



# FCC Test Report

**Application No.:** DNT2505190384R5221-07346

**Applicant:** Shenzhen jiayuxiang audio Electronics Co., Ltd

**Address of Applicant:** Building 7, xufa Industrlal Park, liyuhe Industrial Zone, gongminglou village, Shenzhen

**EUT Description:** Wireless microphone

**Model No.:** U30, V15

**FCC ID:** 2BC75-U30

**Power Supply:** Input:DC 5V & DC 3.7V From Battery

**Trade Mark:** /

**Standards:** 47 CFR FCC Part 2, Subpart J  
47 CFR Part 15, Subpart C  
ANSI C63.10: 2013  
ETSI EN 300 422-1 V2.2.1 (2021-11)

**Date of Receipt:** 2025/05/20

**Date of Test:** 2025/05/23 to 2025/07/04

**Date of Issue:** 2025/07/04

**Test Result:** **PASS**

**Prepared By:** Wayne Lin (Testing Engineer)

**Reviewed By:** Pengyils chen (Project Engineer)

**Approved By:** Yefei Shan (Manager)



Note: If there is any objection to the results in this report, please submit a written inquiry to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp, and is issued by the company in accordance with the requirements of the "Conditions of Issuance of Test Reports" printed in the attached page. Unless otherwise stated, the results presented in this report only apply to the samples tested this time. Partial reproduction of this report is not allowed unless approved by the company in writing.

**Dongguan DN Testing Co., Ltd.**

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**Report Revise Record**

| Report Version | Revise Time | Issued Date   | Valid Version | Notes           |
|----------------|-------------|---------------|---------------|-----------------|
| V2.0           | /           | July.04, 2025 | Valid         | Original Report |



## 1 Test Summary

| Test Item                         | Test Requirement  | Test Method                                   | Test Result | Result |
|-----------------------------------|-------------------|-----------------------------------------------|-------------|--------|
| Maximum Radiated Power            | 15.236(d)         | ANSI C63.10 :2013                             | Clause 3.2  | PASS   |
| Occupied Bandwidth                | 15.236(f)(1)      | ANSI C63.10 :2013                             | Clause 3.3  | PASS   |
| Emissions within the band         | 15.236(g)(1)      | ETSI EN 300 422-1<br>V2.2.1 Section 4.2.4.2.2 | Clause 3.4  | PASS   |
| Spurious Emissions                | 15.236(g)(4)      | ETSI EN 300 422-1<br>V2.2.1 Section 4.2.4.1.2 | Clause 3.5  | PASS   |
| Frequency Stability               | 15.236(f)(1)(iii) | 15.236(f)(1)(iii)                             | Clause 3.6  | PASS   |
| AC Power Line Conducted Emissions | 15.207            | ANSI C63.10 :2013                             | Clause 3.7  | PASS   |

Note:

1. "N/A" denotes test is not applicable in this test report.



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## 2 General Information

### 2.1 Test Location

|                |                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------|
| Company:       | Dongguan DN Testing Co., Ltd                                                                                |
| Address:       | No. 1, West Fourth Street, South Xinfu Road, Wusha Liwu, Chang 'an Town, Dongguan City, Guangdong P.R.China |
| Test engineer: | Wayne Lin                                                                                                   |

### 2.2 General Description of EUT

|                             |                                                                                                                              |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer:               | Shenzhen jiayuxiang audio Electronics Co., Ltd                                                                               |
| Address of Manufacturer:    | Building 7, xufa Industrial Park, liyuhe Industrial Zone, gongminglou village, Shenzhen                                      |
| EUT Description:            | Wireless microphone                                                                                                          |
| Test Model No.:             | U30                                                                                                                          |
| Additional Model(s):        | V15                                                                                                                          |
| Chip Type:                  | KT0641                                                                                                                       |
| Serial Number               | PR2505190384R5221                                                                                                            |
| Power Supply                | Input:DC 5V & DC 3.7V From Battery                                                                                           |
| Trade Mark:                 | N/A                                                                                                                          |
| Hardware Version:           | V1.0                                                                                                                         |
| Software Version:           | V1.0                                                                                                                         |
| Operation Frequency:        | 658.81MHz-662.33MHz                                                                                                          |
| Declared Channel Bandwidth: | 75KHz                                                                                                                        |
| Type of Modulation:         | FSK                                                                                                                          |
| Sample Type:                | <input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module, <input type="checkbox"/> Mobile Device |
| Antenna Type:               | <input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated                                            |
| Antenna Ports               | <input checked="" type="checkbox"/> Ant 1, <input type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3                    |
| Antenna Gain*:              | <input checked="" type="checkbox"/> Provided by applicant                                                                    |
|                             | -1.26dBi                                                                                                                     |
| RF Cable*:                  | <input checked="" type="checkbox"/> Provided by applicant                                                                    |
|                             | 0.5dB(0.6~1GHz); 0.8dB(1.4~2GHz); 1.0dB(2.1~2.7GHz); 1.5dB(3~4GHz); 1.8dB(4.4~6GHz);                                         |

#### Remark:

\*All models are just appearance colors different, motherboard, PCB circuit board, chip, electronic components is all the same.

\*Since the above data and/or information is provided by the applicant relevant results or conclusions of this report are only made for these data and/or information , DNT is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.



## 2.3 Channel List

| Operation Frequency of each channel |           |         |           |         |           |         |           |
|-------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                             | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1                                   | 658.81MHz | 2       | 658.93MHz | 3       | 659.23MHz | 4       | 661.73MHz |
| 5                                   | 662.33MHz |         |           |         |           |         |           |

## 2.4 Test Environment and Mode

| Operating Environment: |                                                                                          |
|------------------------|------------------------------------------------------------------------------------------|
| Temperature:           | -20~50 °C                                                                                |
| Humidity:              | 45~56 % RH                                                                               |
| Atmospheric Pressure:  | 101.0~101.30 KPa                                                                         |
| Test mode:             |                                                                                          |
| Transmitting mode:     | Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate. |

## 2.5 Power Setting of Test Software

|                |         |         |         |
|----------------|---------|---------|---------|
| Software Name  | N/A     |         |         |
| Frequency(MHz) | 658.81  | 659.23  | 662.33  |
| Setting        | Default | Default | Default |

## 2.6 Description of Support Units

The EUT has been tested independent unit.



## 2.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

**Lab A:**

• **FCC, USA**

Designation Number: CN1348

• **A2LA (Certificate No. 7050.01)**

DONGGUAN DN TESTING CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 7050.01.

• **Innovation, Science and Economic Development Canada**

DONGGUAN DN TESTING CO., LTD. EMC Laboratory has been recognized by ISED as an accredited testing laboratory. CAB identifier is CN0149.

IC#: 30755.

## 2.8 Measurement Uncertainty (95% confidence levels, k=2)

| No. | Item                           | Measurement Uncertainty |
|-----|--------------------------------|-------------------------|
| 1   | Occupied Bandwidth             | $\pm 0.0196\%$          |
| 2   | Maximum Conducted Output Power | $\pm 0.686$ dB          |

| No. | Item                | Measurement Uncertainty        |
|-----|---------------------|--------------------------------|
| 1   | Conduction Emission | $\pm 3.0$ dB (150kHz to 30MHz) |
| 2   | Radiated Emission   | $\pm 4.8$ dB (Below 1GHz)      |
|     |                     | $\pm 4.8$ dB (1GHz to 6GHz)    |
|     |                     | $\pm 4.5$ dB (6GHz to 18GHz)   |
|     |                     | $\pm 5.02$ dB (Above 18GHz)    |



## 2.9 Equipment List

| For Connect EUT Antenna Terminal Test |              |                        |               |            |            |
|---------------------------------------|--------------|------------------------|---------------|------------|------------|
| Description                           | Manufacturer | Model                  | Serial Number | Cal date   | Due date   |
| Signal Generator                      | Keysight     | N5181A-6G              | MY48180415    | 2024-10-23 | 2025-10-22 |
| Signal Generator                      | Keysight     | N5182B                 | MY57300617    | 2024-10-23 | 2025-10-22 |
| Power supply                          | Keysight     | E3640A                 | ZB2022656     | 2024-10-23 | 2025-10-22 |
| Radio Communication Tester            | R&S          | CMW500                 | 105082        | 2024-10-23 | 2025-10-22 |
| Spectrum Analyzer                     | Aglient      | N9010A                 | MY52220200    | 2024-10-23 | 2025-10-22 |
| BT/WIFI Test Software                 | Tonscend     | JS1120 V3.1.83         | NA            | NA         | NA         |
| RF Control Unit                       | Tonscend     | JS0806-2               | 22F8060581    | NA         | NA         |
| Power Sensor                          | Anritsu      | ML2495A                | 2129005       | 2024-10-23 | 2025-10-22 |
| Pulse Power Sensor                    | Anritsu      | MA2411B                | 1911397       | 2024-10-23 | 2025-10-22 |
| temperature and humidity box          | SCOTEK       | SCD-C40-80PRO          | 6866682020008 | 2024-10-23 | 2025-10-22 |
| RF Cable                              | ETS-LINDGREN | RFC-NMS-100-NMS-350-IN | NA            | 2024-10-23 | 2025-10-22 |

| Test Equipment for Conducted Emission |              |               |               |            |            |
|---------------------------------------|--------------|---------------|---------------|------------|------------|
| Description                           | Manufacturer | Model         | Serial Number | Cal Date   | Due Date   |
| Receiver                              | R&S          | ESCI3         | 101152        | 2024-10-23 | 2025-10-22 |
| LISN                                  | R&S          | ENV216        | 102874        | 2024-10-23 | 2025-10-22 |
| ISN                                   | R&S          | ENY81-CA6     | 1309.8590.03  | 2024-10-23 | 2025-10-22 |
| RF Cable                              | ETS-LINDGREN | Cable-CE TS01 | /             | 2024-10-23 | 2025-10-22 |

| Test Equipment for Radiated Emission(30MHz-1000MHz) |              |               |               |            |            |
|-----------------------------------------------------|--------------|---------------|---------------|------------|------------|
| Description                                         | Manufacturer | Model         | Serial Number | Cal Date   | Due Date   |
| Receiver                                            | R&S          | ESR7          | 102497        | 2024-10-23 | 2025-10-22 |
| Test Software                                       | ETS-LINDGREN | TiLE-FULL     | NA            | NA         | NA         |
| RF Cable                                            | ETS-LINDGREN | RE Cable-TS01 | NA            | 2024-10-23 | 2025-10-22 |
| Log periodic antenna                                | ETS-LINDGREN | VULB 9168     | 01475         | 2022-11-28 | 2025-11-27 |



|               |                      |            |           |            |            |
|---------------|----------------------|------------|-----------|------------|------------|
| Pre-amplifier | Schwarzbeck          | BBV9743B   | 00423     | 2024-10-23 | 2025-10-22 |
| Attenuator 1  | Shanghai<br>Huaxiang | TS2-6-18-A | 22061803  | 2025-5-6   | 2026-5-5   |
| Attenuator 2  | Shanghai<br>Huaxiang | TS2-6-6-A  | 230927163 | 2025-5-6   | 2026-5-5   |

| Test Equipment for Radiated Emission(Above 1000MHz) |              |               |               |            |            |
|-----------------------------------------------------|--------------|---------------|---------------|------------|------------|
| Description                                         | Manufacturer | Model         | Serial Number | Cal Date   | Due Date   |
| Frequency analyser                                  | Keysight     | N9010A        | MY52221458    | 2024-10-23 | 2025-10-22 |
| RF Cable                                            | ETS-LINDGREN | RE Cable-TS02 | NA            | 2024-10-23 | 2025-10-22 |
| Horn Antenna                                        | ETS-LINDGREN | 3117          | 00252567      | 2022-11-28 | 2025-11-27 |
| Double ridged<br>waveguide antenna                  | ETS-LINDGREN | 3116C         | 00251780      | 2022-11-28 | 2025-11-27 |
| Test Software                                       | ETS-LINDGREN | TILE-FULL     | NA            | NA         | NA         |
| Pre-amplifier                                       | ETS-LINDGREN | 3117-PA       | 252567        | 2024-10-23 | 2025-10-22 |
| Pre-amplifier                                       | ETS-LINDGREN | 3116C-PA      | 251780        | 2024-10-23 | 2025-10-22 |

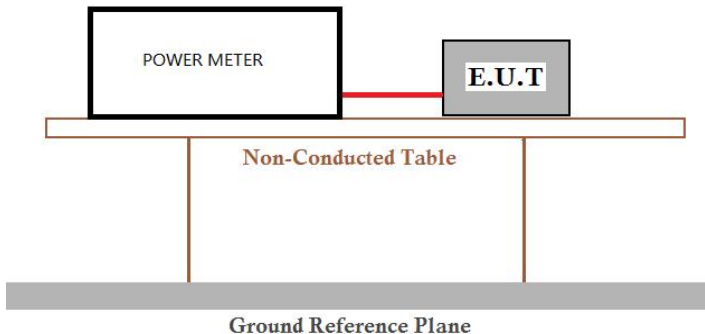
## 2.10 Assistant equipment used for test

| Code | Equipment | Manufacturer | Model No.      | Equipment No. |
|------|-----------|--------------|----------------|---------------|
| 1    | Adapter   | GaoFanDe     | GFDQ3-0502000U | NA            |



### 3 Test results and Measurement Data

#### 3.1 Maximum Radiated Power

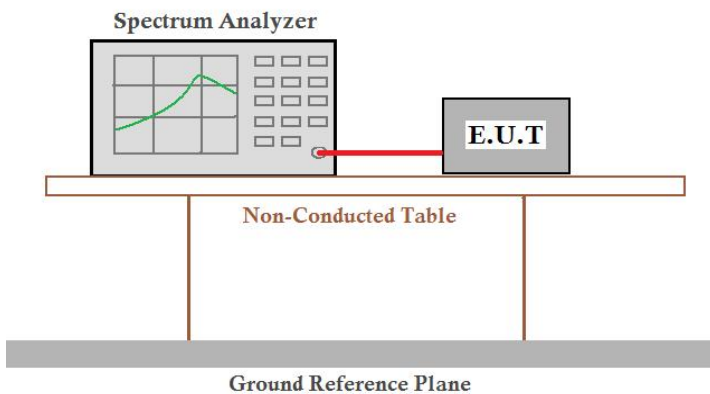
|                        |                                                                                    |
|------------------------|------------------------------------------------------------------------------------|
| Test Requirement:      | 47 CFR Part 15C Section 15.236(d)                                                  |
| Test Method:           | ANSI C63.10: 2013 Section 11.9.1.3                                                 |
| Test Setup:            |  |
| Instruments Used:      | Refer to section 2.9 for details                                                   |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates                              |
| Final Test Mode:       | Through Pre-scan, find the the worst case of FSK                                   |
| Limit:                 | In the 600 MHz guard band and the 600 MHz duplex gap: 20 mW(13.01dBm) EIRP.        |
| Test Results:          | Pass                                                                               |

#### Test Data

| Test Mode | Antenna | Freq(MHz) | Conducted Power [dBm] | Gain (dBi) | EIRP   | Limit [dBm] | Verdict |
|-----------|---------|-----------|-----------------------|------------|--------|-------------|---------|
| FSK       | Ant1    | 658.81    | -21.29                | -1.26      | -22.55 | ≤13.01      | PASS    |
|           |         | 659.23    | -21.33                | -1.26      | -22.59 | ≤13.01      | PASS    |
|           |         | 662.33    | -18.97                | -1.26      | -20.23 | ≤13.01      | PASS    |

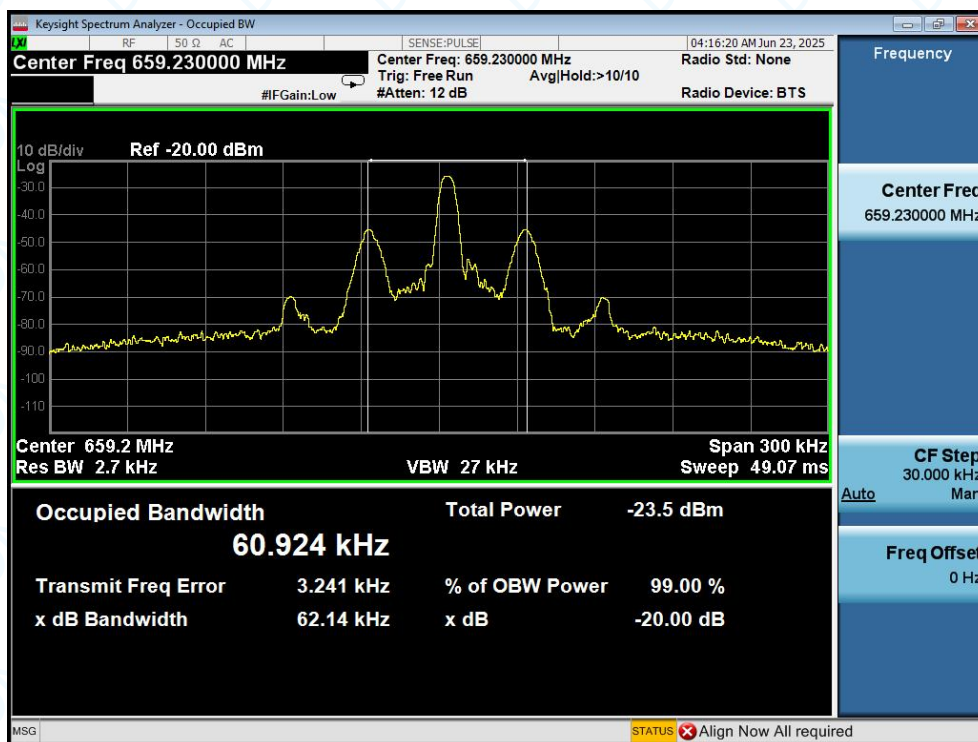
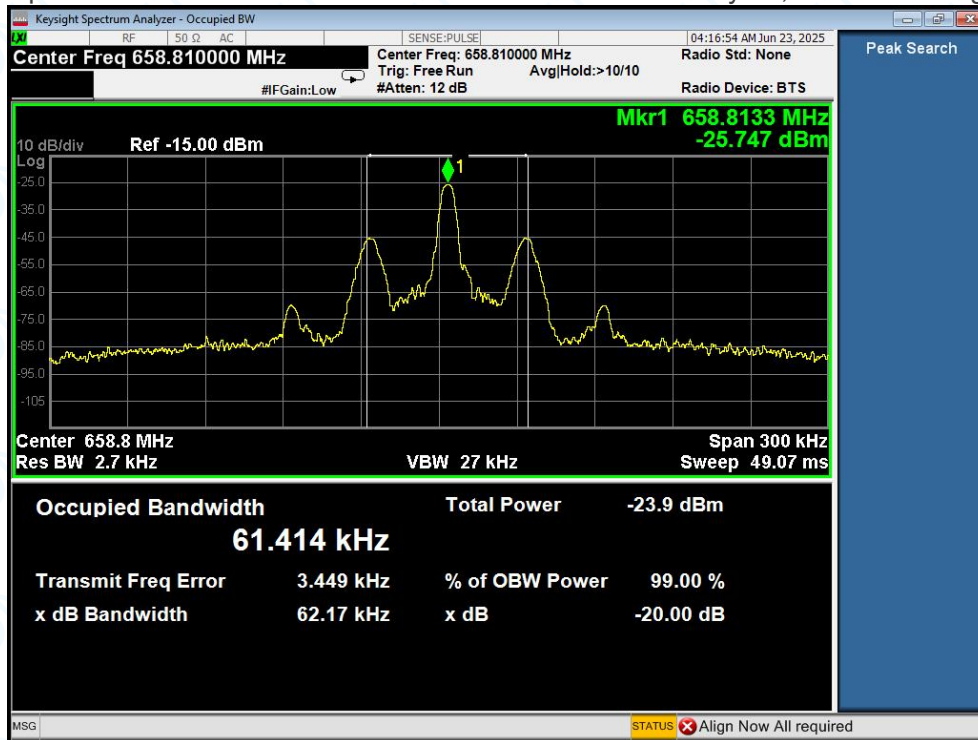


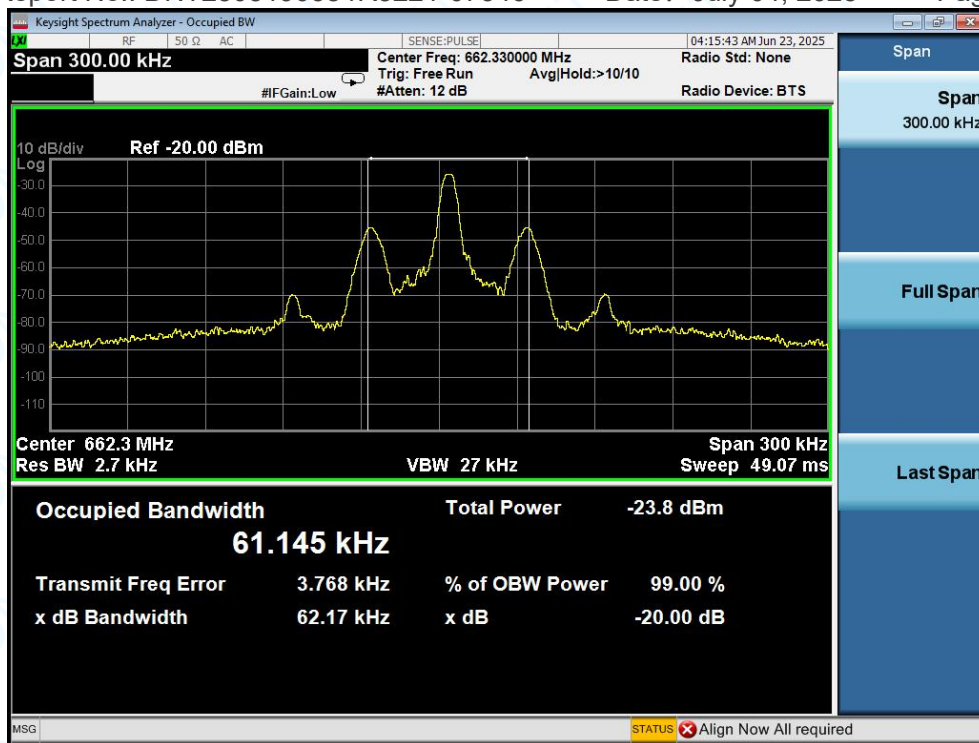
### 3.2 Occupied Bandwidth

|                        |                                                                                    |
|------------------------|------------------------------------------------------------------------------------|
| Test Requirement:      | 47 CFR Part 15C Section 15.236(f)(1)                                               |
| Test Method:           | ANSI C63.10 :2013 Section 6.9.3                                                    |
| Test Setup:            |  |
| Test Instruments:      | Refer to section 2.9 for details                                                   |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates                              |
| Final Test Mode:       | Through Pre-scan, find the the worst case of FSK                                   |
| Limit:                 | 200KHz                                                                             |
| Test Results:          | Pass                                                                               |

#### Test Data

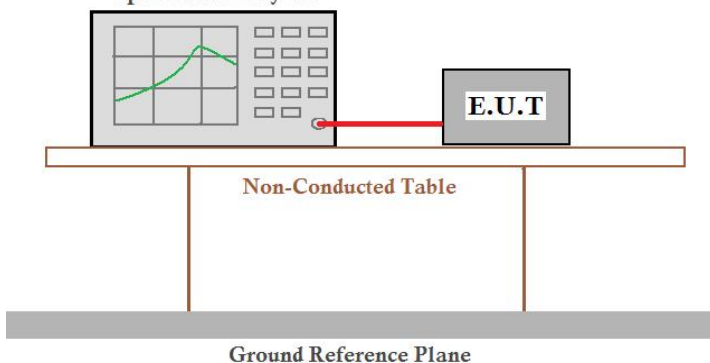
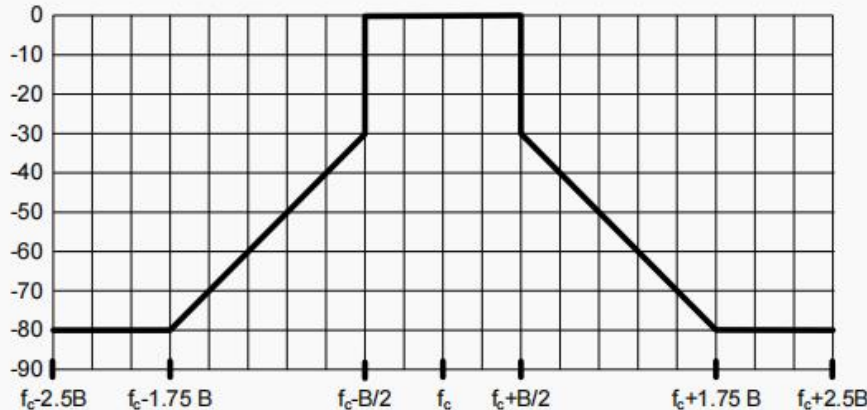
| Frequency(MHz) | OCB(KHZ) | Limit(KHz) | Verdict |
|----------------|----------|------------|---------|
| 658.81         | 61.414   | 200        | PASS    |
| 659.23         | 60.924   | 200        | PASS    |
| 662.33         | 61.145   | 200        | PASS    |







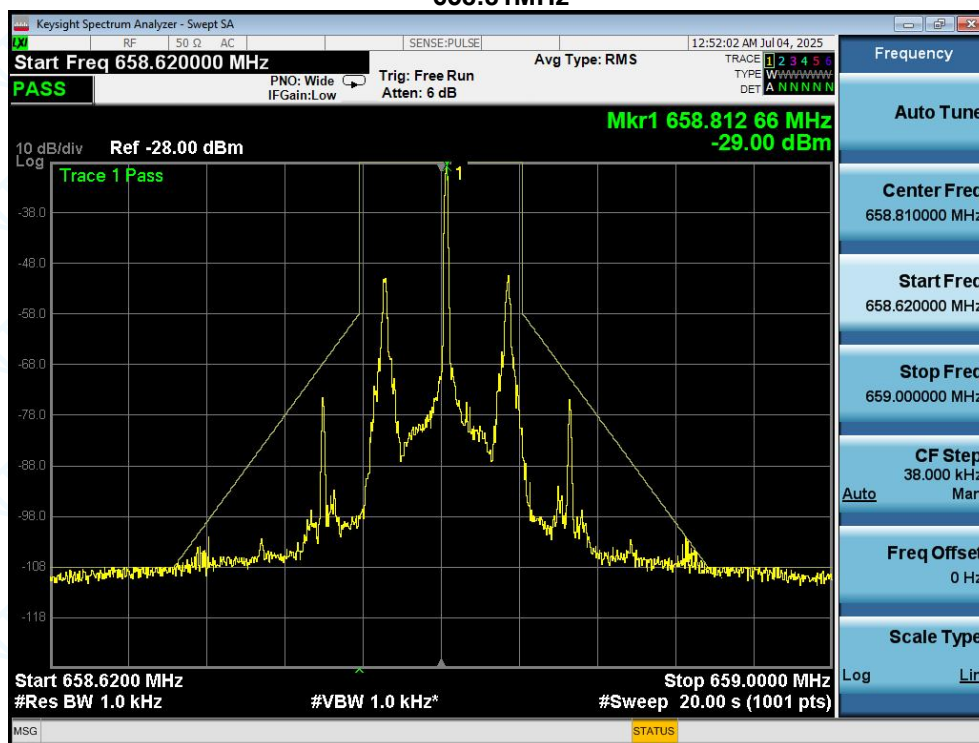
### 3.3 Emissions within the band

|                        |                                                                                                                                                                                                                                                                         |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement:      | 47 CFR Part 15C Section 15.236(g)                                                                                                                                                                                                                                       |
| Test Method:           | ETSI EN 300 422-1 V2.2.1 Section 4.2.4.2.2                                                                                                                                                                                                                              |
| Test Setup:            | <div><p style="text-align: center;"><b>Spectrum Analyzer</b></p><p style="text-align: center;">Non-Conducted Table</p><p style="text-align: center;">Ground Reference Plane</p></div> |
| Test Instruments:      | Refer to section 2.9 for details                                                                                                                                                                                                                                        |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates                                                                                                                                                                                                                   |
| Final Test Mode:       | Through Pre-scan, find the the worst case of FSK                                                                                                                                                                                                                        |
| Limit:                 | <div><p>[dB]</p><p style="text-align: center;"><b>Figure 2: Transmit spectral power mask for equipment employing digital modulation, except WMAS, RBW = 1 kHz</b></p></div>          |
| Test Results:          | Pass                                                                                                                                                                                                                                                                    |

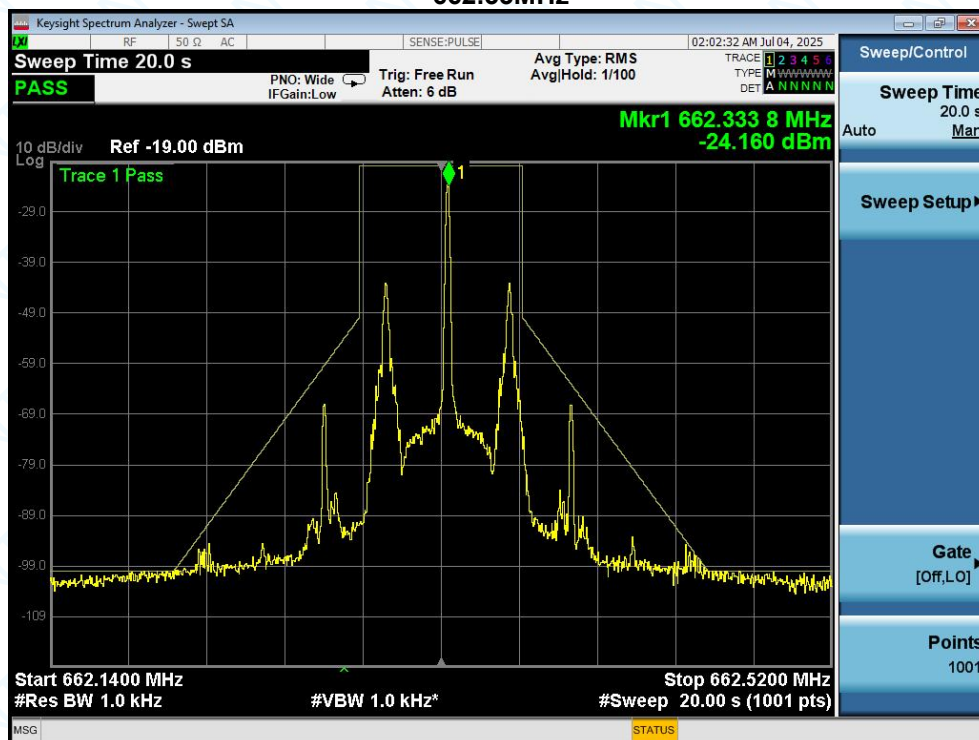


## Test data

## 658.81MHz



## 662.33MHz





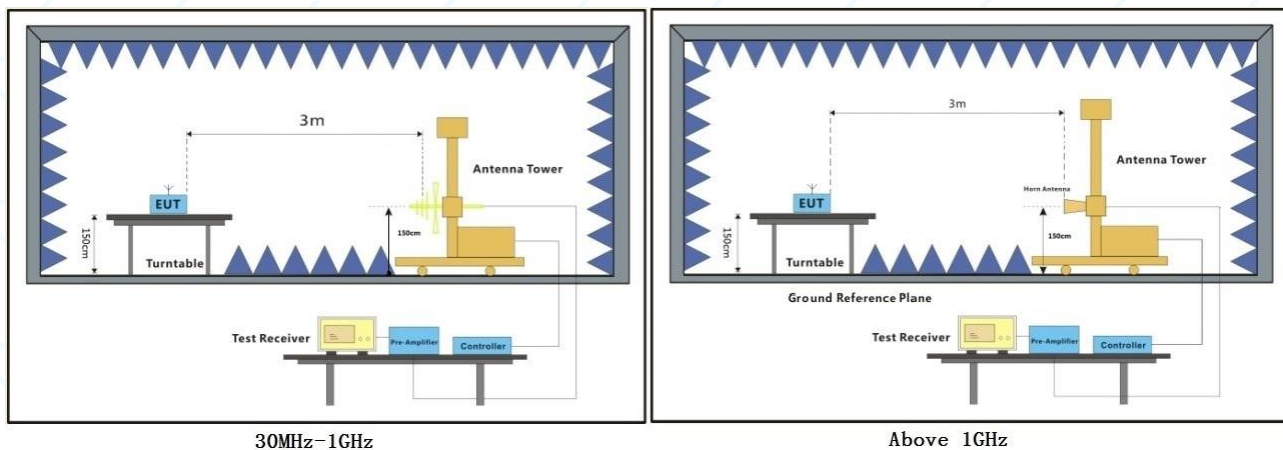
### 3.4 Spurious Emissions

| Test Requirement:                         | 47 CFR Part 15C Section 15.236(g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                    |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----|-----------------|---------|-------|------------------|---------|--------|----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--|--|-----------------|---------|---------|--------------------|--|--|-------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--|--|--|--|--|-------------------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Method:                              | ETSI EN 300 422-1 V2.2.1 Section 4.2.4.1.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                    |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| Measurement Distance:                     | 3m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                    |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| Limit:                                    | <div>Table 4: Transmitter unwanted emission limits<br/>(from ERC Recommendation 74-01 [2])</div> <table><tr><th>Frequency range</th><th>Maximum power</th><th>RBW</th></tr><tr><td>9 kHz - 150 kHz</td><td>-36 dBm</td><td>1 kHz</td></tr><tr><td>150 kHz - 30 MHz</td><td>-36 dBm</td><td>10 kHz</td></tr><tr><td>30 MHz - 1 GHz</td><td>-36 dBm</td><td><math>F_c + 2,5 B \leq f \leq f_c + 4 B</math>: 1 kHz<br/><math>F_c + 4 B &lt; f \leq f_c + 10 B</math>: 10 kHz<br/><math>f &gt; f_c + 10 B</math>: 100 kHz<br/><math>f &lt; f_c - 10 B</math>: 100 kHz<br/><math>f_c - 10 B \leq f &lt; f_c - 4 B</math>: 10 kHz<br/><math>f_c - 4 B \leq f \leq f_c - 2,5 B</math>: 1 kHz</td></tr><tr><td>except:</td><td></td><td></td></tr><tr><td>47 MHz - 74 MHz</td><td>-54 dBm</td><td>100 kHz</td></tr><tr><td>87,5 MHz - 118 MHz</td><td></td><td></td></tr><tr><td>174 MHz - 230 MHz</td><td>-54 dBm</td><td><math>F_c + 2,5 B \leq f \leq f_c + 4 B</math>: 1 kHz<br/><math>F_c + 4 B &lt; f \leq f_c + 10 B</math>: 10 kHz<br/><math>f &gt; f_c + 10 B</math>: 100 kHz<br/><math>f &lt; f_c - 10 B</math>: 100 kHz<br/><math>f_c - 10 B \leq f &lt; f_c - 4 B</math>: 10 kHz<br/><math>f_c - 4 B \leq f \leq f_c - 2,5 B</math>: 1 kHz</td></tr><tr><td>470 MHz - 862 MHz</td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td><math>1 \text{ GHz} &lt; f \leq F_{\text{upper}}</math></td><td>-30 dBm</td><td><math>F_c + 2,5 B \leq f \leq f_c + 10 B</math>: 30 kHz<br/><math>F_c + 10 B &lt; f \leq f_c + 12 B</math>: 300 kHz<br/><math>f &gt; f_c + 12 B</math>: 1 MHz<br/><math>f &lt; f_c - 12 B</math>: 1 MHz<br/><math>f_c - 12 B \leq f &lt; f_c - 10 B</math>: 300 kHz<br/><math>f_c - 10 B \leq f \leq f_c - 2,5 B</math>: 30 kHz</td></tr></table> | Frequency range                                                                                                                                                                                                                                    | Maximum power | RBW | 9 kHz - 150 kHz | -36 dBm | 1 kHz | 150 kHz - 30 MHz | -36 dBm | 10 kHz | 30 MHz - 1 GHz | -36 dBm | $F_c + 2,5 B \leq f \leq f_c + 4 B$ : 1 kHz<br>$F_c + 4 B < f \leq f_c + 10 B$ : 10 kHz<br>$f > f_c + 10 B$ : 100 kHz<br>$f < f_c - 10 B$ : 100 kHz<br>$f_c - 10 B \leq f < f_c - 4 B$ : 10 kHz<br>$f_c - 4 B \leq f \leq f_c - 2,5 B$ : 1 kHz | except: |  |  | 47 MHz - 74 MHz | -54 dBm | 100 kHz | 87,5 MHz - 118 MHz |  |  | 174 MHz - 230 MHz | -54 dBm | $F_c + 2,5 B \leq f \leq f_c + 4 B$ : 1 kHz<br>$F_c + 4 B < f \leq f_c + 10 B$ : 10 kHz<br>$f > f_c + 10 B$ : 100 kHz<br>$f < f_c - 10 B$ : 100 kHz<br>$f_c - 10 B \leq f < f_c - 4 B$ : 10 kHz<br>$f_c - 4 B \leq f \leq f_c - 2,5 B$ : 1 kHz | 470 MHz - 862 MHz |  |  |  |  |  | $1 \text{ GHz} < f \leq F_{\text{upper}}$ | -30 dBm | $F_c + 2,5 B \leq f \leq f_c + 10 B$ : 30 kHz<br>$F_c + 10 B < f \leq f_c + 12 B$ : 300 kHz<br>$f > f_c + 12 B$ : 1 MHz<br>$f < f_c - 12 B$ : 1 MHz<br>$f_c - 12 B \leq f < f_c - 10 B$ : 300 kHz<br>$f_c - 10 B \leq f \leq f_c - 2,5 B$ : 30 kHz |
| Frequency range                           | Maximum power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | RBW                                                                                                                                                                                                                                                |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| 9 kHz - 150 kHz                           | -36 dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1 kHz                                                                                                                                                                                                                                              |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| 150 kHz - 30 MHz                          | -36 dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 10 kHz                                                                                                                                                                                                                                             |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| 30 MHz - 1 GHz                            | -36 dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $F_c + 2,5 B \leq f \leq f_c + 4 B$ : 1 kHz<br>$F_c + 4 B < f \leq f_c + 10 B$ : 10 kHz<br>$f > f_c + 10 B$ : 100 kHz<br>$f < f_c - 10 B$ : 100 kHz<br>$f_c - 10 B \leq f < f_c - 4 B$ : 10 kHz<br>$f_c - 4 B \leq f \leq f_c - 2,5 B$ : 1 kHz     |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| except:                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                    |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| 47 MHz - 74 MHz                           | -54 dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 100 kHz                                                                                                                                                                                                                                            |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| 87,5 MHz - 118 MHz                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                    |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| 174 MHz - 230 MHz                         | -54 dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $F_c + 2,5 B \leq f \leq f_c + 4 B$ : 1 kHz<br>$F_c + 4 B < f \leq f_c + 10 B$ : 10 kHz<br>$f > f_c + 10 B$ : 100 kHz<br>$f < f_c - 10 B$ : 100 kHz<br>$f_c - 10 B \leq f < f_c - 4 B$ : 10 kHz<br>$f_c - 4 B \leq f \leq f_c - 2,5 B$ : 1 kHz     |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| 470 MHz - 862 MHz                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                    |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                    |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |
| $1 \text{ GHz} < f \leq F_{\text{upper}}$ | -30 dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $F_c + 2,5 B \leq f \leq f_c + 10 B$ : 30 kHz<br>$F_c + 10 B < f \leq f_c + 12 B$ : 300 kHz<br>$f > f_c + 12 B$ : 1 MHz<br>$f < f_c - 12 B$ : 1 MHz<br>$f_c - 12 B \leq f < f_c - 10 B$ : 300 kHz<br>$f_c - 10 B \leq f \leq f_c - 2,5 B$ : 30 kHz |               |     |                 |         |       |                  |         |        |                |         |                                                                                                                                                                                                                                                |         |  |  |                 |         |         |                    |  |  |                   |         |                                                                                                                                                                                                                                                |                   |  |  |  |  |  |                                           |         |                                                                                                                                                                                                                                                    |

#### 3.4.1 E.U.T. Operation

|                                                            |        |           |        |                       |           |
|------------------------------------------------------------|--------|-----------|--------|-----------------------|-----------|
| Operating Environment:                                     |        |           |        |                       |           |
| Temperature:                                               | 22.5°C | Humidity: | 47% RH | Atmospheric Pressure: | 101.0 kPa |
| Test mode:                                                 |        |           |        |                       |           |
| Test mode:Through Pre-scan, find the the worst case of FSK |        |           |        |                       |           |

#### 3.4.2 Test Setup Diagram





### 3.4.3 Measurement Procedure and Data

1. The measurement procedure follows the clause 5.4.4 of the EN 300 422-1 V2.2.1
2. The EUT was placed on a turntable with 1.5m height.
3. The test distance between the receiving antenna and the EUT is 3meter below 1GHz frequency range, and 3 meter which is in far field test condition for measured frequency above 1GHz, while the receiving (test) antenna scanning from 1m to 4m height in an OATS or SAR (or in a FAR the height scan is omitted).
4. Set EUT in continuous transmitting with maximum output power.
5. The table was rotated from 0 to 360 degree to search the highest radiated emission.
6. Repeating step 2 and 5 for each polarization and channel to find the worst emission level.
7. The results obtained are compared to the limits in order to prove compliance with the requirement.

Remark: General substitution method is used for calibration. For test sites with a fixed setup of the measurement antenna(s) and a reproducible positioning of the UUT, correction values from a verified site calibration may be used alternatively. So using Pre-Test Site Calibration Correction Factor to Determine EUT Emission Power. The system correction factor for each frequency in dB using the following equation:

$$\text{Correction Factor [CF]} = \text{Pref [dBm]} - \text{Prec [dBm]}$$

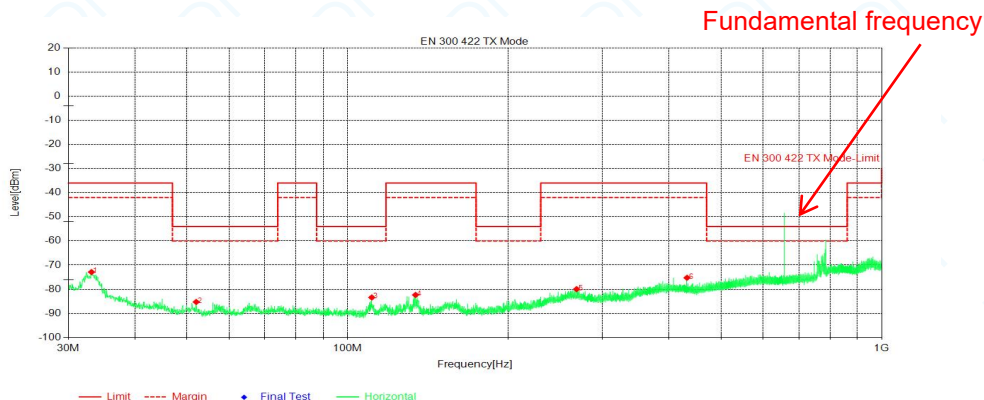


## Test Data

## For 30-1000MHz

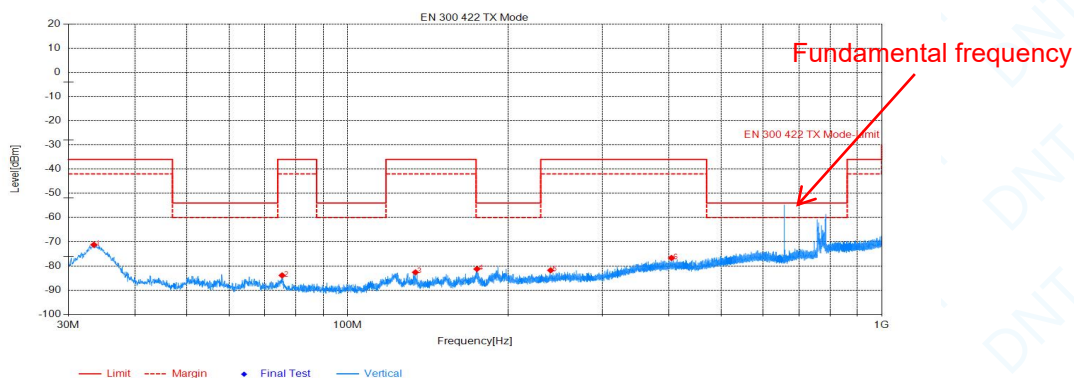
## 658.8MHz

## Horizontal:



| NO. | Freq. [MHz] | Reading Level [dBm] | Correct Factor [dB/m] | Result Level [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-------------|---------------------|-----------------------|--------------------|-------------|-------------|-------------|-----------|
| 1   | 33.15       | -73.32              | 0.43                  | -72.89             | -36.00      | 36.89       | 150         | 122       |
| 2   | 52.07       | -78.30              | -6.99                 | -85.29             | -54.00      | 31.29       | 150         | 285       |
| 3   | 111.00      | -75.47              | -7.94                 | -83.41             | -54.00      | 29.41       | 150         | 260       |
| 4   | 134.04      | -75.10              | -7.27                 | -82.37             | -36.00      | 46.37       | 150         | 58        |
| 5   | 268.39      | -79.83              | -0.14                 | -79.97             | -36.00      | 43.97       | 150         | 237       |
| 6   | 431.99      | -77.50              | 2.25                  | -75.25             | -36.00      | 39.25       | 150         | 285       |

## Vertical:

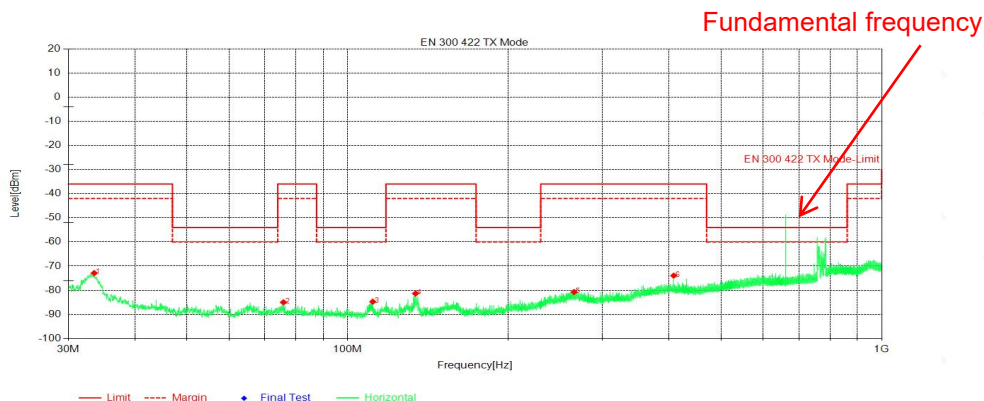


| NO. | Freq. [MHz] | Reading Level [dBm] | Correct Factor [dB/m] | Result Level [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-------------|---------------------|-----------------------|--------------------|-------------|-------------|-------------|-----------|
| 1   | 33.49       | -70.93              | -0.34                 | -71.27             | -36.00      | 35.27       | 150         | 299       |
| 2   | 75.40       | -76.72              | -7.21                 | -83.93             | -36.00      | 47.93       | 150         | 347       |
| 3   | 133.99      | -76.42              | -6.25                 | -82.67             | -36.00      | 46.67       | 150         | 347       |
| 4   | 174.68      | -76.37              | -4.92                 | -81.29             | -54.00      | 27.29       | 150         | 347       |
| 5   | 240.02      | -78.78              | -3.04                 | -81.82             | -36.00      | 45.82       | 150         | 232       |
| 6   | 404.10      | -78.76              | 2.03                  | -76.73             | -36.00      | 40.73       | 150         | 116       |



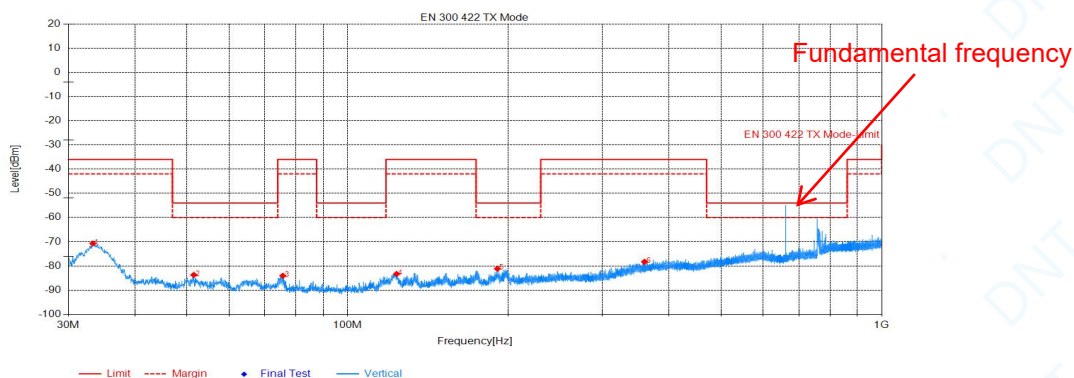
662.3MHz

Horizontal:



| NO. | Freq. [MHz] | Reading Level [dBm] | Correct Factor [dB/m] | Result Level [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-------------|---------------------|-----------------------|--------------------|-------------|-------------|-------------|-----------|
| 1   | 33.54       | -72.97              | 0.06                  | -72.91             | -36.00      | 36.91       | 150         | 76        |
| 2   | 75.83       | -77.69              | -7.33                 | -85.02             | -36.00      | 49.02       | 150         | 32        |
| 3   | 111.48      | -76.78              | -7.97                 | -84.75             | -54.00      | 30.75       | 150         | 306       |
| 4   | 134.04      | -74.10              | -7.27                 | -81.37             | -36.00      | 45.37       | 150         | 96        |
| 5   | 265.43      | -80.53              | -0.21                 | -80.74             | -36.00      | 44.74       | 150         | 353       |
| 6   | 408.03      | -76.45              | 2.49                  | -73.96             | -36.00      | 37.96       | 150         | 76        |

Vertical:



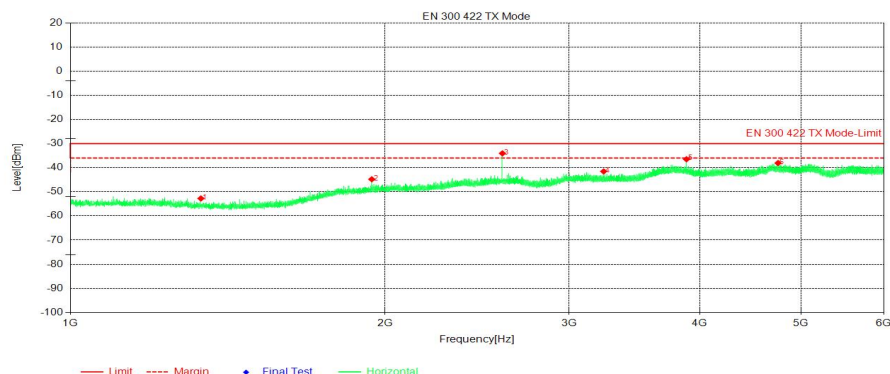
| NO. | Freq. [MHz] | Reading Level [dBm] | Correct Factor [dB/m] | Result Level [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-------------|---------------------|-----------------------|--------------------|-------------|-------------|-------------|-----------|
| 1   | 33.35       | -70.55              | -0.20                 | -70.75             | -36.00      | 34.75       | 150         | 146       |
| 2   | 51.54       | -77.58              | -6.16                 | -83.74             | -54.00      | 29.74       | 150         | 215       |
| 3   | 75.64       | -76.84              | -7.23                 | -84.07             | -36.00      | 48.07       | 150         | 56        |
| 4   | 123.51      | -76.61              | -6.74                 | -83.35             | -36.00      | 47.35       | 150         | 324       |
| 5   | 190.79      | -76.58              | -4.60                 | -81.18             | -54.00      | 27.18       | 150         | 324       |
| 6   | 359.72      | -79.63              | 1.31                  | -78.32             | -36.00      | 42.32       | 150         | 146       |



For 1000-12750MHz

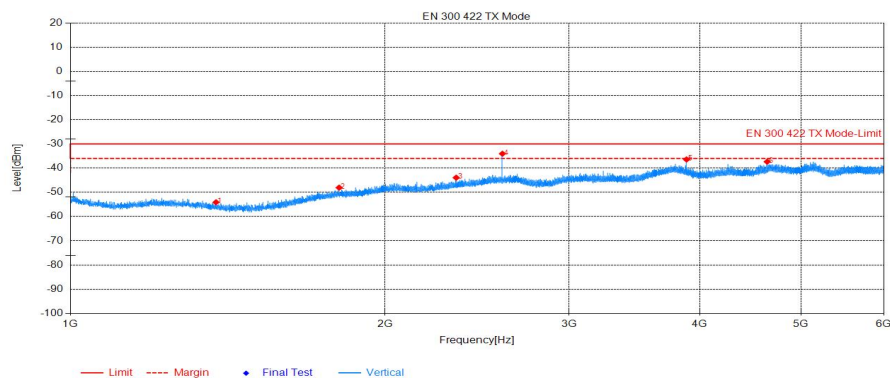
658.8MHz

Horizontal:



| NO. | Freq. [MHz] | Reading Level [dBm] | Correct Factor [dB/m] | Result Level [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-------------|---------------------|-----------------------|--------------------|-------------|-------------|-------------|-----------|
| 1   | 1333.41     | -47.52              | -5.23                 | -52.75             | -30.00      | 22.75       | 150         | 0         |
| 2   | 1942.64     | -45.08              | 0.27                  | -44.81             | -30.00      | 14.81       | 150         | 44        |
| 3   | 2590.46     | -36.58              | 2.51                  | -34.07             | -30.00      | 4.07        | 150         | 92        |
| 4   | 3237.89     | -44.45              | 2.89                  | -41.56             | -30.00      | 11.56       | 150         | 306       |
| 5   | 3885.52     | -42.07              | 5.57                  | -36.50             | -30.00      | 6.50        | 150         | 0         |
| 6   | 4753.95     | -44.69              | 6.60                  | -38.09             | -30.00      | 8.09        | 150         | 235       |

Vertical:

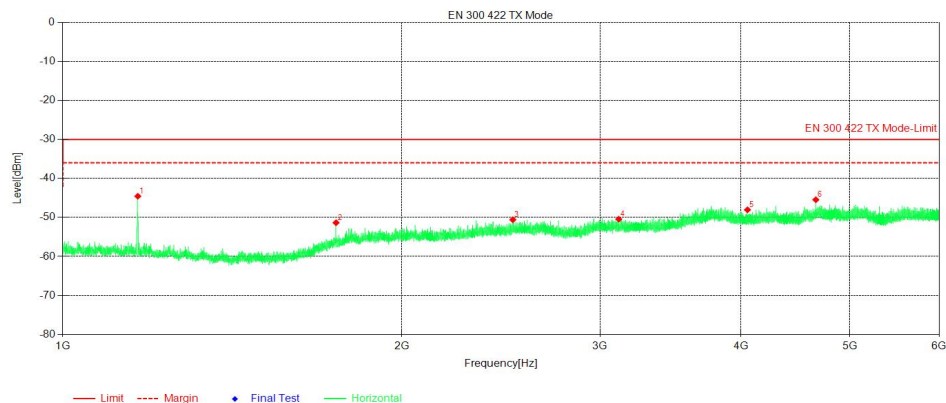


| NO. | Freq. [MHz] | Reading Level [dBm] | Correct Factor [dB/m] | Result Level [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-------------|---------------------|-----------------------|--------------------|-------------|-------------|-------------|-----------|
| 1   | 1378.42     | -48.43              | -5.69                 | -54.12             | -30.00      | 24.12       | 150         | 358       |
| 2   | 1807.83     | -47.30              | -0.77                 | -48.07             | -30.00      | 18.07       | 150         | 59        |
| 3   | 2339.85     | -45.28              | 1.32                  | -43.96             | -30.00      | 13.96       | 150         | 168       |
| 4   | 2590.46     | -37.26              | 3.21                  | -34.05             | -30.00      | 4.05        | 150         | 33        |
| 5   | 3885.92     | -41.90              | 5.47                  | -36.43             | -30.00      | 6.43        | 150         | 33        |
| 6   | 4641.75     | -44.29              | 6.94                  | -37.35             | -30.00      | 7.35        | 150         | 211       |



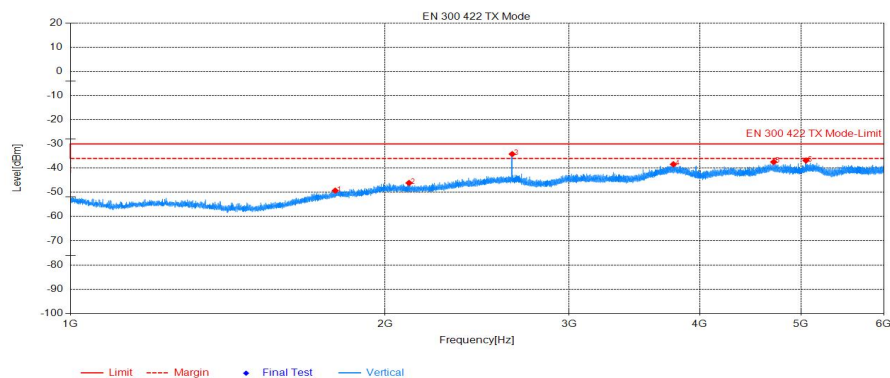
662.3MHz

Horizontal:



| NO. | Freq. [MHz] | Reading Level [dBm] | Correct Factor [dB/m] | Result Level [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-------------|---------------------|-----------------------|--------------------|-------------|-------------|-------------|-----------|
| 1   | 1334.21     | -47.67              | -5.24                 | -52.91             | -30.00      | 22.91       | 150         | 218       |
| 2   | 1954.24     | -47.21              | 0.30                  | -46.91             | -30.00      | 16.91       | 150         | 346       |
| 3   | 2647.07     | -37.98              | 2.29                  | -35.69             | -30.00      | 5.69        | 150         | 92        |
| 4   | 3201.09     | -44.57              | 2.76                  | -41.81             | -30.00      | 11.81       | 150         | 2         |
| 5   | 3970.52     | -43.80              | 5.73                  | -38.07             | -30.00      | 8.07        | 150         | 23        |
| 6   | 4824.35     | -43.54              | 6.56                  | -36.98             | -30.00      | 6.98        | 150         | 0         |

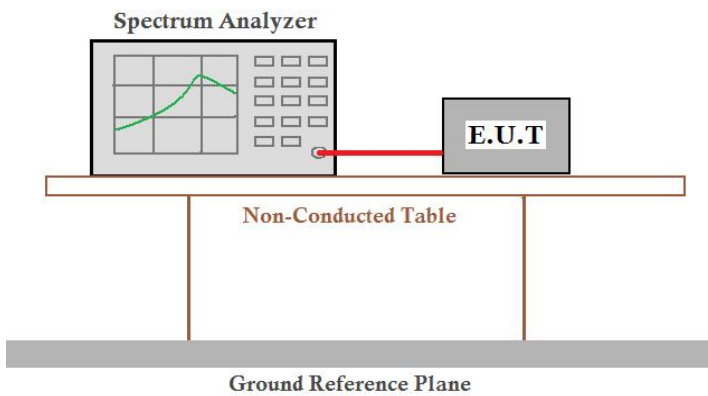
Vertical:



| NO. | Freq. [MHz] | Reading Level [dBm] | Correct Factor [dB/m] | Result Level [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-------------|---------------------|-----------------------|--------------------|-------------|-------------|-------------|-----------|
| 1   | 1792.43     | -48.40              | -0.91                 | -49.31             | -30.00      | 19.31       | 150         | 85        |
| 2   | 2109.04     | -46.65              | 0.51                  | -46.14             | -30.00      | 16.14       | 150         | 14        |
| 3   | 2646.87     | -37.12              | 2.93                  | -34.19             | -30.00      | 4.19        | 150         | 14        |
| 4   | 3775.51     | -43.99              | 5.57                  | -38.42             | -30.00      | 8.42        | 150         | 250       |
| 5   | 4709.15     | -44.26              | 6.79                  | -37.47             | -30.00      | 7.47        | 150         | 206       |
| 6   | 5056.56     | -43.64              | 6.79                  | -36.85             | -30.00      | 6.85        | 150         | 186       |



### 3.5 Frequency Stability

|                        |                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement:      | 47 CFR Part 15C Section 15.236(f)(1)(iii)                                                                                                                                                                                                                                                                                                                                                                     |
| Test Method:           | 47 CFR Part 15C Section 15.236(f)(1)(iii)                                                                                                                                                                                                                                                                                                                                                                     |
| Test Setup:            |                                                                                                                                                                                                                                                                                                                             |
| Test Instruments:      | Refer to section 2.9 for details                                                                                                                                                                                                                                                                                                                                                                              |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates                                                                                                                                                                                                                                                                                                                                                         |
| Final Test Mode:       | Through Pre-scan, find the the worst case of FSK                                                                                                                                                                                                                                                                                                                                                              |
| Limit:                 | The frequency tolerance of the carrier signal shall be maintained within $\pm 0.005\%$ 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. Battery operated equipment shall be tested using a new battery. |

Reference Frequency: 658.81MHz

| Power supply | Temperature( $^{\circ}$ C) | Frequency Error<br>(Hz) | FrequencyError<br>(ppm) |
|--------------|----------------------------|-------------------------|-------------------------|
| DC 3.15V     | 25                         | 3125                    | 5.36                    |
| DC 3.7V      | 25                         | 3163                    | 5.43                    |
| DC 4.26V     | 25                         | 3115                    | 5.34                    |

| Temperature( $^{\circ}$ C) | Frequency Error<br>(Hz) | FrequencyError<br>(ppm) | Limit(ppm) | Result |
|----------------------------|-------------------------|-------------------------|------------|--------|
| 50                         | 3124                    | 5.36                    | 50         | PASS   |
| 40                         | 3139                    | 5.39                    |            |        |
| 30                         | 3158                    | 5.42                    |            |        |
| 20                         | 3161                    | 5.42                    |            |        |
| 10                         | 3128                    | 5.37                    |            |        |
| 0                          | 3134                    | 5.38                    |            |        |
| -10                        | 3158                    | 5.42                    |            |        |
| -20                        | 3169                    | 5.44                    |            |        |



### 3.6 AC Power Line Conducted Emissions

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              |           |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|
| Test Requirement:                                | 47 CFR Part 15C Section 15.207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |              |           |
| Test Method:                                     | ANSI C63.10: 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |           |
| Test Frequency Range:                            | 150kHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              |           |
| Limit:                                           | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Limit (dBuV) |           |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 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. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              |           |
| Test Procedure:                                  | <p>1) The mains terminal disturbance voltage test was conducted in a shielded room.</p> <p>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a <math>50\Omega/50\mu\text{H} + 5\Omega</math> linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</p> <p>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,</p> <p>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 2013 on conducted measurement.</p> |              |           |
| Test Setup:                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              |           |
| Exploratory Test Mode:                           | <p>Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.</p> <p>Charge + Transmitting mode.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |           |



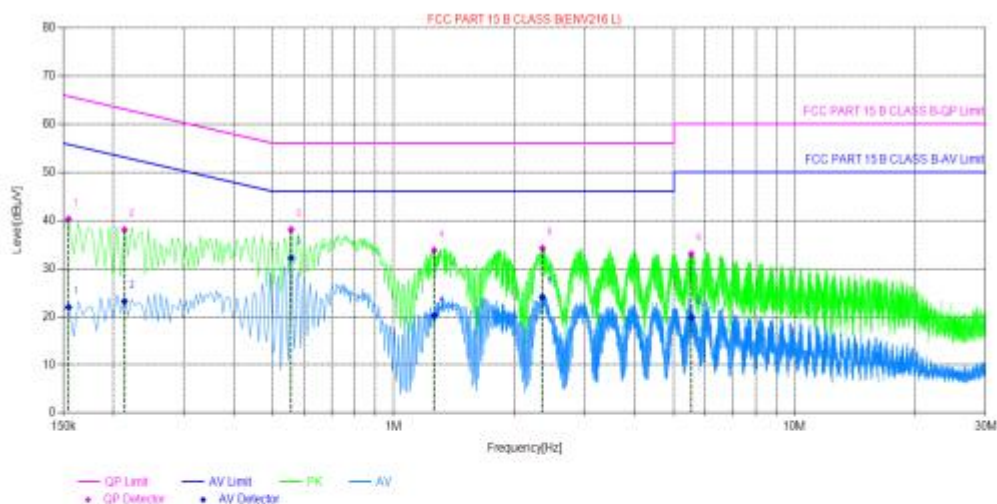
|                   |                                                                               |
|-------------------|-------------------------------------------------------------------------------|
| Final Test Mode:  | Charge + Transmitting mode.<br>Only the worst case is recorded in the report. |
| Instruments Used: | Refer to section 2.9 for details                                              |
| Test Results:     | Pass                                                                          |

### Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

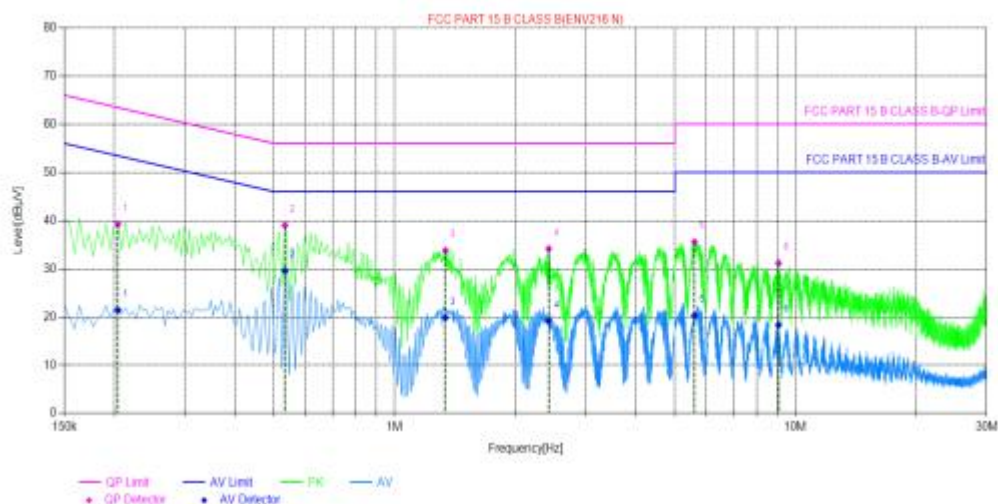
Live Line:



| Final Data List |             |             |                 |                 |                |                 |                 |                |         |
|-----------------|-------------|-------------|-----------------|-----------------|----------------|-----------------|-----------------|----------------|---------|
| NO.             | Freq. [MHz] | Factor [dB] | QP Value [dBμV] | QP Limit [dBμV] | QP Margin [dB] | AV Value [dBμV] | AV Limit [dBμV] | AV Margin [dB] | Verdict |
| 1               | 0.1545      | 9.90        | 40.27           | 65.75           | 25.48          | 21.96           | 55.75           | 33.79          | PASS    |
| 2               | 0.213       | 9.93        | 38.05           | 63.09           | 25.04          | 23.19           | 53.09           | 29.90          | PASS    |
| 3               | 0.555       | 9.84        | 38.07           | 56.00           | 17.93          | 32.20           | 46.00           | 13.80          | PASS    |
| 4               | 1.2615      | 9.73        | 33.80           | 56.00           | 22.20          | 20.29           | 46.00           | 25.71          | PASS    |
| 5               | 2.3505      | 9.74        | 34.21           | 56.00           | 21.79          | 24.08           | 46.00           | 21.92          | PASS    |
| 6               | 5.5275      | 9.81        | 33.01           | 60.00           | 26.99          | 19.77           | 50.00           | 30.23          | PASS    |



Neutral Line:



## Final Data List

| NO. | Freq.<br>[MHz] | Factor<br>[dB] | QP<br>Value<br>[dBuV] | QP<br>Limit<br>[dBuV] | QP<br>Margin<br>[dB] | AV<br>Value<br>[dBuV] | AV<br>Limit<br>[dBuV] | AV<br>Margin<br>[dB] | Verdict |
|-----|----------------|----------------|-----------------------|-----------------------|----------------------|-----------------------|-----------------------|----------------------|---------|
| 1   | 0.204          | 9.86           | 39.24                 | 63.45                 | 24.21                | 21.41                 | 53.45                 | 32.04                | PASS    |
| 2   | 0.5325         | 9.73           | 39.03                 | 56.00                 | 16.97                | 29.57                 | 46.00                 | 16.43                | PASS    |
| 3   | 1.338          | 9.71           | 33.83                 | 56.00                 | 22.17                | 19.86                 | 46.00                 | 26.14                | PASS    |
| 4   | 2.4225         | 9.82           | 34.16                 | 56.00                 | 21.84                | 19.23                 | 46.00                 | 26.77                | PASS    |
| 5   | 5.5995         | 9.98           | 35.60                 | 60.00                 | 24.40                | 20.26                 | 50.00                 | 29.74                | PASS    |
| 6   | 9.0735         | 9.86           | 31.21                 | 60.00                 | 28.79                | 18.35                 | 50.00                 | 31.65                | PASS    |

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. The Measurement (Result Level) is calculated by Reading Level adding the Correct Factor(maybe including LISN Factor and the Cable Factor etc.), The basic equation is as follows:

$$\text{Result Level} = \text{Reading Level} + \text{Correct Factor}(\text{including LISN Factor, Cable Factor etc.})$$

---The End Report---