

## FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

SHARP Corporation

Electronic paper display

EP-C131

FCC ID: APYBSC0004

SHARP

Prepared for : SHARP Corporation  
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Date of Test : Oct.17~Nov.04, 2023  
Date of Report : Nov.28, 2023

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Appendix A. Setup Photographs

Appendix B. General Appearance of the EUT

Appendix C. Inside Configuration of the EUT

**TEST REPORT**

Applicant : SHARP Corporation  
Manufacturer : SHARP Corporation  
Product : Electronic paper display  
FCC ID : APYBSC0004  
(A) Model No. : EP-C131  
(B) Brand : SHARP  
(C) Test Voltage : AC 120V/60Hz

Tested for comply with:  
FCC CFR47 Part 15 Subpart C

Test procedure used:  
ANSI C63.10: 2020

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements. This report contains data that are not covered by the NVLAP accreditation.

This Report is made under FCC Part 2.1074. No modifications were required during testing to bring this product into compliance.

This report applies to single evaluation of one sample of above mentioned product and shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd..

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Date of Test : Oct.17~Nov.04, 2023 Report of date: Nov.28, 2023

Prepared by : Mia Zhao Reviewed by : Thomas Chen  
Mia Zhao / Assistant Thomas Chen / Assistant Manager



Approved & Authorized Signer : Sunny Lu  
Sunny Lu / Manager

## 1. SUMMARY OF STANDARDS AND RESULTS

### 1.1. Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

| EMISSION                                                                                                                              |                                                                                        |         |
|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------|
| Description of Test Item                                                                                                              | Standard                                                                               | Results |
| Power Line Conducted Emission Test                                                                                                    | FCC Part 15: 15.207<br>ANSI C63.10: 2020                                               | PASS    |
| Radiated Emission Test                                                                                                                | FCC Part 15 15.209<br>FCC Part 15 15.205<br>FCC Part 15 15.247(d)<br>ANSI C63.10: 2020 | PASS    |
| Conducted Spurious Emissions                                                                                                          | FCC Part 15: 15.247(d)<br>ANSI C63.10 2020                                             | PASS    |
| Carrier Frequency Separation Test                                                                                                     | FCC Part 15: 15.247(a)(1)<br>ANSI C63.10: 2020                                         | PASS    |
| 20dB & 99% Bandwidth Test                                                                                                             | FCC Part 15: 15.215(c)<br>ANSI C63.10: 2020                                            | PASS    |
| Number Of Hopping Frequency Test                                                                                                      | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.10: 2020                                    | PASS    |
| Dwell Time Test                                                                                                                       | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.10: 2020                                    | PASS    |
| Maximum Peak Output Power Test                                                                                                        | FCC Part 15 15.247(b)(1)<br>ANSI C63.10: 2020                                          | PASS    |
| Band Edge Compliance Test                                                                                                             | FCC Part 15 15.247(d)<br>ANSI C63.10: 2020                                             | PASS    |
| Antenna requirement                                                                                                                   | FCC Part 15: 15.203                                                                    | PASS    |
| Note: Measurement uncertainty affection to the result is not considered, the EUT is technically compliant with standard requirements. |                                                                                        |         |

## 2. GENERAL INFORMATION

### 2.1. Description of Equipment Under Test

|                                       |                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant                             | SHARP Corporation                                                                                                                                                                                                                                                                                                                   |
| Applicant Address                     | 1 Takumi-cho, Sakai-ku Sakai City Osaka 590-8522 Japan                                                                                                                                                                                                                                                                              |
| Manufacturer                          | SHARP Corporation                                                                                                                                                                                                                                                                                                                   |
| Manufacturer Address                  | 1 Takumi-cho, Sakai-ku Sakai City Osaka 590-8522 Japan                                                                                                                                                                                                                                                                              |
| Factory                               | TPV Electronics (Fujian)Co.,Ltd.                                                                                                                                                                                                                                                                                                    |
| Factory Address                       | Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province                                                                                                                                                                                                                                                  |
| Product                               | Electronic paper display                                                                                                                                                                                                                                                                                                            |
| Model No.                             | EP-C131                                                                                                                                                                                                                                                                                                                             |
| FCC ID                                | APYBSC0004                                                                                                                                                                                                                                                                                                                          |
| Brand                                 | SHARP                                                                                                                                                                                                                                                                                                                               |
| Power Adapter                         | Manufacturer: DELTA ELECTRONICS, INC.<br>M/N:ADP-45HG B<br>Input: AC 100-240V 1.5A 50-60Hz<br>Output: 5.0V $\overline{\text{---}}$ 3A or 9.0V $\overline{\text{---}}$ 3A or 12.0V $\overline{\text{---}}$ 3A or 15.0V $\overline{\text{---}}$ 3A or 20.0V $\overline{\text{---}}$ 2.25A<br>DC Cable: Unshielded, Undetachable, 1.5m |
| Sample Type                           | Prototype production                                                                                                                                                                                                                                                                                                                |
| Date of Receipt                       | Jun.21, 2023                                                                                                                                                                                                                                                                                                                        |
| Date of Test                          | Oct.17~Nov.04, 2023                                                                                                                                                                                                                                                                                                                 |
| Remark: This report only for BDR+EDR. |                                                                                                                                                                                                                                                                                                                                     |

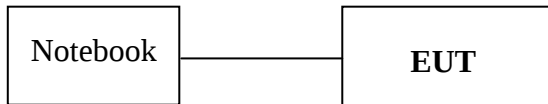
## 2.2. Feature of Equipment Under Test

| Product Feature & Specification |                                                                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product                         | Electronic paper display                                                                                                                                                                                           |
| Model No.                       | EP-C131                                                                                                                                                                                                            |
| Radio                           | IEEE802.11 a/b/g/n/ac                                                                                                                                                                                              |
| Power Source                    | DC 12/15V                                                                                                                                                                                                          |
| <b>Bluetooth</b>                |                                                                                                                                                                                                                    |
| Radio                           | BDR +EDR; BLE                                                                                                                                                                                                      |
| Frequency Range                 | 2402-2480MHz                                                                                                                                                                                                       |
| Type of Modulation              | GFSK, $\pi/4$ DQPSK, 8DPSK                                                                                                                                                                                         |
| Data Rate                       | 1Mbps, 2Mbps, 3Mbps                                                                                                                                                                                                |
| Quantity of Channels            | 79/40                                                                                                                                                                                                              |
| Channel Separation              | 1MHz/2MHz                                                                                                                                                                                                          |
| <b>2.4GHz Wi-Fi</b>             |                                                                                                                                                                                                                    |
| Support Modes                   | 802.11b/g/n20                                                                                                                                                                                                      |
| Frequency Range                 | 2412-2462MHz                                                                                                                                                                                                       |
| Type of Modulation              | 802.11b(DSSS): CCK, QPSK, BPSK;<br>802.11g/n(OFDM): 64QAM, 16QAM, QPSK, BPSK                                                                                                                                       |
| Data Rate                       | 802.11b: 1/2/5.5/11 Mbps;<br>802.11g: 6/9/12/18/24/36/48/54 Mbps;<br>802.11n: up to 75Mbps                                                                                                                         |
| Channel Separation              | 5MHz                                                                                                                                                                                                               |
| <b>5GHz Wi-Fi</b>               |                                                                                                                                                                                                                    |
| Support Modes                   | 802.11a/n20/n40/ac20/ac40/ac80                                                                                                                                                                                     |
| Frequency Range                 | 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz                                                                                                                                                             |
| Type of Modulation              | 802.11a/n (OFDM): QPSK, BPSK, 16QAM, 64QAM<br>802.11ac (OFDM): QPSK, BPSK, 16QAM, 64QAM, 256QAM                                                                                                                    |
| Data Rate                       | 802.11a: 6/9/12/18/24/36/48/54 Mbps;<br>802.11n: up to 150Mbps;<br>802.11ac: up to 433Mbps                                                                                                                         |
| Channel Separation              | 5MHz                                                                                                                                                                                                               |
| <b>Antenna System</b>           |                                                                                                                                                                                                                    |
| Type of Antenna                 | shrapnel Antenna                                                                                                                                                                                                   |
| Antenna Number                  | 1                                                                                                                                                                                                                  |
| Antenna Peak Gain               | Bluetooth Peak Gain: 2.51dBi<br>DTS/DSS Band Peak Gain: 2.51dBi.<br>U-NII-1 Band Peak Gain: 2.07dBi.<br>U-NII-2A Band Peak Gain: 2.33dBi.<br>U-NII-2C Band Peak Gain: 1.89dBi.<br>U-NII-3 Band Peak Gain: 1.91dBi. |

### 2.3. Tested Supporting System Details

| No. | Description | ACS No.                                                                                                                                                                    | Manufacturer | Model | Serial Number |
|-----|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------|---------------|
| 1.  | Notebook    | N/A                                                                                                                                                                        | ACER         | ZOW   | N/A           |
|     |             | Power Cord(3C): Unshielded, Detachable, 1.8m<br>Power Adapter: Manufacturer: Lite-On, M/N: PA-1900-32<br>Data Cable: Unshielded, Undetectable, 4.0m(Bond one ferrite core) |              |       |               |

### 2.4. Block Diagram of connection between EUT and simulators



(EUT: Electronic paper display)

### 2.5. Test information

A special software (Ampak RFTesTool, VER:7.0) was used to control EUT work in TX mode

| Tested mode, Packet Type, peak output power information |             |                            |                            |
|---------------------------------------------------------|-------------|----------------------------|----------------------------|
| Mode                                                    | Packet Type | Output power(dBm)<br>P max | Output Power(dBm)<br>P low |
| GFSK                                                    | DH1         | 7.447                      | 4.429                      |
|                                                         | DH3         |                            |                            |
|                                                         | DH5         |                            |                            |
| 8DPSK                                                   | 3-DH1       | 7.046                      | 4.303                      |
|                                                         | 3-DH3       |                            |                            |
|                                                         | 3-DH5       |                            |                            |

Note:  $\pi/4$ DQPSK mode has been verified to have the lowest power, so the final test were performed with GFSK and 8DPSK mode, the worse-case packet type were:

GFSK Mode: DH5

8DPSK Mode: 3DH5

| Item                |                              | Modulation | Data Rate | Test Channel |
|---------------------|------------------------------|------------|-----------|--------------|
| Radiated Test Case  | Radiated Band Edge           | GFSK       | 1Mbps     | 00/78        |
|                     |                              | 8-DPSK     | 3Mbps     | 00/78        |
|                     | Radiated Spurious Emission   | GFSK       | 1Mbps     | 00/39/78     |
|                     |                              | 8-DPSK     | 3Mbps     | 00/39/78     |
| Conducted Test Case | 20dB Bandwidth               | GFSK       | 1Mbps     | 00/39/78     |
|                     |                              | 8-DPSK     | 3Mbps     | 00/39/78     |
|                     | Carrier Frequency Separation | GFSK       | 1Mbps     | 39           |
|                     |                              | 8-DPSK     | 3Mbps     | 39           |
|                     | Time of Occupancy            | GFSK       | 1Mbps     | 39           |
|                     |                              | 8-DPSK     | 3Mbps     | 39           |
|                     | Number of Hopping Channels   | GFSK       | 1Mbps     | 39           |
|                     |                              | 8-DPSK     | 3Mbps     | 39           |
|                     | Maximum Peak Output Power    | GFSK       | 1Mbps     | 00/39/78     |
|                     |                              | 8-DPSK     | 3Mbps     | 00/39/78     |
|                     | Band Edges                   | GFSK       | 1Mbps     | 00/78        |
|                     |                              | 8-DPSK     | 3Mbps     | 00/78        |
|                     | Spurious Emission            | GFSK       | 1Mbps     | 00/39/78     |
|                     |                              | 8-DPSK     | 3Mbps     | 00/39/78     |

## 2.6. Test Facility

Site Description

Name of Firm

: Audix Technology (Shenzhen) Co., Ltd.  
No. 6, Kefeng Road, Science & Technology Park,  
Nanshan District , Shenzhen, Guangdong, China

EMC Lab.

: Certificated by ISED, Canada  
Company Number: 5183A  
CAB identifier: CN0034  
Valid Date: Mar.31, 2024

Certificated by FCC, USA  
Designation No.: CN5022  
Valid Date: Mar.31, 2024

Accredited by NVLAP, USA  
NVLAP Code: 200372-0  
Valid Date: Mar.31, 2024

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

| Test Item                                                         | Uncertainty                                                      |
|-------------------------------------------------------------------|------------------------------------------------------------------|
| Uncertainty for Conduction emission test in No. 1 Conduction      | $\pm 2.6\text{dB}(150\text{KHz to } 30\text{MHz})$               |
| Uncertainty for Radiation Emission test in 3m chamber             | $\pm 3.8\text{dB}(30\sim 200\text{MHz, Polarization: H})$        |
|                                                                   | $\pm 3.8\text{dB}(30\sim 200\text{MHz, Polarization: V})$        |
|                                                                   | $\pm 4.0\text{dB}(200\text{M}\sim 1\text{GHz, Polarization: H})$ |
|                                                                   | $\pm 4.0\text{dB}(200\text{M}\sim 1\text{GHz, Polarization: V})$ |
| Uncertainty for Radiation Emission test in 3m chamber(1GHz-18GHz) | $\pm 4.0\text{dB}(1\sim 6\text{GHz, Distance: } 3\text{m})$      |
|                                                                   | $\pm 4.0\text{dB}(6\sim 18\text{GHz, Distance: } 3\text{m})$     |
| Uncertainty for Radiated Spurious Emission test in RF chamber     | $\pm 3.7\text{dB}(30\text{MHz}\sim 1000\text{MHz})$              |
|                                                                   | $\pm 3.3\text{dB}(1\sim 26.5\text{GHz})$                         |
| Uncertainty for Conduction Spurious emission test                 | $\pm 2.0\text{dB}$                                               |
| Uncertainty for Output power test                                 | $\pm 0.8\text{dB}$                                               |
| Uncertainty for Bandwidth test                                    | $\pm 4.6\%$                                                      |
| Uncertainty for DC power test                                     | $\pm 0.1\%$                                                      |
| Uncertainty for test site temperature and humidity                | $\pm 0.6^{\circ}\text{C}$                                        |
|                                                                   | $\pm 3\%$                                                        |

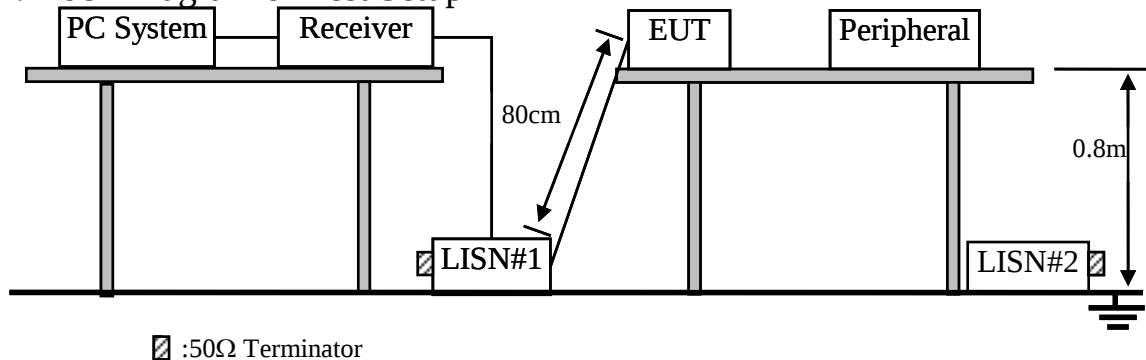
### 3. POWER LINE CONDUCTED EMISSION TEST

#### 3.1. Test Equipments

| Item | Equipment         | Manufacturer    | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------|-----------------|-----------|------------|-----------|---------------|
| 1.   | 1# Shielding Room | AUDIX           | N/A       | N/A        | Nov.09,22 | 3 Year        |
| 2.   | EMI Test Receiver | Rohde & Schwarz | ESCI      | 100842     | Apr.01,23 | 1 Year        |
| 3.   | L.I.S.N.#1        | Rohde & Schwarz | ENV216    | 102160     | Jun.25,23 | 1 Year        |
| 4.   | RF Cable          | Eastsheep       | RG223     | 190424     | Sep.15,23 | 1Year         |
| 5.   | Test Software     | AUDIX           | e3        | 6.100913a  | N/A       | N/A           |

Note: N/A means Not applicable.

#### 3.2. Block Diagram of Test Setup



#### 3.3. Power Line Conducted Emission Test Limits

| Frequency       | Maximum RF Line Voltage    |                         |
|-----------------|----------------------------|-------------------------|
|                 | Quasi-Peak Level<br>dB(μV) | Average Level<br>dB(μV) |
| 150kHz ~ 500kHz | 66 ~ 56*                   | 56 ~ 46*                |
| 500kHz ~ 5MHz   | 56                         | 46                      |
| 5MHz ~ 30MHz    | 60                         | 50                      |

Notes: 1. \* Decreasing linearly with logarithm of frequency.

2. The lower limits shall apply at the transition frequencies.

3. Emission Level (dBμV) = Factor (L.I.S.N.) (dB) + Cable Loss (dB) + Reading (Receiver) (dBμV)

#### 3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

##### 3.4.1. Electronic paper display (EUT)

Model No. : EP-C131

##### 3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.3.

### 3.5. Operating Condition of EUT

- 3.5.1. Setup the EUT as shown as Section 3.2.
- 3.5.2. Turn on the power of EUT.
- 3.5.3. PC run test software to control EUT work in Tx mode.

### 3.6. Test Procedure

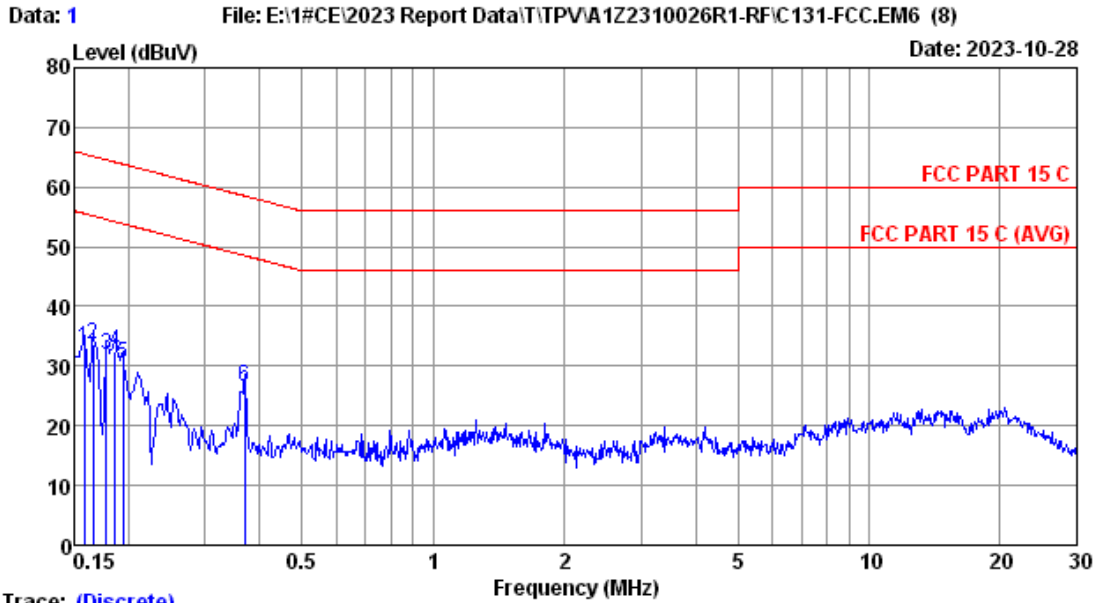
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via Adapter connected to the power mains through a line impedance stabilization network (L.I.S.N. #1). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESCI) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

### 3.7. Power Line Conducted Emission Test Results

**PASS.** (All emissions not reported below are too low against the prescribed limits.)



Trace: (Discrete)

Site no :1# CE Data No :1

Dis./Lisn :2023 ENV216-N

Limit :FCC PART 15 C

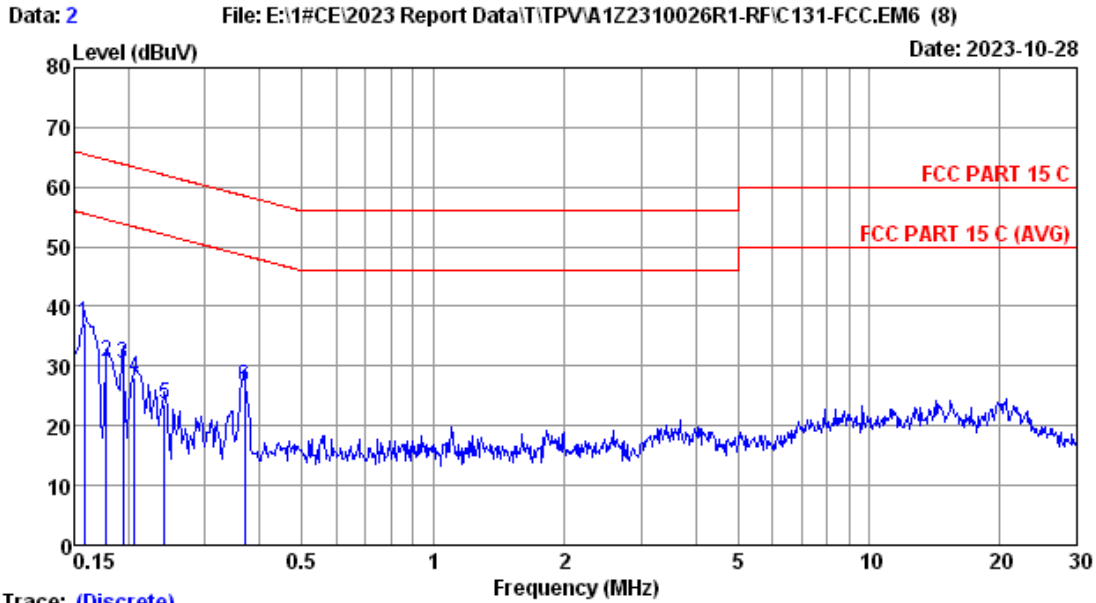
Env./Ins. :21.6°C/52% Engineer :Sucy

Power Rating :AC 120V/60Hz

Test Mode :BT3.0 TX Mode

| No | Freq (MHz) | LISN Factor (dB) | Cable Loss (dB) | Reading (dBuV) | Emission Level (dBuV) | Limits (dBuV) | Margin (dB) | Remark |
|----|------------|------------------|-----------------|----------------|-----------------------|---------------|-------------|--------|
| 1  | 0.158      | 9.69             | 0.01            | 23.50          | 33.20                 | 65.56         | 32.36       | QP     |
| 2  | 0.166      | 9.69             | 0.01            | 23.93          | 33.63                 | 65.16         | 31.53       | QP     |
| 3  | 0.178      | 9.70             | 0.01            | 22.19          | 31.90                 | 64.59         | 32.69       | QP     |
| 4  | 0.186      | 9.70             | 0.01            | 22.73          | 32.44                 | 64.20         | 31.76       | QP     |
| 5  | 0.194      | 9.70             | 0.01            | 20.84          | 30.55                 | 63.84         | 33.29       | QP     |
| 6  | 0.369      | 9.72             | 0.01            | 16.82          | 26.55                 | 58.52         | 31.97       | QP     |

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector.  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



Trace: (Discrete)

Site no :1# CE Data No :2

Dis./Lisn :2023 ENV216-L

Limit :FCC PART 15 C

Env./Ins. :21.6°C/52%

Power Rating :AC 120V/60Hz

Test Mode :BT3.0 TX Mode

Engineer :Sucy

| No | Freq (MHz) | LISN Factor (dB) | Cable Loss (dB) | Reading (dBuV) | Emission Level (dBuV) | Limits (dBuV) | Margin (dB) | Remark |
|----|------------|------------------|-----------------|----------------|-----------------------|---------------|-------------|--------|
| 1  | 0.158      | 9.62             | 0.01            | 27.51          | 37.14                 | 65.56         | 28.42       | QP     |
| 2  | 0.178      | 9.62             | 0.01            | 21.07          | 30.70                 | 64.59         | 33.89       | QP     |
| 3  | 0.194      | 9.62             | 0.01            | 20.68          | 30.31                 | 63.84         | 33.53       | QP     |
| 4  | 0.206      | 9.62             | 0.01            | 18.28          | 27.91                 | 63.36         | 35.45       | QP     |
| 5  | 0.242      | 9.61             | 0.01            | 13.98          | 23.60                 | 62.04         | 38.44       | QP     |
| 6  | 0.369      | 9.60             | 0.01            | 16.88          | 26.49                 | 58.52         | 32.03       | QP     |

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector.  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

## 4. RADIATED EMISSION TEST

### 4.1. Test Equipments

Frequency range: 30~1000MHz

| Item | Equipment                 | Manufacturer    | Model No.   | Serial No.  | Last Cal. | Cal. Interval |
|------|---------------------------|-----------------|-------------|-------------|-----------|---------------|
| 1.   | 3m Chamber(NSA)           | AUDIX           | N/A         | N/A         | Aug.11,22 | 3Year         |
| 2.   | 3m Chamber(SE)            | AUDIX           | N/A         | N/A         | Sep.16,22 | 3 Year        |
| 3.   | Signal Analyzer           | Rohde & Schwarz | FSV30       | 103670      | Jun.25,23 | 1 Year        |
| 4.   | Tri-log-Broadband Antenna | SCHWARZBECK     | VULB 9168   | 429         | Oct.10,23 | 1 Year        |
| 5.   | NSA Cable                 | HUBER+SUHNER    | CFD400NL-LW | No.3+190411 | Sep.20,23 | 1 Year        |
| 6.   | Coaxial Switch            | Anritsu         | MP59B       | 6201397223  | Apr.02,23 | 1 Year        |
| 7.   | EMI Test Receiver         | Rohde & Schwarz | ESR3        | 101931      | Apr.01,23 | 1 Year        |
| 8.   | Broadband Amplifier       | SCHWARZBECK     | BBV9744     | 00259       | Jun.25,23 | 1 Year        |
| 9.   | Test Software             | AUDIX           | e3          | 6.100913a   | N/A       | N/A           |

Note: N/A means Not applicable.

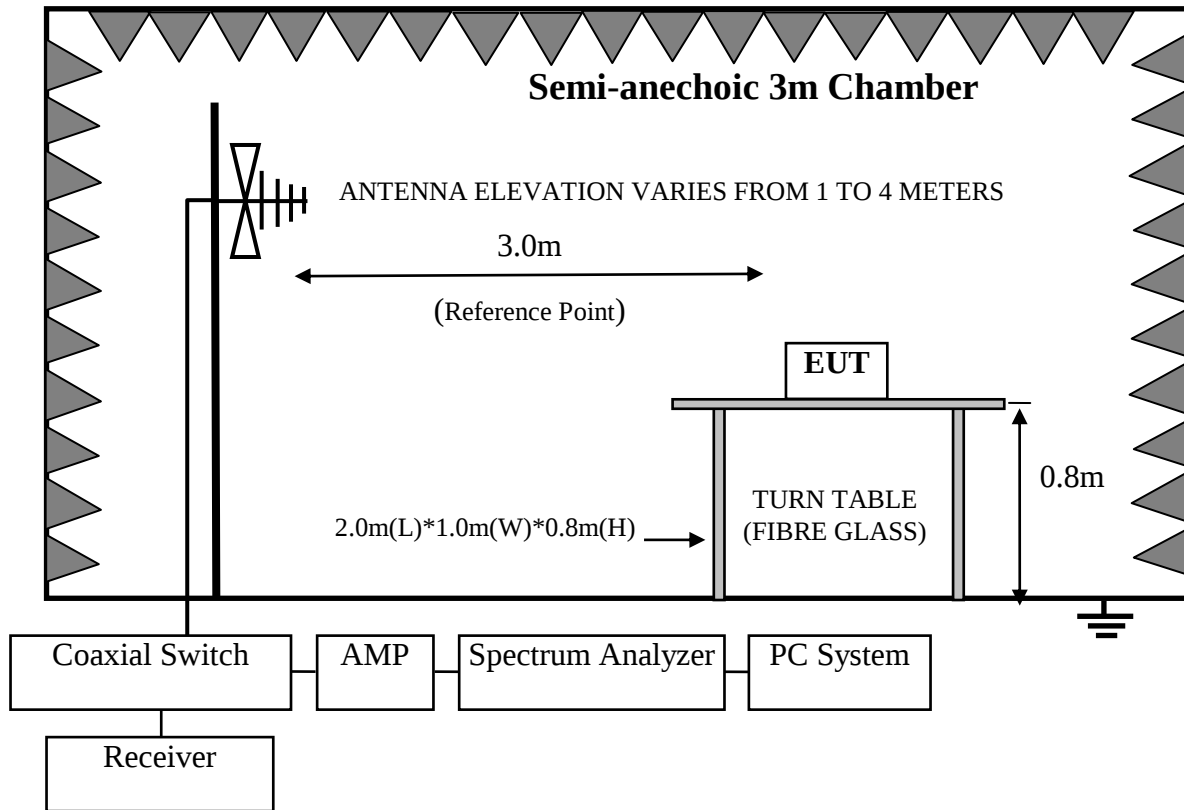
Frequency range: above 1000MHz

| Item | Equipment        | Manufacturer    | Model No.              | Serial No.  | Last Cal. | Cal. Interval |
|------|------------------|-----------------|------------------------|-------------|-----------|---------------|
| 1.   | 3mChamber(Svswr) | AUDIX           | N/A                    | N/A         | Aug.09,22 | 3Year         |
| 2.   | 3mChamber(SE)    | AUDIX           | N/A                    | N/A         | Sep.16,22 | 3Year         |
| 3.   | Signal Analyzer  | Rohde & Schwarz | FSV30                  | 104050      | Apr.01,23 | 1 Year        |
| 4.   | Amplifier        | Agilent         | 83017A                 | MY53270084  | Sep.20,23 | 1 Year        |
| 5.   | RF Cable         | EMCI            | EMC104-SM-S<br>M-15000 | 190407      | Jun.25,23 | 1 Year        |
| 6.   | Test Software    | AUDIX           | e3                     | 6.100913a   | N/A       | N/A           |
| 7.   | Horn Antenna     | ETC             | MCTD 1209              | DRH15F03006 | Aug.23,23 | 1 Year        |

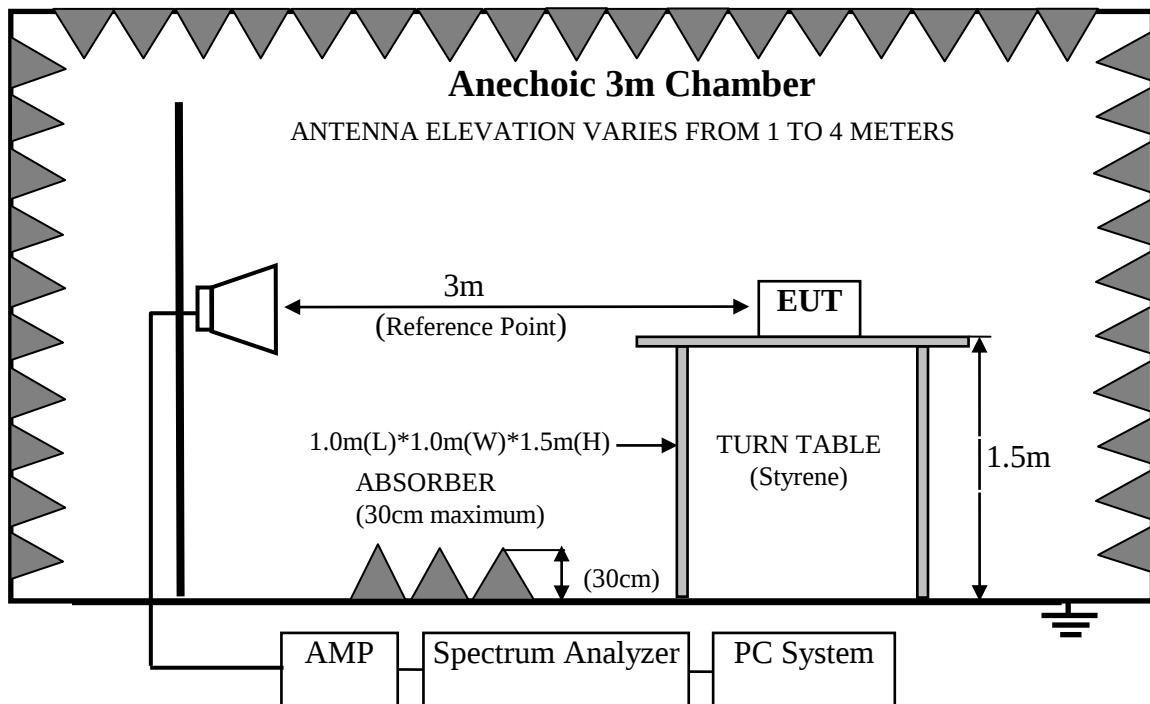
Note: N/A means Not applicable.

#### 4.2. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range above 1GHz



#### 4.3. Radiated Emission Limits Standard:

| FREQUENCY<br>MHz | DISTANCE<br>Meters | FIELD STRENGTHS LIMIT                                                                             |                                   |
|------------------|--------------------|---------------------------------------------------------------------------------------------------|-----------------------------------|
|                  |                    | $\mu\text{V/m}$                                                                                   | $\text{dB}(\mu\text{V})/\text{m}$ |
| 30 ~ 88          | 3                  | 100                                                                                               | 40.0                              |
| 88 ~ 216         | 3                  | 150                                                                                               | 43.5                              |
| 216 ~ 960        | 3                  | 200                                                                                               | 46.0                              |
| 960 ~ 1000       | 3                  | 500                                                                                               | 54.0                              |
| Above 1000MHz    | 3                  | 74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak)<br>54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average) |                                   |

- Remark :
- (1) Emission Level ( $\text{dB}\mu\text{V}/\text{m}$ ) = Reading (Receiver) ( $\text{dB}\mu\text{V}$ ) + Antenna Factor ( $\text{dB}/\text{m}$ ) + Cable Loss ( $\text{dB}$ )  
Emission Level ( $\text{dB}\mu\text{V}/\text{m}$ ) = Reading (Spectrum) ( $\text{dB}\mu\text{V}$ ) + Antenna Factor ( $\text{dB}/\text{m}$ ) – Amp Factor ( $\text{dB}$ ) + Cable Loss ( $\text{dB}$ )(above 1000MHz)
  - (2) The smaller limits shall apply at the cross point between two frequency bands.
  - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.
  - (4) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

#### 4.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

##### 4.4.1. Electronic paper display (EUT)

Model Number : EP-C131

#### 4.5. Operating Condition of EUT

- 4.5.1. Setup the EUT and simulator as shown as Section 4.2.
- 4.5.2. Turn on the power of all equipments.
- 4.5.3. Let EUT work in Tx mode.

#### 4.6. Test Procedure

##### **Frequency below 30MHz:**

The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2020 regulation.

##### **Frequency Above 30MHz:**

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground for frequency 30MHz~1000MHz, 1.5 meter high above ground for frequency above 1GHz and put the absorbing with 2.4m(L)\*2.4m(W)\*0.3m(H) on the ground . The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna for frequency 30MHz~1000MHz, and the Horn antenna is used as receiving antenna for frequency above 1GHz. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10 on radiated emission Test

The bandwidth of the EMI test receiver (R&S ESR3) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's RBW is set at 1MHz and VBW is set at 3MHz for peak emissions measurement above 1GHz

This device is pulse Modulated, a duty cycle factor was used to calculated average level based measured peak level.

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

#### 4.7. Radiated Emission Test Results

##### **PASS.**

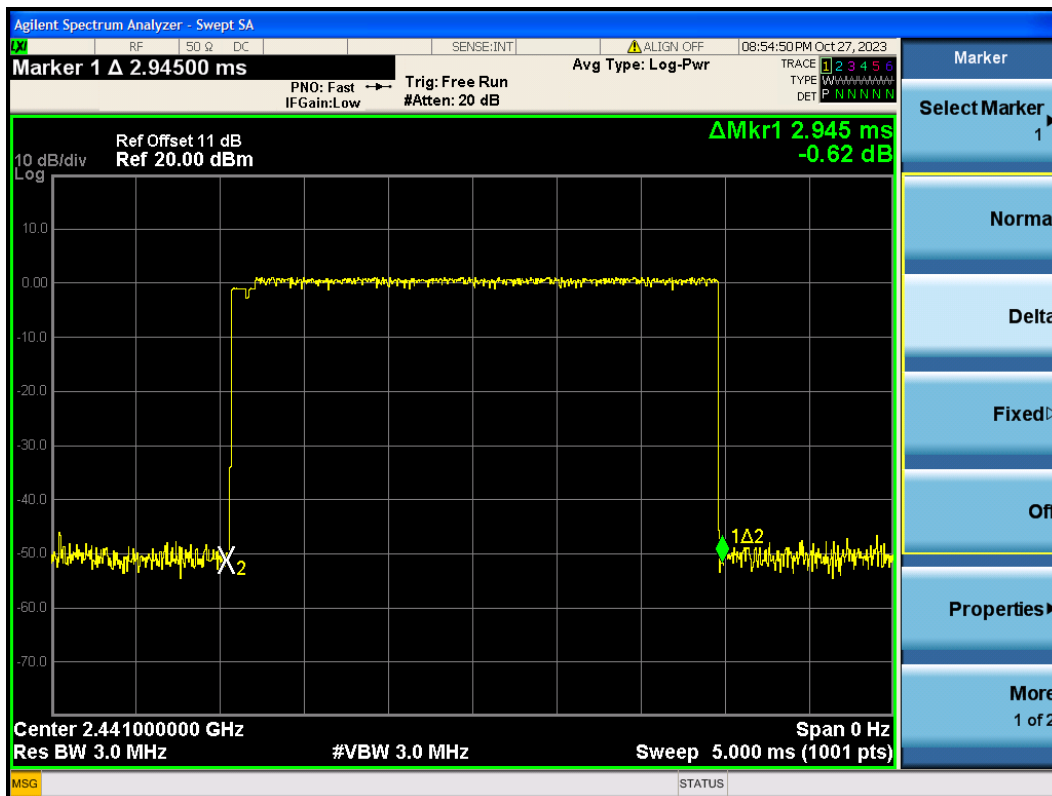
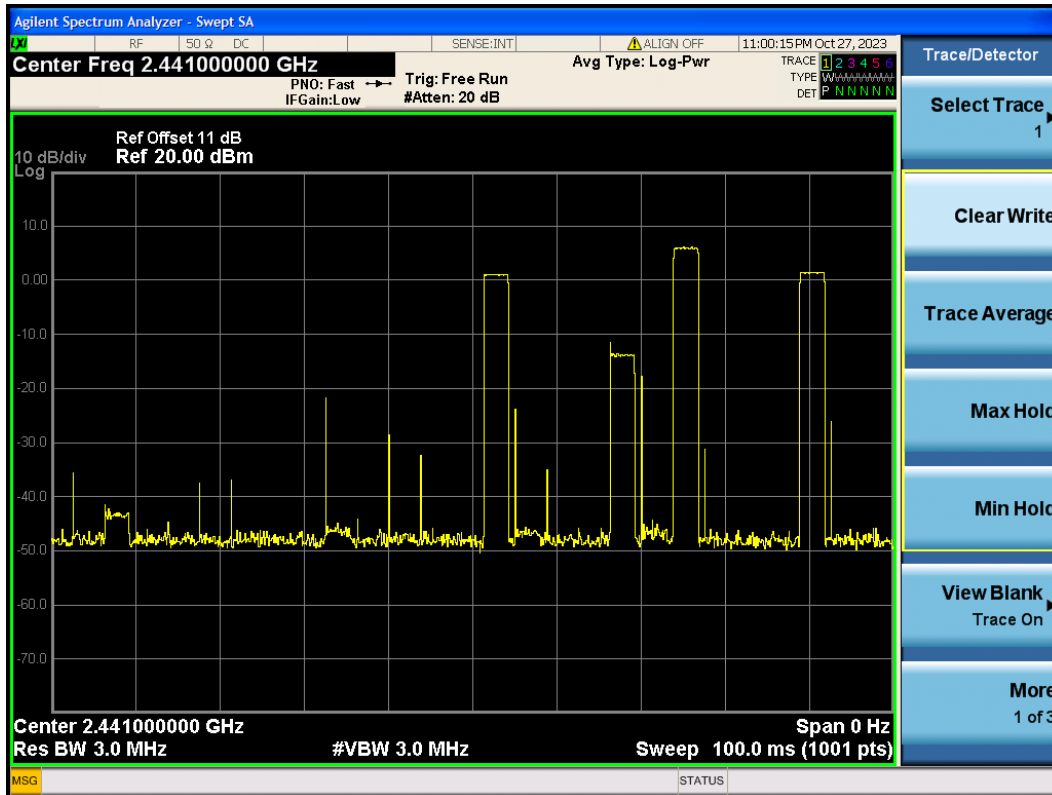
All the emissions from 30MHz to 25GHz were comply with the 15.209 Limit.

Note 1: The duty cycle factor for calculate average level is -30.618dB, and average limit is 20dB below peak limit, so if peak measured level comply with average limit, the average level was deemed to comply with average limit.

Note 2: The emissions (9kHz~30MHz) not reported for there is no emission be found.

Duty cycle factor =  $20\log(\text{Dwell time}/100\text{ms}) = -30.618\text{dB}$

Dwell Time =  $2.945 \times 1\text{ms}$

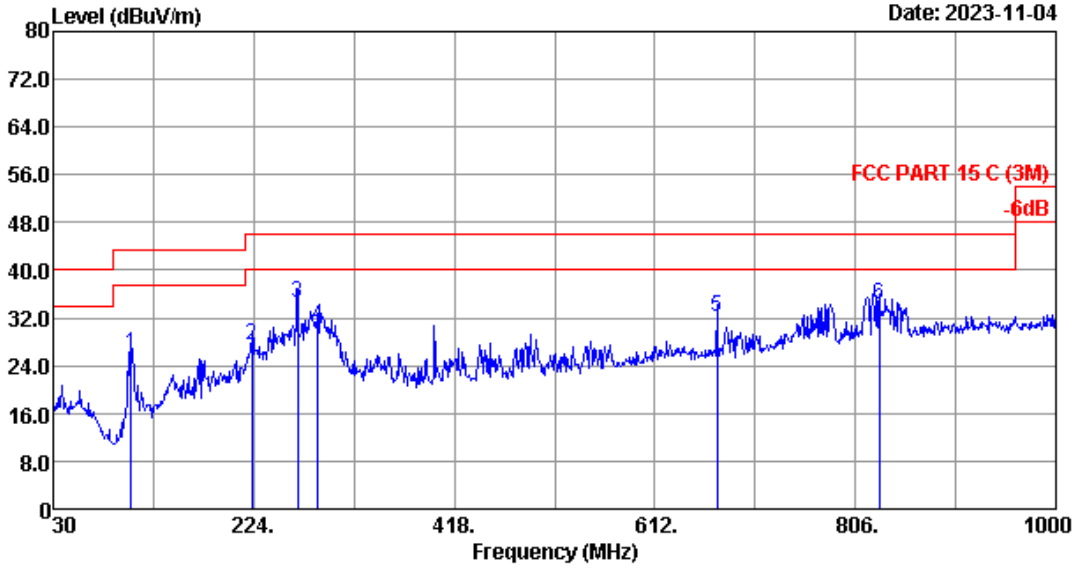


# Frequency: 30MHz~1GHz

Data: 1

File: E:\2023 Report Data\T\TPV\A1Z2310026R1-FCC-RF.EM6 (8)

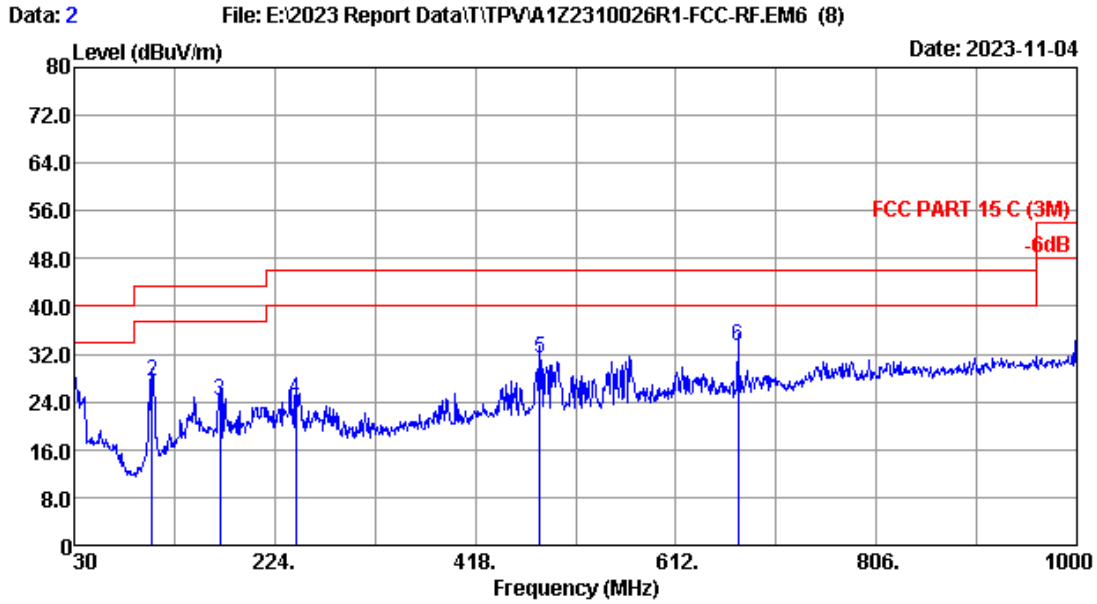
Date: 2023-11-04



Site no. : 3m Chamber Data no. : 1  
 Dis. / Ant. : 3m 2023 VULB 9168-429 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15 C (3M)  
 Env. / Ins. : 23.6\*CS5% Engineer : Abel  
 Test Mode : BT3.0 TX Mode

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 105.660        | 16.17                    | 0.89                  | 39.06             | 26.07                         | 43.50              | 17.43          | QP     |
| 2   | 222.060        | 15.74                    | 1.26                  | 39.78             | 27.53                         | 46.00              | 18.47          | QP     |
| 3   | 266.680        | 18.40                    | 1.36                  | 43.90             | 34.56                         | 46.00              | 11.44          | QP     |
| 4   | 286.080        | 19.12                    | 1.39                  | 39.22             | 30.69                         | 46.00              | 15.31          | QP     |
| 5   | 672.140        | 26.44                    | 2.18                  | 33.05             | 32.11                         | 46.00              | 13.89          | QP     |
| 6   | 829.280        | 28.69                    | 2.46                  | 31.90             | 34.10                         | 46.00              | 11.90          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

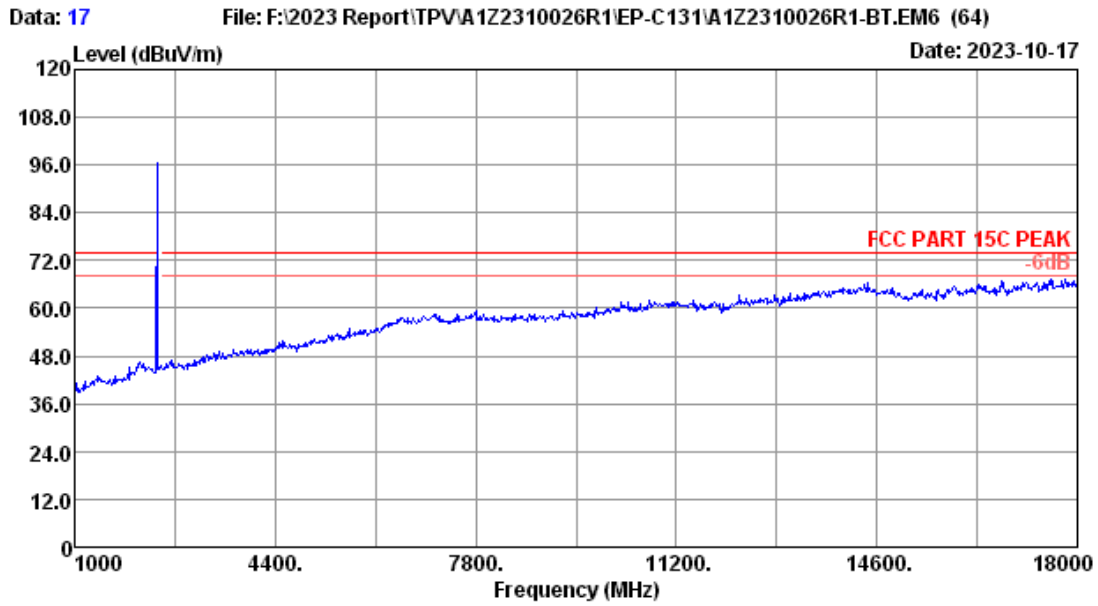


Site no. : 3m Chamber Data no. : 2  
 Dis. / Ant. : 3m 2023 VULB 9168-429 Ant. pol. : VERTICAL  
 Limit : FCC PART 15 C (3M)  
 Env. / Ins. : 23.6°C55% Engineer : Abel  
 Test Mode : BT3.0 TX Mode

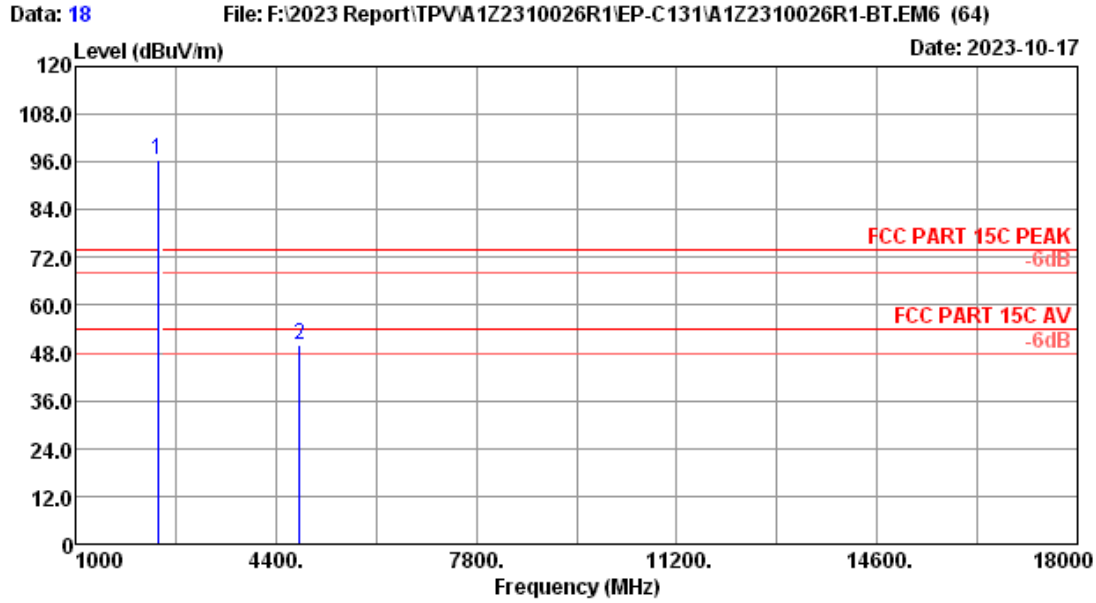
| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 30.000         | 18.90                    | 0.49                  | 37.55             | 26.64                         | 40.00              | 13.36          | QP     |
| 2   | 105.660        | 16.17                    | 0.89                  | 40.59             | 27.60                         | 43.50              | 15.90          | QP     |
| 3   | 170.650        | 18.70                    | 1.07                  | 33.99             | 24.18                         | 43.50              | 19.32          | QP     |
| 4   | 244.370        | 17.67                    | 1.32                  | 34.67             | 24.50                         | 46.00              | 21.50          | QP     |
| 5   | 480.080        | 23.40                    | 1.79                  | 35.89             | 31.26                         | 46.00              | 14.74          | QP     |
| 6   | 672.140        | 26.44                    | 2.18                  | 34.29             | 33.35                         | 46.00              | 12.65          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

# Frequency: 1GHz~18GHz



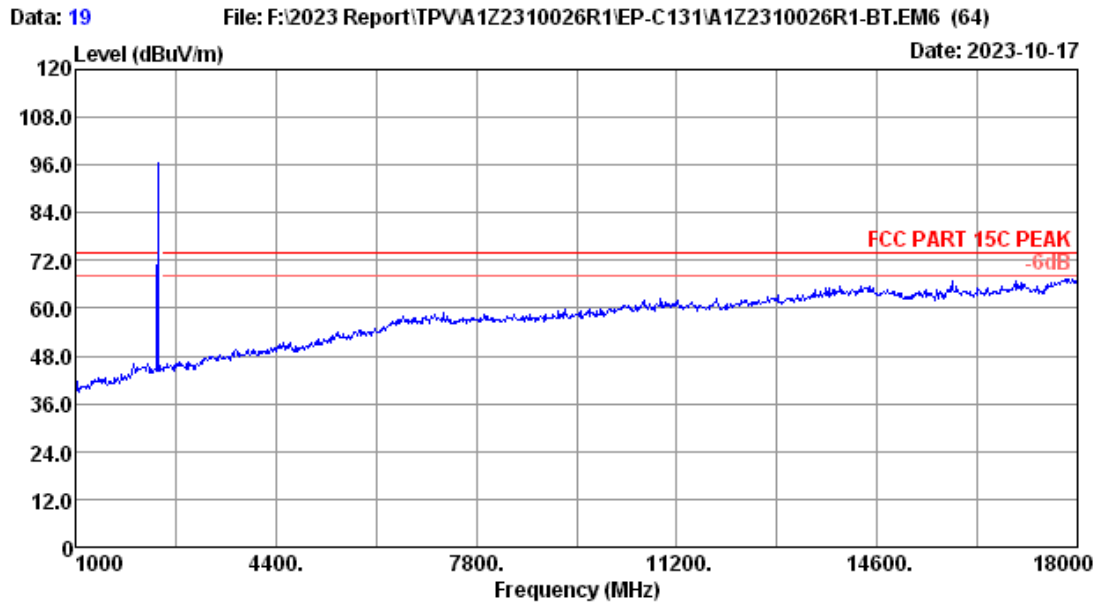
|             |                         |           |              |
|-------------|-------------------------|-----------|--------------|
| Site no.    | : 3m Chamber            | Data no.  | : 17         |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006 | Ant. pol. | : HORIZONTAL |
| Limit       | : FCC PART 15C PEAK     |           |              |
| Env. / Ins. | : 23.2°C/52.5%          | Engineer  | : nier       |
| Test Mode   | : BT GFSK 2402 MHz TX   |           |              |
|             | :                       |           |              |
|             | :                       |           |              |



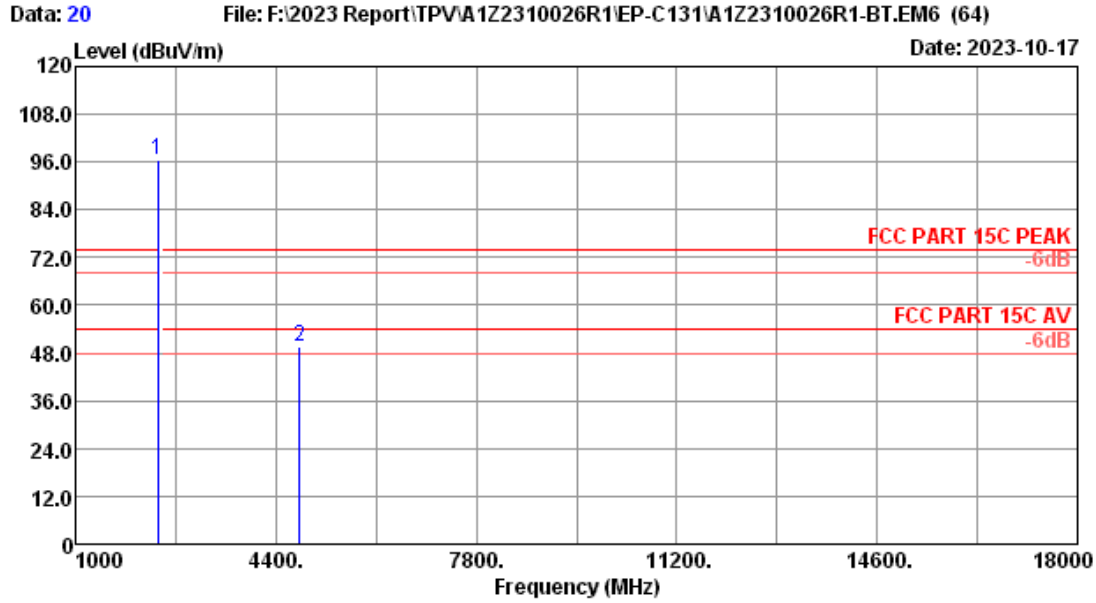
Site no. : 3m Chamber Data no. : 18  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT GFSK 2402 MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2402.00        | 27.61                    | 4.86                  | 34.36                 | 98.60             | 96.71                         | -----              | -----          | Peak   |
| 2   | 4804.00        | 31.20                    | 6.50                  | 33.68                 | 46.19             | 50.21                         | 74.00              | 23.79          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.



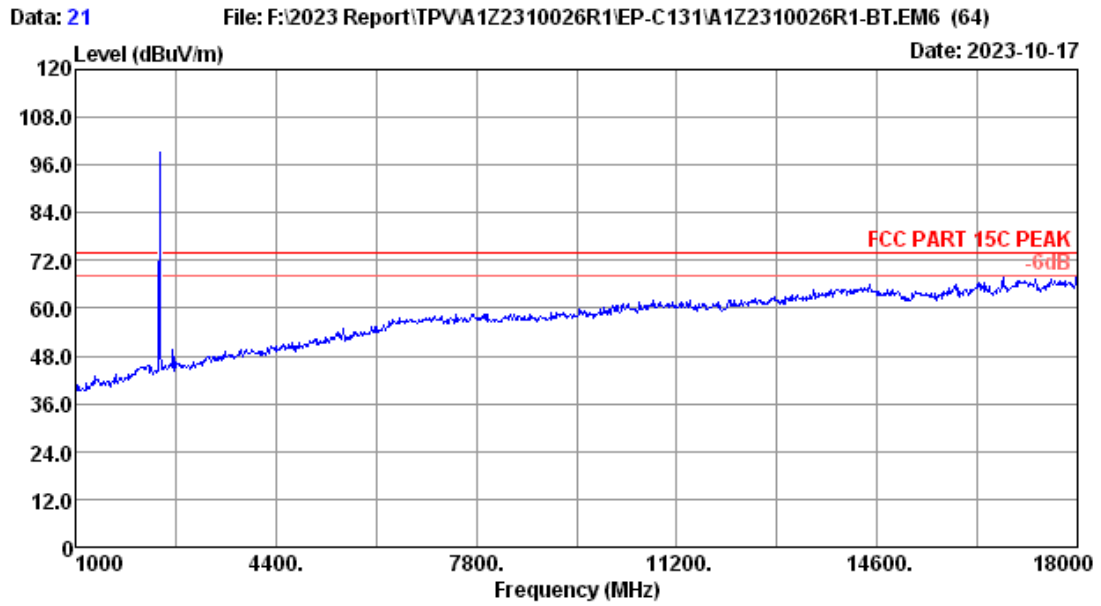
|             |                         |           |            |
|-------------|-------------------------|-----------|------------|
| Site no.    | : 3m Chamber            | Data no.  | : 19       |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006 | Ant. pol. | : VERTICAL |
| Limit       | : FCC PART 15C PEAK     |           |            |
| Env. / Ins. | : 23.2°C/52.5%          | Engineer  | : nier     |
| Test Mode   | : BT GFSK 2402 MHz TX   |           |            |
|             | :                       |           |            |
|             | :                       |           |            |



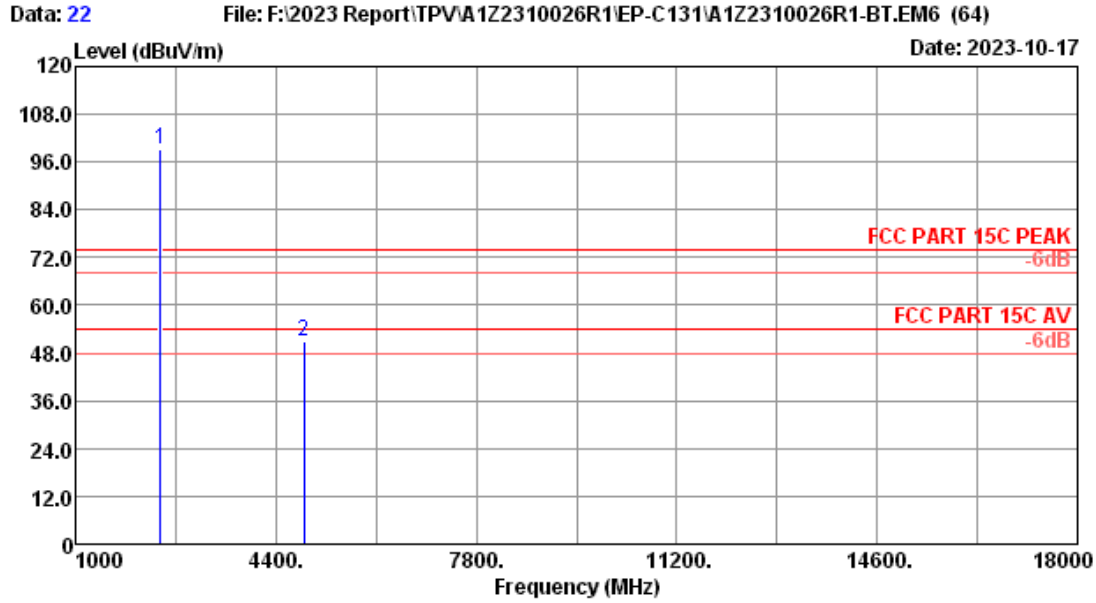
Site no. : 3m Chamber Data no. : 20  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT GFSK 2402 MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2402.00        | 27.61                    | 4.86                  | 34.36                 | 98.62             | 96.73                         | -----              | -----          | Peak   |
| 2   | 4804.00        | 31.20                    | 6.50                  | 33.68                 | 45.53             | 49.55                         | 74.00              | 24.45          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.



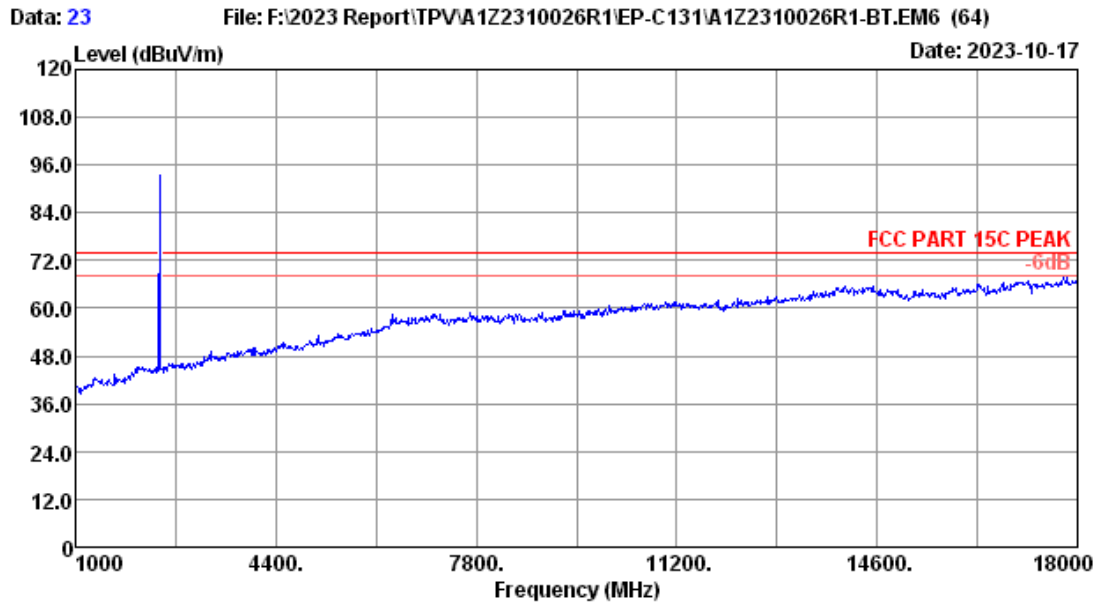
|             |                         |           |            |
|-------------|-------------------------|-----------|------------|
| Site no.    | : 3m Chamber            | Data no.  | : 21       |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006 | Ant. pol. | : VERTICAL |
| Limit       | : FCC PART 15C PEAK     |           |            |
| Env. / Ins. | : 23.2°C/52.5%          | Engineer  | : nier     |
| Test Mode   | : BT GFSK 2441 MHz TX   |           |            |
|             | :                       |           |            |
|             | :                       |           |            |



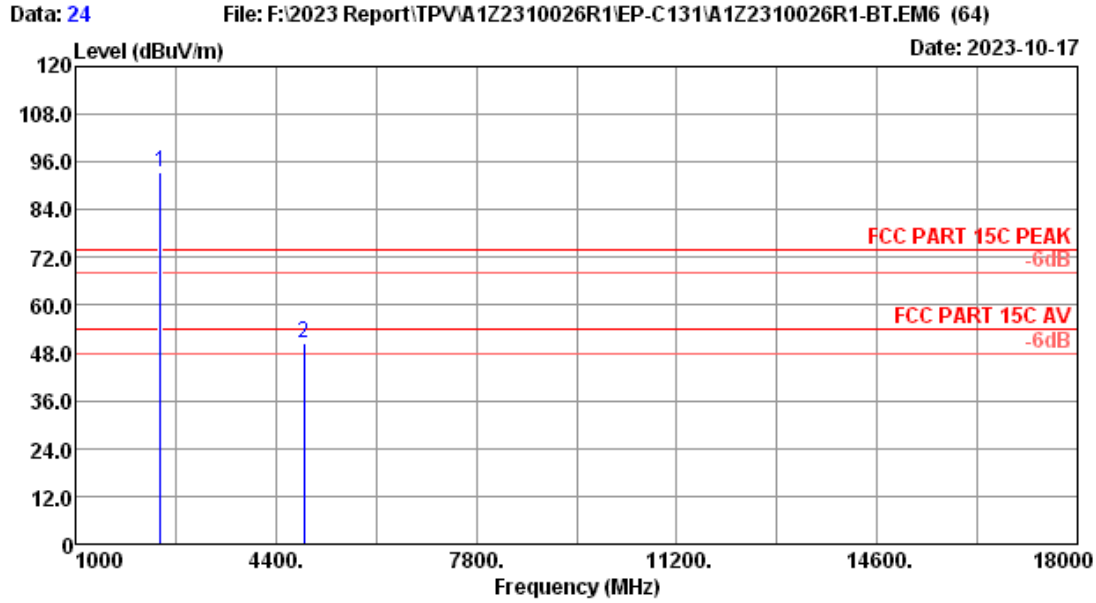
Site no. : 3m Chamber Data no. : 22  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT GFSK 2441 MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2441.00        | 27.76                    | 4.90                  | 34.35                 | 100.68            | 98.99                         | -----              | -----          | Peak   |
| 2   | 4882.00        | 31.46                    | 6.54                  | 33.69                 | 46.65             | 50.96                         | 74.00              | 23.04          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.



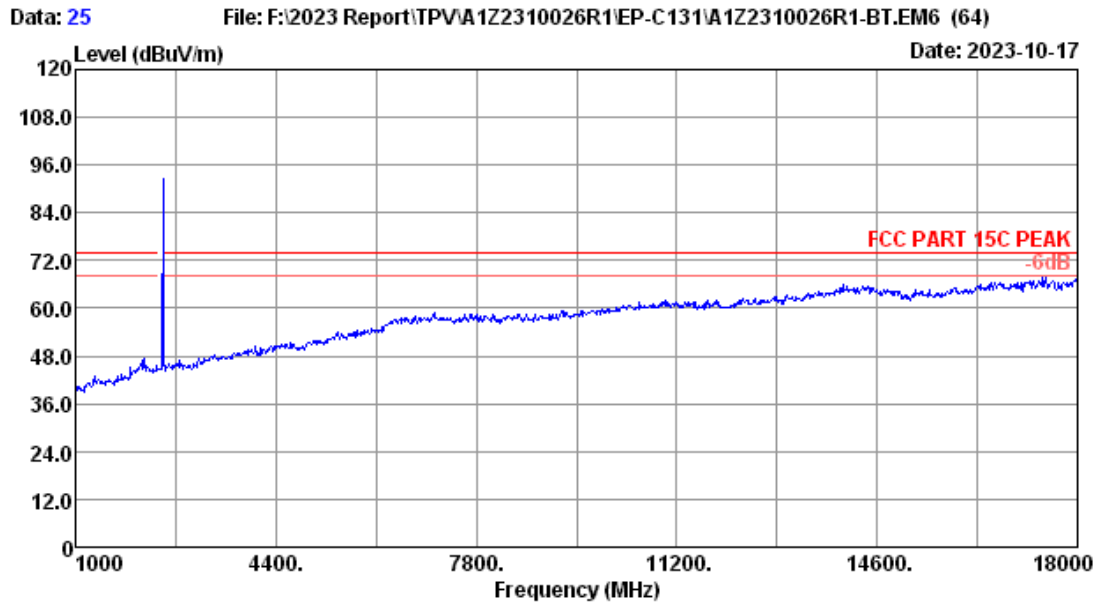
|             |                         |           |              |
|-------------|-------------------------|-----------|--------------|
| Site no.    | : 3m Chamber            | Data no.  | : 23         |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006 | Ant. pol. | : HORIZONTAL |
| Limit       | : FCC PART 15C PEAK     |           |              |
| Env. / Ins. | : 23.2°C/52.5%          | Engineer  | : nier       |
| Test Mode   | : BT GFSK 2441 MHz TX   |           |              |
|             | :                       |           |              |
|             | :                       |           |              |



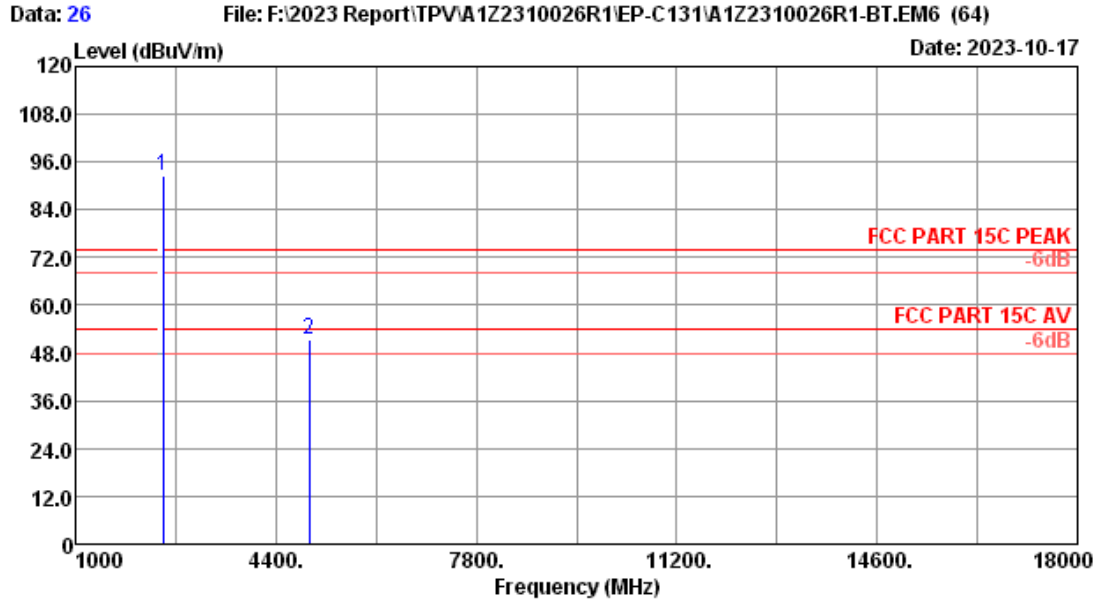
Site no. : 3m Chamber Data no. : 24  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT GFSK 2441 MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2441.00        | 27.76                    | 4.90                  | 34.35                 | 95.18             | 93.49                         | -----              | -----          | Peak   |
| 2   | 4882.00        | 31.46                    | 6.54                  | 33.69                 | 45.96             | 50.27                         | 74.00              | 23.73          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.



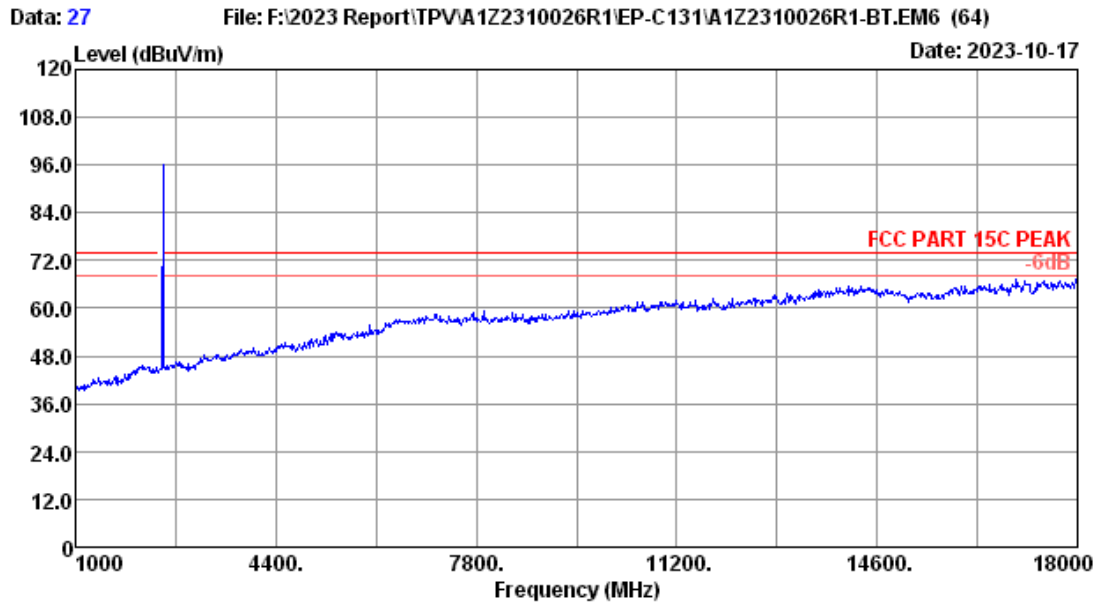
|             |                         |           |              |
|-------------|-------------------------|-----------|--------------|
| Site no.    | : 3m Chamber            | Data no.  | : 25         |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006 | Ant. pol. | : HORIZONTAL |
| Limit       | : FCC PART 15C PEAK     |           |              |
| Env. / Ins. | : 23.2°C/52.5%          | Engineer  | : nier       |
| Test Mode   | : BT GFSK 2480 MHz TX   |           |              |
|             | :                       |           |              |
|             | :                       |           |              |



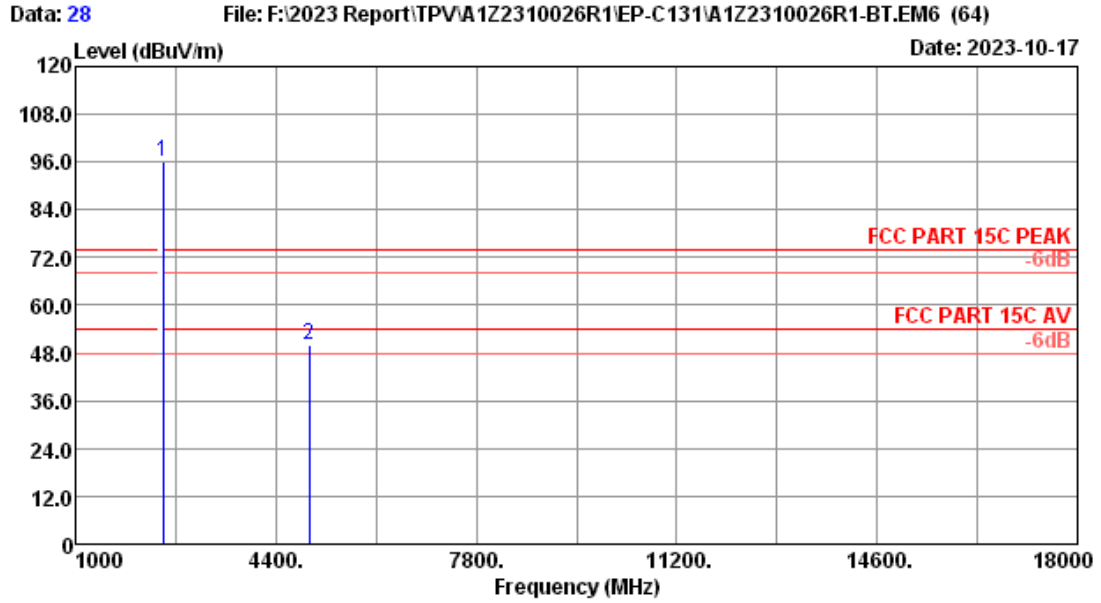
Site no. : 3m Chamber Data no. : 26  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT GFSK 2480 MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2480.00        | 27.80                    | 4.93                  | 34.35                 | 94.18             | 92.56                         | -----              | -----          | Peak   |
| 2   | 4960.00        | 31.98                    | 6.58                  | 33.69                 | 46.46             | 51.33                         | 74.00              | 22.67          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.



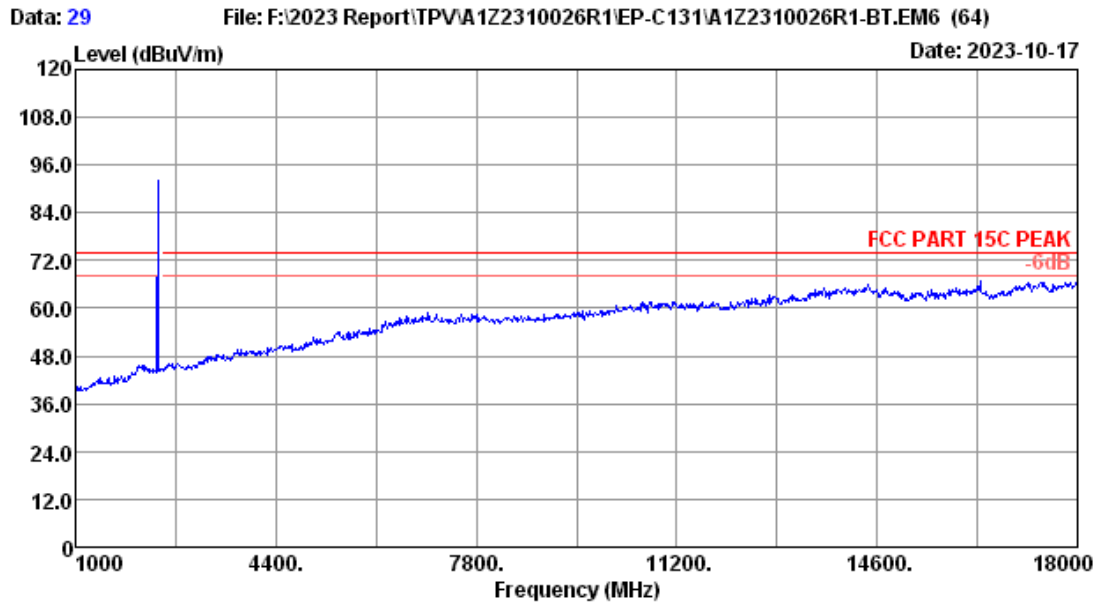
|             |                         |           |            |
|-------------|-------------------------|-----------|------------|
| Site no.    | : 3m Chamber            | Data no.  | : 27       |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006 | Ant. pol. | : VERTICAL |
| Limit       | : FCC PART 15C PEAK     |           |            |
| Env. / Ins. | : 23.2°C/52.5%          | Engineer  | : nier     |
| Test Mode   | : BT GFSK 2480 MHz TX   |           |            |
|             | :                       |           |            |
|             | :                       |           |            |



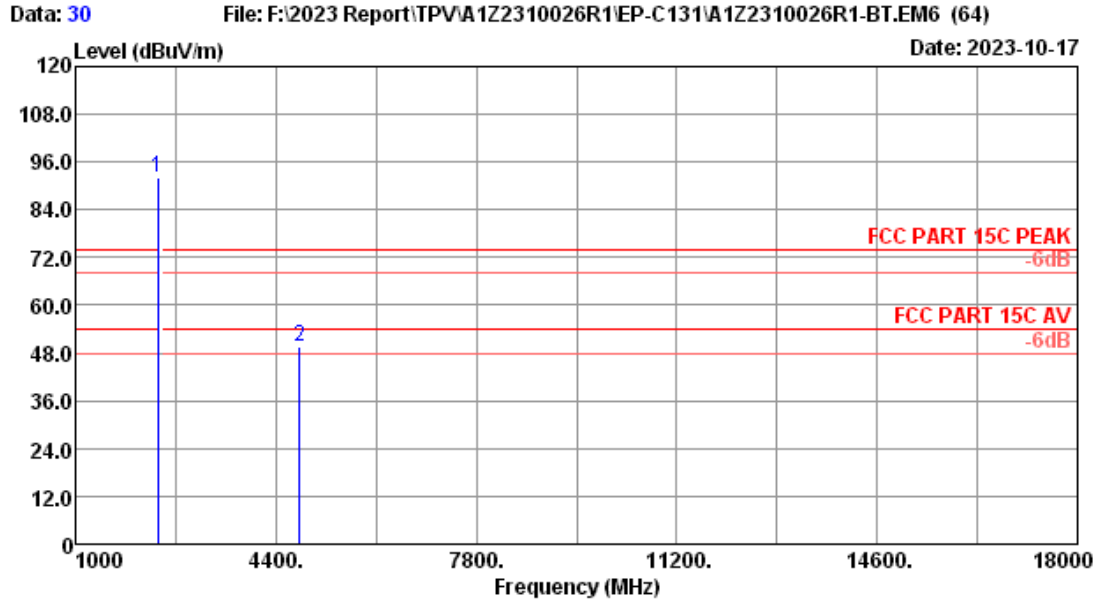
Site no. : 3m Chamber Data no. : 28  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT GFSK 2480 MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2480.00        | 27.80                    | 4.93                  | 34.35                 | 97.57             | 95.95                         | -----              | -----          | Peak   |
| 2   | 4960.00        | 31.98                    | 6.58                  | 33.69                 | 45.31             | 50.18                         | 74.00              | 23.82          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.



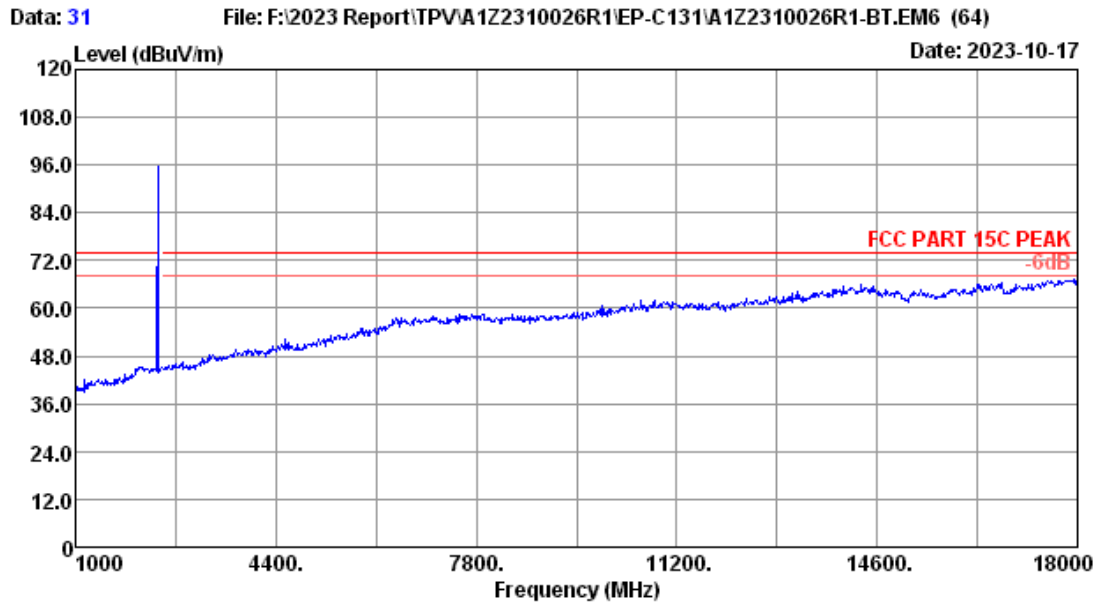
|             |                           |           |              |
|-------------|---------------------------|-----------|--------------|
| Site no.    | : 3m Chamber              | Data no.  | : 29         |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006   | Ant. pol. | : HORIZONTAL |
| Limit       | : FCC PART 15C PEAK       |           |              |
| Env. / Ins. | : 23.2°C/52.5%            | Engineer  | : nier       |
| Test Mode   | : BT3.0 8-DPSK 2402MHz TX |           |              |
|             | :                         |           |              |
|             | :                         |           |              |



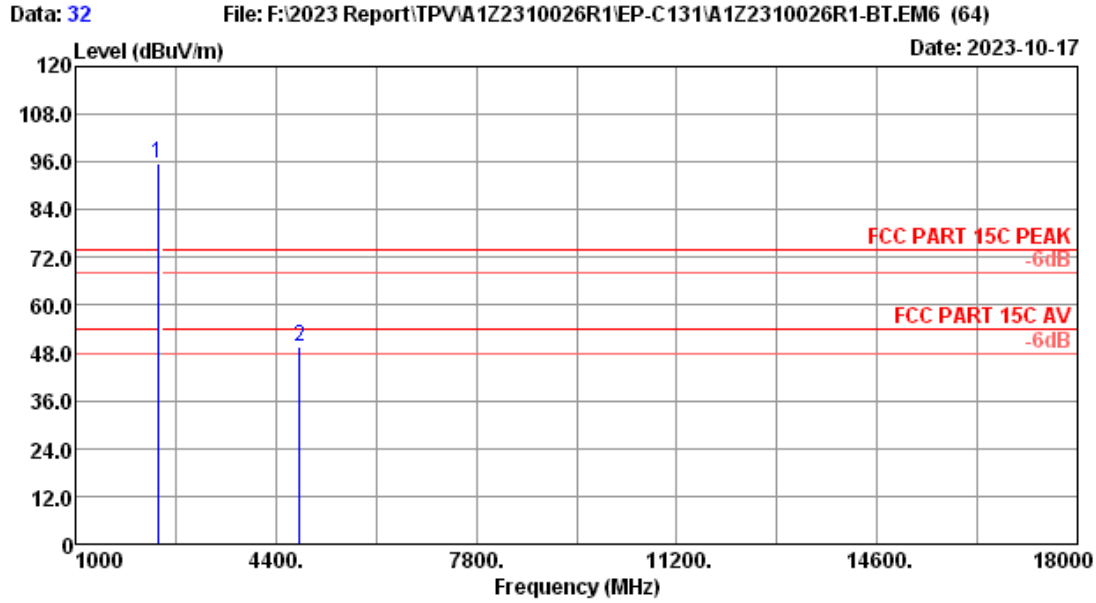
|             |                           |           |              |
|-------------|---------------------------|-----------|--------------|
| Site no.    | : 3m Chamber              | Data no.  | : 30         |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006   | Ant. pol. | : HORIZONTAL |
| Limit       | : FCC PART 15C PEAK       |           |              |
| Env. / Ins. | : 23.2°C/52.5%            | Engineer  | : nier       |
| Test Mode   | : BT3.0 8-DPSK 2402MHz TX |           |              |
|             | :                         |           |              |
|             | :                         |           |              |

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Emission          |                   |                    |                | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|--------|
|     |                |                          |                       |                       | Reading<br>(dBuV) | Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) |        |
| 1   | 2402.00        | 27.61                    | 4.86                  | 34.36                 | 94.14             | 92.25             | -----              | -----          | Peak   |
| 2   | 4804.00        | 31.20                    | 6.50                  | 33.68                 | 45.39             | 49.41             | 74.00              | 24.59          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
-Amp factor.  
2. The emission levels that are 20dB below the official  
limit are not reported.



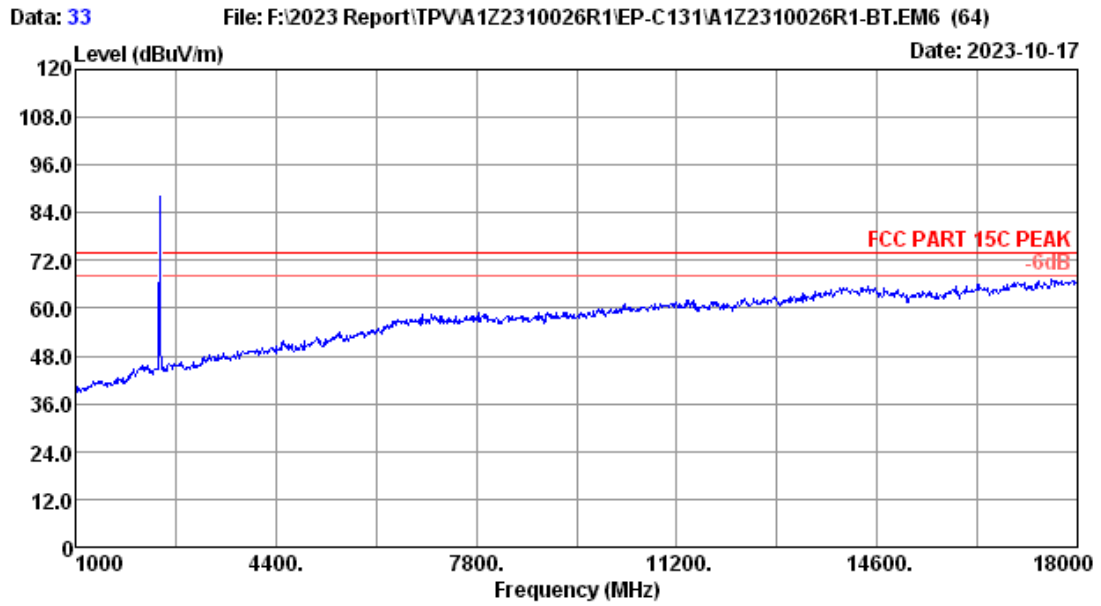
|             |                           |           |            |
|-------------|---------------------------|-----------|------------|
| Site no.    | : 3m Chamber              | Data no.  | : 31       |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006   | Ant. pol. | : VERTICAL |
| Limit       | : FCC PART 15C PEAK       |           |            |
| Env. / Ins. | : 23.2°C/52.5%            | Engineer  | : nier     |
| Test Mode   | : BT3.0 8-DPSK 2402MHz TX |           |            |
|             | :                         |           |            |
|             | :                         |           |            |



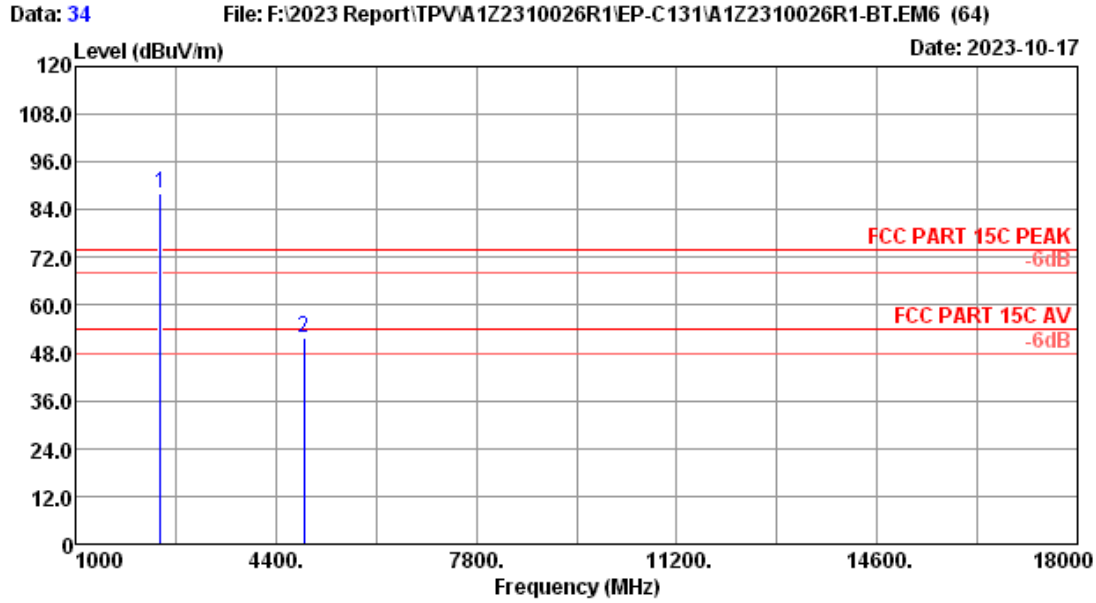
Site no. : 3m Chamber Data no. : 32  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT3.0 8-DPSK 2402MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2402.00        | 27.61                    | 4.86                  | 34.36                 | 97.72             | 95.83                         | -----              | -----          | Peak   |
| 2   | 4804.00        | 31.20                    | 6.50                  | 33.68                 | 45.49             | 49.51                         | 74.00              | 24.49          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.



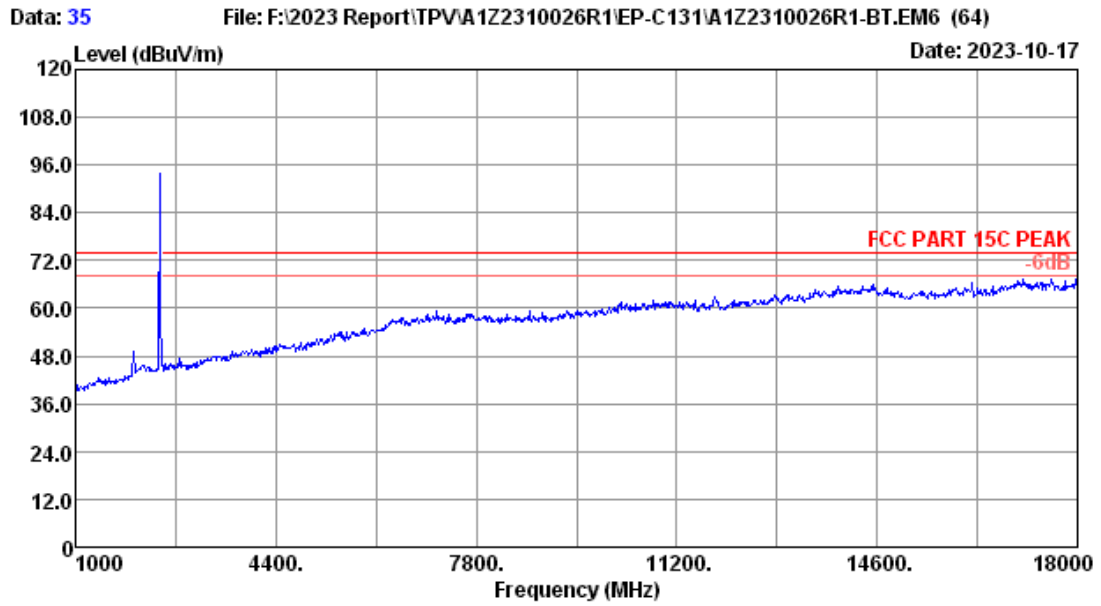
|             |                           |           |              |
|-------------|---------------------------|-----------|--------------|
| Site no.    | : 3m Chamber              | Data no.  | : 33         |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006   | Ant. pol. | : HORIZONTAL |
| Limit       | : FCC PART 15C PEAK       |           |              |
| Env. / Ins. | : 23.2°C/52.5%            | Engineer  | : nier       |
| Test Mode   | : BT3.0 8-DPSK 2441MHz TX |           |              |
|             | :                         |           |              |
|             | :                         |           |              |



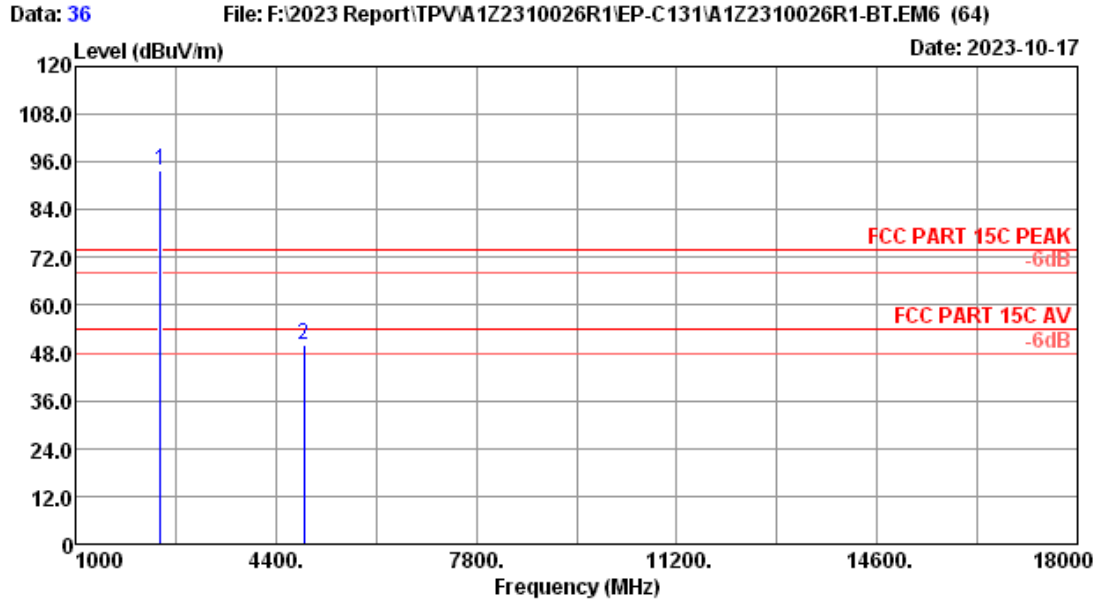
Site no. : 3m Chamber Data no. : 34  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT3.0 8-DPSK 2441MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2441.00        | 27.76                    | 4.90                  | 34.35                 | 89.74             | 88.05                         | -----              | -----          | Peak   |
| 2   | 4882.00        | 31.46                    | 6.54                  | 33.69                 | 47.34             | 51.65                         | 74.00              | 22.35          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.



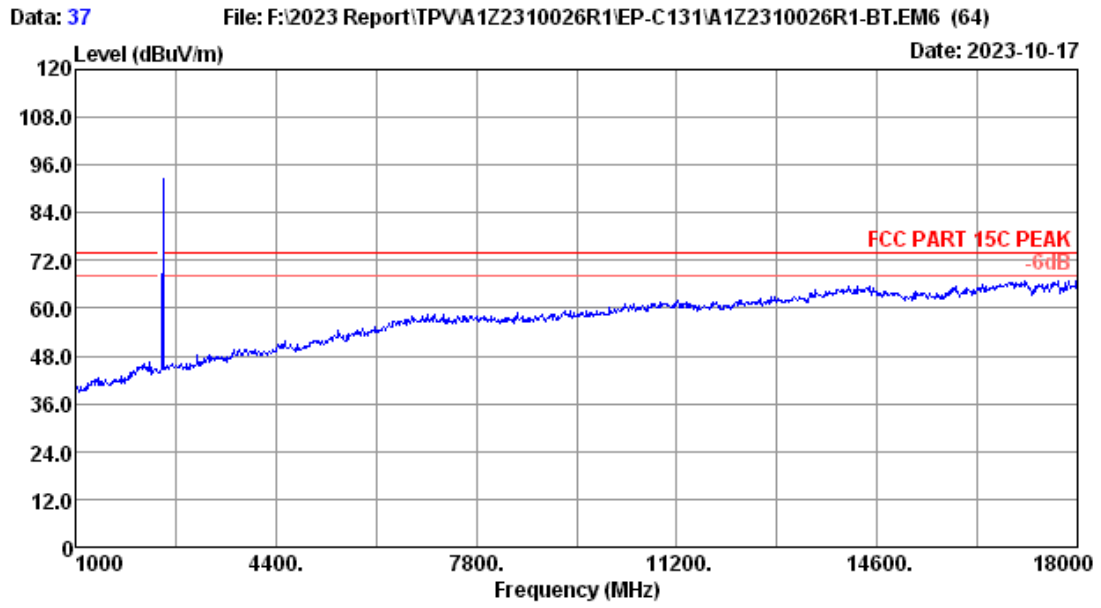
|             |                           |           |            |
|-------------|---------------------------|-----------|------------|
| Site no.    | : 3m Chamber              | Data no.  | : 35       |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006   | Ant. pol. | : VERTICAL |
| Limit       | : FCC PART 15C PEAK       |           |            |
| Env. / Ins. | : 23.2°C/52.5%            | Engineer  | : nier     |
| Test Mode   | : BT3.0 8-DPSK 2441MHz TX |           |            |
|             | :                         |           |            |
|             | :                         |           |            |



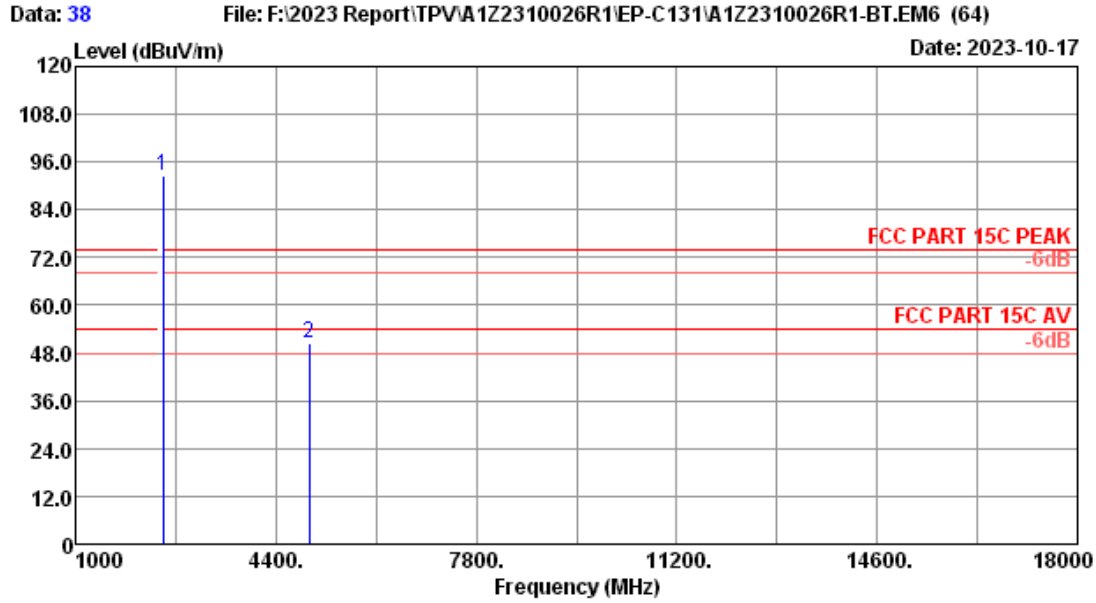
Site no. : 3m Chamber Data no. : 36  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT3.0 8-DPSK 2441MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2441.00        | 27.76                    | 4.90                  | 34.35                 | 95.59             | 93.90                         | -----              | -----          | Peak   |
| 2   | 4882.00        | 31.46                    | 6.54                  | 33.69                 | 45.86             | 50.17                         | 74.00              | 23.83          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.



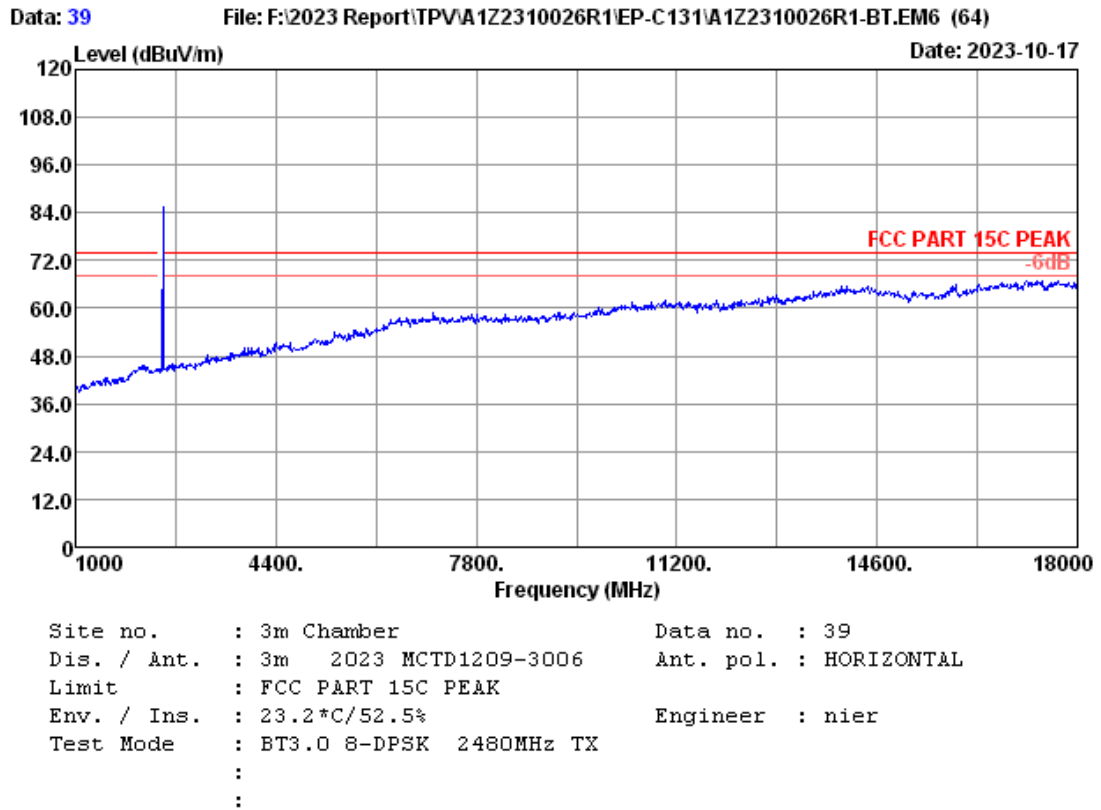
|             |                           |           |            |
|-------------|---------------------------|-----------|------------|
| Site no.    | : 3m Chamber              | Data no.  | : 37       |
| Dis. / Ant. | : 3m 2023 MCTD1209-3006   | Ant. pol. | : VERTICAL |
| Limit       | : FCC PART 15C PEAK       |           |            |
| Env. / Ins. | : 23.2°C/52.5%            | Engineer  | : nier     |
| Test Mode   | : BT3.0 8-DPSK 2480MHz TX |           |            |
|             | :                         |           |            |
|             | :                         |           |            |

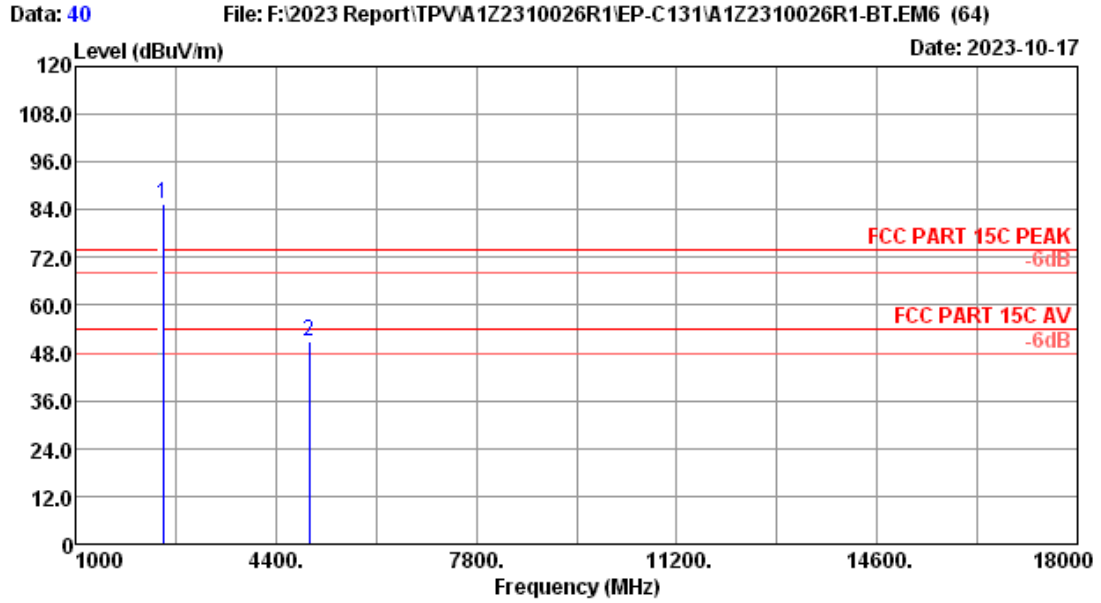


Site no. : 3m Chamber Data no. : 38  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT3.0 8-DPSK 2480MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2480.00        | 27.80                    | 4.93                  | 34.35                 | 94.37             | 92.75                         | -----              | -----          | Peak   |
| 2   | 4960.00        | 31.98                    | 6.58                  | 33.69                 | 45.52             | 50.39                         | 74.00              | 23.61          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.





Site no. : 3m Chamber Data no. : 40  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT3.0 8-DPSK 2480MHz TX  
 :  
 :

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2480.00        | 27.80                    | 4.93                  | 34.35                 | 87.06             | 85.44                         | -----              | -----          | Peak   |
| 2   | 4960.00        | 31.98                    | 6.58                  | 33.69                 | 46.03             | 50.90                         | 74.00              | 23.10          | Peak   |

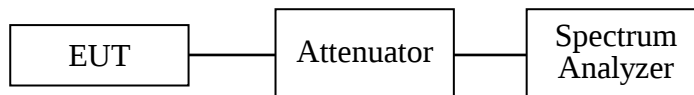
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp factor.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.

## 5. CONDUCTED SPURIOUS EMISSIONS

### 5.1. Test Equipments

| Item | Equipment           | Manufacturer | Model No.    | Serial No. | Last Cal. | Cal. Interval |
|------|---------------------|--------------|--------------|------------|-----------|---------------|
| 1.   | PXA Signal Analyzer | Agilent      | N9030A       | MY51380221 | Apr.01,23 | 1 Year        |
| 2.   | RF Cable            | HUBER+SUHNER | SUCOFLEX-106 | 505238/6   | Apr.02,23 | 1 Year        |

### 5.2. Block Diagram of Test Setup



### 5.3. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30dB instead of 20dB.

### 5.4. Test Procedure

Use the test method described in ANSI C63.10 clause 7.8.8:

The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions With peak detector.

Note: The cable loss and attenuator loss were offset into spectrum analyzer as an amplitude offset.

### 5.5. Test result

**PASS** (The testing data was attached in the next pages.)

|                               |                         |                          |
|-------------------------------|-------------------------|--------------------------|
| EUT: Electronic paper display |                         |                          |
| M/N: EP-C131                  |                         |                          |
| Test date: 2023-11-03~04      | Pressure: 102.3±1.0 kpa | Humidity: 53.6±3.0%      |
| Tested by: Jason              | Test site: RF site      | Temperature: 25.5±0.6 °C |

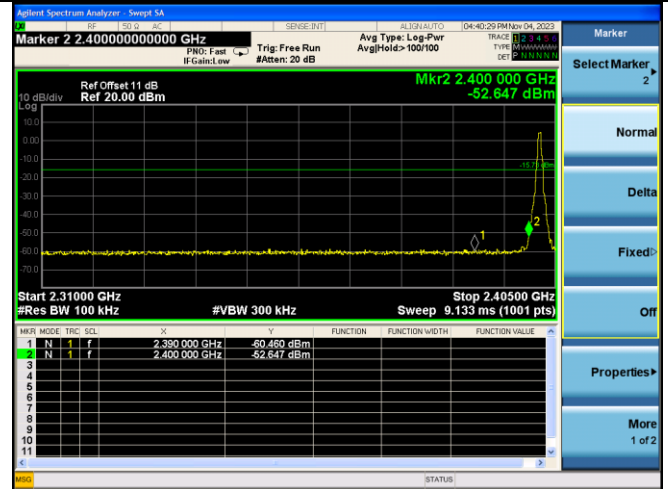
## Hopping off

### FSK

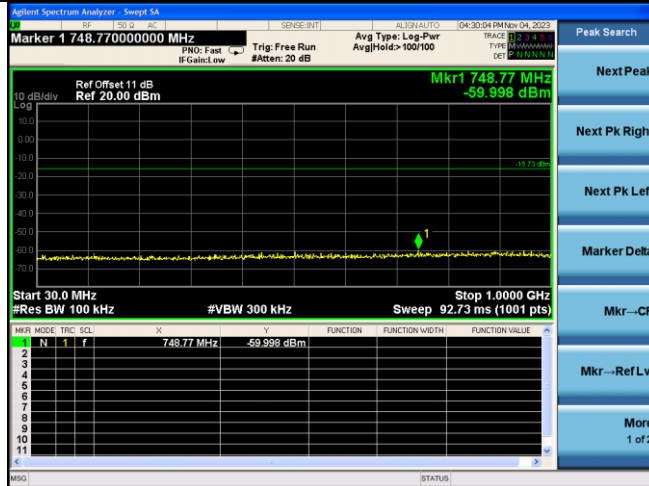
#### 2402MHz



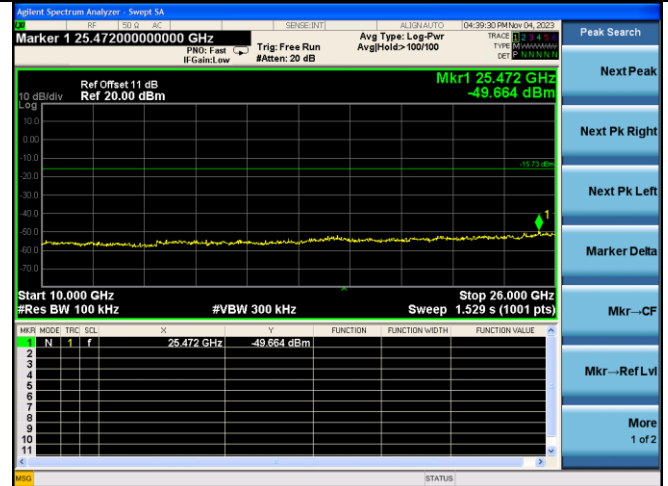
#### 2402MHz(2.3GHz – 2.4GHz)



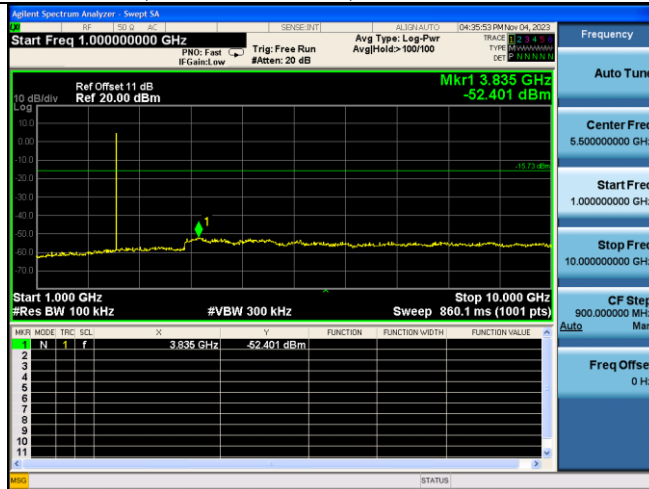
#### 2402MHz(30MHz – 1GHz)



#### 2402MHz(10GHz – 26GHz)



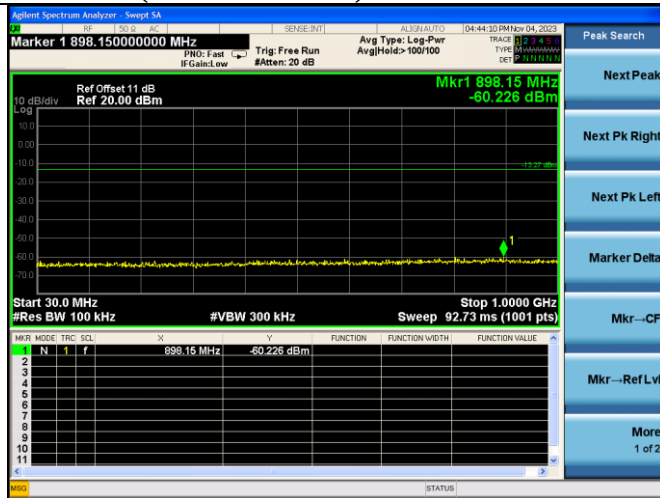
#### 2402MHz(1GHz – 10GHz)



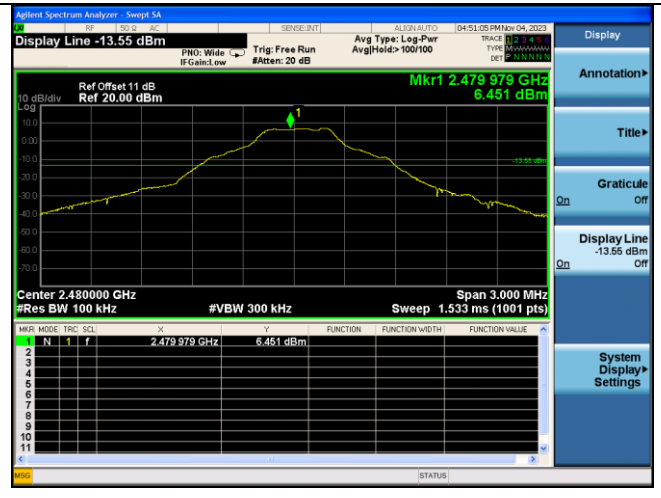
#### 2441MHz



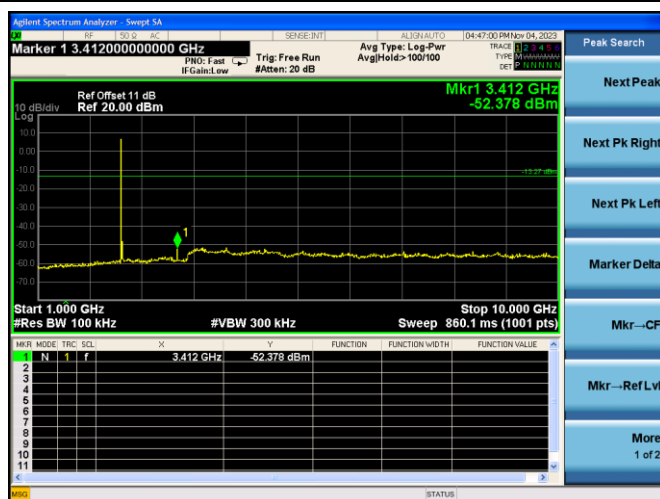
## 2441MHz(30MHz – 1GHz)



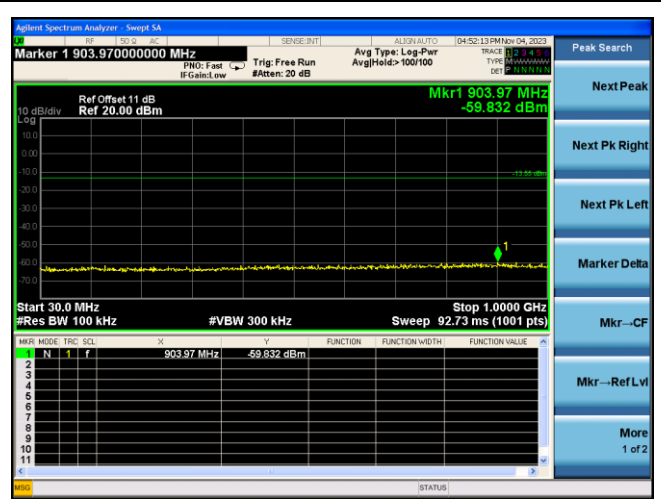
## 2480MHz



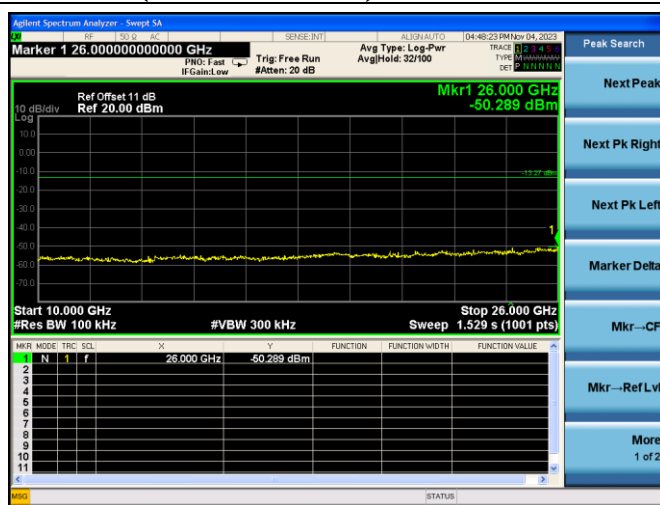
## 2441MHz(1GHz – 10GHz)



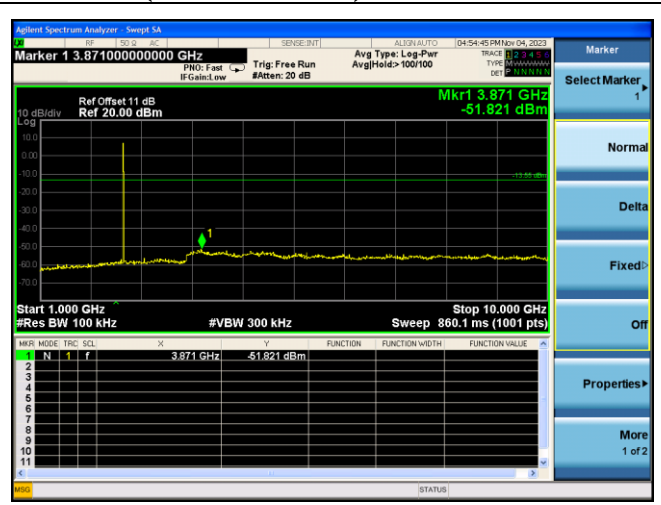
## 2480MHz(30MHz – 1GHz)



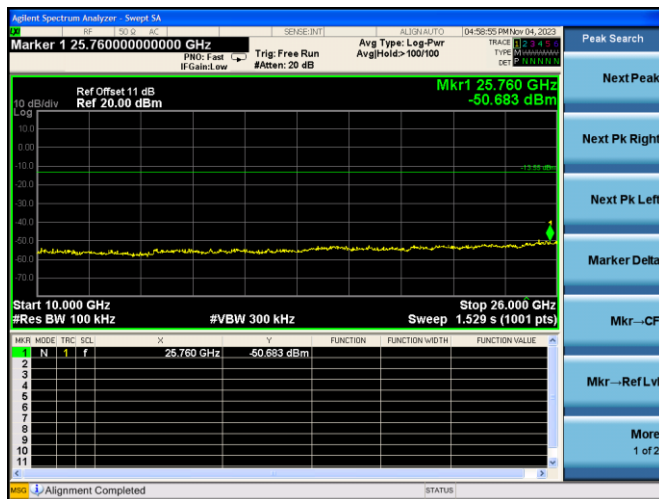
## 2441MHz(10GHz – 26GHz)



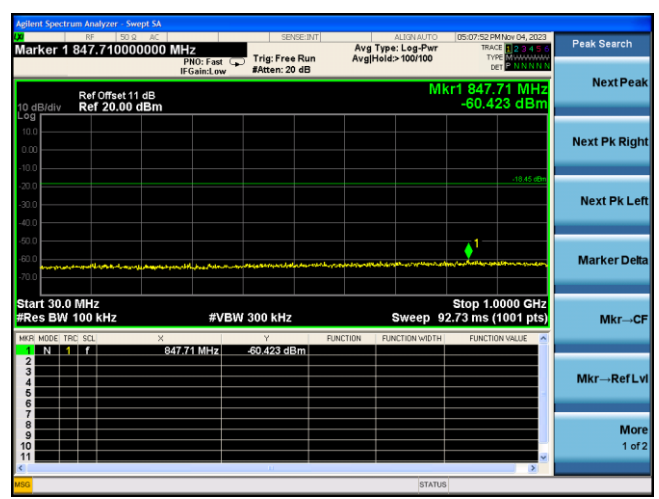
## 2480MHz(1GHz – 10GHz)



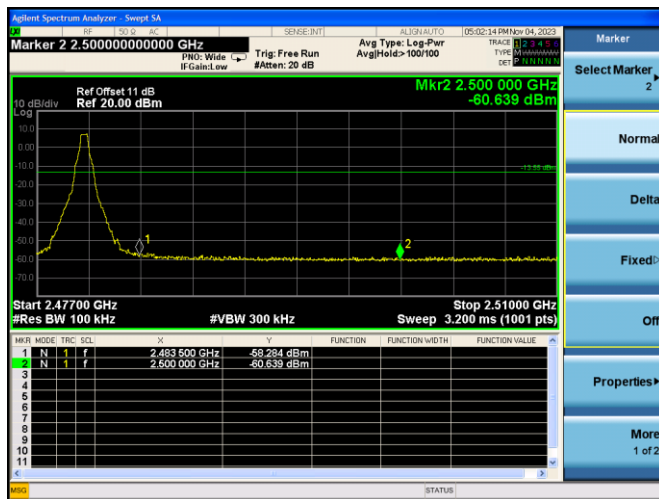
## 2480MHz(10GHz – 26GHz)



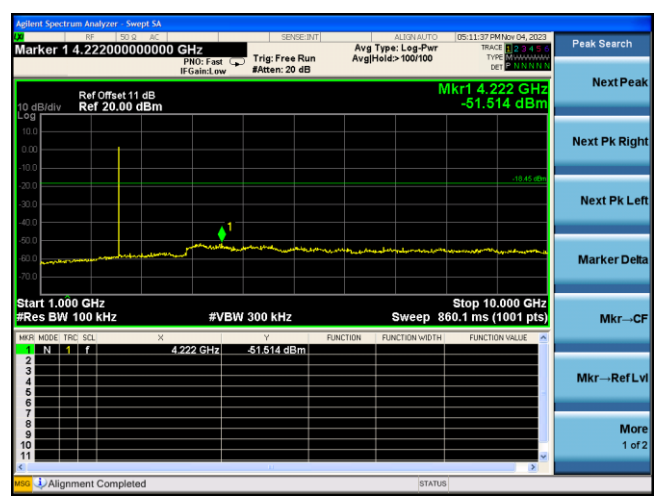
## 2402MHz(30MHz – 1GHz)



## 2480MHz(2.4GHz – 2.5GHz)

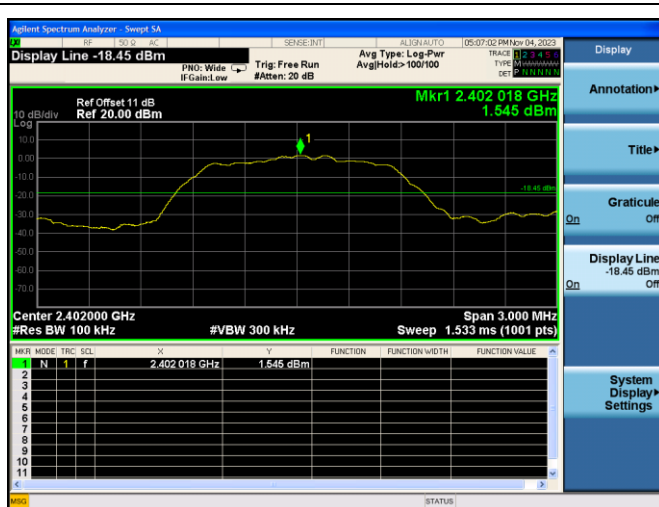


## 2402MHz(1GHz – 10GHz)



## 8-DPSK

## 2402MHz



## 2402MHz(10GHz – 26GHz)

