

# RF TEST REPORT

**Applicant**      Freemode Go LLC dba CRKD

**FCC ID**          2BAXLCK25GX

**Product**        Guitar Controller

**Model**           CK25GX

**Report No.**     EFTA25080202-IE-05-R4

**Issue Date**     September 16, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C (2024)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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## Summary of Measurement Results

| Number                                                                                                                                                                                                                                                                                            | Test Case                         | Clause in FCC rules | Verdict |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------|---------|
| 1                                                                                                                                                                                                                                                                                                 | 20 dB bandwidth                   | 15.215(c)           | PASS    |
| 2                                                                                                                                                                                                                                                                                                 | Radiated Emissions                | 15.249, 15.209      | PASS    |
| 3                                                                                                                                                                                                                                                                                                 | AC Power Line Conducted Emissions | 15.207              | PASS    |
| Date of Testing: August 15, 2025 ~ September 13, 2025                                                                                                                                                                                                                                             |                                   |                     |         |
| Date of Sample Received: August 15, 2025                                                                                                                                                                                                                                                          |                                   |                     |         |
| Note:<br>All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. |                                   |                     |         |

# 1 Test Laboratory

## 1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

## 1.2 Test facility

### **FCC (Designation number: CN1179, Test Firm Registration Number: 446626)**

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

### **A2LA (Certificate Number: 3857.01)**

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

## 1.3 Testing Location

|            |                                                                                                                       |
|------------|-----------------------------------------------------------------------------------------------------------------------|
| Company:   | Eurofins TA Technology (Shanghai) Co., Ltd.                                                                           |
| Address:   | Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China                                                            |
| City:      | Shanghai                                                                                                              |
| Post code: | 201201                                                                                                                |
| Country:   | P. R. China                                                                                                           |
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| Fax:       | +86-021-50791141/2/3-8000                                                                                             |
| Website:   | <a href="https://www.eurofins.com/electrical-and-electronics">https://www.eurofins.com/electrical-and-electronics</a> |
| E-mail:    | Kain.Xu@cpt.eurofinscn.com                                                                                            |

## 2 General Description of Equipment under Test

### 2.1 Applicant and Manufacturer Information

|                             |                                                                    |
|-----------------------------|--------------------------------------------------------------------|
| <b>Applicant</b>            | Freemode Go LLC dba CRKD                                           |
| <b>Applicant address</b>    | 3142 Constitution drive, Livermore, California 94551,United States |
| <b>Manufacturer</b>         | Freemode Go LLC dba CRKD                                           |
| <b>Manufacturer address</b> | 3142 Constitution drive, Livermore, California 94551,United States |

### 2.2 General information

| EUT Description                                                                                                         |                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Model                                                                                                                   | CK25GX                                                                              |
| Lab Internal SN                                                                                                         | 1#: EFTA25080202-IE-05/S01<br>2#: EFTA25080202-IE-05/S02                            |
| HW Version                                                                                                              | V1.3                                                                                |
| SW Version                                                                                                              | V2.34                                                                               |
| Power Supply                                                                                                            | DC 3V from battery (2*AA Battery, 1.5V) or DC 5V from Adapter.                      |
| Antenna Type                                                                                                            | Internal Antenna                                                                    |
| Maximum antenna gain                                                                                                    | Ant 1: 2.64 dBi<br>Ant 2: 2.63 dBi                                                  |
| Antenna Connector                                                                                                       | A permanently attached antenna (meet with the standard FCC Part 15.203 requirement) |
| Frequency                                                                                                               | 2.4 GHz                                                                             |
| Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant. |                                                                                     |

### 3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**Test standards:**

**FCC CFR47 Part 15C (2024) Radio Frequency Devices**  
**ANSI C63.10-2020**

## 4 Test Configuration

### Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (Y axis) and the worst case was recorded.

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|
| 0       | 2402            | 14      | 2430            | 28      | 2458            |
| 1       | 2404            | 15      | 2432            | 29      | 2460            |
| 2       | 2406            | 16      | 2434            | 30      | 2462            |
| 3       | 2408            | 17      | 2436            | 31      | 2464            |
| 4       | 2410            | 18      | 2438            | 32      | 2466            |
| 5       | 2412            | 19      | 2440            | 33      | 2468            |
| 6       | 2414            | 20      | 2442            | 34      | 2470            |
| 7       | 2416            | 21      | 2444            | 35      | 2472            |
| 8       | 2418            | 22      | 2446            | 36      | 2474            |
| 9       | 2420            | 23      | 2448            | 37      | 2476            |
| 10      | 2422            | 24      | 2450            | 38      | 2478            |
| 11      | 2424            | 25      | 2452            | 39      | 2480            |
| 12      | 2426            | 26      | 2454            | /       | /               |
| 13      | 2428            | 27      | 2456            | /       | /               |

## 5 Test Case Results

### 5.1 20 dB Bandwidth

#### Ambient condition

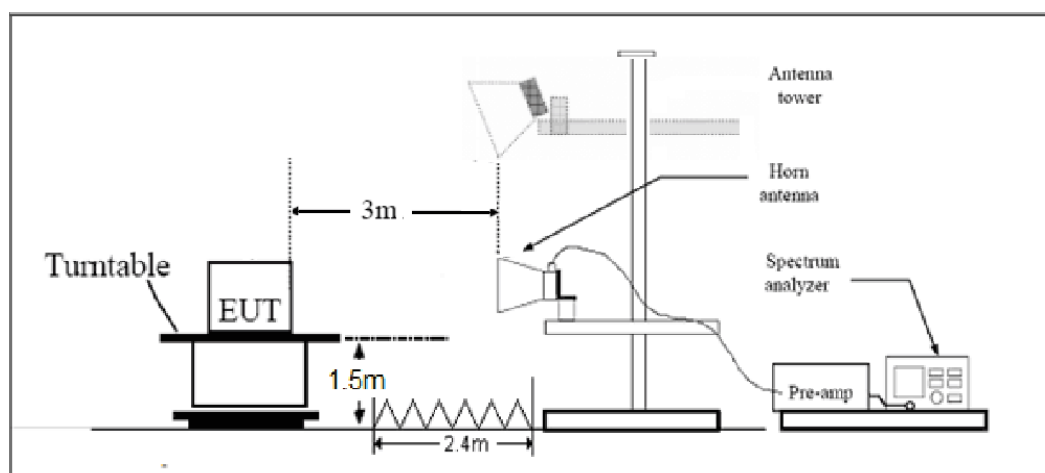
| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

#### Method of Measurement

Tests are performed in accordance with ANSI C63.10-2013.

The 20 dB and 99% bandwidth of the fundamental frequency remain inside the band of operation of 10.597 MHz. The EUT was placed on a turn table which is 0.8m above ground plane. the EUT's 20dB Bandwidth power was received by the test antenna which was connected to the spectrum analyzer. The occupied bandwidth is measured using spectrum analyzer. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value.

#### Test Setup



#### Limits

No specific occupied bandwidth requirements in part 15.215(c).

#### Measurement Uncertainty

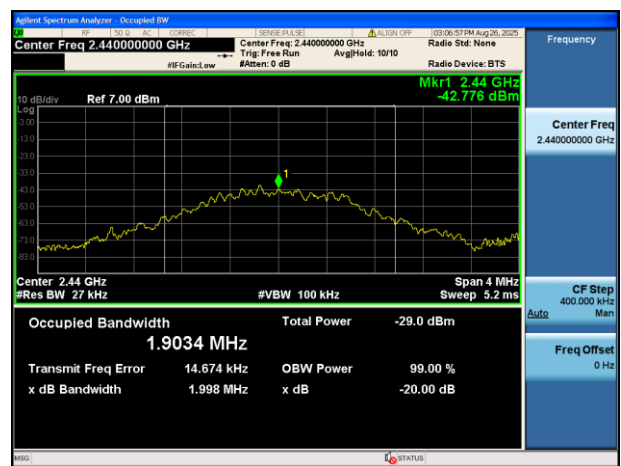
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .  $U = 1.19$  dB

## Test Results

| Carrier frequency (MHz) | 99% bandwidth (MHz) | 20 dB bandwidth (MHz) | Conclusion |
|-------------------------|---------------------|-----------------------|------------|
| 2402                    | 1.7871              | 1.857                 | PASS       |
| 2440                    | 1.9034              | 1.998                 | PASS       |
| 2480                    | 1.9848              | 2.245                 | PASS       |



Carrier frequency (MHz): 2402



Carrier frequency (MHz): 2440



Carrier frequency (MHz): 2480

## 5.2 Radiated Emissions

### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

The test set-up was made in accordance to the general provisions of ANSI C63.10-2013. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.

Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

Below 1GHz (detector: Peak and Quasi-Peak)

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz(detector: Peak):

(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

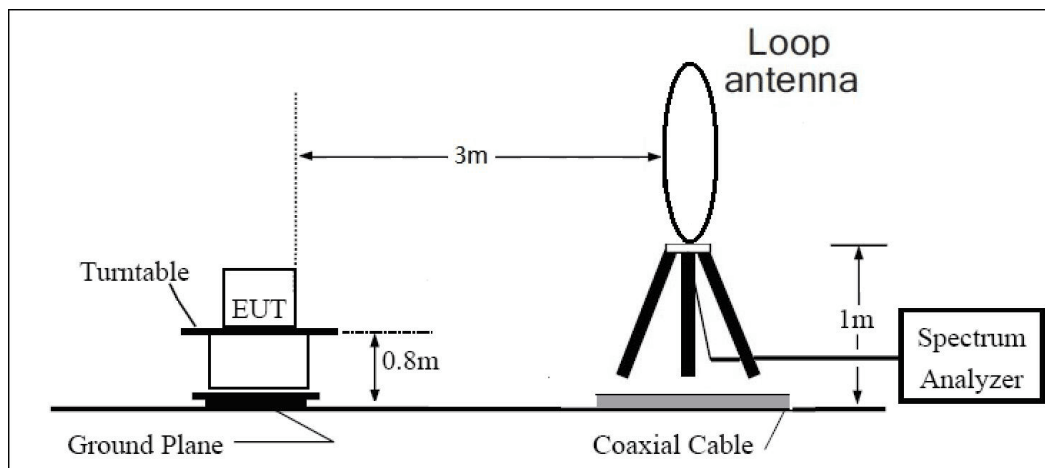
(b) AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

The radiated emission was measured in the following position: EUT lie-down position (X axis). The emission was recorded. Then this mode was measured in the following mode: EUT with cradle and EUT without cradle. The worst emission was found in EUT with cradle mode and the worst case was recorded.

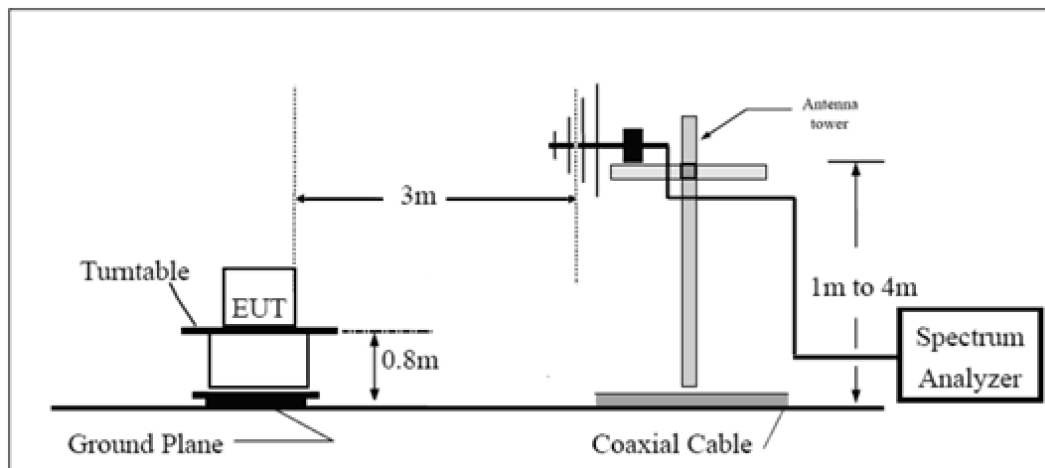
The test is in transmitting mode.

## Test setup

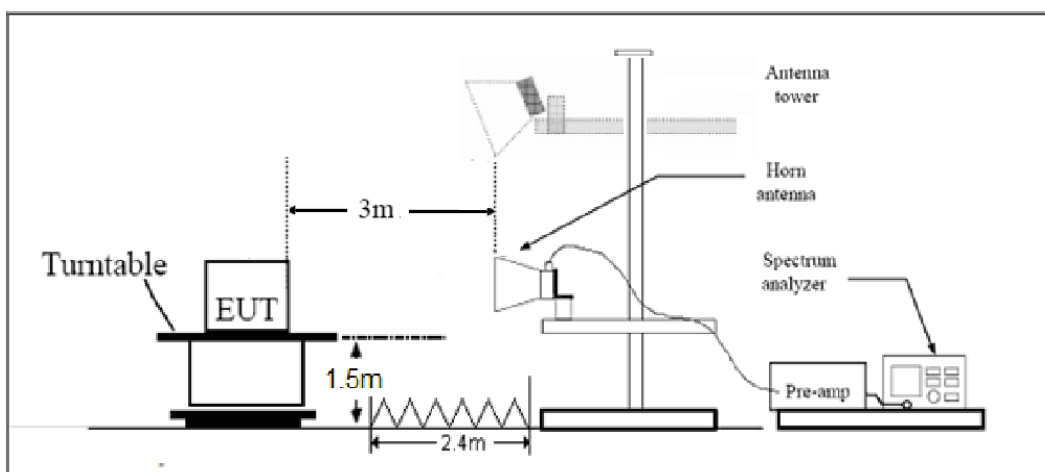
9kHz~~~ 30MHz



30MHz~~~ 1GHz



Above 1GHz



## Limits

The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.001\%$ .

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

Limit in radiated emission measurement (Part 15.249)

| Frequency of emission (MHz) | Field strength of fundamental @3m |            |
|-----------------------------|-----------------------------------|------------|
| 2400-2483.5 MHz fundamental | 50(millivolts/meter)              | 94(dBμV/m) |
| 2400-2483.5 MHz harmonics   | 500(microvolts/meter)             | 54(dBμV/m) |

Limit in radiated emission measurement (Part 15.209)

| Frequency of emission (MHz) | Field strength(μV/m) | Field strength(dBμV/m) |
|-----------------------------|----------------------|------------------------|
| 0.009–0.490                 | 2400/F(kHz)          | /                      |
| 0.490–1.705                 | 24000/F(kHz)         | /                      |
| 1.705–30.0                  | 30                   | /                      |
| 30-88                       | 100                  | 40                     |
| 88-216                      | 150                  | 43.5                   |
| 216-960                     | 200                  | 46                     |
| Above 960-1000              | 500                  | 54                     |

### §15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Peak Limit=74 dBμV/m

Average Limit=54 dBμV/m

Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

| MHz                      | MHz                 | MHz           | GHz              |
|--------------------------|---------------------|---------------|------------------|
| 0.090-0.110              | 16.42-16.423        | 399.9-410     | 4.5-5.15         |
| <sup>1</sup> 0.495-0.505 | 16.69475-16.69525   | 608-614       | 5.35-5.46        |
| 2.1735-2.1905            | 16.80425-16.80475   | 960-1240      | 7.25-7.75        |
| 4.125-4.128              | 25.5-25.67          | 1300-1427     | 8.025-8.5        |
| 4.17725-4.17775          | 37.5-38.25          | 1435-1626.5   | 9.0-9.2          |
| 4.20725-4.20775          | 73-74.6             | 1645.5-1646.5 | 9.3-9.5          |
| 6.215-6.218              | 74.8-75.2           | 1660-1710     | 10.6-12.7        |
| 6.26775-6.26825          | 108-121.94          | 1718.8-1722.2 | 13.25-13.4       |
| 6.31175-6.31225          | 123-138             | 2200-2300     | 14.47-14.5       |
| 8.291-8.294              | 149.9-150.05        | 2310-2390     | 15.35-16.2       |
| 8.362-8.366              | 156.52475-156.52525 | 2483.5-2500   | 17.7-21.4        |
| 8.37625-8.38675          | 156.7-156.9         | 2690-2900     | 22.01-23.12      |
| 8.41425-8.41475          | 162.0125-167.17     | 3260-3267     | 23.6-24.0        |
| 12.29-12.293             | 167.72-173.2        | 3332-3339     | 31.2-31.8        |
| 12.51975-12.52025        | 240-285             | 3345.8-3358   | 36.43-36.5       |
| 12.57675-12.57725        | 322-335.4           | 3600-4400     | ( <sup>2</sup> ) |
| 13.36-13.41              |                     |               |                  |

## Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

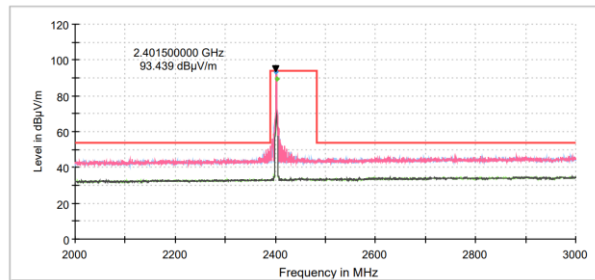
| Frequency    | Uncertainty |
|--------------|-------------|
| 9KHz-30MHz   | 3.55 dB     |
| 30MHz-200MHz | 4.02 dB     |
| 200MHz-1GHz  | 3.28 dB     |
| Above 1GHz   | 3.70 dB     |

## Test Results:

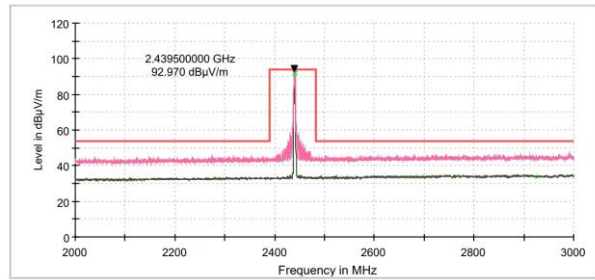
### Fundamental Field Strength

After the pretest, Antenna 2 was selected as the worst antenna and recorded in the report.

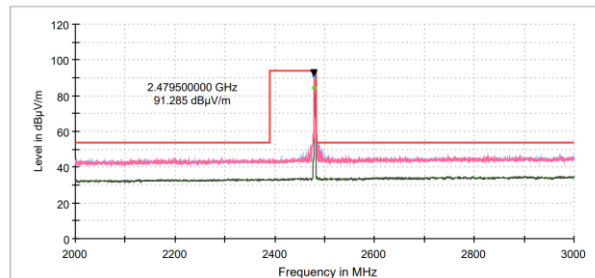
Receiver antenna polarization (Horizontal and Vertical), the worst emission was found in position and the worst case and worst Antenna was recorded.



2402 MHz



2440 MHz



2480 MHz

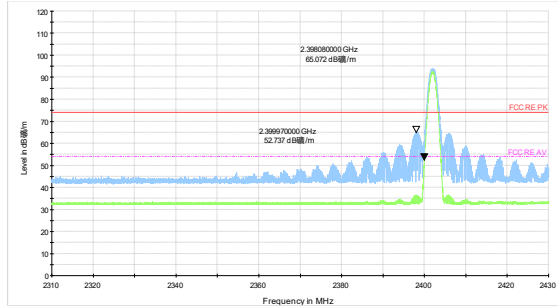
| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-------------|-----|---------------|--------------|
| 2401.50         | 93.44            | ---              | 94.00          | 0.56        | 500.00          | 100.0       | H   | 335.00        | -1           |
| 2402.00         | ---              | 89.58            | 94.00          | 4.42        | 500.00          | 100.0       | V   | 5.00          | -1           |
| 2439.50         | 92.97            | ---              | 94.00          | 1.03        | 500.00          | 100.0       | V   | 11.00         | 0            |
| 2439.75         | ---              | 91.07            | 94.00          | 2.93        | 500.00          | 100.0       | V   | 26.00         | 0            |
| 2479.50         | 91.28            | ---              | 94.00          | 2.72        | 500.00          | 100.0       | V   | 19.00         | 0            |
| 2479.50         | ---              | 84.08            | 94.00          | 9.92        | 500.00          | 100.0       | H   | 206.00        | 0            |

## Band Edge Emission

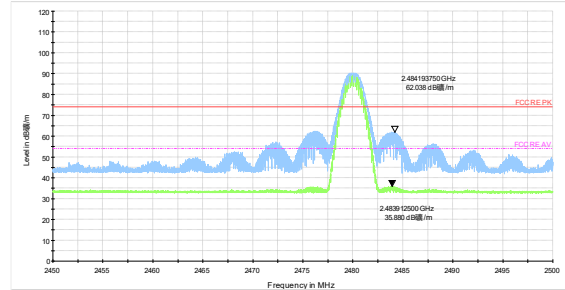
After the pretest, Antenna 2 was selected as the worst antenna and recorded in the report.  
The following graphs display the maximum values of horizontal and vertical by software.

A symbol (  $\text{dB}\mu\text{V/m}$  ) in the test plot below means (dB $\mu\text{V/m}$ )

2402 MHz Peak+ Average



2480 MHz Peak+ Average

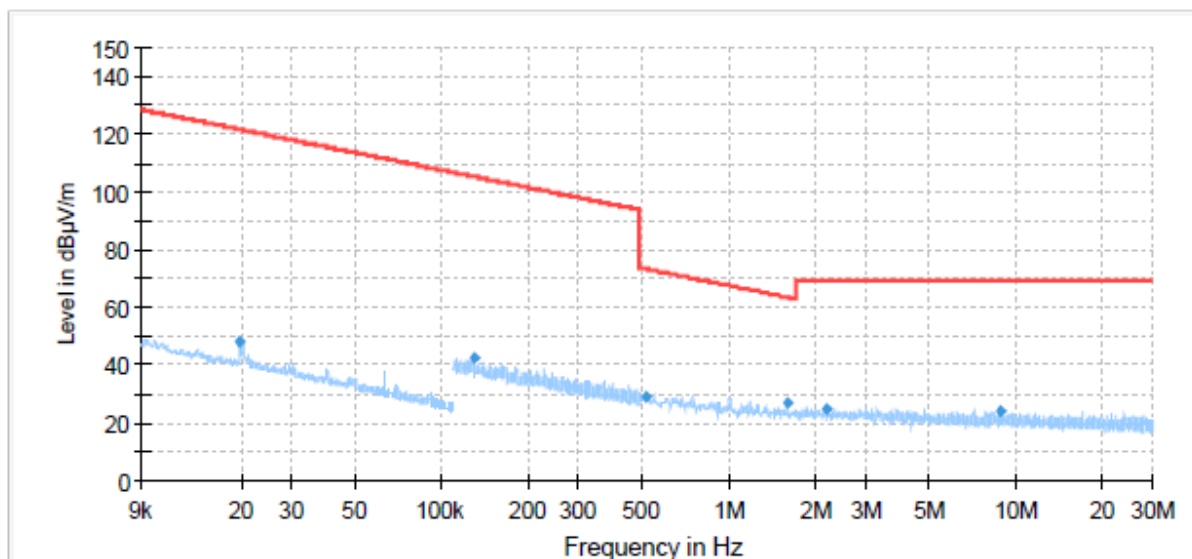


## Radiated Emission

After the pretest, Antenna 2 was selected as the worst antenna and recorded in the report.

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the Emissions in the frequency band 18GHz-26.5GHz are more than 20dB below the limit are not reported.

During the test, the Radiates Emission from 9kHz to 1GHz was performed in all modes with all channels, the test data of the worst-case condition was recorded in this report.



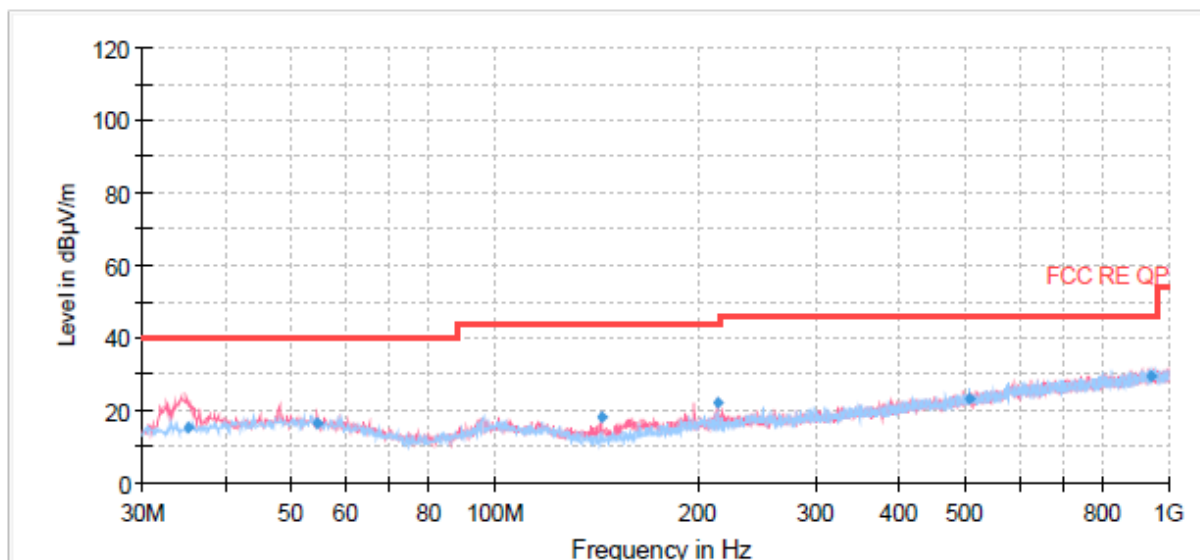
Radiated Emission from 9kHz to 30MHz

| Frequency (MHz) | Quasi-Peak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Azimuth (deg) | Corr. (dB/m) |
|-----------------|---------------------|----------------|-------------|-----------------|---------------|--------------|
| 0.02            | 48.18               | 121.69         | 73.51       | 500.00          | 153.00        | 17           |
| 0.13            | 42.36               | 105.38         | 63.02       | 150.00          | 86.00         | 17           |
| 0.52            | 28.92               | 73.35          | 44.43       | 150.00          | 1.00          | 17           |
| 1.60            | 26.69               | 63.51          | 36.82       | 150.00          | 166.00        | 17           |
| 2.18            | 24.92               | 69.50          | 44.58       | 150.00          | 63.00         | 17           |
| 8.82            | 24.27               | 69.50          | 45.23       | 150.00          | 325.00        | 17           |

Remark: 1. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

2. Margin = Limit – Quasi-Peak

1#



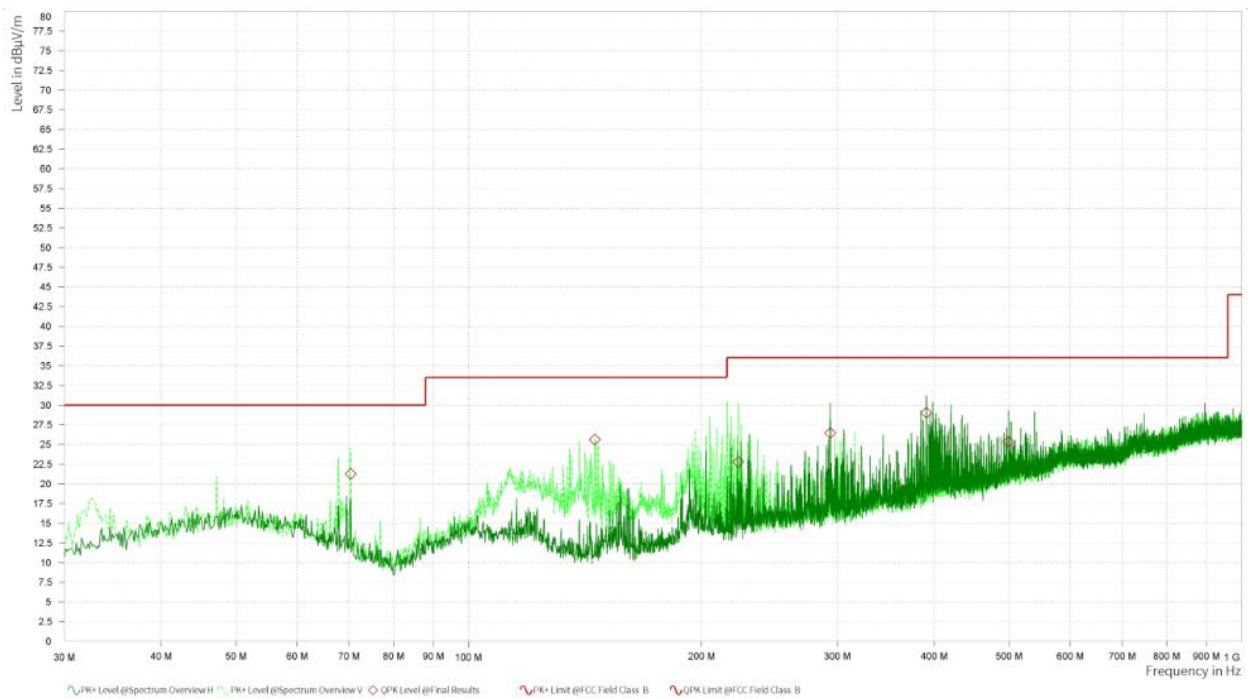
Radiated Emission from 30MHz to 1GHz

| Frequency (MHz) | Quasi-Peak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Polarization | Azimuth (deg) | Correct Factor (dB) |
|-----------------|---------------------|----------------|-------------|-------------|--------------|---------------|---------------------|
| 35.09           | 15.07               | 40.00          | 24.93       | 101.0       | V            | 263.00        | 18                  |
| 54.42           | 16.50               | 40.00          | 23.50       | 100.0       | V            | 26.00         | 20                  |
| 144.02          | 17.89               | 43.50          | 25.61       | 101.0       | V            | 280.00        | 15                  |
| 214.50          | 22.19               | 43.50          | 21.31       | 197.0       | V            | 192.00        | 18                  |
| 505.86          | 23.20               | 46.00          | 22.80       | 225.0       | H            | 163.00        | 26                  |
| 939.78          | 29.33               | 46.00          | 16.67       | 176.0       | H            | 0.00          | 32                  |

Remark: 1. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

2. Margin = Limit – Quasi-Peak

2#



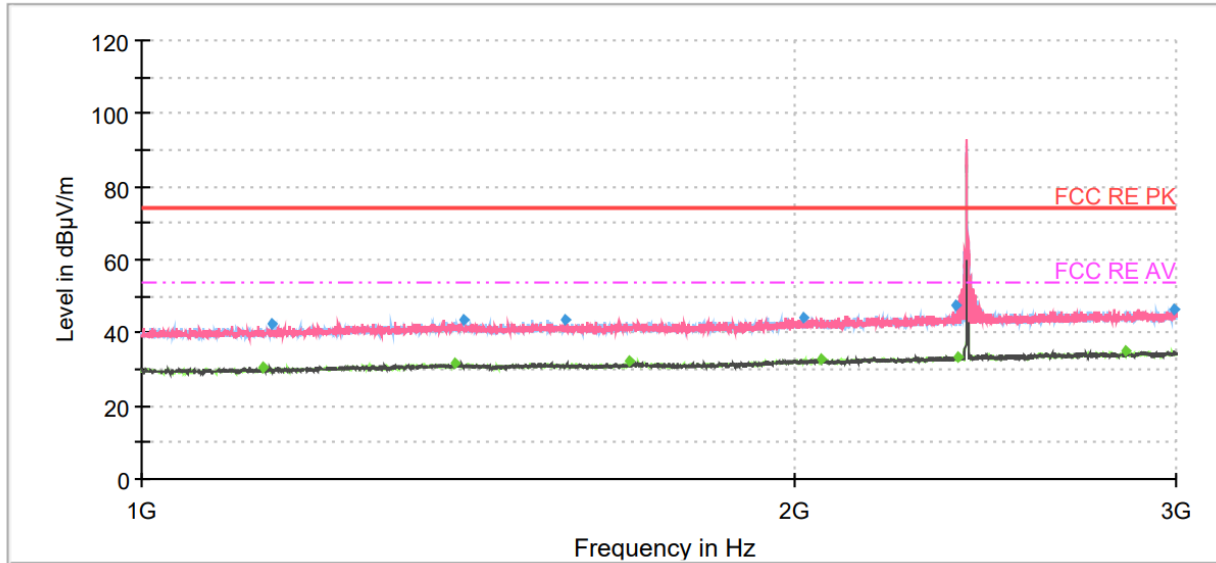
Radiated Emission from 30MHz to 1GHz

| Frequency (MHz) | Quasi-Peak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (m) | Polarization | Azimuth (deg) | Correct Factor (dB) |
|-----------------|---------------------|----------------|-------------|------------|--------------|---------------|---------------------|
| 70.368          | 21.26               | 30.00          | 8.74        | 2.17       | V            | 310.8         | -12.41              |
| 145.644         | 25.60               | 33.50          | 7.90        | 1.25       | V            | 294           | -13.19              |
| 223.336         | 22.79               | 36.00          | 13.21       | 1.77       | V            | 299.2         | -9.43               |
| 293.714         | 26.44               | 36.00          | 9.56        | 1.92       | H            | 112           | -7.50               |
| 391.094         | 29.01               | 36.00          | 6.99        | 2.01       | H            | 174.4         | -5.08               |
| 499.104         | 25.31               | 36.00          | 10.69       | 1.85       | H            | 78.6          | -3.15               |

Remark: 1. Correction Factor = Antenna factor + Insertion loss(cable loss+amplifier gain)

2. Margin = Limit – Quasi-Peak

## 2402 MHz

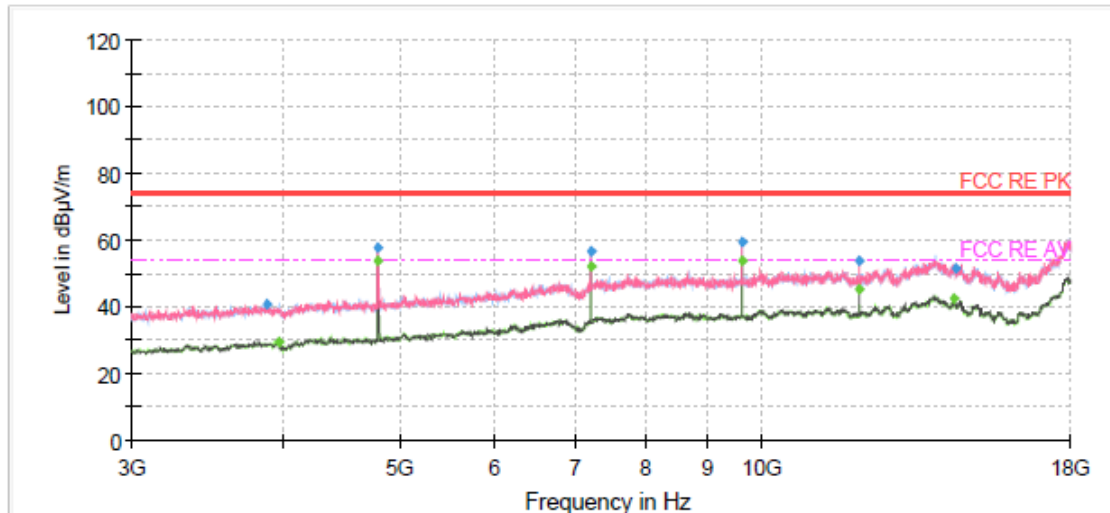


## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-------------|-----|---------------|--------------|
| 1138.75         | ---              | 30.36            | 54.00          | 23.64       | 500.00          | 100.0       | V   | 2.00          | -6           |
| 1148.75         | 42.29            | ---              | 74.00          | 31.71       | 500.00          | 200.0       | V   | 172.00        | -6           |
| 1393.00         | ---              | 31.74            | 54.00          | 22.26       | 500.00          | 100.0       | H   | 112.00        | -4           |
| 1408.75         | 43.36            | ---              | 74.00          | 30.64       | 500.00          | 100.0       | H   | 355.00        | -4           |
| 1569.25         | 43.39            | ---              | 74.00          | 30.61       | 500.00          | 100.0       | H   | 353.00        | -4           |
| 1679.25         | ---              | 32.10            | 54.00          | 21.90       | 500.00          | 200.0       | V   | 199.00        | -4           |
| 2019.50         | 44.25            | ---              | 74.00          | 29.75       | 500.00          | 100.0       | H   | 195.00        | -2           |
| 2056.00         | ---              | 33.04            | 54.00          | 20.96       | 500.00          | 200.0       | V   | 347.00        | -2           |
| 2374.00         | 47.57            | ---              | 74.00          | 26.43       | 500.00          | 100.0       | H   | 335.00        | -1           |
| 2379.00         | ---              | 33.23            | 54.00          | 20.77       | 500.00          | 100.0       | V   | 5.00          | -1           |
| 2844.50         | ---              | 34.96            | 54.00          | 19.04       | 500.00          | 200.0       | H   | 162.00        | 0            |
| 2992.50         | 46.61            | ---              | 74.00          | 27.39       | 500.00          | 100.0       | V   | 0.00          | 1            |

Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

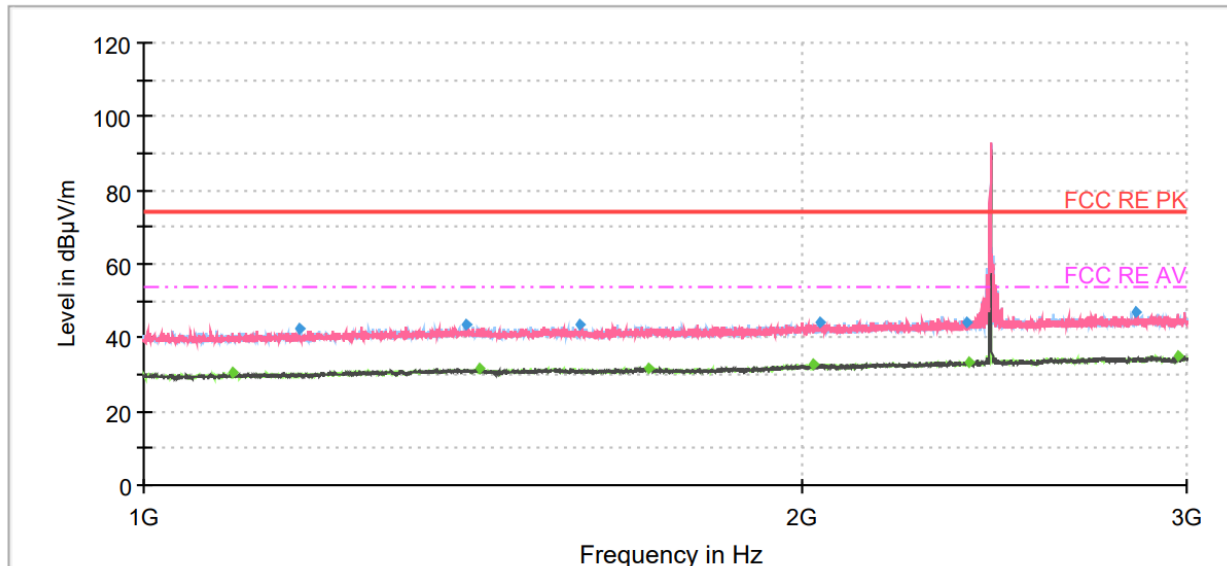


## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-------------|-----|---------------|--------------|
| 3886.88         | 40.51            | ---              | 74.00          | 33.49       | 500.00          | 100.0       | V   | 306.00        | -4           |
| 3967.50         | ---              | 29.44            | 54.00          | 24.56       | 500.00          | 200.0       | H   | 50.00         | -4           |
| 4803.75         | ---              | 53.52            | 54.00          | 0.48        | 500.00          | 100.0       | V   | 295.00        | -2           |
| 4803.75         | 57.83            | ---              | 74.00          | 16.17       | 500.00          | 100.0       | V   | 295.00        | -2           |
| 7205.63         | 56.64            | ---              | 74.00          | 17.36       | 500.00          | 100.0       | V   | 266.00        | 4            |
| 7205.63         | ---              | 52.26            | 54.00          | 1.74        | 500.00          | 100.0       | V   | 266.00        | 4            |
| 9607.50         | 59.34            | ---              | 74.00          | 14.66       | 500.00          | 200.0       | V   | 249.00        | 7            |
| 9607.50         | ---              | 53.93            | 54.00          | 0.07        | 500.00          | 200.0       | V   | 249.00        | 7            |
| 12009.38        | ---              | 45.04            | 54.00          | 8.96        | 500.00          | 100.0       | V   | 203.00        | 9            |
| 12011.25        | 53.75            | ---              | 74.00          | 20.25       | 500.00          | 100.0       | V   | 203.00        | 9            |
| 14413.13        | ---              | 42.70            | 54.00          | 11.30       | 500.00          | 100.0       | V   | 341.00        | 11           |
| 14458.13        | 51.71            | ---              | 74.00          | 22.29       | 500.00          | 200.0       | H   | 358.00        | 11           |

Radiates Emission from 3GHz to 18GHz

## 2440 MHz

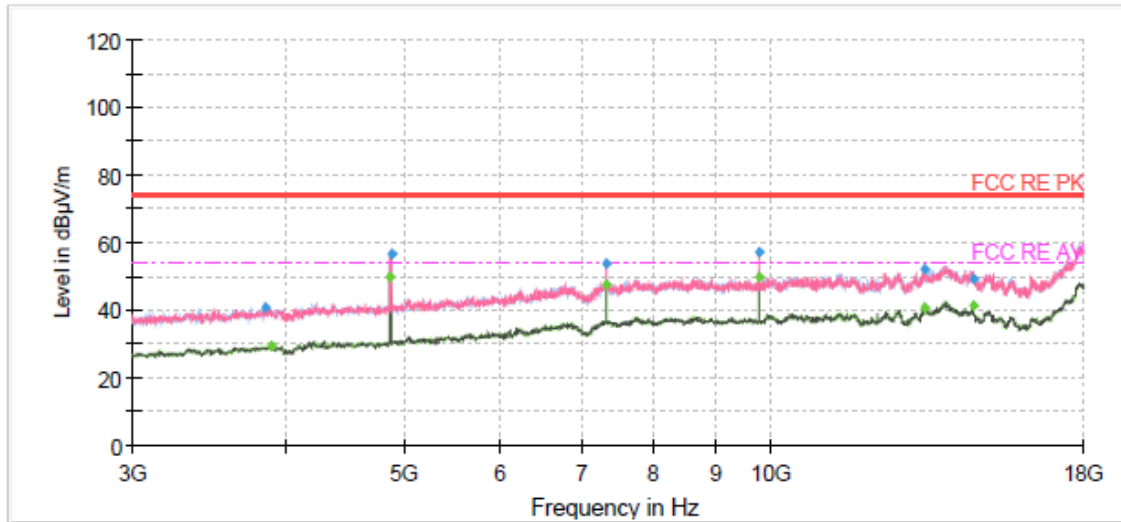


## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-------------|-----|---------------|--------------|
| 1098.50         | ---              | 30.54            | 54.00          | 23.46       | 500.00          | 100.0       | V   | 33.00         | -7           |
| 1177.75         | 42.23            | ---              | 74.00          | 31.77       | 500.00          | 200.0       | H   | 72.00         | -6           |
| 1403.50         | 43.31            | ---              | 74.00          | 30.69       | 500.00          | 200.0       | H   | 15.00         | -4           |
| 1424.50         | ---              | 31.59            | 54.00          | 22.41       | 500.00          | 100.0       | H   | 258.00        | -5           |
| 1581.75         | 43.65            | ---              | 74.00          | 30.35       | 500.00          | 200.0       | H   | 263.00        | -4           |
| 1700.00         | ---              | 31.91            | 54.00          | 22.09       | 500.00          | 200.0       | V   | 140.00        | -3           |
| 2023.25         | ---              | 32.78            | 54.00          | 21.22       | 500.00          | 100.0       | V   | 19.00         | -2           |
| 2037.75         | 44.06            | ---              | 74.00          | 29.94       | 500.00          | 200.0       | V   | 354.00        | -2           |
| 2378.00         | 44.19            | ---              | 74.00          | 29.81       | 500.00          | 200.0       | V   | 344.00        | -1           |
| 2386.50         | ---              | 33.55            | 54.00          | 20.45       | 500.00          | 100.0       | V   | 348.00        | -1           |
| 2844.00         | 46.96            | ---              | 74.00          | 27.04       | 500.00          | 100.0       | H   | 354.00        | 0            |
| 2970.50         | ---              | 35.18            | 54.00          | 18.82       | 500.00          | 200.0       | H   | 234.00        | 1            |

Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

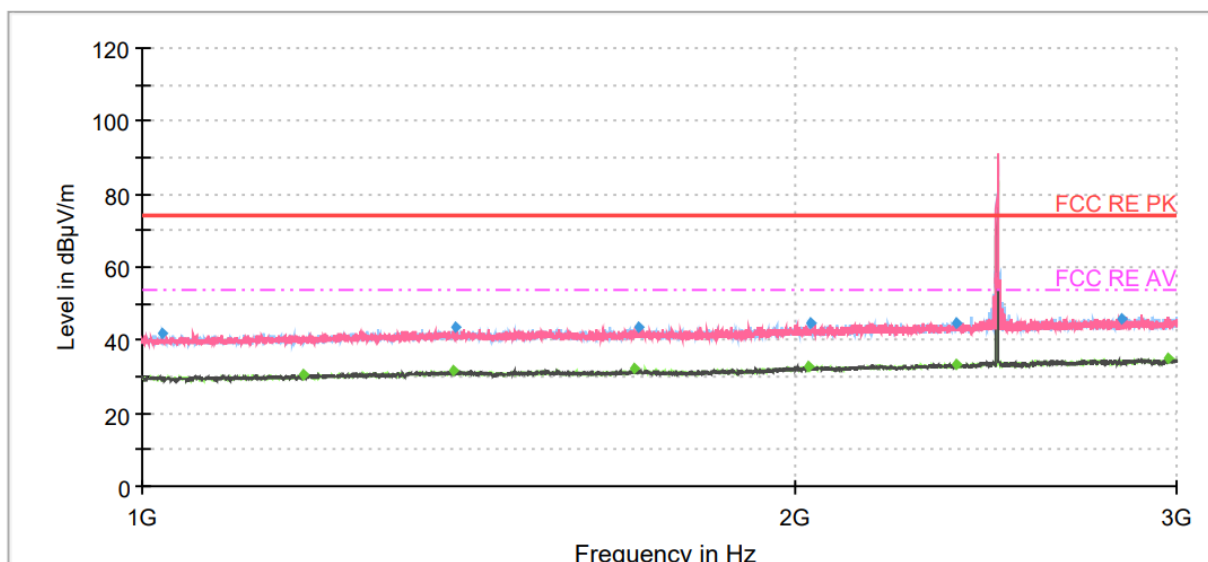


## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-------------|-----|---------------|--------------|
| 3847.50         | 40.58            | ---              | 74.00          | 33.42       | 500.00          | 200.0       | V   | 264.00        | -4           |
| 3901.88         | ---              | 29.37            | 54.00          | 24.63       | 500.00          | 200.0       | H   | 259.00        | -4           |
| 4878.75         | ---              | 50.07            | 54.00          | 3.93        | 500.00          | 100.0       | H   | 138.00        | -1           |
| 4880.63         | 56.75            | ---              | 74.00          | 17.25       | 500.00          | 100.0       | H   | 138.00        | -1           |
| 7318.13         | 53.68            | ---              | 74.00          | 20.32       | 500.00          | 100.0       | H   | 338.00        | 5            |
| 7320.00         | ---              | 47.55            | 54.00          | 6.45        | 500.00          | 200.0       | V   | 181.00        | 5            |
| 9759.38         | ---              | 50.00            | 54.00          | 4.00        | 500.00          | 100.0       | V   | 272.00        | 7            |
| 9761.25         | 57.25            | ---              | 74.00          | 16.75       | 500.00          | 100.0       | V   | 272.00        | 7            |
| 13335.00        | ---              | 40.77            | 54.00          | 13.23       | 500.00          | 100.0       | V   | 272.00        | 11           |
| 13338.75        | 52.11            | ---              | 74.00          | 21.89       | 500.00          | 100.0       | H   | 359.00        | 11           |
| 14606.25        | ---              | 41.38            | 54.00          | 12.62       | 500.00          | 100.0       | H   | 0.00          | 11           |
| 14645.63        | 49.25            | ---              | 74.00          | 24.75       | 500.00          | 200.0       | H   | 0.00          | 10           |

Radiates Emission from 3GHz to 18GHz

## 2480 MHz

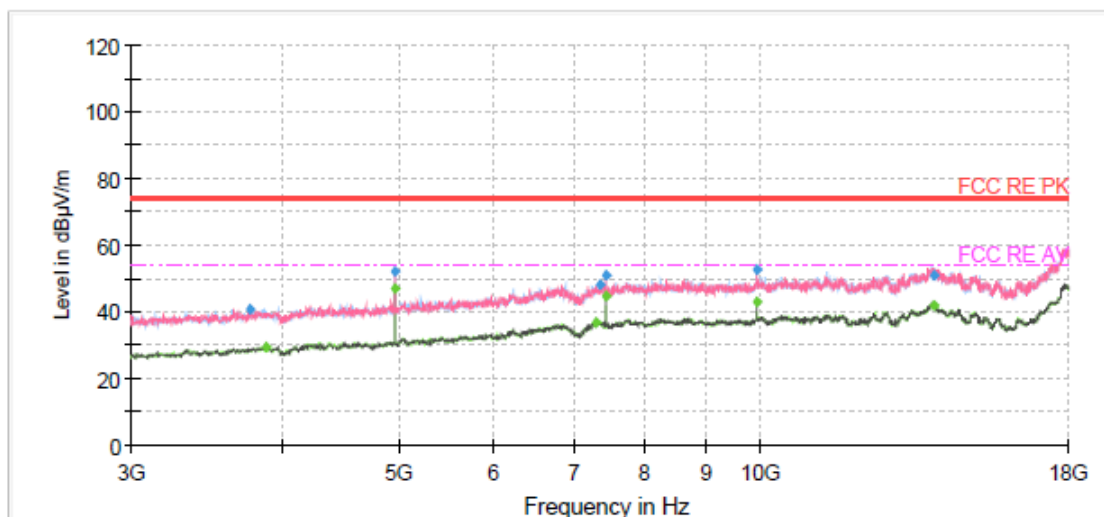


## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-------------|-----|---------------|--------------|
| 1022.50         | 42.01            | ---              | 74.00          | 31.99       | 500.00          | 100.0       | H   | 0.00          | -7           |
| 1187.00         | ---              | 30.66            | 54.00          | 23.34       | 500.00          | 200.0       | H   | 207.00        | -6           |
| 1390.75         | ---              | 31.65            | 54.00          | 22.35       | 500.00          | 200.0       | V   | 277.00        | -4           |
| 1395.50         | 43.44            | ---              | 74.00          | 30.56       | 500.00          | 200.0       | H   | 2.00          | -4           |
| 1686.00         | ---              | 32.18            | 54.00          | 21.82       | 500.00          | 100.0       | H   | 0.00          | -3           |
| 1694.50         | 43.76            | ---              | 74.00          | 30.24       | 500.00          | 100.0       | V   | 1.00          | -3           |
| 2028.50         | ---              | 32.79            | 54.00          | 21.21       | 500.00          | 200.0       | H   | 193.00        | -2           |
| 2034.00         | 44.74            | ---              | 74.00          | 29.26       | 500.00          | 200.0       | H   | 166.00        | -2           |
| 2372.50         | 44.97            | ---              | 74.00          | 29.03       | 500.00          | 200.0       | V   | 0.00          | -1           |
| 2374.75         | ---              | 33.13            | 54.00          | 20.87       | 500.00          | 100.0       | V   | 0.00          | -1           |
| 2827.50         | 46.10            | ---              | 74.00          | 27.90       | 500.00          | 100.0       | H   | 166.00        | 0            |
| 2974.25         | ---              | 34.96            | 54.00          | 19.04       | 500.00          | 200.0       | V   | 357.00        | 1            |

Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz



## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-------------|-----|---------------|--------------|
| 3768.75         | 40.84            | ---              | 74.00          | 33.16       | 500.00          | 100.0       | V   | 179.00        | -5           |
| 3886.88         | ---              | 29.42            | 54.00          | 24.58       | 500.00          | 200.0       | V   | 65.00         | -4           |
| 4959.38         | ---              | 46.86            | 54.00          | 7.14        | 500.00          | 100.0       | H   | 152.00        | -1           |
| 4959.38         | 51.96            | ---              | 74.00          | 22.04       | 500.00          | 100.0       | V   | 163.00        | -1           |
| 7301.25         | ---              | 36.89            | 54.00          | 17.11       | 500.00          | 200.0       | H   | 341.00        | 6            |
| 7336.88         | 48.37            | ---              | 74.00          | 25.63       | 500.00          | 200.0       | V   | 25.00         | 5            |
| 7438.13         | 51.17            | ---              | 74.00          | 22.83       | 500.00          | 100.0       | V   | 286.00        | 6            |
| 7440.00         | ---              | 44.72            | 54.00          | 9.28        | 500.00          | 100.0       | V   | 286.00        | 6            |
| 9920.63         | 52.60            | ---              | 74.00          | 21.40       | 500.00          | 100.0       | V   | 271.00        | 7            |
| 9920.63         | ---              | 42.75            | 54.00          | 11.25       | 500.00          | 100.0       | V   | 271.00        | 7            |
| 13929.38        | 50.93            | ---              | 74.00          | 23.07       | 500.00          | 200.0       | H   | 318.00        | 12           |
| 13935.00        | ---              | 41.65            | 54.00          | 12.35       | 500.00          | 200.0       | H   | 207.00        | 12           |

Radiates Emission from 3GHz to 18GHz

### 5.3 AC Power Line Conducted Emissions

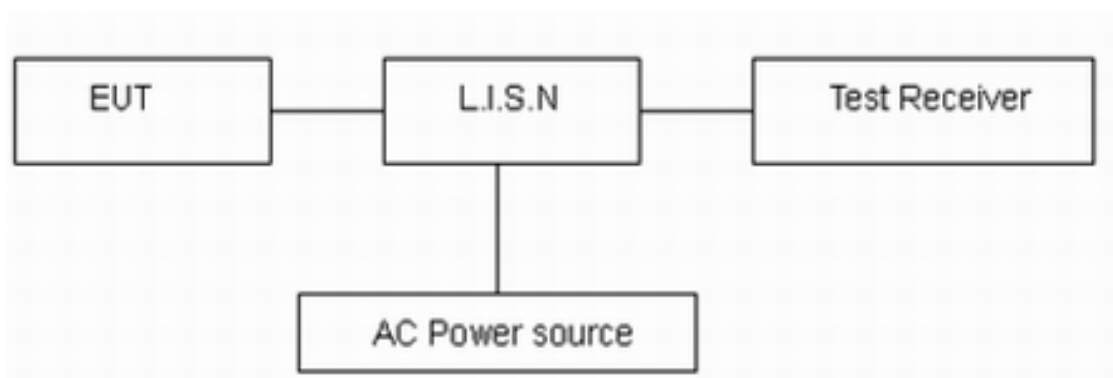
#### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

#### Method of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10-2013. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line. The test is in transmitting mode.

#### Test Setup



Note: AC Power source is used to change the voltage from 220V/50Hz to 110V/60Hz.

#### Limits

| Frequency<br>(MHz)                                | Conducted Limits(dB $\mu$ V) |           |
|---------------------------------------------------|------------------------------|-----------|
|                                                   | Quasi-peak                   | Average   |
| 0.15 - 0.5                                        | 66 to 56 *                   | 56 to 46* |
| 0.5 - 5                                           | 56                           | 46        |
| 5 - 30                                            | 60                           | 50        |
| *: Decreases with the logarithm of the frequency. |                              |           |

#### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .  $U = 1.19$  dB

# Test Results:

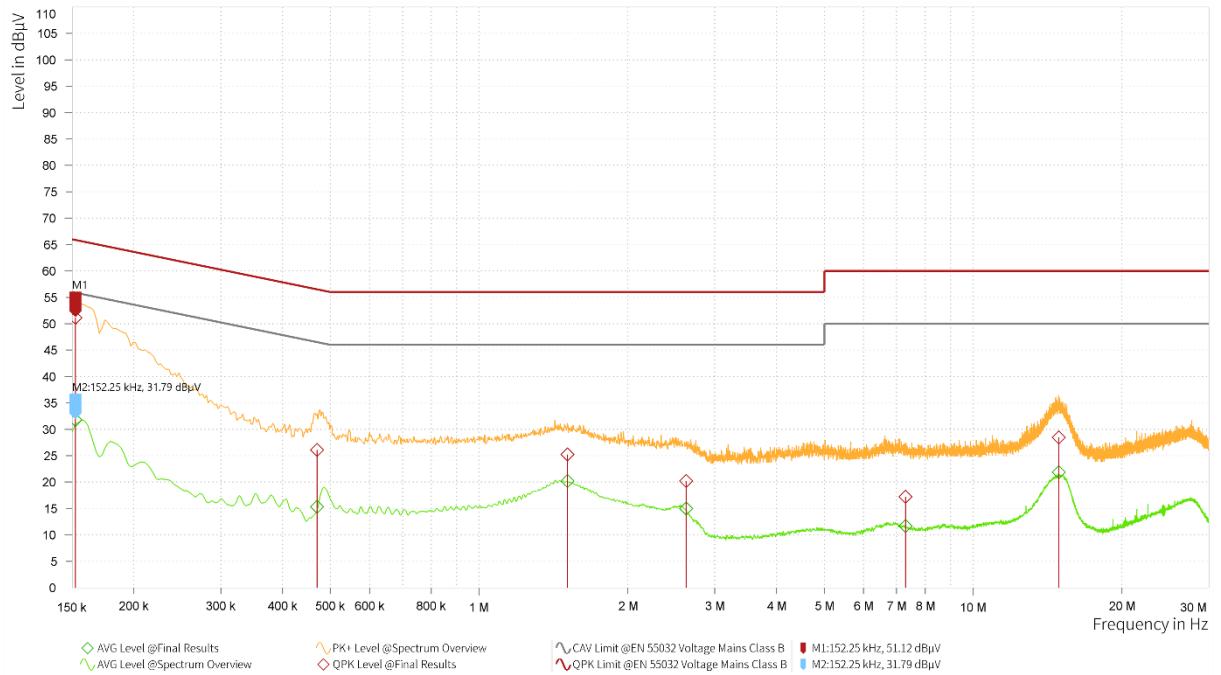
1#



| Frequency [MHz] | QPK Level [dBμV] | QPK Limit [dBμV] | QPK Margin [dB] | AVG Level [dBμV] | AVG: CAV Limit [dBμV] | AVG Margin [dB] | Correction [dB] | Line | Meas. BW [kHz] | Meas. Time [s] |
|-----------------|------------------|------------------|-----------------|------------------|-----------------------|-----------------|-----------------|------|----------------|----------------|
| 0.155           | 51.00            | 65.75            | 14.75           | 33.00            | 55.75                 | 22.76           | 20.90           | L1   | 9.000          | 1.000          |
| 0.467           | 26.38            | 56.56            | 30.18           | 14.92            | 46.56                 | 31.64           | 20.81           | L1   | 9.000          | 1.000          |
| 1.430           | 25.33            | 56.00            | 30.67           | 20.26            | 46.00                 | 25.74           | 19.88           | L1   | 9.000          | 1.000          |
| 2.603           | 20.54            | 56.00            | 35.46           | 15.44            | 46.00                 | 30.56           | 19.53           | L1   | 9.000          | 1.000          |
| 7.163           | 17.78            | 60.00            | 42.22           | 11.88            | 50.00                 | 38.12           | 19.41           | L1   | 9.000          | 1.000          |
| 14.296          | 27.86            | 60.00            | 32.14           | 20.54            | 50.00                 | 29.46           | 19.48           | L1   | 9.000          | 1.000          |

Remark: Correct factor=cable loss + LISN factor

L line Conducted Emission from 150 kHz to 30 MHz

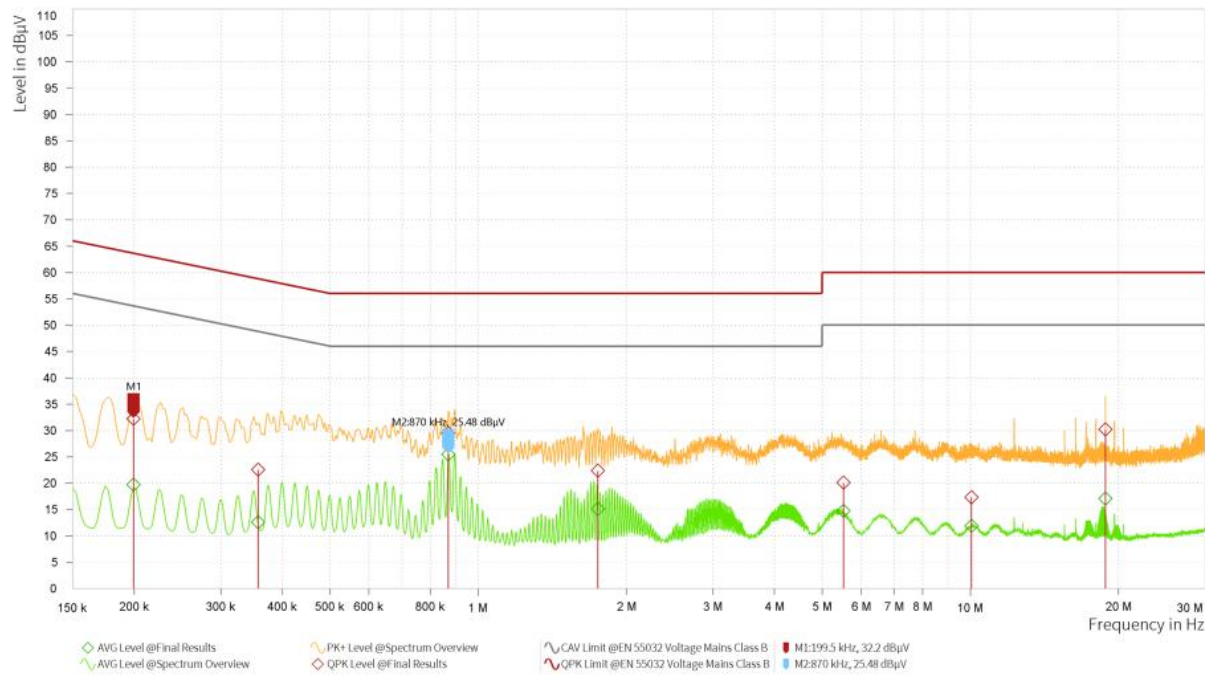


| Frequency [MHz] | QPK Level [dBμV] | QPK Limit [dBμV] | QPK Margin [dB] | AVG Level [dBμV] | AVG: CAV Limit [dBμV] | AVG Margin [dB] | Correction [dB] | Line | Meas. BW [kHz] | Meas. Time [s] |
|-----------------|------------------|------------------|-----------------|------------------|-----------------------|-----------------|-----------------|------|----------------|----------------|
| 0.152           | 51.12            | 65.88            | 14.76           | 31.79            | 55.88                 | 24.08           | 20.91           | N    | 9.000          | 1.000          |
| 0.470           | 26.09            | 56.52            | 30.44           | 15.34            | 46.52                 | 31.18           | 20.82           | N    | 9.000          | 1.000          |
| 1.509           | 25.24            | 56.00            | 30.76           | 20.19            | 46.00                 | 25.81           | 19.85           | N    | 9.000          | 1.000          |
| 2.625           | 20.19            | 56.00            | 35.81           | 14.98            | 46.00                 | 31.02           | 19.54           | N    | 9.000          | 1.000          |
| 7.298           | 17.23            | 60.00            | 42.77           | 11.68            | 50.00                 | 38.32           | 19.41           | N    | 9.000          | 1.000          |
| 14.901          | 28.48            | 60.00            | 31.52           | 21.87            | 50.00                 | 28.13           | 19.53           | N    | 9.000          | 1.000          |

**Remark: Correct factor=cable loss + LISN factor**

N line Conducted Emission from 150 kHz to 30 MHz

2#

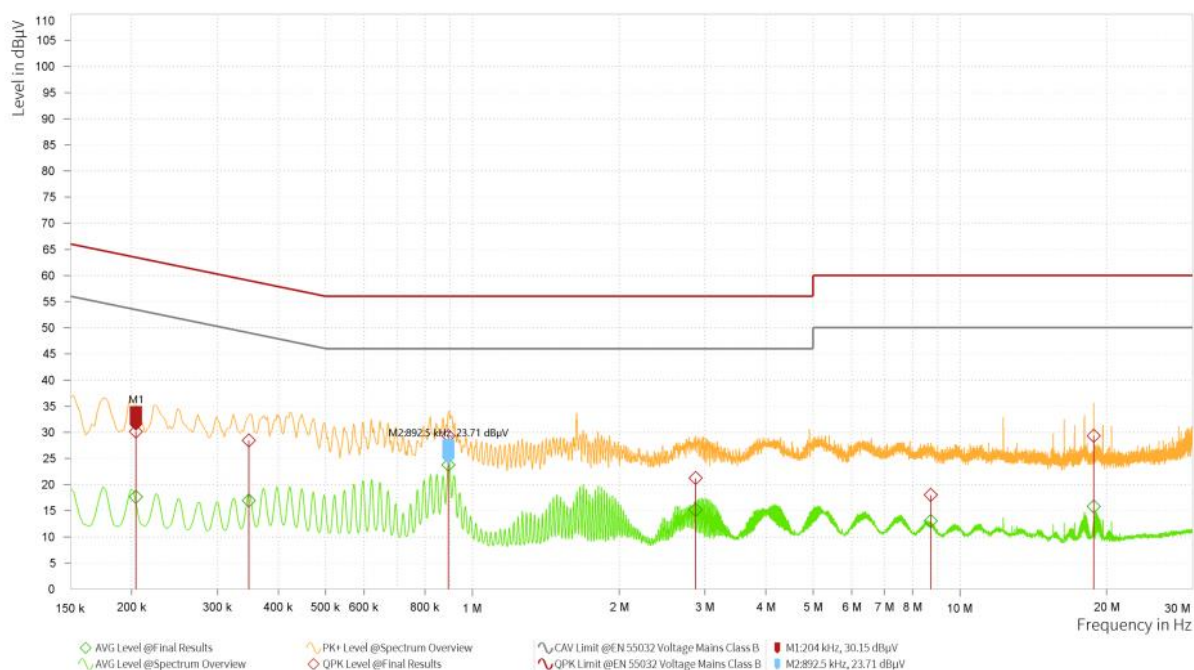


| Rg | Frequency [MHz] | QPK Level [dBμV] | QPK Limit [dBμV] | QPK Margin [dB] | AVG Level [dBμV] | AVG: CAV Limit [dBμV] | AVG Margin [dB] | Correction [dB] | Line | Meas. BW [kHz] | Meas. Time [s] |
|----|-----------------|------------------|------------------|-----------------|------------------|-----------------------|-----------------|-----------------|------|----------------|----------------|
| 1  | 0.200           | 32.20            | 63.63            | 31.43           | 19.71            | 53.63                 | 33.92           | 21.01           | L1   | 9.000          | 1.000          |
| 1  | 0.357           | 22.51            | 58.80            | 36.28           | 12.57            | 48.80                 | 36.23           | 20.92           | L1   | 9.000          | 1.000          |
| 1  | 0.870           | 29.48            | 56.00            | 26.52           | 25.48            | 46.00                 | 20.52           | 20.27           | L1   | 9.000          | 1.000          |
| 1  | 1.750           | 22.35            | 56.00            | 33.65           | 15.09            | 46.00                 | 30.91           | 19.73           | L1   | 9.000          | 1.000          |
| 1  | 5.525           | 20.06            | 60.00            | 39.94           | 14.74            | 50.00                 | 35.26           | 19.40           | L1   | 9.000          | 1.000          |
| 1  | 10.055          | 17.31            | 60.00            | 42.69           | 11.89            | 50.00                 | 38.11           | 19.42           | L1   | 9.000          | 1.000          |
| 1  | 18.818          | 30.18            | 60.00            | 29.82           | 17.06            | 50.00                 | 32.94           | 19.62           | L1   | 9.000          | 1.000          |

Remark: Correct factor=cable loss + LISN factor

L line

Conducted Emission from 150 kHz to 30 MHz



| Rg | Frequency [MHz] | QPK Level [dBμV] | QPK Limit [dBμV] | QPK Margin [dB] | AVG Level [dBμV] | AVG: CAV Limit [dBμV] | AVG Margin [dB] | Correction [dB] | Line | Meas. BW [kHz] | Meas. Time [s] |
|----|-----------------|------------------|------------------|-----------------|------------------|-----------------------|-----------------|-----------------|------|----------------|----------------|
| 1  | 0.204           | 30.15            | 63.45            | 33.30           | 17.61            | 53.45                 | 35.84           | 21.02           | N    | 9.000          | 1.000          |
| 1  | 0.348           | 28.42            | 59.01            | 30.59           | 16.94            | 49.01                 | 32.07           | 20.93           | N    | 9.000          | 1.000          |
| 1  | 0.893           | 29.29            | 56.00            | 26.71           | 23.71            | 46.00                 | 22.29           | 20.26           | N    | 9.000          | 1.000          |
| 1  | 2.873           | 21.20            | 56.00            | 34.80           | 15.18            | 46.00                 | 30.82           | 19.51           | N    | 9.000          | 1.000          |
| 1  | 8.720           | 17.97            | 60.00            | 42.03           | 13.02            | 50.00                 | 36.98           | 19.42           | N    | 9.000          | 1.000          |
| 1  | 18.816          | 29.30            | 60.00            | 30.70           | 15.81            | 50.00                 | 34.19           | 19.67           | N    | 9.000          | 1.000          |

**Remark: Correct factor=cable loss + LISN factor**

N line

Conducted Emission from 150 kHz to 30 MHz

## 6 Main Test Instruments

| Name of Equipment        | Manufacturer | Type/Model | Serial Number | Calibration Date | Expiration Time |
|--------------------------|--------------|------------|---------------|------------------|-----------------|
| EMI Test Receiver        | R&S          | ESCI3      | 100948        | 2025-05-07       | 2026-05-06      |
| Loop Antenna             | SCHWARZBECK  | FMZB1519   | 1519-047      | 2023-04-16       | 2026-04-15      |
| TRILOG Broadband Antenna | SCHWARZBECK  | VULB 9163  | 1023          | 2023-07-14       | 2026-07-13      |
| Signal Analyzer          | R&S          | FSV40      | 101298        | 2025-05-07       | 2026-05-06      |
| Horn Antenna             | R&S          | HF 907     | 102723        | 2023-11-24       | 2026-11-23      |
| Amplifier                | R&S          | SCU18      | 10034         | 2025-05-06       | 2026-05-05      |
| Horn Antenna             | ETS-Lindgren | 3160-09    | 00102643      | 2024-09-24       | 2027-09-23      |
| Software                 | R&S          | EMC32      | 9.26.01       | /                | /               |
| Artificial main network  | R&S          | ENV216     | 102191        | 2024-12-02       | 2026-12-01      |
| EMI Test Receiver        | R&S          | ESR        | 101667        | 2025-05-06       | 2026-05-05      |
| Software                 | R&S          | EMC32      | 10.35.10      | /                | /               |

## **ANNEX A: The EUT Appearance**

The EUT Appearance are submitted separately.

## ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

\*\*\*\*\* END OF REPORT \*\*\*\*\*