

RADIO REPORT**FCC 47 CFR Part 15C**
ISED RSS-210**Periodic operation in the 40.66-40.70 MHz and above 70 MHz band**

| | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Report Reference No | G0M-2301-1843-TFC231PT-V03 |
| Testing Laboratory | Eurofins Product Service GmbH |
| Address | Storkower Str. 38c 15526 Reichenwalde Germany |
| Accreditation |   <small>Deutsche Akkreditierungsstelle D-PL-12092-01-03</small>   <small>Deutsche Akkreditierungsstelle D-PL-12092-01-04</small> DAkkS - Registration number : D-PL-12092-01-03 (ISED) ISED Testing Laboratory site: 3470A DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970 |
| Applicant | Glaubitz GmbH & Co.KG |
| Address | Görlitzer Straße 53 02763 Zittau GERMANY |
| Test Specification | 47 CFR Part 15C RSS-210, Issue 10, 2020-04 RSS-Gen, Issue 5, Amendment 2, 2021-02 |
| Non-Standard Test Method | None |
| Equipment under Test (EUT): | |
| Product Description | Wireless Remote Control |
| Model(s) | ECU-WRC-WK |
| Additional Model(s) | None |
| Brand Name(s) | None |
| Hardware Version(s) | V2.0 |
| Software Version(s) | V1.0 |
| FCC ID | 2BB4K-ECUWRC |
| IC | 30970-ECUWRC |
| Test Result | PASSED |

| Possible test case verdicts: | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 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) |
| Testing: | |
| Test Lab Temperature | 20 - 23 °C |
| Test Lab Humidity | 32 – 38 % |
| Date of receipt of test item | 2023-06-13 |
| Report: | |
| Compiled by | Wilfried Treffke |
| Tested by (+ signature) (Responsible for Test) | Wilfried Treffke  |
| Approved by (+ signature) (Senior Radio Expert) | Radwan Jaafar  |
| Date of Issue | 2024-05-22 |
| Total number of pages | 39 |
| General Remarks: | |
| <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> | |
| Additional Comments: | |
| None | |

ADDITIONAL VARIANTS

| Additional Variants (not tested and not evaluated variants) | |
|----------------------------------------------------------------|--------------------------|
| Not-tested Variant | Description |
| 1 | Product Type Description |
| | Wireless Remote Control |
| | Model name |
| | ECU-WRC-WOK |
| | Brand name |
| | - |
| | Hardware Version |
| | V2.0 |
| | Software Version |
| | V1.0 |
| | HVIN |
| | ECU-WRC-WOK |
| | PMN |
| | ECU-WRC-WOK |
| | FVIN |
| | 2.0 |
| | HMN |
| | n/a |

Comment: Those named additional variants above have not been tested. Those additional variants of the series have been declared by the manufacturer. The test report explicitly states that those variants were neither tested nor assessed nor evaluated.

VERSION HISTORY

| Version History | | | |
|-----------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Version | Issue Date | Remarks | Revised By |
| 01 | 2023-11-30 | Initial Release | -- |
| 02 | 2024-04-29 | Replaced document: G0M-2301-1843-TFC231PT-V01 Replaced by: G0M-2301-1843-TFC231PT-V02 Changes: Page 13 - 14: • Additional test setup photos added | St. Liebich |
| 03 | 2024-05-22 | Replaced document: G0M-2301-1843-TFC231PT-V02 Replaced by: G0M-2301-1843-TFC231PT-V03 Changes: Page 39: • Plot update | St. Liebich |

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_{NOM} | Nominal supply voltage |

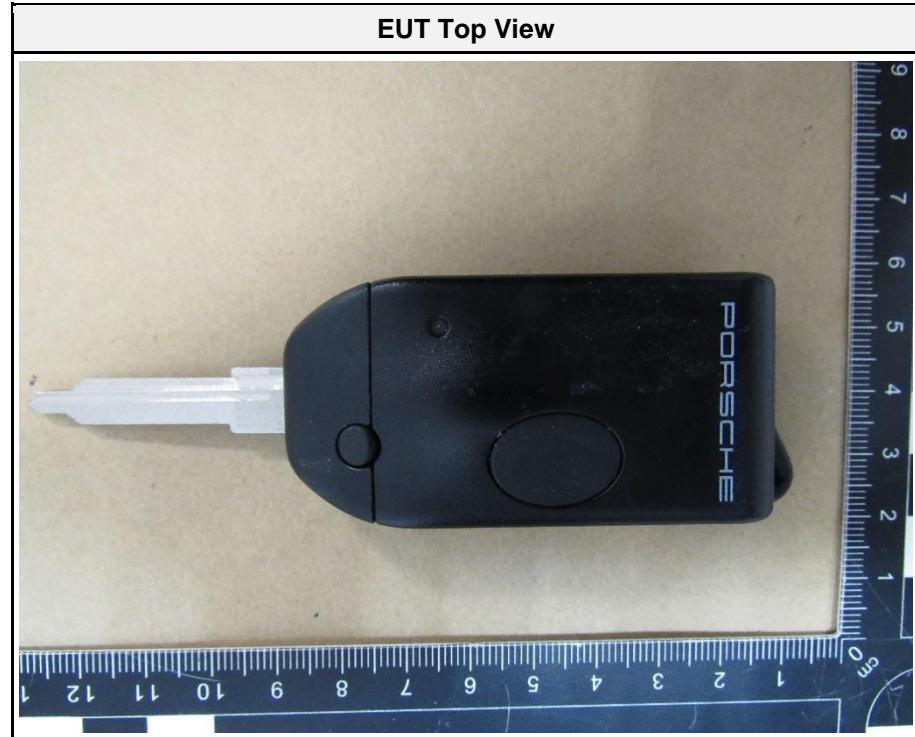
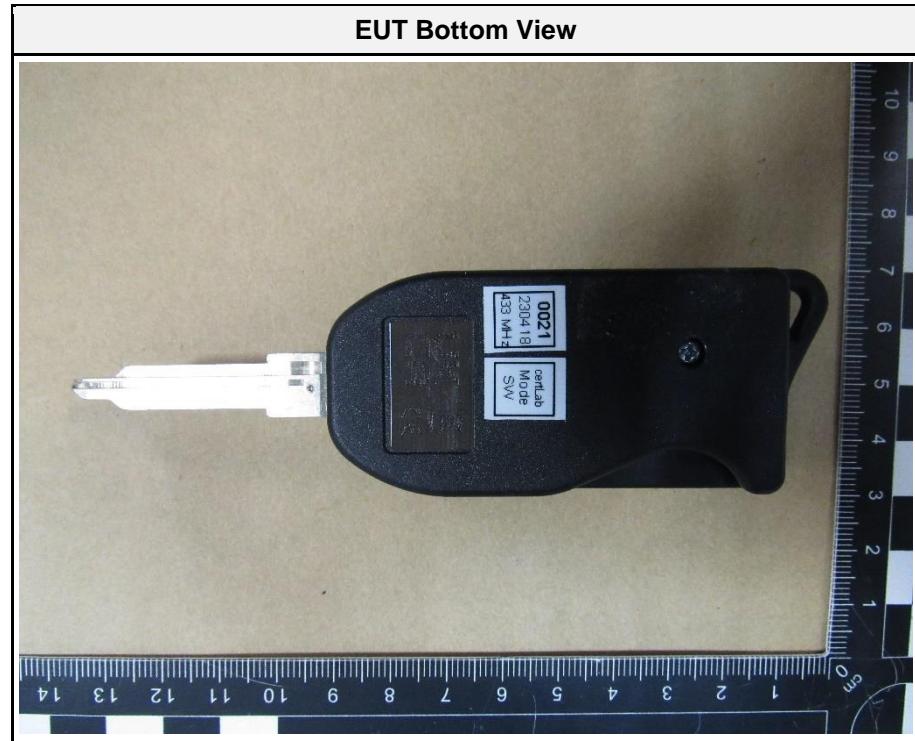
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1 Equipment (Test Item) Under Test

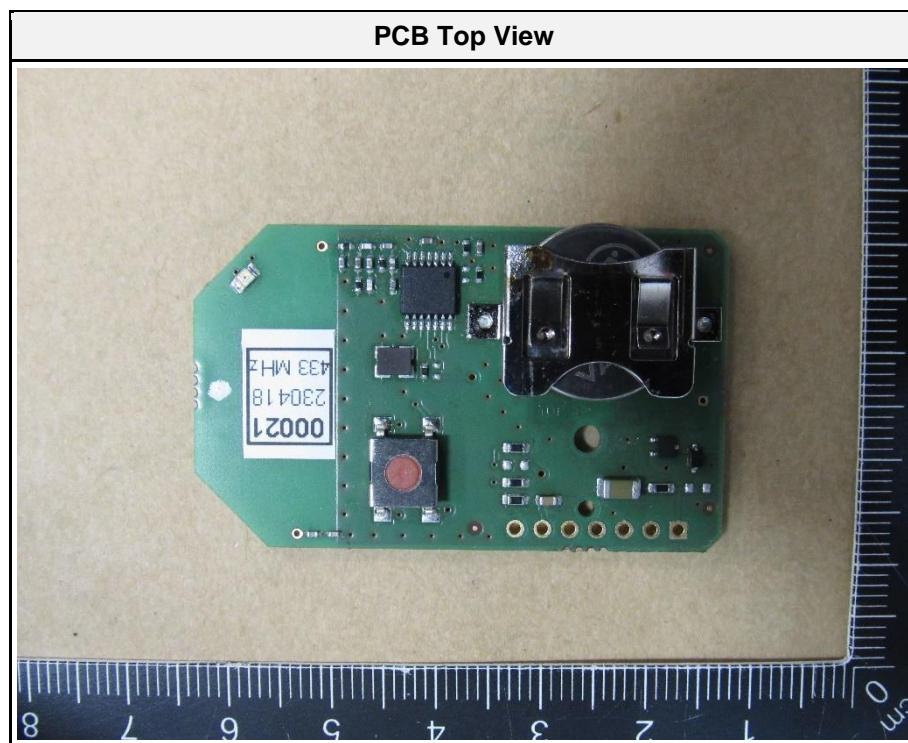
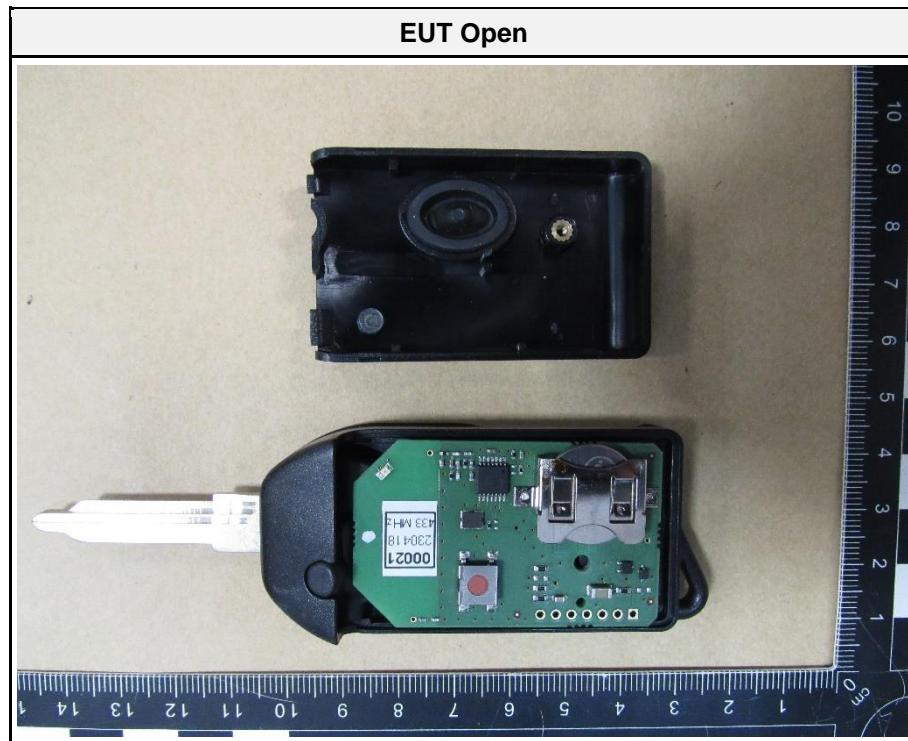
| | | |
|-------------------------|-------------------------------------------------------------------------|-----------------------|
| Description | Wireless Remote Control | |
| Model | ECU-WRC-WK | |
| Additional Model(s) | None | |
| Brand Name(s) | None | |
| Serial Number(s) | 0008 / 0002 | |
| Test Sample Id(s) | 44566 / 44568 | |
| Hardware Version(s) | V2.0 | |
| Software Version(s) | V1.0 | |
| PMN | ECU-WRC-WK | |
| HVIN | ECU-WRC-WK | |
| FVIN | 2.0 | |
| HMN | N/A | |
| FCC ID | 2BB4K-ECUWRC | |
| IC | 30970-ECUWRC | |
| Equipment type | End Product | |
| Radio type | Transmitter | |
| Radio technology | custom | |
| Modulation | ASK | |
| Number of antenna ports | 1 | |
| Antenna | Type | integrated |
| | Model | PCB Loop |
| | Manufacturer | Glaubitz GmbH & Co.KG |
| | Gain | unspecified |
| Supply Voltage | V _{NOM} | 3.0 VDC |
| Operating Temperature | T _{NOM} | 25 °C |
| AC/DC-Adaptor | Model | None |
| Manufacturer | Glaubitz GmbH & Co.KG Görlitzer Straße 53 02763 Zittau GERMANY | |

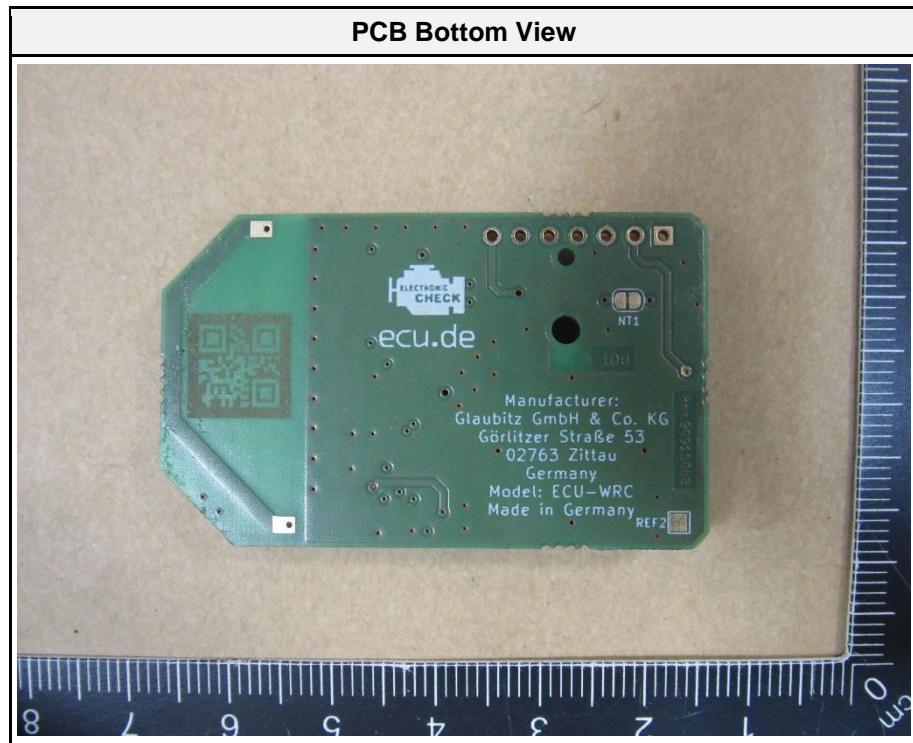
1.1 Photos – Equipment External

EUT Top View**EUT Bottom View**

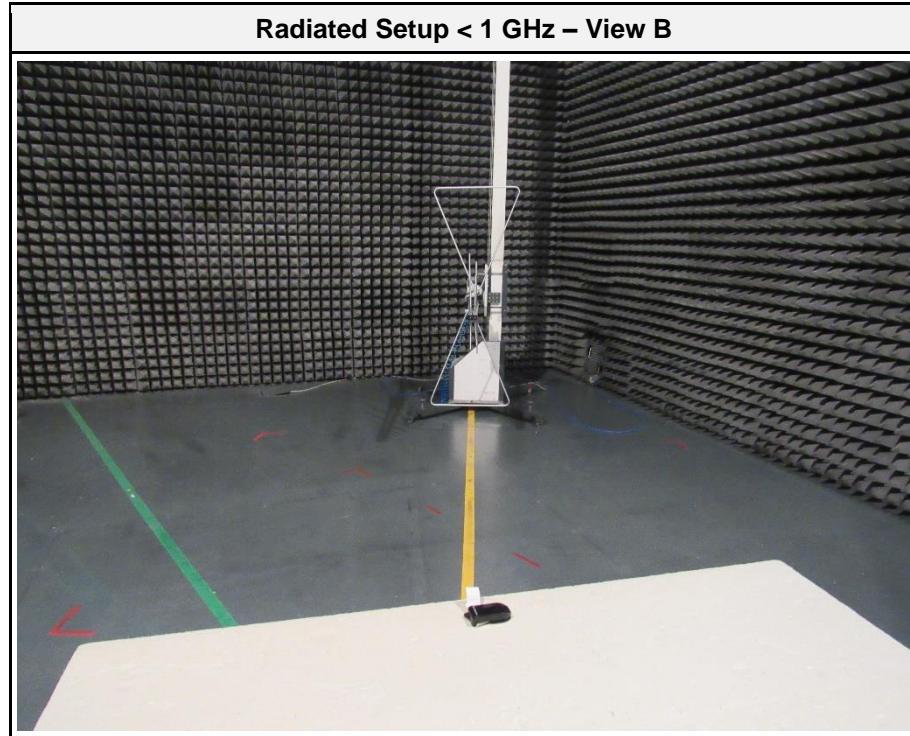
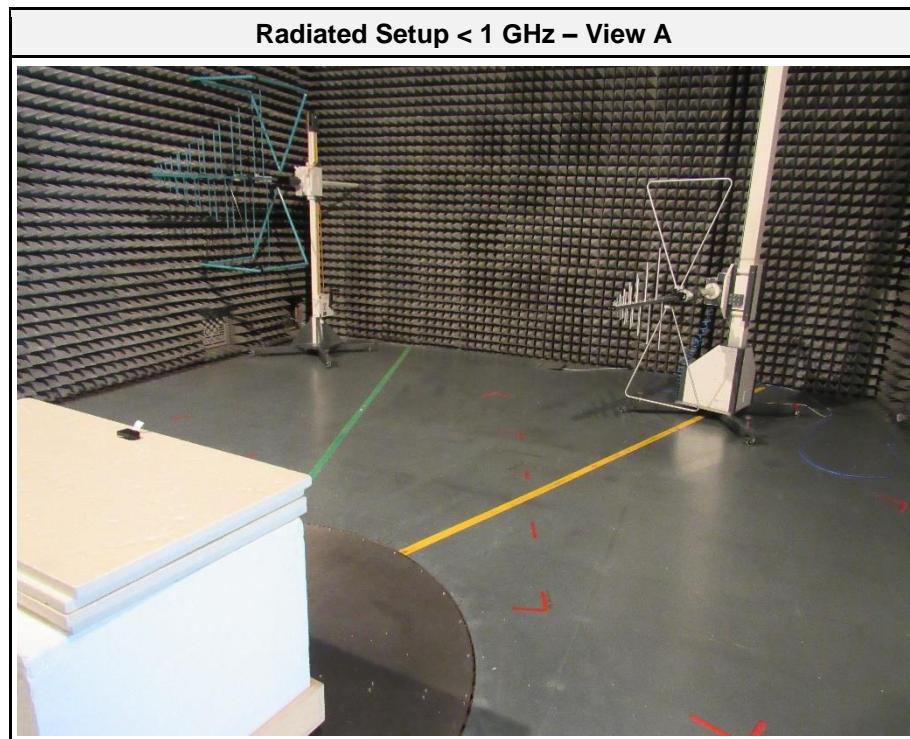


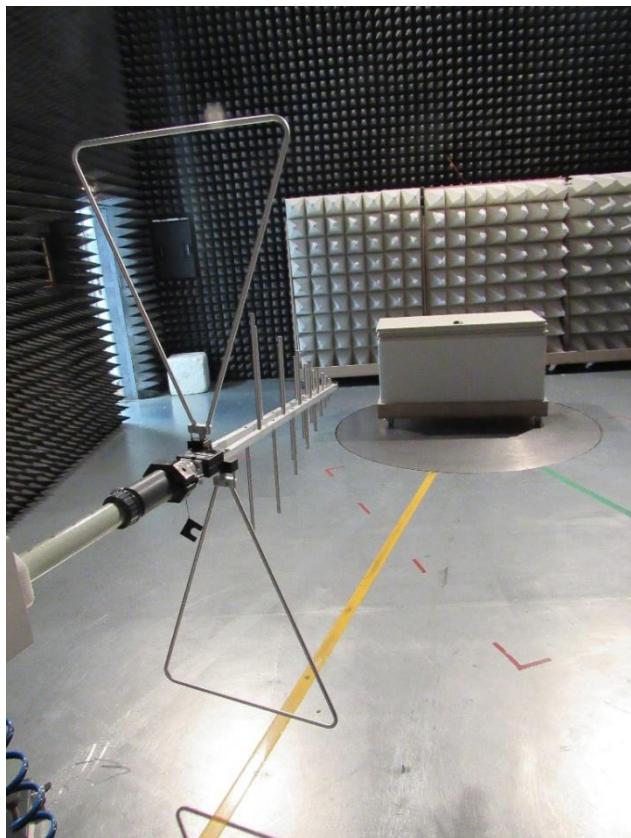
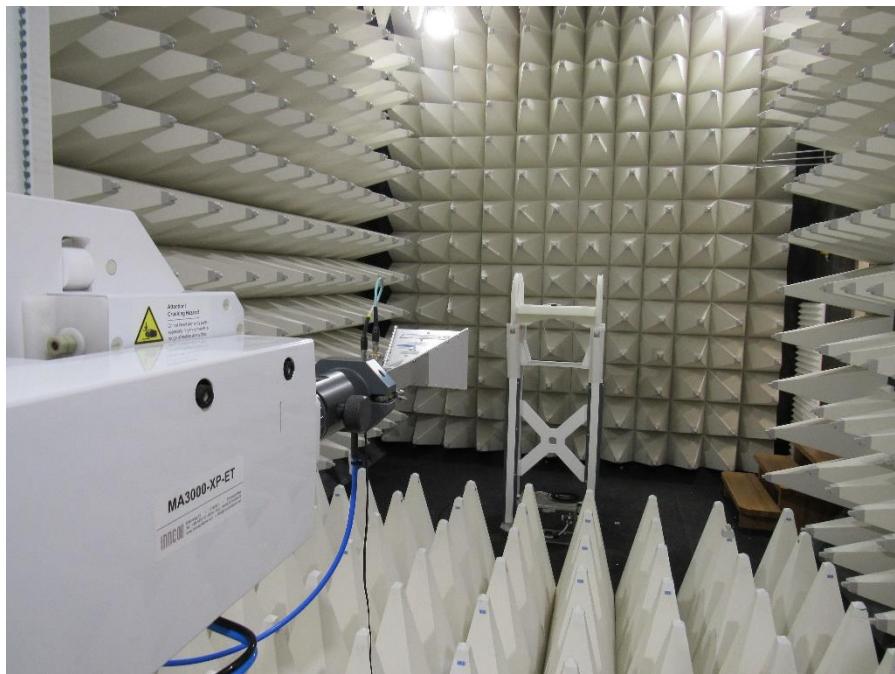
1.2 Photos – Equipment Internal

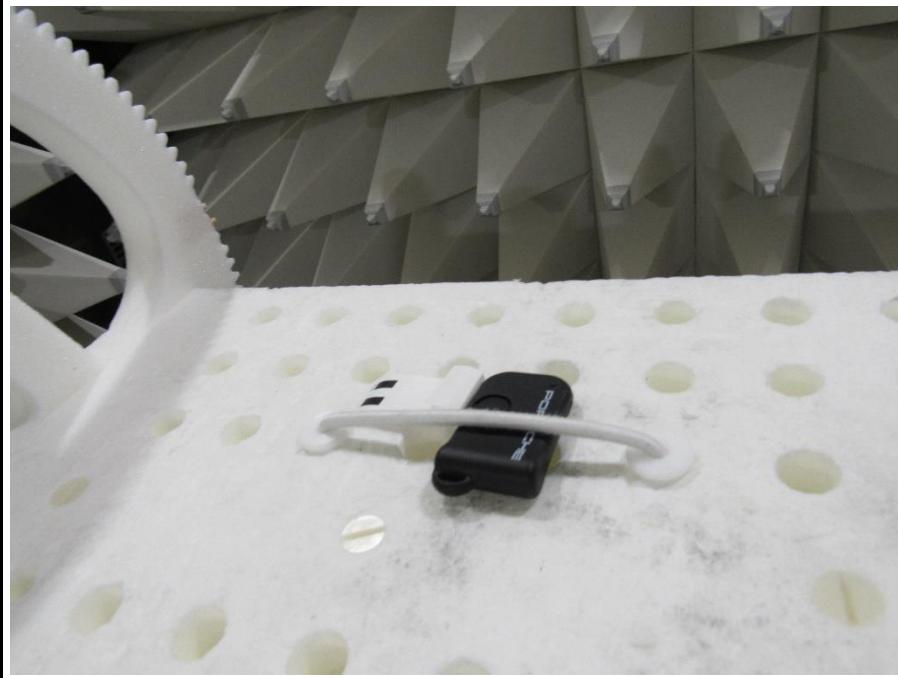




1.3 Photos – Test Setup



Radiated Setup < 1 GHz – View C**Radiated Setup > 1 GHz – View A**

Radiated Setup > 1 GHz – View B

1.4 Support Equipment

| Product Type | Device | Manufacturer | Model | Comment |
|--------------|---------------------|--------------|-------|---------|
| None | | | | |
| Description: | | | | |
| AE | Auxiliary Equipment | | | |
| SIM | Simulator | | | |
| CBL | Connecting Cable | | | |
| SFT | Software | | | |
| Comment: | | | | |

1.5 Test mode duty cycle

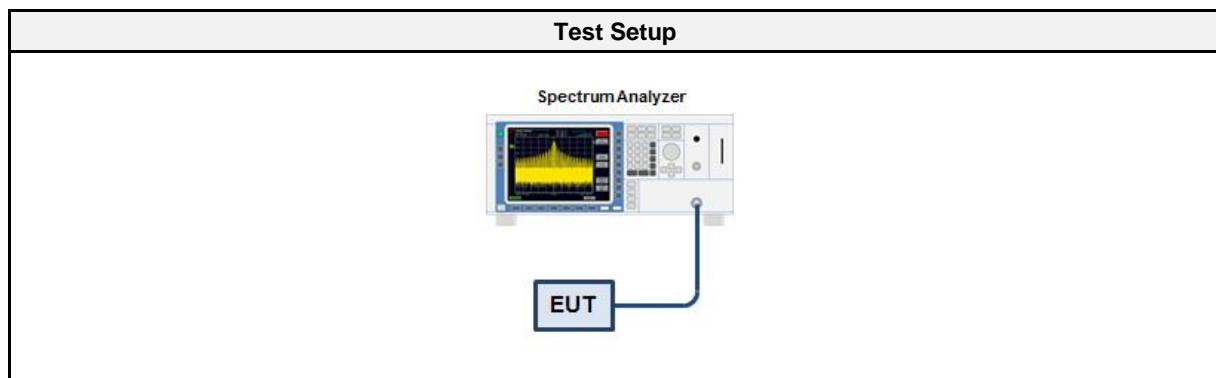
1.5.1 Information

| Test Information | |
|--------------------|------------------|
| Measurement Method | ANSI C63.10 11.6 |

1.5.2 Requirements

| Requirements | |
|--------------|-----------------------------------------------------|
| Duty cycle | Duty cycle correction |
| ≥ 98 % | No correction required |
| < 98 % | Correction required ($10 \times \log_{10}(1/DC)$) |

1.5.3 Setup



1.5.4 Equipment

| Test Equipment | | | | | |
|-------------------|--------------|--------|------------|-----------|----------|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| Spectrum Analyzer | R&S | FSU 26 | EF01003 | 2023-08 | 2024-08 |

1.5.5 Procedure

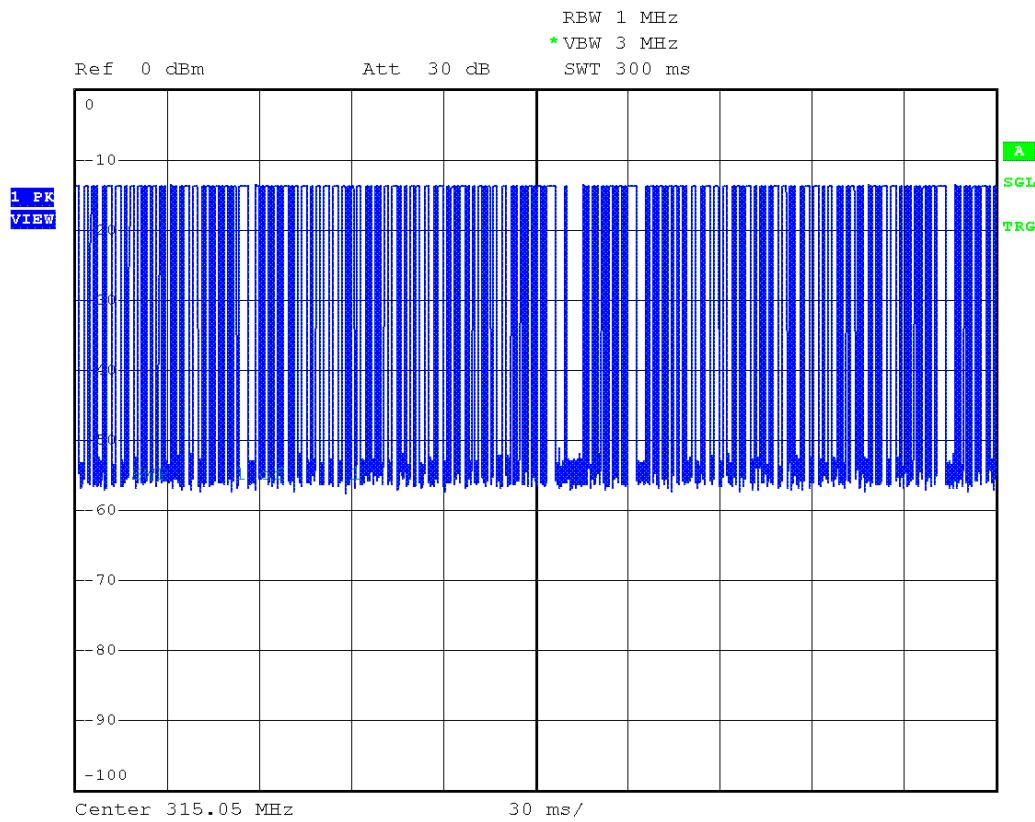
| Test Procedure | |
|----------------|----------------------------------------------------------------------------------------------------------------------------|
| 1. | EUT set to test mode |
| 2. | Span is set to zero span |
| 3. | Detector set to peak |
| 4. | Sweep time is set long enough to capture at least 5 bursts |
| 5. | Envelope peak value of emission spectrum is selected |
| 6. | The maximum burst duration T_{ON} is measured using two markers set to the start and the end of the longest burst |
| 7. | The minimum idle duration T_{OFF} is measured using two markers set to the start and the end of the shortest idle period |
| 8. | The duty cycle is calculated by $DC = T_{ON} / (T_{ON} + T_{OFF})$ |
| 9. | The duty cycle correction is calculated by $DC = 10 \times \log_{10}(T_{ON} / (T_{ON} + T_{OFF}))$ |

1.5.6 Results

| Duty Cycle Results | | |
|---------------------------|------------|------------------------|
| Mode | Duty Cycle | Correction Factor [dB] |
| Normal | 0.53 | -5.57 |

Duty Cycle

Project Number: G0M-2301-1843
 Applicant: Glaubitz GmbH & Co.KG
 Model Description: Wireless Remote Control
 Model: ECU-WRC-WK
 Test Sample ID: 44566
 Reference Standards: FCC 15.231, RSS-210
 Reference Method: ANSI C63.10:2013, Section 7.5
 Operating Frequency: 315.05 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2023-11-01
 Maximum Duty Cycle: 0.53
 Maximum Duty Cycle [%]: 53
 Duty Cycle Correction [dB]: -5.57



Date: 1.NOV.2023 11:48:39

1.6 Test Modes

| Mode | Description |
|----------|-----------------------------------------------------------|
| Transmit | Mode = Transmit Modulation = ASK Duty cycle = 100 % |
| Normal | Mode = Transmit Modulation = ASK Duty cycle = 53 % |
| Comment: | |

1.7 Test Frequencies

| Designator | Mode | Channel | Frequency [MHz] |
|------------|------|---------|-----------------|
| F1 | Tx | 0 | 315.05 |

1.8 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 dB μ V. 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:

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

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 μ V/m). The FCC limits are given in units of μ V/m. The following formula is used to convert the units of μ V/m to dB μ V/m:

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

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 μ V | + 26 dB | = 47.5 dB μ V/m | : | 47.5 dB μ V/m | - 57.0 dB μ V/m | = -9.5 dB |

2 Result Summary

| FCC 47 CFR Part 15C, ISED RSS-210 | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------|--------|--------------------------------------------------|
| Product Standard Reference | Requirement | Reference Method | Result | Remarks |
| ISED RSS-210 5 ISED RSS-Gen 6.7 | Occupied Bandwidth | ANSI C63.10-2013 | N/R | Informational only |
| FCC 15.231(a)(1) ISED RSS-210 A1.1.1(a) | Deactivation of manually operated transmitter | non specific | PASS | -- |
| FCC 15.231(a)(2) ISED RSS-210 A1.1.1(b) | Cease of transmission of automatically operated transmitter | non specific | N/R | manually operated transmitter |
| FCC 15.231(a)(3) ISED RSS-210 A1.1.1(c) | Total transmission time | non specific | N/R | manually operated transmitter |
| FCC 15.231(a)(4) ISED RSS-210 A1.1.1(d) | Radio control during emergencies | non specific | N/R | EUT not for emergencies |
| FCC 15.231(a)(5) | Transmission of set-up information for security systems | non specific | N/R | EUT not for security systems |
| FCC 15.231(b),(e) ISED RSS-210 A1.1.2 | Field strength of fundamental and spurious emissions | ANSI C63.10 | PASS | -- |
| FCC 15.231(c) ISED RSS-210 A1.1.3 | Emission bandwidth | non specific | PASS | -- |
| FCC 15.231(d) ISED RSS-210 A1.1.3 | Emission bandwidth for the 40.66-40.70 MHz band | non specific | N/R | EUT is not operating in the 40.66-40-70 MHz band |
| FCC 15.231(d) ISED RSS-210 A1.1.4 | Frequency Stability for the 40.66-40.70 MHz band | non specific | N/R | EUT is not operating in the 40.66-40-70 MHz band |
| FCC 15.231(e) ISED RSS-210 A1.1.5 | Reduced field strength and spurious emissions of radiators operating at a rate exceeding 15.231(a) | ANSI C63.10 | N/R | No reduction used |
| ISED RSS-210 5 ISED RSS-Gen 7.3 | Receiver radiated spurious emissions | ANSI C63.10 | N/R | EUT is a transmitter only |
| FCC 15.207 ISED RSS-210 5 RSS-Gen 7.2 | AC power line conducted emissions | ANSI C63.10 | N/R | EUT exclusively battery powered |
| Comment: The Decision Rule is applied on the basis of ETSI TR 102 273 and ETSI TR 100 028. These standards provide guidance on how to calculate and apply measurement uncertainty whilst providing maximum uncertainties allowance. In all cases due consideration will be given to ILAC-G8:09/2019. Where a result is considered conditional in respect of its proximity to the limit line, the customer would be made aware of situation so that they can make an informed decision on how to proceed. | | | | |

| 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 - Occupied bandwidth

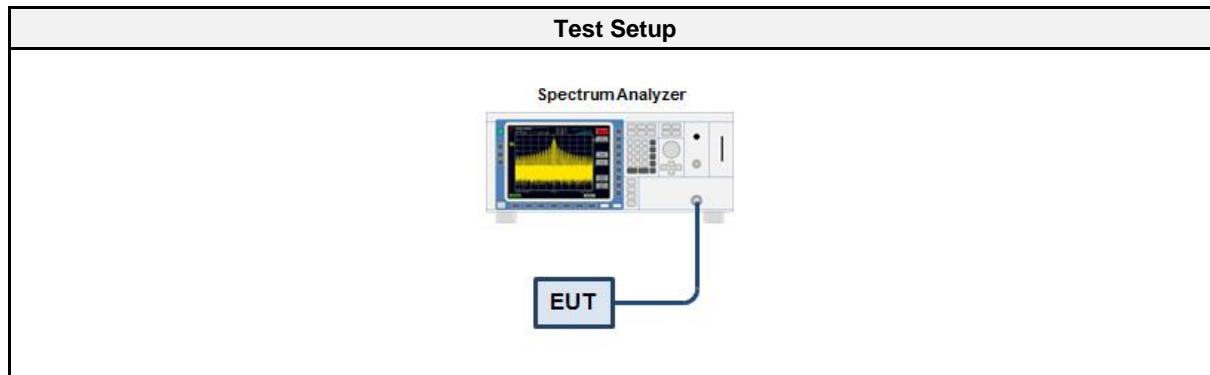
3.1.1 Information

| Test Information | |
|-------------------------|-----------------------------------|
| Reference | ISED RSS-210 5 / ISED RSS-Gen 6.7 |
| Measurement Method | ANSI C63.10 6.9.3 |
| Measurement Uncertainty | ± 1.26 % |
| Operator | Wilfried Treffke |
| Date | 2023-11-01 |

3.1.2 Limits

| Limits |
|---------------------------|
| None (Informational only) |

3.1.3 Setup



3.1.4 Equipment

| Test Equipment | | | | | |
|-------------------|--------------|--------|------------|-----------|----------|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| Spectrum Analyzer | R&S | FSU 26 | EF01003 | 2023-08 | 2024-08 |

3.1.5 Procedure

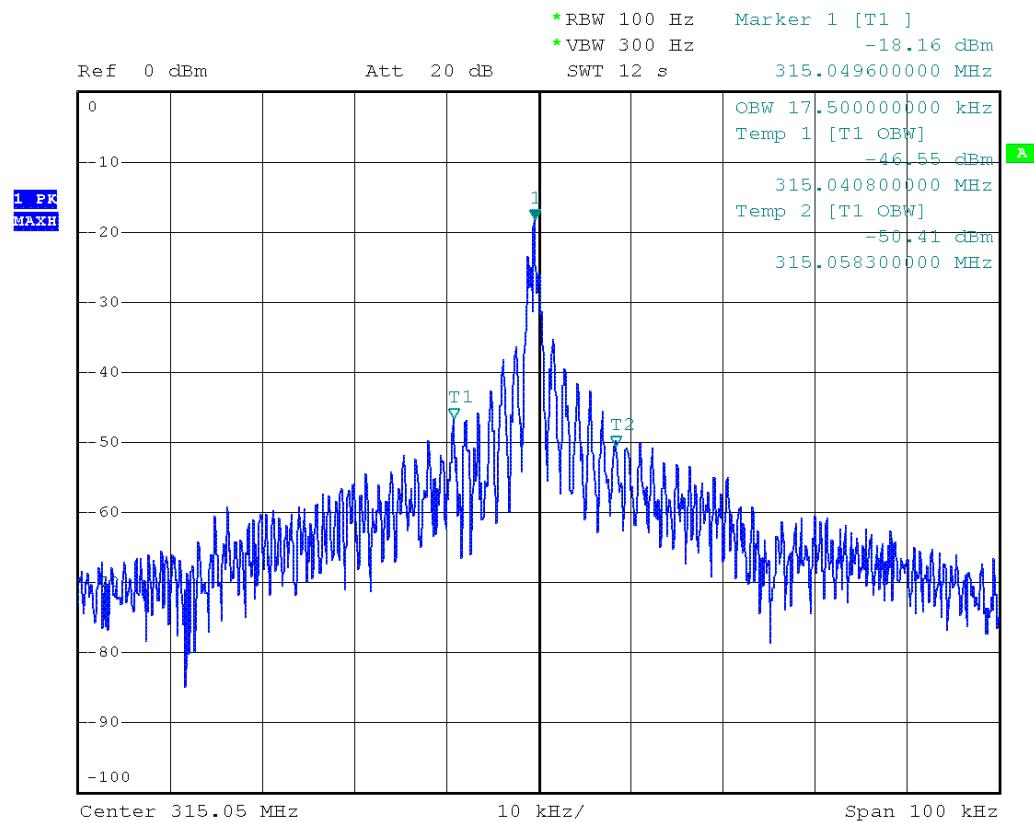
| Test Procedure |
|------------------------------------------------------------------------------------------------------------|
| 1. EUT transmitter is activated in test mode under normal conditions |
| 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum |
| 3. The resolution bandwidth is set to 1 % of the bandwidth |
| 4. The occupied bandwidth is measured with the build-in analyzer function |

3.1.6 Results

| Test Results | | |
|---------------------|--------------------|--------------------|
| Mode | Frequency [MHz] | Bandwidth [kHz] |
| Transmit | 315.05 | 17.5 |

Occupied / Emission Bandwidth

Project Number: G0M-2301-1843
 Applicant: Glaubitz GmbH & Co.KG
 Model Description: Wireless Remote Control
 Model: ECU-WRC-WK
 Test Sample ID: 44566
 Reference Standards: RSS-210
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operating Frequency: 315.05 MHz
 Operating Conditions: T_{nom}/V_{nom}
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2023-11-01
 Occupied Bandwidth [kHz]: 17.5



Date: 1.NOV.2023 11:42:43

3.2 Test Conditions and Results - Deactivation of manually operated Transmitter

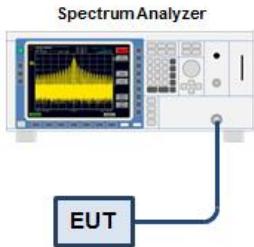
3.2.1 Information

| Test Information | |
|-------------------------|-------------------------------------------|
| Reference | FCC 15.231(a)(1) / ISED RSS-210 A1.1.1(a) |
| Measurement Method | non specific |
| Measurement Uncertainty | ± 1.26 % |
| Operator | Wilfried Treffke |
| Date | 2023-11-01 |

3.2.2 Limits

| Limits |
|----------------------------------------------------------------------------------------------------------------------------------|
| Manually operated transmitter shall employ a switch that will automatically cease transmission within 5 seconds after activation |

3.2.3 Setup

| Test Setup |
|------------------------------------------------------------------------------------|
|  |

3.2.4 Equipment

| Test Equipment | | | | | |
|-------------------|--------------|--------|------------|-----------|----------|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| Spectrum Analyzer | R&S | FSU 26 | EF01003 | 2023-08 | 2024-08 |

3.2.5 Procedure

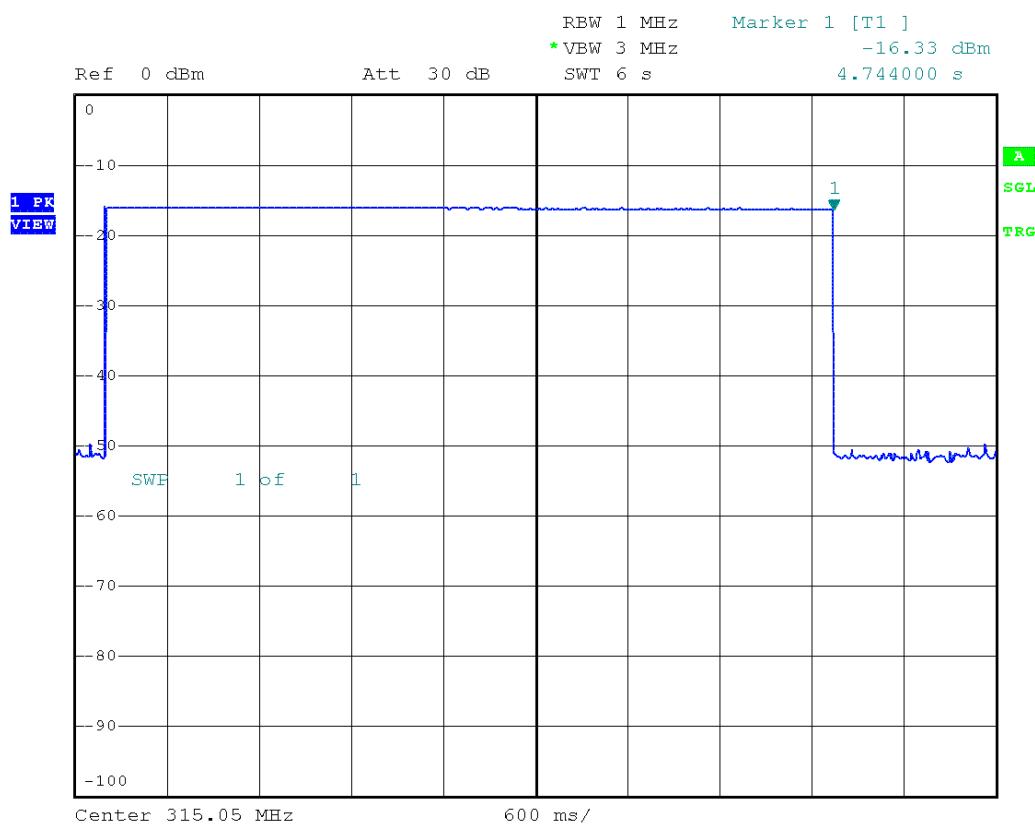
| Test Procedure |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none">1. EUT set to normal mode2. Center frequency is set to test frequency3. Span is set to zero span4. Resolution bandwidth is set large enough to accurately capture transmission bursts |

3.2.6 Results

| Test Results | | | |
|---------------------|---------------------------|--------------|---------------|
| Channel [MHz] | Transmission times [s] | Limit [s] | Margin [s] |
| 315.05 | 4.744 | 5 | -0.26 |

Transmitter deactivation

Project Number: G0M-2301-1843
 Applicant: Glaubitz GmbH & Co.KG
 Model Description: Wireless Remote Control
 Model: ECU-WRC-WK
 Test Sample ID: 44566
 Reference Standards: FCC 15.231, RSS-210
 Reference Method: ANSI C63.10:2013, Section 7.4
 Operating Frequency: 315.05 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2023-11-01
 Transmission end time [s]: 4.744
 Transmission time limit [s]: 5.000



Date: 1.NOV.2023 11:31:27

3.3 Test Conditions and Results - Field strength of fundamental and spurious emissions

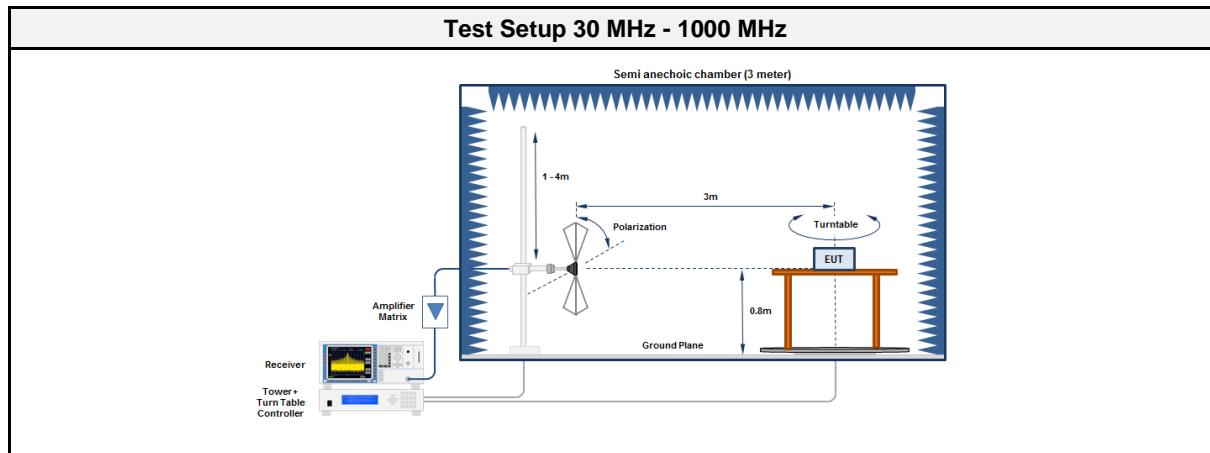
3.3.1 Information

| Test Information | |
|--------------------------|----------------------------------------|
| Reference | FCC 15.231(b) / ISED RSS-210 A1.1.2(b) |
| Measurement Uncertainty | ± 5.95 dB |
| Measurement Method | ANSI C63.10 6.4, 6.5, 6.6, 11.12 |
| Measurement Uncertainty: | ± 5.95 dB |
| Operator | Mr. Siddique |
| Date | 2023-10-19 |

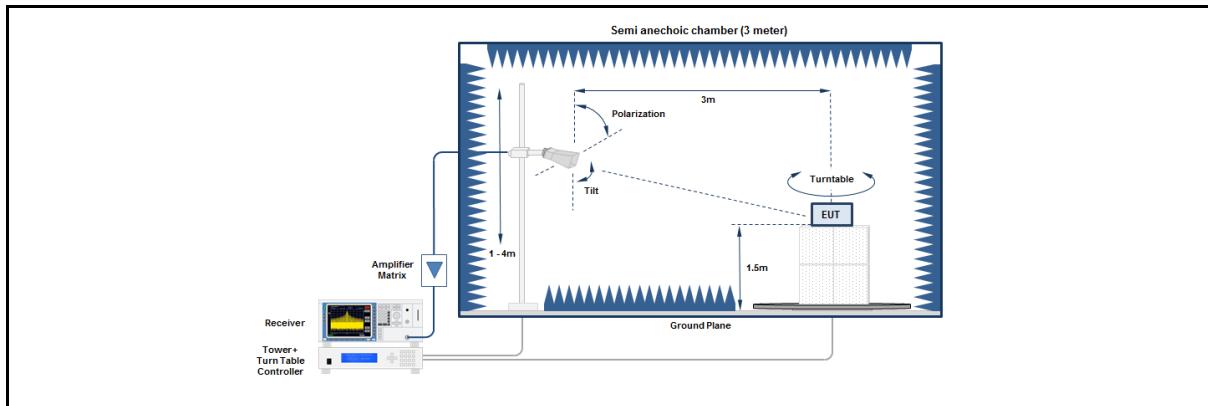
3.3.2 Limits

| Limits | | | |
|----------------------------------|----------------------------------|-------------------------------|--------------------------|
| Frequency range [MHz] | Fundamental Limit [dB μ V/m] | Spurious Limit [dB μ V/m] | Measurement distance [m] |
| 40.66-40.70 | 66.95 | 46.95 | 3 |
| 70-130 | 61.94 | 41.94 | 3 |
| 130-174 | 61.94 – 71.48 | 41.94 – 51.48 | 3 |
| 174-260 | 71.48 | 51.48 | 3 |
| 260-470 | 71.48 – 81.94 | 51.48 – 61.94 | 3 |
| > 470 | 81.94 | 61.94 | 3 |
| Detector = Quasi-Peak or Average | | | |

3.3.3 Setup



Test Setup > 1 GHz



3.3.4 Equipment

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

| Test Equipment 30 - 1000 MHz | | | | | |
|------------------------------|--------------|----------------|------------|-----------|----------|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| Anechoic Chamber | Frankonia | AC1 | EF00062 | 2022-11 | 2025-11 |
| Measurement Receiver | Agilent | N9038A-526/WXP | EF01070 | 2023-02 | 2024-02 |
| Antenna | R&S | HK 116 | EF00030 | 2021-05 | 2024-05 |
| Antenna | R&S | HL 223 | EF00187 | 2022-06 | 2025-06 |

| Test Equipment > 1 GHz | | | | | |
|------------------------|--------------|----------------|------------|-----------|----------|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| Anechoic Chamber | Frankonia | AC1 | EF00062 | 2022-11 | 2025-11 |
| Measurement Receiver | Agilent | N9038A-526/WXP | EF01070 | 2023-02 | 2024-02 |
| Antenna | Schwarzbeck | BBHA 9120D | EF00018 | 2022-12 | 2025-12 |

3.3.5 Procedure

| Test Procedure 30 MHz - 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 | | | | | |

3.3.6 Results

| Test Results - Field strength of fundamental | | | | | | |
|----------------------------------------------|----------------|----------------------|------|------|----------------------|-------------|
| Channel [MHz] | Emission [MHz] | Level [dB μ V/m] | Det. | Pol. | Limit [dB μ V/m] | Margin [dB] |
| 315.05 | 315.049 | 63.40 | pk | hor | 95.60 | -32.18 |
| 315.05 | 315.049 | 63.40 | avg | hor | 75.60 | -12.22 |

| Test Results - Field strength of spurious emissions | | | | | | |
|-----------------------------------------------------|----------------|----------------------|------|------|----------------------|-------------|
| Channel [MHz] | Emission [MHz] | Level [dB μ V/m] | Det. | Pol. | Limit [dB μ V/m] | Margin [dB] |
| 315.05 | 1575 | 38.43 | pk | ver | 74.00 | -35.57 |
| 315.05 | 1890 | 40.50 | pk | ver | 74.00 | -33.50 |
| 315.05 | 2205 | 42.82 | pk | ver | 74.00 | -31.18 |
| 315.05 | 2520 | 47.94 | pk | hor | 74.00 | -26.06 |

3.4 Test Conditions and Results - Emission Bandwidth

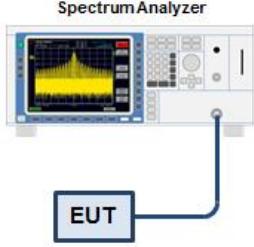
3.4.1 Information

| Test Information | |
|--------------------------|-------------------------------------|
| Reference | FCC 15.231(c) / ISED RSS-210 A1.1.3 |
| Measurement Method | non specific |
| Measurement Uncertainty: | ± 1.26 % |
| Operator | Wilfried Treffke |
| Date | 2023-11-01 |

3.4.2 Limits

| Limits |
|----------------------------|
| 0.25 % of center frequency |

3.4.3 Setup

| Test Setup |
|------------------------------------------------------------------------------------|
|  |

3.4.4 Equipment

| Test Equipment | | | | | |
|-------------------|--------------|--------|------------|-----------|----------|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| Spectrum Analyzer | R&S | FSU 26 | EF01003 | 2023-08 | 2024-08 |

3.4.5 Procedure

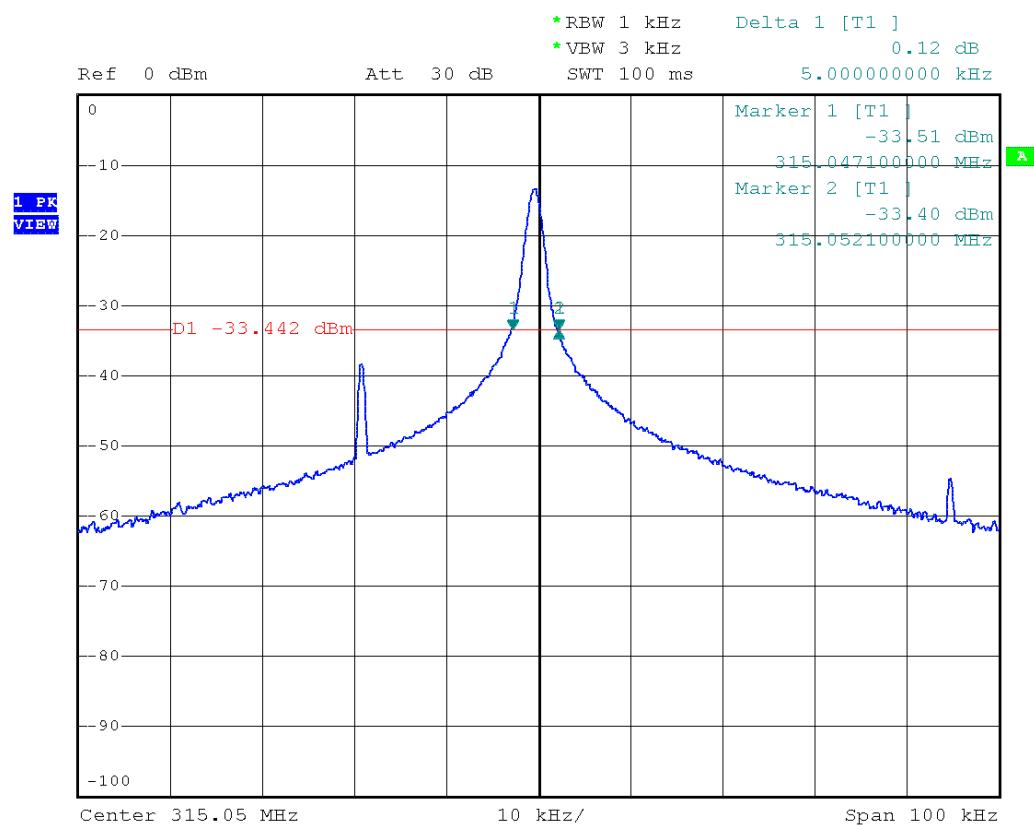
| Test Procedure |
|-------------------------------------------------------------------------------------------------------------------------|
| 1. EUT set to test mode (Communication tester is used if needed) |
| 2. Span set to at least twice the emission spectrum |
| 3. Resolution bandwidth set to 1% of span |
| 4. For Industry Canada the occupied bandwidth (99%) is measurement with spectrum analyzer built in measurement function |
| 5. For FCC the 20 dB bandwidth is measurement with spectrum analyzer |

3.4.6 Results

| Test Results | | | |
|---------------|--------------------------|-------------|--------------|
| Channel [MHz] | Emission Bandwidth [kHz] | Limit [kHz] | Margin [kHz] |
| 315.05 | 5.0 | 787.625 | -782.63 |

Emission Bandwidth

Project Number: G0M-2301-1843
 Applicant: Glaubitz GmbH & Co.KG
 Model Description: Wireless Remote Control
 Model: ECU-WRC-WK
 Test Sample ID: 44566
 Reference Standards: FCC 15.231 / ISED RSS-210 A1.1.3
 Reference Method: ANSI C63.10:2013, Section 6.9.2
 Operating Frequency: 315.05 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2023-11-01
 Emission Bandwidth [kHz]: 5.0
 Emission Bandwidth Limit [kHz]: 787.625



Date: 1.NOV.2023 11:46:23

3.5 Test Conditions and Results - Receiver radiated emissions

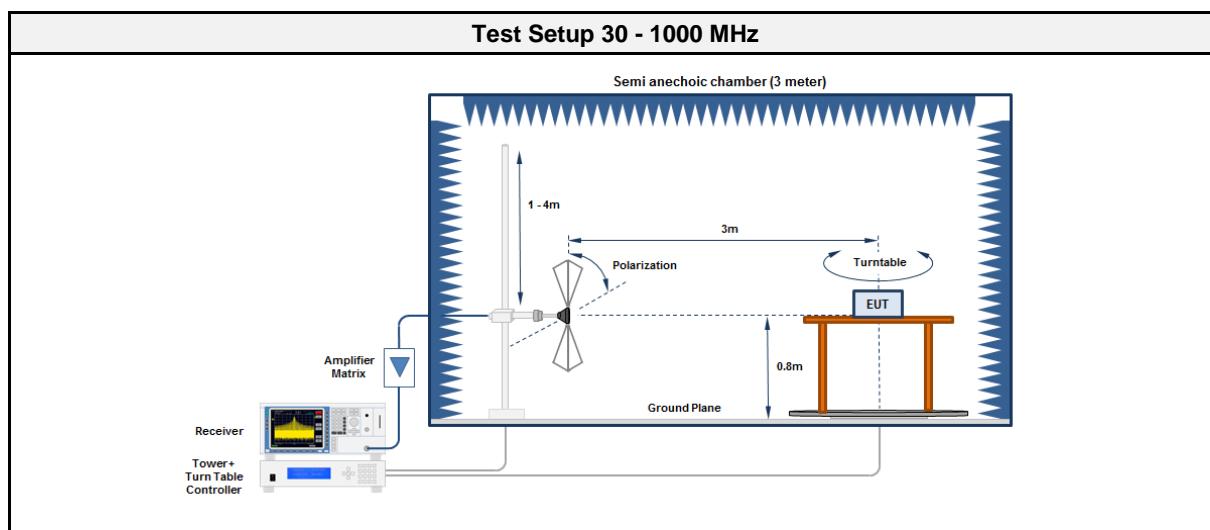
3.5.1 Information

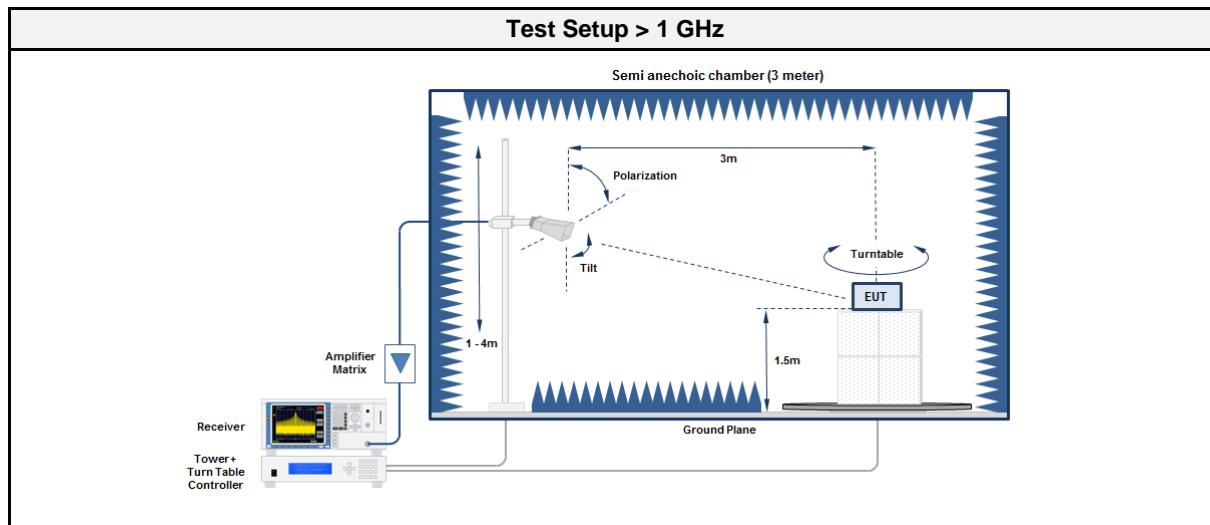
| Test Information | |
|--------------------------|-----------------------------------|
| Reference | ISED RSS-210 5 / ISED RSS-Gen 7.3 |
| Measurement Method | ANSI C63.10 |
| Measurement Uncertainty: | ± 5.95 dB |
| Operator | Mr. Siddique |
| Date | 2023-10-19 |

3.5.2 Limits

| Limits | | | | |
|-----------------|------------|--------------------|----------------------|--------------------|
| Frequency [MHz] | Detector | Limit [μ V/m] | Limit [dB μ V/m] | Limit Distance [m] |
| 30 - 88 | Quasi-Peak | 100 | 40 | 3 |
| 88 - 216 | Quasi-Peak | 150 | 43.5 | 3 |
| 216 - 960 | Quasi-Peak | 200 | 46 | 3 |
| 960 - 1000 | Quasi-Peak | 500 | 54 | 3 |
| >1000 | Average | 500 | 54 | 3 |

3.5.3 Setup





3.5.4 Equipment

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

| Test Equipment 30 - 1000 MHz | | | | | |
|------------------------------|--------------|----------------|------------|-----------|----------|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| Anechoic Chamber | Frankonia | AC1 | EF00062 | 2022-11 | 2025-11 |
| Measurement Receiver | Agilent | N9038A-526/WXP | EF01070 | 2023-02 | 2024-02 |
| Antenna | R&S | HK 116 | EF00030 | 2021-05 | 2024-05 |
| Antenna | R&S | HL 223 | EF00187 | 2022-06 | 2025-06 |

| Test Equipment > 1 GHz | | | | | |
|------------------------|--------------|----------------|------------|-----------|----------|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| Anechoic Chamber | Frankonia | AC1 | EF00062 | 2022-11 | 2025-11 |
| Measurement Receiver | Agilent | N9038A-526/WXP | EF01070 | 2023-02 | 2024-02 |
| Antenna | Schwarzbeck | BBHA 9120D | EF00018 | 2022-12 | 2025-12 |

3.5.5 Procedure

| Test Procedure | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| <ol style="list-style-type: none"> 1. EUT set to receive mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peakdetector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels | | | | | |

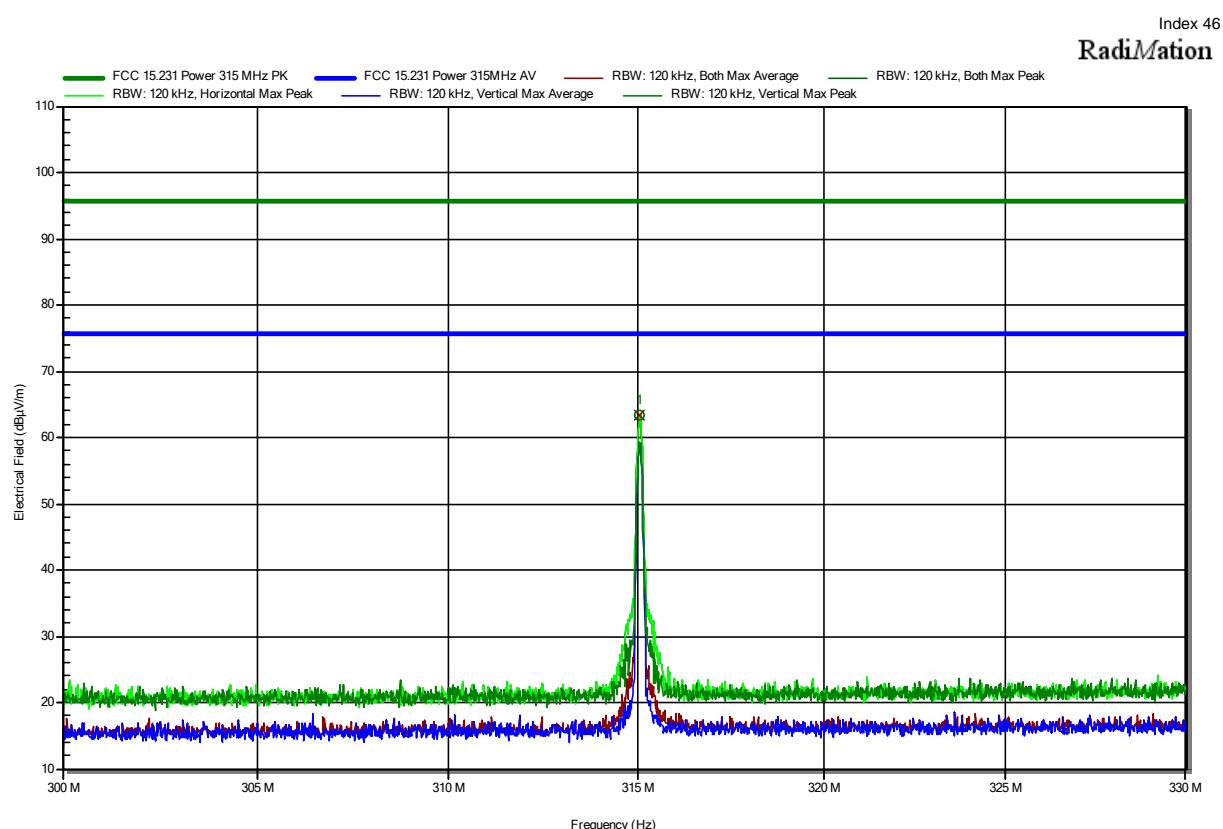
3.5.6 Results

| Test Results | | | | | | |
|----------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------|------|------|-------------------------|----------------|
| Channel [MHz] | Emission [MHz] | Level [dB μ V/m] | Det. | Pol. | Limit [dB μ V/m] | Margin [dB] |
| 315.05 | - | - | - | - | - | - |
| Comments: The stated emission level corresponds to ambient noise floor. No real spurious emission has been measured. | | | | | | |

ANNEX A Field strength of fundamental and spurious emissions

Radiated Spurious Emissions according to 47 CFR § 15.231

Project Number: G0M-2301-1843
 Applicant: Glaubitz GmbH & Co.KG
 Model Description: Wireless Remote Control
 Model: ECU-WRC-WK
 Test Sample ID: 44568
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Siddique
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.0 VDC (Battery)
 Antenna: Schwarzbeck VULB 9168
 Measurement distance: 3 m
 Mode: Tx; ASK; 315.05 MHz
 Test Date: 2023-10-19
 Note: Power

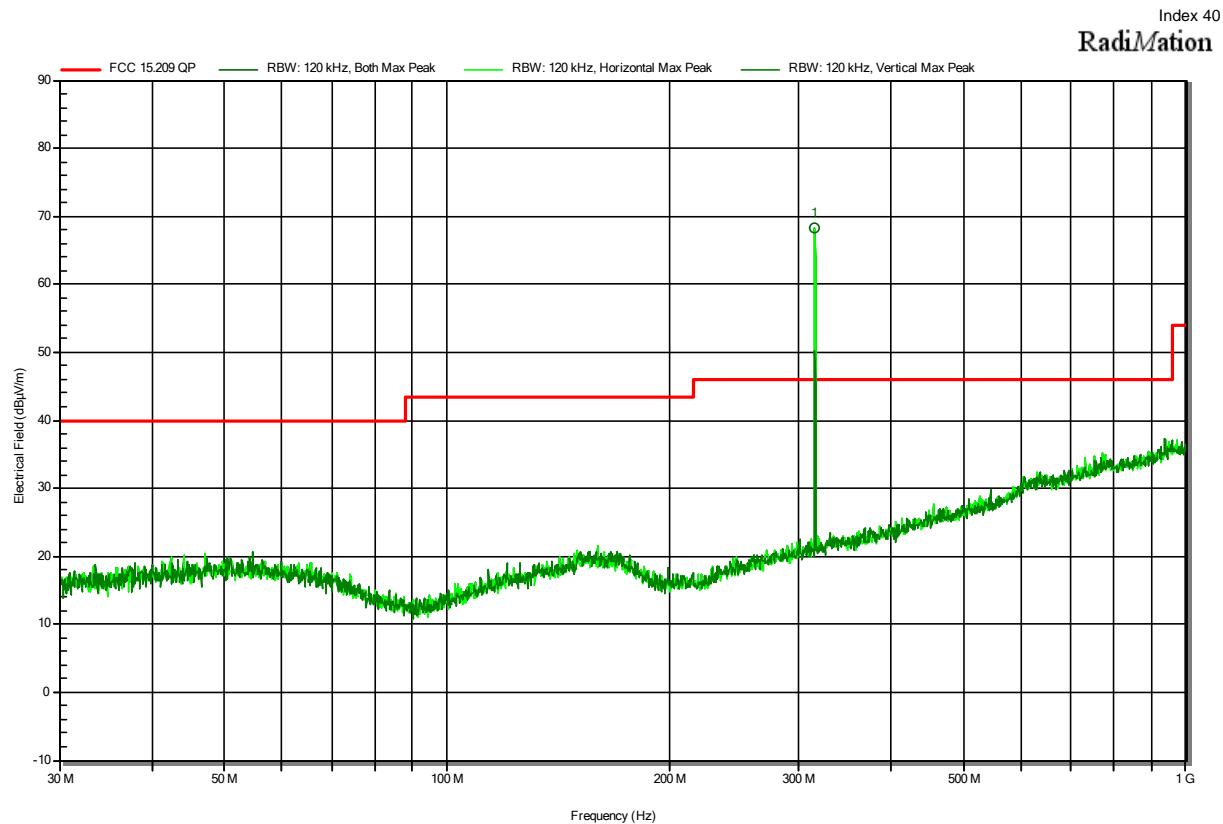


| Frequency | Peak | Peak Limit | Peak Difference | Peak Status | Polarization |
|-------------|-------------|-------------|-----------------|-------------|--------------|
| 315.049 MHz | 63.4 dBµV/m | 95.6 dBµV/m | -32.18 dB | Pass | Horizontal |

| Frequency | Average | Average Limit | Average Difference | Average Status | Polarization |
|-------------|-------------|---------------|--------------------|----------------|--------------|
| 315.049 MHz | 63.4 dBµV/m | 75.6 dBµV/m | -12.22 dB | Pass | Horizontal |

Radiated Spurious Emissions according to 47 CFR § 15.231

Project Number: G0M-2301-1843
 Applicant: Glaubitz GmbH & Co.KG
 Model Description: Wireless Remote Control
 Model: ECU-WRC-WK
 Test Sample ID: 44568
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.0 VDC (Battery)
 Antenna: Schwarzbeck VULB 9168
 Measurement distance: 3 m
 Mode: Tx; ASK; 315.05 MHz
 Test Date: 2023-10-18
 Note:

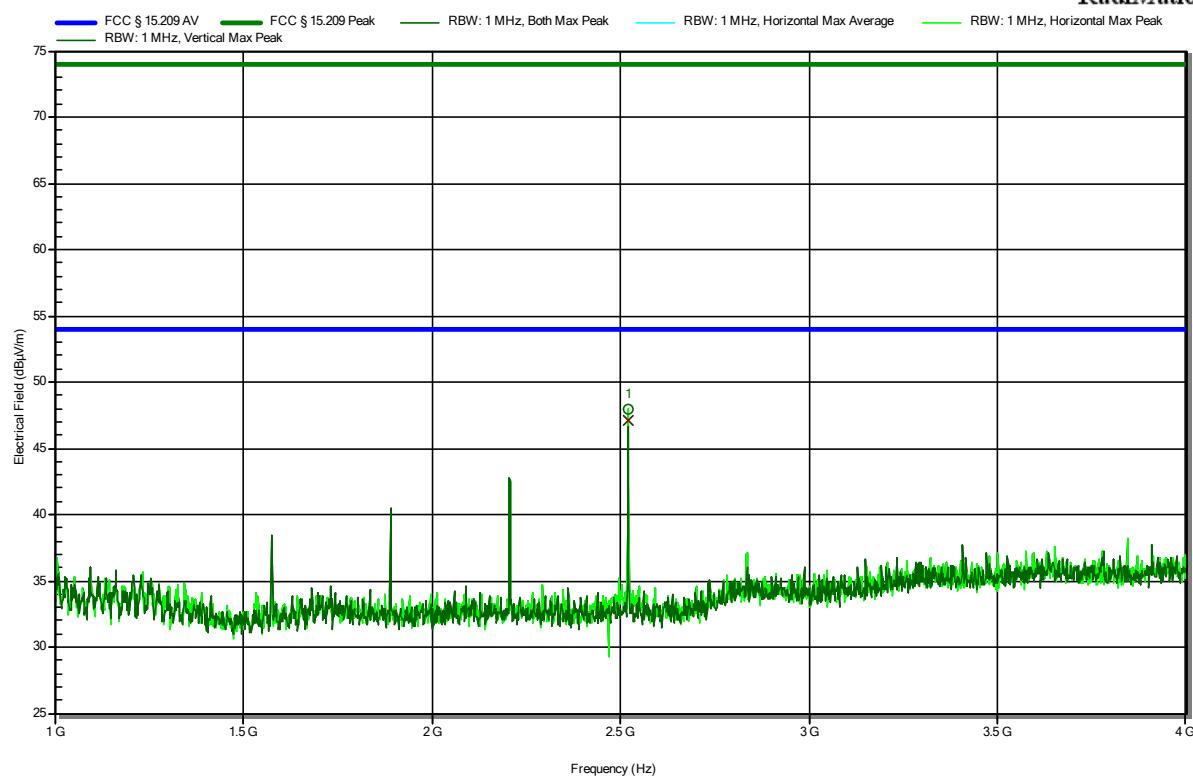


| Frequency | Peak | Peak Limit | Peak Difference | Peak Status | Polarization |
|--------------|------|------------|-----------------|-------------|--------------|
| 315.0507 MHz | -- | -- | -- | Carrier | Horizontal |

Radiated Spurious Emissions according to 47 CFR § 15.231

Project Number: G0M-2301-1843
 Applicant: Glaubitz GmbH & Co.KG
 Model Description: Wireless Remote Control
 Model: ECU-WRC-WK
 Test Sample ID: 44568
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Siddique
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.0 VDC (Battery)
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; ASK; 315.05 MHz
 Test Date: 2023-10-09
 Note: --

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Radiation


| | | | | | |
|--------------------|-------------------------|----------------------------|---------------------------|------------------|-------------------------|
| Frequency 2.52 GHz | Peak 47.94 dB μ V/m | Peak Limit 74 dB μ V/m | Peak Difference -26.06 dB | Peak Status Pass | Polarization Horizontal |
|--------------------|-------------------------|----------------------------|---------------------------|------------------|-------------------------|

| | | | | | |
|--------------------|---------------------------|----------------------------------|-----------------------------|---------------------|-------------------------|
| Frequency 2.52 GHz | Average 47.1 dB μ V/m | Average Limit 53.98 dB μ V/m | Average Difference -6.88 dB | Average Status Pass | Polarization Horizontal |
|--------------------|---------------------------|----------------------------------|-----------------------------|---------------------|-------------------------|

= = = END OF TEST REPORT = = =

Test Report No.: G0M-2301-1843-TFC231PT-V03

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