

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

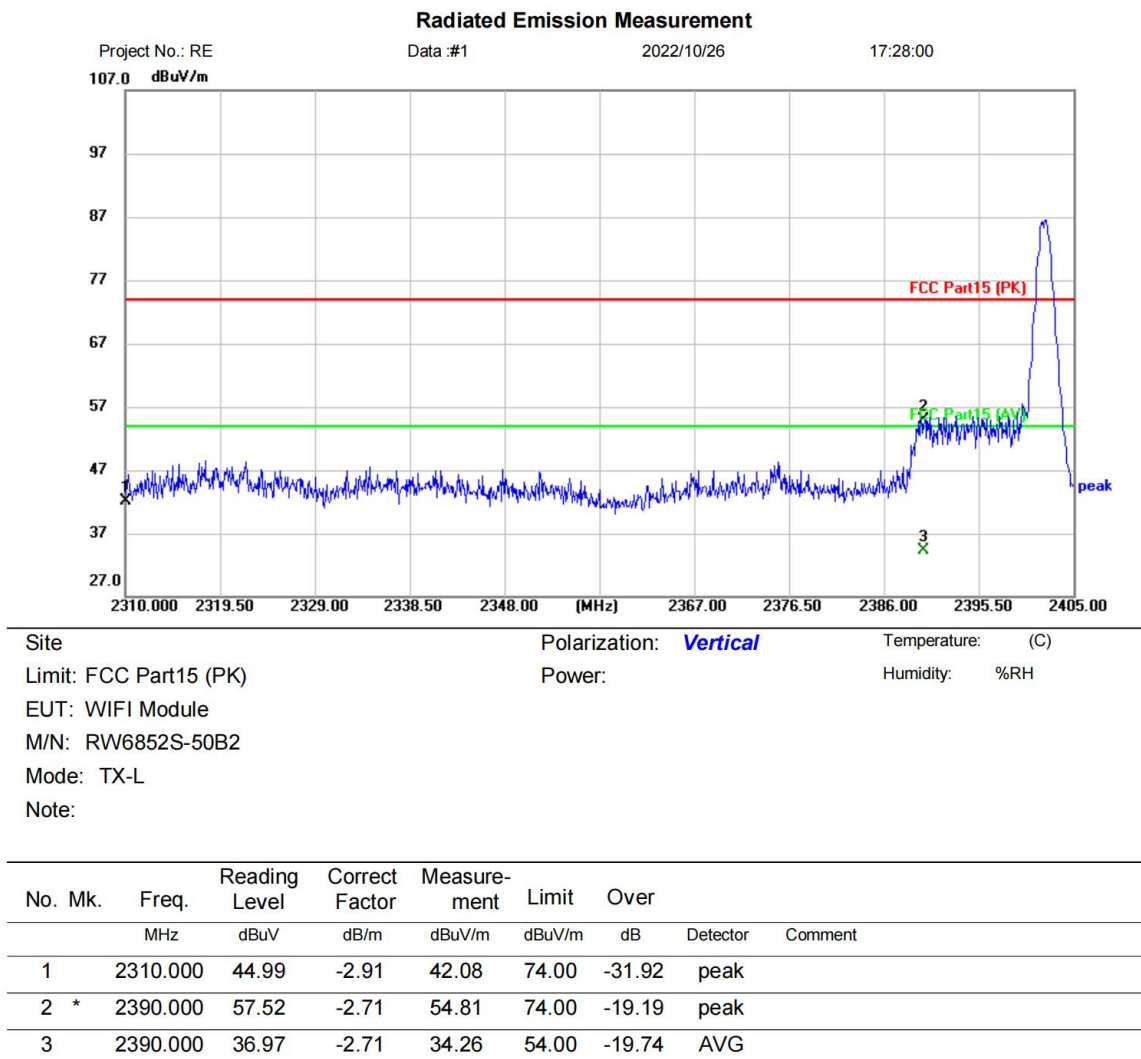
Remark 1:  $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

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## 14.4 TEST DATA

[TestMode: TX low channel]; [Polarity: Vertical]

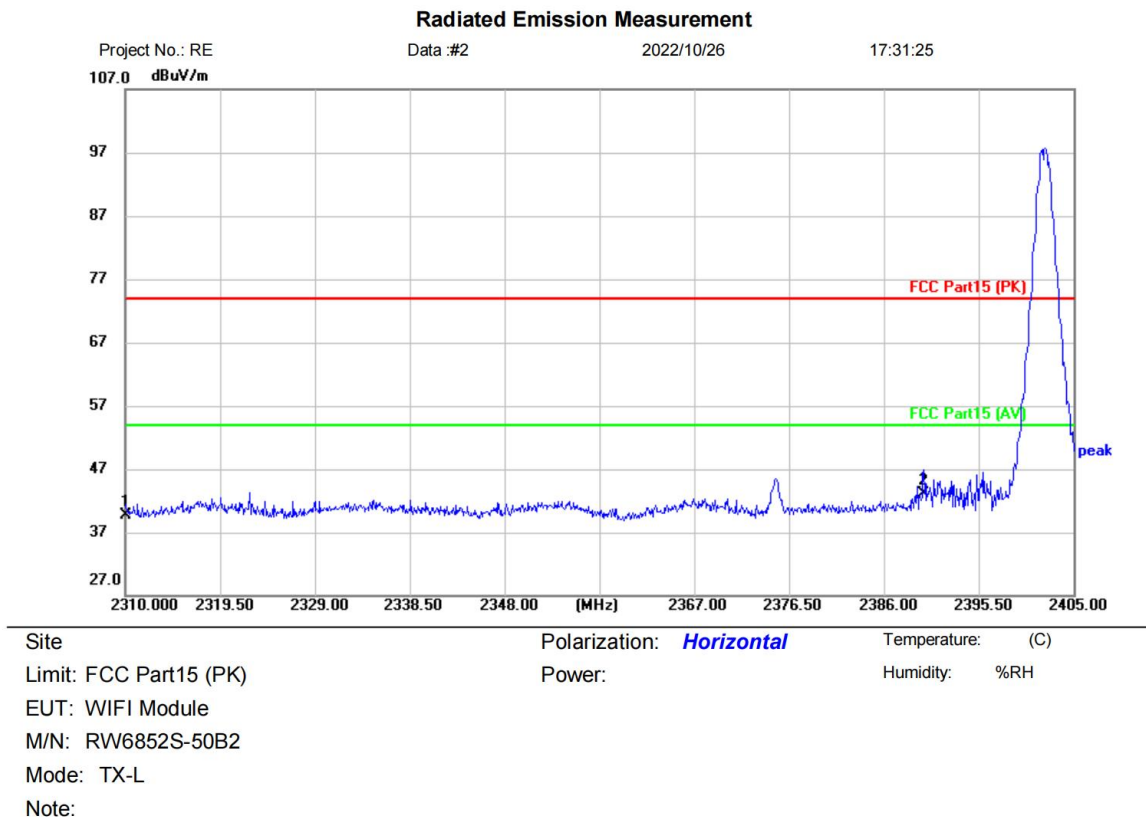


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX low channel]; [Polarity: Horizontal]



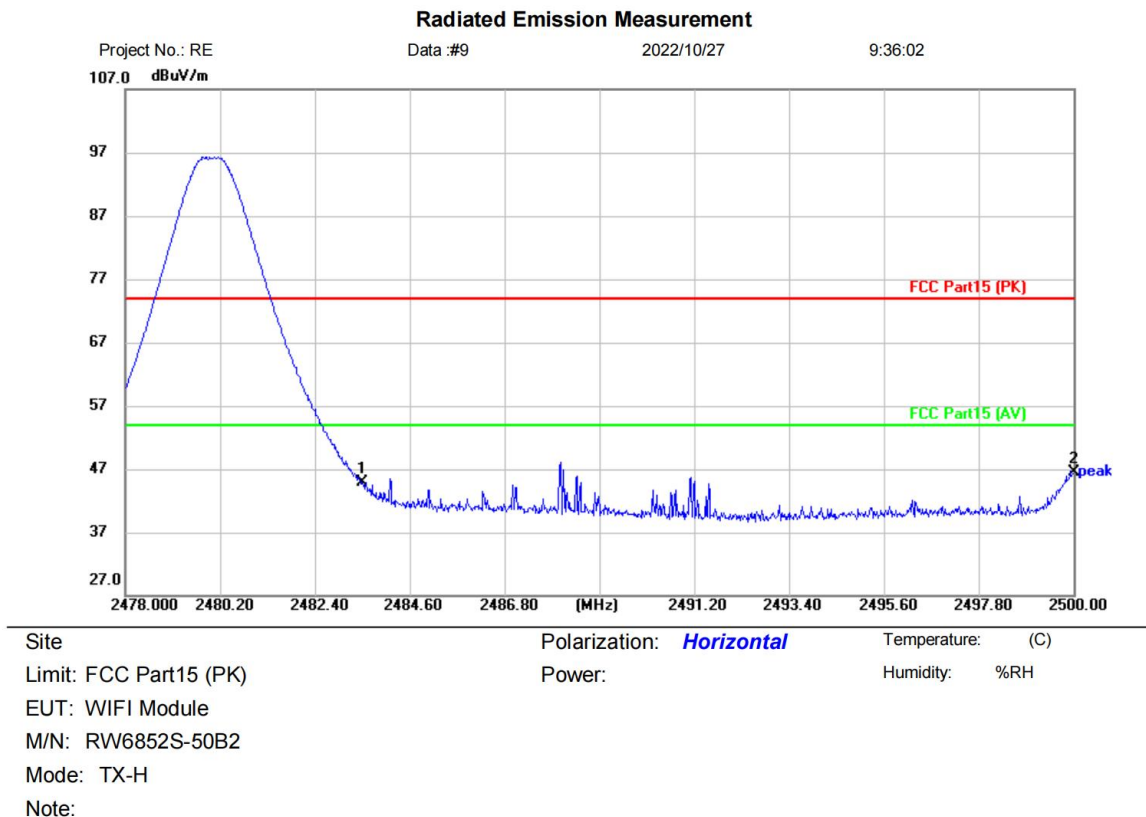
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 2310.000 | 42.65         | -2.91          | 39.74       | 74.00  | -34.26 | peak     |         |
| 2   | *   | 2390.000 | 45.86         | -2.71          | 43.15       | 74.00  | -30.85 | peak     |         |

\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX high channel ]; [Polarity: Horizontal]



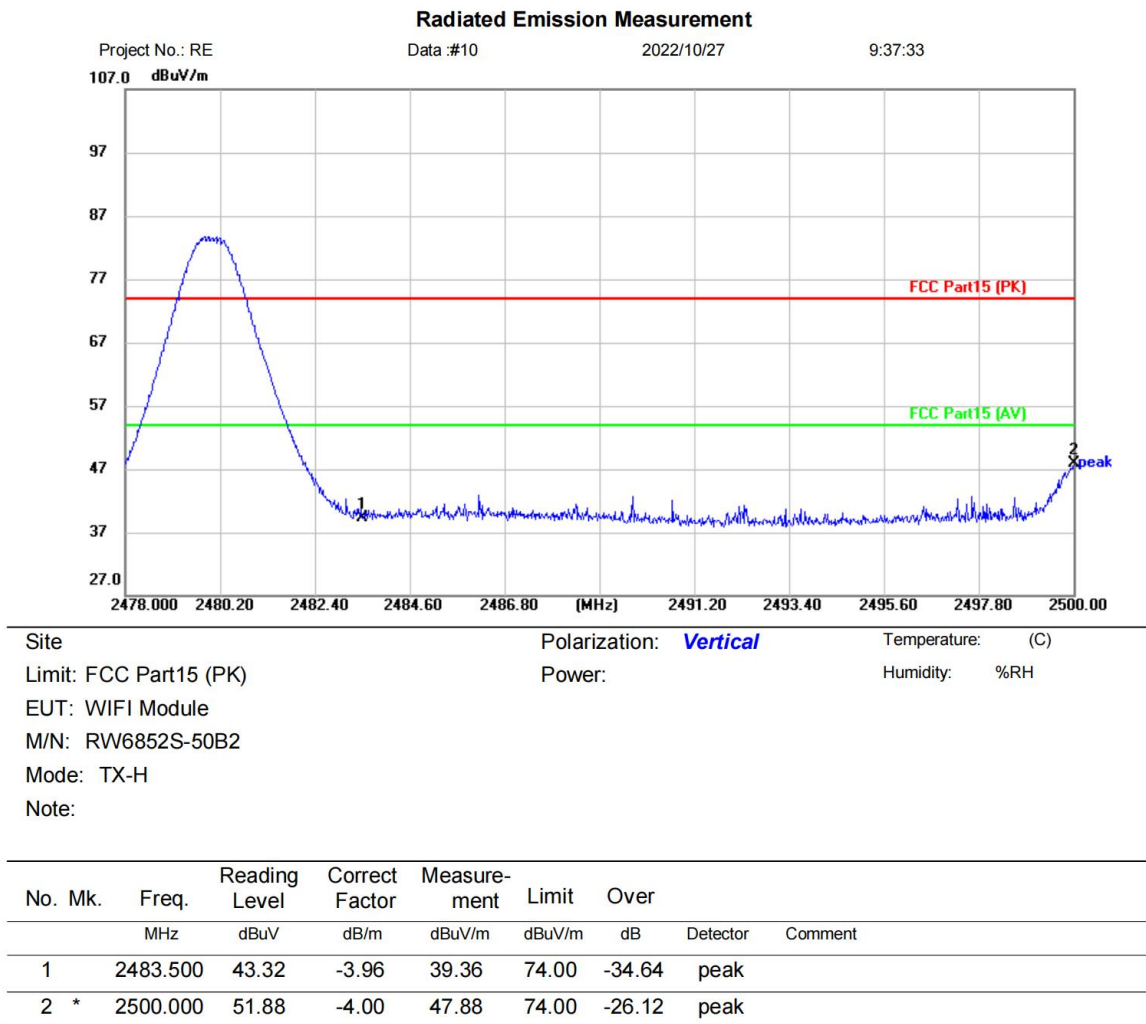
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB/m | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|---------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 2483.500     | 48.93                    | -3.96                     | 44.97                      | 74.00           | -29.03     | peak     |         |
| 2   | *   | 2500.000     | 50.49                    | -4.00                     | 46.49                      | 74.00           | -27.51     | peak     |         |

\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX high channel]; [Polarity: Vertical]



\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

## 15 ANTENNA REQUIREMENT

|               |                                  |
|---------------|----------------------------------|
| Test Standard | 47 CFR Part 15, Subpart C 15.247 |
| Test Method   | N/A                              |

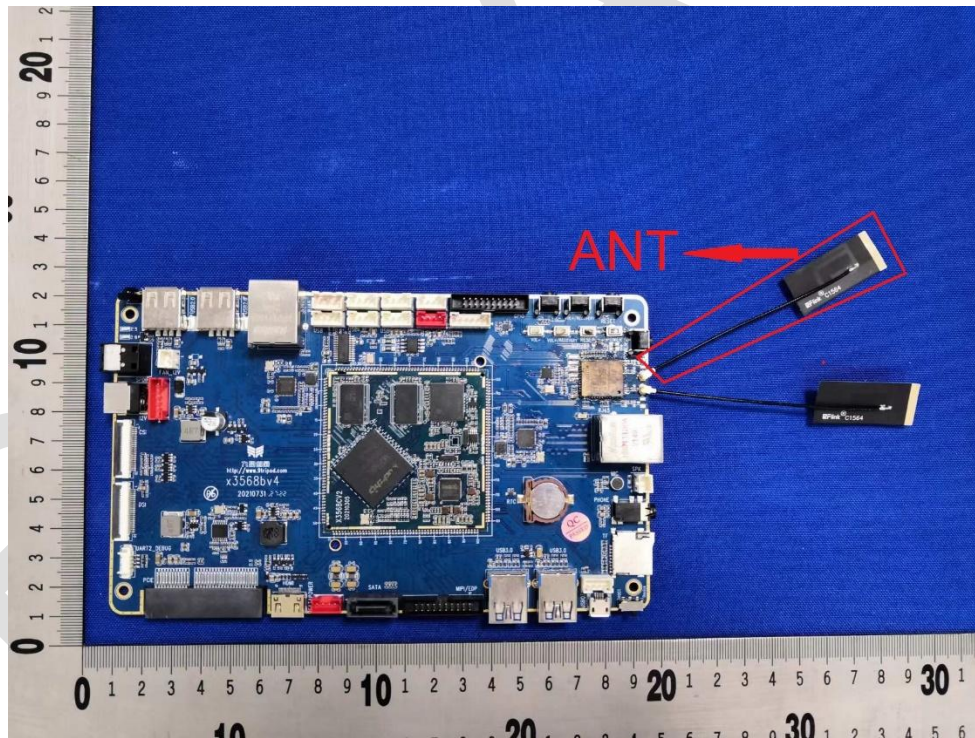
### 15.1 CONCLUSION

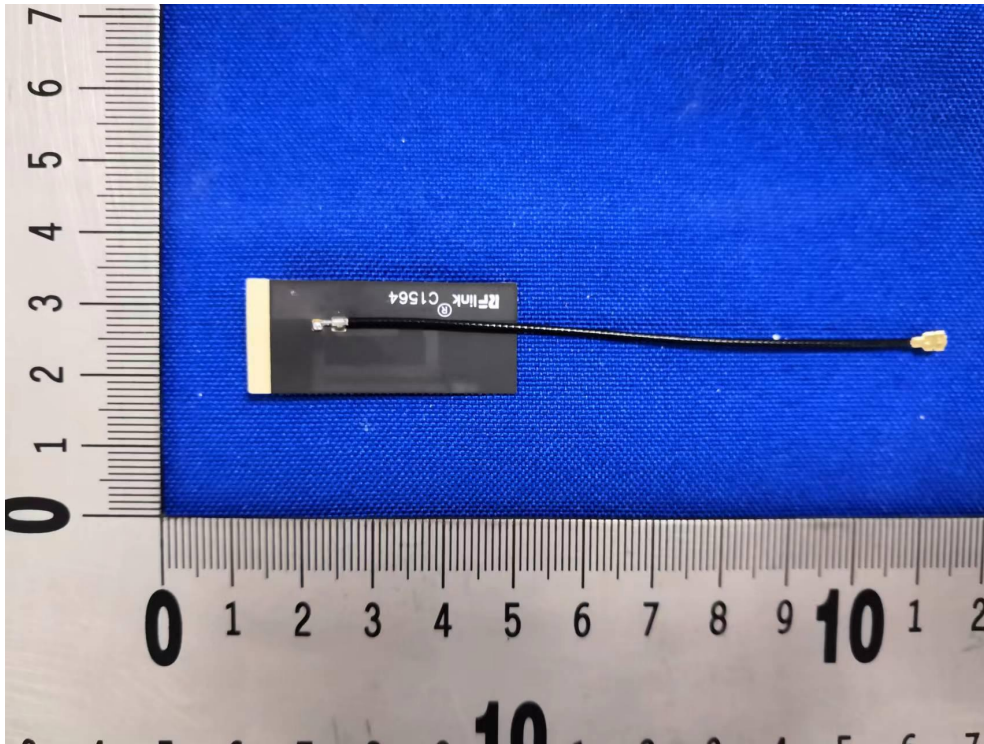
Standard Requirement:

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

EUT Antenna:

The best case gain of the antenna is 3.3dBi.





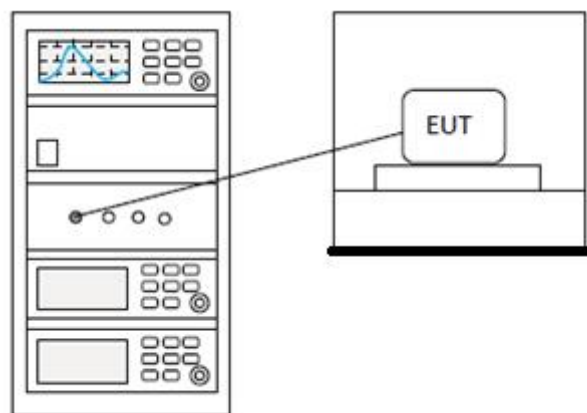
## 16 CONDUCTED SPURIOUS EMISSIONS

|                               |                                                  |
|-------------------------------|--------------------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart C 15.247                 |
| <b>Test Method</b>            | ANSI C63.10 (2013) Section 7.8.6 & Section 11.11 |
| <b>Test Mode (Pre-Scan)</b>   | TX                                               |
| <b>Test Mode (Final Test)</b> | TX                                               |
| <b>Tester</b>                 | Jozu                                             |
| <b>Temperature</b>            | 25°C                                             |
| <b>Humidity</b>               | 60%                                              |

### 16.1 LIMITS

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Limit:</b> | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)). |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 16.2 BLOCK DIAGRAM OF TEST SETUP



**16.3 TEST DATA**

**Pass: Please Refer To Appendix: Appendix1 For Details**

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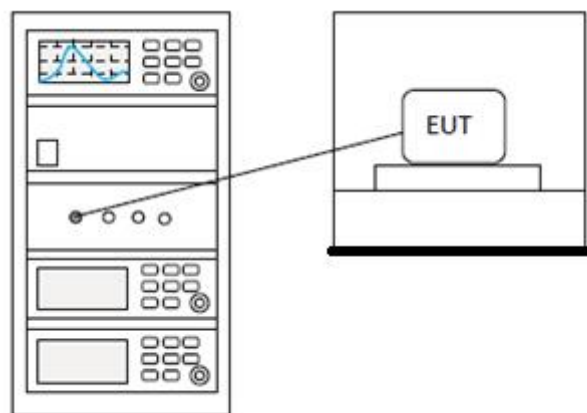
## 17 CONDUCTED BAND EDGES MEASUREMENT

|                               |                                                      |
|-------------------------------|------------------------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart C 15.247                     |
| <b>Test Method</b>            | ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2 |
| <b>Test Mode (Pre-Scan)</b>   | TX                                                   |
| <b>Test Mode (Final Test)</b> | TX                                                   |
| <b>Tester</b>                 | Jozu                                                 |
| <b>Temperature</b>            | 25°C                                                 |
| <b>Humidity</b>               | 60%                                                  |

### 17.1 LIMITS

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Limit:</b> | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)). |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 17.2 BLOCK DIAGRAM OF TEST SETUP



**17.3 TEST DATA**

**Pass: Please Refer To Appendix: Appendix1 For Details**

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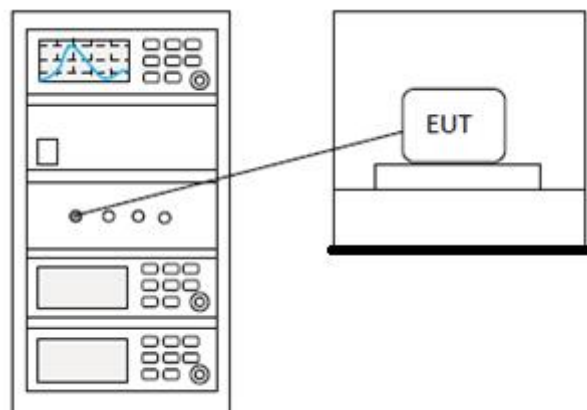
## 18 DWELL TIME

|                               |                                  |
|-------------------------------|----------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart C 15.247 |
| <b>Test Method</b>            | ANSI C63.10 (2013) Section 7.8.4 |
| <b>Test Mode (Pre-Scan)</b>   | TX                               |
| <b>Test Mode (Final Test)</b> | TX                               |
| <b>Tester</b>                 | Jozu                             |
| <b>Temperature</b>            | 25℃                              |
| <b>Humidity</b>               | 60%                              |

### 18.1 LIMITS

| <b>Frequency(MHz)</b> | <b>Limit</b>                                                              |
|-----------------------|---------------------------------------------------------------------------|
| 902-928               | 0.4S within a 20S period(20dB bandwidth<250kHz)                           |
|                       | 0.4S within a 10S period(20dB bandwidth≥250kHz)                           |
| 2400-2483.5           | 0.4S within a period of 0.4S multiplied by the number of hopping channels |
| 5725-5850             | 0.4S within a 30S period                                                  |

### 18.2 BLOCK DIAGRAM OF TEST SETUP



**18.3 TEST DATA**

**Pass: Please Refer To Appendix: Appendix1 For Details**

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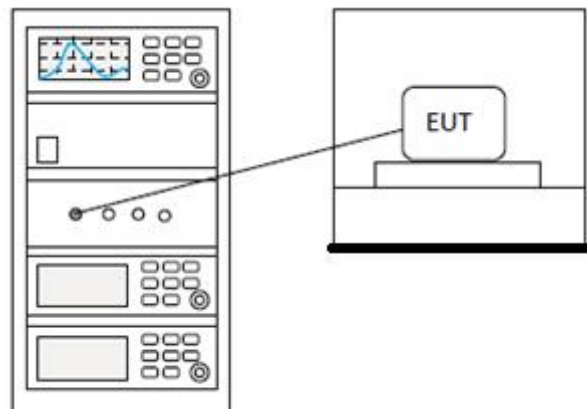
## 19 HOPPING CHANNEL NUMBER

|                        |                                  |
|------------------------|----------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart C 15.247 |
| Test Method            | ANSI C63.10 (2013) Section 7.8.3 |
| Test Mode (Pre-Scan)   | TX                               |
| Test Mode (Final Test) | TX                               |
| Tester                 | Jozu                             |
| Temperature            | 25℃                              |
| Humidity               | 60%                              |

### 19.1 LIMITS

| Frequency range(MHz) | Number of hopping channels (minimum) |
|----------------------|--------------------------------------|
| 902-928              | 50 for 20dB bandwidth <250kHz        |
|                      | 25 for 20dB bandwidth ≥250kHz        |
| 2400-2483.5          | 15                                   |
| 5725-5850            | 75                                   |

### 19.2 BLOCK DIAGRAM OF TEST SETUP



### 19.3 TEST DATA

**Pass: Please Refer To Appendix: Appendix1 For Details**

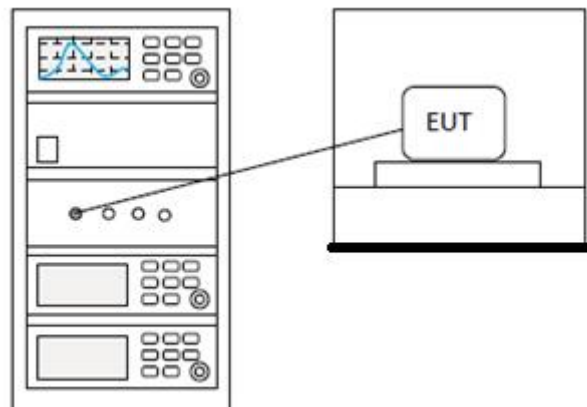
## 20 CARRIER FREQUENCIES SEPARATION

|                        |                                  |
|------------------------|----------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart C 15.247 |
| Test Method            | ANSI C63.10 (2013) Section 7.8.2 |
| Test Mode (Pre-Scan)   | TX                               |
| Test Mode (Final Test) | TX                               |
| Tester                 | Jozu                             |
| Temperature            | 25°C                             |
| Humidity               | 60%                              |

### 20.1 LIMITS

|               |                                                                              |
|---------------|------------------------------------------------------------------------------|
| <b>Limit:</b> | 2/3 of the 20dB bandwidth base on the transmission power is less than 0.125W |
|---------------|------------------------------------------------------------------------------|

### 20.2 BLOCK DIAGRAM OF TEST SETUP



### 20.3 TEST DATA

|                                                              |
|--------------------------------------------------------------|
| <b>Pass: Please Refer To Appendix: Appendix1 For Details</b> |
|--------------------------------------------------------------|

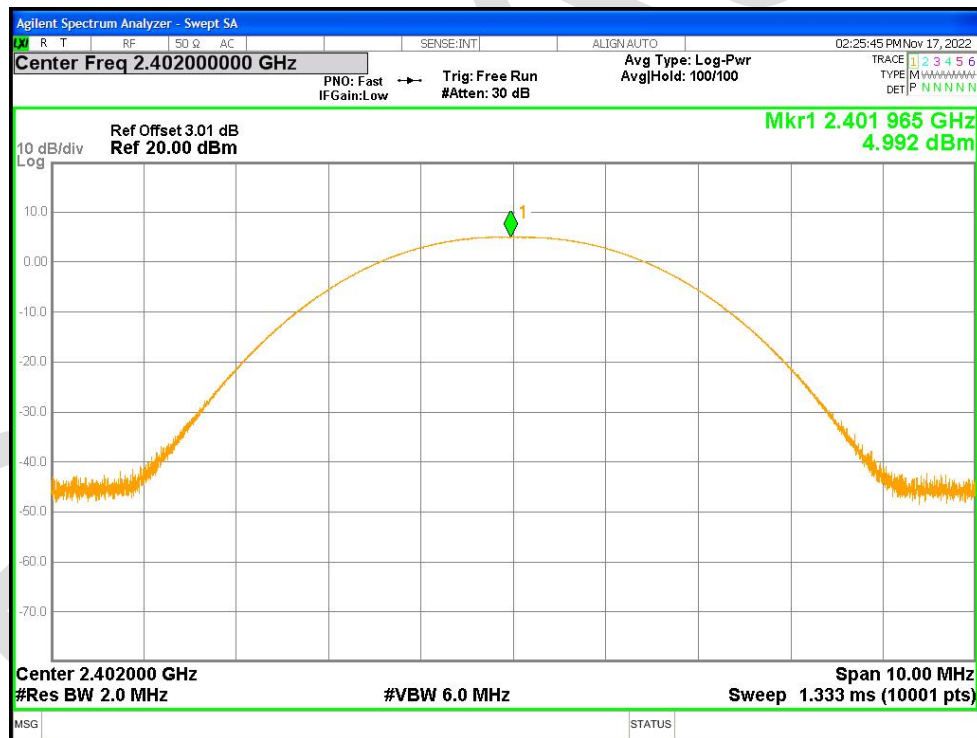
## 21 APPENDIX

### Appendix1

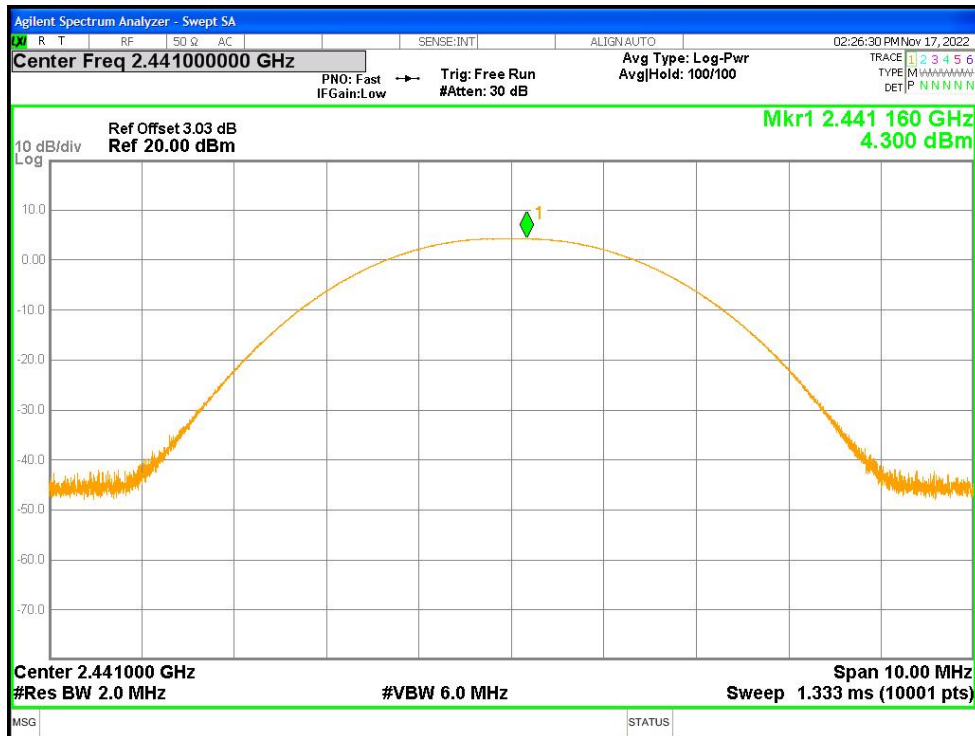
#### Maximum Conducted Output Power

| Condition | Mode  | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|-------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | 1-DH1 | 2402            | Ant1    | 4.992                 | 21          | Pass    |
| NVNT      | 1-DH1 | 2441            | Ant1    | 4.3                   | 21          | Pass    |
| NVNT      | 1-DH1 | 2480            | Ant1    | 4.721                 | 21          | Pass    |
| NVNT      | 2-DH1 | 2402            | Ant1    | 4.932                 | 21          | Pass    |
| NVNT      | 2-DH1 | 2441            | Ant1    | 4.361                 | 21          | Pass    |
| NVNT      | 2-DH1 | 2480            | Ant1    | 5.176                 | 21          | Pass    |
| NVNT      | 3-DH1 | 2402            | Ant1    | 5.439                 | 21          | Pass    |
| NVNT      | 3-DH1 | 2441            | Ant1    | 4.661                 | 21          | Pass    |
| NVNT      | 3-DH1 | 2480            | Ant1    | 5.067                 | 21          | Pass    |

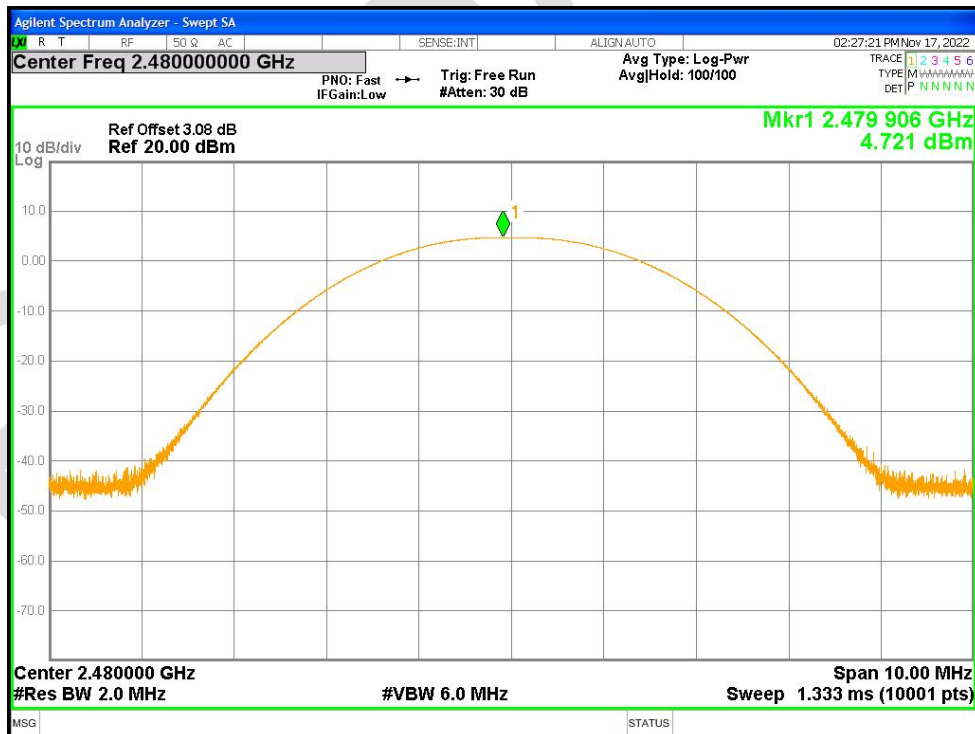
Power NVNT 1-DH1 2402MHz Ant1



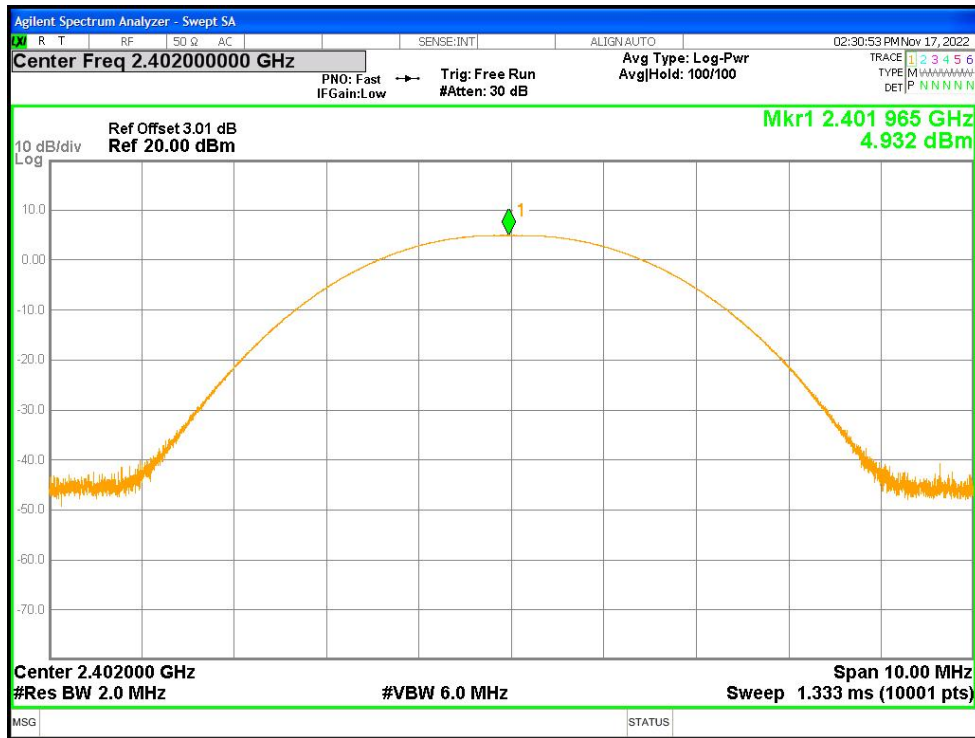
Power NVNT 1-DH1 2441MHz Ant1



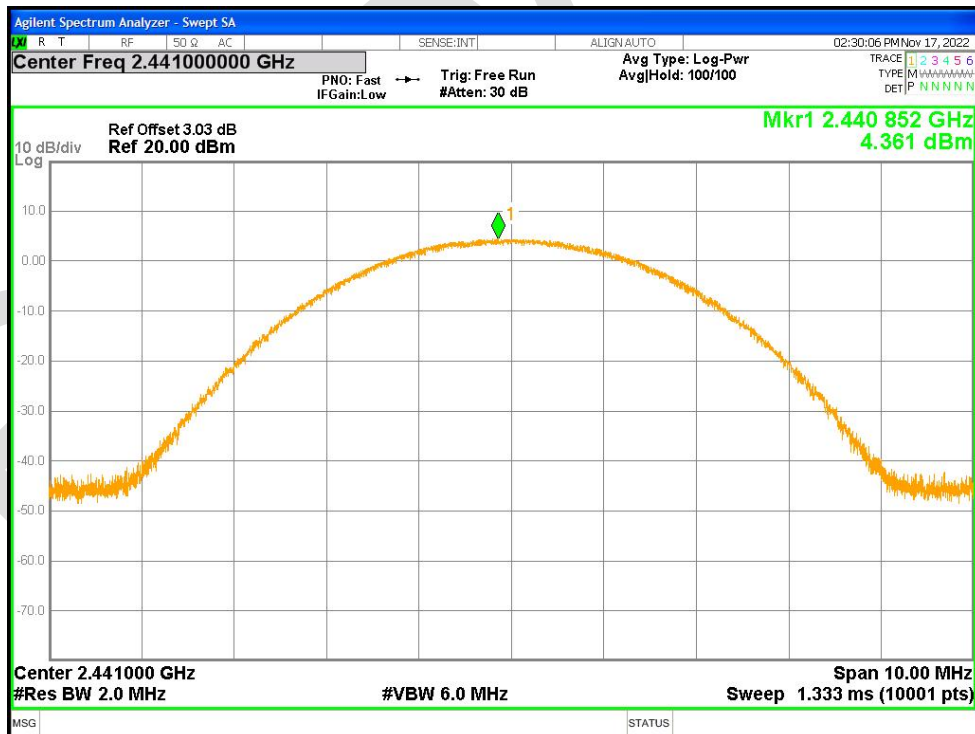
Power NVNT 1-DH1 2480MHz Ant1



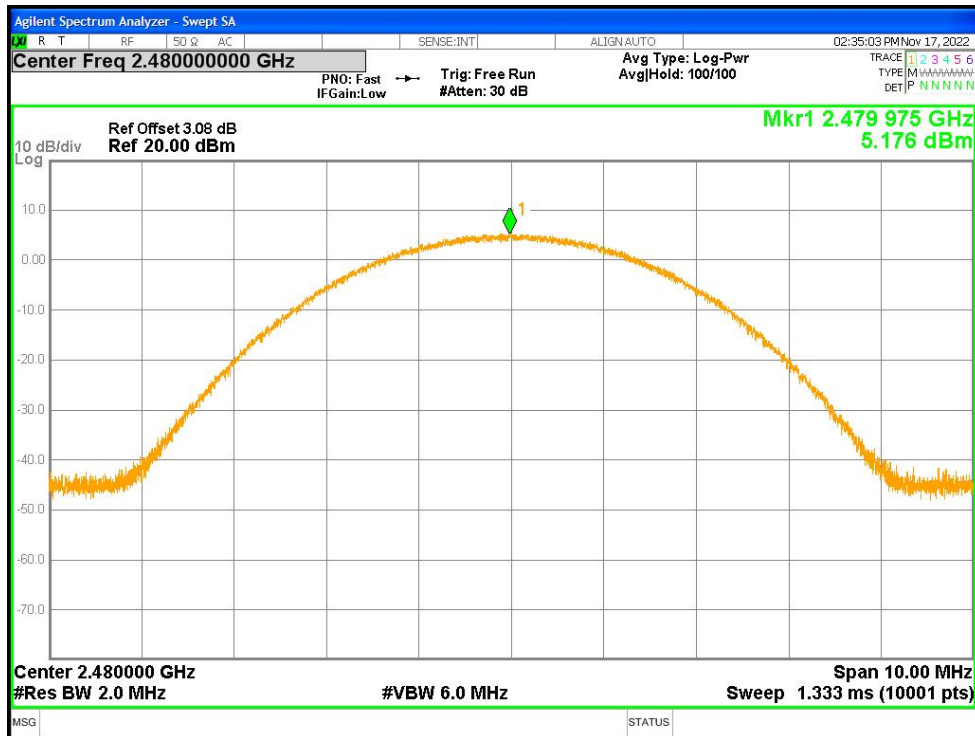
### Power NVNT 2-DH1 2402MHz Ant1



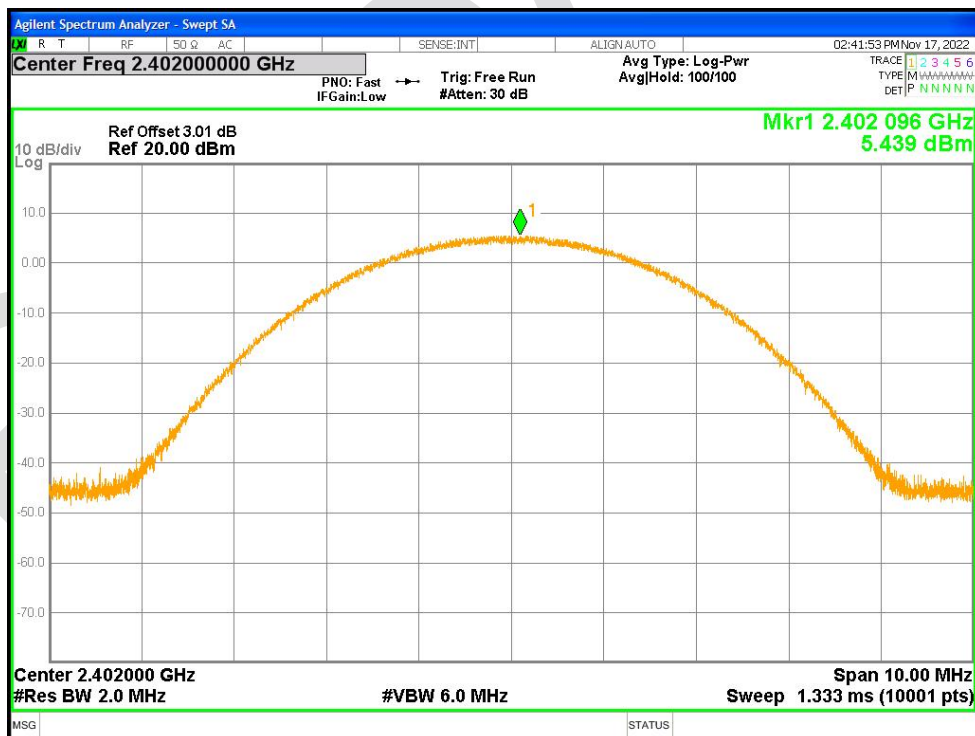
### Power NVNT 2-DH1 2441MHz Ant1



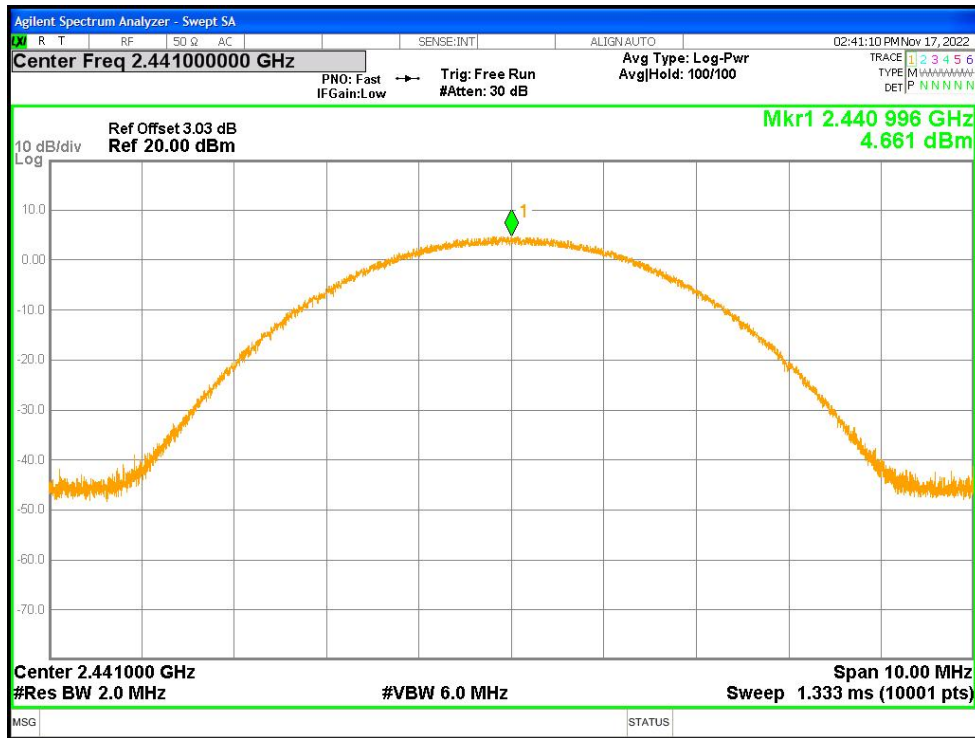
### Power NVNT 2-DH1 2480MHz Ant1



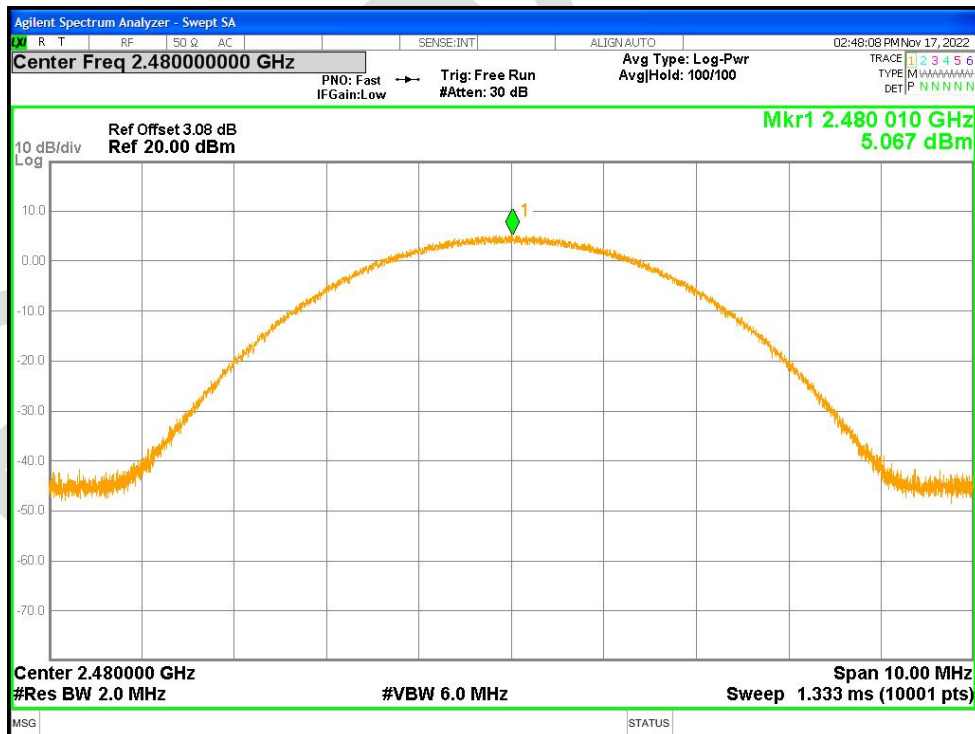
### Power NVNT 3-DH1 2402MHz Ant1



### Power NVNT 3-DH1 2441MHz Ant1



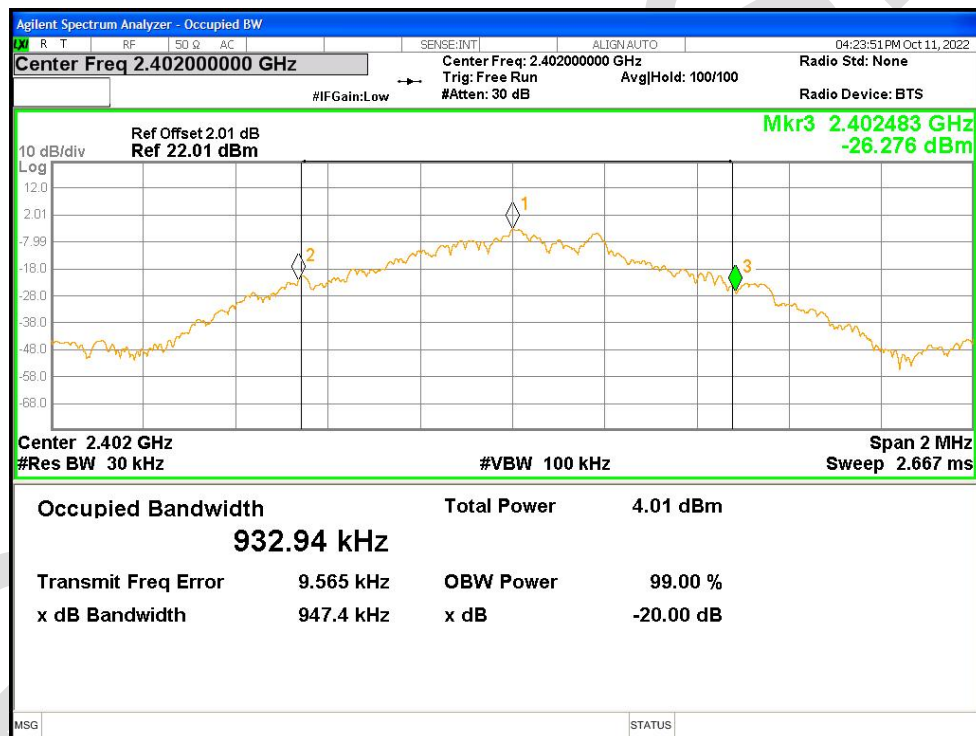
### Power NVNT 3-DH1 2480MHz Ant1



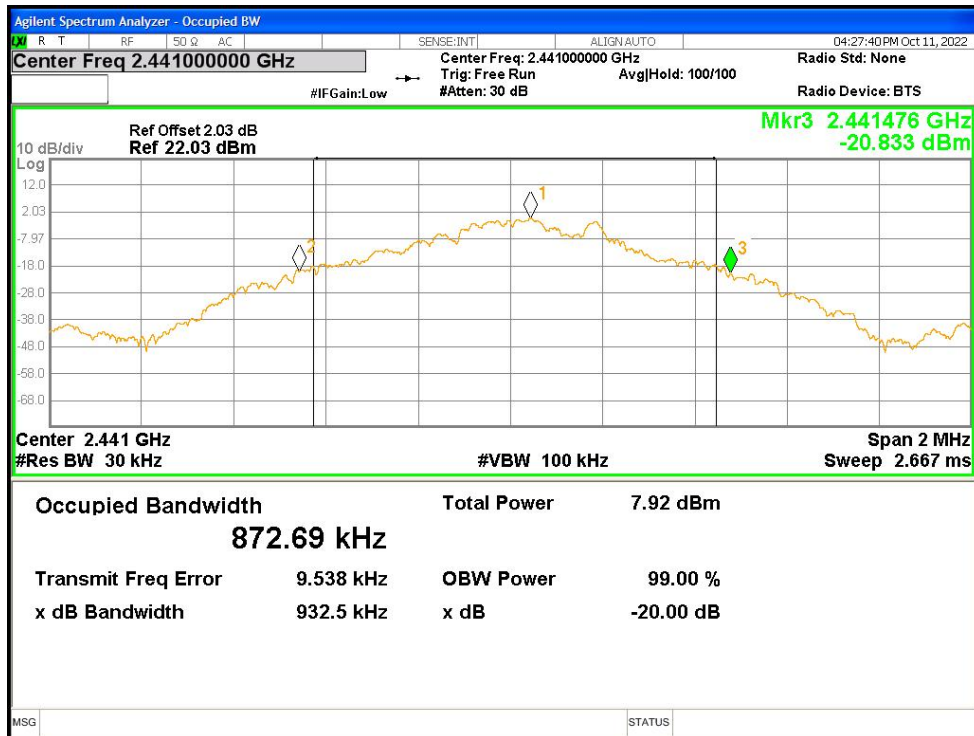
### -20dB Bandwidth

| Condition | Mode  | Frequency (MHz) | Antenna | -20 dB Bandwidth (MHz) | Limit -20 dB Bandwidth (MHz) | Verdict |
|-----------|-------|-----------------|---------|------------------------|------------------------------|---------|
| NVNT      | 1-DH1 | 2402            | Ant1    | 0.947                  | 0                            | Pass    |
| NVNT      | 1-DH1 | 2441            | Ant1    | 0.933                  | 0                            | Pass    |
| NVNT      | 1-DH1 | 2480            | Ant1    | 0.926                  | 0                            | Pass    |
| NVNT      | 2-DH1 | 2402            | Ant1    | 1.249                  | 0                            | Pass    |
| NVNT      | 2-DH1 | 2441            | Ant1    | 1.242                  | 0                            | Pass    |
| NVNT      | 2-DH1 | 2480            | Ant1    | 1.249                  | 0                            | Pass    |
| NVNT      | 3-DH1 | 2402            | Ant1    | 1.246                  | 0                            | Pass    |
| NVNT      | 3-DH1 | 2441            | Ant1    | 1.244                  | 0                            | Pass    |
| NVNT      | 3-DH1 | 2480            | Ant1    | 1.249                  | 0                            | Pass    |

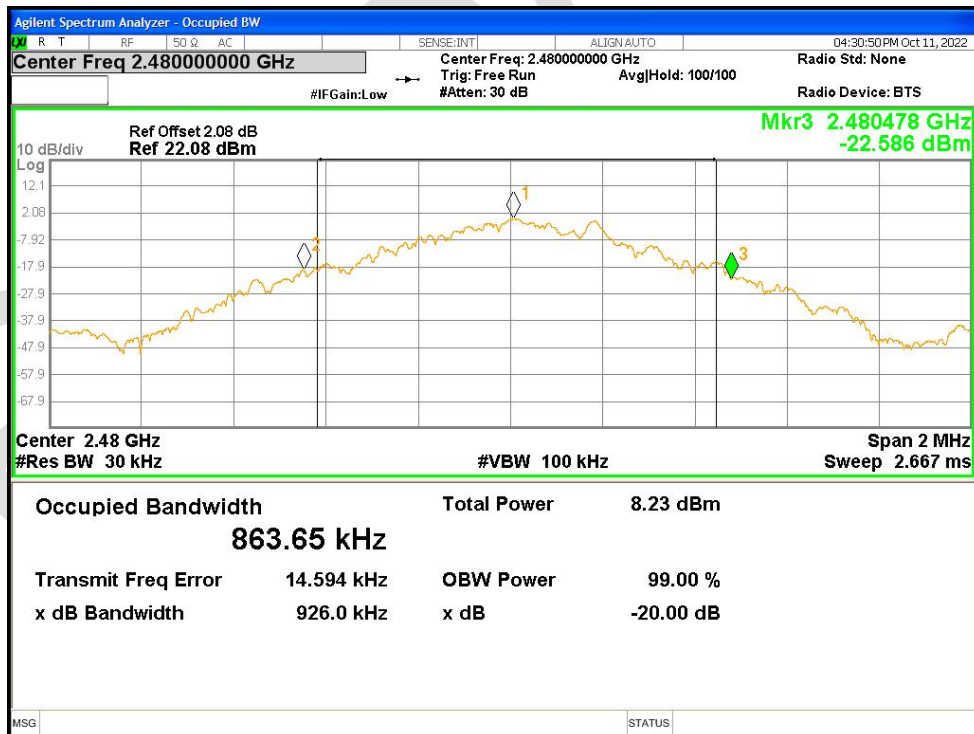
### -20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



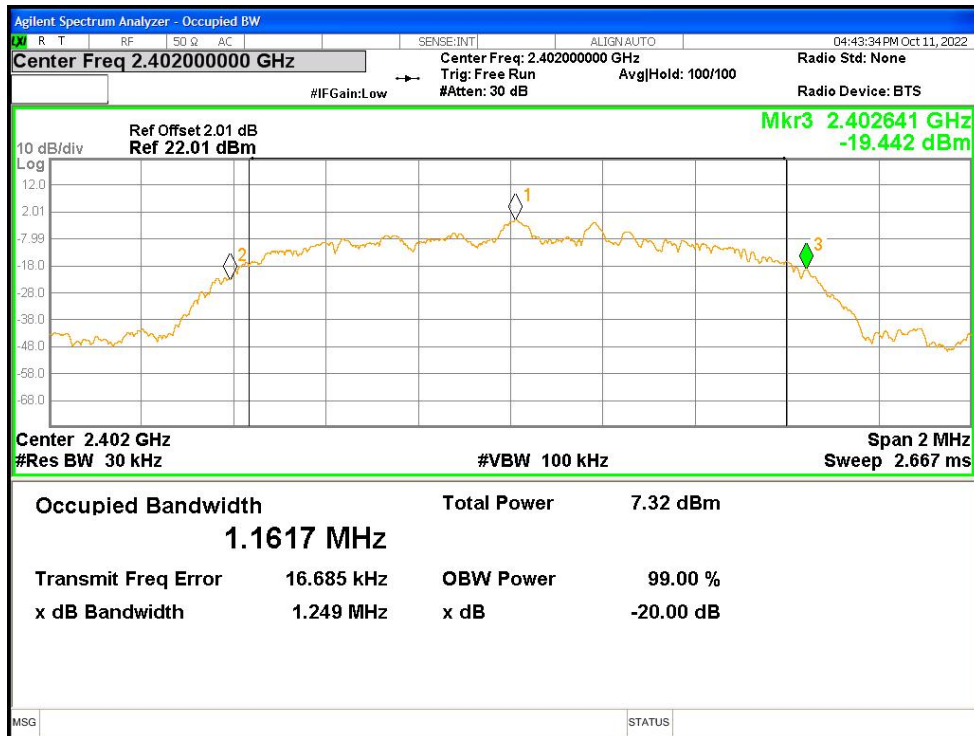
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



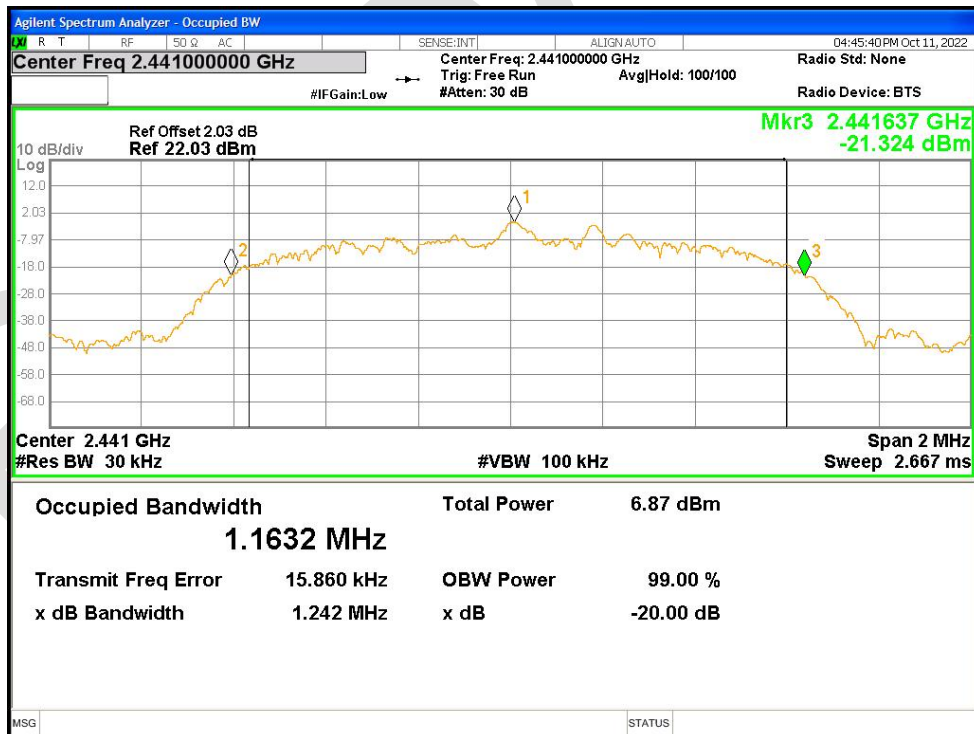
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



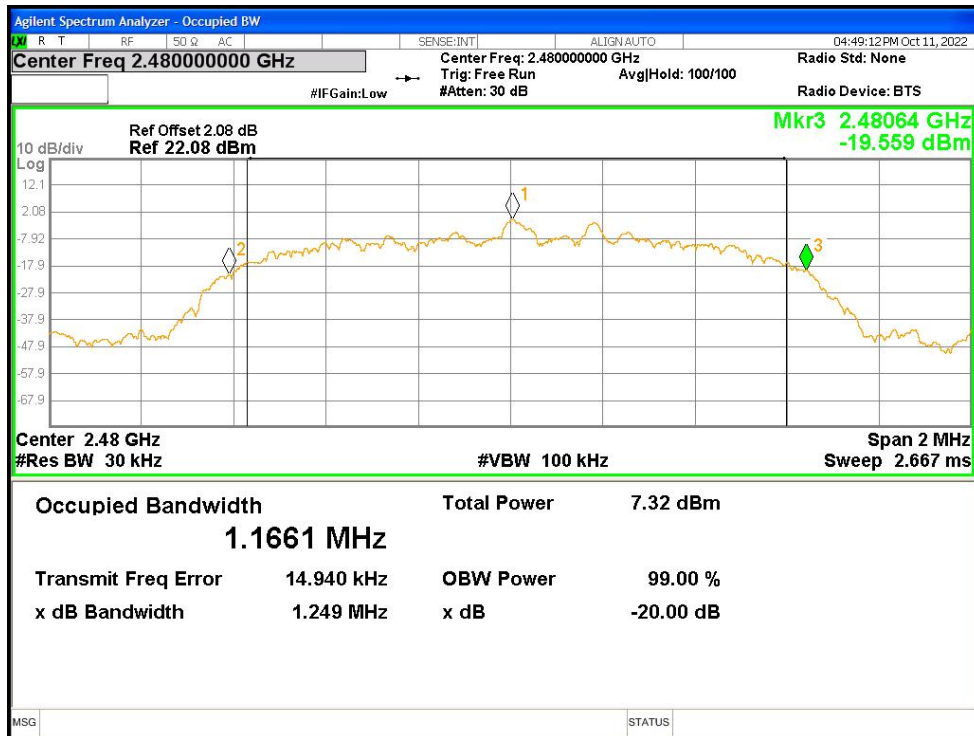
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



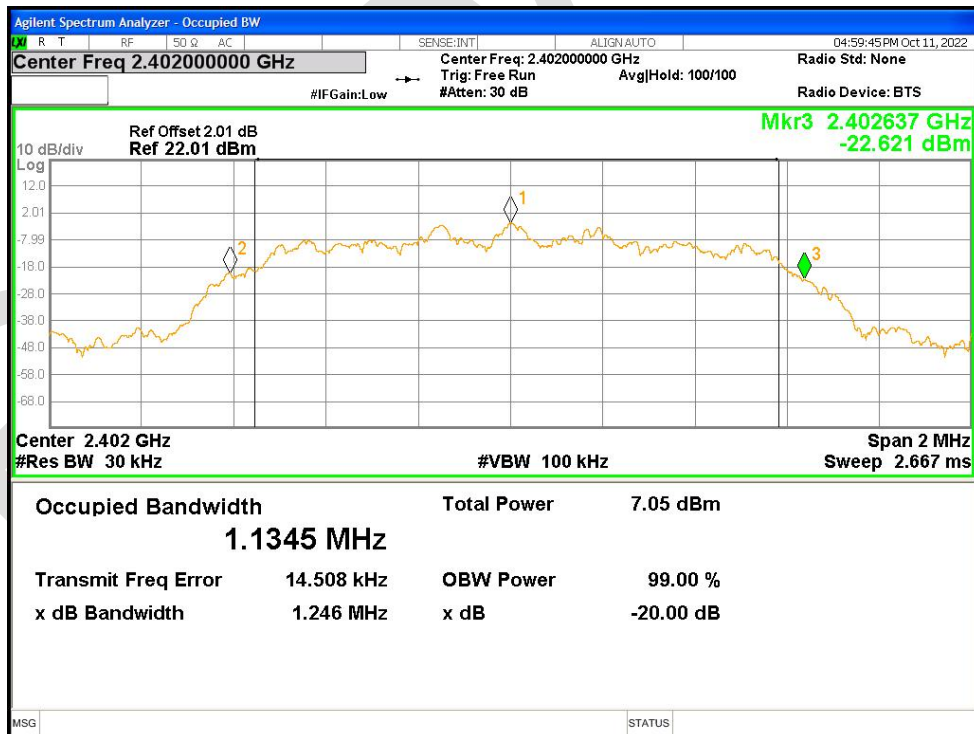
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



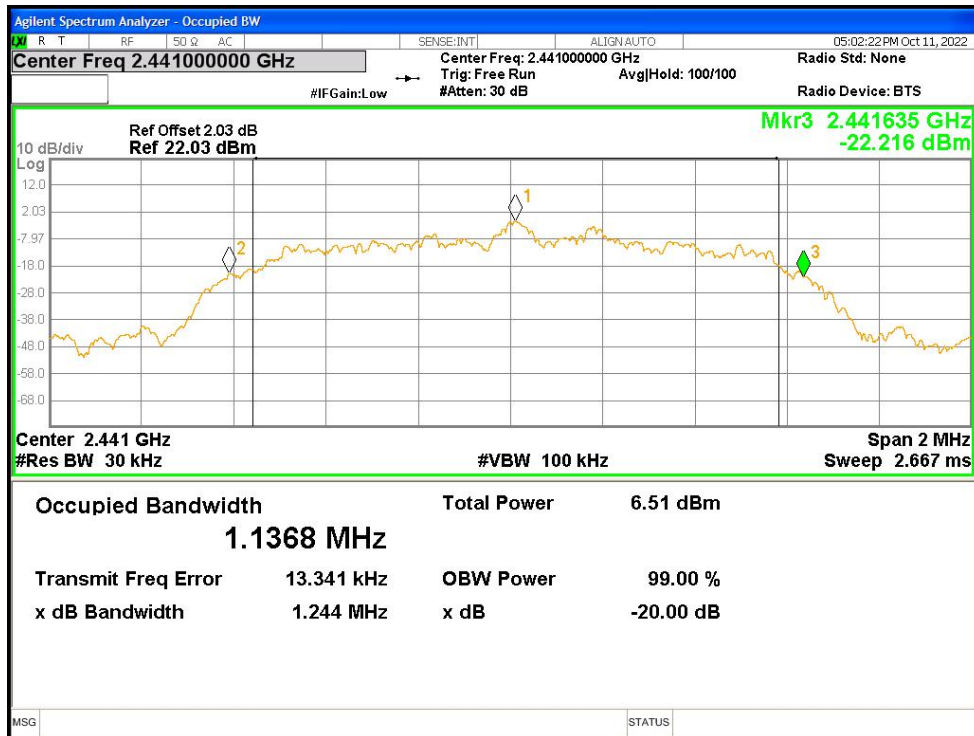
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1



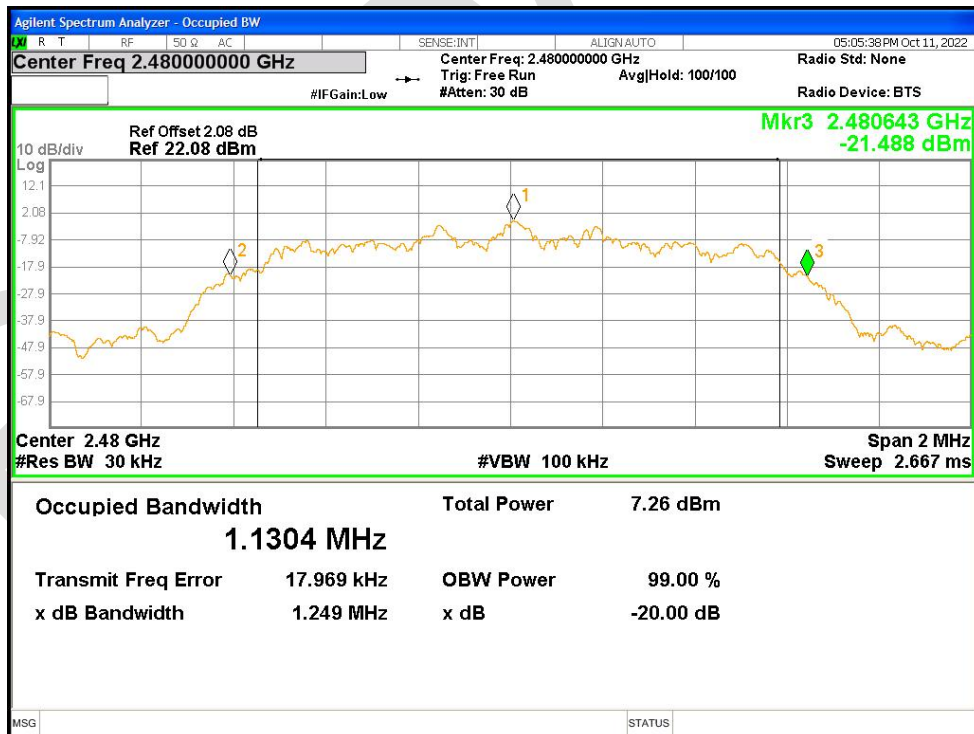
-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



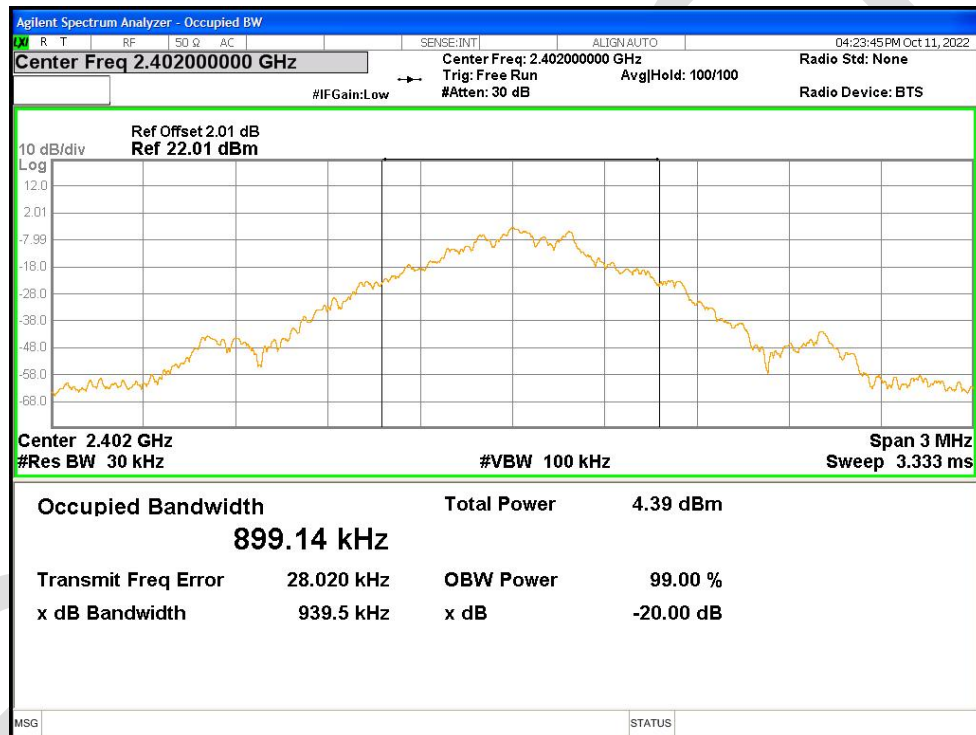
-20dB Bandwidth NVNT 3-DH1 2480MHz Ant1



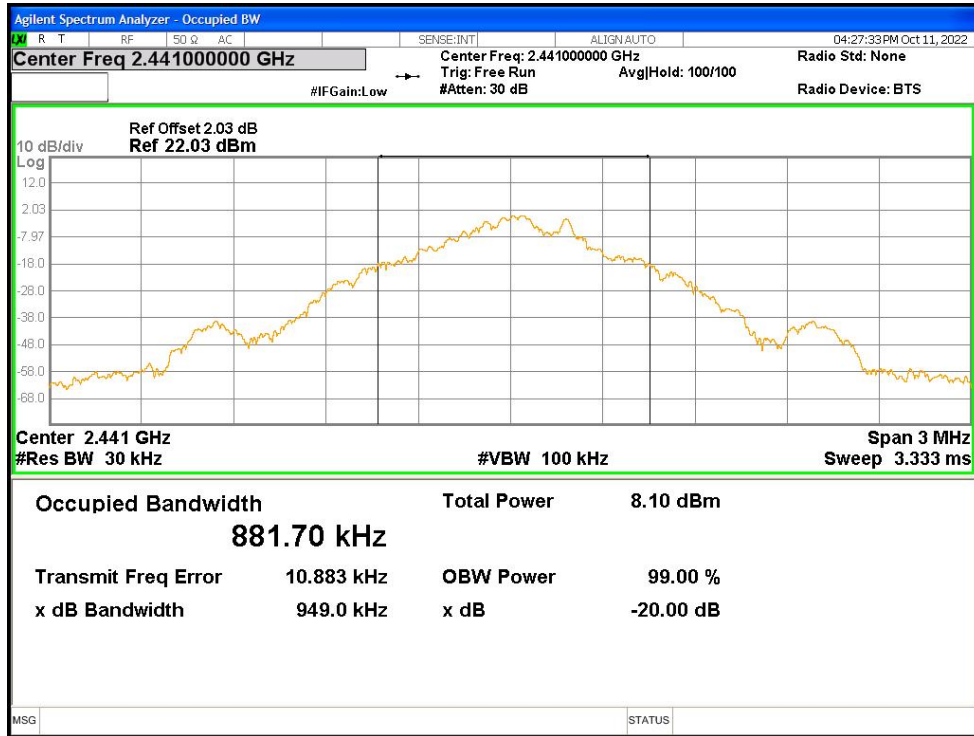
### Occupied Channel Bandwidth

| Condition | Mode  | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|-----------|-------|-----------------|---------|---------------|
| NVNT      | 1-DH1 | 2402            | Ant1    | 0.89914       |
| NVNT      | 1-DH1 | 2441            | Ant1    | 0.88170       |
| NVNT      | 1-DH1 | 2480            | Ant1    | 0.87247       |
| NVNT      | 2-DH1 | 2402            | Ant1    | 1.1659        |
| NVNT      | 2-DH1 | 2441            | Ant1    | 1.1656        |
| NVNT      | 2-DH1 | 2480            | Ant1    | 1.1649        |
| NVNT      | 3-DH1 | 2402            | Ant1    | 1.1360        |
| NVNT      | 3-DH1 | 2441            | Ant1    | 1.1302        |
| NVNT      | 3-DH1 | 2480            | Ant1    | 1.1241        |

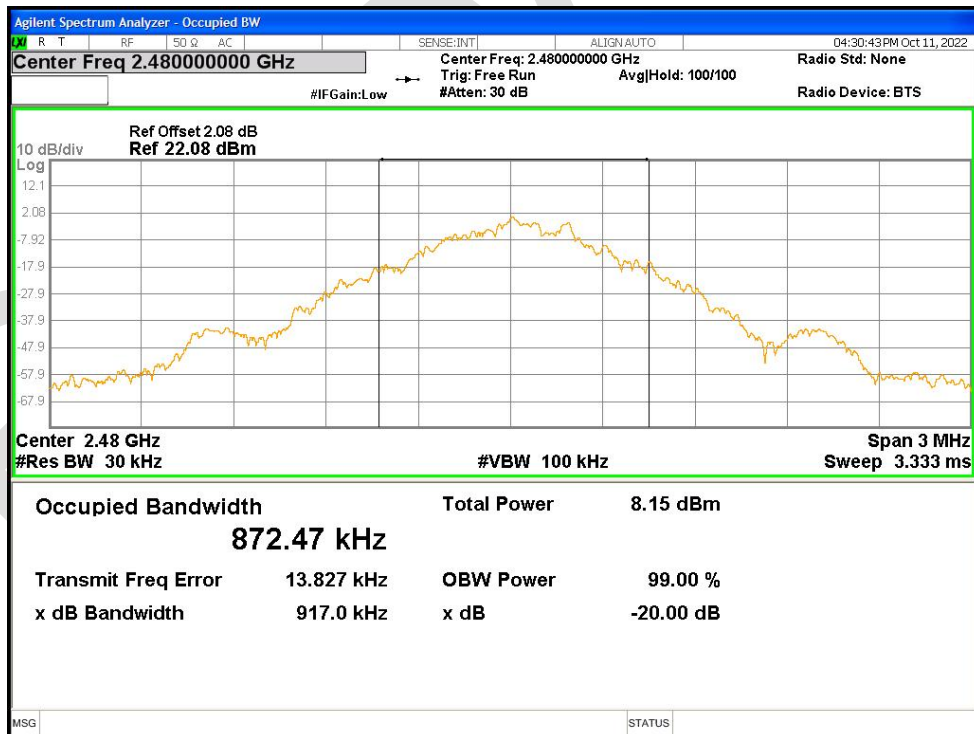
### OBW NVNT 1-DH1 2402MHz Ant1



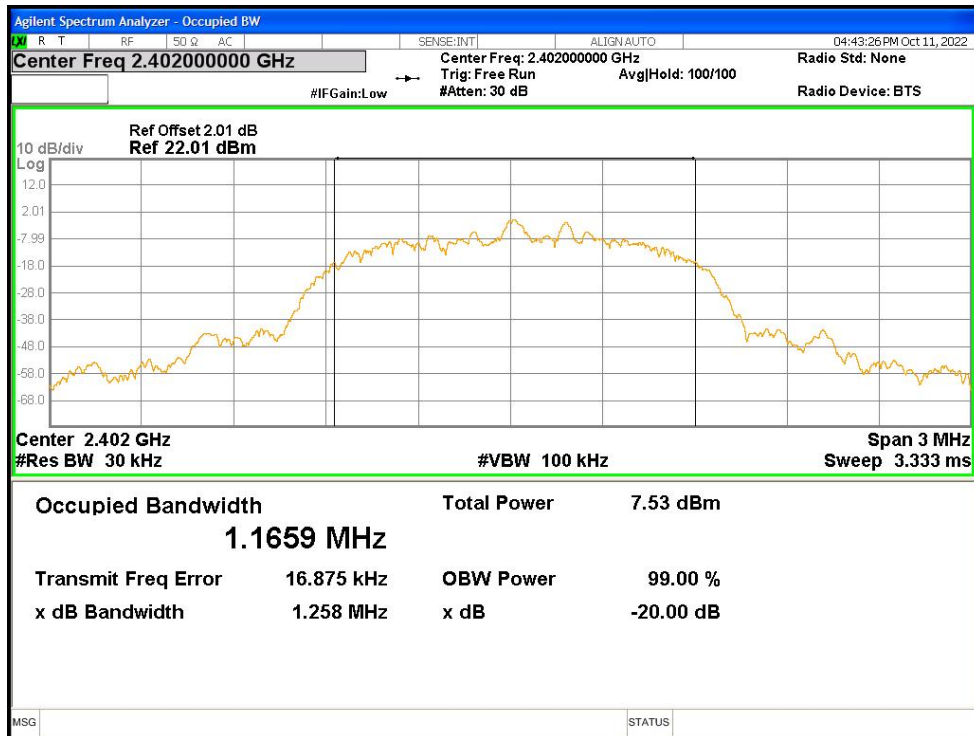
OBW NVNT 1-DH1 2441MHz Ant1



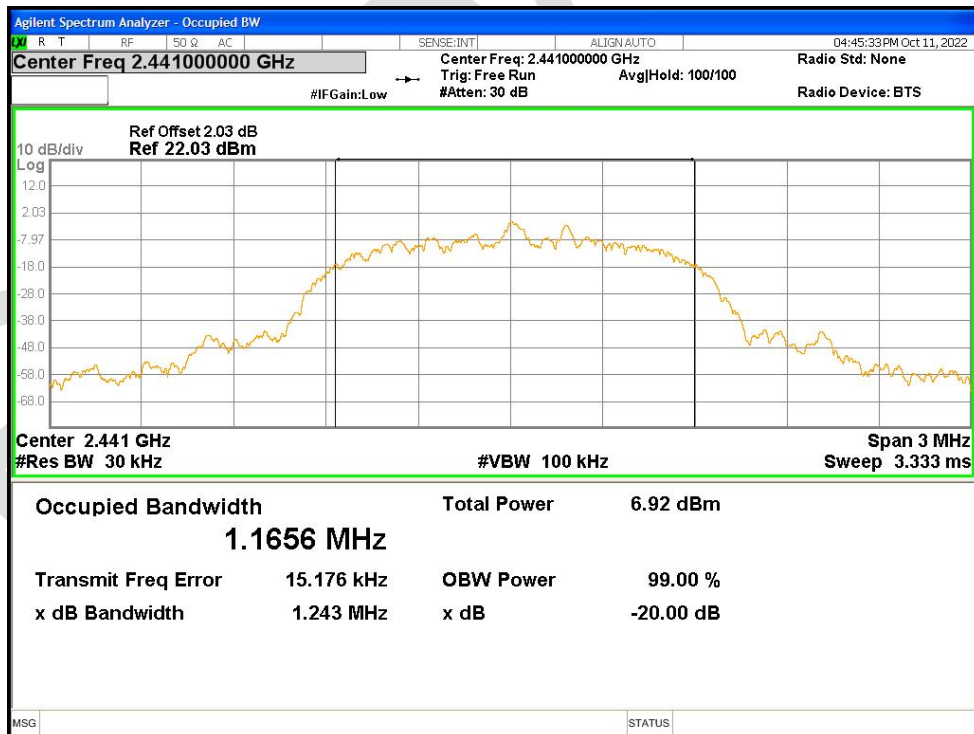
OBW NVNT 1-DH1 2480MHz Ant1



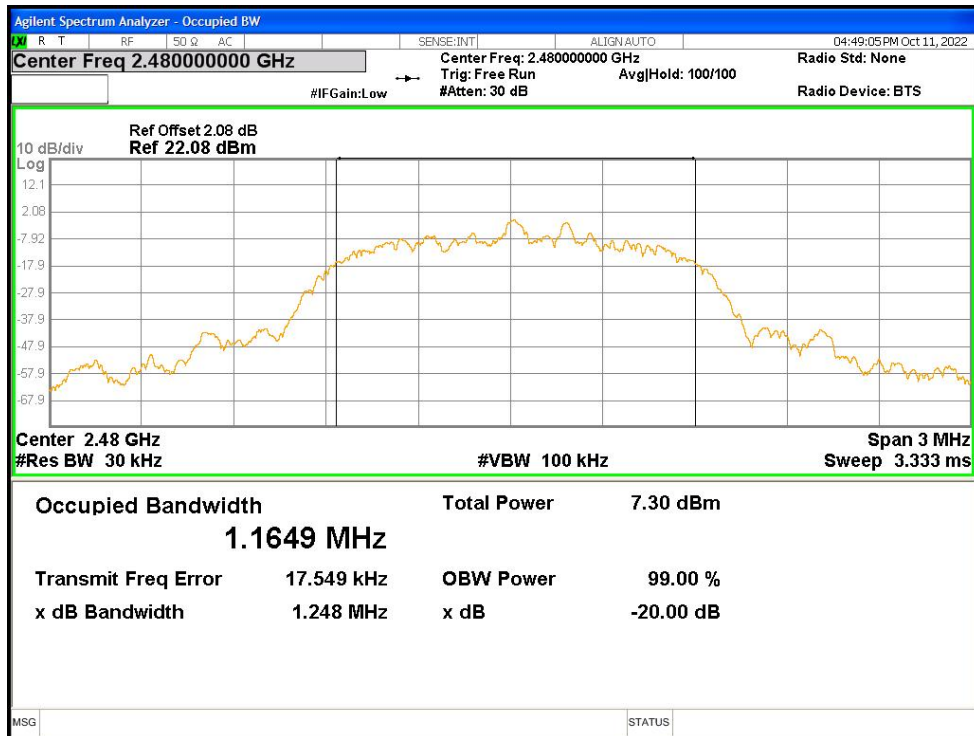
### OBW NVNT 2-DH1 2402MHz Ant1



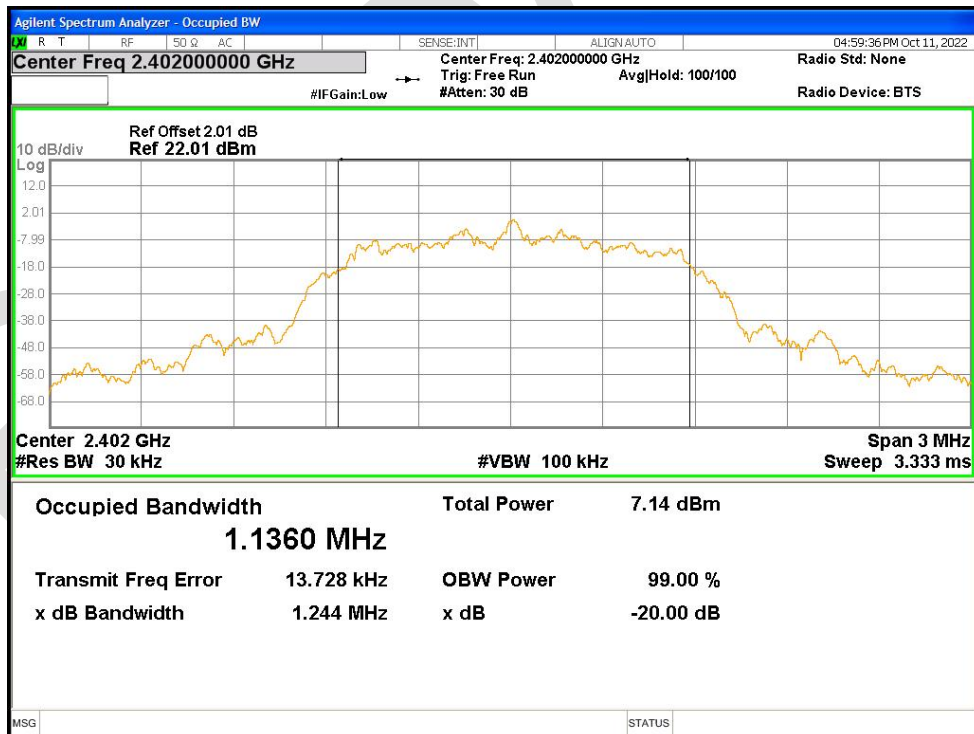
### OBW NVNT 2-DH1 2441MHz Ant1



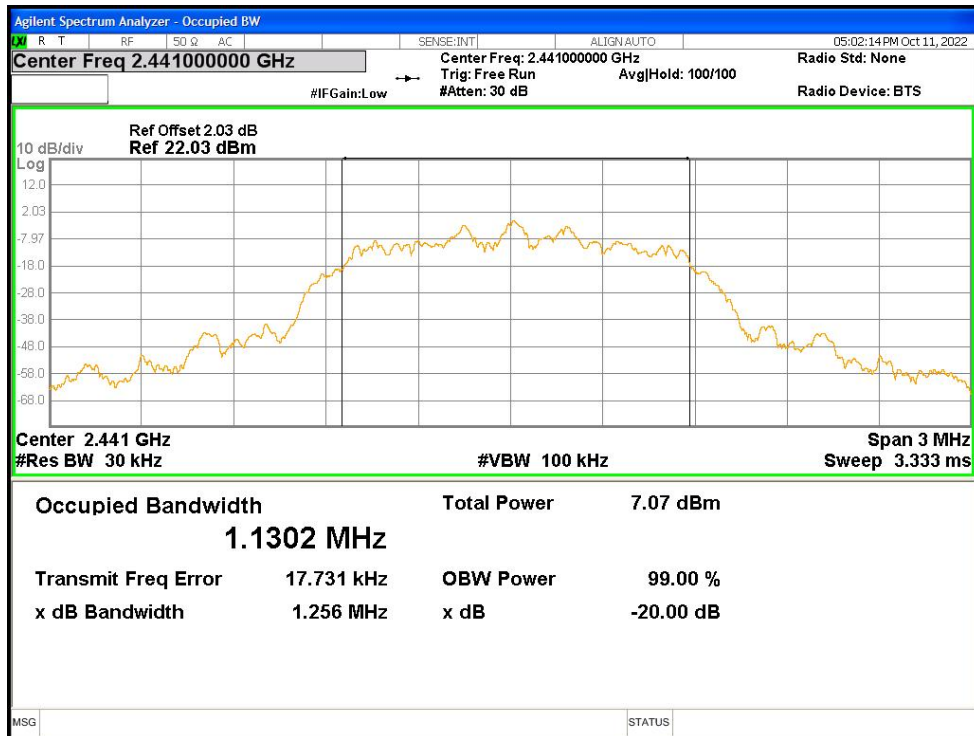
### OBW NVNT 2-DH1 2480MHz Ant1



### OBW NVNT 3-DH1 2402MHz Ant1



### OBW NVNT 3-DH1 2441MHz Ant1



### OBW NVNT 3-DH1 2480MHz Ant1

