

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                           |                                                                                                             |                                                                                            |                                              |                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------|
| <b>Prüfbericht-Nr.:</b><br><i>Test report No.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>50325316 001</b>                                                                                                                                       | <b>Auftrags-Nr.:</b><br><i>Order No.:</i>                                                                   | 168142797                                                                                  | Seite 1 von 22<br><i>Page 1 of 22</i>        |                                         |
| <b>Kunden-Referenz-Nr.:</b><br><i>Client reference No.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                                                                                                       | <b>Auftragsdatum:</b><br><i>Order date:</i>                                                                 | 02.12.2019                                                                                 |                                              |                                         |
| <b>Auftraggeber:</b><br><i>Client:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Ring LLC</b><br>1523 26th St, Santa Monica, CA 90404, USA                                                                                              |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Prüfgegenstand:</b><br><i>Test item:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Smart Lightbulb                                                                                                                                           |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Bezeichnung / Typ-Nr.:</b><br><i>Identification / Type No.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5AT1S3, 5AT3S4                                                                                                                                            |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Auftrags-Inhalt:</b><br><i>Order content:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                          | FCC/IC testing                                                                                                                                            |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Prüfgrundlage:</b><br><i>Test specification:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | CFR47 FCC Part 15: Subpart C Section 15.247<br>CFR47 FCC Part 15: Subpart C Section 15.209<br>RSS-247 Issue 2 February 2017<br>RSS-Gen Issue 5 March 2019 |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Wareneingangsdatum:</b><br><i>Date of receipt:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 02.12.2019                                                                                                                                                | Refer to photos                                                                                             |                                                                                            |                                              |                                         |
| <b>Prüfmuster-Nr.:</b><br><i>Test sample No.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | A001034554-002                                                                                                                                            |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Prüfzeitraum:</b><br><i>Testing period:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 02.12.2019 - 12.12.2019                                                                                                                                   |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Ort der Prüfung:</b><br><i>Place of testing:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | TÜV Rheinland (Shenzhen)<br>Co., Ltd.                                                                                                                     |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Prüflaboratorium:</b><br><i>Testing laboratory:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                    | TÜV Rheinland (Shenzhen)<br>Co., Ltd.                                                                                                                     |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Prüfergebnis*:</b><br><i>Test result*:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Pass                                                                                                                                                      |                                                                                                             |                                                                                            |                                              |                                         |
| <b>geprüft von / tested by:</b><br><br>Jackson Yang<br><br>06.01.2020 Jackson Yang / Project Engineer                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                           | <b>kontrolliert von / reviewed by:</b><br><br>Winnie Hou<br><br>06.01.2020 Winnie Hou / Technical Certifier |                                                                                            |                                              |                                         |
| <b>Datum</b><br><i>Date</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Name/Stellung</b><br><i>Name/Position</i>                                                                                                              | <b>Unterschrift</b><br><i>Signature</i>                                                                     | <b>Datum</b><br><i>Date</i>                                                                | <b>Name/Stellung</b><br><i>Name/Position</i> | <b>Unterschrift</b><br><i>Signature</i> |
| <b>Sonstiges / Other:</b><br><br>FCC ID: 2AEUPRB19001<br>IC: 20271-RB19001<br>Note: The BLE Radiated Spurious Emission above 1GHz of this product are evaluated in this report which was additional tests as test report 50321015 001.                                                                                                                                                                                                                                                                    |                                                                                                                                                           |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br><i>Condition of the test item at delivery:</i>                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                           |                                                                                                             | <b>Prüfmuster vollständig und unbeschädigt</b><br><i>Test item complete and undamaged:</i> |                                              |                                         |
| * Legende: 1 = sehr gut      2 = gut      3 = befriedigend      4 = ausreichend      5 = mangelhaft<br>P(ass) = entspricht o.g. Prüfgrundlage(n)      F(ail) = entspricht nicht o.g. Prüfgrundlage(n)      N/A = nicht anwendbar      N/T = nicht getestet<br>Legend: 1 = very good      2 = good      3 = satisfactory      4 = sufficient      5 = poor<br>P(ass) = passed a.m. test specifications(s)      F(ail) = failed a.m. test specifications(s)      N/A = not applicable      N/T = not tested |                                                                                                                                                           |                                                                                                             |                                                                                            |                                              |                                         |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>                                                |                                                                                                                                                           |                                                                                                             |                                                                                            |                                              |                                         |

**Prüfbericht - Nr.: 50325316 001**  
*Test Report No.*Seite 2 von 22  
*Page 2 of 22*

## Test Summary

### 5.1.1 RADIATED SPURIOUS EMISSIONS

*RESULT: Pass*

## *Table of Contents*

|            |                                                          |           |
|------------|----------------------------------------------------------|-----------|
| <b>1</b>   | <b>GENERAL REMARKS .....</b>                             | <b>4</b>  |
| <b>1.1</b> | <b>COMPLEMENTARY MATERIALS .....</b>                     | <b>4</b>  |
| <b>2</b>   | <b>TEST SITES .....</b>                                  | <b>5</b>  |
| <b>2.1</b> | <b>TEST FACILITIES .....</b>                             | <b>5</b>  |
| <b>2.2</b> | <b>LIST OF TEST AND MEASUREMENT INSTRUMENTS.....</b>     | <b>5</b>  |
| <b>2.3</b> | <b>TRACEABILITY .....</b>                                | <b>5</b>  |
| <b>2.4</b> | <b>CALIBRATION .....</b>                                 | <b>5</b>  |
| <b>2.5</b> | <b>MEASUREMENT UNCERTAINTY.....</b>                      | <b>6</b>  |
| <b>2.6</b> | <b>LOCATION OF ORIGINAL DATA.....</b>                    | <b>6</b>  |
| <b>2.7</b> | <b>STATUS OF FACILITY USED FOR TESTING.....</b>          | <b>6</b>  |
| <b>3</b>   | <b>GENERAL PRODUCT INFORMATION .....</b>                 | <b>7</b>  |
| <b>3.1</b> | <b>PRODUCT FUNCTION AND INTENDED USE.....</b>            | <b>7</b>  |
| <b>3.2</b> | <b>RATINGS AND SYSTEM DETAILS .....</b>                  | <b>7</b>  |
| <b>3.3</b> | <b>INDEPENDENT OPERATION MODES .....</b>                 | <b>9</b>  |
| <b>3.4</b> | <b>NOISE GENERATING AND NOISE SUPPRESSING PARTS.....</b> | <b>9</b>  |
| <b>3.5</b> | <b>SUBMITTED DOCUMENTS.....</b>                          | <b>9</b>  |
| <b>4</b>   | <b>TEST SET-UP AND OPERATION MODES .....</b>             | <b>10</b> |
| <b>4.1</b> | <b>PRINCIPLE OF CONFIGURATION SELECTION .....</b>        | <b>10</b> |
| <b>4.2</b> | <b>TEST OPERATION AND TEST SOFTWARE.....</b>             | <b>10</b> |
| <b>4.3</b> | <b>SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT .....</b> | <b>10</b> |
| <b>4.4</b> | <b>COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE .....</b>   | <b>10</b> |
| <b>4.5</b> | <b>TEST SETUP DIAGRAM .....</b>                          | <b>10</b> |
| <b>5</b>   | <b>TEST RESULTS .....</b>                                | <b>12</b> |
| <b>5.1</b> | <b>TRANSMITTER REQUIREMENT &amp; TEST SUITES .....</b>   | <b>12</b> |
| 5.1.1      | <i>Radiated Spurious Emissions .....</i>                 | <i>12</i> |
| <b>6</b>   | <b>PHOTOGRAPHS OF THE TEST SET-UP .....</b>              | <b>21</b> |
| <b>7</b>   | <b>LIST OF TABLES.....</b>                               | <b>22</b> |
| <b>8</b>   | <b>LIST OF PHOTOGRAPHS .....</b>                         | <b>22</b> |

**Prüfbericht - Nr.: 50325316 001**  
*Test Report No.*

Seite 4 von 22  
Page 4 of 22

## **1 General Remarks**

### **1.1 Complementary Materials**

N/A

## 2 Test Sites

### 2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

1F East & 2-4F, Cybio Technology Building No.1, No.16 Kejibei 2nd Road, Nanshan District, Shenzhen, 518057, China

FCC Registration No.: 694916

IC Registration No.: 25069

### 2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

| Radiated Spurious Emission                |                 |           |            |            |
|-------------------------------------------|-----------------|-----------|------------|------------|
| Equipment                                 | Manufacturer    | Model No. | Serial No. | Cal. Until |
| EMI Test Receiver                         | Rohde & Schwarz | ESR 7     | 102021     | 19.08.2020 |
| Signal Analyzer                           | Rohde & Schwarz | FSV 40    | 101439     | 21.08.2020 |
| System Controller Interface               | Rohde & Schwarz | SCI-100   | S10010038  | N/A        |
| Filterbank                                | Rohde & Schwarz | Wlan      | 100759     | 21.08.2020 |
| OSP                                       | Rohde & Schwarz | OSP 120   | 102040     | N/A        |
| Pre-amplifier                             | Rohde & Schwarz | SCU08F1   | 08320031   | 20.08.2020 |
| Amplifier                                 | Rohde & Schwarz | SCU-18F   | 180070     | 20.08.2020 |
| Amplifier                                 | Rohde & Schwarz | SCU40A    | 100475     | 20.09.2020 |
| Trilog Broadband Antenna (30 MHz - 1 GHz) | Schwarzbeck     | VULB9162  | 193        | 02.09.2020 |
| Double-Ridged Antenna (1 -18 GHz)         | ETS-LINDGREN    | 3117      | 00218717   | 02.09.2020 |
| Wideband Ridged Horn Antenna (18-40 GHz)  | Steatite        | QMS-00880 | 19067      | 02.09.2020 |
| Active Loop Antenna                       | Schwarzbeck     | FMZB 1513 | 302        | 01.09.2020 |
| Wideband Ridged Horn Antenna (12-18 GHz)  | Steatite        | QMS-00208 | 18313      | 02.09.2020 |

### 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

### 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table:

Table 2: Measurement Uncertainty

| Items                                         | Extended Uncertainty |
|-----------------------------------------------|----------------------|
| Radiated Spurious Emissions (up to 1GHz)      | $\pm 4.84$ dB        |
| Radiated Spurious Emissions (1GHz to 26.5GHz) | $\pm 4.76$ dB        |

## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached in this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at 1F East & 2-4F, Cybio Technology Building No.1, No.16 Kejibei 2nd Road, Nanshan District, Shenzhen, 518057, China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

### 3 General Product Information

#### 3.1 Product Function and Intended Use

The EUTs are Smart Lightbulb which support Bluetooth, LoRa DTS, LoRa FHSS and FSK HFSS function operated at 2400-2483.5MHz and 902-928MHz respectively.

In electrical characteristics, all models are the same except color temperature aspects.

For details refer to the User Manual, Technical Description and Circuit Diagram.

#### 3.2 Ratings and System Details

Table 3: Technical Specification of EUT

| General Information of EUT | Value           |
|----------------------------|-----------------|
| Kind of Equipment          | Smart Lightbulb |
| Type Designation           | 5AT1S3, 5AT3S4  |
| Operating Voltage          | AC 120V/60Hz    |
| Testing Voltage            | AC 120V/60Hz    |
| Rated current              | 75mA            |
| Rated power                | 8.5W            |

Technical Specification of BLE

|                           |                          |
|---------------------------|--------------------------|
| Technical Specification   | BLE                      |
| Operating Frequency band  | 2402 – 2480 MHz          |
| Bluetooth Core Version    | Bluetooth Low Energy 4.2 |
| Channel separation        | 2MHz                     |
| Extreme Temperature Range | -20°C ~ 40°C             |
| Modulation                | GFSK                     |
| Antenna Type              | Monopole Antenna         |
| Antenna Gain(dBi)         | 2.44                     |
| Channel                   | 0~39                     |

Technical Specification of LoRa DTS

| Technical Specification   | LoRa DTS 500KHz<br>902.5-926.5MHz                                                                                                                                                                                    | LoRa DTS 500KHz<br>903-914.2MHz                          | LoRa DTS 500KHz<br>923.3-926.9MHz                     |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|
| Operating Frequency band  | 902 – 928 MHz                                                                                                                                                                                                        |                                                          |                                                       |
| Extreme Temperature Range | -20°C ~ 40°C                                                                                                                                                                                                         |                                                          |                                                       |
| Bandwidth(KHz)            | 500                                                                                                                                                                                                                  |                                                          |                                                       |
| Modulation                | LoRa DTS                                                                                                                                                                                                             |                                                          |                                                       |
| Antenna Type              | Monopole Antenna                                                                                                                                                                                                     |                                                          |                                                       |
| Antenna Gain(dBi)         | -1.69                                                                                                                                                                                                                |                                                          |                                                       |
| Channel Separation (KHz)  | 800                                                                                                                                                                                                                  | 1600                                                     | 600                                                   |
| Channel Number            | 31                                                                                                                                                                                                                   | 8                                                        | 7                                                     |
| Channel (MHz)             | 902.5, 903.3, 904.1,<br>904.9, 905.7, 906.5,<br>907.3, 908.1, 908.9,<br>909.7, 910.5, 911.3,<br>912.1, 912.9, 913.7,<br>914.5, 915.3, 916.1,<br>916.9, 917.7, 918.5,<br>919.3, 920.1, 920.9,<br>921.7, 922.5, 923.3, | 903, 904.6, 906.2,<br>907.8, 909.4, 911,<br>912.6, 914.2 | 923.3, 923.9, 924.5,<br>925.1, 925.7, 926.3,<br>926.9 |

|  |                               |  |  |
|--|-------------------------------|--|--|
|  | 924.1, 924.9, 925.7,<br>926.5 |  |  |
|--|-------------------------------|--|--|

**Technical Specification of LoRa FHSS**

| Technical Specification   | LoRa 250KHz FHSS<br>902.3-926.7MHz | LoRa 125KHz FHSS<br>902.3-914.9MHz | LoRa 125KHz FHSS<br>902.2-927.8MHz |
|---------------------------|------------------------------------|------------------------------------|------------------------------------|
| Operating Frequency band  | 902 – 928 MHz                      |                                    |                                    |
| Extreme Temperature Range | -20°C ~ 40°C                       |                                    |                                    |
| Modulation                | LoRa FHSS                          |                                    |                                    |
| Antenna Type              | Monopole Antenna                   |                                    |                                    |
| Antenna Gain(dBi)         | -1.69                              |                                    |                                    |
| Channel Separation (KHz)  | 400                                | 200                                | 200                                |
| Channel Number            | 62                                 | 64                                 | 129                                |
| Bandwidth (KHz)           | 250                                | 125                                | 125                                |
| Hopping channel(MHz)      | 902.3~926.7                        | 902.3~914.9                        | 902.2-927.8                        |

**Technical Specification of FSK FHSS**

| Technical Specification   | FSK150Kbps<br>FHSS | FSK 50Kbps<br>FHSS | FSK 5Kbps<br>FHSS | FSK 250Kbps<br>FHSS |
|---------------------------|--------------------|--------------------|-------------------|---------------------|
| Operating Frequency band  | 902 – 928 MHz      |                    |                   |                     |
| Extreme Temperature Range | -20°C ~ 40°C       |                    |                   |                     |
| Modulation                | FSK FHSS           |                    |                   |                     |
| Antenna Type              | Monopole Antenna   |                    |                   |                     |
| Antenna Gain(dBi)         | -1.69              |                    |                   |                     |
| Channel Separation (KHz)  | 400                | 200                | 200               | 500                 |
| Channel Number            | 64                 | 129                | 129               | 51                  |
| Data Rate (Kbps)          | 150                | 50                 | 5                 | 250                 |
| Hopping Channel(MHz)      | 902.4~927.6        | 902.2~927.8        | 902.2~927.8       | 902.5~927.5         |

### **3.3 Independent Operation Modes**

The basic operation modes are:

- A. On, BLE transmitting mode
  - 1. Low channel
  - 2. Middle channel
  - 3. High channel
- B. Off

### **3.4 Noise Generating and Noise Suppressing Parts**

Refer to Circuit Diagram for further details.

### **3.5 Submitted Documents**

N/A

## 4 Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Emissions:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

According to the model differences description at section 3.1, all tests were performed on the model 5AT3S4.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013.

### 4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

| Description | Manufacturer | Model | S/N       | Rating |
|-------------|--------------|-------|-----------|--------|
| Laptop      | Lenovo       | T480  | PF-16A6N8 | N/A    |

### 4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

### 4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

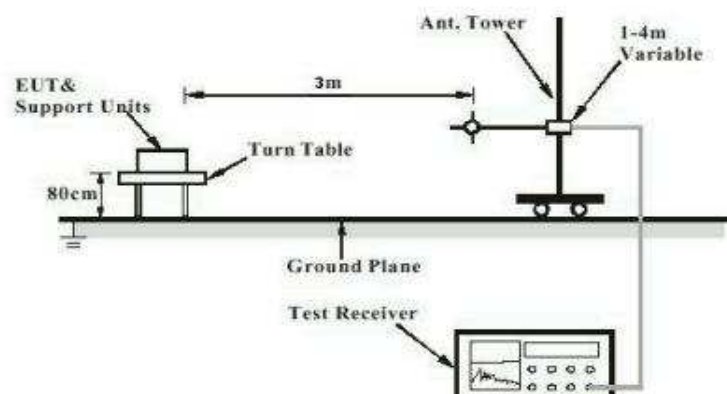
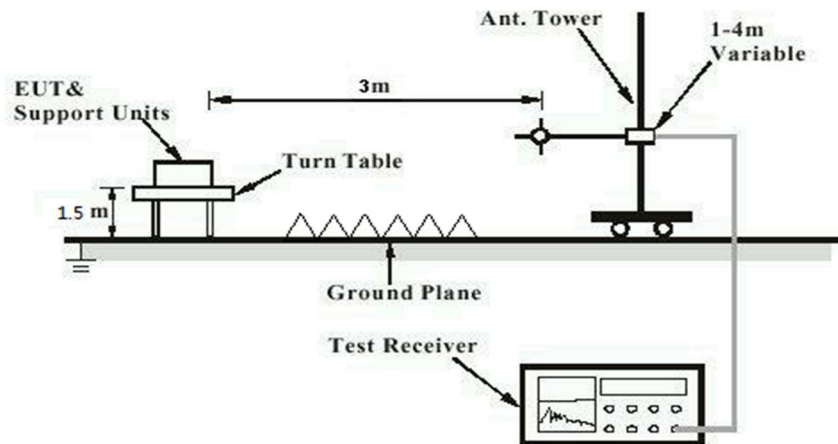


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



## 5 Test Results

### 5.1 Transmitter Requirement & Test Suites

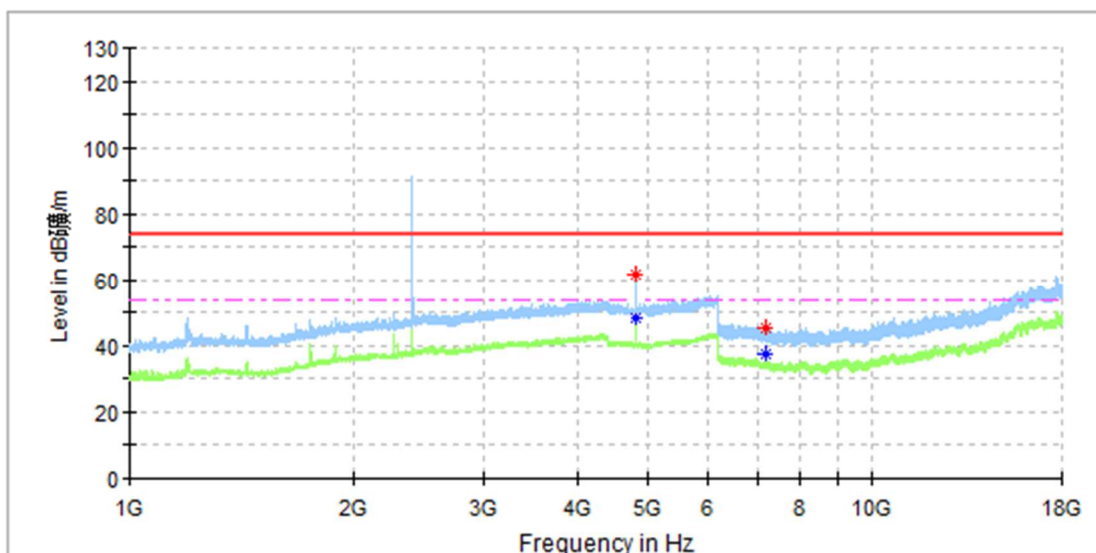
#### 5.1.1 Radiated Spurious Emissions

**RESULT:****Pass****Test Specification**

|                   |   |                                                                                  |
|-------------------|---|----------------------------------------------------------------------------------|
| Test standard     | : | FCC Part 15.247 (d) & FCC Part 15.205<br>RSS-GEN Clause 8.9 & RSS-247 Clause 3.3 |
| Basic standard    | : | ANSI C63.10: 2013                                                                |
| Limits            | : | Refer to 15.209(a) of FCC part 15.247(d)<br>RSS-Gen Table 5                      |
| Kind of test site | : | 3m Semi-anechoic Chamber                                                         |

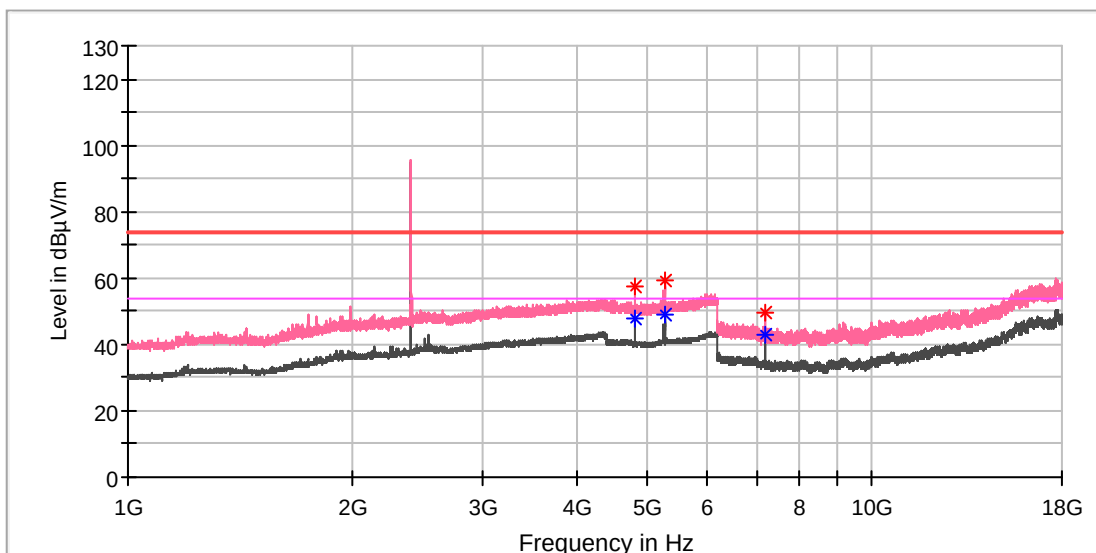
**Test Setup**

|                      |   |               |
|----------------------|---|---------------|
| Date of testing      | : | 04.12.2019    |
| Input voltage        | : | AC 120V/60Hz  |
| Operation mode       | : | A.1, A.2, A.3 |
| Earthing             | : | Not Connected |
| Ambient temperature  | : | 23 °C         |
| Relative humidity    | : | 47 %          |
| Atmospheric pressure | : | 101 kPa       |

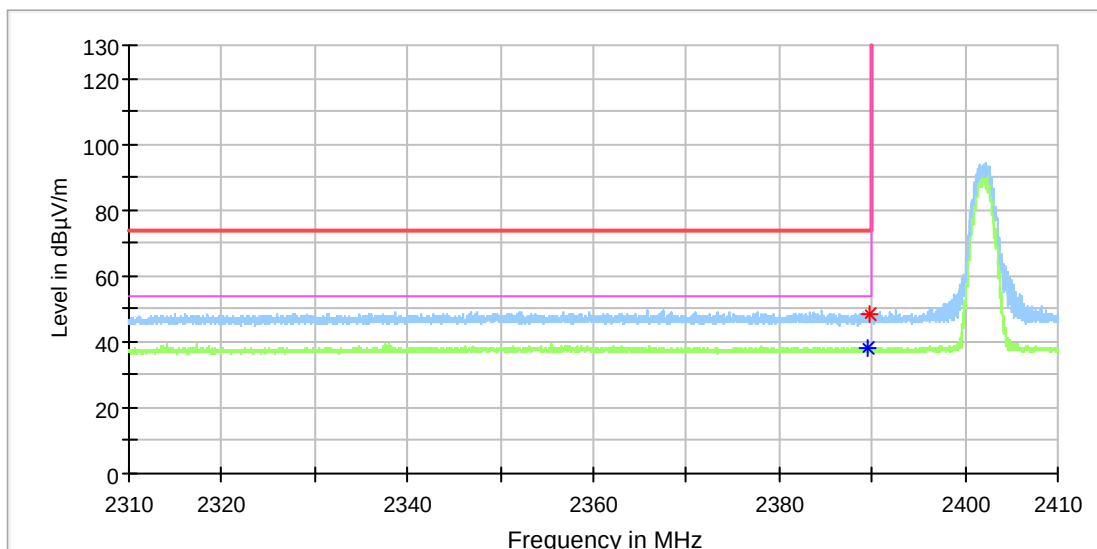
Mode A.1  
Horizontal


| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4804.000000     | ---              | 46.25            | 54.00          | 7.75        | 100.0       | H   | 134.0         | 13.6         |
| 4804.000000     | 61.41            | ---              | 74.00          | 12.59       | 100.0       | H   | 134.0         | 13.6         |
| 7205.458333     | ---              | 37.22            | 54.00          | 16.78       | 100.0       | H   | 106.0         | 8.8          |
| 7205.950000     | 45.44            | ---              | 74.00          | 28.56       | 100.0       | H   | 106.0         | 8.8          |

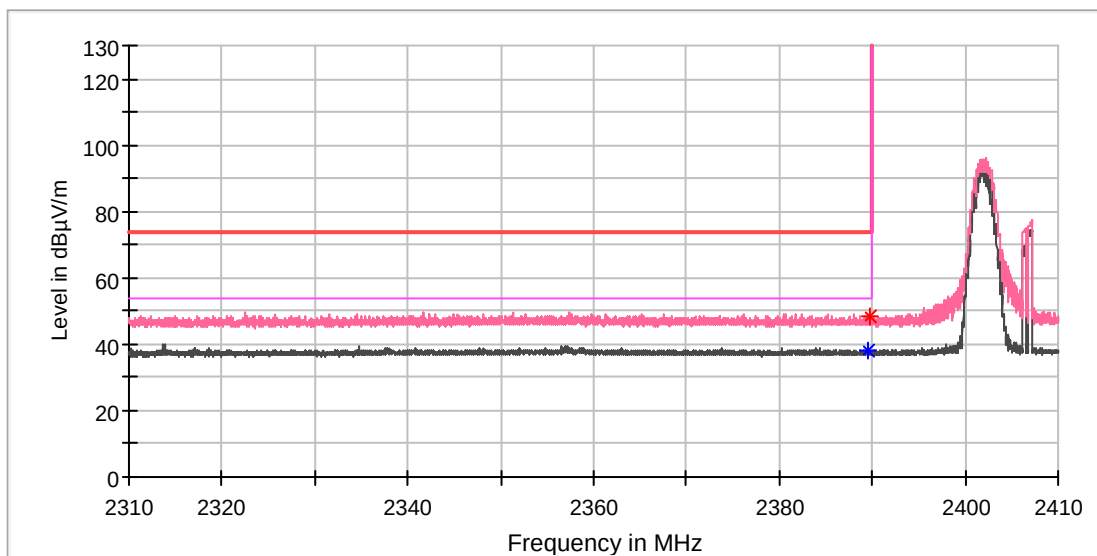
Vertical



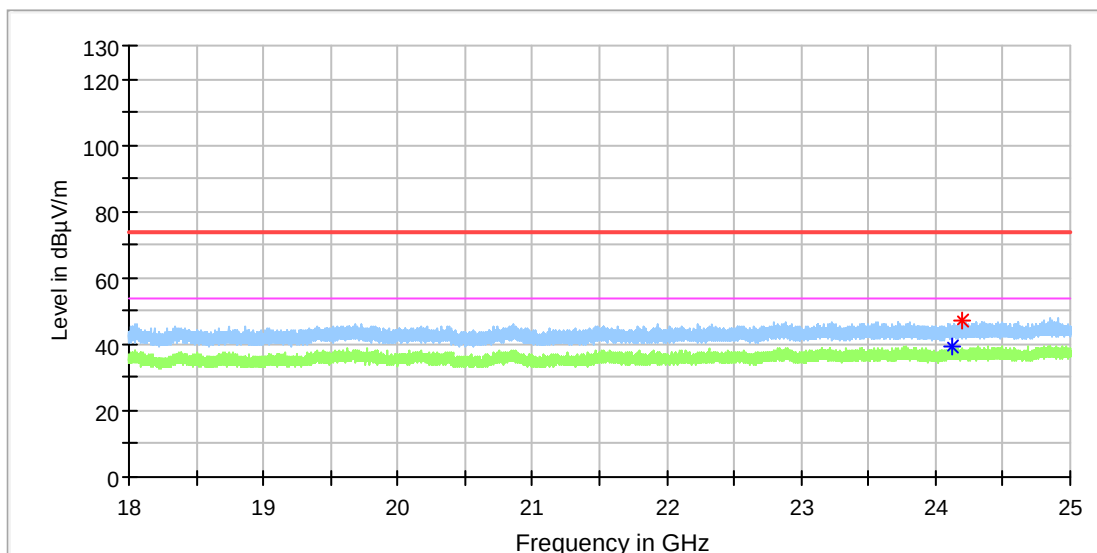
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4803.500000     | ---              | 47.87            | 54.00          | 6.13        | 100.0       | V   | 123.0         | 13.6         |
| 4804.000000     | 57.26            | ---              | 74.00          | 16.74       | 100.0       | V   | 123.0         | 13.6         |
| 5257.000000     | ---              | 49.27            | 54.00          | 4.73        | 100.0       | V   | 80.0          | 14.0         |
| 5259.500000     | 59.54            | ---              | 74.00          | 14.46       | 100.0       | V   | 43.0          | 14.0         |
| 7204.475000     | 49.41            | ---              | 74.00          | 24.59       | 100.0       | V   | 82.0          | 8.8          |
| 7205.950000     | ---              | 42.85            | 54.00          | 11.15       | 100.0       | V   | 0.0           | 8.8          |

**Horizontal**


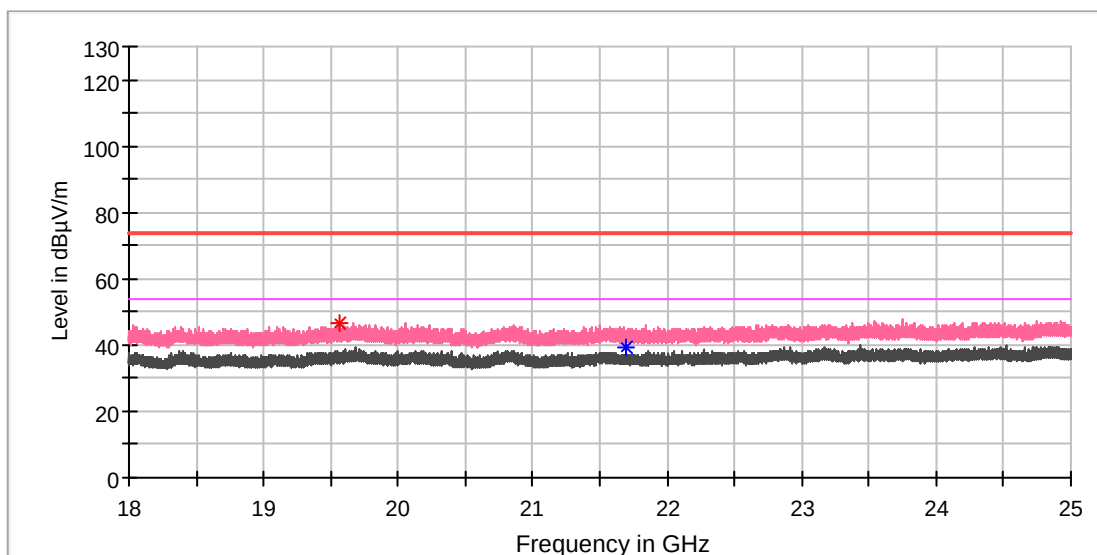
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2389.602941     | ---              | 37.94            | 54.00          | 16.06       | 100.0       | H   | 127.0         | 7.0          |
| 2389.750000     | 48.27            | ---              | 74.00          | 25.73       | 100.0       | H   | 287.0         | 7.0          |

**Vertical**


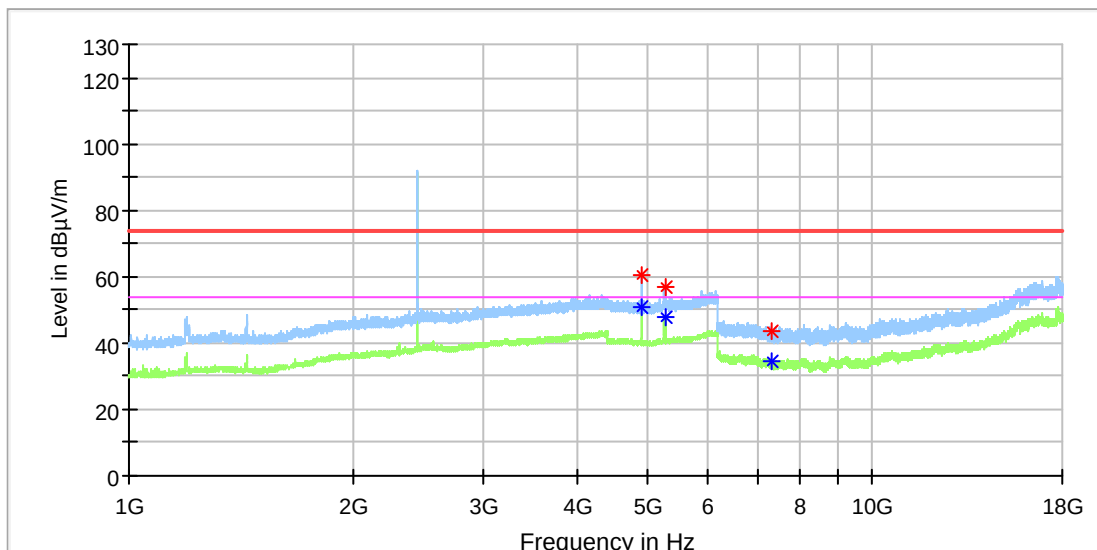
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2389.470588     | ---              | 37.88            | 54.00          | 16.12       | 100.0       | V   | 281.0         | 7.0          |
| 2389.691177     | 48.41            | ---              | 74.00          | 25.59       | 100.0       | V   | 267.0         | 7.0          |

**Horizontal**


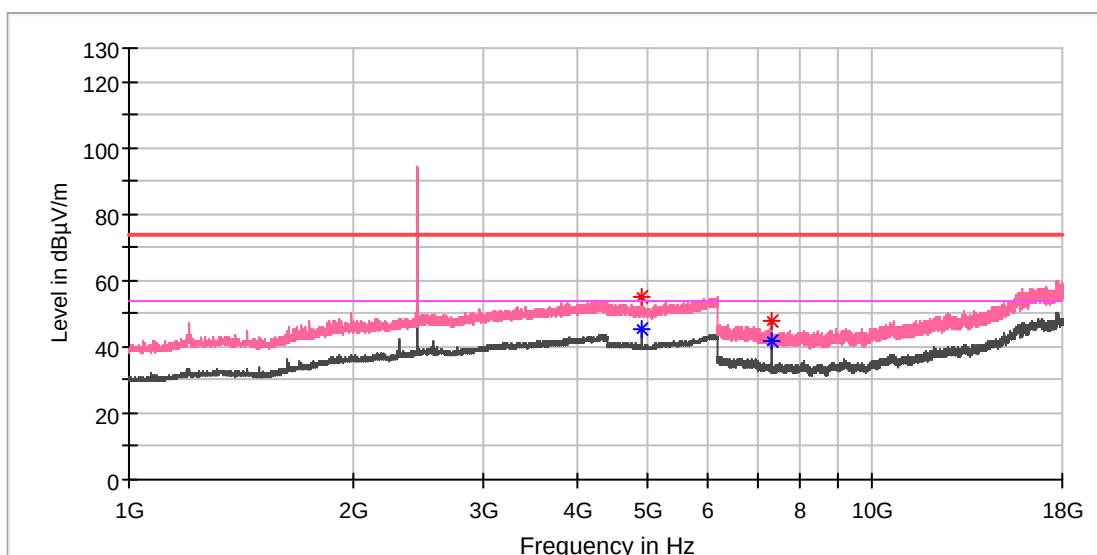
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 24114.937500    | ---              | 39.42            | 54.00          | 14.58       | 100.0       | H   | 130.0         | -10.1        |
| 24199.375000    | 47.33            | ---              | 74.00          | 26.67       | 100.0       | H   | 130.0         | -10.1        |

**Vertical**


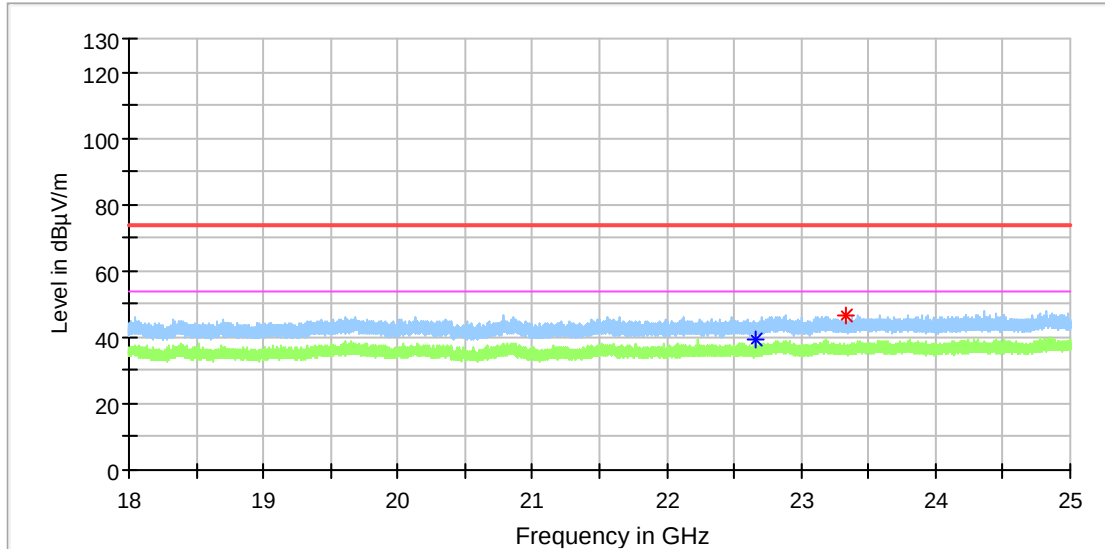
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 19560.125000    | 46.85            | ---              | 74.00          | 27.15       | 100.0       | V   | 303.0         | -13.1        |
| 21698.406250    | ---              | 39.15            | 54.00          | 14.85       | 100.0       | V   | 288.0         | -11.6        |

**Mode A.2**  
**Horizontal**


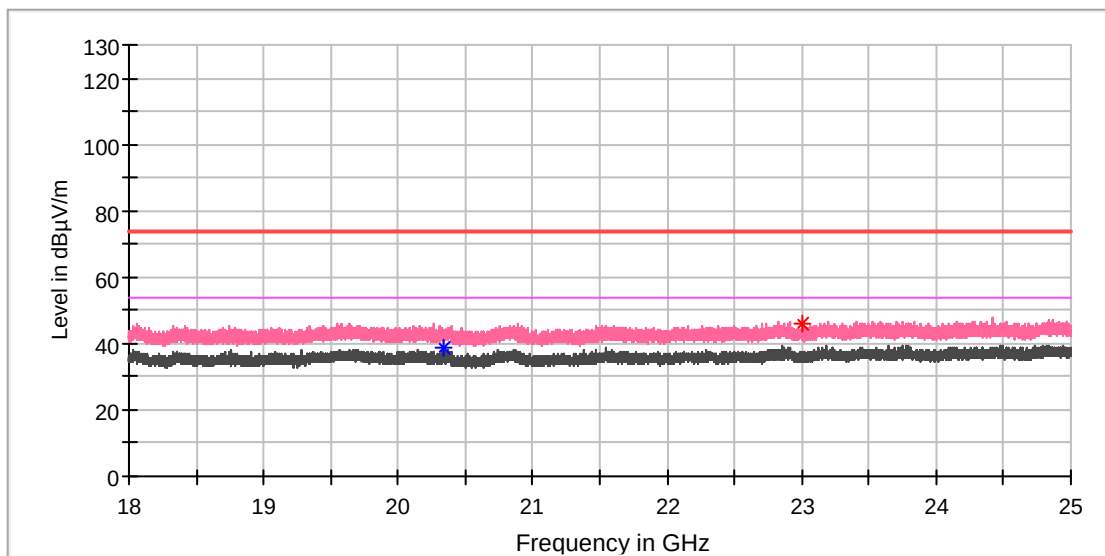
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4879.500000     | 60.29            | ---              | 74.00          | 13.71       | 100.0       | H   | 129.0         | 13.4         |
| 4880.000000     | ---              | 50.53            | 54.00          | 3.47        | 100.0       | H   | 129.0         | 13.4         |
| 5262.000000     | 56.77            | ---              | 74.00          | 17.23       | 100.0       | H   | 291.0         | 14.0         |
| 5264.000000     | ---              | 47.50            | 54.00          | 6.50        | 100.0       | H   | 291.0         | 14.0         |
| 7313.133333     | ---              | 34.48            | 54.00          | 19.52       | 100.0       | H   | 31.0          | 8.2          |
| 7321.491667     | 43.72            | ---              | 74.00          | 30.28       | 100.0       | H   | 108.0         | 8.2          |

**Vertical**


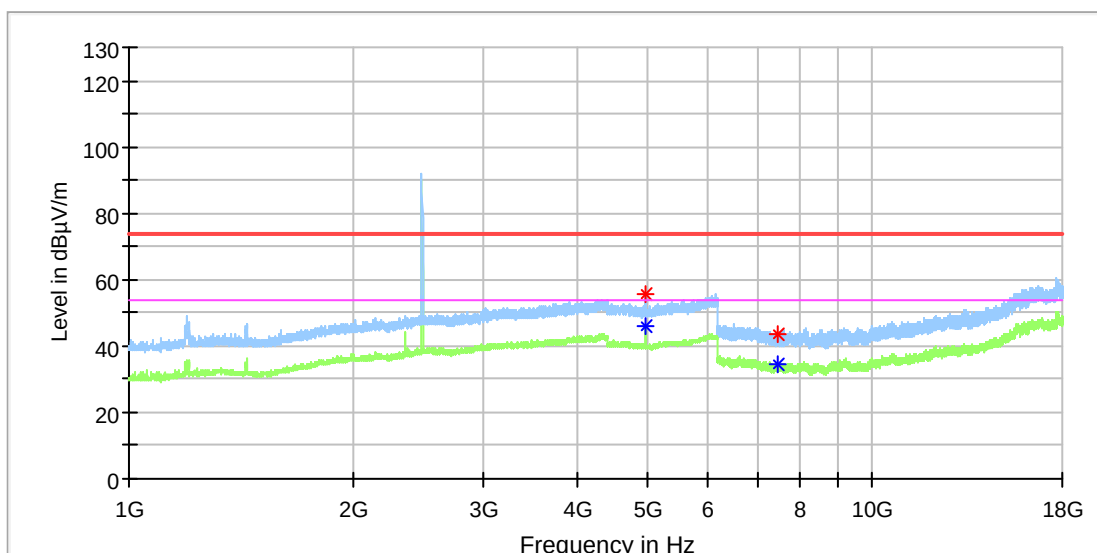
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4879.500000     | ---              | 45.46            | 54.00          | 8.54        | 100.0       | V   | 0.0           | 13.4         |
| 4880.000000     | 54.75            | ---              | 74.00          | 19.25       | 100.0       | V   | 0.0           | 13.4         |
| 7319.033333     | ---              | 41.81            | 54.00          | 12.19       | 100.0       | V   | 98.0          | 8.2          |
| 7319.033333     | 47.77            | ---              | 74.00          | 26.23       | 100.0       | V   | 98.0          | 8.2          |

**Horizontal**


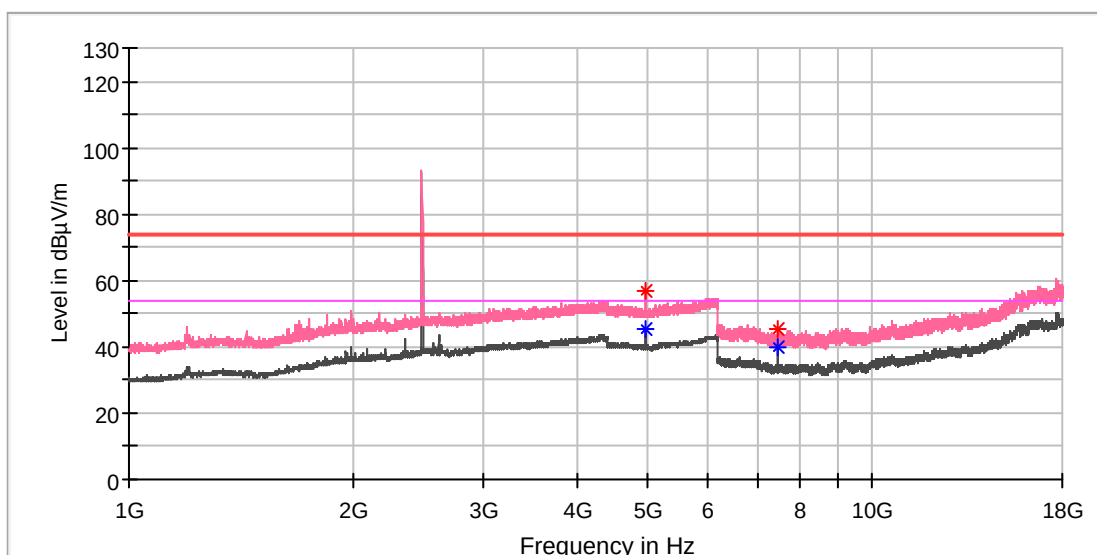
| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 22665.718750    | ---              | 39.11            | 54.00          | 14.89       | 100.0       | H   | 322.0         | -11.0        |
| 23327.875000    | 46.61            | ---              | 74.00          | 27.39       | 100.0       | H   | 64.0          | -10.4        |

**Vertical**


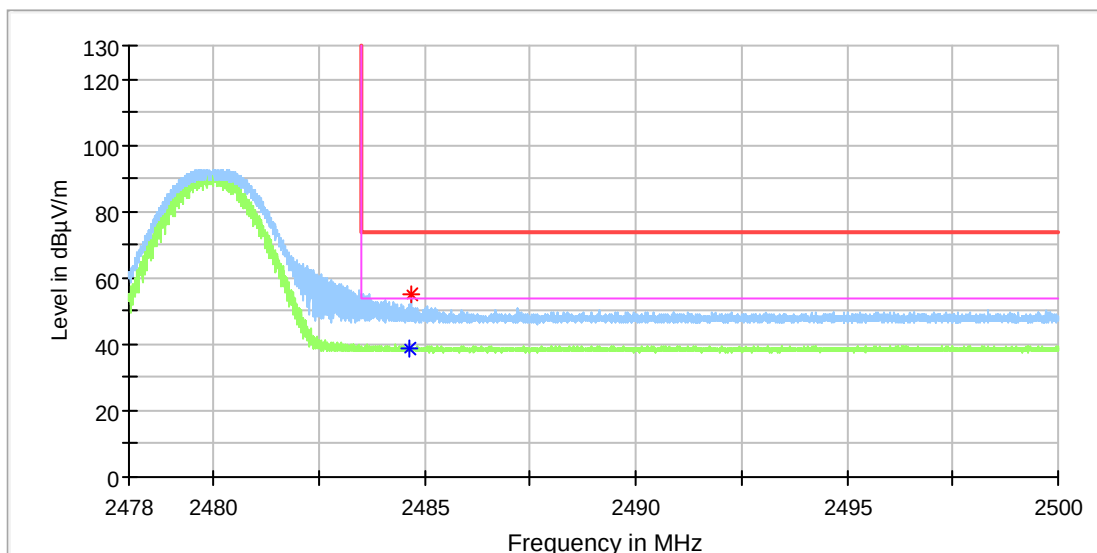
| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 20342.375000    | ---              | 38.97            | 54.00          | 15.03       | 100.0       | V   | 89.0          | -12.7        |
| 22998.656250    | 46.22            | ---              | 74.00          | 27.78       | 100.0       | V   | 203.0         | -10.8        |

**Mode A.3**  
**Horizontal**


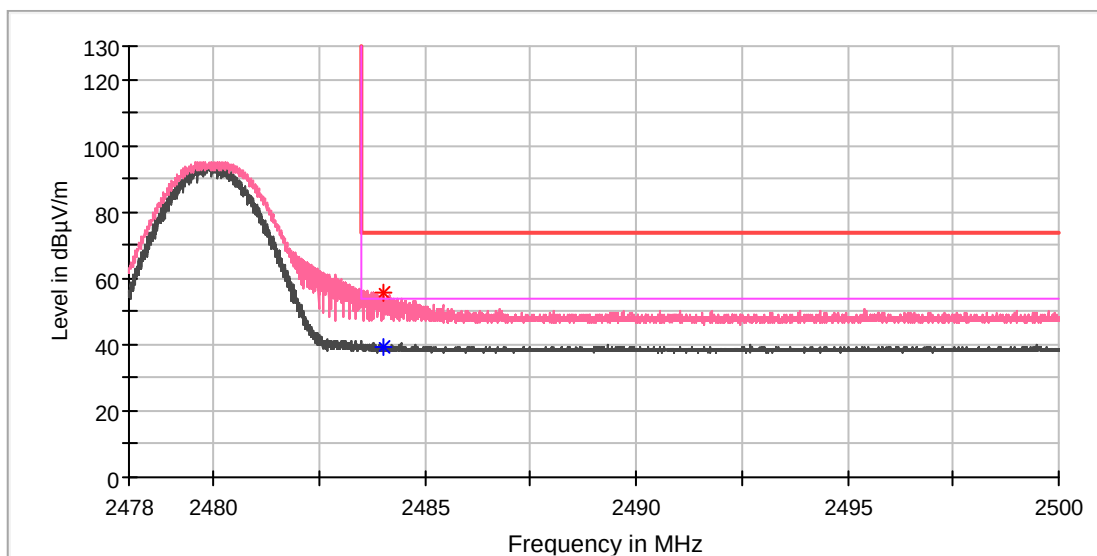
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4959.500000     | ---              | 45.91            | 54.00          | 8.09        | 100.0       | H   | 123.0         | 13.2         |
| 4960.000000     | 55.66            | ---              | 74.00          | 18.34       | 100.0       | H   | 80.0          | 13.2         |
| 7437.525000     | 43.45            | ---              | 74.00          | 30.55       | 100.0       | H   | 351.0         | 8.4          |
| 7439.983333     | ---              | 34.20            | 54.00          | 19.80       | 100.0       | H   | 165.0         | 8.4          |

**Vertical**


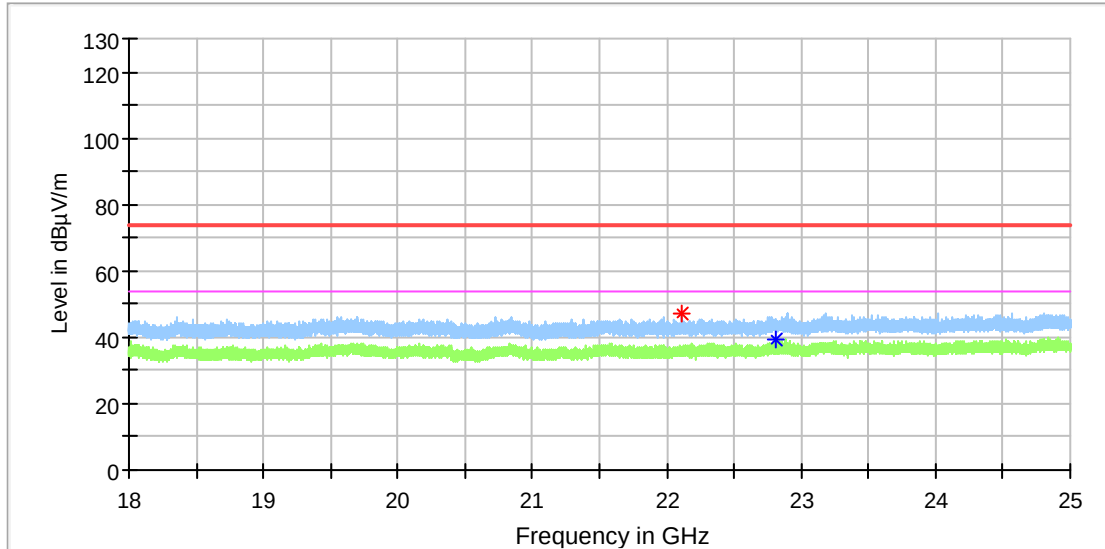
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4959.500000     | ---              | 45.49            | 54.00          | 8.51        | 100.0       | V   | 119.0         | 13.2         |
| 4960.000000     | 56.79            | ---              | 74.00          | 17.21       | 100.0       | V   | 129.0         | 13.2         |
| 7439.491667     | ---              | 39.97            | 54.00          | 14.03       | 100.0       | V   | 16.0          | 8.4          |
| 7439.491667     | 45.23            | ---              | 74.00          | 28.77       | 100.0       | V   | 16.0          | 8.4          |

**Horizontal**


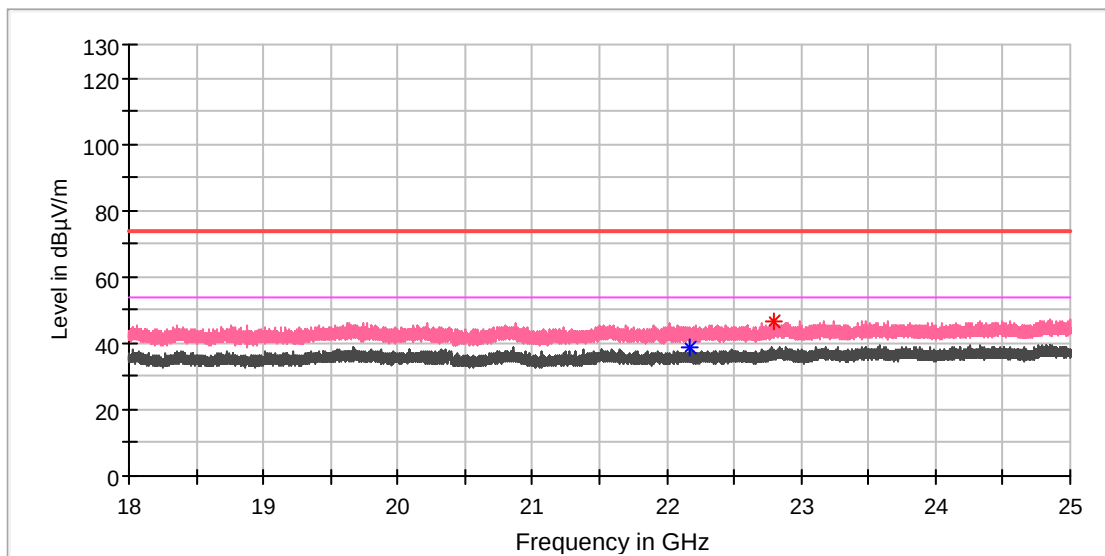
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2484.661471     | ---              | 38.59            | 54.00          | 15.41       | 100.0       | H   | 336.0         | 7.4          |
| 2484.703530     | 54.75            | ---              | 74.00          | 19.25       | 100.0       | H   | 315.0         | 7.4          |

**Vertical**


| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2483.998235     | 55.89            | ---              | 74.00          | 18.11       | 100.0       | V   | 169.0         | 7.4          |
| 2484.017647     | ---              | 39.22            | 54.00          | 14.78       | 100.0       | V   | 203.0         | 7.4          |

**Horizontal**


| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 22105.062500    | 46.95            | ---              | 74.00          | 27.05       | 100.0       | H   | 301.0         | -11.3        |
| 22806.593750    | ---              | 39.14            | 54.00          | 14.86       | 100.0       | H   | 194.0         | -10.9        |

**Vertical**


| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 22163.687500    | ---              | 38.66            | 54.00          | 15.34       | 100.0       | V   | 356.0         | -11.3        |
| 22794.781250    | 46.76            | ---              | 74.00          | 27.24       | 100.0       | V   | 38.0          | -10.9        |