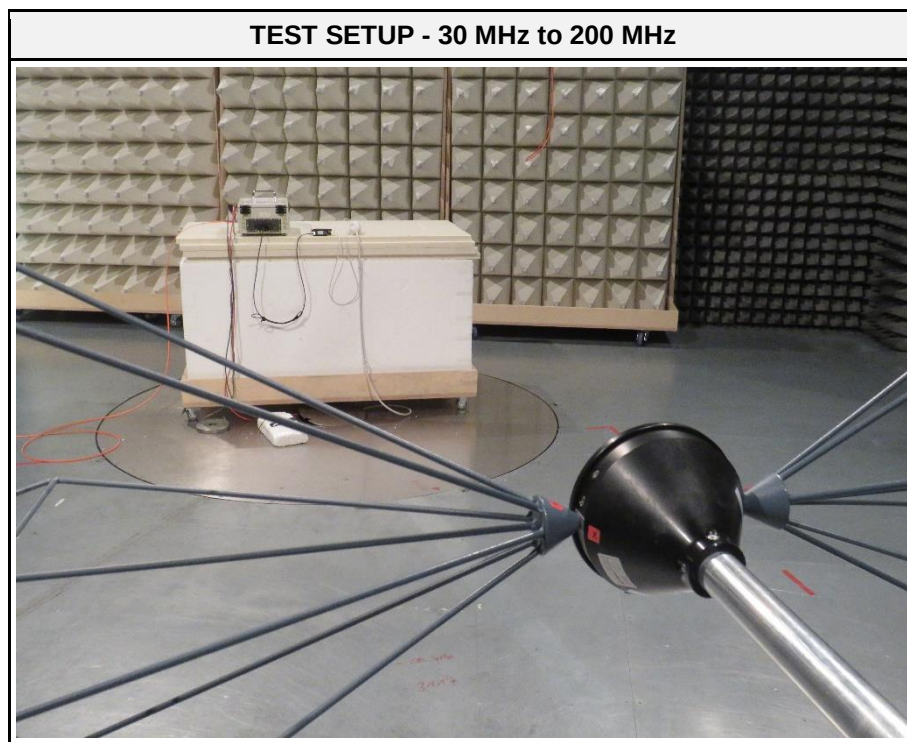
## 2.1.5 Limits

| Class B @ 3 m   |            |                      |
|-----------------|------------|----------------------|
| Frequency [MHz] | Detector   | Limit [dB $\mu$ V/m] |
| 30 - 88         | Quasi-peak | 40                   |
| 88 - 216        | Quasi-peak | 43.5                 |
| 216 - 960       | Quasi-peak | 46                   |
| 960 - 1000      | Quasi-peak | 54                   |
| > 1000          | Peak       | 74                   |
|                 | Average    | 54                   |

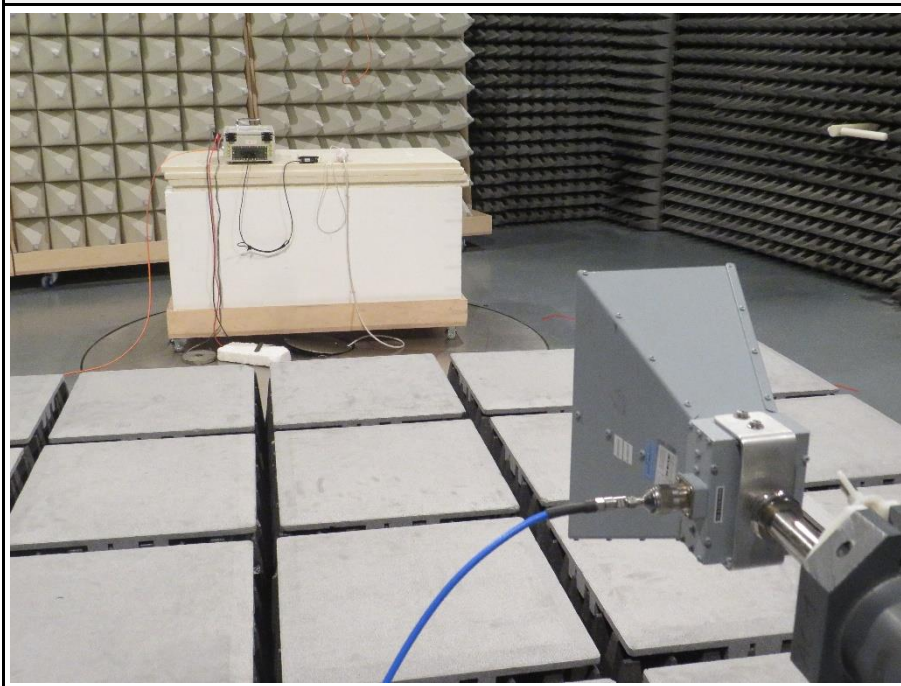
## 2.1.6 Results

| Test Results     |                   |         |                                  |
|------------------|-------------------|---------|----------------------------------|
| Operational mode | EUT Configuration | Verdict | Remark                           |
| 1                | 1                 | PASS    | AC/DC-adapter (120 V AC / 60 Hz) |
| Comment: --      |                   |         |                                  |

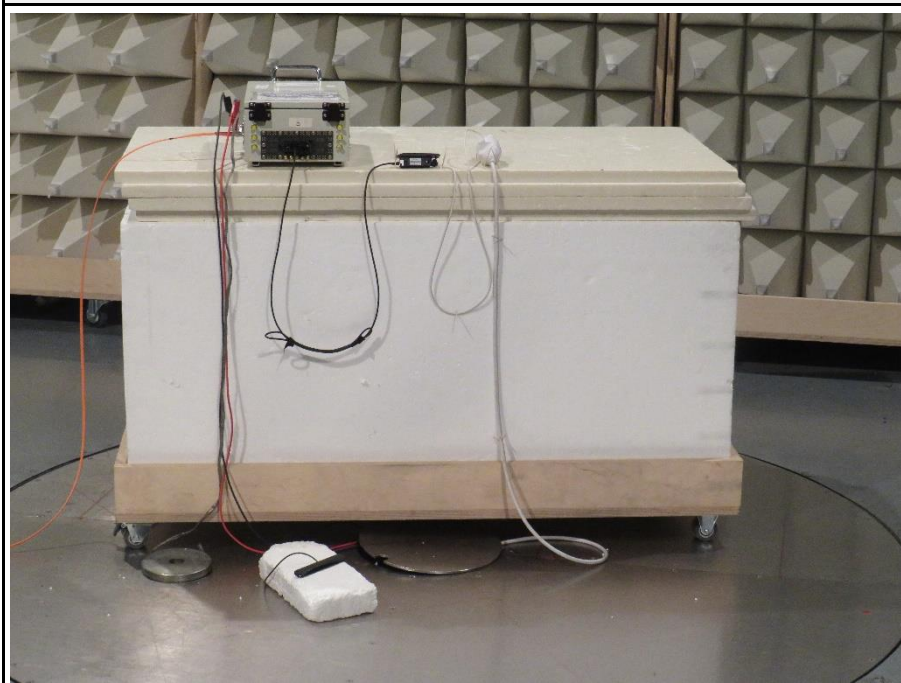
### 2.1.7 Setup Photos



**TEST SETUP - 1 GHz to 13 GHz**



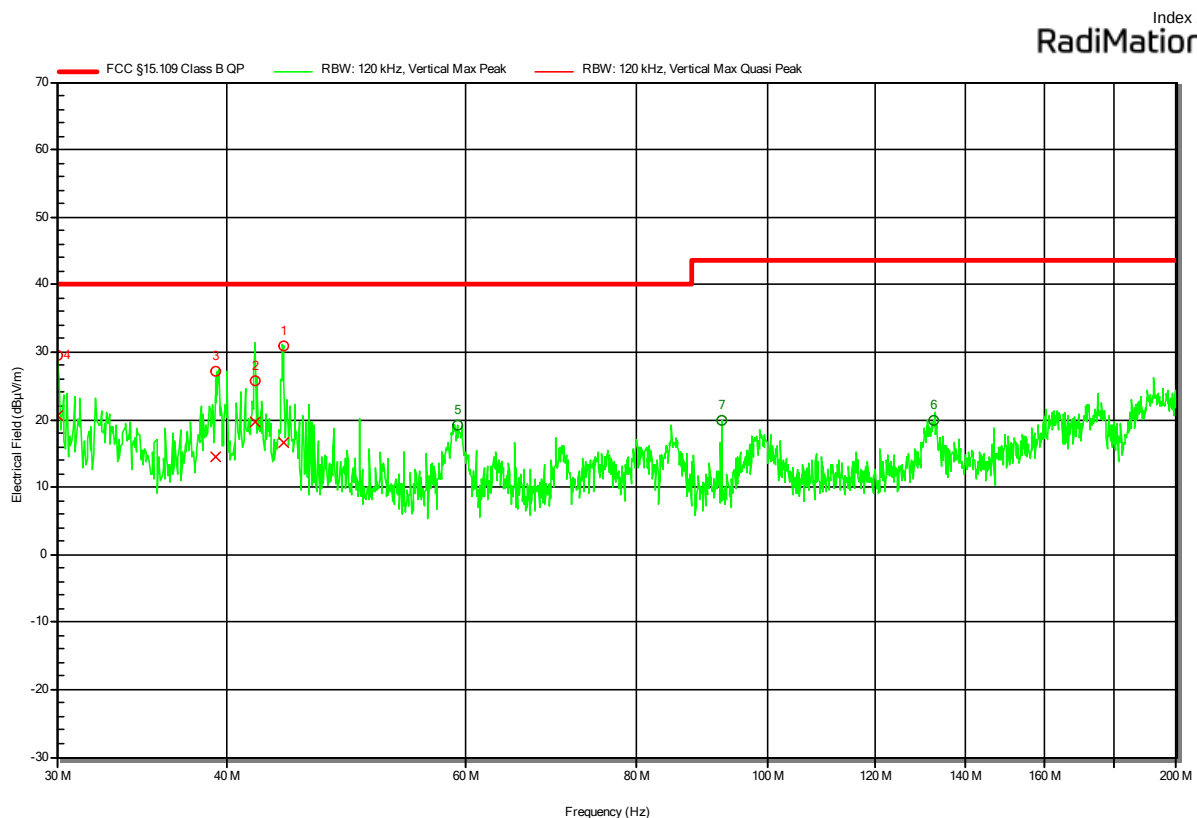
**TEST SETUP - FOCUS**



## 2.1.8 Records

**Radiated emissions  
according to FCC part 15B**

Project Number: G0M-2112-1200  
 Applicant: Robert Bosch GmbH  
 Model Description: eBike remote control unit  
 Model: BRC3100  
 Test Sample ID: 40169  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Neuner  
 Test Date: 2022-07-22  
 Operating Conditions: ambient temperature: 21 °Celsius  
 power input:  
 13.5 V DC by RDS simulator +  
 USB powered by AC/DC-adapter (120 V AC / 60 Hz)  
 Antenna: Rohde & Schwarz HK 116, Vertical  
 Measurement Distance: 3m  
 Operational Mode: Mode 1  
 EUT Configuration: Configuration 1  
 Note 1: --



| Peak Number | Frequency (MHz) | Quasi-Peak (dBμV/m) | Quasi-Peak Limit (dBμV/m) | Quasi-Peak Difference (dB) | Quasi-Peak Status | Angle (degrees) | Height (m) |
|-------------|-----------------|---------------------|---------------------------|----------------------------|-------------------|-----------------|------------|
| 1           | 44.06           | 16.57               | 40                        | -23.43                     | Pass              | 0               | 1          |
| 2           | 41.947          | 19.6                | 40                        | -20.4                      | Pass              | 0               | 1          |
| 3           | 39.295          | 14.57               | 40                        | -25.43                     | Pass              | 0               | 1          |
| 4           | 30              | 20.59               | 40                        | -19.41                     | Pass              | 0               | 1          |

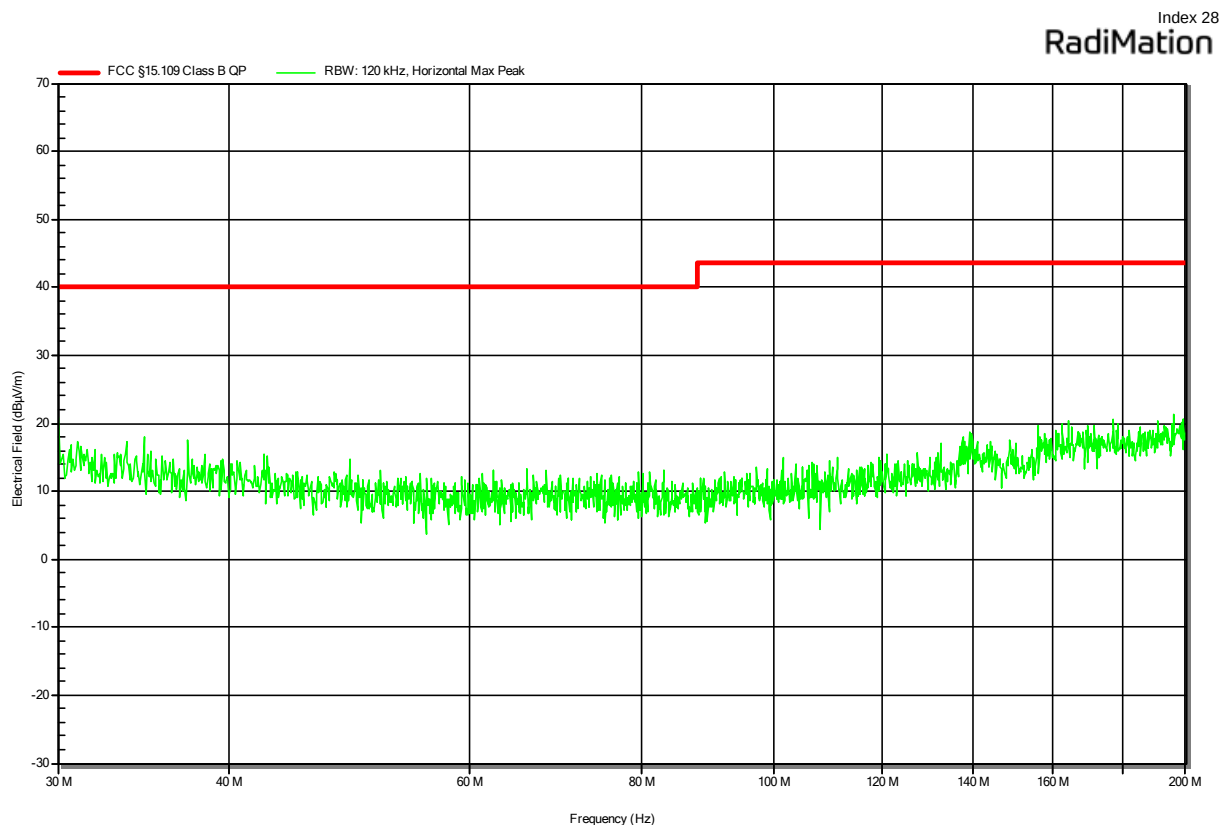
Test Report No.: G0M-2112-1200-EF0115B-V01

Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany



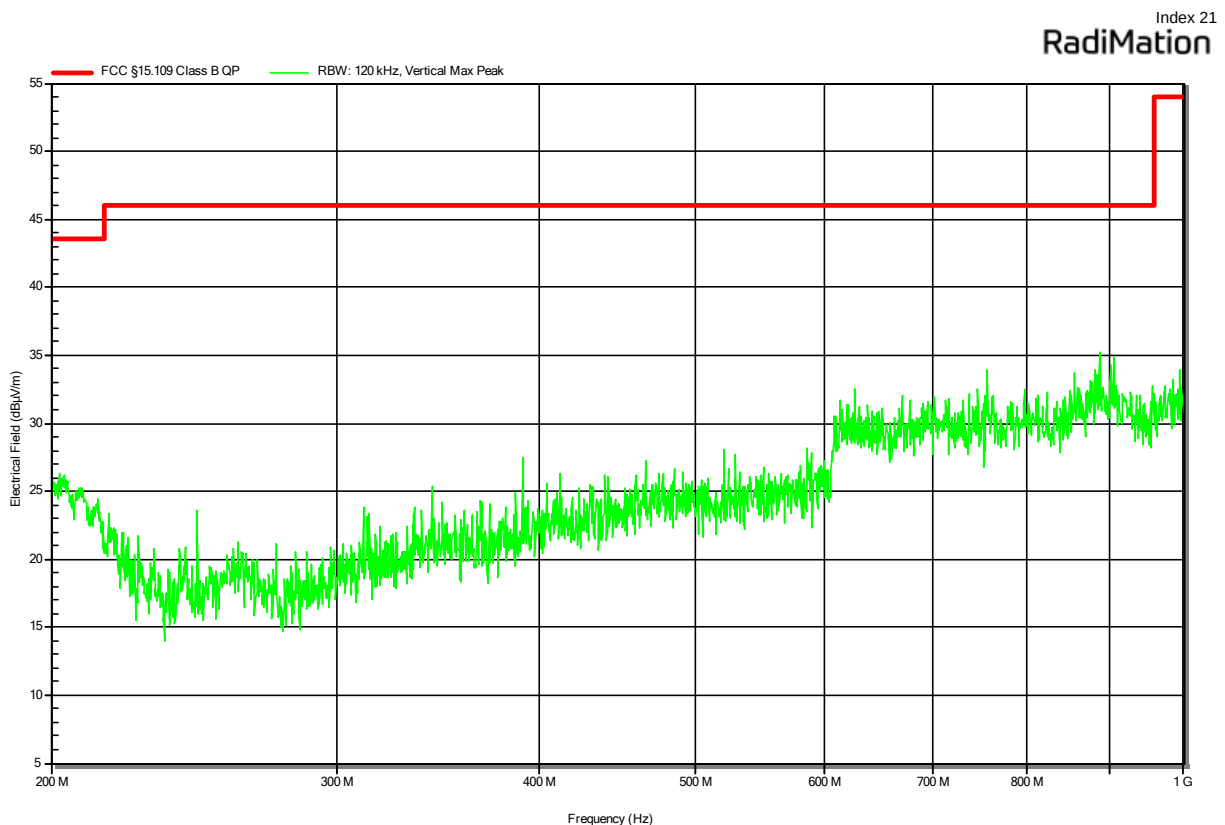
## Radiated emissions according to FCC part 15B

|                       |                                                                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Project Number:       | G0M-2112-1200                                                                                                                       |
| Applicant:            | Robert Bosch GmbH                                                                                                                   |
| Model Description:    | eBike remote control unit                                                                                                           |
| Model:                | BRC3100                                                                                                                             |
| Test Sample ID:       | 40169                                                                                                                               |
| Test Site:            | Eurofins Product Service GmbH                                                                                                       |
| Operator:             | Mr. Neuner                                                                                                                          |
| Test Date:            | 2022-07-22                                                                                                                          |
| Operating Conditions: | ambient temperature: 21 °Celsius<br>power input:<br>13.5 V DC by RDS simulator +<br>USB powered by AC/DC-adapter (120 V AC / 60 Hz) |
| Antenna:              | Rohde & Schwarz HK 116, Horizontal                                                                                                  |
| Measurement Distance: | 3m                                                                                                                                  |
| Operational Mode:     | Mode 1                                                                                                                              |
| EUT Configuration:    | Configuration 1                                                                                                                     |
| Note 1:               | --                                                                                                                                  |



## Radiated emissions according to FCC part 15B

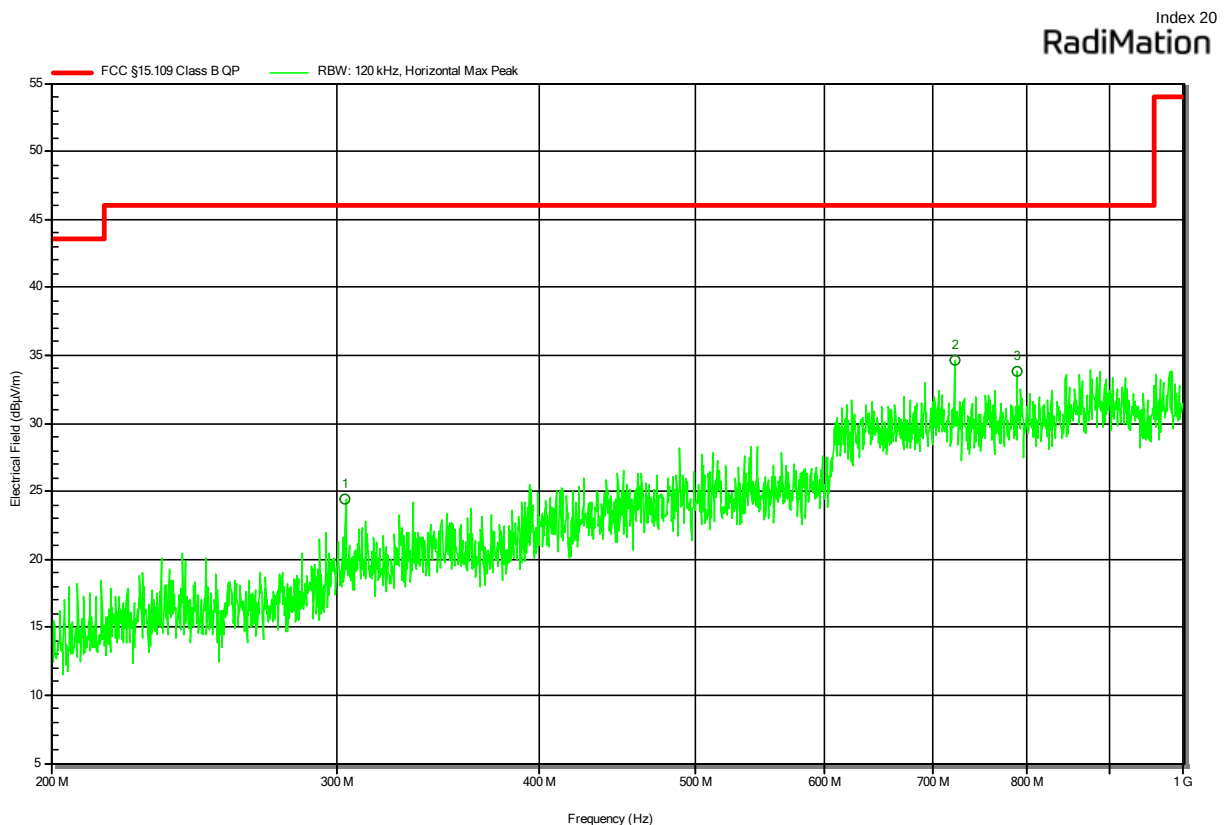
Project Number: G0M-2112-1200  
Applicant: Robert Bosch GmbH  
Model Description: eBike remote control unit  
Model: BRC3100  
Test Sample ID: 40169  
Test Site: Eurofins Product Service GmbH  
Operator: Mr. Neuner  
Test Date: 2022-07-22  
Operating Conditions: ambient temperature: 21 °Celsius  
power input:  
13.5 V DC by RDS simulator +  
USB powered by AC/DC-adapter (120 V AC / 60 Hz)  
Antenna: Rohde & Schwarz HL 223, Vertical  
Measurement Distance: 3m  
Operational Mode: Mode 1  
EUT Configuration: Configuration 1  
Note 1: --





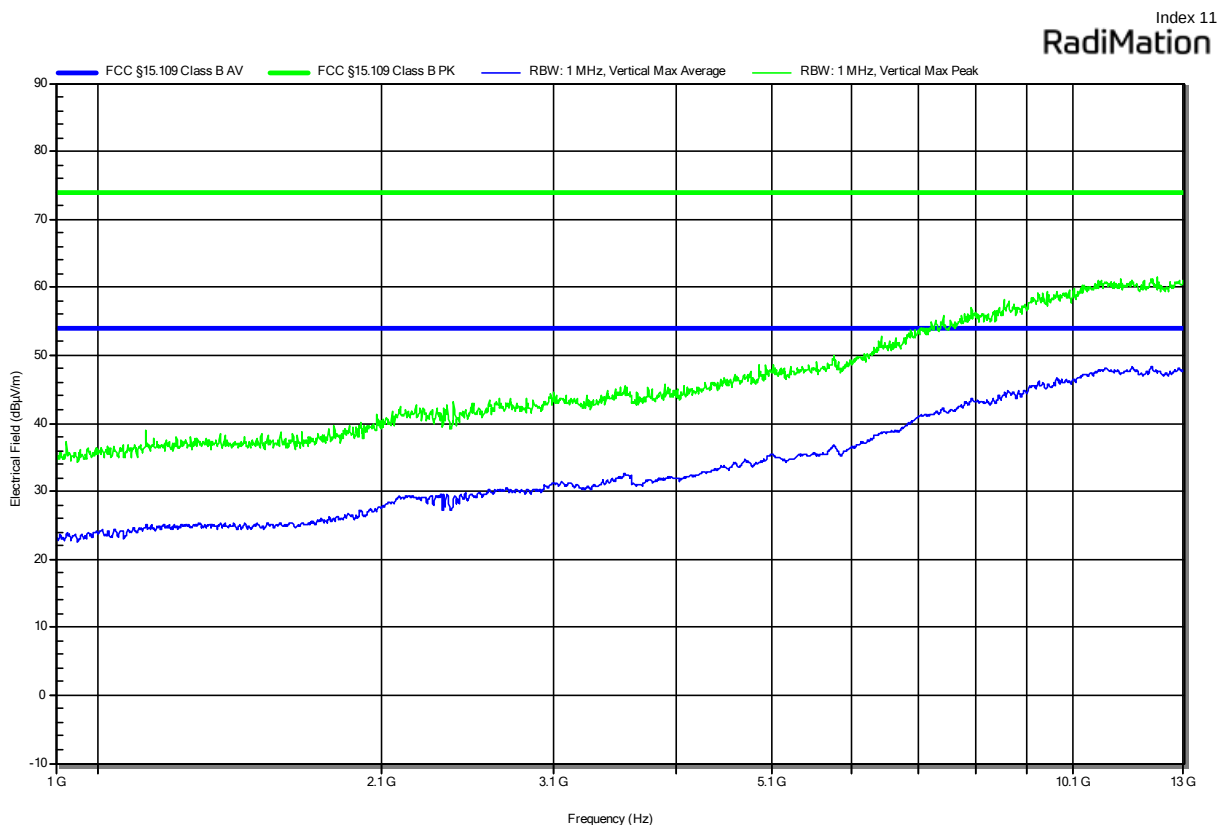
## Radiated emissions according to FCC part 15B

Project Number: G0M-2112-1200  
 Applicant: Robert Bosch GmbH  
 Model Description: eBike remote control unit  
 Model: BRC3100  
 Test Sample ID: 40169  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Neuner  
 Test Date: 2022-07-22  
 Operating Conditions: ambient temperature: 21 °Celsius  
 power input:  
 13.5 V DC by RDS simulator +  
 USB powered by AC/DC-adapter (120 V AC / 60 Hz)  
 Antenna: Rohde & Schwarz HL 223, Horizontal  
 Measurement Distance: 3m  
 Operational Mode: Mode 1  
 EUT Configuration: Configuration 1  
 Note 1: --



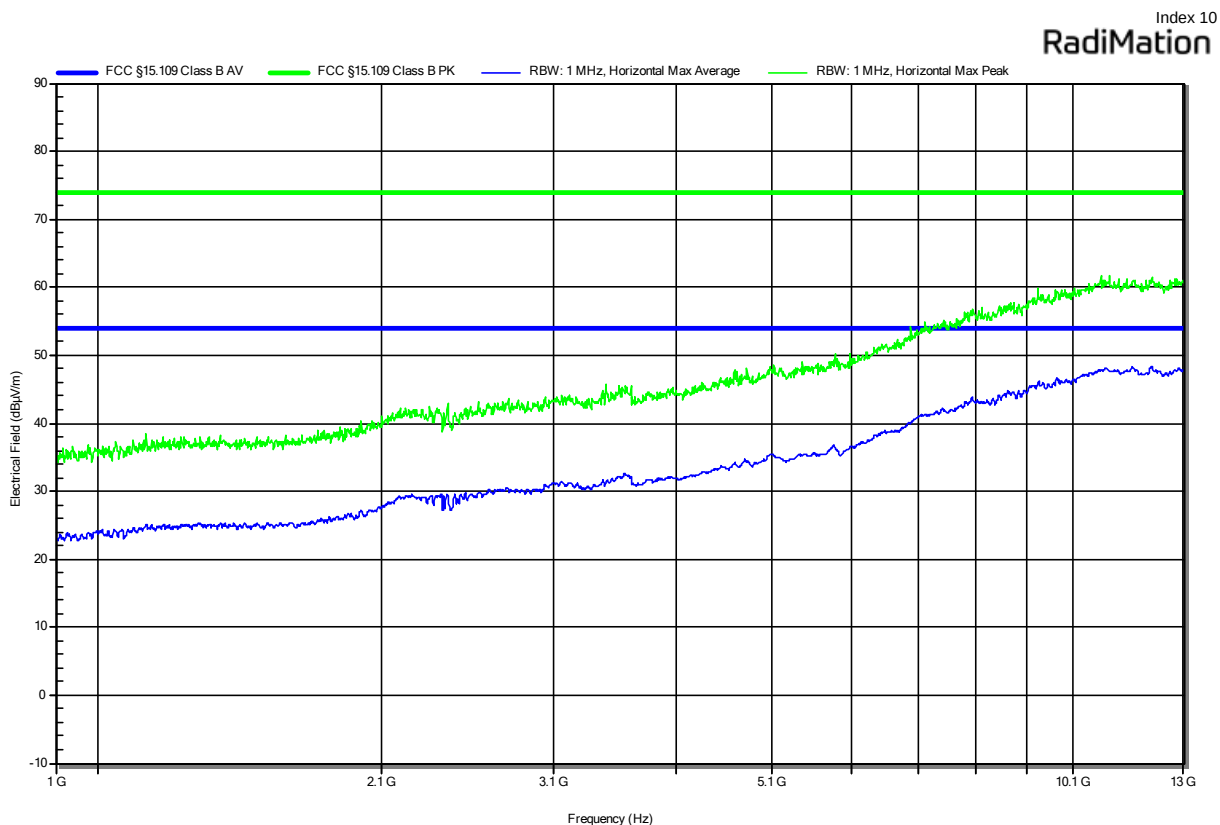
## Radiated emissions according to FCC part 15B

Project Number: G0M-2112-1200  
 Applicant: Robert Bosch GmbH  
 Model Description: eBike remote control unit  
 Model: BRC3100  
 Test Sample ID: 40169  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Neuner  
 Test Date: 2022-07-22  
 Operating Conditions: ambient temperature: 21 °Celsius  
 power input:  
 13.5 V DC by RDS simulator +  
 USB powered by AC/DC-adapter (120 V AC / 60 Hz)  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement Distance: 3m  
 Operational Mode: Mode 1  
 EUT Configuration: Configuration 1  
 Note 1: --



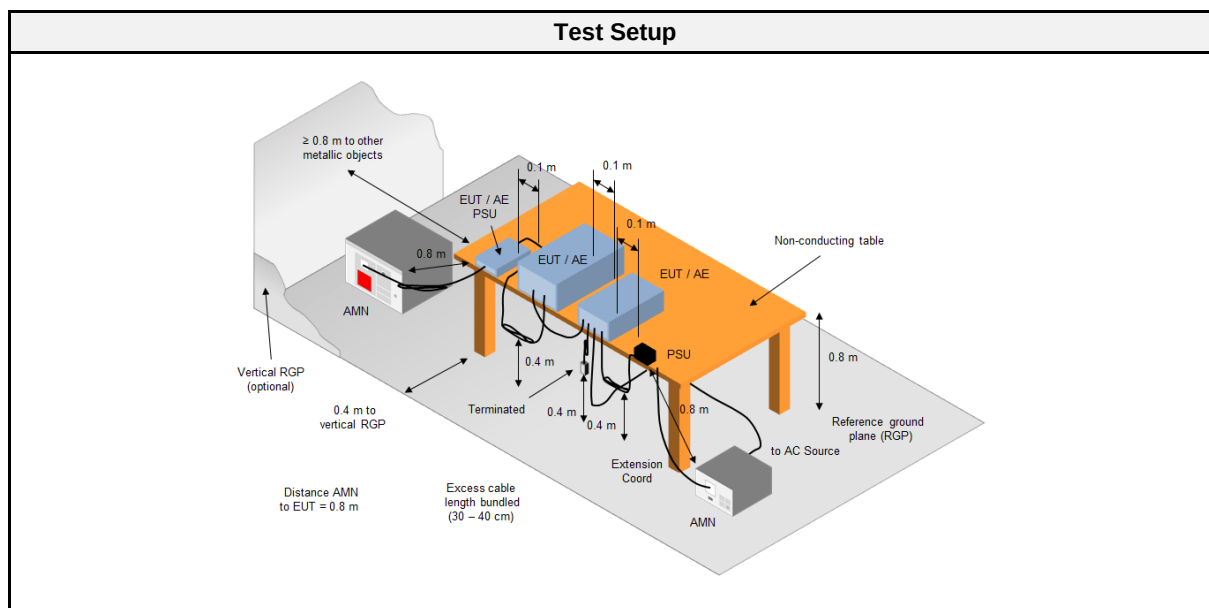
## Radiated emissions according to FCC part 15B

Project Number: G0M-2112-1200  
 Applicant: Robert Bosch GmbH  
 Model Description: eBike remote control unit  
 Model: BRC3100  
 Test Sample ID: 40169  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Neuner  
 Test Date: 2022-07-22  
 Operating Conditions: ambient temperature: 21 °Celsius  
 power input:  
 13.5 V DC by RDS simulator +  
 USB powered by AC/DC-adapter (120 V AC / 60 Hz)  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement Distance: 3m  
 Operational Mode: Mode 1  
 EUT Configuration: Configuration 1  
 Note 1: --



### 2.2.1 Information

### 2.2.2 Setup



### 2.2.3 Equipment

| Test Software |                  |            |          |
|---------------|------------------|------------|----------|
| Description   | Manufacturer     | Name       | Version  |
| EMC Software  | DARE Instruments | Radimation | 2020.1.8 |

| Test Equipment    |                             |                  |            |           |          |
|-------------------|-----------------------------|------------------|------------|-----------|----------|
| Description       | Manufacturer                | Model            | Identifier | Cal. Date | Cal. Due |
| AMN               | Schwarzbeck                 | NSLK 8127        | EF01592    | 2021-07   | 2023-07  |
| AMN               | R&S                         | ESH3-Z5          | EF00036    | 2021-08   | 2023-08  |
| Pulse Limiter     | R&S                         | ESH3-Z2          | EF01063    | 2021-07   | 2023-07  |
| EMI Test Receiver | R&S                         | ESR 7            | EF00943    | 2021-08   | 2023-07  |
| Climatic Sensor   | Embedded Data Systems, LLC. | 280010000025417E | EF01054    | 2022-04   | 2023-04  |

### 2.2.4 Procedure

| Exploratory measurement |                                                                                                                                                                                     |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                      | The EUT was placed on a non conductive table 0.8 m above the reference ground plane and 0.4 m away from the vertical conducting plane (ANSI C63.4: 2014 item 7.3.1)                 |
| 2.                      | The power cord that is normally supplied or recommended by the manufacturer was connected to the LISN.                                                                              |
| 3.                      | The distance between the outer edge of the EUT and the LISN shall be set to 0.8 m. A longer power cord shall be bundled to this length (bundling shall not exceed 40 cm in length). |
| 4.                      | The LISN measurement port was connected to a measurement receiver                                                                                                                   |
| 5.                      | I/O cables were bundled not longer than 0.4 m                                                                                                                                       |
| 6.                      | Measurement was performed in the frequency range 0.15 – 30MHz on each current-carrying conductor                                                                                    |
| 7.                      | To maximize the emissions the cable positions were manipulated                                                                                                                      |
| 8.                      | The worst configuration of EUT and cables is shown on a test setup picture at item 2.2.2                                                                                            |

| Final measurement |                                                                                                                                                                                     |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                | The EUT was placed on a non conductive table 0.8 m above the reference ground plane and 0.4 m away from the vertical conducting plane (ANSI C63.4: 2014 item 7.3.1)                 |
| 2.                | The power cord that is normally supplied or recommended by the manufacturer was connected to the LISN.                                                                              |
| 3.                | The distance between the outer edge of the EUT and the LISN shall be set to 0.8 m. A longer power cord shall be bundled to this length (bundling shall not exceed 40 cm in length). |
| 4.                | The LISN measurement port was connected to a measurement receiver                                                                                                                   |
| 5.                | The EUT and cable arrangement were based on the exploratory measurement results                                                                                                     |
| 6.                | The test data of the worst-case conditions were recorded and shown on the next pages                                                                                                |

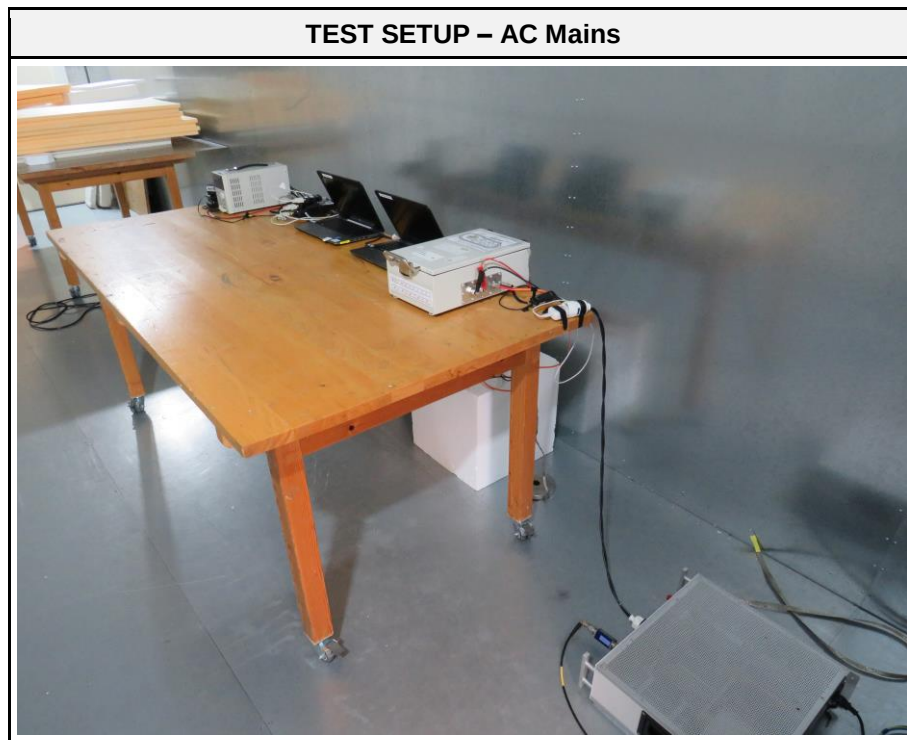
### 2.2.5 Limits

| Class B                                         |                         |                      |
|-------------------------------------------------|-------------------------|----------------------|
| Frequency [MHz]                                 | Quasi-peak Limit [dBμV] | Average Limit [dBμV] |
| 0.15 - 0.5                                      | 66 - 56 *               | 56 - 46 *            |
| 0.5 - 5                                         | 56                      | 46                   |
| 5 - 30                                          | 60                      | 50                   |
| * Decreases with the logarithm of the frequency |                         |                      |

## 2.2.6 Results

| AC power line conducted emissions                                                                    |          |                  |                   |         |                                                         |
|------------------------------------------------------------------------------------------------------|----------|------------------|-------------------|---------|---------------------------------------------------------|
| Port                                                                                                 | Coupling | Operational mode | EUT Configuration | Verdict | Remark                                                  |
| AC Mains                                                                                             | AMN      | 1                | 1                 | PASS    | AC/DC-adapter (120 V AC / 60 Hz); Port of AC/DC-adapter |
| Comment:<br>The AC/DC adapter was connected with an extension cord of 1m to Artificial Mains Network |          |                  |                   |         |                                                         |

### 2.2.7 Setup Photos

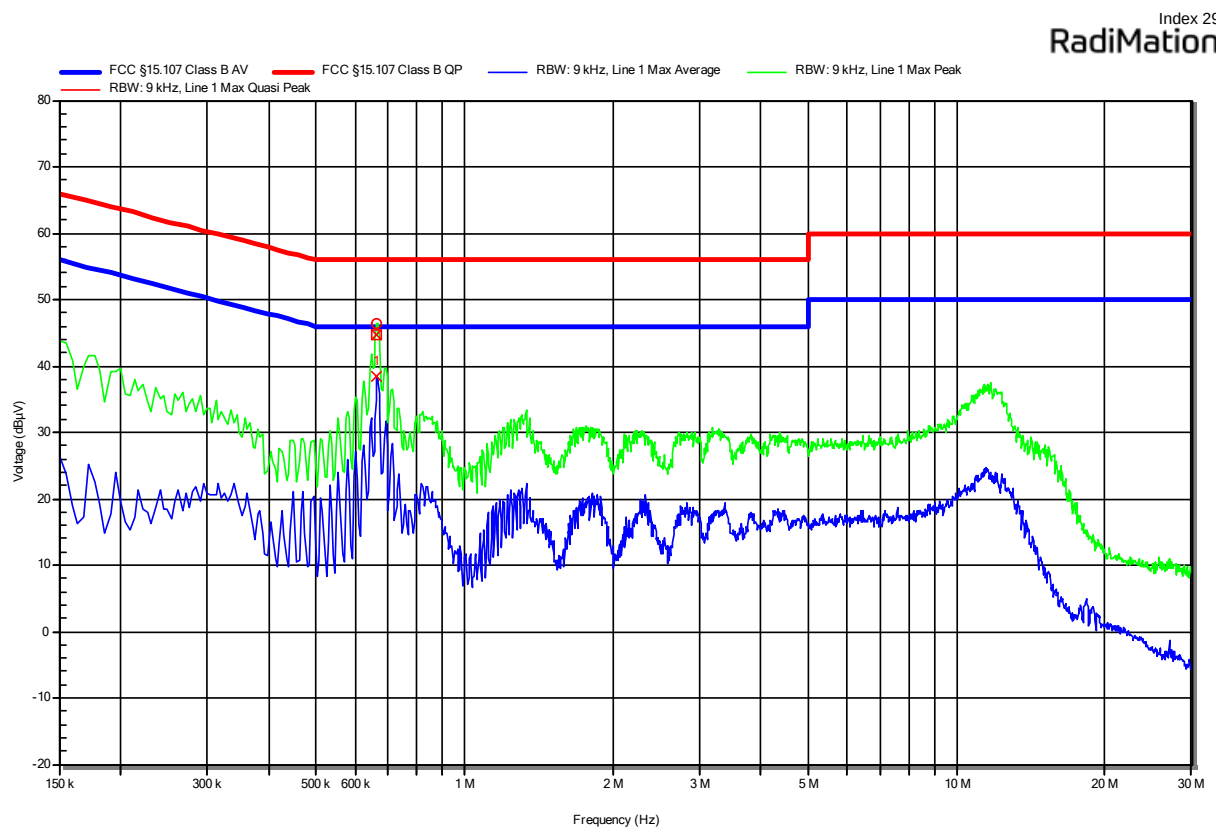




## 2.2.8 Records

### Conducted emissions at the mains power port according to FCC part 15B

Project Number: G0M-2112-1200  
 Applicant: Robert Bosch GmbH  
 Model Description: eBike remote control unit  
 Model: BRC3100  
 Test Sample ID: 40169  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Drabo  
 Test Date: 2022-08-09  
 Operating Conditions: ambient temperature: 26 °Celsius  
 power input: 120 V AC / 60 Hz  
 LISN: Schwarzbeck NSLK 8127 RC L1  
 Operational Mode: Mode 1  
 EUT Configuration: Configuration 1  
 Applied to Port: AC Mains  
 Note 1: Worst case: 95 % battery charged



| Peak Number | Frequency (MHz) | Quasi-Peak (dBµV) | Limit (dBµV) | Quasi-Peak Difference (dB) | Quasi-Peak Status | LISN   |
|-------------|-----------------|-------------------|--------------|----------------------------|-------------------|--------|
| 1           | 0.664           | 44.75             | 56           | -11.25                     | Pass              | Line 1 |

| Peak Number | Frequency (MHz) | Average (dBµV) | Limit (dBµV) | Average Difference (dB) | Average Status | LISN   |
|-------------|-----------------|----------------|--------------|-------------------------|----------------|--------|
| 1           | 0.664           | 38.32          | 46           | -7.68                   | Pass           | Line 1 |

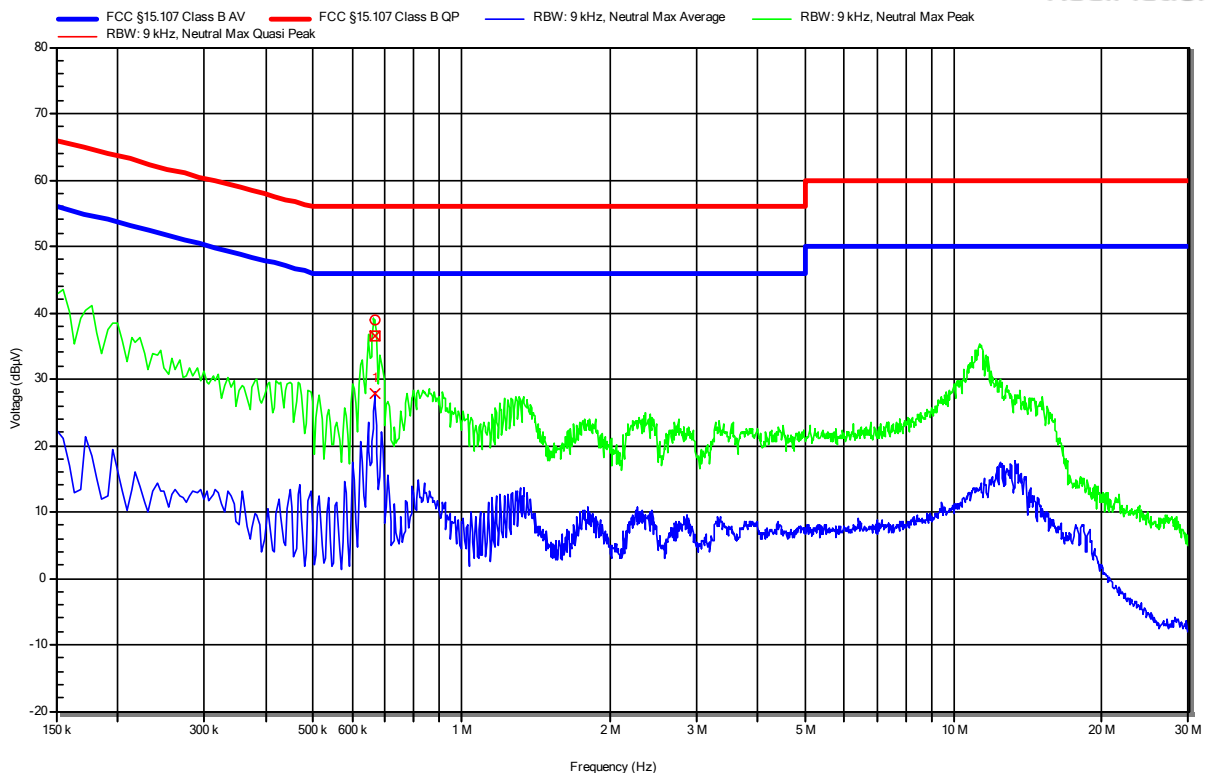
Test Report No.: G0M-2112-1200-EF0115B-V01

Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

## Conducted emissions at the mains power port according to FCC part 15B

Project Number: G0M-2112-1200  
 Applicant: Robert Bosch GmbH  
 Model Description: eBike remote control unit  
 Model: BRC3100  
 Test Sample ID: 40169  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Drabo  
 Test Date: 2022-08-09  
 Operating Conditions: ambient temperature: 26 °Celsius  
 power input: 120 V AC 60 Hz  
 LISN: Schwarzbeck NSLK 8127 N  
 Operational Mode: Mode 1  
 EUT Configuration: Configuration 1  
 Applied to Port: AC Mains  
 Note 1: Worst case: 95 % battery charged

Index 30  
RadiMation



| Peak Number | Frequency (MHz) | Quasi-Peak (dBμV) | Quasi-Peak (dBμV) | Limit | Quasi-Peak Difference (dB) | Quasi-Peak Status | LISN    |
|-------------|-----------------|-------------------|-------------------|-------|----------------------------|-------------------|---------|
| 1           | 0.666           | 36.55             | 56                |       | -19.45                     | Pass              | Neutral |
| Peak Number | Frequency (MHz) | Average (dBμV)    | Average (dBμV)    | Limit | Average Difference (dB)    | Average Status    | LISN    |
| 1           | 0.666           | 27.89             | 46                |       | -18.11                     | Pass              | Neutral |

### 3 Measurement Uncertainty

All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2.

| Test Name                                   | Measurement Uncertainty                                                                |
|---------------------------------------------|----------------------------------------------------------------------------------------|
| Conducted emissions at the mains power port | 150kHz to 30MHz, 3.35dB                                                                |
| Radiated Emission                           | 30MHz to 200MHz @ 3m, 5.1dB<br>200MHz to 1GHz @ 3m, 5.3dB<br>>1GHz to 6GHz @3m, 5.95dB |