

# FCC RADIO TEST REPORT

Applicant..... : Chongqing Pinsheng Technology Co., Ltd.  
Address..... : 7Floor, No.5 middle Huangshan Avenue, North New Zone, Chongqing  
China.  
Manufacturer..... : Chongqing Pinsheng Technology Co., Ltd.  
Address..... : 7Floor, No.5 middle Huangshan Avenue, North New Zone, Chongqing  
China.  
Factory..... : Chongqing Pinsheng Technology Co., Ltd. DaTiejia branch office  
Address..... : NO.368, BOE Avenue, Beibei District, Chongqing China.  
Product Name..... : Label Printer  
Brand Name..... : MakeID  
Model No. .... : L1-A, L1-B, L1-C, L1-D, L1-E, L1-F, L1-G, L1-H, L1-I, L1-J, L1, L2, L3, L4,  
L5, L6, L7, L8, L9, L10 (For model difference refer to section 2)  
FCC ID..... : 2BLKN-L1  
Measurement Standard..... : 47 CFR FCC Part 15, Subpart C (Section 15.225)  
Receipt Date of Samples..... : February 13, 2025  
Date of Tested..... : February 19, 2025 to March 17, 2025  
Date of Report..... : March 21, 2025

This report shows that above equipment is technically compliant with the requirements of the standards above.  
All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan  
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Prepared by  
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### Revision History

| Report Number  | Description   | Issued Date |
|----------------|---------------|-------------|
| NTC2502333FV00 | Initial Issue | 2025-03-21  |
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## 1. Summary of Test Result

| FCC Rules                 | Description of Test              | Result | Remarks |
|---------------------------|----------------------------------|--------|---------|
| §15.207 (a)               | AC Power Line Conducted Emission | PASS   | ---     |
| §15.225 & 15.209 & 15.205 | Radiated Spurious Emission       | PASS   | ---     |
| §15.225(e)                | Frequency Stability              | PASS   | ---     |
| §15.215(c)                | 20dB Emission Bandwidth Testing  | PASS   | ---     |
| §15.203                   | Antenna Requirement              | PASS   | ---     |

## 2. General Description of EUT

| Product Information     |                                                                                                                                                        |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:           | Label Printer                                                                                                                                          |
| Main Model Name:        | L1-A                                                                                                                                                   |
| Additional Model Name:  | L1-B, L1-C, L1-D, L1-E, L1-F, L1-G, L1-H, L1-I, L1-J, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10                                                          |
| Model Difference:       | These models have the same circuit schematic, construction, PCB Layout and critical components. The difference is model number due to trading purpose. |
| S/N:                    | L1C24K00022                                                                                                                                            |
| Brand Name:             | MakeID                                                                                                                                                 |
| Hardware Version:       | V1.0                                                                                                                                                   |
| Software Version:       | 2.0.1                                                                                                                                                  |
| Rating:                 | DC 5V come from USB port<br>DC 3.7V come from internal Li-ion battery                                                                                  |
| Typical arrangement:    | Table-top                                                                                                                                              |
| I/O Port:               | Refer to the user manual                                                                                                                               |
| Accessories Information |                                                                                                                                                        |
| Adapter:                | N/A                                                                                                                                                    |
| Cable:                  | N/A                                                                                                                                                    |
| Other:                  | N/A                                                                                                                                                    |
| Additional Information  |                                                                                                                                                        |
| Note:                   | According to these model difference, all tests were performed on model L1-A.                                                                           |
| Remark:                 | All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual.                         |

| Technical Specification  |                                  |
|--------------------------|----------------------------------|
| Declaring the Frequency: | 13.56MHz                         |
| Modulation Type:         | ASK                              |
| Antenna Type:            | FPC antenna*1                    |
| Antenna Gain:            | 0 dBi (Declared by manufacturer) |
| Number of Channels:      | 1                                |

### 3. Test Channels and Modes Detail

| Mode |          | Test Frequency (MHz) | Modulation | Data Rate (Mbps) |
|------|----------|----------------------|------------|------------------|
| 1    | TX (NFC) | 13.56MHz             | ASK        | ---              |

Note: TX mode means that the EUT was programmed to be in simultaneously transmitting mode.

### 4. Configuration of EUT



### 5. Modification of EUT

No modifications are made to the EUT during all test items.

## 6. Description of Support Device

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| No. | Equipment | Brand  | M/N              | S/N                | Specification                                                                       | Remarks                 |
|-----|-----------|--------|------------------|--------------------|-------------------------------------------------------------------------------------|-------------------------|
| 1.  | Adapter   | HUAWEI | HW-100225C<br>00 | HC78EAM940<br>2613 | Input<br>AC100-240V<br>50/60Hz, 0.75A<br>Output: DC 5V2A<br>DC 9V2A<br>10V2.25A Max | Provided by the<br>Lab. |

## 7. Test Facility and Location

|                                   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Site                         | : | Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Accreditations and Authorizations | : | <p>The Laboratory has been assessed and proved to be in compliance with CNAS/CL01</p> <p>Listed by CNAS, August 13, 2018</p> <p>The Certificate Registration Number is L5795.</p> <p>The Certificate is valid until August 13, 2030</p><br><p>The Laboratory has been assessed and proved to be in compliance with ISO17025</p> <p>Listed by A2LA, November 01, 2017</p> <p>The Certificate Registration Number is 4429.01</p> <p>The Certificate is valid until December 31, 2025</p><br><p>Listed by FCC, November 06, 2017</p> <p>Test Firm Registration Number: 907417</p><br><p>Listed by Industry Canada, June 08, 2017</p> <p>The Certificate Registration Number. Is 46405-9743A</p> |
| Test Site Location                | : | Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## 8. Applicable Standards and References

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

### Test Standards:

47 CFR Part 15, Subpart C, 15.225

ANSI C63.10-2013

### References Test Guidance:

N/A

## 9. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

## 10. Test Conditions

| No. | Test Item                       | Test Mode | Test Voltage           | Tested by | Remarks    |
|-----|---------------------------------|-----------|------------------------|-----------|------------|
| 1.  | AC Power Conducted Emission     | 1         | AC 120V 60Hz           | Sean      | See note 1 |
| 2.  | Radiated Emission               | 1         | AC120V 60Hz<br>DC 3.7V | Sean      | See note 1 |
| 3.  | Frequency Stability             | 1         | AC 120V 60Hz           | Sean      | See note 1 |
| 4.  | 20dB Emission Bandwidth Testing | 1         | AC 120V 60Hz           | Sean      | See note 1 |
| 5.  | Antenna Requirement             | ---       | ---                    | Sean      | See note 1 |

### Note:

- The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35°C, 30~70%, 86~106kPa.
- As the EUT can be operated multiple positions, all X, Y, Z axis were considered during the test and only the worst case X was recorded.
- For test voltage AC 120V come from adapter, DC 3.7V come from internal Li-ion battery.
- Only the worst case was recorded in the report.

## 11. Measurement Uncertainty

| No. | Test Item              | Frequency      | Uncertainty | Remarks |
|-----|------------------------|----------------|-------------|---------|
| 1.  | Conducted Emission     | 150KHz ~ 30MHz | ±3.02 dB    | ---     |
| 2.  | Radiated Emission Test | 9kHz ~ 30MHz   | ±5.60 dB    | ---     |
|     |                        | 30MHz ~ 1GHz   | ±5.60 dB    | ---     |
|     |                        | 1GHz ~ 18GHz   | ±5.22 dB    | ---     |
|     |                        | 18GHz ~ 40GHz  | ±5.22 dB    |         |

**Note:**

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The measurement uncertainty levels above are estimated and calculated according to CISPR 16-4-2.
3. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

## 12. Sample Calculations

| Conducted Emission                                                                                                                                                                                                                                                                                                                                                                                   |                      |                     |                    |              |           |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------|--------------------|--------------|-----------|----------|
| Freq. (MHz)                                                                                                                                                                                                                                                                                                                                                                                          | Reading Level (dBUV) | Correct Factor (dB) | Measurement (dBUV) | Limit (dBUV) | Over (dB) | Detector |
| 0.2058                                                                                                                                                                                                                                                                                                                                                                                               | 35.69                | 10.61               | 46.30              | 63.37        | -17.07    | QP       |
| <p>Where,</p> <p>Freq. = Emission frequency in MHz</p> <p>Reading Level = Spectrum Analyzer/Receiver Reading</p> <p>Corrector Factor = Insertion loss of LISN + Cable Loss + RF Switching Unit attenuation</p> <p>Measurement = Reading + Corrector Factor</p> <p>Limit = Limit stated in standard</p> <p>Margin = Measurement - Limit</p> <p>Detector = Reading for Quasi-Peak / Average / Peak</p> |                      |                     |                    |              |           |          |

| Radiated Spurious Emissions                                                                                                                                                                                                                                                                                                                                                                            |                      |                       |                      |                |           |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------|----------------------|----------------|-----------|----------|
| Freq. (MHz)                                                                                                                                                                                                                                                                                                                                                                                            | Reading Level (dBUV) | Correct Factor (dB/m) | Measurement (dBUV/m) | Limit (dBUV/m) | Over (dB) | Detector |
| 81.4100                                                                                                                                                                                                                                                                                                                                                                                                | 46.70                | -11.48                | 35.22                | 40.00          | -4.78     | QP       |
| <p>Where,</p> <p>Freq. = Emission frequency in MHz</p> <p>Reading Level = Spectrum Analyzer/Receiver Reading</p> <p>Corrector Factor = Antenna Factor + Cable Loss - Pre-amplifier</p> <p>Measurement = Reading + Corrector Factor</p> <p>Limit = Limit stated in standard</p> <p>Over = Margin, which calculated by Measurement - Limit</p> <p>Detector = Reading for Quasi-Peak / Average / Peak</p> |                      |                       |                      |                |           |          |

Note: For all conducted test items, the spectrum analyzer offset or transducer is derived from RF cable loss and attenuator factor. The offset or transducer is equal to the RF cable loss plus attenuator factor.

## 13. Test Items and Results

### 13.1 Conducted Emissions Measurement

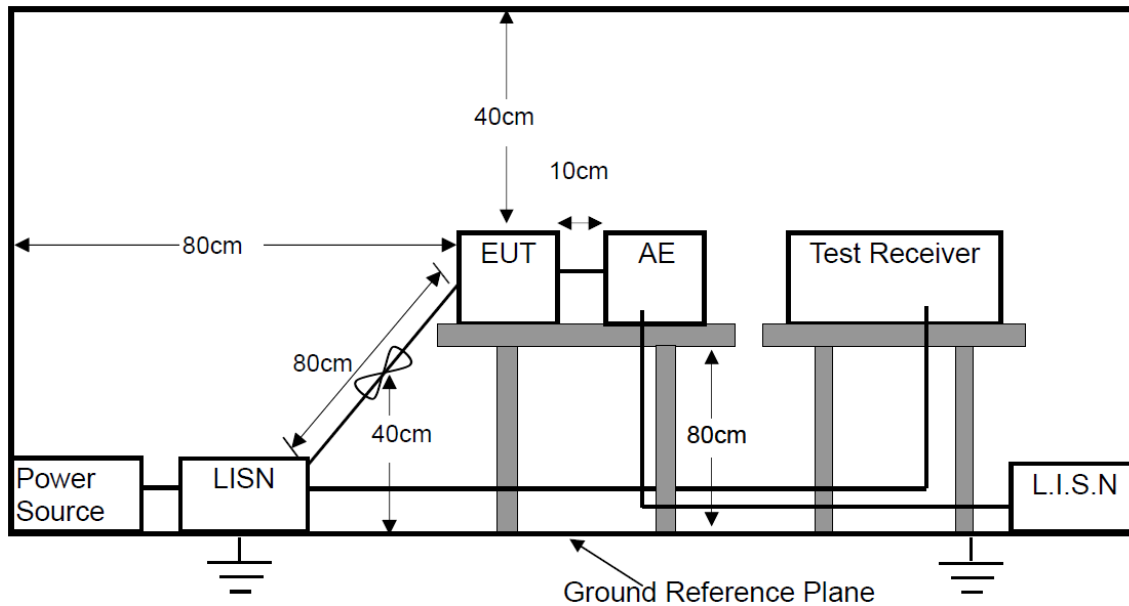
#### LIMIT

According to the requirements of FCC PART 15.207, the limits are as follows:

| Frequency (MHz) | Quasi-peak | Average  |
|-----------------|------------|----------|
| 0.15 to 0.5     | 66 to 56   | 56 to 46 |
| 0.5 to 5        | 56         | 46       |
| 5 to 30         | 60         | 50       |

- Note:
1. If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.
  2. The lower limit shall apply at the transition frequencies.
  3. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5MHz.

#### BLOCK DIAGRAM OF TEST SETUP



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## TEST PROCEDURES

- a. The EUT was placed on a wooden table 0.8m height from the metal ground plan and 0.4m from the conducting wall of the shielding room and it was kept at 0.8m from any other grounded conducting surface.
- b. All I/O cables and support devices were positioned as per ANSI C63.10.
- c. Connect mains power port of the EUT to a line impedance stabilization network (LISN).
- d. Connect all support devices to the other LISN and AAN, if needed.
- e. Scan the frequency range from 150KHz to 30MHz at both sides of AC line for maximum conducted interference checking and record the test data.

## TEST RESULTS

PASS

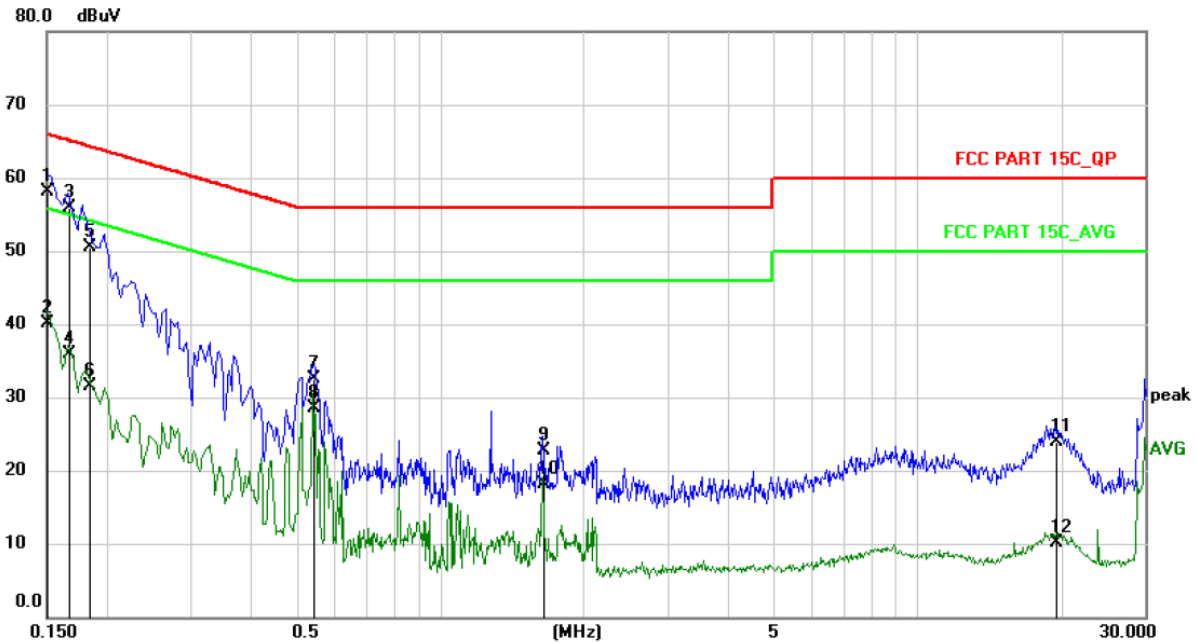
Please refer to the following pages.

|              |                                 |
|--------------|---------------------------------|
| M/N: L1-A    | Testing Voltage: AC 120V / 60Hz |
| Phase: L1    | Detector: QP & AVG              |
| Test Mode: 1 |                                 |

## Conducted Emission Measurement

Date: 2025/3/18

Time: 10:52:20



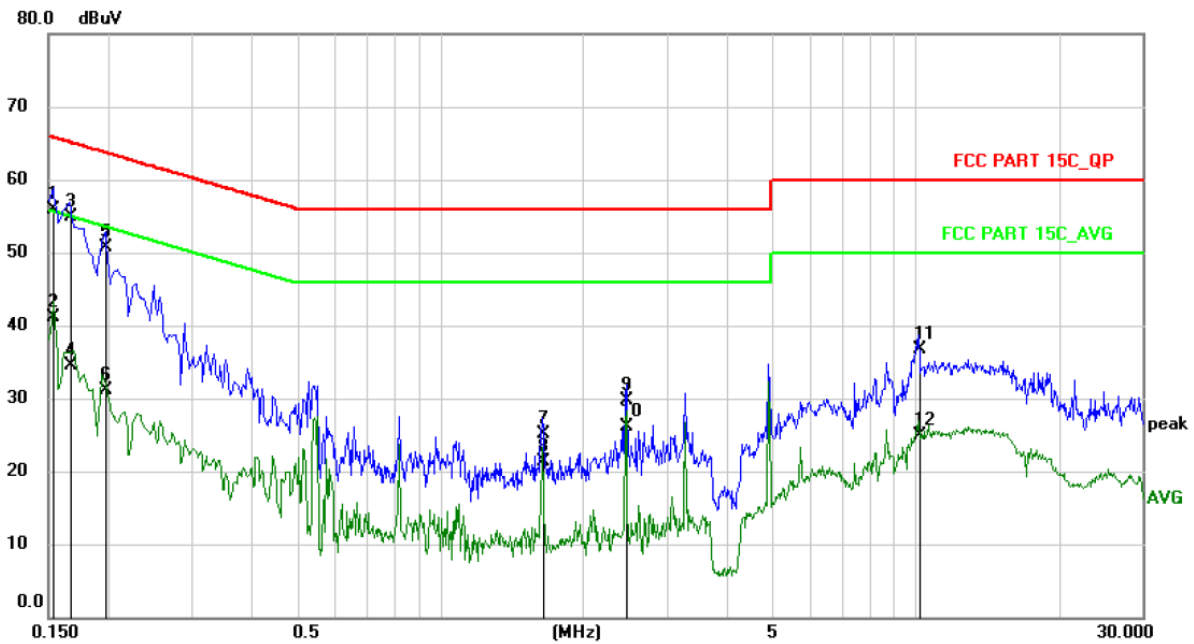
| No. Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit | Over   |          |         |
|---------|---------|---------------|----------------|-------------|-------|--------|----------|---------|
|         | MHz     | dBuV          | dB             | dBuV        | dBuV  | dB     | Detector | Comment |
| 1 *     | 0.1500  | 48.22         | 9.98           | 58.20       | 66.00 | -7.80  | QP       |         |
| 2       | 0.1500  | 30.12         | 9.98           | 40.10       | 56.00 | -15.90 | AVG      |         |
| 3       | 0.1660  | 45.91         | 9.99           | 55.90       | 65.16 | -9.26  | QP       |         |
| 4       | 0.1660  | 26.01         | 9.99           | 36.00       | 55.16 | -19.16 | AVG      |         |
| 5       | 0.1844  | 40.50         | 10.00          | 50.50       | 64.29 | -13.79 | QP       |         |
| 6       | 0.1844  | 21.60         | 10.00          | 31.60       | 54.29 | -22.69 | AVG      |         |
| 7       | 0.5420  | 22.48         | 10.02          | 32.50       | 56.00 | -23.50 | QP       |         |
| 8       | 0.5420  | 18.48         | 10.02          | 28.50       | 46.00 | -17.50 | AVG      |         |
| 9       | 1.6419  | 12.69         | 10.01          | 22.70       | 56.00 | -33.30 | QP       |         |
| 10      | 1.6419  | 8.19          | 10.01          | 18.20       | 46.00 | -27.80 | AVG      |         |
| 11      | 19.4900 | 13.58         | 10.42          | 24.00       | 60.00 | -36.00 | QP       |         |
| 12      | 19.4900 | -0.22         | 10.42          | 10.20       | 50.00 | -39.80 | AVG      |         |

|              |                                 |
|--------------|---------------------------------|
| M/N: L1-A    | Testing Voltage: AC 120V / 60Hz |
| Phase: N     | Detector: QP & AVG              |
| Test Mode: 1 |                                 |

## Conducted Emission Measurement

Date: 2025/3/18

Time: 10:58:51



| No. Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit | Over   |          |         |
|---------|---------|---------------|----------------|-------------|-------|--------|----------|---------|
|         | MHz     | dBuV          | dB             | dBuV        | dBuV  | dB     | Detector | Comment |
| 1 *     | 0.1539  | 45.96         | 9.94           | 55.90       | 65.79 | -9.89  | QP       |         |
| 2       | 0.1539  | 31.26         | 9.94           | 41.20       | 55.79 | -14.59 | AVG      |         |
| 3       | 0.1660  | 44.95         | 9.95           | 54.90       | 65.16 | -10.26 | QP       |         |
| 4       | 0.1660  | 24.55         | 9.95           | 34.50       | 55.16 | -20.66 | AVG      |         |
| 5       | 0.1980  | 40.83         | 9.97           | 50.80       | 63.69 | -12.89 | QP       |         |
| 6       | 0.1980  | 21.23         | 9.97           | 31.20       | 53.69 | -22.49 | AVG      |         |
| 7       | 1.6419  | 15.23         | 9.97           | 25.20       | 56.00 | -30.80 | QP       |         |
| 8       | 1.6419  | 11.33         | 9.97           | 21.30       | 46.00 | -24.70 | AVG      |         |
| 9       | 2.4620  | 19.83         | 9.97           | 29.80       | 56.00 | -26.20 | QP       |         |
| 10      | 2.4620  | 16.23         | 9.97           | 26.20       | 46.00 | -19.80 | AVG      |         |
| 11      | 10.1416 | 26.59         | 10.11          | 36.70       | 60.00 | -23.30 | QP       |         |
| 12      | 10.1416 | 14.79         | 10.11          | 24.90       | 50.00 | -25.10 | AVG      |         |

## 13.2 Radiated Spurious Emissions Measurement

### LIMIT

| Frequency range<br>MHz | Distance Meters | Field Strengths Limit (15.209) |
|------------------------|-----------------|--------------------------------|
|                        |                 | $\mu\text{V/m}$                |
| 0.009 ~ 0.490          | 300             | $2400/F(\text{kHz})$           |
| 0.490 ~ 1.705          | 30              | $24000/F(\text{kHz})$          |
| 1.705 ~ 30             | 30              | 30                             |
| 30 ~ 88                | 3               | 100                            |
| 88 ~ 216               | 3               | 150                            |
| 216 ~ 960              | 3               | 200                            |
| Above 960              | 3               | 500                            |

Remark: (1) Emission level  $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$   
 (2) The smaller limit shall apply at the cross point between two frequency bands.  
 (3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.  
 (4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.  
 (5) §15.247(d) specifies that emissions which fall in the restricted bands, as defined in §15.205 comply with radiated emission limits specified in §15.209.

According to 15.225, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

- (a) The field strength of any emissions within the band 13.553-13.567MHz shall not exceed 15,848 microvolts/meter at 30 meters.
- (b) Within the bands 13.410-13.553MHz and 13.567-13.710MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110-13.410 MHz and 13.710-14.010MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- (d) The field strength of any emissions appearing outside of the 13.110-14.010MHz band shall not exceed the general radiated emission limits in 15.209.

Limit for Band 13.110-14.010 MHz, devices shall comply with the following requirements:

- (a) The field strength of any emission shall not exceed the following limits:
  - (i) 15.848 mV/m (84 dB $\mu$ V/m) at 30 m, within the band 13.553-13.567 MHz
  - (ii) 334  $\mu$ V/m (50.5 dB $\mu$ V/m) at 30 m, within the bands 13.410-13.553 MHz and 13.567-13.710 MHz
  - (iii) 106  $\mu$ V/m (40.5 dB $\mu$ V/m) at 30 m, within the bands 13.110-13.410 MHz and 13.710-14.010 MHz
  - (iv) 15.209 general field strength limits for frequencies outside the band 13.110-14.010 MHz
- (b) The carrier frequency stability shall not exceed  $\pm 100$  ppm

Field Strength limit for 13.56MHz=15848  $\mu$ V/m at 30m

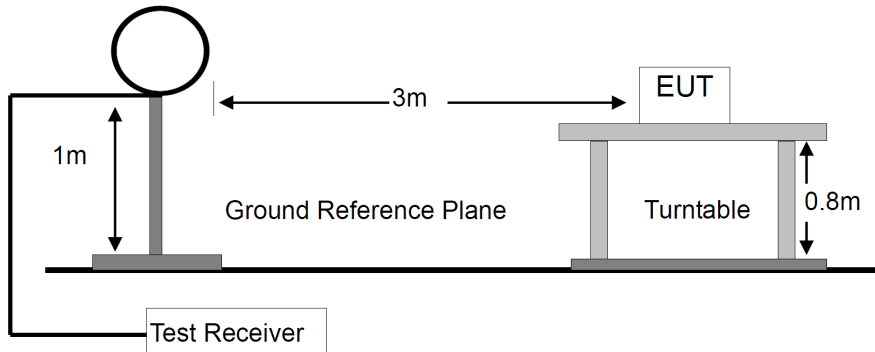
=84 dB $\mu$ V/m at 30m

=84 dB $\mu$ V/m +40 log(30/3) dB at 3m

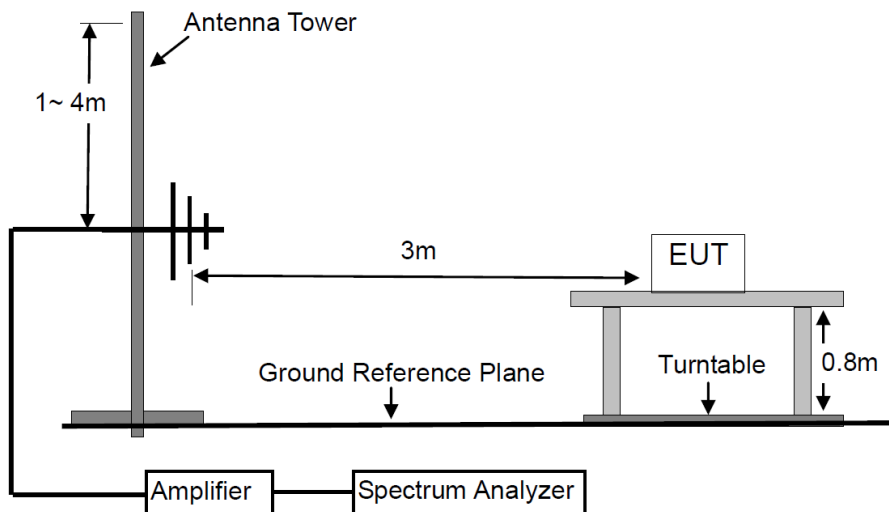
=124 dB $\mu$ V/m

## BLOCK DIAGRAM OF TEST SETUP

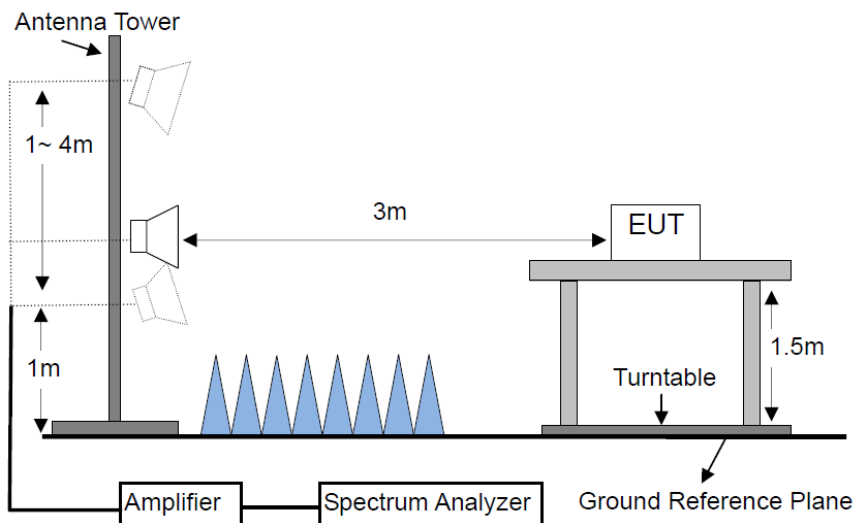
For Radiated Emission below 30MHz



For Radiated Emission 30-1000MHz



For Radiated Emission Above 1000MHz.



---

## TEST PROCEDURES

- a. Below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber room.

- b. For the radiated emission test above 1GHz:

The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

- c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to peak detect function and specified bandwidth with maximum hold mode.
- f. A Quasi-peak measurement was then made for that frequency point for below 1GHz test. PK and AV for above 1GHz emission test.

- g. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and packet type.

The worst case was found when the EUT was positioned on X axis for radiated emission.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

| Frequency Band (MHz) | Detector | Resolution Bandwidth | Video Bandwidth |
|----------------------|----------|----------------------|-----------------|
| 0.009~0.15           | QP & AVG | 200Hz                | 1KHz            |
| 0.15 -30             | QP & AVG | 9KHz                 | 30KHz           |
| 30 to 1000           | QP       | 120 kHz              | 300 kHz         |
| Above 1000           | Peak     | 1 MHz                | 3 MHz           |
|                      | Average  | 1 MHz                | 10 Hz           |

## TEST RESULTS

PASS

Please refer to the following pages of the worst case.

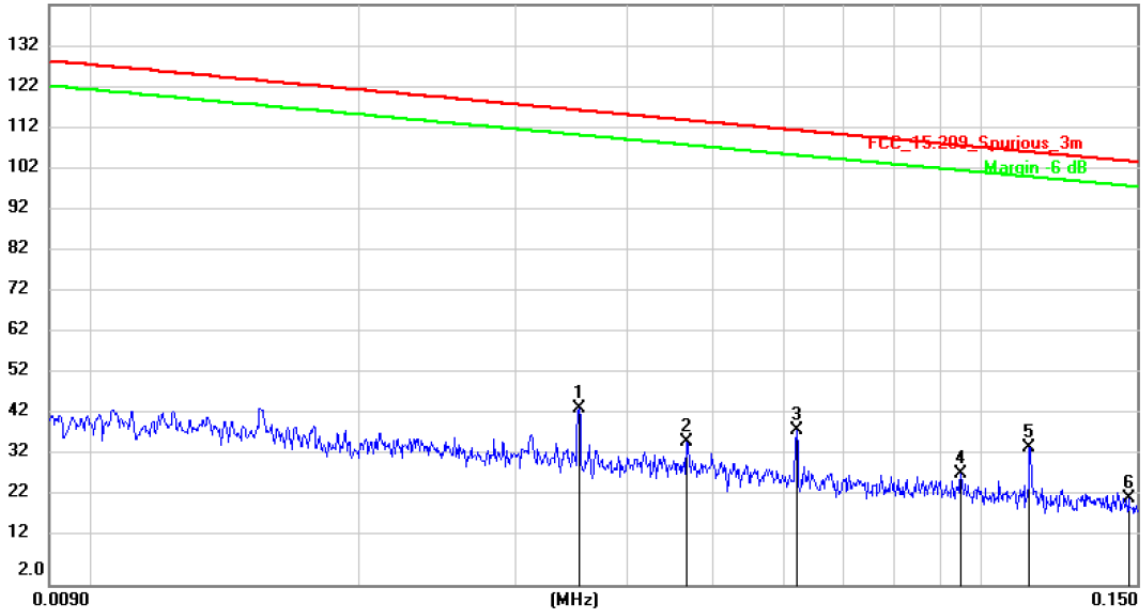
|                          |                                 |
|--------------------------|---------------------------------|
| M/N: L1-A                | Testing Voltage: AC 120V / 60Hz |
| Polarization: Horizontal | Detector: AVG, QP               |
| Test Mode: 1             | Distance: 3m                    |

## Radiated Emission Measurement

Date: 2025/3/9

Time: 22:40:10

142.0 dBuV/m



| No. Mk. | Freq.  | Reading Level | Correct Factor | Measure-ment | Limit  | Over   |          |         |
|---------|--------|---------------|----------------|--------------|--------|--------|----------|---------|
|         | MHz    | dBuV          | dB/m           | dBuV/m       | dBuV/m | dB     | Detector | Comment |
| 1       | 0.0354 | 24.04         | 20.54          | 44.58        | 116.50 | -71.92 | AVG      |         |
| 2       | 0.0468 | 15.82         | 20.59          | 36.41        | 114.09 | -77.68 | AVG      |         |
| 3       | 0.0621 | 18.62         | 20.54          | 39.16        | 111.64 | -72.48 | AVG      |         |
| 4       | 0.0950 | 8.14          | 20.54          | 28.68        | 107.97 | -79.29 | QP       |         |
| 5 *     | 0.1135 | 14.44         | 20.53          | 34.97        | 106.43 | -71.46 | AVG      |         |
| 6       | 0.1466 | 2.41          | 20.52          | 22.93        | 104.22 | -81.29 | AVG      |         |

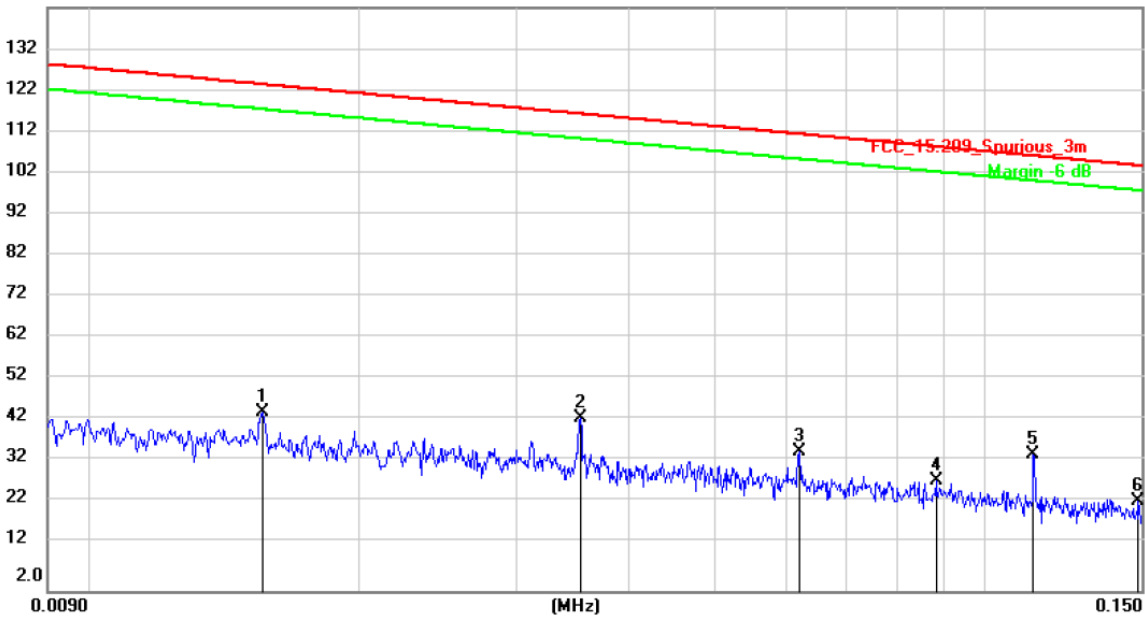
|                        |                                 |
|------------------------|---------------------------------|
| M/N: L1-A              | Testing Voltage: AC 120V / 60Hz |
| Polarization: Vertical | Detector: AVG                   |
| Test Mode: 1           | Distance: 3m                    |

## Radiated Emission Measurement

Date: 2025/3/9

Time: 22:34:50

142.0 dBuV/m



| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measure-ment | Limit  | Over   |          |
|-----|-----|--------|---------------|----------------|--------------|--------|--------|----------|
|     |     | MHz    | dBuV          | dB/m           | dBuV/m       | dBuV/m | dB     | Detector |
| 1   |     | 0.0156 | 24.86         | 20.05          | 44.91        | 123.57 | -78.66 | AVG      |
| 2   |     | 0.0354 | 22.82         | 20.54          | 43.36        | 116.50 | -73.14 | AVG      |
| 3   |     | 0.0621 | 14.72         | 20.54          | 35.26        | 111.64 | -76.38 | AVG      |
| 4   |     | 0.0883 | 7.94          | 20.54          | 28.48        | 108.60 | -80.12 | AVG      |
| 5   | *   | 0.1135 | 14.06         | 20.53          | 34.59        | 106.43 | -71.84 | AVG      |
| 6   |     | 0.1487 | 3.04          | 20.52          | 23.56        | 104.10 | -80.54 | AVG      |

M/N: L1-A

Testing Voltage: AC 120V / 60Hz

Polarization: Horizontal

Detector: QP

Test Mode: 1

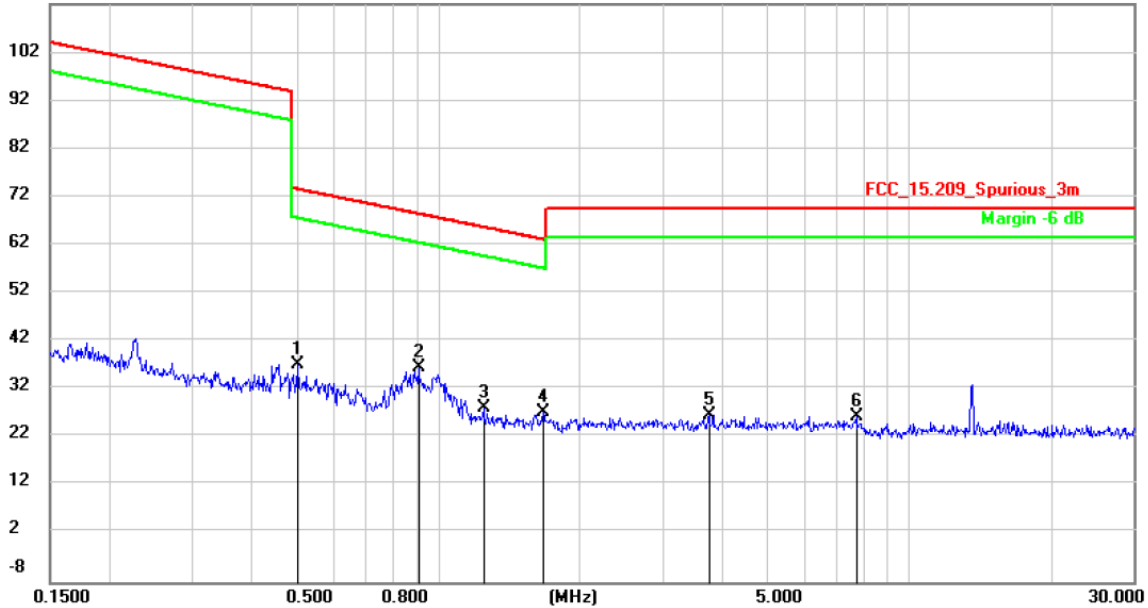
Distance: 3m

## Radiated Emission Measurement

Date: 2025/3/9

Time: 22:47:15

112.0 dBuV/m



| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   |                  |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|------------------|
|     |     | MHz    | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector Comment |
| 1   |     | 0.5045 | 16.70         | 20.42          | 37.12       | 73.55  | -36.43 | QP               |
| 2   | *   | 0.9086 | 16.06         | 20.40          | 36.46       | 68.44  | -31.98 | QP               |
| 3   |     | 1.2486 | 7.69          | 20.40          | 28.09       | 65.68  | -37.59 | QP               |
| 4   |     | 1.6713 | 6.74          | 20.40          | 27.14       | 63.14  | -36.00 | QP               |
| 5   |     | 3.7593 | 6.36          | 20.42          | 26.78       | 69.50  | -42.72 | QP               |
| 6   |     | 7.7278 | 5.73          | 20.51          | 26.24       | 69.50  | -43.26 | QP               |

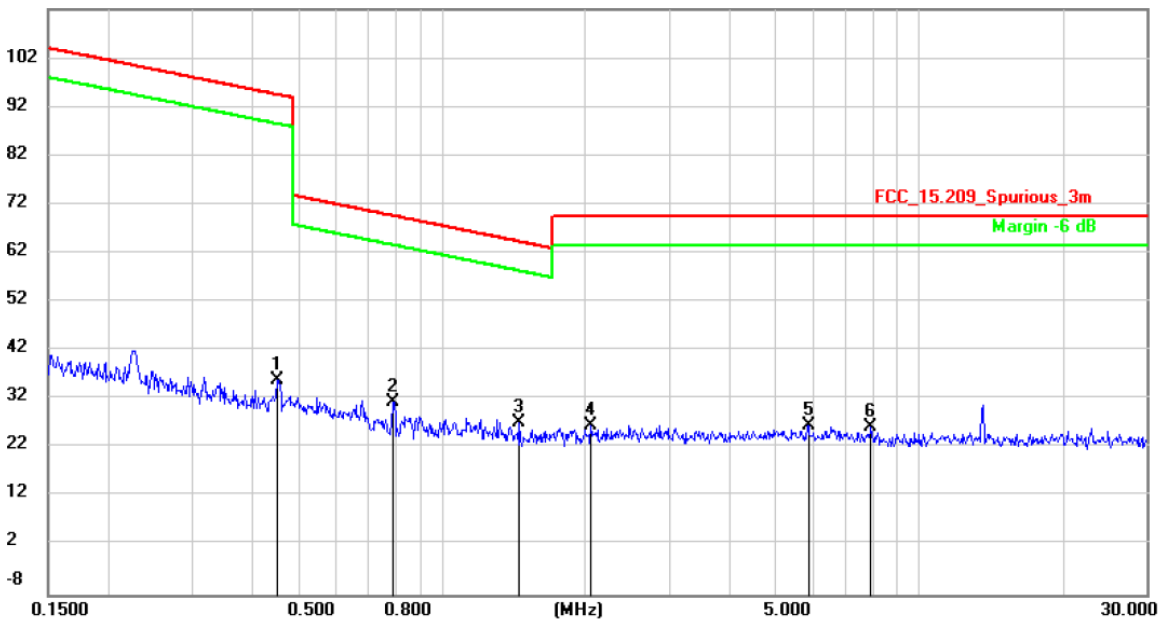
|                        |                                 |
|------------------------|---------------------------------|
| M/N: L1-A              | Testing Voltage: AC 120V / 60Hz |
| Polarization: Vertical | Detector: AVG, QP               |
| Test Mode: 1           | Distance: 3m                    |

## Radiated Emission Measurement

Date: 2025/3/9

Time: 22:27:27

112.0 dBuV/m



| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz    | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 0.4539 | 15.61         | 20.43          | 36.04       | 94.46  | -58.42 | AVG      |         |
| 2   |     | 0.7917 | 10.95         | 20.41          | 31.36       | 69.63  | -38.27 | QP       |         |
| 3   | *   | 1.4562 | 6.79          | 20.40          | 27.19       | 64.34  | -37.15 | QP       |         |
| 4   |     | 2.0549 | 6.35          | 20.40          | 26.75       | 69.50  | -42.75 | QP       |         |
| 5   |     | 5.8668 | 6.13          | 20.46          | 26.59       | 69.50  | -42.91 | QP       |         |
| 6   |     | 7.9352 | 5.75          | 20.51          | 26.26       | 69.50  | -43.24 | QP       |         |

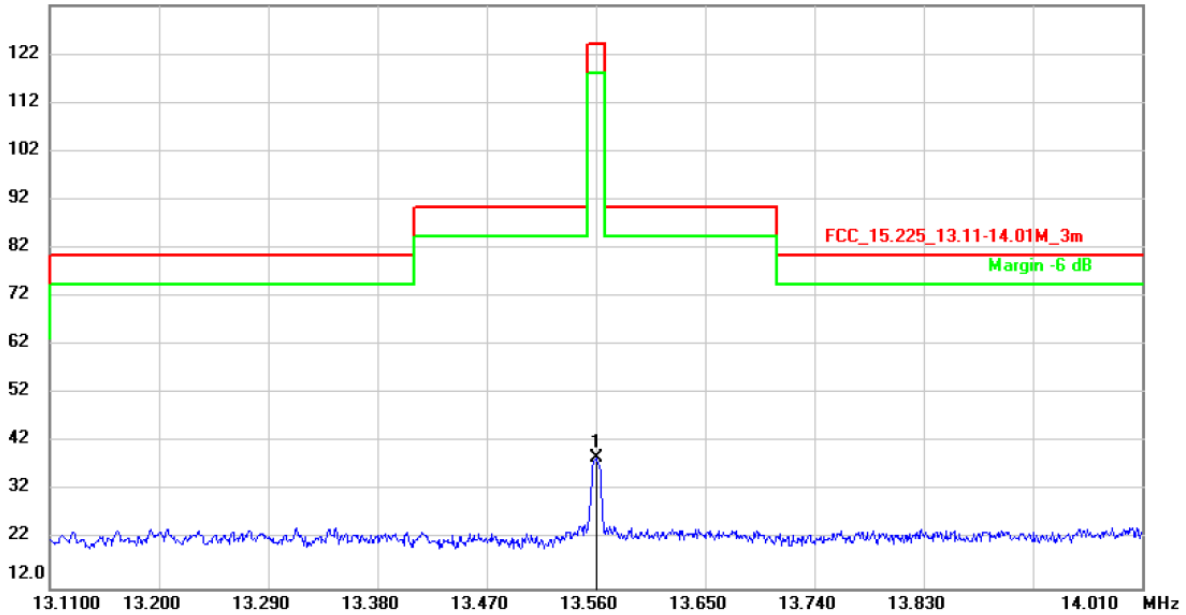
|                          |                          |
|--------------------------|--------------------------|
| M/N: L1-A                | Testing Voltage: DC 3.7V |
| Polarization: Horizontal | Detector: Peak           |
| Test Mode: 1             | Distance: 3m             |

## Radiated Emission Measurement

Date: 2025/3/10

Time: 9:09:32

132.0 dBuV/m



| No. | Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |
|-----|-----|---------|---------------|----------------|-------------|--------|--------|----------|
|     |     | MHz     | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector |
| 1   | *   | 13.5600 | 18.14         | 20.56          | 38.70       | 124.00 | -85.30 | peak     |

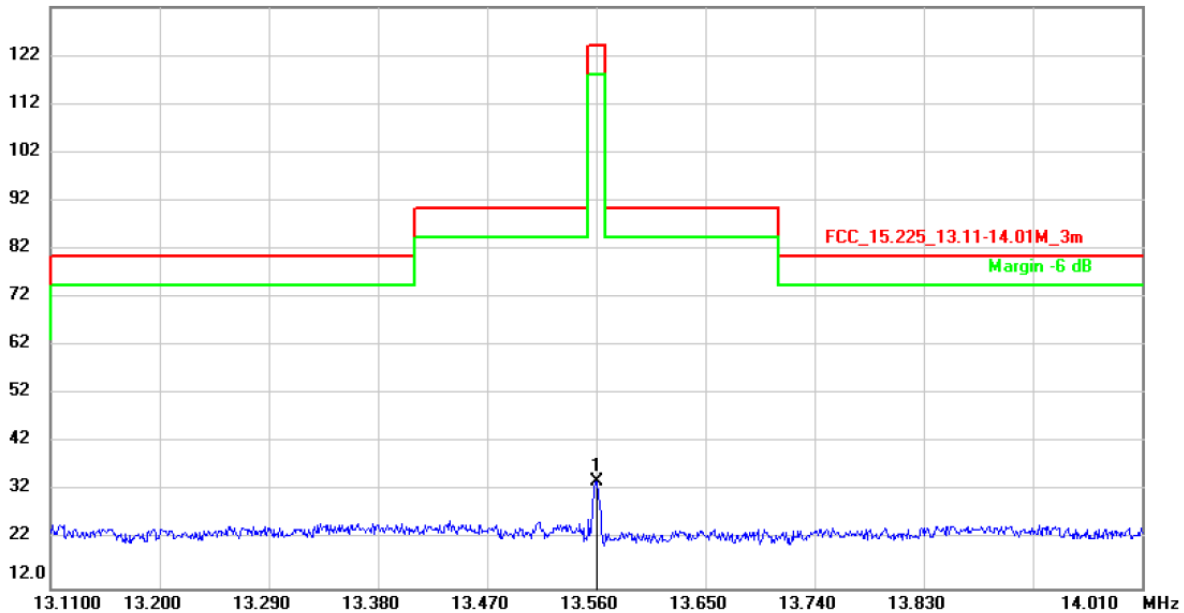
|                        |                          |
|------------------------|--------------------------|
| M/N: L1-A              | Testing Voltage: DC 3.7V |
| Polarization: Vertical | Detector: Peak           |
| Test Mode: 1           | Distance: 3m             |

## Radiated Emission Measurement

Date: 2025/3/10

Time: 9:02:13

132.0 dBuV/m



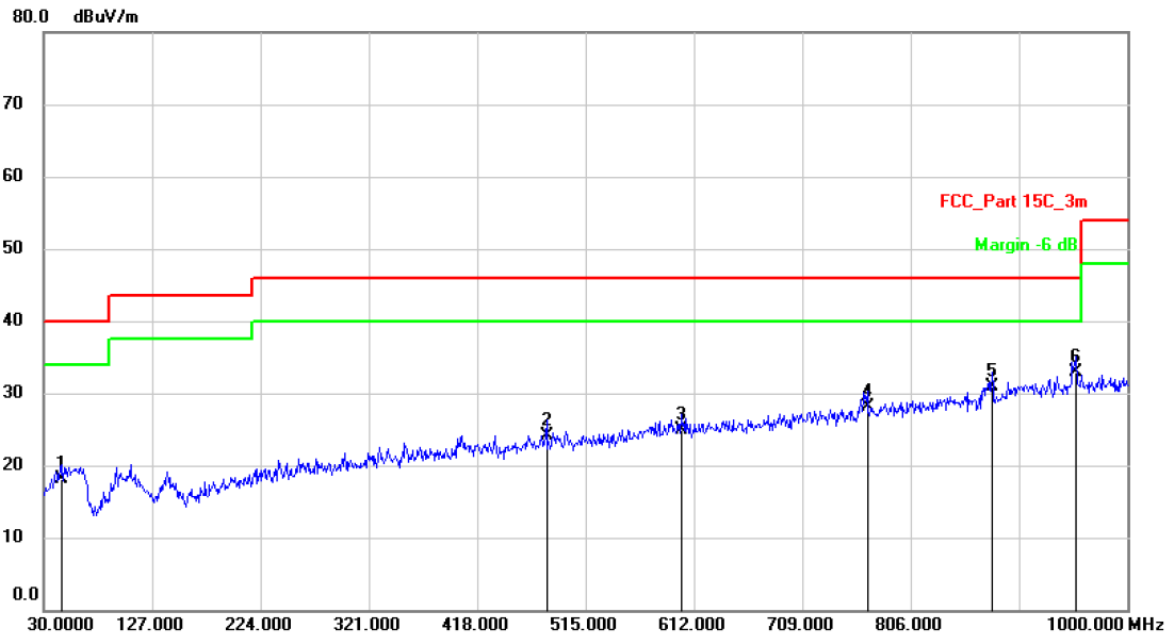
| No. | Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit  | Over   | Detector | Comment |
|-----|-----|---------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz     | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     |          |         |
| 1   | *   | 13.5600 | 13.63         | 20.56          | 34.19       | 124.00 | -89.81 | peak     |         |

|                          |                                 |
|--------------------------|---------------------------------|
| M/N: L1-A                | Testing Voltage: AC 120V / 60Hz |
| Polarization: Horizontal | Detector: QP                    |
| Test Mode: 1             | Distance: 3m                    |

## Radiated Emission Measurement

Date: 2025/3/9

Time: 23:05:02



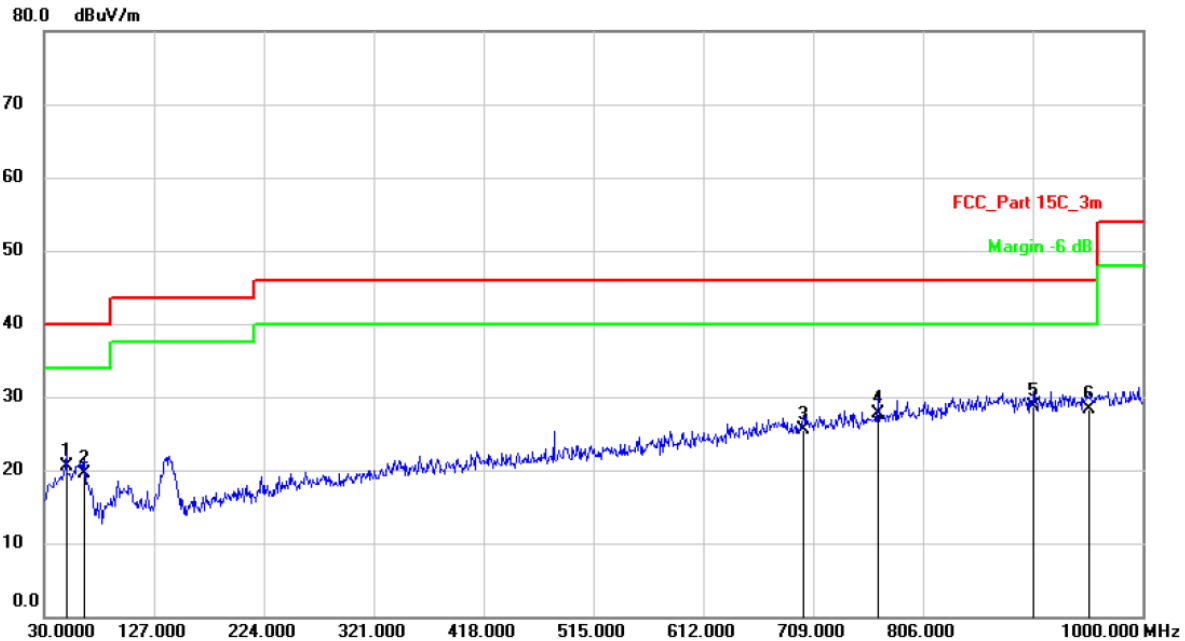
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 46.4900  | 25.61         | -7.51          | 18.10       | 40.00  | -21.90 | QP       |         |
| 2   |     | 480.0800 | 26.25         | -2.05          | 24.20       | 46.00  | -21.80 | QP       |         |
| 3   |     | 600.3600 | 24.32         | 0.68           | 25.00       | 46.00  | -21.00 | QP       |         |
| 4   |     | 767.2000 | 24.84         | 3.36           | 28.20       | 46.00  | -17.80 | QP       |         |
| 5   |     | 878.7500 | 25.97         | 4.93           | 30.90       | 46.00  | -15.10 | QP       |         |
| 6   | *   | 954.4100 | 26.72         | 6.28           | 33.00       | 46.00  | -13.00 | QP       |         |

|                        |                                 |
|------------------------|---------------------------------|
| M/N: L1-A              | Testing Voltage: AC 120V / 60Hz |
| Polarization: Vertical | Detector: QP                    |
| Test Mode: 1           | Distance: 3m                    |

## Radiated Emission Measurement

Date: 2025/3/9

Time: 23:12:20



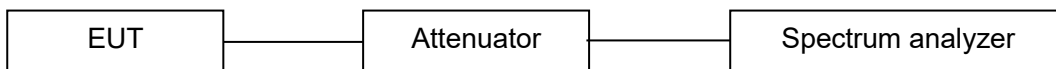
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 49.4000  | 27.60         | -7.00          | 20.60       | 40.00  | -19.40 | QP       |         |
| 2   |     | 65.8900  | 29.13         | -9.63          | 19.50       | 40.00  | -20.50 | QP       |         |
| 3   |     | 700.2700 | 23.33         | 2.17           | 25.50       | 46.00  | -20.50 | QP       |         |
| 4   |     | 766.2300 | 24.46         | 3.34           | 27.80       | 46.00  | -18.20 | QP       |         |
| 5   | *   | 903.9700 | 23.74         | 4.96           | 28.70       | 46.00  | -17.30 | QP       |         |
| 6   |     | 952.4700 | 23.31         | 5.09           | 28.40       | 46.00  | -17.60 | QP       |         |

### 13.3 20dB Occupied Bandwidth

#### LIMIT

According to 15.215 (C), Intentional radiators operating under the alternative provisions to the general emission limits, as contained in 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. In the case of intentional radiators operating under the provisions of subpart E, the emission bandwidth may span across multiple contiguous frequency bands identified in that subpart. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

#### BLOCK DIAGRAM OF TEST SETUP



#### TEST PROCEDURES

1. The output port (antenna) from the transmitter was connected to an attenuator and then to the input of the RF Spectrum analyzer.
2. Spectrum analyzer set the corresponding parameters for measurement and record the tested data

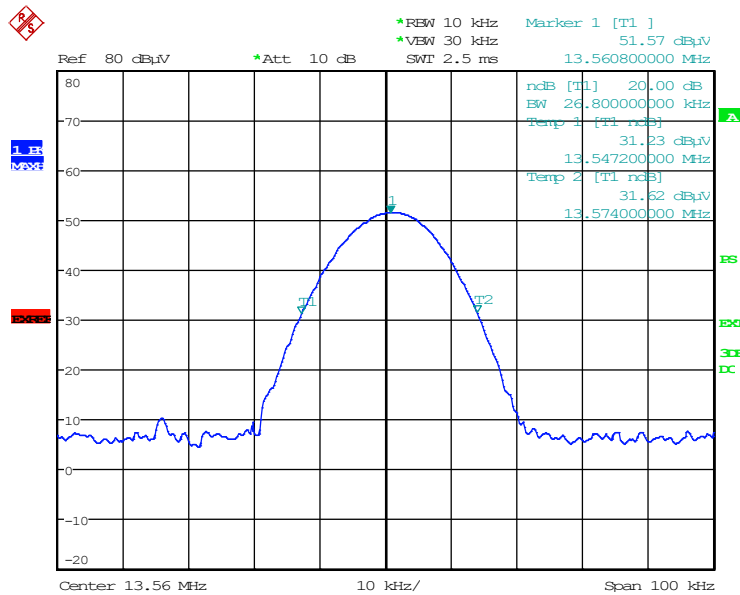
## TEST RESULTS

PASS

Please refer to the following table.

| Frequency (MHz) | 20 dB Bandwidth (KHz) | Result |
|-----------------|-----------------------|--------|
| 13.56           | 26.80                 | PASS   |

### Test Photo



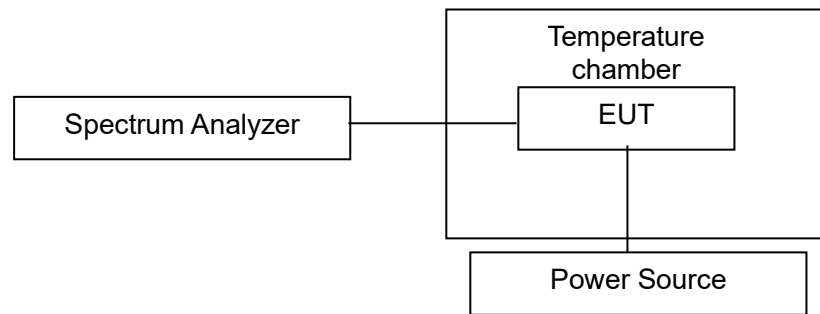
Date: 10.MAR.2025 01:18:26

## 13.4 Frequency Stability

### LIMIT

15.225 (e) The frequency tolerance of the carrier signal shall be maintained within 0.01 % of the operating frequency over a temperature variation of -20 degrees to + 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

### BLOCK DIAGRAM OF TEST SETUP



### TEST PROCEDURES

- The EUT was placed inside the environmental test chamber and powered by Power source.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- The chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

Note: The EUT set at un-modulation mode during frequency stability test.

### TEST RESULTS

PASS

Please refer to the following table.

| Frequency (MHZ) | Temperature (°C) | Power Supplied (Vdc) | Measurement Frequency (MHZ) | Frequency Error (%) | Limit  | Test Result |
|-----------------|------------------|----------------------|-----------------------------|---------------------|--------|-------------|
| 13.56           | -20              | 3.700                | 13.5602                     | 0.00147%            | ±0.01% | Pass        |
|                 | -10              |                      | 13.5601                     | 0.00074%            | ±0.01% | Pass        |
|                 | 0                |                      | 13.5602                     | 0.00147%            | ±0.01% | Pass        |
|                 | 10               |                      | 13.5603                     | 0.00221%            | ±0.01% | Pass        |
|                 | 20               |                      | 13.5602                     | 0.00147%            | ±0.01% | Pass        |
|                 | 30               |                      | 13.5603                     | 0.00221%            | ±0.01% | Pass        |
|                 | 40               |                      | 13.5603                     | 0.00221%            | ±0.01% | Pass        |
|                 | 50               |                      | 13.5602                     | 0.00147%            | ±0.01% | Pass        |
|                 | 20               | 3.145                | 13.5601                     | 0.00074%            | ±0.01% | Pass        |
|                 | 20               | 4.255                | 13.5603                     | 0.00221%            | ±0.01% | Pass        |

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## 13.5 Antenna Requirement

### STANDARD APPLICABLE

According to of FCC part 15C section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### ANTENNA CONNECTED CONSTRUCTION

The antenna is PCB antenna that no antenna other than furnished by the responsible party shall be used with the device, and the best case gain of the antenna is 0dBi, Therefore, the antenna is consider meet the requirement.

## 14. Test Equipment List

| Item | Equipment                         | Manufacturer                            | Model No.             | Serial No.        | Last Cal.     | Cal. Interval |
|------|-----------------------------------|-----------------------------------------|-----------------------|-------------------|---------------|---------------|
| 1.   | Test Receiver                     | Rohde & Schwarz                         | ESCI7                 | 100837            | Mar. 12, 2025 | 1 Year        |
| 2.   | Antenna                           | Schwarzbeck                             | VULB9162              | 9162-010          | Mar. 23, 2024 | 2 Year        |
| 3.   | Spectrum Analyzer                 | Keysight                                | N9020A                | MY54200831        | Mar. 12, 2025 | 1 Year        |
| 4.   | Spectrum Analyzer                 | Keysight                                | N9010B                | MY62170254        | Aug. 14, 2024 | 1 Year        |
| 5.   | Power Sensor                      | DARE                                    | RPR3006W              | 15I00041SNO<br>64 | Mar. 12, 2025 | 1 Year        |
| 6.   | Horn Antenna                      | COM-Power                               | AH-118                | 071078            | Mar. 23, 2024 | 2 Year        |
| 7.   | Pre-Amplifier                     | HP                                      | HP 8449B              | 3008A00964        | Mar. 12, 2025 | 1 Year        |
| 8.   | Pre-Amplifier                     | HP                                      | HP 8447D              | 1145A00203        | Mar. 12, 2025 | 1 Year        |
| 9.   | Loop Antenna                      | Schwarzbeck                             | FMZB 1513             | 1513-272          | Mar. 23, 2024 | 2 Year        |
| 10.  | Horn Antenna                      | COM-Power                               | AH-840                | 10100020          | Mar. 23, 2024 | 2 Year        |
| 11.  | Test Receiver                     | Rohde & Schwarz                         | ESCI                  | 101152            | Mar. 12, 2025 | 1 Year        |
| 12.  | L.I.S.N                           | Rohde & Schwarz                         | ENV 216               | 101317            | Mar. 12, 2025 | 1 Year        |
| 13.  | L.I.S.N                           | Rohde & Schwarz                         | ESH2-Z5               | 893606/014        | Mar. 12, 2025 | 1 Year        |
| 14.  | RF Switching Unit                 | Compliance<br>Direction Systems<br>Inc. | RSU-M2                | 38311             | Mar. 12, 2025 | 1 Year        |
| 15.  | Temperature &<br>Humidity Chamber | Wanshun                                 | SS-HWHS-80            | N/A               | Mar. 12, 2025 | 1 Year        |
| 16.  | DC Source                         | Maynuo                                  | MY8811                | N/A               | Mar. 12, 2025 | 1 Year        |
| 17.  | Temporary<br>antenna connector    | TESCOM                                  | SS402                 | N/A               | N/A           | N/A           |
| 18.  | Chamber                           | SAEMC                                   | 9*7*7m                | N/A               | Apr. 21, 2023 | 2 Year        |
| 19.  | Test Software                     | EZ                                      | EZ_EMG,<br>NTC-3A1.1  | N/A               | N/A           | N/A           |
| 20.  | Test Software                     | MWRF                                    | MTS 8310,<br>V2.0.0.0 | N/A               | N/A           | N/A           |

Note: For photographs of EUT and measurement, please refer to appendix in separate documents.

---End---