

| FCC TEST REPORT                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Co-Location                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Report Reference No                | G0M-2009-9279-TFCCOLOC-V01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Testing Laboratory                 | Eurofins Product Service GmbH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Address                            | Storkower Str. 38c<br>15526 Reichenwalde<br>Germany                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Accreditation                      |     <p>DAKKS - Registration number : D-PL-12092-01-03 (ISED)<br/>ISED Testing Laboratory site: 3470A<br/>DAKKS - Registration number : D-PL-12092-01-04 (FCC)<br/>FCC Filed Test Laboratory, Reg.-No.: 96970</p> |
| Applicant                          | Dräger Safety AG & Co. KGaA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Address                            | Revalstraße 1<br>23560 Lübeck<br>GERMANY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Test Specification                 | 47 CFR Part 15.247                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Non-Standard Test Method           | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Equipment under Test (EUT):</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Product Description                | Fixed Gas Detector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Model(s)                           | Polytron 6100 EC WL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Additional Model(s)                | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Brand Name(s)                      | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Hardware Version(s)                | RC002                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Software Version(s)                | Transmitter: P6100 V1.5.7, Centro FW v02.00.08, Bootloader V2.5.0, SW Telit BLT V3.12.002                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| FCC ID                             | X6O-RC002                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| IC                                 | 5895F-RC002                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 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              |                                                                                       |
| Not applicable to EUT                                                                                                                                                                                                                                                                                                                                                                                                                                                          | N/A              |                                                                                       |
| Test object does meet the requirement                                                                                                                                                                                                                                                                                                                                                                                                                                          | P(PASS)          |                                                                                       |
| Test object does not meet the requirement                                                                                                                                                                                                                                                                                                                                                                                                                                      | F(FAIL)          |                                                                                       |
| <b>Testing:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                       |
| Test Lab Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 20 °C - 30 °C    |                                                                                       |
| Test Lab Humidity                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 25 % - 55 %      |                                                                                       |
| Date of receipt of test item                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2021-10-04       |                                                                                       |
| <b>Report:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                                                                                       |
| Compiled by                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Odai Qawasmeh    |                                                                                       |
| Tested by (+ signature)<br>(Responsible for Test)                                                                                                                                                                                                                                                                                                                                                                                                                              | Odai Qawasmeh    |   |
| Approved by (+ signature)<br>(Test Lab Engineer)                                                                                                                                                                                                                                                                                                                                                                                                                               | Wilfried Treffke |  |
| Date of Issue                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2022-12-12       |                                                                                       |
| Total number of pages                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 34               |                                                                                       |
| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                       |

| Additional Variants<br>(not tested and not evaluated variants)                                                                                                                                                                                    |                          |                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------|
| Not-tested Variant                                                                                                                                                                                                                                | Description              |                                                                                          |
| 1                                                                                                                                                                                                                                                 | Product Type Description | Polytron Repeater ISA100                                                                 |
|                                                                                                                                                                                                                                                   | Model name               | Polytron Repeater ISA                                                                    |
|                                                                                                                                                                                                                                                   | Brand name               | -                                                                                        |
|                                                                                                                                                                                                                                                   | Hardware Version         | RC002                                                                                    |
|                                                                                                                                                                                                                                                   | Software Version         | Polytron Repeater V1.5.7, Centro FW v02.00.08, Bootloader V2.5.0, SW Telit BLT V3.12.002 |
|                                                                                                                                                                                                                                                   | HVIN                     | RC002                                                                                    |
|                                                                                                                                                                                                                                                   | PMN                      | Polytron Repeater ISA                                                                    |
| Comment: This named additional variant above has not been tested. This additional variant of the series has been declared by the manufacturer. The test report explicitly states that this variant was neither tested nor assessed nor evaluated. |                          |                                                                                          |

| Additional Antennas<br>(not tested and not evaluated variants)                                                                                                                                                                                             |              |                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------|
| Not-tested Antenna                                                                                                                                                                                                                                         | Description  |                              |
| 1                                                                                                                                                                                                                                                          | Type         | External                     |
|                                                                                                                                                                                                                                                            | Model        | 1399.17.0232                 |
|                                                                                                                                                                                                                                                            | Manufacturer | Huber+Suhner                 |
|                                                                                                                                                                                                                                                            | Gain         | 2 dBi (declared by customer) |
| 2                                                                                                                                                                                                                                                          | Type         | External                     |
|                                                                                                                                                                                                                                                            | Model        | F9915KW                      |
|                                                                                                                                                                                                                                                            | Manufacturer | Yokogawa                     |
|                                                                                                                                                                                                                                                            | Gain         | 2 dBi (declared by customer) |
| Comment: Those named additional antennas above have not been tested. Those additional antennas of the series have been declared by the manufacturer. The test report explicitly states that those antennas were neither tested nor assessed nor evaluated. |              |                              |

## VERSION HISTORY

| Version History |            |                 |            |
|-----------------|------------|-----------------|------------|
| Version         | Issue Date | Remarks         | Revised By |
| 01              | 2022-12-12 | Initial Release |            |

## ABBREVIATIONS AND ACRONYMS

| Acronyms         |                                                     |
|------------------|-----------------------------------------------------|
| Acronym          | Description                                         |
| EUT              | Equipment Under Test                                |
| FCC              | Federal Communications Commission                   |
| ISED             | Innovation, Science and Economic Development Canada |
| RBW              | Resolution bandwidth                                |
| RMS              | Root mean square                                    |
| VBW              | Video bandwidth                                     |
| V <sub>NOM</sub> | Nominal supply voltage                              |

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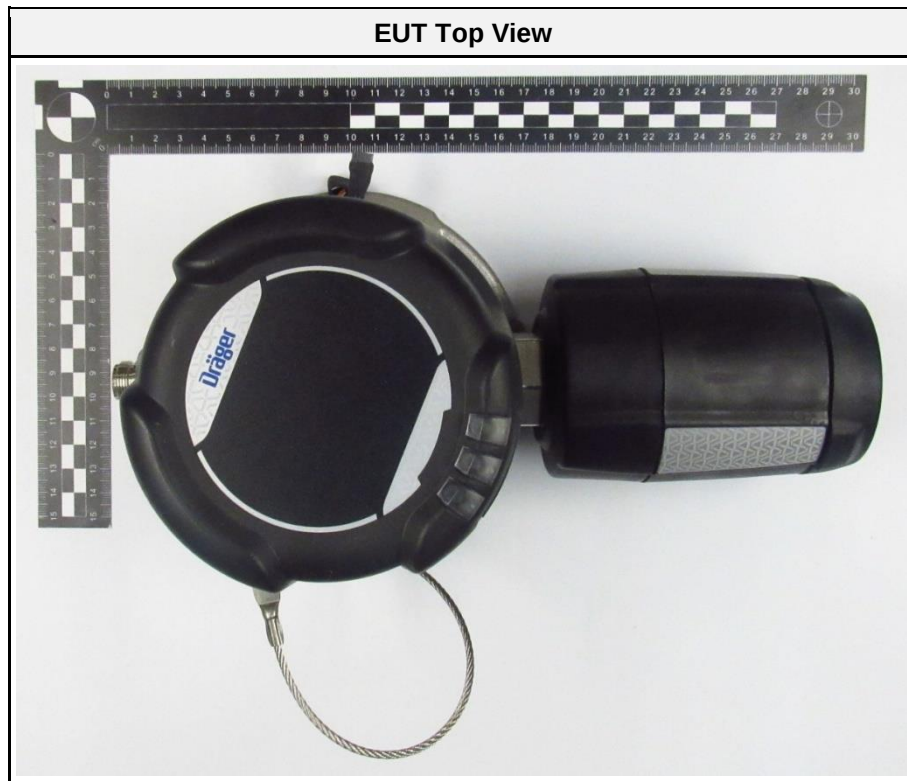
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## 1 Equipment (Test Item) Under Test

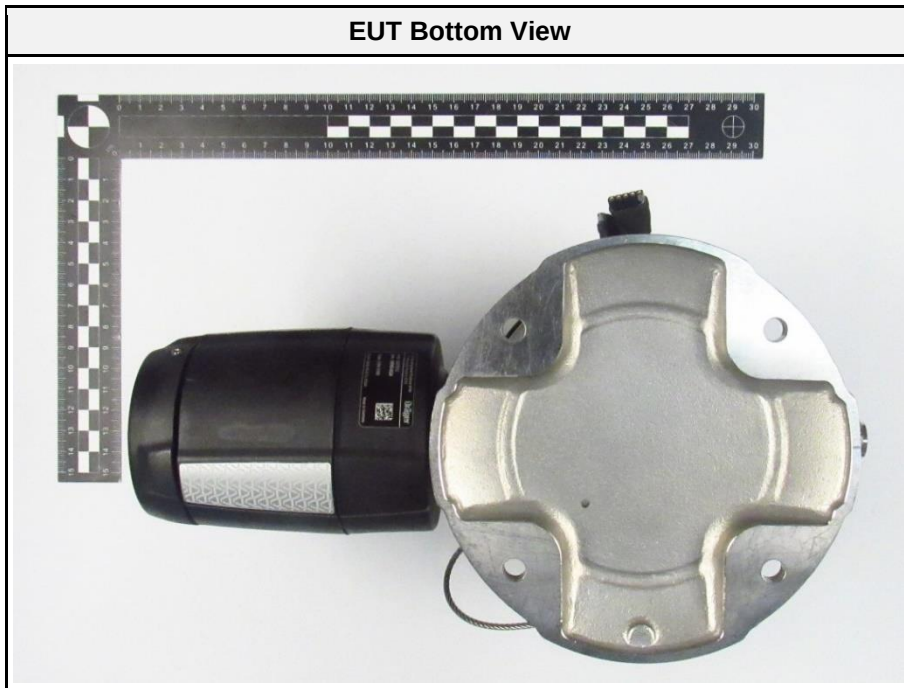
|                          |                                                                                           |                                 |
|--------------------------|-------------------------------------------------------------------------------------------|---------------------------------|
| Description              | Fixed Gas Detector                                                                        |                                 |
| Model                    | Polytron 6100 EC WL                                                                       |                                 |
| Additional Model(s)      | None                                                                                      |                                 |
| Brand Name(s)            | None                                                                                      |                                 |
| Serial Number(s)         | 2060092                                                                                   |                                 |
| Test Sample Id(s)        | 36490                                                                                     |                                 |
| Hardware Version(s)      | RC002                                                                                     |                                 |
| Software Version(s)      | Transmitter: P6100 V1.5.7, Centro FW v02.00.08, Bootloader V2.5.0, SW Telit BLT V3.12.002 |                                 |
| PMN                      | Polytron 6100 EC WL                                                                       |                                 |
| HVIN                     | RC002                                                                                     |                                 |
| FVIN                     | N/A                                                                                       |                                 |
| HMN                      | N/A                                                                                       |                                 |
| FCC ID                   | X6O-RC002                                                                                 |                                 |
| IC                       | 5895F-RC002                                                                               |                                 |
| Equipment type           | End Product                                                                               |                                 |
| Radio type               | Transceiver                                                                               |                                 |
| Assigned frequency band  | 2400 – 2480 MHz                                                                           |                                 |
| Radio technologies       | IEEE 802.15.4, Bluetooth LE 4.2                                                           |                                 |
| Modulation               | GFSK, O-QPSK                                                                              |                                 |
| Number of modules        | 1                                                                                         |                                 |
| Radio Module (Zigbee)    | Type                                                                                      | Zigbee Radio Module             |
|                          | Model                                                                                     | CW24-012                        |
|                          | Manufacturer                                                                              | Centro LLC                      |
|                          | HW Version                                                                                | 2                               |
|                          | SW Version                                                                                | V1.5.02c                        |
|                          | FCC ID                                                                                    | 2ANDP-CW24-012                  |
|                          | IC                                                                                        | 23069-CW24012                   |
| Radio Module (Bluetooth) | Type                                                                                      | Bluetooth Module                |
|                          | Model                                                                                     | BlueMod + S42 ATEX              |
|                          | Manufacturer                                                                              | Telit Communication             |
|                          | HW Version                                                                                | BE890D2SY3ATAI1                 |
|                          | SW Version                                                                                | 3.012.0002                      |
|                          | FCC ID                                                                                    | RFRMS42                         |
|                          | IC                                                                                        | 4957A-MS42                      |
| Antenna (Zigbee)         | Type                                                                                      | External                        |
|                          | Model                                                                                     | 1399.17.0237                    |
|                          | Manufacturer                                                                              | Huber+Suhner                    |
|                          | Gain                                                                                      | 2 dBi                           |
| Antenna (Bluetooth)      | Type                                                                                      | Integrated ceramic chip antenna |
|                          | Model                                                                                     | Not specified                   |
|                          | Manufacturer                                                                              | Not specified                   |
|                          | Gain                                                                                      | 2 dBi                           |
| Supply Voltage 1         | V <sub>NOM</sub>                                                                          | 24 VDC                          |
| Supply Voltage 2         | V <sub>NOM</sub>                                                                          | 14.4 VDC (Battery)              |
| Operating Temperature    | T <sub>NOM</sub>                                                                          | 20 °C                           |
| Manufacturer             | Dräger Safety AG & Co. KGaA<br>Revalstraße 1<br>23560 Lübeck<br>GERMANY                   |                                 |

Test Report No.: G0M-2009-9279-TFCCOLOC-V01

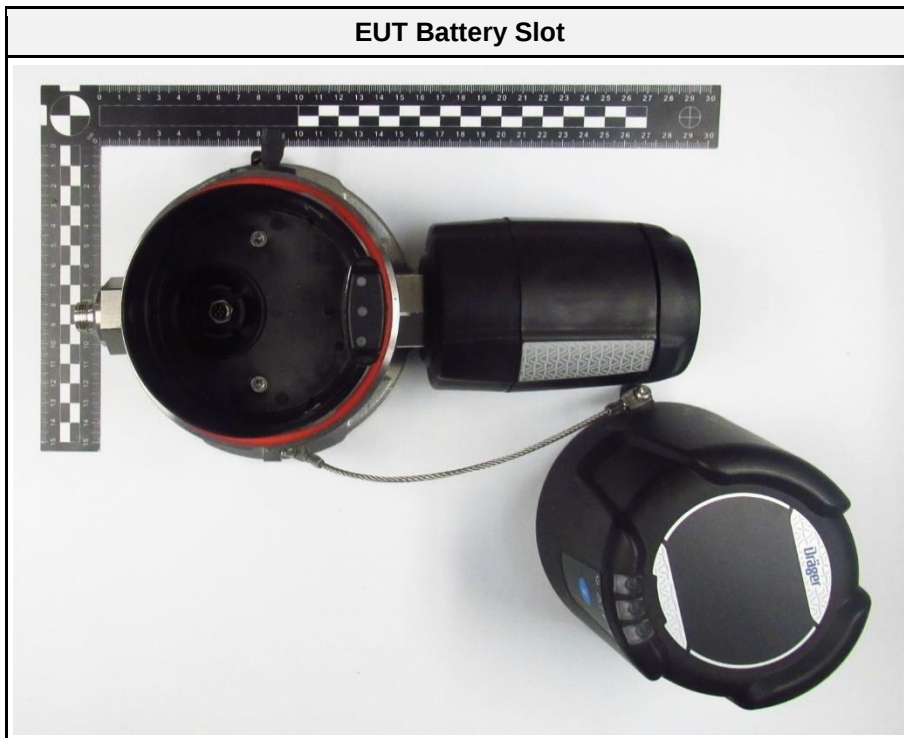
## 1.1 Photos – Equipment External



EUT Bottom View



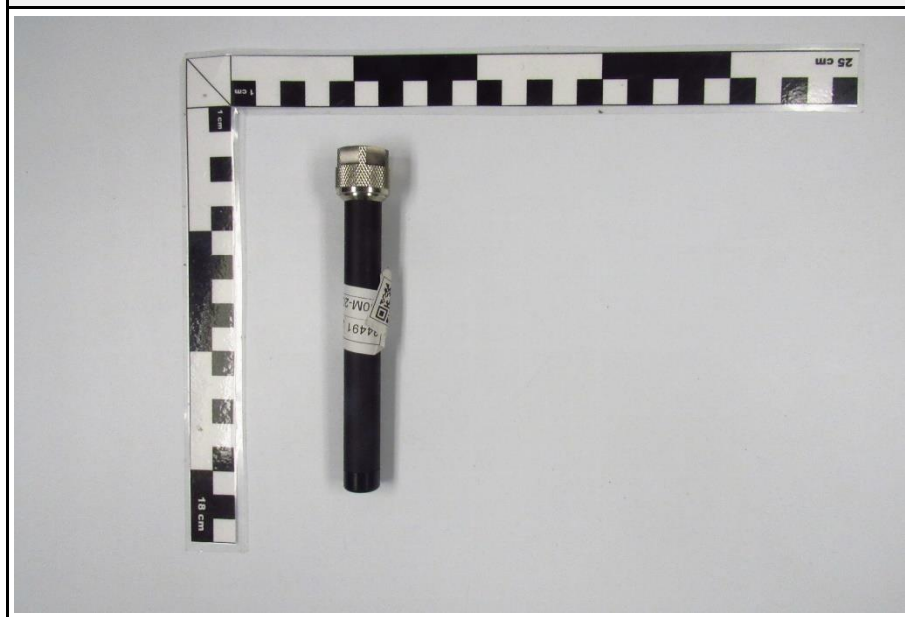
EUT Battery Slot



## EUT Battery



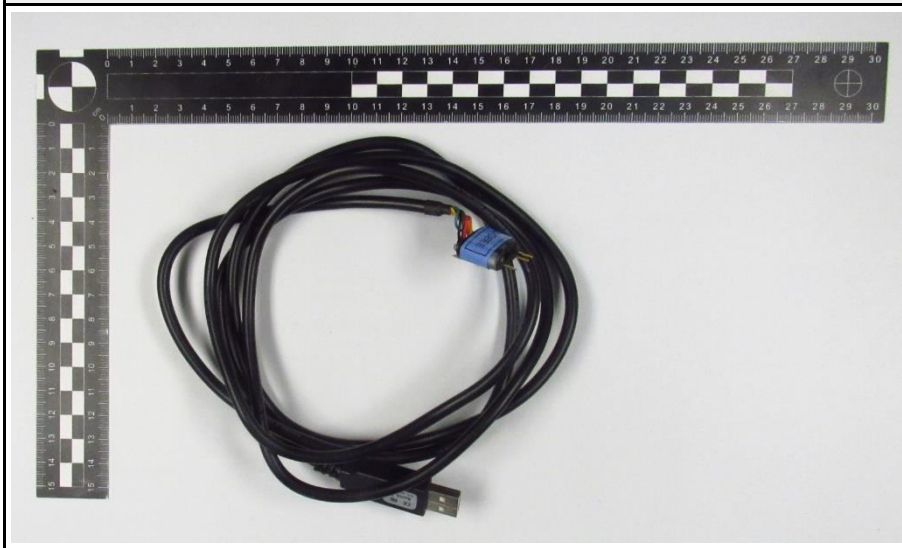
## EUT Antenna



**USB Cable for BT Mode**



**USB Cable for Zigbee Mode**



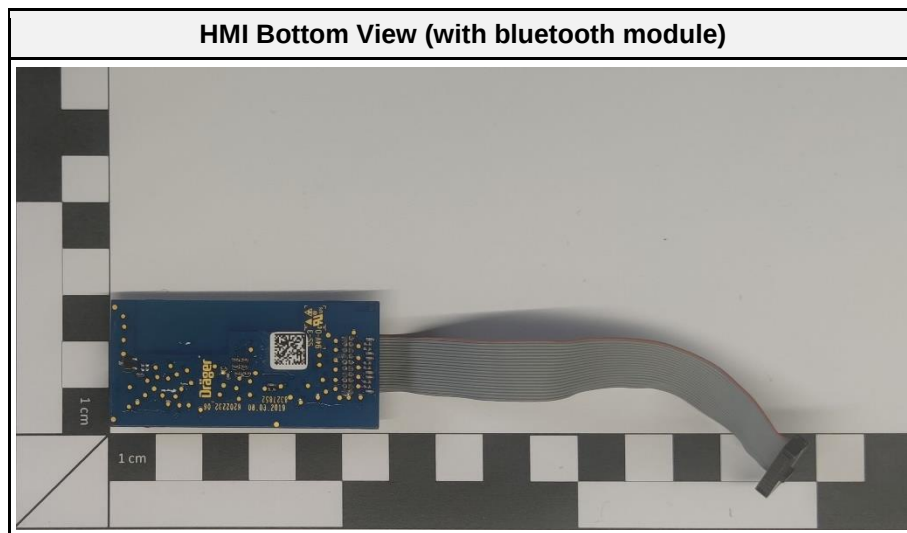
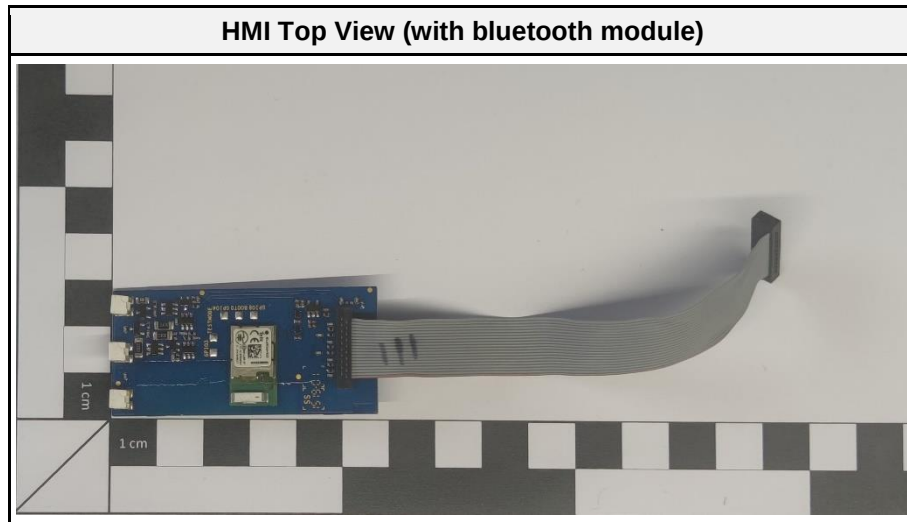
**EUT with auxiliary equipment (Zigbee)**



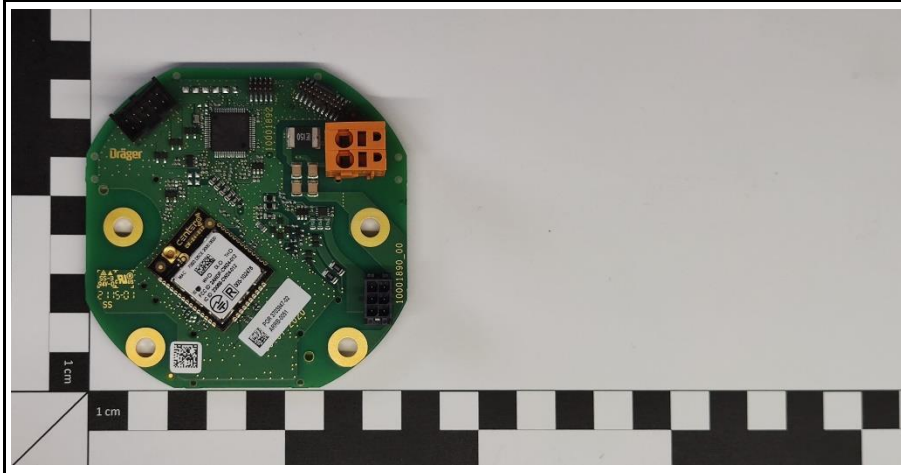
**EUT with auxiliary equipment (Bluetooth)**



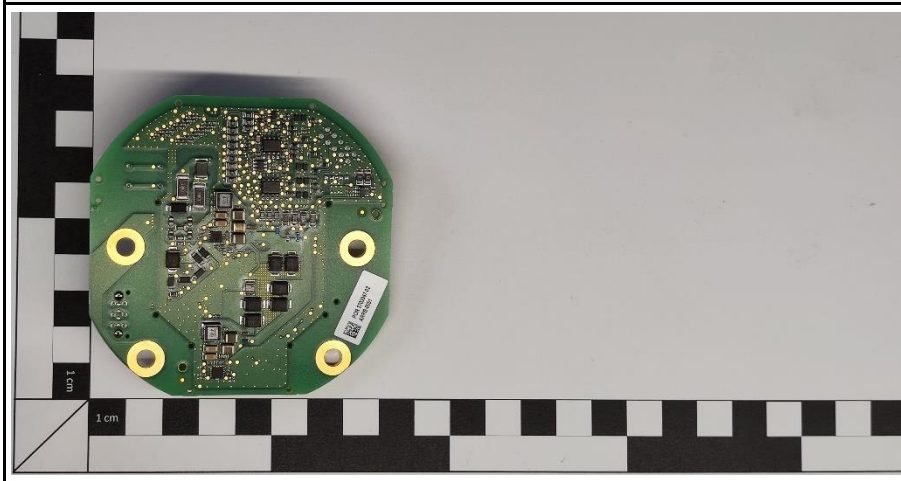
## 1.2 Photos – Equipment Internal



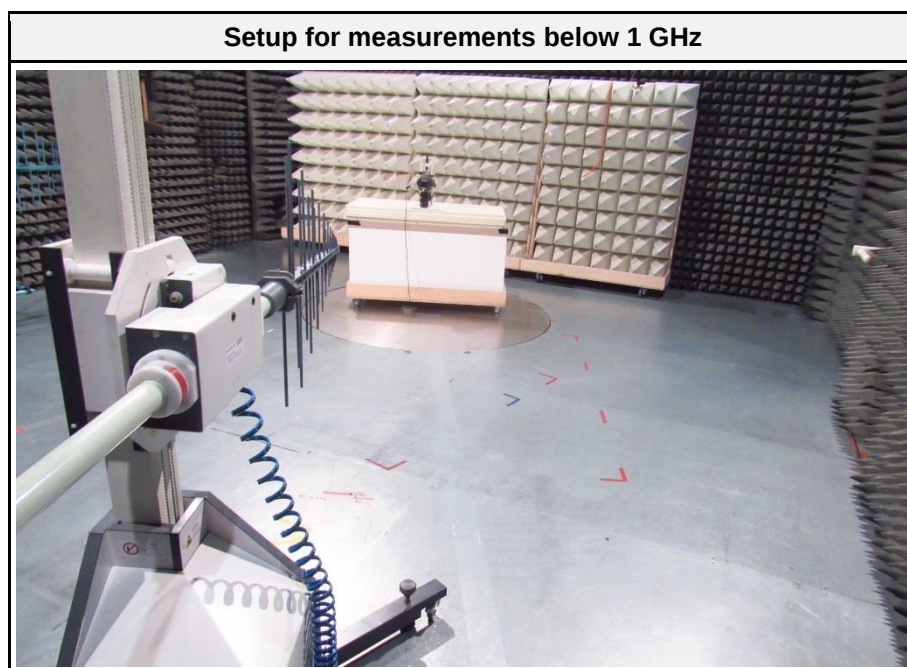
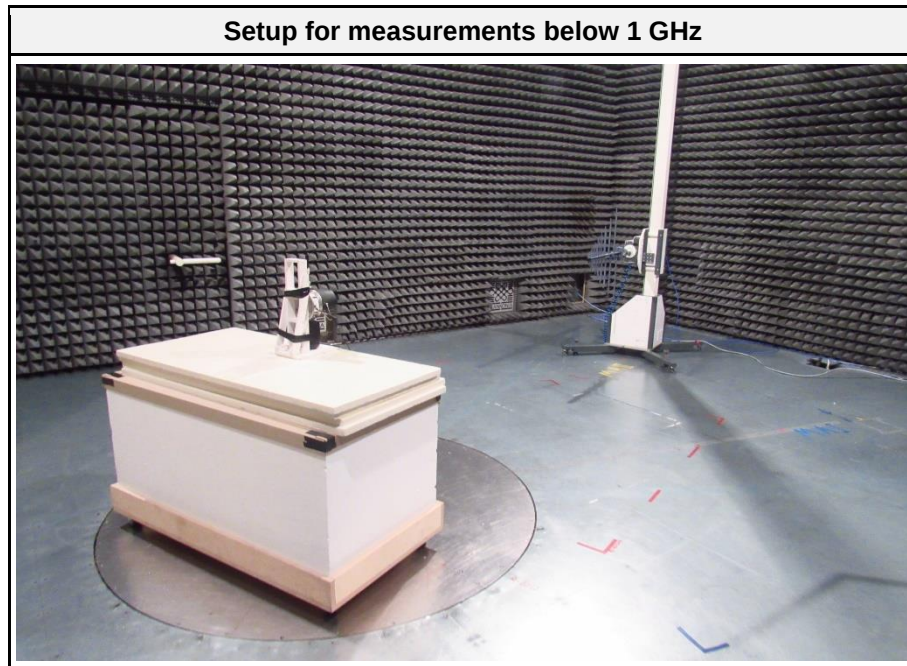
**SWEETII Top (main board with ISA100)**



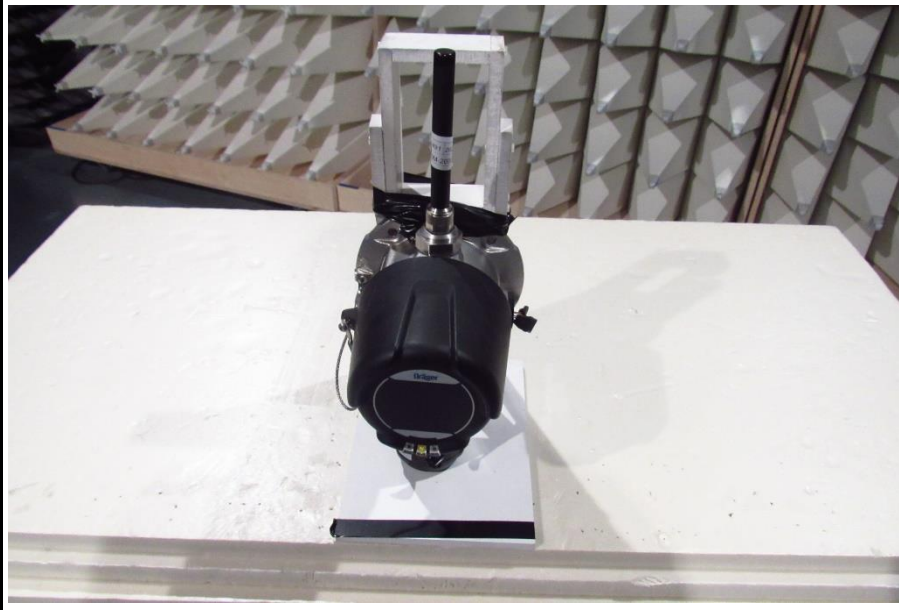
**SWEETII Bottom (main board with ISA100)**



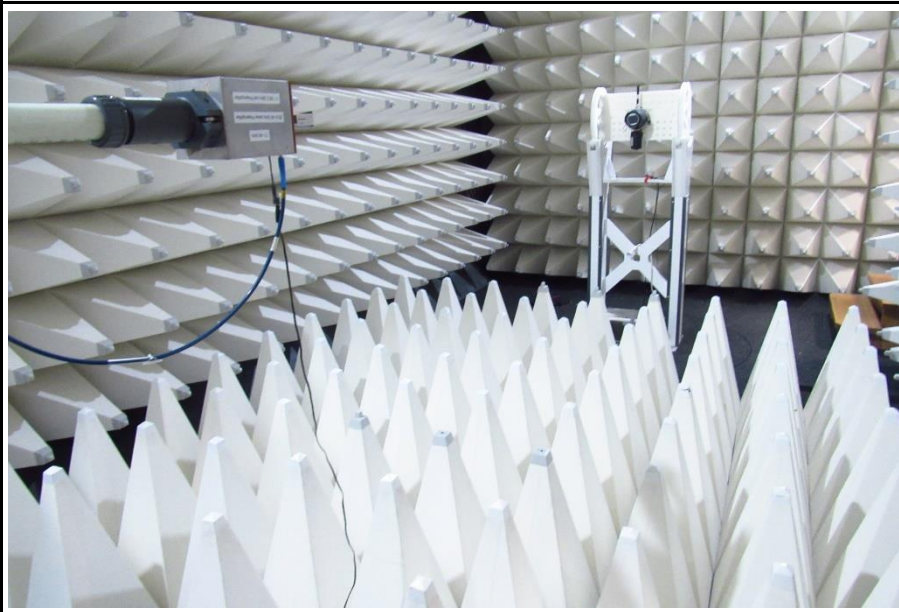
### 1.3 Photos – Test Setup

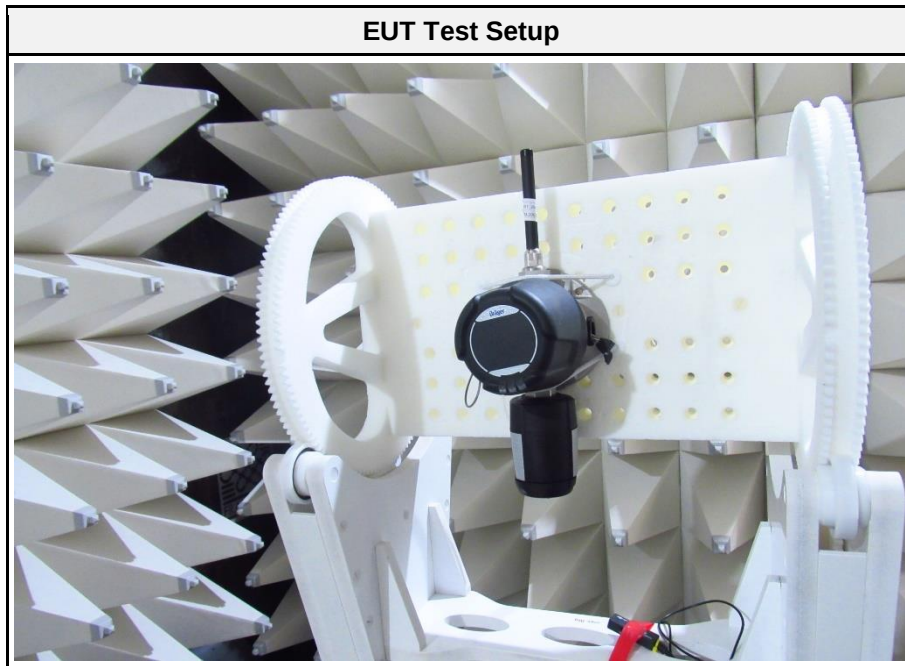


**EUT Test Setup**



**Setup for measurements above 1 GHz**





#### 1.4 Support Equipment

| Product Type | Device              | Manufacturer | Model | Comment                    |
|--------------|---------------------|--------------|-------|----------------------------|
| AE           | Notebook            | Dell         | -     | -                          |
| CBL          | USB cable           | -            | -     | for configuring test modes |
| Description: |                     |              |       |                            |
| AE           | Auxiliary Equipment |              |       |                            |
| SIM          | Simulator           |              |       |                            |
| CBL          | Connecting Cable    |              |       |                            |
| SFT          | Software            |              |       |                            |
| Comment:     |                     |              |       |                            |

## 1.5 Test Modes

| Mode                                                                                                                                                                                                                                                                                                                                                                                                                  | Description                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| IEEE 802.15.4                                                                                                                                                                                                                                                                                                                                                                                                         | Mode = Transmit<br>Modulation = QPSK<br>Channel 11 (2405 MHz)<br>Bandwidth = 5 MHz<br>Power setting = 10<br>Data rate = 250 kbps |
| BT-LE                                                                                                                                                                                                                                                                                                                                                                                                                 | Mode = Transmit<br>Modulation = GFSK<br>Channel = 0 (2402 MHz)<br>Data rate = 1 Mbps<br>Duty Cycle = 64%<br>Spreading = None     |
| Receive                                                                                                                                                                                                                                                                                                                                                                                                               | Mode = Receive                                                                                                                   |
| <p><b>Comment 1:</b> Worst case for BT-LE was found in module test report number 1-2078/16-01-05-A issued by CETECOM ICT Services on 2016-09-07.</p> <p><b>Comment 2:</b> Worst case for IEEE 802.15.4 was found in module test report number 17-0343 issued by US Tech on 2017-11-10.</p> <p><b>Comment 3:</b> Packet Length, Packet Type and Power could not be adjusted for BT-LE with provided software tool.</p> |                                                                                                                                  |

## 1.6 Test Frequencies

| Designator | Mode | Channel | Frequency [MHz] |
|------------|------|---------|-----------------|
| F1         | Tx   | 11      | 2405            |
| F2         | Tx   | 0       | 2402            |

## 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 analyzer in dBμV. Any external preamplifiers used are taken into account through internal analyzer 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 analyzer. 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:

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

Net:

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

Limit:

This is the FCC Class B radiated emission limit (in units of dBμV/m). The FCC limits are given in units of μV/m. The following formula is used to convert the units of μV/m to dBμV/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 dBμV + 26 dB/m | = 47.5 dBμV/m | : | 47.5 dBμV/m - 57.0 dBμV/m | = -9.5 dB |

## 2 Result Summary

| FCC 47 CFR Part 15C             |                                         |                                                                        |        |         |
|---------------------------------|-----------------------------------------|------------------------------------------------------------------------|--------|---------|
| Product Standard Reference      | Requirement                             | Reference Method                                                       | Result | Remarks |
| FCC § 15.247(d)<br>FCC § 15.209 | Transmitter radiated spurious emissions | KDB 558074 D01<br>KDB 789033 D02<br>KDB 996369 D04<br>ANSI C63.10 12.7 | PASS   |         |
| 47 CFR 15.207                   | AC power line conducted emissions       | ANSI C63.4-2014                                                        | 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 |

### 3 Test Conditions and Results

#### 3.1 Test Conditions and Results – AC powerline conducted emissions

##### 3.1.1 Information

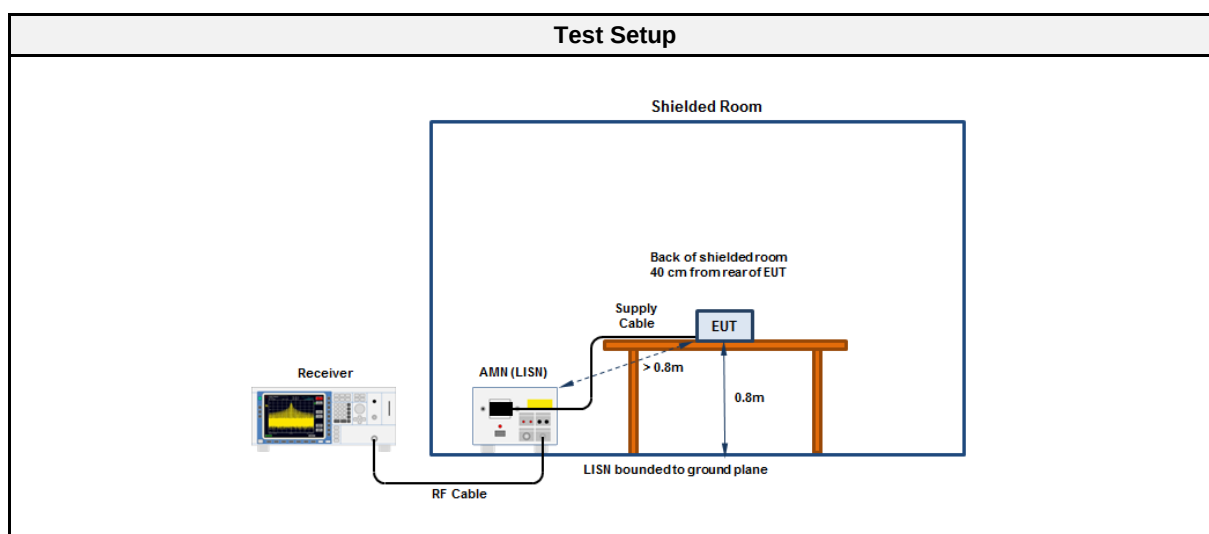
| Test Information        |                 |
|-------------------------|-----------------|
| Reference               | FCC § 15.207    |
| Measurement Method      | ANSI C63.10 6.2 |
| Measurement Uncertainty | ± 3.82 dB       |
| Operator                | Odai Qawasmeh   |
| Date                    | 2022-06-27      |

##### 3.1.2 Limits

| Limits          |                   |                |
|-----------------|-------------------|----------------|
| Frequency [MHz] | Quasi-Peak [dBμV] | Average [dBμV] |
| 0.15 - 0.5      | 66 - 56*          | 56 - 46*       |
| 0.5 - 5         | 56                | 46             |
| 5 - 30          | 60                | 50             |

\* Limit decreases linearly with the logarithm of the frequency

##### 3.1.3 Setup

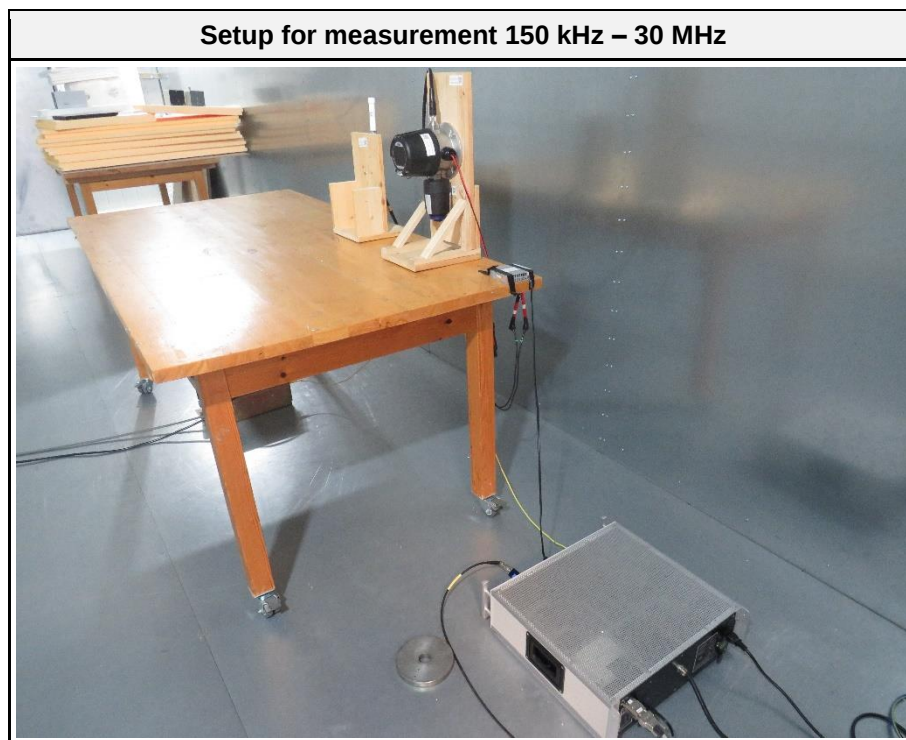


##### 3.1.4 Equipment

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

| Test Equipment    |              |              |            |           |          |
|-------------------|--------------|--------------|------------|-----------|----------|
| Description       | Manufacturer | Model        | Identifier | Cal. Date | Cal. Due |
| EMI Test Receiver | R&S          | ESR7         | EF00943    | 2021-08   | 2022-08  |
| Pulse Limiter     | R&S          | ESH3-Z2      | EF01222    | 2021-07   | 2022-07  |
| LISN              | Schwarzbeck  | NSLK 8127 RC | EF01592    | 2021-07   | 2022-07  |

### 3.1.5 Setup Photos

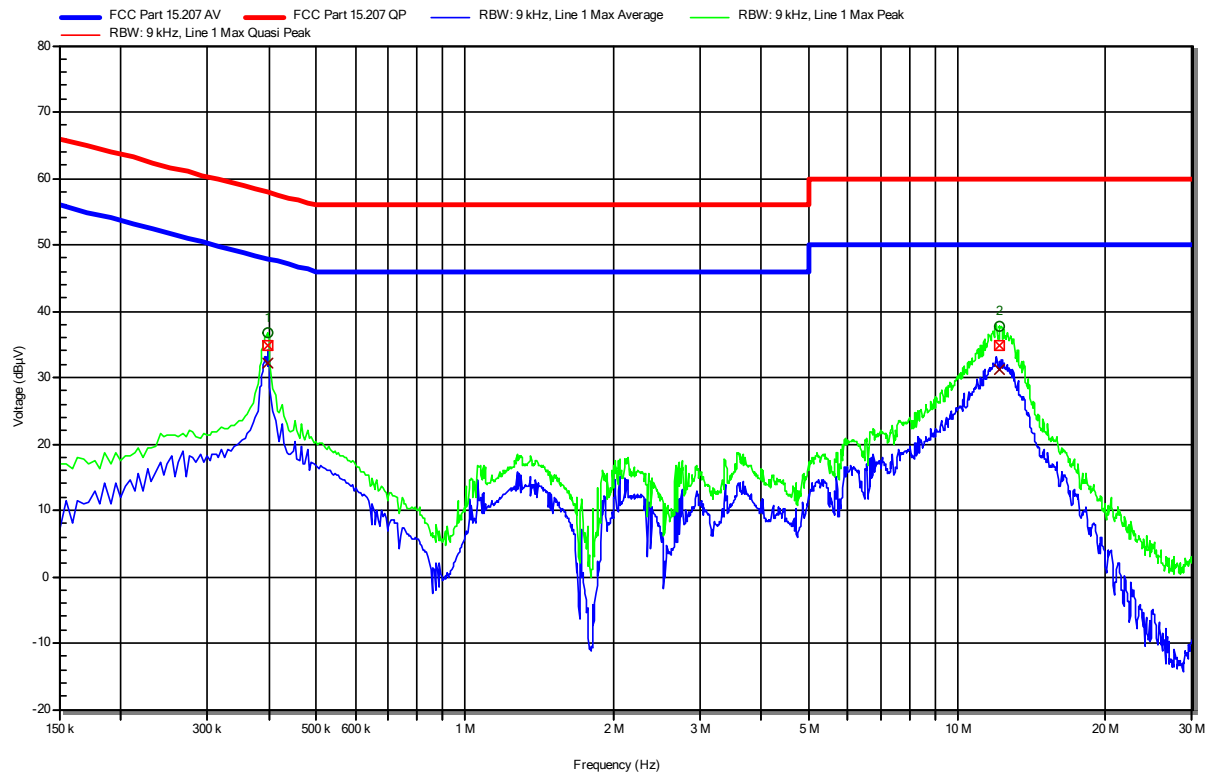


## Conducted emissions at the mains power port according to 47 CFR Part FCC 15.247

Project Number: G0M-2009-9279  
 Applicant: Dräger Safety AG & Co. KGaA  
 Model Description: Fixed Gas Detector  
 Model: Polytron 6100 EC WL  
 Test Sample ID: 40294  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Neuner  
 Test Date: 2022-06-27  
 Operating Conditions: ambient temperature: 24.6 °Celsius  
 LISN: Schwarzbeck NSLK 8127  
 Operational Mode: IEEE 802.15.4, 10 dBm Output Power, 2405 MHz  
 EUT Configuration: BT-LE, 1 Mbps, 2402 MHz, PRBS9  
 Applied to Port: 120 VAC, 60Hz  
 Note 1:

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RadiMation



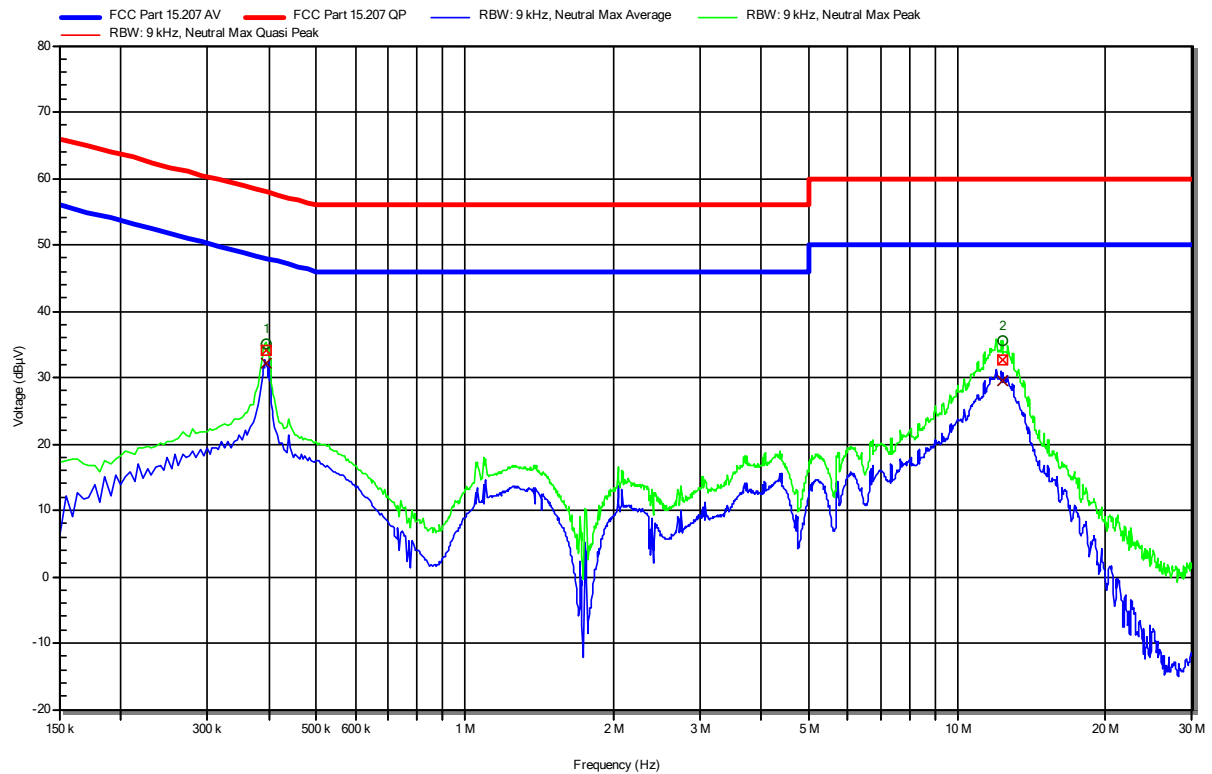
| Peak Number | Frequency  | Quasi-Peak | Quasi-Peak Limit | Quasi-Peak Difference | Quasi-Peak Status | LISN   |
|-------------|------------|------------|------------------|-----------------------|-------------------|--------|
| 1           | 397.05 kHz | 34.71 dBµV | 57.91 dBµV       | -23.21 dB             | Pass              | Line 1 |
| 2           | 12.201 MHz | 34.75 dBµV | 60 dBµV          | -25.25 dB             | Pass              | Line 1 |
| Peak Number | Frequency  | Average    | Average Limit    | Average Difference    | Average Status    | LISN   |
| 1           | 397.05 kHz | 32.26 dBµV | 47.91 dBµV       | -15.66 dB             | Pass              | Line 1 |
| 2           | 12.201 MHz | 31.22 dBµV | 50 dBµV          | -18.78 dB             | Pass              | Line 1 |

# Conducted emissions at the mains power port according to 47 CFR Part FCC 15.247

Project Number: G0M-2009-9279  
 Applicant: Dräger Safety AG & Co. KGaA  
 Model Description: Fixed Gas Detector  
 Model: Polytron 6100 EC WL  
 Test Sample ID: 40294  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Neuner  
 Test Date: 2022-06-27  
 Operating Conditions: ambient temperature: 24.6 °Celsius  
 LISN: Schwarzbeck NSLK 8127  
 Operational Mode: IEEE 802.15.4, 10 dBm Output Power, 2405 MHz  
 EUT Configuration: BT-LE, 1 Mbps, 2402 MHz, PRBS9  
 Applied to Port: 120 VAC, 60Hz  
 Note 1:

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| Peak Number | Frequency  | Quasi-Peak | Quasi-Peak Limit | Quasi-Peak Difference | Quasi-Peak Status | LISN    |
|-------------|------------|------------|------------------|-----------------------|-------------------|---------|
| 1           | 393.9 kHz  | 34.21 dBµV | 57.98 dBµV       | -23.77 dB             | Pass              | Neutral |
| 2           | 12.332 MHz | 32.75 dBµV | 60 dBµV          | -27.25 dB             | Pass              | Neutral |
| Peak Number | Frequency  | Average    | Average Limit    | Average Difference    | Average Status    | LISN    |
| 1           | 393.9 kHz  | 32.09 dBµV | 47.98 dBµV       | -15.89 dB             | Pass              | Neutral |
| 2           | 12.332 MHz | 29.46 dBµV | 50 dBµV          | -20.54 dB             | Pass              | Neutral |

### 3.2 Test Conditions and Results - Transmitter radiated emissions

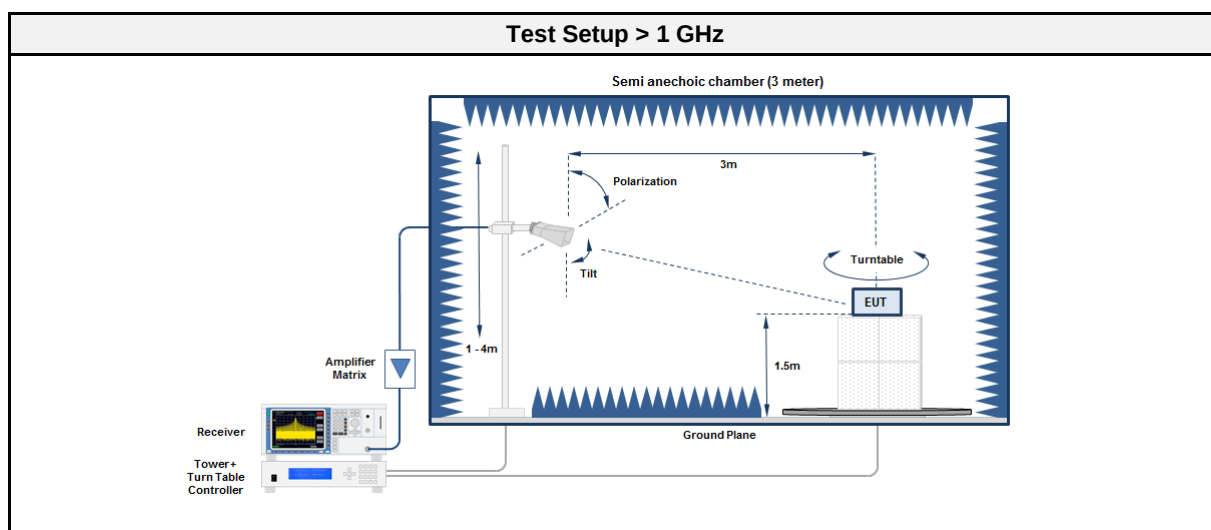
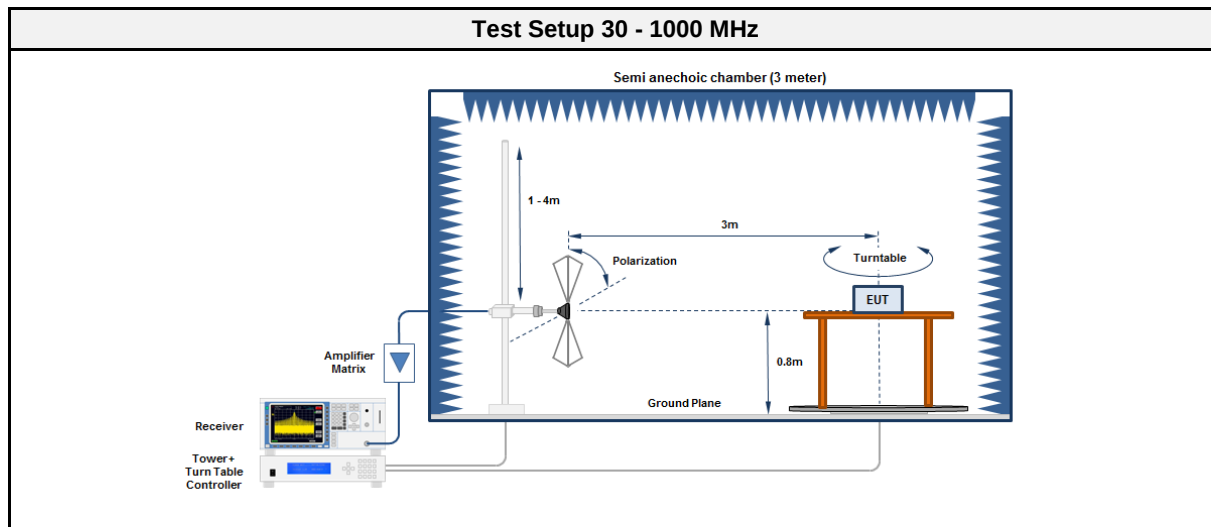
#### 3.2.1 Information

| Test Information        |                                                                  |
|-------------------------|------------------------------------------------------------------|
| Reference               | FCC § 15.247(d)<br>FCC § 15.209                                  |
| Measurement Method      | KDB 558074 D01, KDB 789033 D02, KDB 996369 D04, ANSI C63.10 12.7 |
| Measurement Uncertainty | ± 5.95 dB                                                        |
| Operator                | Odai Qawasmeh                                                    |
| Date                    | 2022-06-29                                                       |

#### 3.2.2 Limits

| Limits - Restricted frequency bands and below 1 GHz |            |                       |                          |
|-----------------------------------------------------|------------|-----------------------|--------------------------|
| Frequency [MHz]                                     | Detector   | Field strength [µV/m] | Measurement distance [m] |
| 30 - 88                                             | Quasi-Peak | 100                   | 3                        |
| 88 - 216                                            | Quasi-Peak | 150                   | 3                        |
| 216 - 960                                           | Quasi-Peak | 200                   | 3                        |
| 960 - 1000                                          | Quasi-Peak | 500                   | 3                        |
| >1000                                               | Average    | 500                   | 3                        |

### 3.2.3 Setup



### 3.2.4 Equipment

| Test Equipment 30 - 1000 MHz |              |                |            |           |          |
|------------------------------|--------------|----------------|------------|-----------|----------|
| Description                  | Manufacturer | Model          | Identifier | Cal. Date | Cal. Due |
| Anechoic Chamber             | Frankonia    | AC1            | EF00062    | 2021-02   | 2024-02  |
| Measurement Receiver         | Agilent      | N9038A-526/WXP | EF01070    | 2021-07   | 2022-07  |
| Antenna                      | R&S          | HK 116         | EF00030    | 2021-05   | 2024-05  |
| Antenna                      | R&S          | HL223          | EF00187    | 2022-06   | 2025-06  |

| Test Equipment > 1 GHz |                    |            |            |           |          |
|------------------------|--------------------|------------|------------|-----------|----------|
| Description            | Manufacturer       | Model      | Identifier | Cal. Date | Cal. Due |
| Anechoic chamber       | Frankonia          | AC 2       | EF01616    | 2021-09   | 2022-09  |
| Spectrum analyzer      | R&S                | FSU43      | EF01631    | 2021-07   | 2022-07  |
| Horn antenna           | Schwarzbeck        | BBHA 9120B | EF01678    | 2021-03   | 2024-03  |
| Horn Antenna           | Schwarzbeck        | HWRD 650   | EF01679    | 2021-03   | 2024-03  |
| Antenna                | Amplifier Research | AT4560     | EF00302    | 2021-06   | 2023-06  |

### 3.2.5 Procedure

| Test Procedure 30 - 1000 MHz |                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------|
| 1.                           | EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground |
| 2.                           | EUT set to test mode                                                                           |
| 3.                           | The receiver is set to peak detection with max hold                                            |
| 4.                           | The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m        |
| 5.                           | All significant emissions are measured again using the corresponding final detector            |

| Test Procedure > 1 GHz |                                                                                                |
|------------------------|------------------------------------------------------------------------------------------------|
| 1.                     | EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground |
| 2.                     | EUT set to test mode                                                                           |
| 3.                     | The receiver is set to peak detection with max hold                                            |
| 4.                     | The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m        |
| 5.                     | All significant emissions are measured again using the corresponding final detector            |

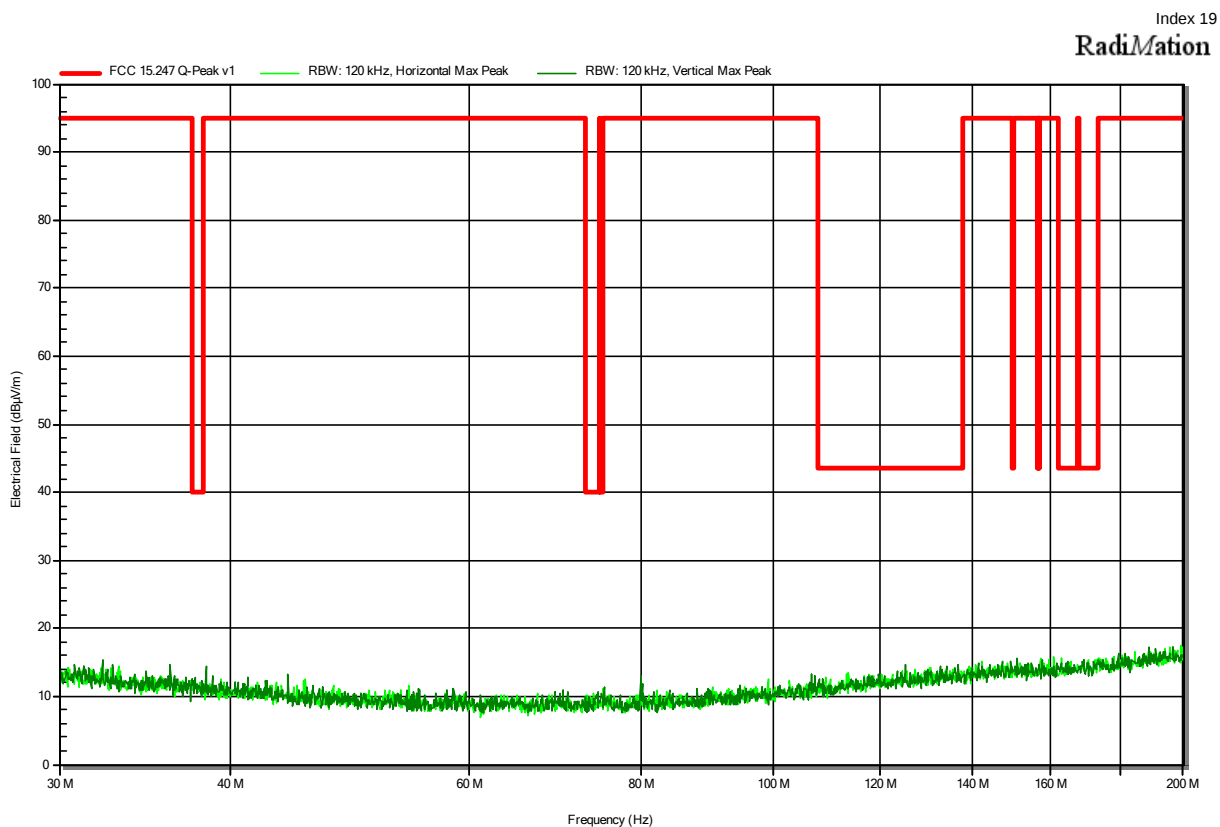
### 3.2.6 Results

| Test Results – IEEE 802.15.4 + BT-LE |                |                |          |      |                |             |
|--------------------------------------|----------------|----------------|----------|------|----------------|-------------|
| Frequency [MHz]                      | Emission [MHz] | Level [dBμV/m] | Detector | Pol. | Limit [dBμV/m] | Margin [dB] |
| 2405 + 2402                          | 4810.9         | 52.36          | pk       | ver  | 74.00          | -21.64      |
| 2405 + 2402                          | 4810.9         | 46.60          | avg      | ver  | 54.00          | -07.40      |
| 2405 + 2402                          | 18403          | 48.34          | pk       | ver  | 74.00          | -25.66      |
| 2405 + 2402                          | 18403          | 36.35          | avg      | ver  | 54.00          | -17.65      |

## ANNEX A Transmitter spurious emissions

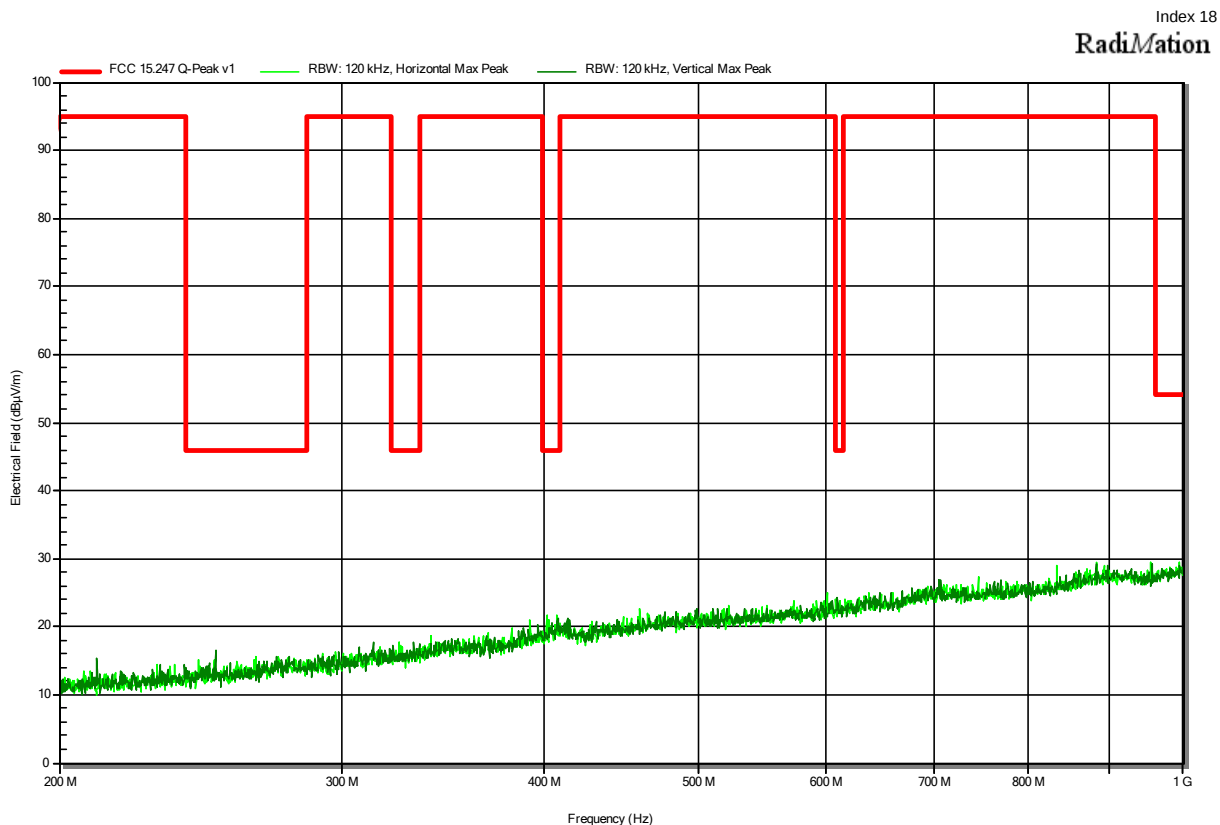
### Radiated Spurious Emissions according to FCC 15.247

Project Number: G0M-2009-9278  
 Applicant: Dräger Safety AG & Co. KGaA  
 Model Description: Fixed Gas Detector  
 Model: Polytron 6100 EC WL  
 Test Sample ID: 40425  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 24 °Celsius, Vnom:  
 Antenna: Rohde & Schwarz HK 116  
 Measurement distance: 3 m  
 Mode: Tx; IEEE 802.15.4, 10 dBm Output Power, 2405 MHz  
 BT-LE, 1 Mbps, 2402 MHz, PRBS9  
 Test Date: 2022-06-30  
 Note:



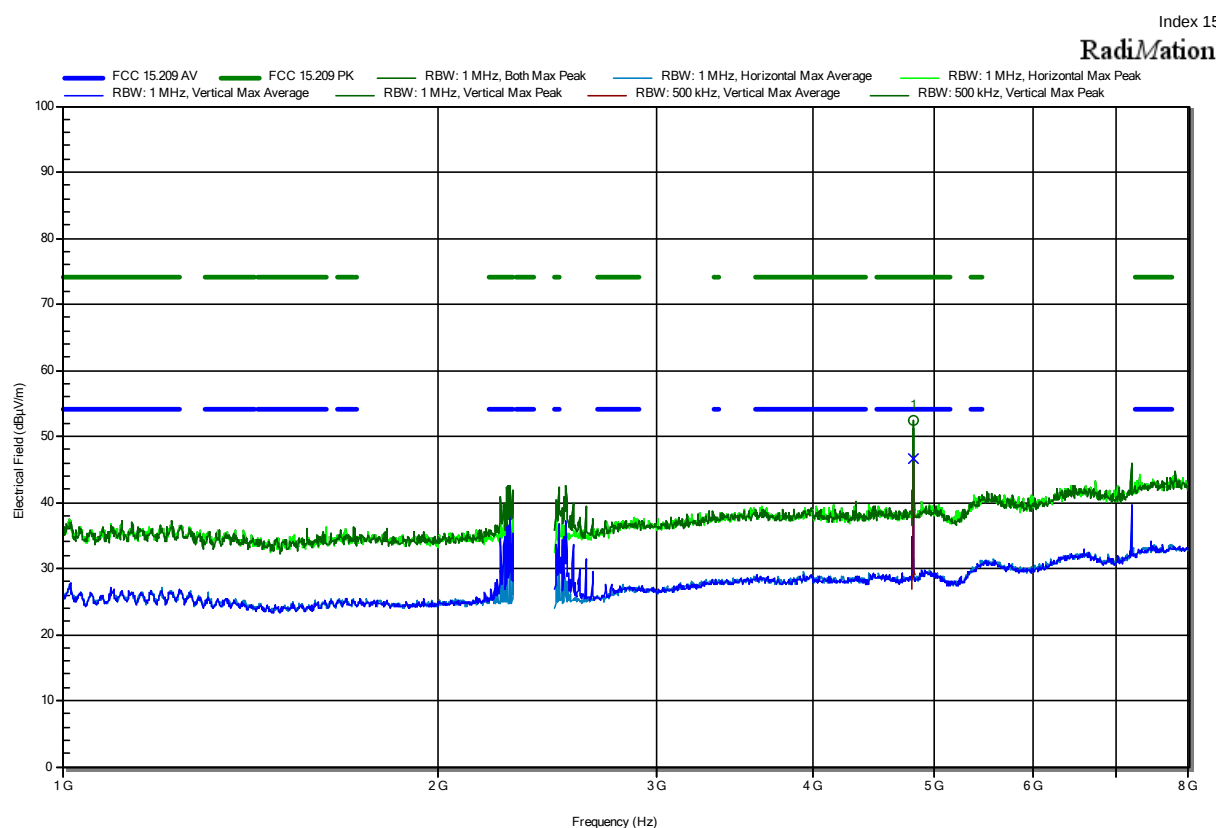
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 Applicant: Dräger Safety AG & Co. KGaA  
 Model Description: Fixed Gas Detector  
 Model: Polytron 6100 EC WL  
 Test Sample ID: 40425  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 24 °Celsius, Vnom:  
 Antenna: Rohde & Schwarz HL 223  
 Measurement distance: 3 m  
 Mode: Tx; IEEE 802.15.4, 10 dBm Output Power, 2405 MHz  
 BT-LE, 1 Mbps, 2402 MHz, PRBS9  
 Test Date: 2022-06-30  
 Note:



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 Applicant: Dräger Safety AG & Co. KGaA  
 Model Description: Fixed Gas Detector  
 Model: Polytron 6100 EC WL  
 Test Sample ID: 40425  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Qawasmeh  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 24 °Celsius, Vnom:  
 Antenna: Schwarzbeck BBHA 9120B  
 Measurement distance: 3 m  
 Mode: Tx; IEEE 802.15.4, 10 dBm Output Power, 2405 MHz  
 BT-LE, 1 Mbps, 2402 MHz, PRBS9  
 Test Date: 2022-06-29  
 Note:



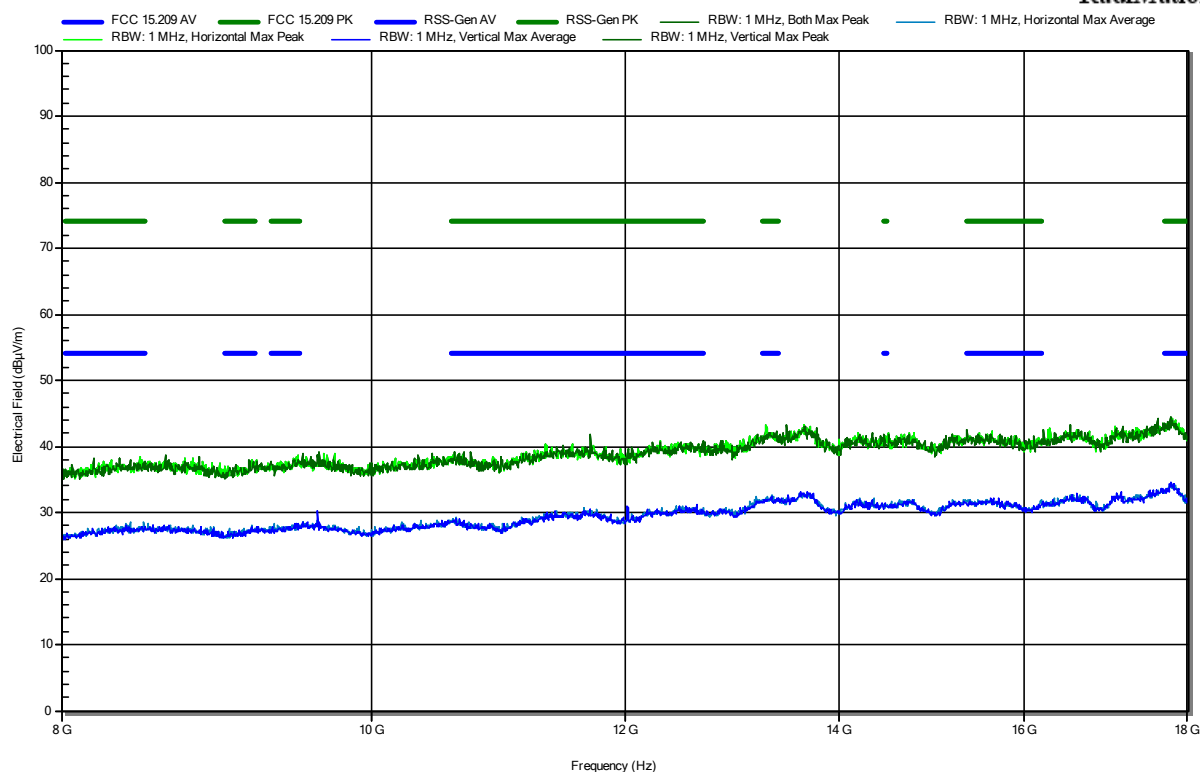
|            |              |               |                    |                |              |
|------------|--------------|---------------|--------------------|----------------|--------------|
| Frequency  | Peak         | Peak Limit    | Peak Difference    | Peak Status    | Polarization |
| 4.8109 GHz | 52.36 dBµV/m | 74 dBµV/m     | -21.64 dB          | Pass           | Vertical     |
| Frequency  | Average      | Average Limit | Average Difference | Average Status | Polarization |
| 4.8109 GHz | 46.6 dBµV/m  | 54 dBµV/m     | -7.4 dB            | Pass           | Vertical     |

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 Model: Polytron 6100 EC WL  
 Test Sample ID: 40425  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Qawasmeh  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 24 °Celsius, Vnom:  
 Antenna: Schwarzbeck HWRD 650  
 Measurement distance: 3 m  
 Mode: Tx; IEEE 802.15.4, 10 dBm Output Power, 2405 MHz  
 BT-LE, 1 Mbps, 2402 MHz, PRBS9  
 Test Date: 2022-06-29  
 Note:

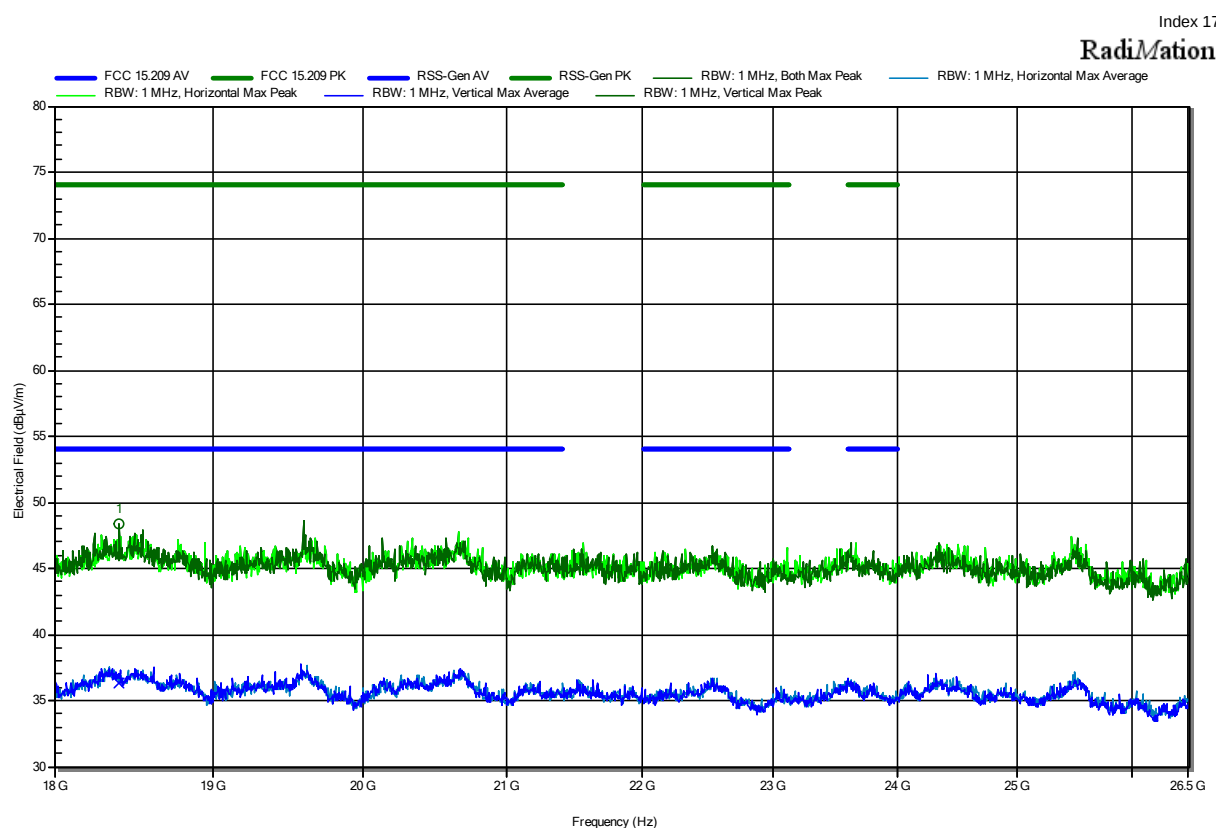
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 Model: Polytron 6100 EC WL  
 Test Sample ID: 40425  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Qawasmeh  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 24 °Celsius, Vnom:  
 Antenna: Amplifier Research AT4560  
 Measurement distance: 3 m  
 Mode: Tx; IEEE 802.15.4, 10 dBm Output Power, 2405 MHz  
 BT-LE, 1 Mbps, 2402 MHz, PRBS9  
 Test Date: 2022-06-29  
 Note:



|                         |                         |                            |                                 |                        |                          |
|-------------------------|-------------------------|----------------------------|---------------------------------|------------------------|--------------------------|
| Frequency<br>18.403 GHz | Peak<br>48.34 dBµV/m    | Peak Limit<br>74 dBµV/m    | Peak Difference<br>-25.66 dB    | Peak Status<br>Pass    | Polarization<br>Vertical |
| Frequency<br>18.403 GHz | Average<br>36.35 dBµV/m | Average Limit<br>54 dBµV/m | Average Difference<br>-17.65 dB | Average Status<br>Pass | Polarization<br>Vertical |

== = END OF TEST REPORT == =

Test Report No.: G0M-2009-9279-TFCCOLOC-V01

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