

## TEST REPORT

**Product** : Smart Helmet  
**Trade mark** :  wearable  
**Model/Type reference** : KC-N901  
**Serial Number** : N/A  
**Report Number** : EED32M00050703  
**FCC ID** : 2AVZ7KC-N901  
**Date of Issue** : Jun. 03, 2020  
**Test Standards** : 47 CFR Part 15 Subpart C  
**Test result** : PASS

Prepared for:

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Prepared by:

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Date:

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Jun. 03, 2020



Check No.:3096344197

## 2 Version

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 00          | Jun. 03, 2020 | Original    |
|             |               |             |
|             |               |             |

### 3 Test Summary

| Test Item                                                         | Test Requirement                                   | Test method      | Result |
|-------------------------------------------------------------------|----------------------------------------------------|------------------|--------|
| Antenna Requirement                                               | 47 CFR Part 15 Subpart C Section 15.203/15.247 (c) | ANSI C63.10-2013 | PASS   |
| AC Power Line Conducted Emission                                  | 47 CFR Part 15 Subpart C Section 15.207            | ANSI C63.10-2013 | PASS   |
| Conducted Peak Output Power                                       | 47 CFR Part 15 Subpart C Section 15.247 (b)(3)     | ANSI C63.10-2013 | PASS   |
| 6dB Occupied Bandwidth                                            | 47 CFR Part 15 Subpart C Section 15.247 (a)(2)     | ANSI C63.10-2013 | PASS   |
| Power Spectral Density                                            | 47 CFR Part 15 Subpart C Section 15.247 (e)        | ANSI C63.10-2013 | PASS   |
| Band-edge for RF Conducted Emissions                              | 47 CFR Part 15 Subpart C Section 15.247(d)         | ANSI C63.10-2013 | PASS   |
| RF Conducted Spurious Emissions                                   | 47 CFR Part 15 Subpart C Section 15.247(d)         | ANSI C63.10-2013 | PASS   |
| Radiated Spurious Emissions                                       | 47 CFR Part 15 Subpart C Section 15.205/15.209     | ANSI C63.10-2013 | PASS   |
| Restricted bands around fundamental frequency (Radiated Emission) | 47 CFR Part 15 Subpart C Section 15.205/15.209     | ANSI C63.10-2013 | PASS   |

Remark:

Test according to ANSI C63.4-2014 & ANSI C63.10-2013.

The tested sample(s) and the sample information are provided by the client.

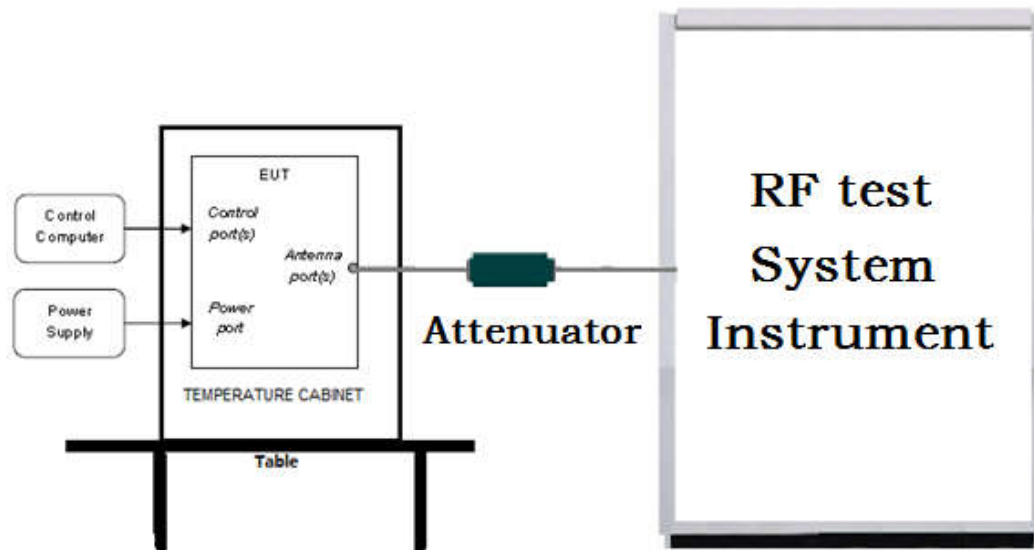
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## 5 Test Requirement

### 5.1 Test setup

#### 5.1.1 For Conducted test setup



#### 5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

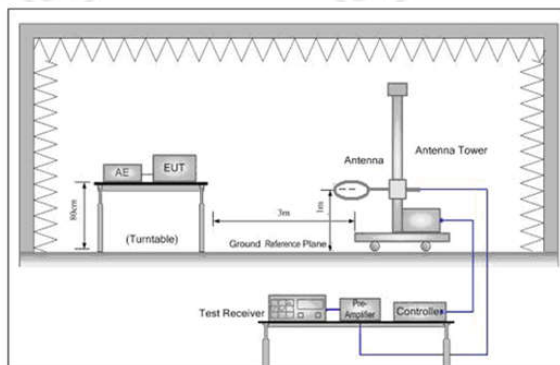


Figure 1. Below 30MHz

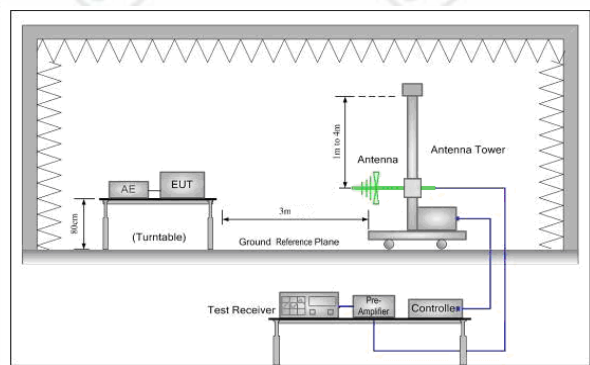


Figure 2. 30MHz to 1GHz

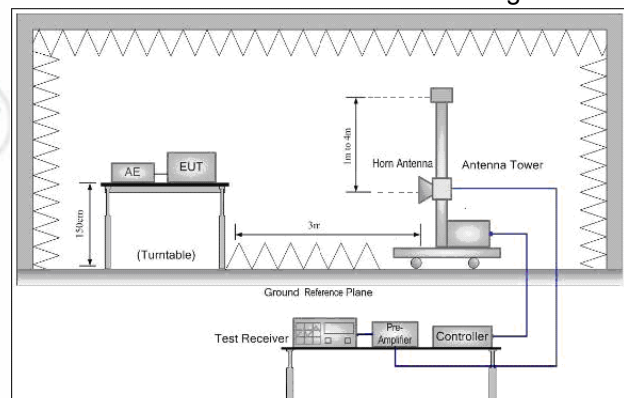
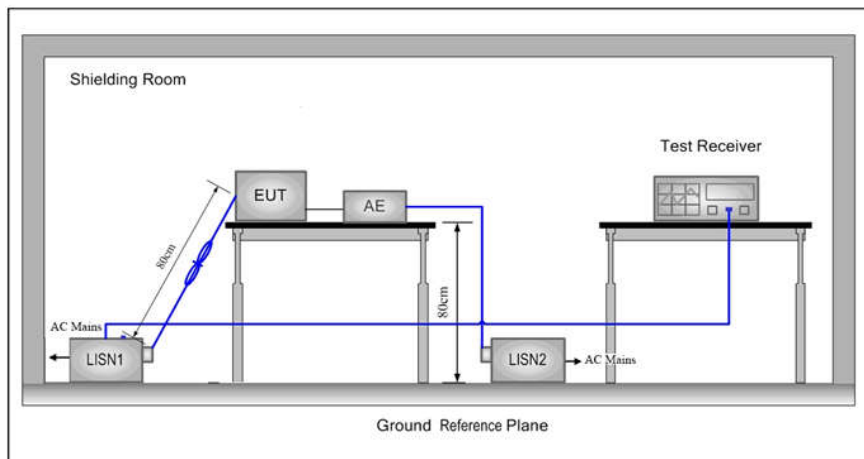


Figure 3. Above 1GHz

### 5.1.3 For Conducted Emissions test setup

#### Conducted Emissions setup



## 5.2 Test Environment

| Operating Environment: |          |
|------------------------|----------|
| Temperature:           | 24 °C    |
| Humidity:              | 53 % RH  |
| Atmospheric Pressure:  | 1010mbar |

## 5.3 Test Condition

Test channel:

| Test Mode          | Tx/Rx                                                                                    | RF Channel |           |            |
|--------------------|------------------------------------------------------------------------------------------|------------|-----------|------------|
|                    |                                                                                          | Low(L)     | Middle(M) | High(H)    |
| 802.11b/g/n(HT20)  | 2412MHz ~2462 MHz                                                                        | Channel 1  | Channel 6 | Channel 11 |
|                    |                                                                                          | 2412MHz    | 2437MHz   | 2462MHz    |
| 802.11n(HT40)      | 2422MHz ~2452 MHz                                                                        | Channel 3  | Channel 6 | Channel 9  |
|                    |                                                                                          | 2422MHz    | 2437MHz   | 2452MHz    |
| Transmitting mode: | Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate. |            |           |            |

Test mode:

est mode:

Pre-scan under all rate at lowest channel 1

|                                       |                |        |          |        |        |         |           |         |  |
|---------------------------------------|----------------|--------|----------|--------|--------|---------|-----------|---------|--|
| Scan under all rate at lowest channel |                |        |          |        |        |         |           |         |  |
| Mode                                  | 802.11b        |        |          |        |        |         |           |         |  |
| Data Rate                             | 1Mbps          | 2Mbps  | 5.5Mbps  | 11Mbps |        |         |           |         |  |
| Power(dBm)                            | 18.01          | 18.00  | 17.99    | 17.95  |        |         |           |         |  |
| Mode                                  | 802.11g        |        |          |        |        |         |           |         |  |
| Data Rate                             | 6Mbps          | 9Mbps  | 12Mbps   | 18Mbps | 24Mbps | 36Mbps  | 48Mbps    | 54Mbps  |  |
| Power(dBm)                            | 17.44          | 17.40  | 17.38    | 17.35  | 17.30  | 17.29   | 17.25     | 17.20   |  |
| Mode                                  | 802.11n (HT20) |        |          |        |        |         |           |         |  |
| Data Rate                             | 6.5Mbps        | 13Mbps | 19.5Mbps | 26Mbps | 39Mbps | 52Mbps  | 58.5Mbps  | 65Mbps  |  |
| Power(dBm)                            | 16.12          | 16.10  | 15.99    | 15.96  | 15.93  | 15.90   | 15.88     | 15.85   |  |
| Mode                                  | 802.11n (HT40) |        |          |        |        |         |           |         |  |
| Data Rate                             | 13.5Mbps       | 27Mbps | 40.5Mbps | 54Mbps | 81Mbps | 108Mbps | 121.5Mbps | 135Mbps |  |
| Power(dBm)                            | 15.23          | 15.20  | 15.18    | 15.15  | 15.12  | 15.10   | 15.08     | 15.05   |  |

Through Pre-scan, 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).

## 6 General Information

### 6.1 Client Information

|                          |                                                                                                       |
|--------------------------|-------------------------------------------------------------------------------------------------------|
| Applicant:               | Shenzhen Kuang-Chi Space Technology Co., Ltd                                                          |
| Address of Applicant:    | 301-B077, Building 2, No.1, Mawu Road, Baoan Community, Longgang District, Shenzhen, Guangdong, China |
| Manufacturer:            | Shenzhen Kuang-Chi Space Technology Co., Ltd.                                                         |
| Address of Manufacturer: | 301-B077, Building 2, No.1, Mawu Road, Baoan Community, Longgang District, Shenzhen, Guangdong, China |
| Factory:                 | Shenzhen Kuang-Chi Space Technology Co., Ltd                                                          |
| Address of Factory:      | 301-B077, Building 2, No.1, Mawu Road, Baoan Community, Longgang District, Shenzhen, Guangdong, China |

### 6.2 General Description of EUT

|                                  |                                                                                   |                                                                                                                                                           |
|----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:                    | Smart Helmet                                                                      |                                                                                                                                                           |
| Model No.(EUT):                  | KC-N901                                                                           |                                                                                                                                                           |
| Trade Mark:                      |  |                                                                                                                                                           |
| EUT Supports Radios application: | Wi-Fi IEEE 802.11 b/g/n(HT20)(HT40), 2412MHz to 2462MHz                           |                                                                                                                                                           |
| Power Supply:                    | LI-ION BATTERY                                                                    | RATED CAPACITY 5000mAh (19Wh)<br>TYPICAL CAPACITY 5100mAh (19.38Wh)<br>NOMINAL VOLTAGE: 3.8V---<br>LIMITED CHARGE VOLTAGE: 4.35V---<br>MODEL: GQ-V496594P |
| Sample Received Date:            | Mar.18, 2020                                                                      |                                                                                                                                                           |
| Sample tested Date:              | Mar.18, 2020 to May 06, 2020                                                      |                                                                                                                                                           |

### 6.3 Product Specification subjective to this standard

|                        |                                                                                      |
|------------------------|--------------------------------------------------------------------------------------|
| Operation Frequency:   | IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz<br>IEEE 802.11n(HT40): 2422MHz to 2452MHz |
| Channel Numbers:       | IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels<br>IEEE 802.11n HT40: 7 Channels      |
| Channel Separation:    | 5MHz                                                                                 |
| Type of Modulation:    | DSSS, OFDM                                                                           |
| Test Power Grade:      | Refence Table                                                                        |
| Test Software of EUT:  | Engineering Order *##9646633##*(manufacturer declare)                                |
| Antenna Type and Gain: | Type: monopole antenna<br>Gain: 3 dBi                                                |
| Test Voltage:          | BATTERY 3.8V                                                                         |

| Operation Frequency each of channel(802.11b/g/n HT20) |           |         |           |         |           |         |           |
|-------------------------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                                               | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1                                                     | 2412MHz   | 4       | 2427MHz   | 7       | 2442MHz   | 10      | 2457MHz   |
| 2                                                     | 2417MHz   | 5       | 2432MHz   | 8       | 2447MHz   | 11      | 2462MHz   |
| 3                                                     | 2422MHz   | 6       | 2437MHz   | 9       | 2452MHz   |         |           |
| Operation Frequency each of channel(802.11n HT40)     |           |         |           |         |           |         |           |
| Channel                                               | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 3                                                     | 2422MHz   | 6       | 2437MHz   | 9       | 2452MHz   |         |           |
| 4                                                     | 2427MHz   | 7       | 2442MHz   |         |           |         |           |
| 5                                                     | 2432MHz   | 8       | 2447MHz   |         |           |         |           |

Table 1:

| Mode | Channel | Frequency | Data Rate | Power Setting |
|------|---------|-----------|-----------|---------------|
| b    | 1       | 2412      | 1 Mbps    | 25            |
|      | 6       | 2437      |           | 20            |
|      | 11      | 2462      |           | 20            |
| g    | 1       | 2412      | 6 Mbps    | 14.5          |
|      | 6       | 2437      |           | 13.5          |
|      | 11      | 2462      |           | 14            |
| n20  | 1       | 2412      | MCS 0     | 13.5          |
|      | 6       | 2437      |           | 12.5          |
|      | 11      | 2462      |           | 13            |
| n40  | 3       | 2422      | MCS 0     | 11.5          |
|      | 6       | 2437      |           | 11.5          |
|      | 9       | 2452      |           | 11.5          |

## 6.4 Description of Support Units

The EUT has been tested with associated equipment below

| Associated equipment name |          | Manufacture | model     | S/N serial number | Supplied by | Certification |
|---------------------------|----------|-------------|-----------|-------------------|-------------|---------------|
| AE1                       | Notebook | DELL        | DELL 3490 | D245DX2           | DELL        | CE&FCC        |
|                           |          |             |           |                   |             |               |
|                           |          |             |           |                   |             |               |

## 6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

## 6.6 Deviation from Standards

None.

## 6.7 Abnormalities from Standard Conditions

None.

## 6.8 Other Information Requested by the Customer

None.

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

| No. | Item                            | Measurement Uncertainty |
|-----|---------------------------------|-------------------------|
| 1   | Radio Frequency                 | $7.9 \times 10^{-8}$    |
| 2   | RF power, conducted             | 0.46dB (30MHz-1GHz)     |
|     |                                 | 0.55dB (1GHz-18GHz)     |
| 3   | Radiated Spurious emission test | 4.3dB (30MHz-1GHz)      |
|     |                                 | 4.5dB (1GHz-12.75GHz)   |
| 4   | Conduction emission             | 3.5dB (9kHz to 150kHz)  |
|     |                                 | 3.1dB (150kHz to 30MHz) |
| 5   | Temperature test                | 0.64°C                  |
| 6   | Humidity test                   | 3.8%                    |
| 7   | DC power voltages               | 0.026%                  |

## 7 Equipment List

| Communication RF test system    |               |                              |               |                        |                            |
|---------------------------------|---------------|------------------------------|---------------|------------------------|----------------------------|
| Equipment                       | Manufacturer  | Model No.                    | Serial Number | Cal. Date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| Spectrum Analyzer               | Agilent       | E4440A                       | MY46185649    | 11-05-2019             | 11-04-2020                 |
| Communication test set          | R&S           | CMW200                       | 111935        | 02-17-2020             | 02-16-2021                 |
| Signal Generator                | Keysight      | E8257D                       | MY53401106    | 02-17-2020             | 02-16-2021                 |
| Communication test set          | R&S           | CMW500                       | 152394        | 02-17-2020             | 02-16-2021                 |
| High-pass filter                | Sinoscite     | FL3CX03WG18<br>NM12-0398-002 | ---           | ---                    | ---                        |
| High-pass filter                | MICRO-TRONICS | SPA-F-63029-4                | ---           | ---                    | ---                        |
| band rejection filter           | Sinoscite     | FL5CX01CA09C<br>L12-0395-001 | ---           | ---                    | ---                        |
| band rejection filter           | Sinoscite     | FL5CX01CA08C<br>L12-0393-001 | ---           | ---                    | ---                        |
| band rejection filter           | Sinoscite     | FL5CX02CA04C<br>L12-0396-002 | ---           | ---                    | ---                        |
| band rejection filter           | Sinoscite     | FL5CX02CA03C<br>L12-0394-001 | ---           | ---                    | ---                        |
| DC Power                        | Keysight      | E3642A                       | MY55156236    | 02-17-2020             | 02-16-2021                 |
| DC Power                        | Keysight      | E3642A                       | MY56376035    | 02-17-2020             | 02-16-2021                 |
| PC-2                            | Lenovo        | R4960d                       | ---           | ---                    | ---                        |
| PC-3                            | Lenovo        | R4960d                       | ---           | ---                    | ---                        |
| RF control unit                 | JS Tonscend   | JS0806-1                     | 158060004     | 02-17-2020             | 02-16-2021                 |
| DC power Box                    | JS Tonscend   | JS0806-4                     | 158060007     | ---                    | ---                        |
| LTE Automatic test software     | JS Tonscend   | JS1120-1                     | ---           | ---                    | ---                        |
| WCDMA Automatic test software   | JS Tonscend   | JS1120-3                     | ---           | ---                    | ---                        |
| GSM Automatic test software     | JS Tonscend   | JS1120-3                     | ---           | ---                    | ---                        |
| Temperature/ Humidity Indicator | biaozhi       | HM10                         | 1804186       | 07-26-2019             | 07-25-2020                 |

| Conducted disturbance Test         |              |           |               |                           |                               |
|------------------------------------|--------------|-----------|---------------|---------------------------|-------------------------------|
| Equipment                          | Manufacturer | Model No. | Serial Number | Cal. date<br>(mm-dd-yyyy) | Cal. Due date<br>(mm-dd-yyyy) |
| Receiver                           | R&S          | ESCI      | 100435        | 05-20-2019<br>04-28-2020  | 05-19-2020<br>04-27-2021      |
| Temperature/ Humidity<br>Indicator | Defu         | TH128     | /             | 06-14-2019                | 06-13-2020                    |
| LISN                               | R&S          | ENV216    | 100098        | 03-05-2020                | 03-04-2021                    |
| Barometer                          | changchun    | DYM3      | 1188          | 06-20-2019                | 06-19-2020                    |

| 3M full-anechoic Chamber        |              |                   |               |                          |                            |
|---------------------------------|--------------|-------------------|---------------|--------------------------|----------------------------|
| Equipment                       | Manufacturer | Model No.         | Serial Number | Cal. date (mm-dd-yyyy)   | Cal. Due date (mm-dd-yyyy) |
| RSE Automatic test software     | JS Tonscend  | JS36-RSE          | 10166         | 06-19-2019               | 06-18-2020                 |
| Receiver                        | Keysight     | N9038A            | MY57290136    | 03-05-2020               | 03-04-2021                 |
| Spectrum Analyzer               | Keysight     | N9020B            | MY57111112    | 03-05-2020               | 03-04-2021                 |
| Spectrum Analyzer               | Keysight     | N9030B            | MY57140871    | 03-05-2020               | 03-04-2021                 |
| TRILOG Broadband Antenna        | Schwarzbeck  | VULB 9163         | 9163-1148     | 04-25-2018               | 04-24-2021                 |
| Horn Antenna                    | Schwarzbeck  | BBHA 9170         | 9170-832      | 04-25-2018               | 04-24-2021                 |
| Horn Antenna                    | ETS-LINDGREN | 3117              | 00057407      | 07-10-2018               | 07-09-2021                 |
| Preamplifier                    | EMCI         | EMC184055SE       | 980596        | 05-22-2019               | 05-21-2020                 |
| Communication test set          | R&S          | CMW500            | 102898        | 01-14-2020               | 01-13-2021                 |
| Preamplifier                    | EMCI         | EMC001330         | 980563        | 05-08-2019<br>04-22-2020 | 05-07-2020<br>04-21-2021   |
| Preamplifier                    | JS Tonscend  | 980380            | EMC051845 SE  | 01-09-2020               | 01-08-2021                 |
| Temperature/ Humidity Indicator | biaozhi      | GM1360            | EE1186631     | 04-30-2019<br>04-27-2020 | 04-29-2020<br>04-26-2021   |
| Fully Anechoic Chamber          | TDK          | FAC-3             | ---           | 01-17-2018               | 01-16-2021                 |
| Filter bank                     | JS Tonscend  | JS0806-F          | 188060094     | 04-10-2018               | 04-09-2021                 |
| Cable line                      | Times        | SFT205-NMSM-2.50M | 394812-0001   | ---                      | ---                        |
| Cable line                      | Times        | SFT205-NMSM-2.50M | 394812-0002   | ---                      | ---                        |
| Cable line                      | Times        | SFT205-NMSM-2.50M | 394812-0003   | ---                      | ---                        |
| Cable line                      | Times        | SFT205-NMSM-2.50M | 393495-0001   | ---                      | ---                        |
| Cable line                      | Times        | EMC104-NMNM-1000  | SN160710      | ---                      | ---                        |
| Cable line                      | Times        | SFT205-NMSM-3.00M | 394813-0001   | ---                      | ---                        |
| Cable line                      | Times        | SFT205-NMNM-1.50M | 381964-0001   | ---                      | ---                        |
| Cable line                      | Times        | SFT205-NMSM-7.00M | 394815-0001   | ---                      | ---                        |
| Cable line                      | Times        | HF160-KMKM-3.00M  | 393493-0001   | ---                      | ---                        |

| 3M Semi/full-anechoic Chamber    |                  |                           |               |                        |                            |
|----------------------------------|------------------|---------------------------|---------------|------------------------|----------------------------|
| Equipment                        | Manufacturer     | Model No.                 | Serial Number | Cal. date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| 3M Chamber & Accessory Equipment | TDK              | SAC-3                     | ---           | 05-24-2019             | 05-23-2022                 |
| TRILOG Broadband Antenna         | Schwarzbeck      | VULB9163                  | 9163-618      | 07-26-2019             | 07-25-2020                 |
| Loop Antenna                     | Schwarzbeck      | FMZB 1519B                | 1519B-076     | 04-25-2018             | 04-24-2021                 |
| Receiver                         | R&S              | ESCI7                     | 100938-003    | 10-21-2019             | 10-20-2020                 |
| Multi device Controller          | matur            | NCD/070/107 11112         | ---           | ---                    | ---                        |
| Temperature/ Humidity Indicator  | Shanghai qixiang | HM10                      | 1804298       | 07-26-2019             | 07-25-2020                 |
| Communication test set           | Agilent          | E5515C                    | GB47050534    | 03-01-2019             | 02-28-2022                 |
| Cable line                       | Fulai(7M)        | SF106                     | 5219/6A       | ---                    | ---                        |
| Cable line                       | Fulai(6M)        | SF106                     | 5220/6A       | ---                    | ---                        |
| Cable line                       | Fulai(3M)        | SF106                     | 5216/6A       | ---                    | ---                        |
| Cable line                       | Fulai(3M)        | SF106                     | 5217/6A       | ---                    | ---                        |
| band rejection filter            | Sinoscite        | FL5CX01CA0 8CL12-0393-001 | ---           | ---                    | ---                        |

## 8 Radio Technical Requirements Specification

### Reference documents for testing:

| No. | Identity         | Document Title                                                     |
|-----|------------------|--------------------------------------------------------------------|
| 1   | FCC Part 15C     | Subpart C-Intentional Radiators                                    |
| 2   | ANSI C63.10-2013 | American National Standard for Testing Unlicensed Wireless Devices |

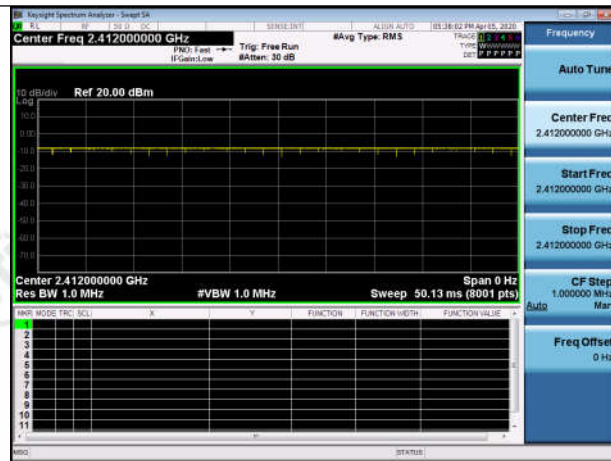
### Test Results List:

| Test Requirement                  | Test method | Test item                                                         | Verdict | Note        |
|-----------------------------------|-------------|-------------------------------------------------------------------|---------|-------------|
| Part15C Section 15.247 (b)(3)     | ANSI C63.10 | Conducted Peak Output Power                                       | PASS    | Appendix A) |
| Part15C Section 15.247 (a)(2)     | ANSI C63.10 | 6dB Occupied Bandwidth                                            | PASS    | Appendix B) |
| Part15C Section 15.247(d)         | ANSI C63.10 | Band-edge for RF Conducted Emissions                              | PASS    | Appendix C) |
| Part15C Section 15.247(d)         | ANSI C63.10 | RF Conducted Spurious Emissions                                   | PASS    | Appendix D) |
| Part15C Section 15.247 (e)        | ANSI C63.10 | Power Spectral Density                                            | PASS    | Appendix E) |
| Part15C Section 15.203/15.247 (c) | ANSI C63.10 | Antenna Requirement                                               | PASS    | Appendix F) |
| Part15C Section 15.207            | ANSI C63.10 | AC Power Line Conducted Emission                                  | PASS    | Appendix G) |
| Part15C Section 15.205/15.209     | ANSI C63.10 | Restricted bands around fundamental frequency (Radiated Emission) | PASS    | Appendix H) |
| Part15C Section 15.205/15.209     | ANSI C63.10 | Radiated Spurious Emissions                                       | PASS    | Appendix I) |

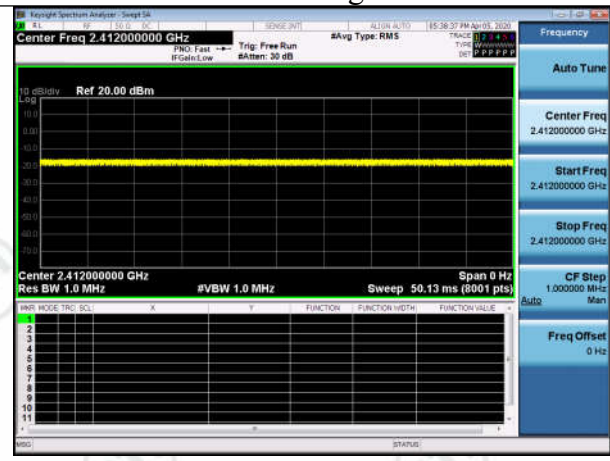
## Duty Cycle

| Duty Cycle    |           |            |               |
|---------------|-----------|------------|---------------|
| Configuration | TX ON(ms) | TX ALL(ms) | Duty Cycle(%) |
| 802.11b       | 1.000     | 1.000      | 100.00%       |
| 802.11g       | 1.000     | 1.000      | 100.00%       |
| 802.11n HT20  | 1.000     | 1.000      | 100.00%       |
| 802.11n HT40  | 1.000     | 1.000      | 100.00%       |

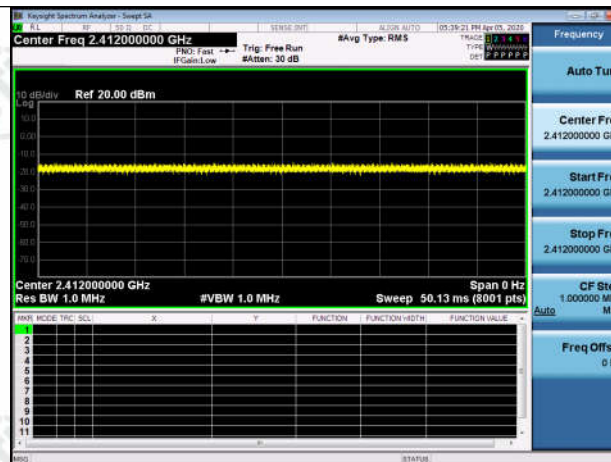
802.11b



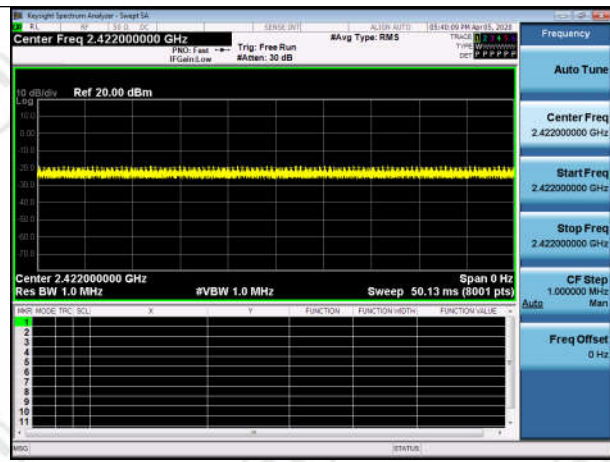
802.11g



802.11n HT20



802.11n HT40



## Appendix A): Conducted Peak Output Power

### Test Limit

According to §15.247(b)(3),

### Peak output power :

For systems using digital modulation in the 2400-2483.5 MHz: 1 Watt(30 dBm), base on the use of antennas with directional gain not exceed 6 dBi. If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

|       |                                                                                                                                                                                                                         |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Limit | <input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 30dBm<br><input type="checkbox"/> Antenna with DG greater than 6 dBi :<br>[Limit = 30 – (DG – 6)]<br><input type="checkbox"/> Point-to-point operation : |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

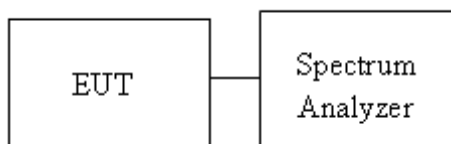
**Average output power** : For reporting purposes only.

### Test Procedure

Test method Refer as KDB 558074 D01.

1. The EUT RF output connected to spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT.
3. Spectrum analyzer settings are as follows:
  - a) Set the RBW = 1 MHz.
  - b) Set the VBW  $\geq$  [3 × RBW].
  - c) Set the span  $\geq$  [1.5 × DTS bandwidth].
  - d) Detector = peak.
  - e) Sweep time = auto couple.
  - f) Trace mode = max hold.
  - g) Allow trace to fully stabilize.
  - h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges.
4. Measure and record the result in the test report.

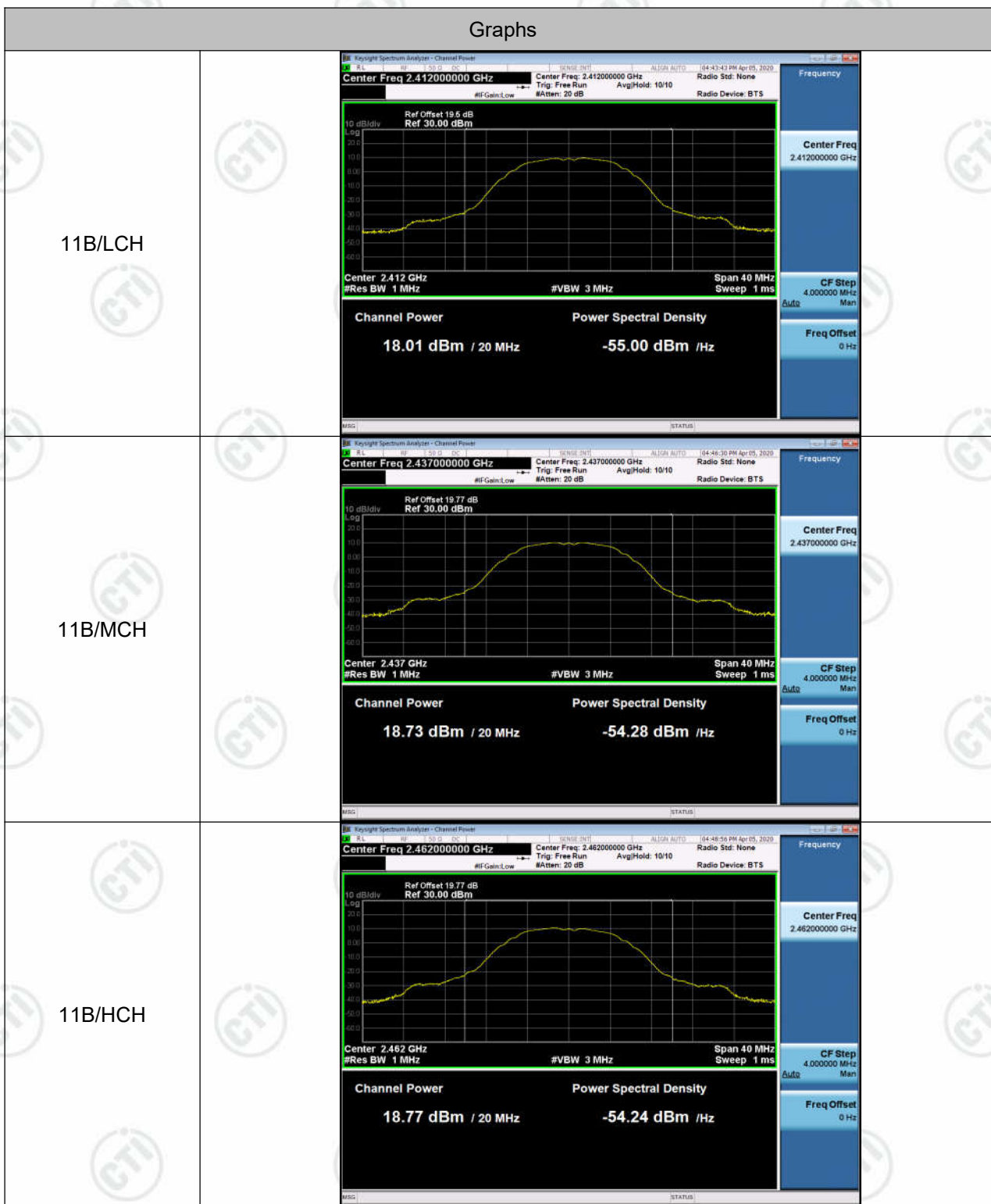
### Test Setup

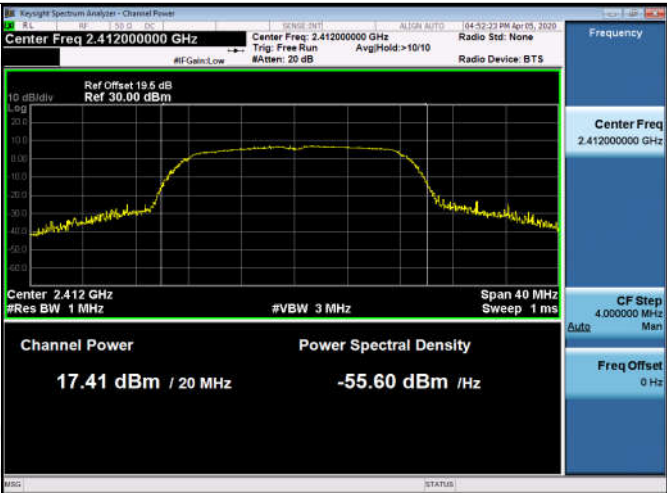
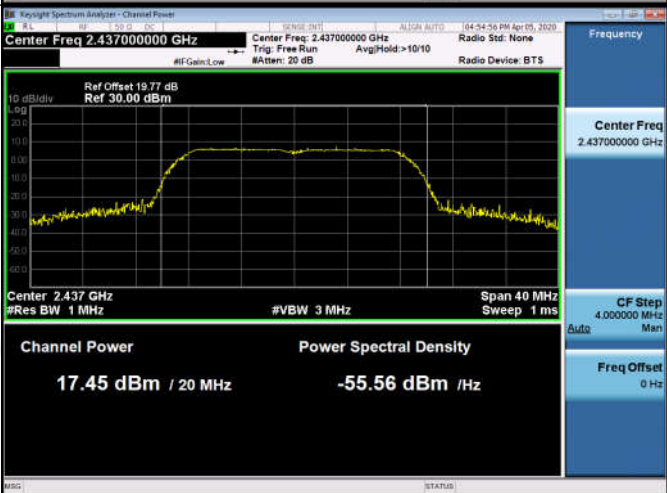
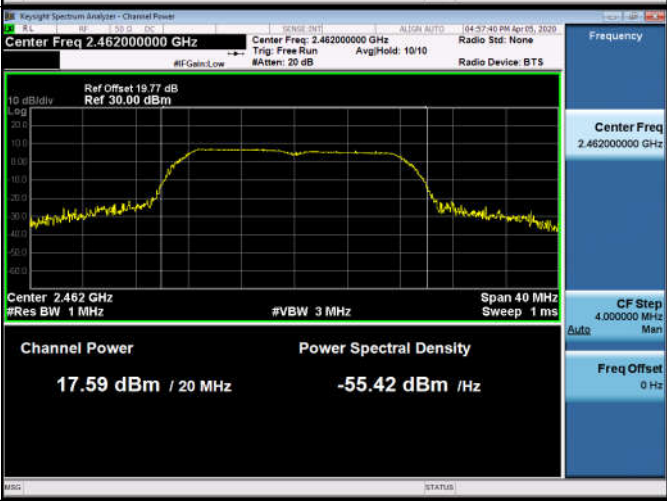


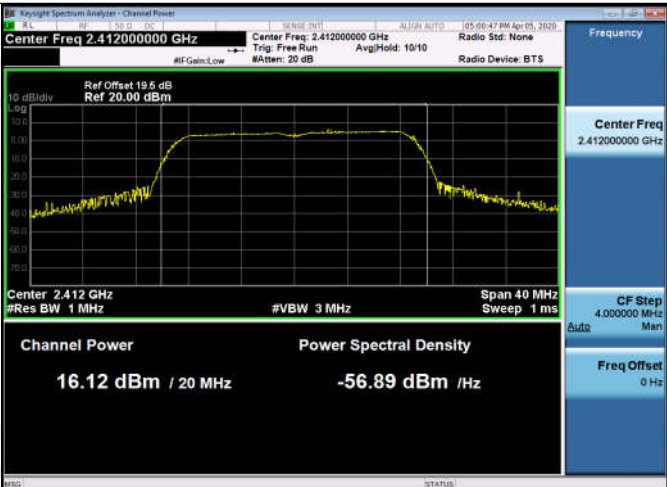
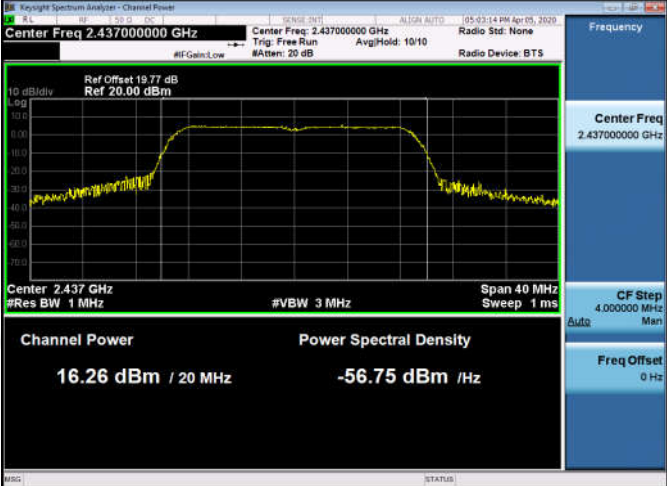
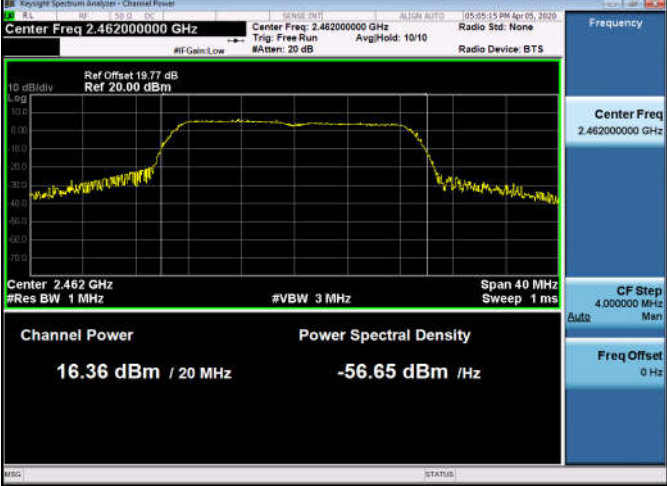
**Result Table**

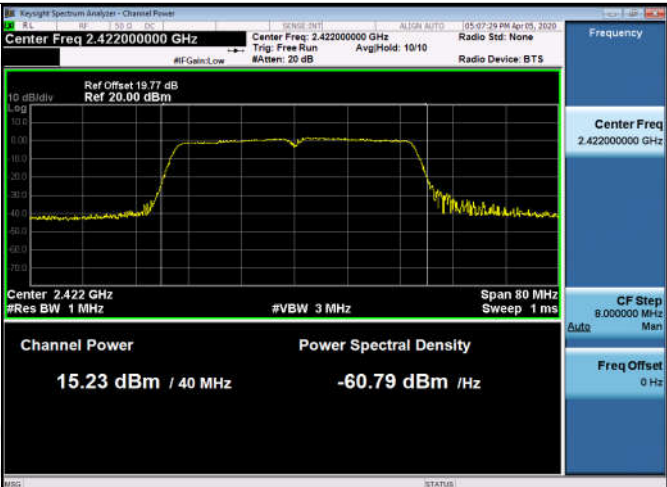
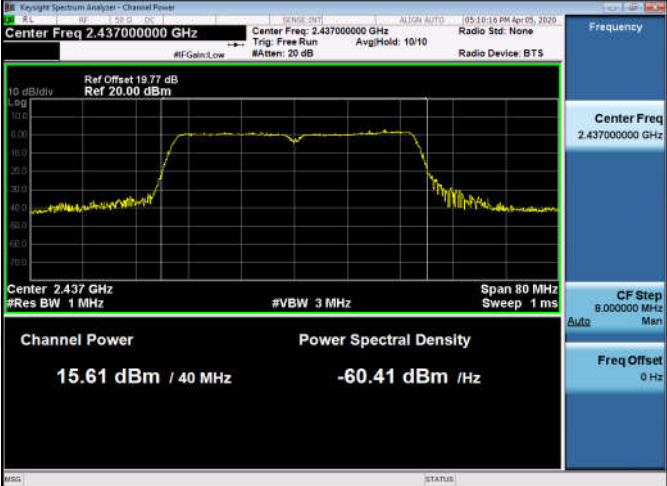
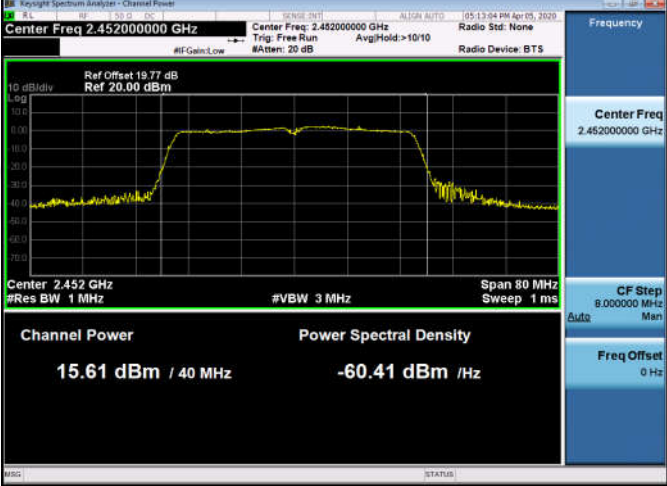
| Mode      | Channel | Conducted Peak Output Power [dBm] | Verdict |
|-----------|---------|-----------------------------------|---------|
| 11B       | LCH     | 18.01                             | PASS    |
| 11B       | MCH     | 18.73                             | PASS    |
| 11B       | HCH     | 18.77                             | PASS    |
| 11G       | LCH     | 17.41                             | PASS    |
| 11G       | MCH     | 17.45                             | PASS    |
| 11G       | HCH     | 17.59                             | PASS    |
| 11N20SISO | LCH     | 16.12                             | PASS    |
| 11N20SISO | MCH     | 16.26                             | PASS    |
| 11N20SISO | HCH     | 16.36                             | PASS    |
| 11N40SISO | LCH     | 15.23                             | PASS    |
| 11N40SISO | MCH     | 15.61                             | PASS    |
| 11N40SISO | HCH     | 15.61                             | PASS    |

## Test Graph



|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11G/LCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB<br/>Ref 30.00 dBm</p> <p>Center 2.412 GHz<br/>#Res BW 1 MHz<br/>#VBW 3 MHz<br/>Span 40 MHz<br/>Sweep 1 ms</p> <p>Channel Power<br/>17.41 dBm / 20 MHz</p> <p>Power Spectral Density<br/>-55.60 dBm / Hz</p> <p>Frequency<br/>Center Freq<br/>2.412000000 GHz</p> <p>CF Step<br/>4.000000 MHz<br/>Auto<br/>Man</p> <p>Freq Offset<br/>0 Hz</p>    |
| 11G/MCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center 2.437 GHz<br/>#Res BW 1 MHz<br/>#VBW 3 MHz<br/>Span 40 MHz<br/>Sweep 1 ms</p> <p>Channel Power<br/>17.45 dBm / 20 MHz</p> <p>Power Spectral Density<br/>-55.56 dBm / Hz</p> <p>Frequency<br/>Center Freq<br/>2.437000000 GHz</p> <p>CF Step<br/>4.000000 MHz<br/>Auto<br/>Man</p> <p>Freq Offset<br/>0 Hz</p>  |
| 11G/HCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center 2.462 GHz<br/>#Res BW 1 MHz<br/>#VBW 3 MHz<br/>Span 40 MHz<br/>Sweep 1 ms</p> <p>Channel Power<br/>17.59 dBm / 20 MHz</p> <p>Power Spectral Density<br/>-55.42 dBm / Hz</p> <p>Frequency<br/>Center Freq<br/>2.462000000 GHz</p> <p>CF Step<br/>4.000000 MHz<br/>Auto<br/>Man</p> <p>Freq Offset<br/>0 Hz</p> |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11N20SISO/LCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB<br/>Ref 20.00 dBm</p> <p>10 dB/div</p> <p>Center 2.412 GHz<br/>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 40 MHz<br/>Sweep 1 ms</p> <p>Channel Power<br/>16.12 dBm / 20 MHz</p> <p>Power Spectral Density<br/>-56.89 dBm / Hz</p> <p>Frequency<br/>Center Freq<br/>2.412000000 GHz</p> <p>CF Step<br/>4.000000 MHz<br/>Auto</p> <p>Freq Offset<br/>0 Hz</p>    |
| 11N20SISO/MCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 20.00 dBm</p> <p>10 dB/div</p> <p>Center 2.437 GHz<br/>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 40 MHz<br/>Sweep 1 ms</p> <p>Channel Power<br/>16.26 dBm / 20 MHz</p> <p>Power Spectral Density<br/>-56.75 dBm / Hz</p> <p>Frequency<br/>Center Freq<br/>2.437000000 GHz</p> <p>CF Step<br/>4.000000 MHz<br/>Auto</p> <p>Freq Offset<br/>0 Hz</p>  |
| 11N20SISO/HCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 20.00 dBm</p> <p>10 dB/div</p> <p>Center 2.462 GHz<br/>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 40 MHz<br/>Sweep 1 ms</p> <p>Channel Power<br/>16.36 dBm / 20 MHz</p> <p>Power Spectral Density<br/>-56.65 dBm / Hz</p> <p>Frequency<br/>Center Freq<br/>2.462000000 GHz</p> <p>CF Step<br/>4.000000 MHz<br/>Auto</p> <p>Freq Offset<br/>0 Hz</p> |

|               |                                                                                      |
|---------------|--------------------------------------------------------------------------------------|
| 11N40SISO/LCH |    |
| 11N40SISO/MCH |   |
| 11N40SISO/HCH |  |

## Appendix B): 6dB Occupied Bandwidth

### Test Limit

According to §15.247(a)(2),

#### 6 dB Bandwidth :

|       |                          |
|-------|--------------------------|
| Limit | Shall be at least 500kHz |
|-------|--------------------------|

Occupied Bandwidth(99%) : For reporting purposes only.

### Test Procedure

Test method Refer as KDB 558074 D01 and ANSI C63.10: 2013 clause 6.9.2,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW =100KHz , VBW = 300KHz and Detector = Peak, to measurement 6dB Bandwidth
4. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

### Test Setup



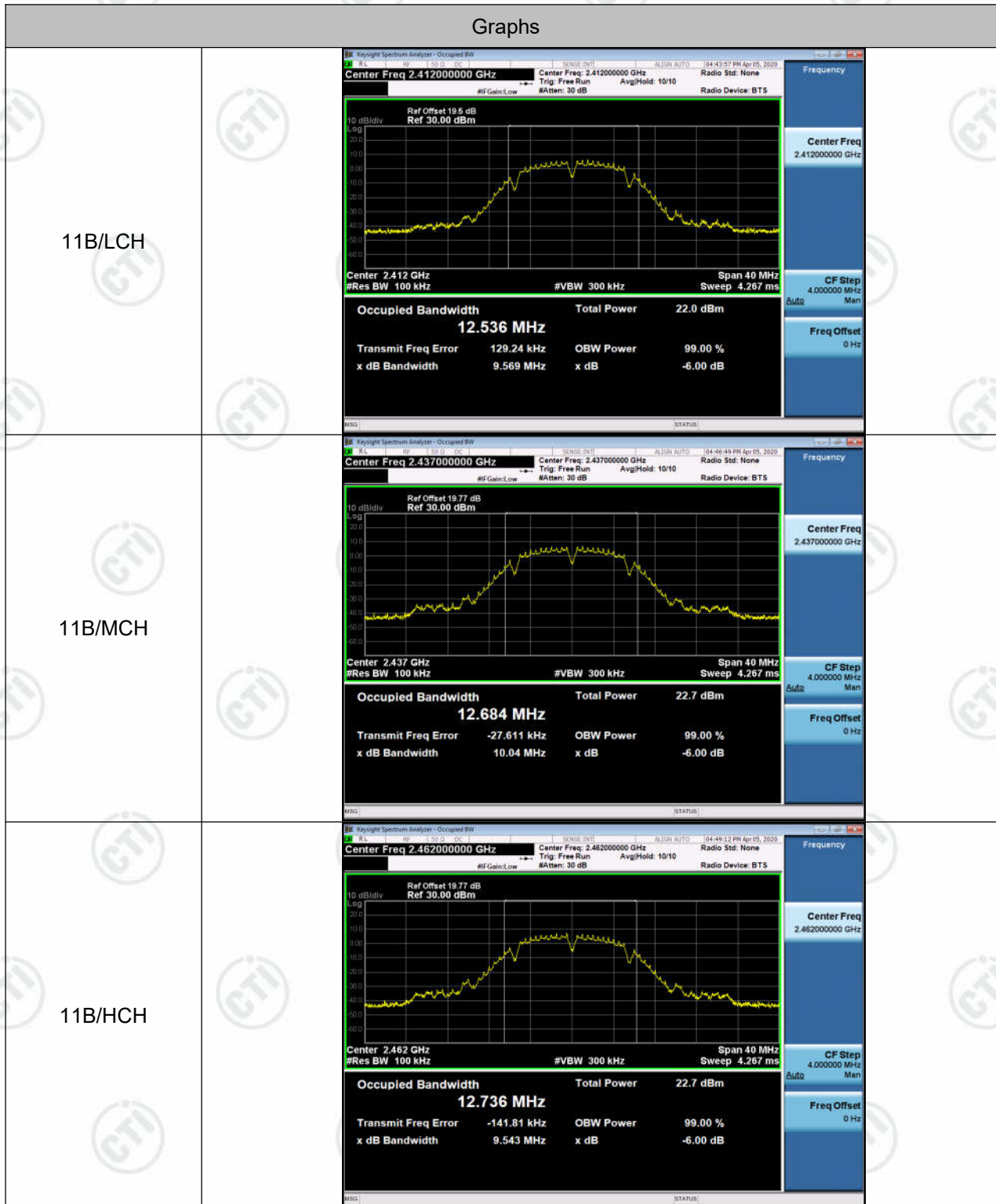
### 6dB OBW Result Table

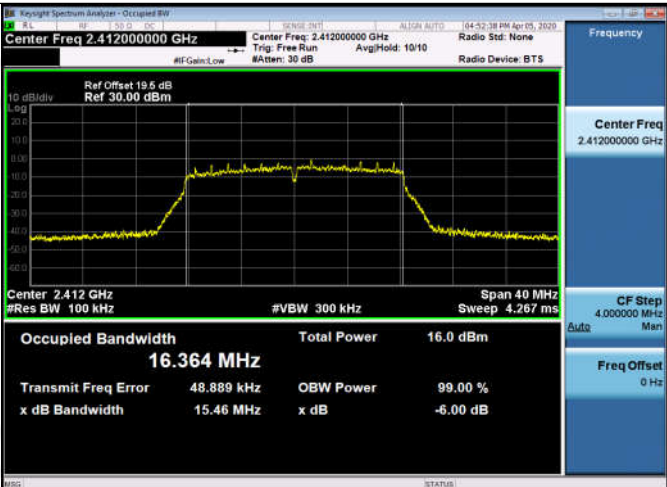
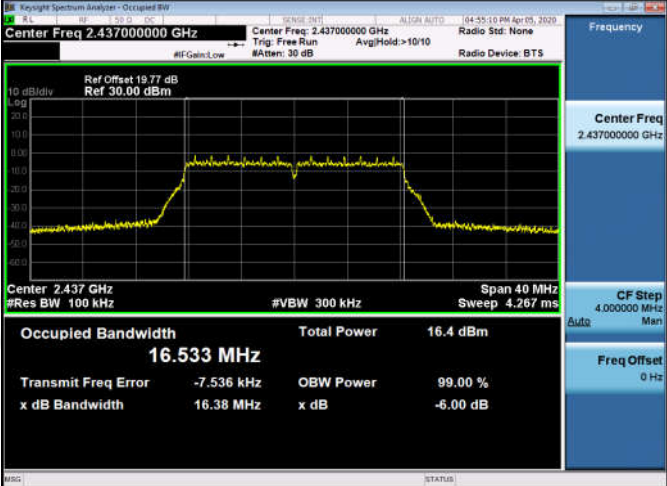
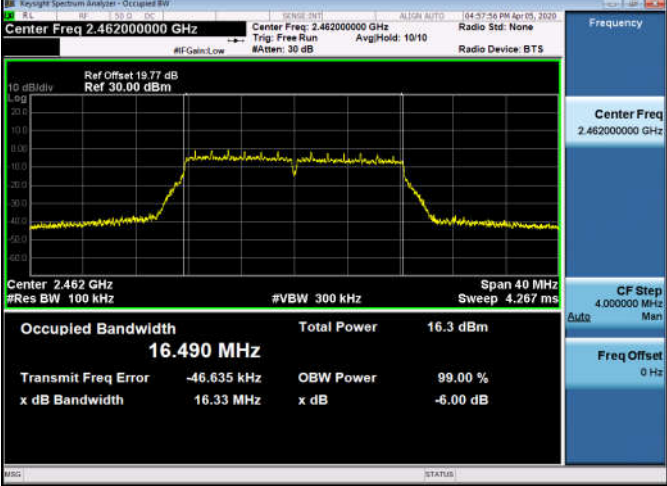
| Mode      | Channel | 6dB Bandwidth [MHz] | Verdict |
|-----------|---------|---------------------|---------|
| 11B       | LCH     | 9.569               | PASS    |
| 11B       | MCH     | 10.04               | PASS    |
| 11B       | HCH     | 9.543               | PASS    |
| 11G       | LCH     | 15.46               | PASS    |
| 11G       | MCH     | 16.38               | PASS    |
| 11G       | HCH     | 16.33               | PASS    |
| 11N20SISO | LCH     | 17.38               | PASS    |
| 11N20SISO | MCH     | 17.64               | PASS    |
| 11N20SISO | HCH     | 17.35               | PASS    |
| 11N40SISO | LCH     | 35.47               | PASS    |
| 11N40SISO | MCH     | 35.75               | PASS    |
| 11N40SISO | HCH     | 35.11               | PASS    |

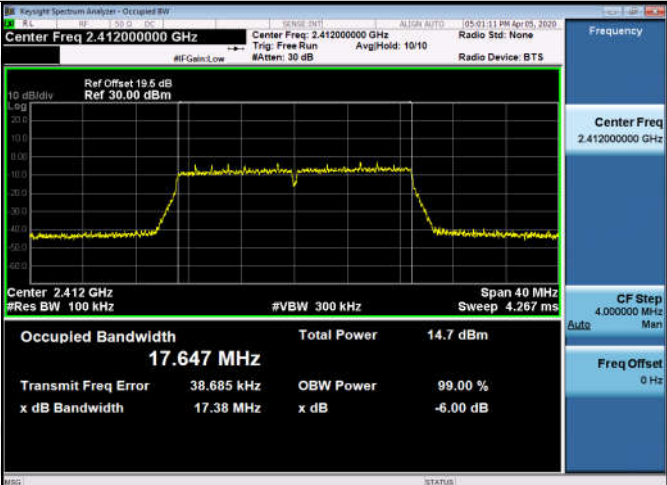
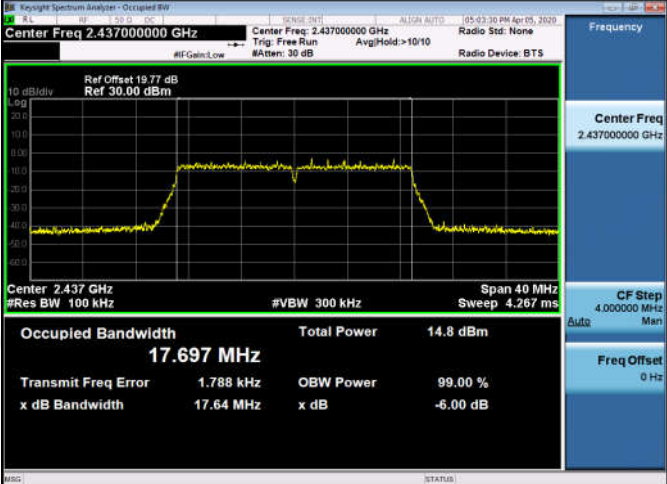
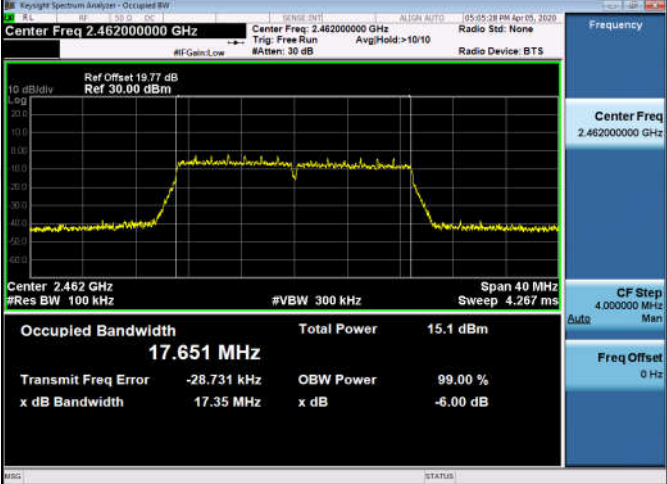
### 99% OBW Result Table

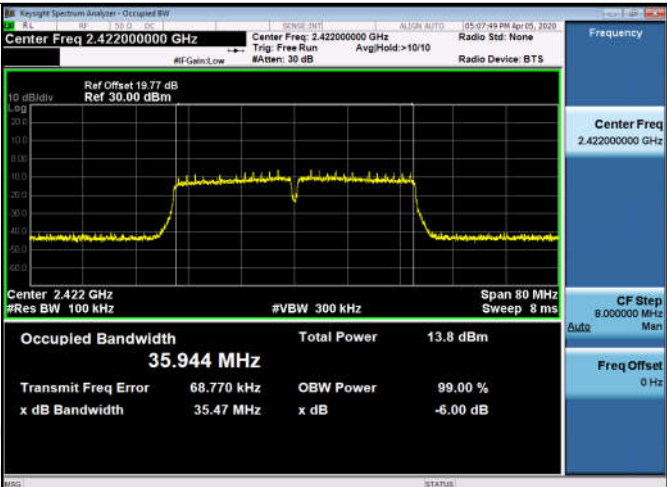
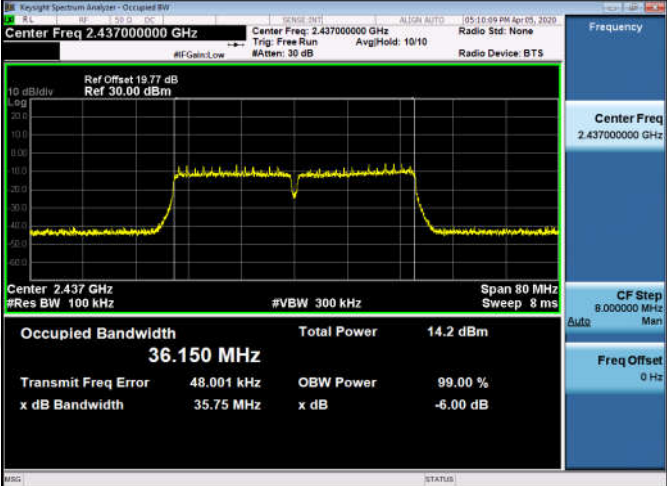
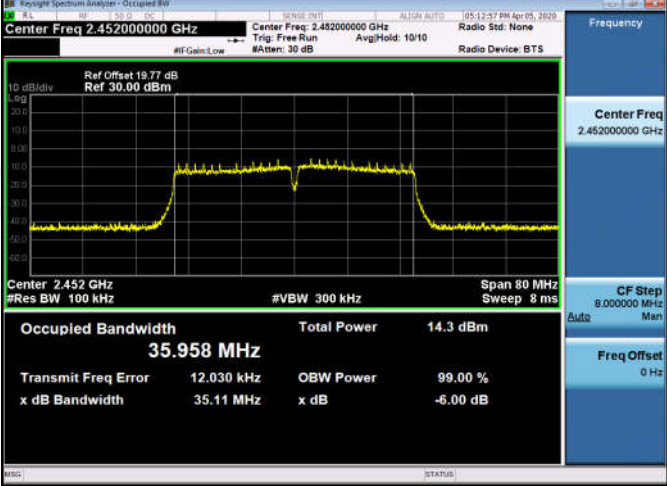
| Mode      | Channel | 99% OBW [MHz] | Verdict |
|-----------|---------|---------------|---------|
| 11B       | LCH     | 12.578        | PASS    |
| 11B       | MCH     | 12.765        | PASS    |
| 11B       | HCH     | 12.778        | PASS    |
| 11G       | LCH     | 16.489        | PASS    |
| 11G       | MCH     | 16.544        | PASS    |
| 11G       | HCH     | 16.671        | PASS    |
| 11N20SISO | LCH     | 17.707        | PASS    |
| 11N20SISO | MCH     | 17.768        | PASS    |
| 11N20SISO | HCH     | 17.728        | PASS    |
| 11N40SISO | LCH     | 36.049        | PASS    |
| 11N40SISO | MCH     | 36.302        | PASS    |
| 11N40SISO | HCH     | 36.087        | PASS    |

**6dB OBW  
Test Graph**



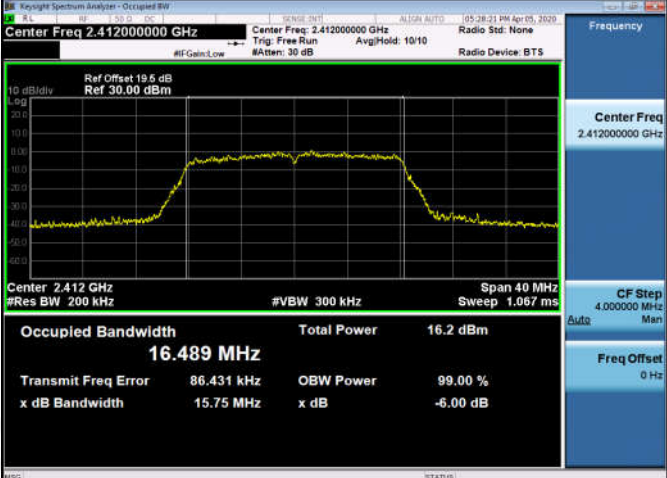
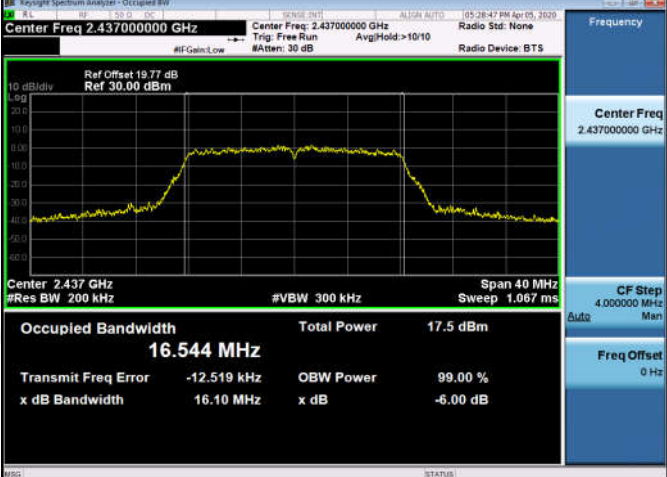
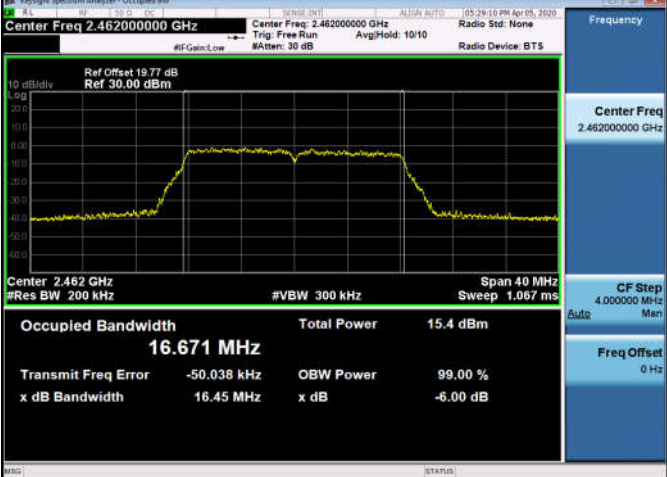
|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11G/LCH |  <p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB<br/>Ref 30.00 dBm</p> <p>Center 2.412 GHz<br/>#Res BW 100 kHz</p> <p>Occupied Bandwidth <b>16.364 MHz</b></p> <p>Total Power 16.0 dBm</p> <p>Transmit Freq Error 48.889 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 15.46 MHz</p> <p>x dB -6.00 dB</p> <p>Center Freq 2.412000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p>     |
| 11G/MCH |  <p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center 2.437 GHz<br/>#Res BW 100 kHz</p> <p>Occupied Bandwidth <b>16.533 MHz</b></p> <p>Total Power 16.4 dBm</p> <p>Transmit Freq Error -7.536 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.38 MHz</p> <p>x dB -6.00 dB</p> <p>Center Freq 2.437000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p>   |
| 11G/HCH |  <p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center 2.462 GHz<br/>#Res BW 100 kHz</p> <p>Occupied Bandwidth <b>16.490 MHz</b></p> <p>Total Power 16.3 dBm</p> <p>Transmit Freq Error -46.635 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.33 MHz</p> <p>x dB -6.00 dB</p> <p>Center Freq 2.462000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p> |

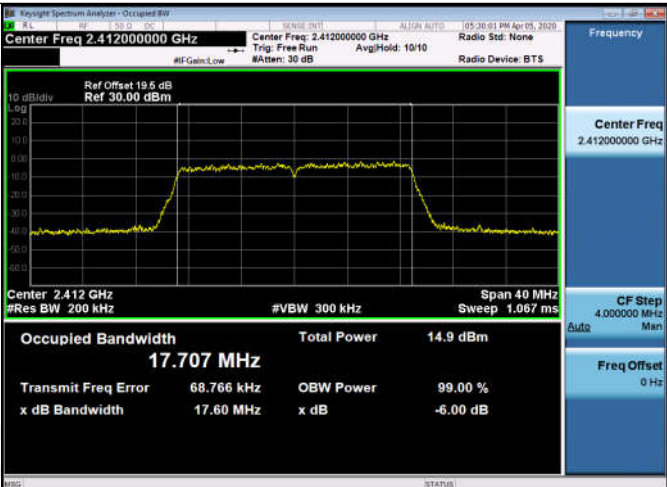
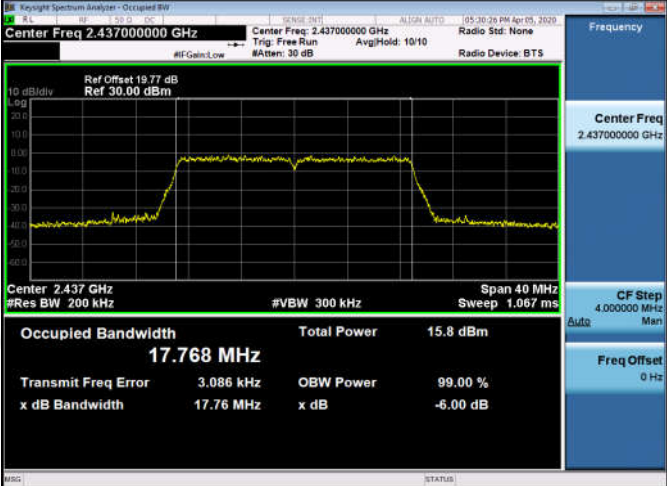
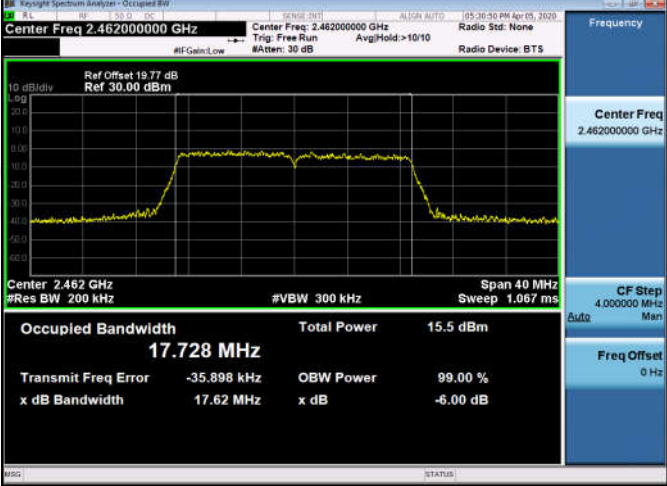
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11N20SISO/LCH |  <p>Key: Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB<br/>Ref 30.00 dBm</p> <p>Center Freq 2.412000000 GHz<br/>Trig: Free Run<br/>Avg/Hold: 10/10<br/>Radio Std: None<br/>Radio Device: BTS</p> <p>10 dB/div<br/>Log</p> <p>Center 2.412 GHz<br/>#Res BW 100 kHz<br/>#VBW 300 kHz<br/>Span 40 MHz<br/>Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.647 MHz<br/>Total Power 14.7 dBm<br/>Transmit Freq Error 38.685 kHz<br/>OBW Power 99.00 %<br/>x dB Bandwidth 17.38 MHz<br/>x dB -6.00 dB</p> <p>Frequency<br/>Center Freq 2.412000000 GHz<br/>CF Step 4.000000 MHz<br/>Auto Man<br/>Freq Offset 0 Hz</p>     |
| 11N20SISO/MCH |  <p>Key: Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center Freq 2.437000000 GHz<br/>Trig: Free Run<br/>Avg/Hold: 10/10<br/>Radio Std: None<br/>Radio Device: BTS</p> <p>10 dB/div<br/>Log</p> <p>Center 2.437 GHz<br/>#Res BW 100 kHz<br/>#VBW 300 kHz<br/>Span 40 MHz<br/>Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.697 MHz<br/>Total Power 14.8 dBm<br/>Transmit Freq Error 1.788 kHz<br/>OBW Power 99.00 %<br/>x dB Bandwidth 17.64 MHz<br/>x dB -6.00 dB</p> <p>Frequency<br/>Center Freq 2.437000000 GHz<br/>CF Step 4.000000 MHz<br/>Auto Man<br/>Freq Offset 0 Hz</p>    |
| 11N20SISO/HCH |  <p>Key: Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center Freq 2.462000000 GHz<br/>Trig: Free Run<br/>Avg/Hold: 10/10<br/>Radio Std: None<br/>Radio Device: BTS</p> <p>10 dB/div<br/>Log</p> <p>Center 2.462 GHz<br/>#Res BW 100 kHz<br/>#VBW 300 kHz<br/>Span 40 MHz<br/>Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.651 MHz<br/>Total Power 15.1 dBm<br/>Transmit Freq Error -28.731 kHz<br/>OBW Power 99.00 %<br/>x dB Bandwidth 17.35 MHz<br/>x dB -6.00 dB</p> <p>Frequency<br/>Center Freq 2.462000000 GHz<br/>CF Step 4.000000 MHz<br/>Auto Man<br/>Freq Offset 0 Hz</p> |

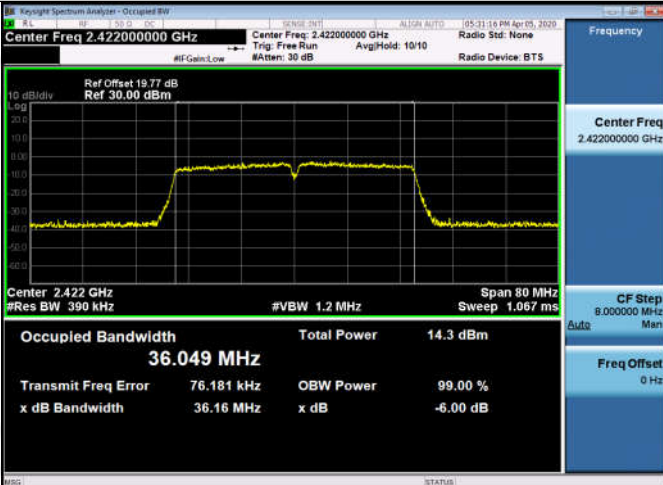
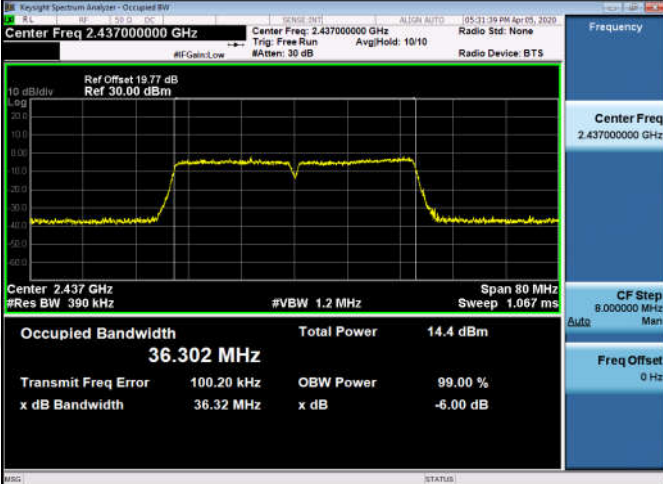
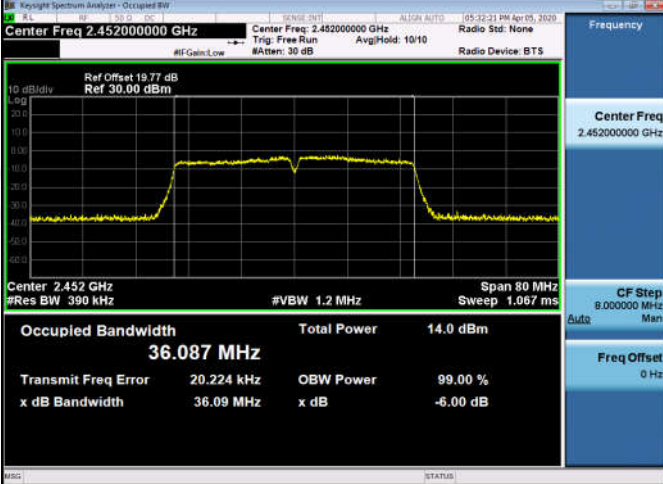
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11N40SISO/LCH |  <p>Key: Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.422000000 GHz Center Freq: 2.422000000 GHz Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.422 GHz Span 80 MHz</p> <p>Res BW 100 kHz #VBW 300 kHz Sweep 8 ms</p> <p>Occupied Bandwidth 35.944 MHz Total Power 13.8 dBm</p> <p>Transmit Freq Error 68.770 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.47 MHz x dB -6.00 dB</p> <p>Frequency 2.422000000 GHz</p> <p>CF Step 8.000000 MHz</p> <p>Freq Offset 0 Hz</p>   |
| 11N40SISO/MCH |  <p>Key: Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz Span 80 MHz</p> <p>Res BW 100 kHz #VBW 300 kHz Sweep 8 ms</p> <p>Occupied Bandwidth 36.150 MHz Total Power 14.2 dBm</p> <p>Transmit Freq Error 48.001 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.75 MHz x dB -6.00 dB</p> <p>Frequency 2.437000000 GHz</p> <p>CF Step 8.000000 MHz</p> <p>Freq Offset 0 Hz</p>  |
| 11N40SISO/HCH |  <p>Key: Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.452000000 GHz Center Freq: 2.452000000 GHz Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.452 GHz Span 80 MHz</p> <p>Res BW 100 kHz #VBW 300 kHz Sweep 8 ms</p> <p>Occupied Bandwidth 35.958 MHz Total Power 14.3 dBm</p> <p>Transmit Freq Error 12.030 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.11 MHz x dB -6.00 dB</p> <p>Frequency 2.452000000 GHz</p> <p>CF Step 8.000000 MHz</p> <p>Freq Offset 0 Hz</p> |

**99% OBW  
Test Graph**



|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11G/LCH |  <p>Keylight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB<br/>Ref 30.00 dBm</p> <p>Center 2.412 GHz<br/>#Res BW 200 kHz</p> <p>Span 40 MHz<br/>Sweep 1.067 ms</p> <p>Occupied Bandwidth 16.489 MHz</p> <p>Total Power 16.2 dBm</p> <p>Transmit Freq Error 86.431 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 15.75 MHz</p> <p>x dB -6.00 dB</p> <p>Frequency</p> <p>Center Freq 2.412000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p>     |
| 11G/MCH |  <p>Keylight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center 2.437 GHz<br/>#Res BW 200 kHz</p> <p>Span 40 MHz<br/>Sweep 1.067 ms</p> <p>Occupied Bandwidth 16.544 MHz</p> <p>Total Power 17.5 dBm</p> <p>Transmit Freq Error -12.519 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.10 MHz</p> <p>x dB -6.00 dB</p> <p>Frequency</p> <p>Center Freq 2.437000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p>  |
| 11G/HCH |  <p>Keylight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center 2.462 GHz<br/>#Res BW 200 kHz</p> <p>Span 40 MHz<br/>Sweep 1.067 ms</p> <p>Occupied Bandwidth 16.671 MHz</p> <p>Total Power 15.4 dBm</p> <p>Transmit Freq Error -50.038 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.45 MHz</p> <p>x dB -6.00 dB</p> <p>Frequency</p> <p>Center Freq 2.462000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p> |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11N20SISO/LCH |  <p>Key: Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB<br/>Ref 30.00 dBm</p> <p>Center Freq 2.412000000 GHz<br/>Trig: Free Run<br/>Avg/Hold: 10/10<br/>Radio Std: None<br/>Radio Device: BTS</p> <p>10 dB/div<br/>Log</p> <p>Center 2.412 GHz<br/>#Res BW 200 kHz<br/>#VBW 300 kHz<br/>Span 40 MHz<br/>Sweep 1.067 ms</p> <p>Occupied Bandwidth 17.707 MHz<br/>Total Power 14.9 dBm</p> <p>Transmit Freq Error 68.766 kHz<br/>OBW Power 99.00 %<br/>x dB Bandwidth 17.60 MHz<br/>x dB -6.00 dB</p> <p>Frequency<br/>Center Freq 2.412000000 GHz<br/>CF Step 4.000000 MHz<br/>Auto Man<br/>Freq Offset 0 Hz</p>     |
| 11N20SISO/MCH |  <p>Key: Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center Freq 2.437000000 GHz<br/>Trig: Free Run<br/>Avg/Hold: 10/10<br/>Radio Std: None<br/>Radio Device: BTS</p> <p>10 dB/div<br/>Log</p> <p>Center 2.437 GHz<br/>#Res BW 200 kHz<br/>#VBW 300 kHz<br/>Span 40 MHz<br/>Sweep 1.067 ms</p> <p>Occupied Bandwidth 17.768 MHz<br/>Total Power 15.8 dBm</p> <p>Transmit Freq Error 3.086 kHz<br/>OBW Power 99.00 %<br/>x dB Bandwidth 17.76 MHz<br/>x dB -6.00 dB</p> <p>Frequency<br/>Center Freq 2.437000000 GHz<br/>CF Step 4.000000 MHz<br/>Auto Man<br/>Freq Offset 0 Hz</p>    |
| 11N20SISO/HCH |  <p>Key: Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center Freq 2.462000000 GHz<br/>Trig: Free Run<br/>Avg/Hold: 10/10<br/>Radio Std: None<br/>Radio Device: BTS</p> <p>10 dB/div<br/>Log</p> <p>Center 2.462 GHz<br/>#Res BW 200 kHz<br/>#VBW 300 kHz<br/>Span 40 MHz<br/>Sweep 1.067 ms</p> <p>Occupied Bandwidth 17.728 MHz<br/>Total Power 15.5 dBm</p> <p>Transmit Freq Error -35.898 kHz<br/>OBW Power 99.00 %<br/>x dB Bandwidth 17.62 MHz<br/>x dB -6.00 dB</p> <p>Frequency<br/>Center Freq 2.462000000 GHz<br/>CF Step 4.000000 MHz<br/>Auto Man<br/>Freq Offset 0 Hz</p> |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11N40SISO/LCH |  <p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.422000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center 2.422 GHz<br/>#Res BW 390 kHz</p> <p>Span 80 MHz<br/>Sweep 1.067 ms</p> <p>#VBW 1.2 MHz</p> <p>Occupied Bandwidth <b>36.049 MHz</b></p> <p>Total Power 14.3 dBm</p> <p>Transmit Freq Error 76.181 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 36.16 MHz</p> <p>x dB -6.00 dB</p> <p>Frequency</p> <p>Center Freq 2.422000000 GHz</p> <p>CF Step 8.000000 MHz</p> <p>Freq Offset 0 Hz</p>   |
| 11N40SISO/MCH |  <p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center 2.437 GHz<br/>#Res BW 390 kHz</p> <p>Span 80 MHz<br/>Sweep 1.067 ms</p> <p>#VBW 1.2 MHz</p> <p>Occupied Bandwidth <b>36.302 MHz</b></p> <p>Total Power 14.4 dBm</p> <p>Transmit Freq Error 100.20 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 36.32 MHz</p> <p>x dB -6.00 dB</p> <p>Frequency</p> <p>Center Freq 2.437000000 GHz</p> <p>CF Step 8.000000 MHz</p> <p>Freq Offset 0 Hz</p>  |
| 11N40SISO/HCH |  <p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.452000000 GHz</p> <p>Ref Offset 19.77 dB<br/>Ref 30.00 dBm</p> <p>Center 2.452 GHz<br/>#Res BW 390 kHz</p> <p>Span 80 MHz<br/>Sweep 1.067 ms</p> <p>#VBW 1.2 MHz</p> <p>Occupied Bandwidth <b>36.087 MHz</b></p> <p>Total Power 14.0 dBm</p> <p>Transmit Freq Error 20.224 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 36.09 MHz</p> <p>x dB -6.00 dB</p> <p>Frequency</p> <p>Center Freq 2.452000000 GHz</p> <p>CF Step 8.000000 MHz</p> <p>Freq Offset 0 Hz</p> |

## Appendix C): Band-edge for RF Conducted Emissions

### Test Limit

According to §15.247(d),

In any 100 kHz bandwidth outside the authorized frequency band,

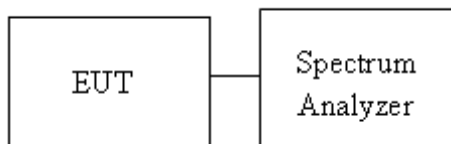
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

### Test Procedure

Test method Refer as KDB 558074 D01.

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. 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 30 dB instead of 20 dB.

### Test Setup

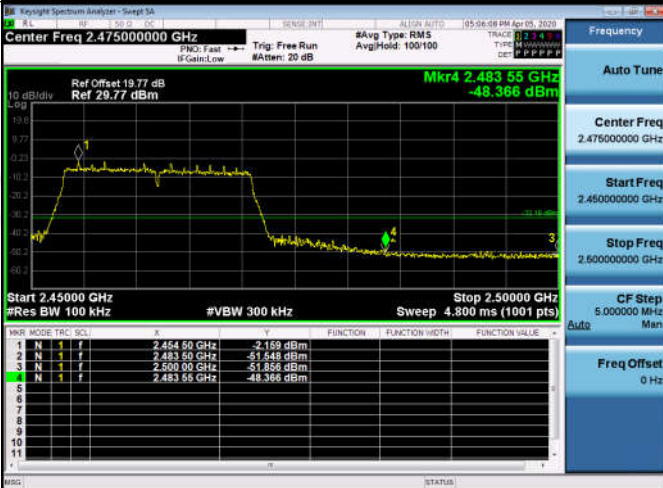


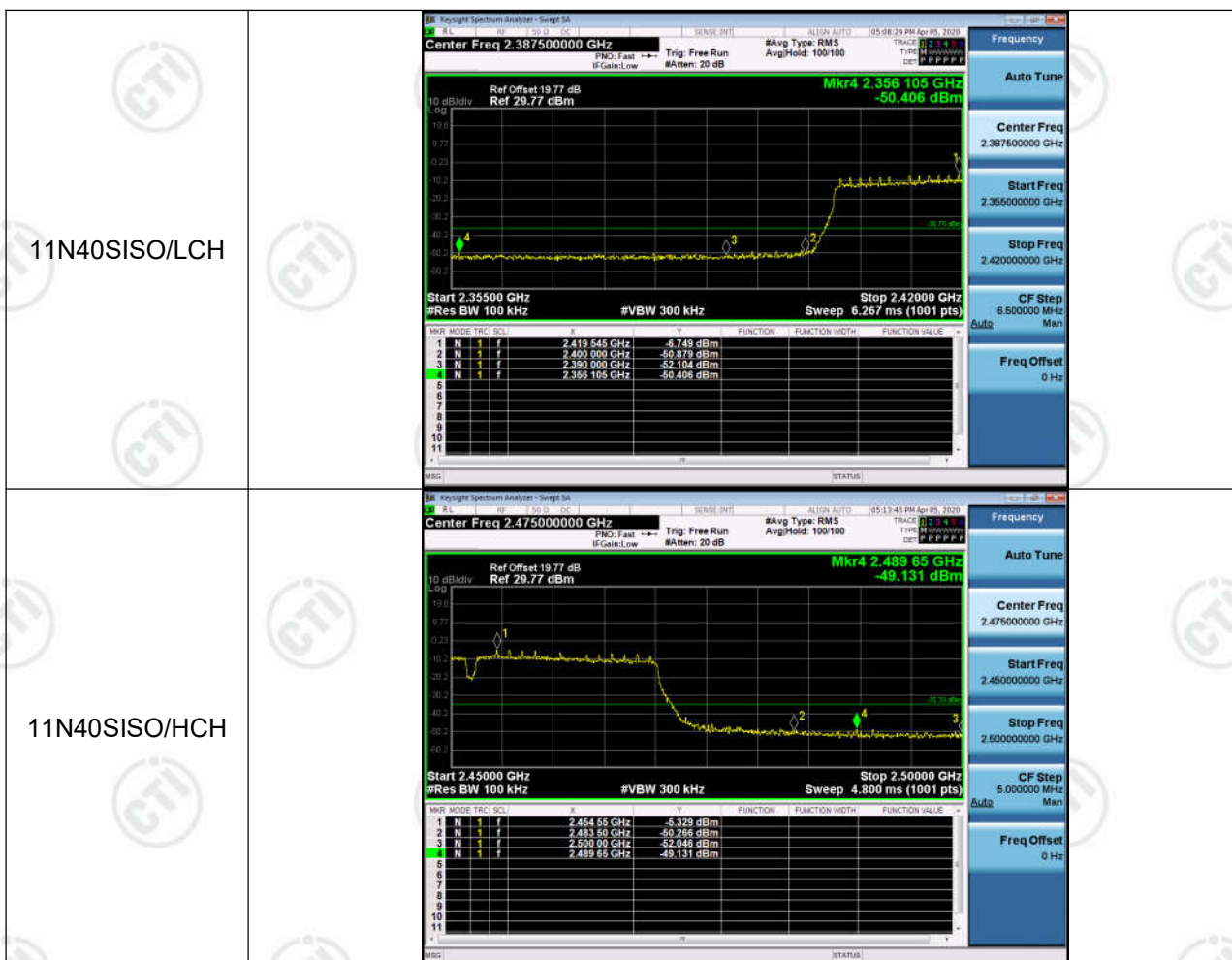
### Result Table

| Mode      | Channel | Carrier Power[dBm] | Max.Spurious Level [dBm] | Limit [dBm] | Verdict |
|-----------|---------|--------------------|--------------------------|-------------|---------|
| 11B       | LCH     | 5.875              | -50.000                  | -24.13      | PASS    |
| 11B       | HCH     | 6.766              | -49.954                  | -23.23      | PASS    |
| 11G       | LCH     | -0.383             | -50.414                  | -30.38      | PASS    |
| 11G       | HCH     | -0.595             | -48.906                  | -30.6       | PASS    |
| 11N20SISO | LCH     | -2.371             | -50.304                  | -32.37      | PASS    |
| 11N20SISO | HCH     | -2.159             | -48.366                  | -32.16      | PASS    |
| 11N40SISO | LCH     | -6.749             | -50.406                  | -36.75      | PASS    |
| 11N40SISO | HCH     | -5.329             | -49.131                  | -35.33      | PASS    |

## Test Graph



|               |                                                                                      |
|---------------|--------------------------------------------------------------------------------------|
| 11G/HCH       |    |
| 11N20SISO/LCH |   |
| 11N20SISO/HCH |  |



## Appendix D): RF Conducted Spurious Emissions

### Test Limit

According to §15.247(d),

In any 100 kHz bandwidth outside the authorized frequency band,

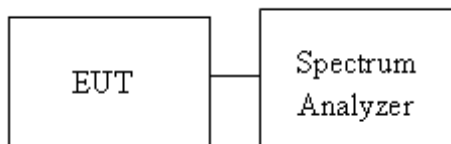
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

### Test Procedure

Test method Refer as KDB 558074 D01.

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. 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 30 dB instead of 20 dB.

### Test Setup

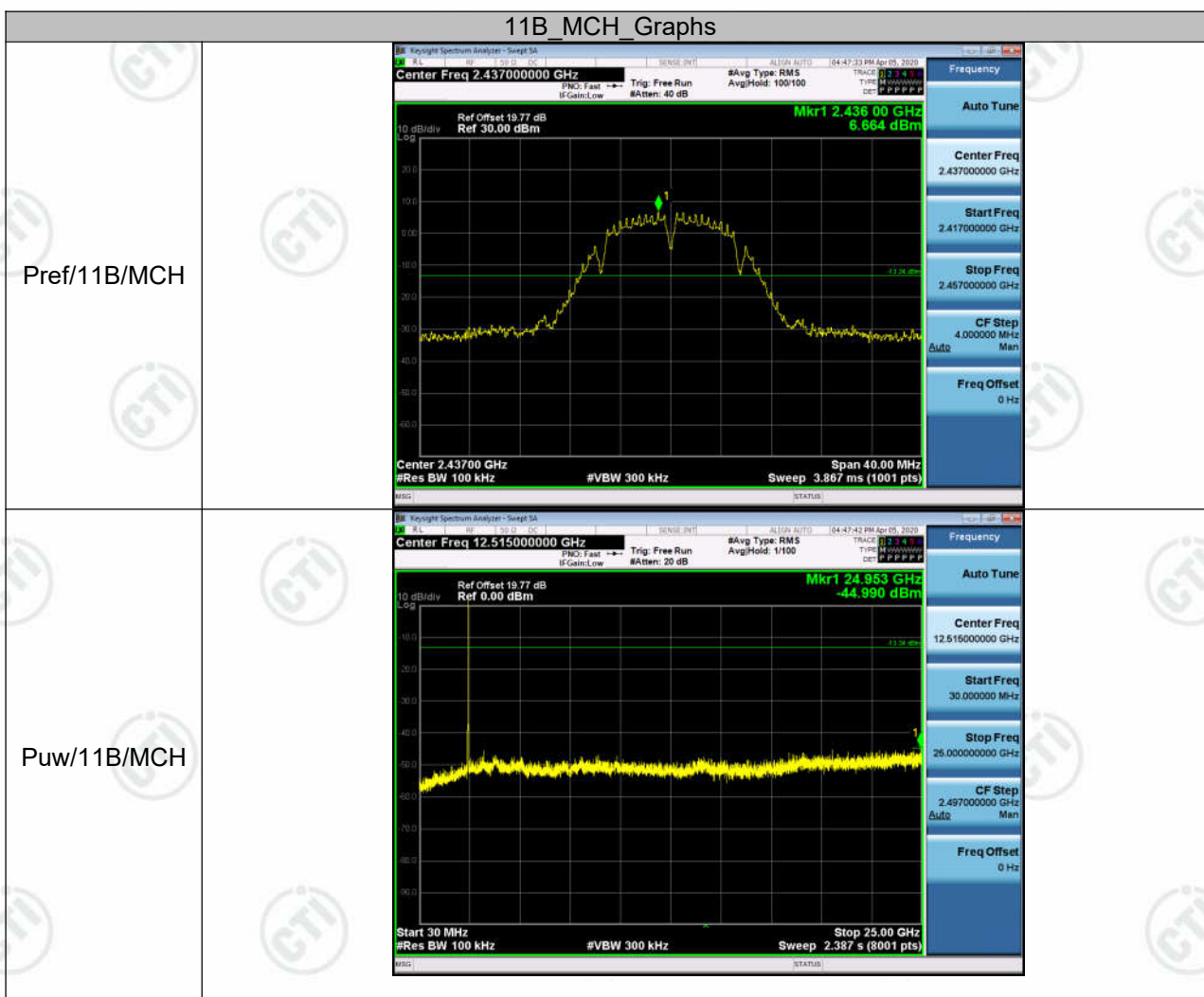


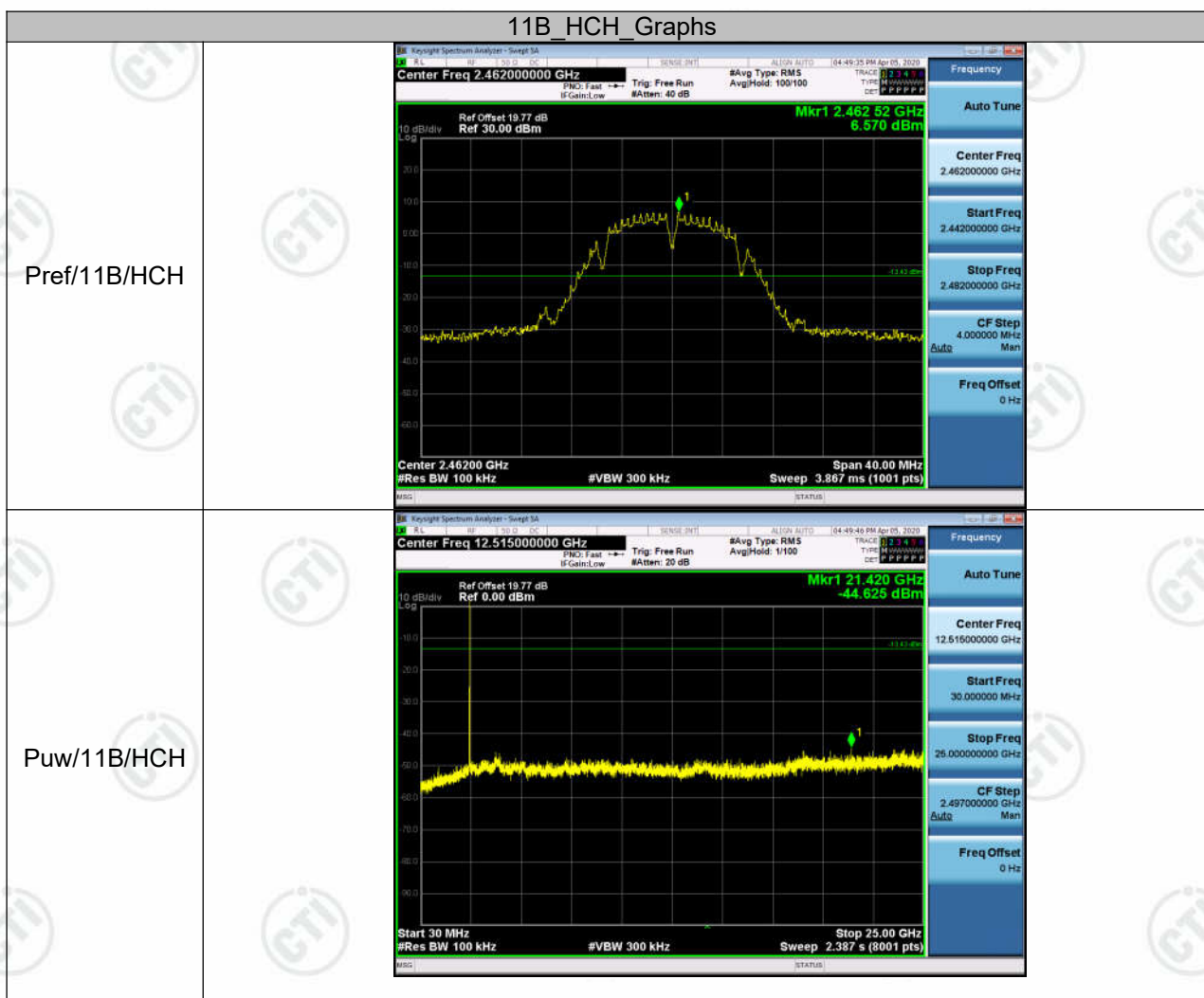
**Result Table**

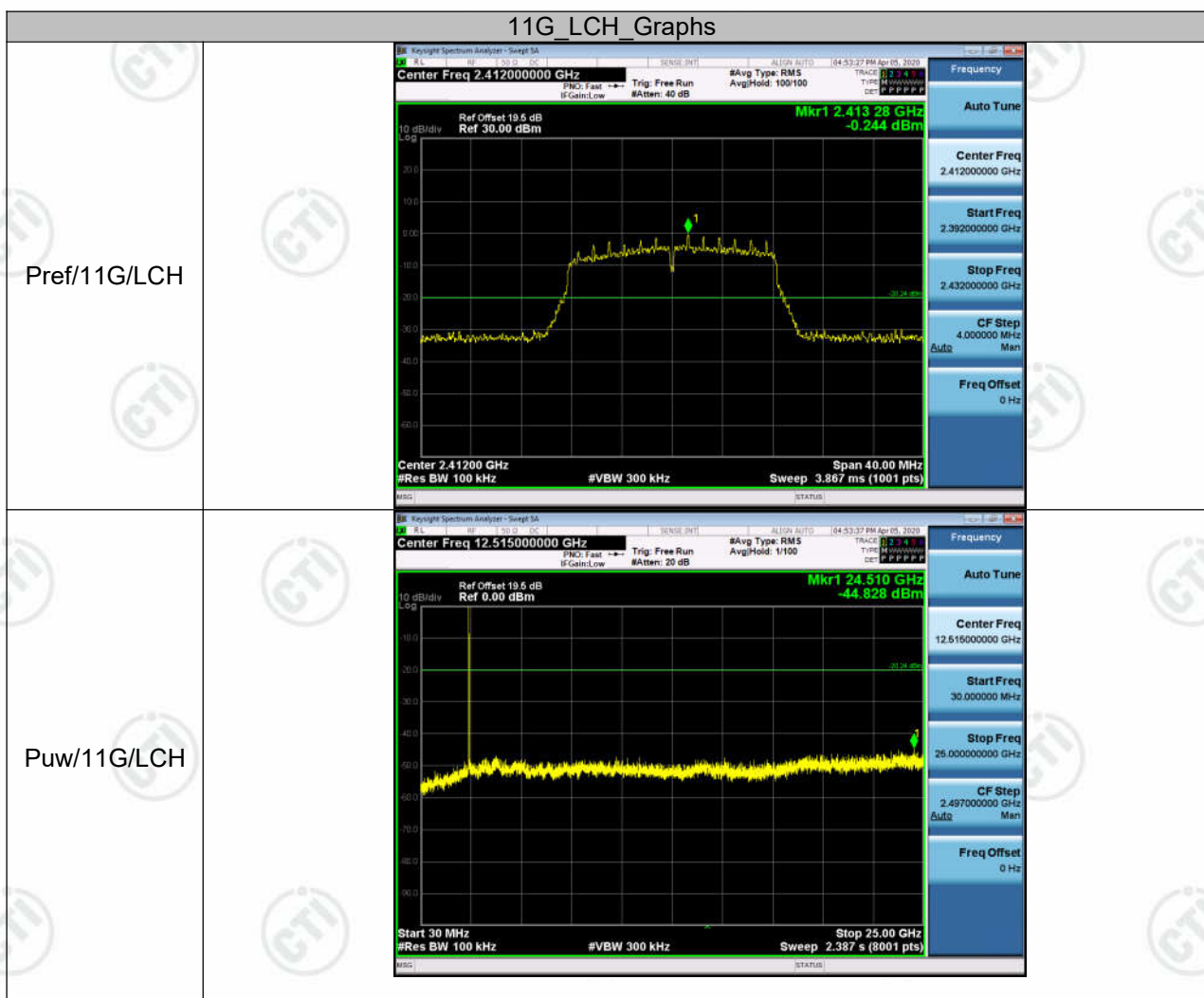
| Mode      | Channel | Pref [dBm] | Puw[dBm] | Verdict |
|-----------|---------|------------|----------|---------|
| 11B       | LCH     | 6.098      | <Limit   | PASS    |
| 11B       | MCH     | 6.664      | <Limit   | PASS    |
| 11B       | HCH     | 6.57       | <Limit   | PASS    |
| 11G       | LCH     | -0.244     | <Limit   | PASS    |
| 11G       | MCH     | -1.107     | <Limit   | PASS    |
| 11G       | HCH     | -0.451     | <Limit   | PASS    |
| 11N20SISO | LCH     | -2.554     | <Limit   | PASS    |
| 11N20SISO | MCH     | -3.155     | <Limit   | PASS    |
| 11N20SISO | HCH     | -2.003     | <Limit   | PASS    |
| 11N40SISO | LCH     | -6.015     | <Limit   | PASS    |
| 11N40SISO | MCH     | -5.498     | <Limit   | PASS    |
| 11N40SISO | HCH     | -5.683     | <Limit   | PASS    |

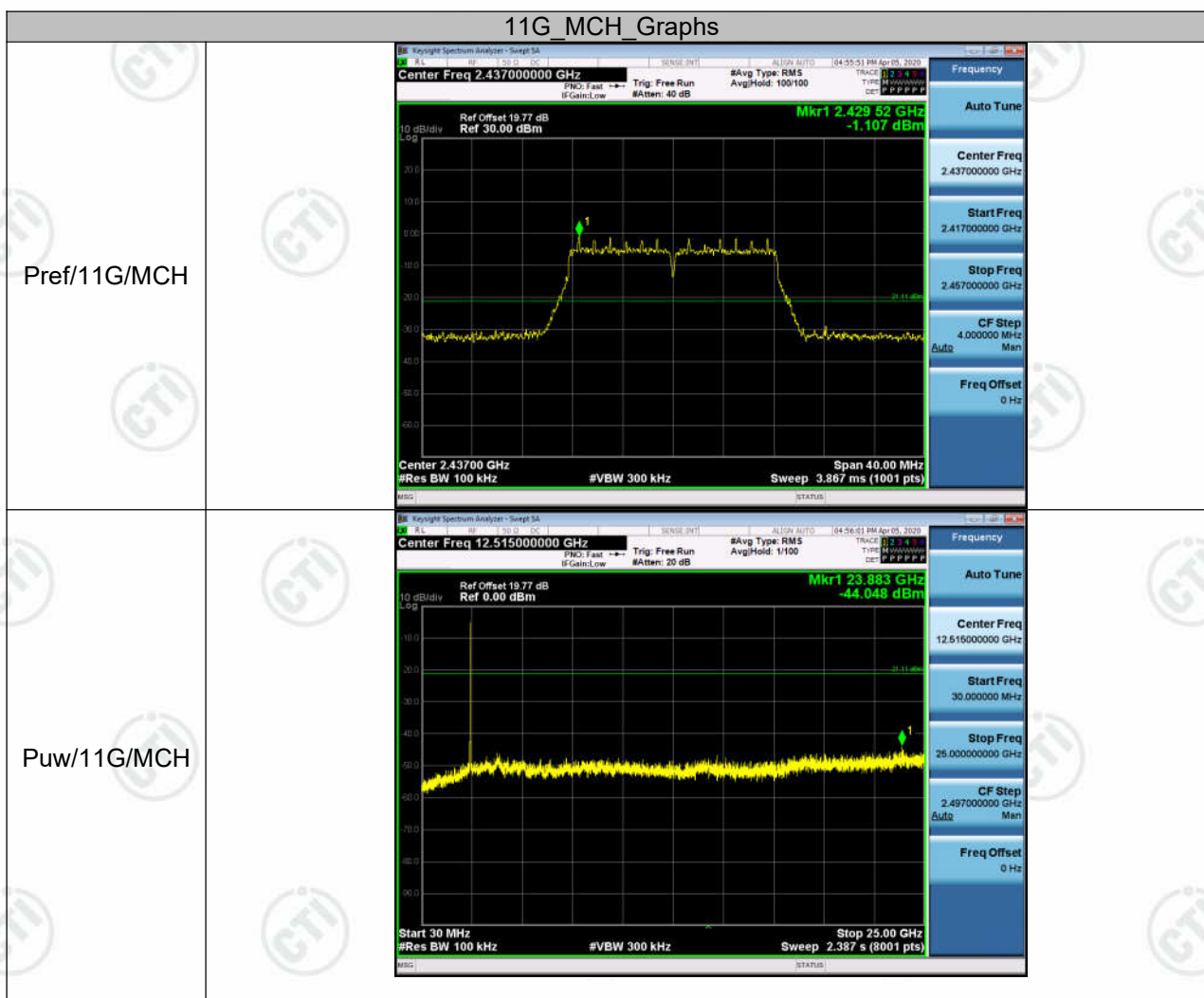
## Test Graph

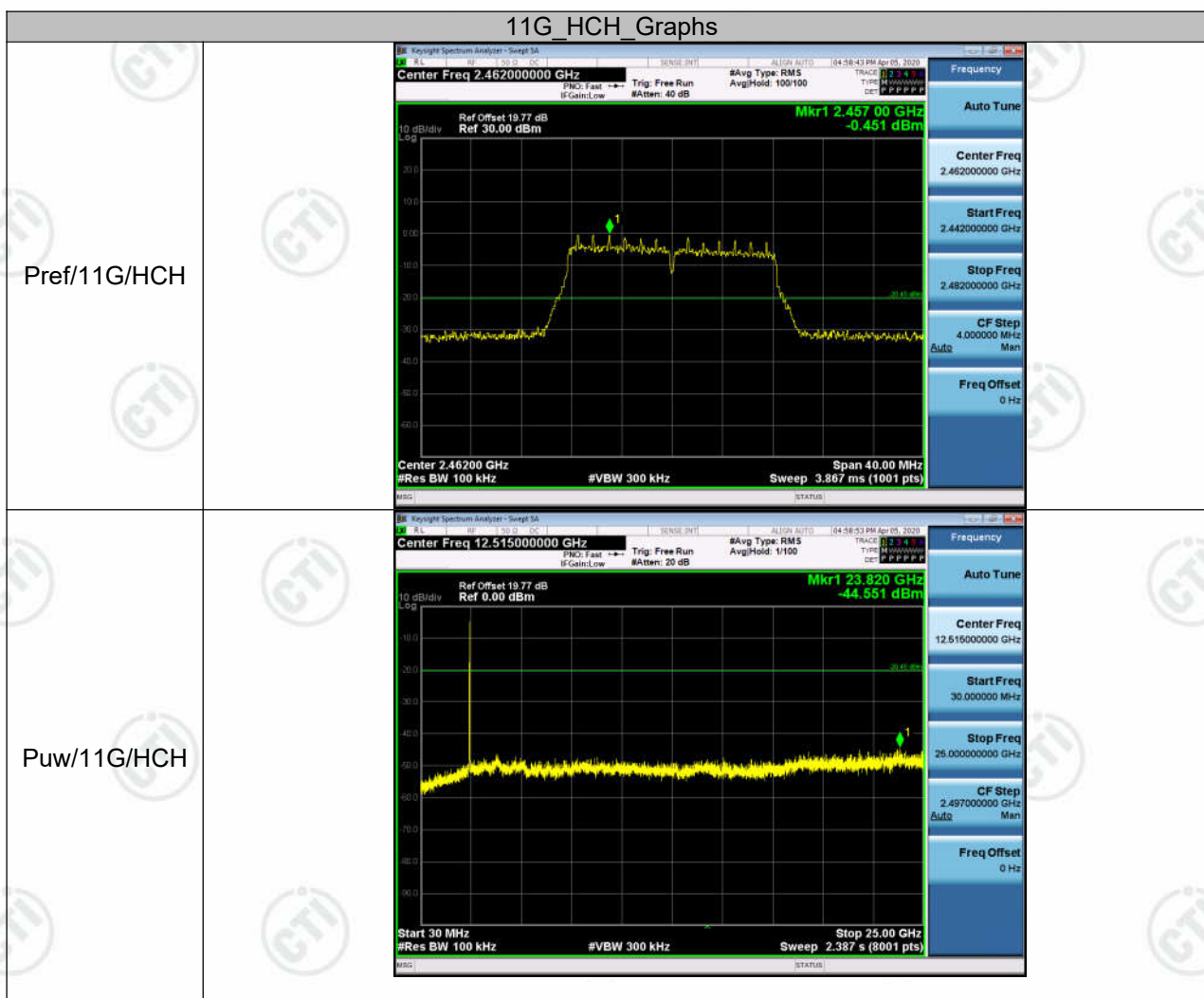


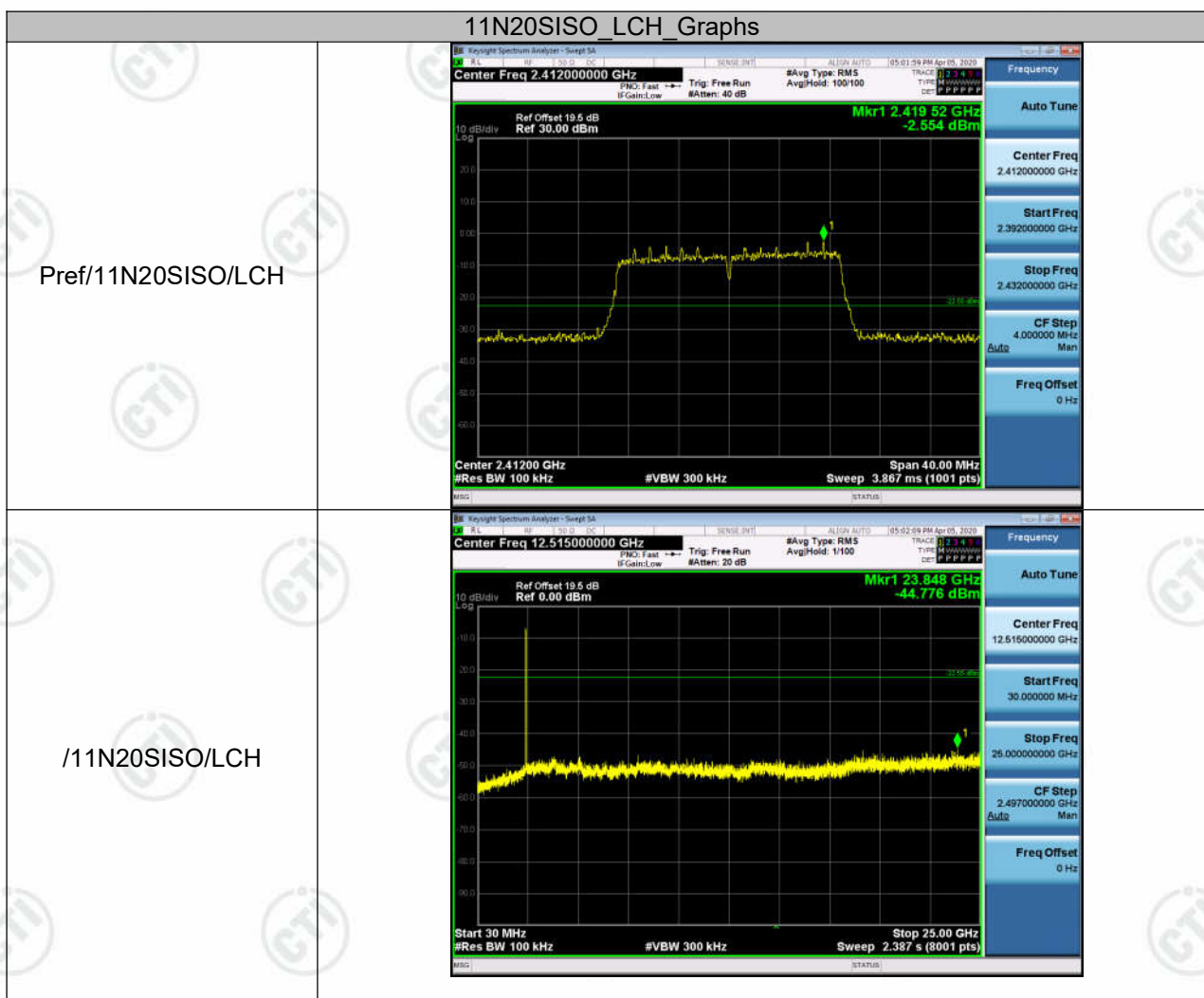


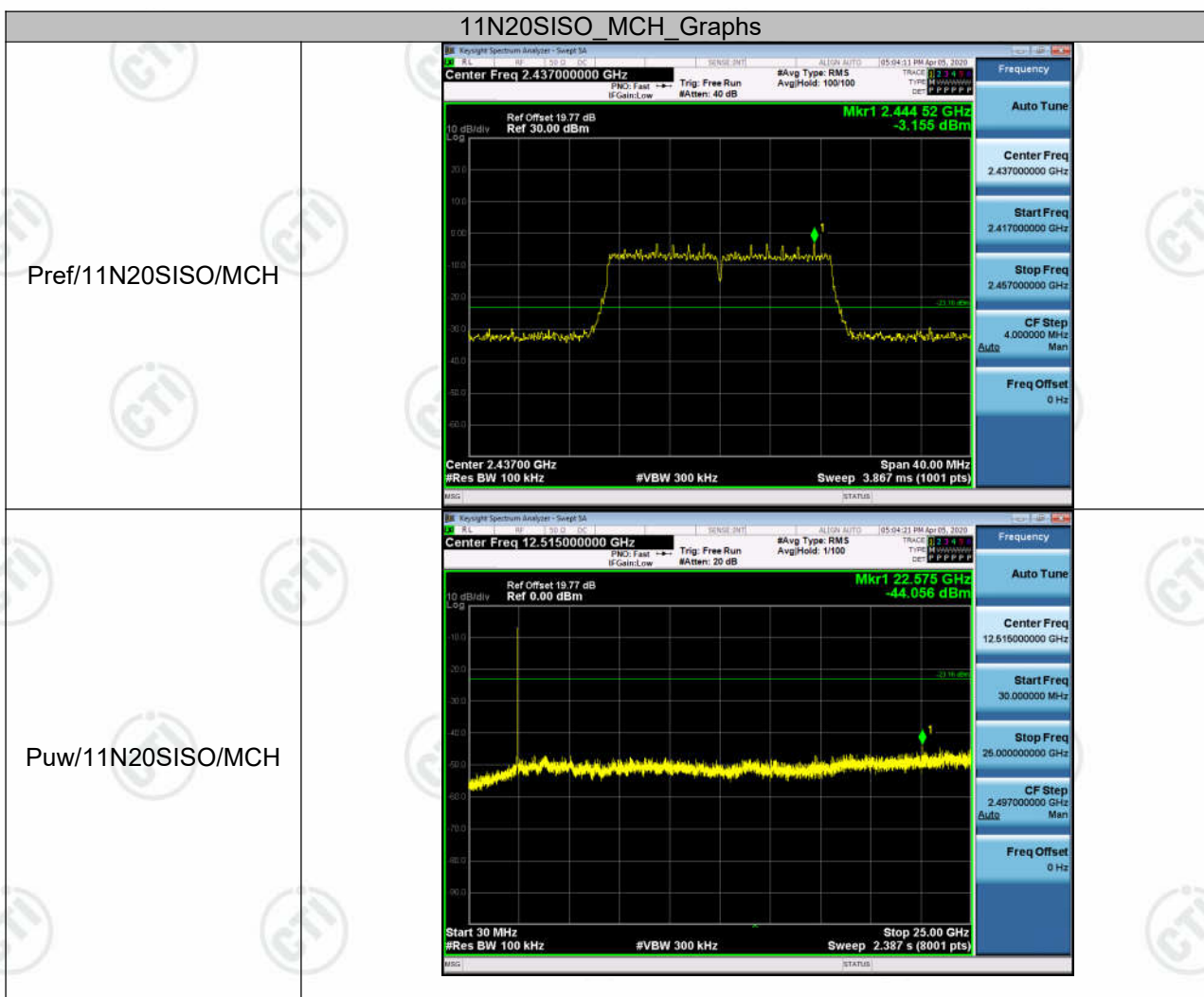


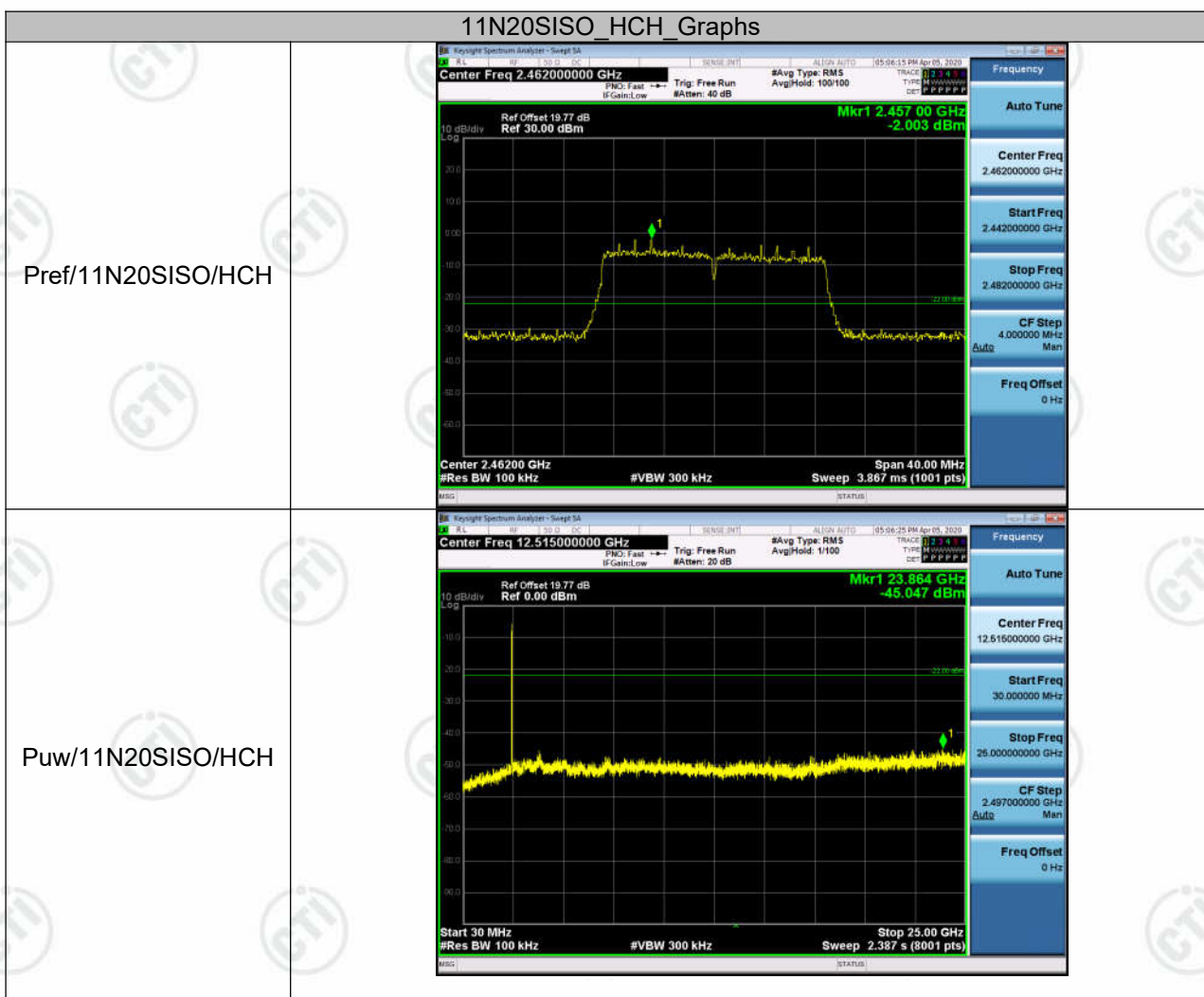


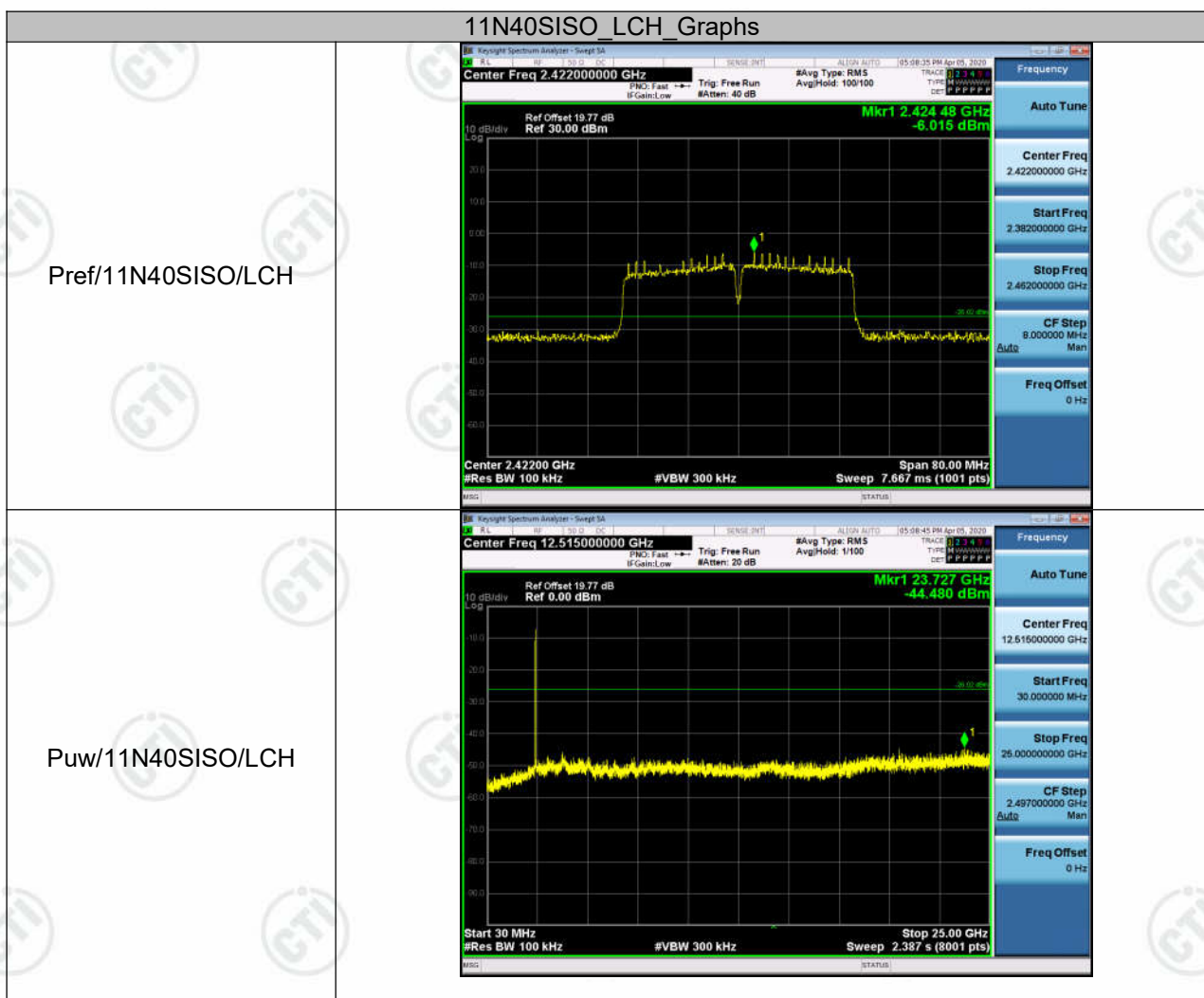


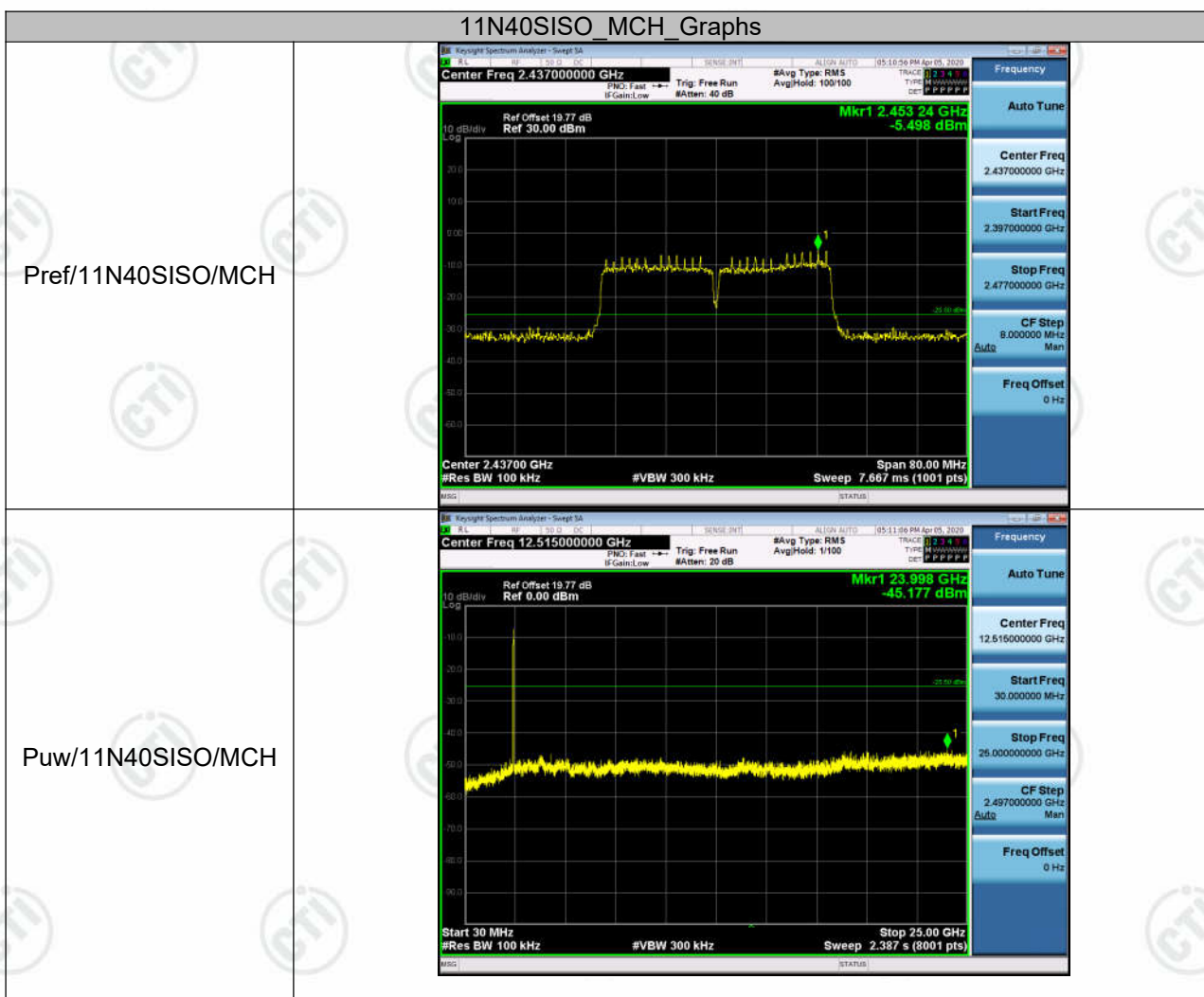


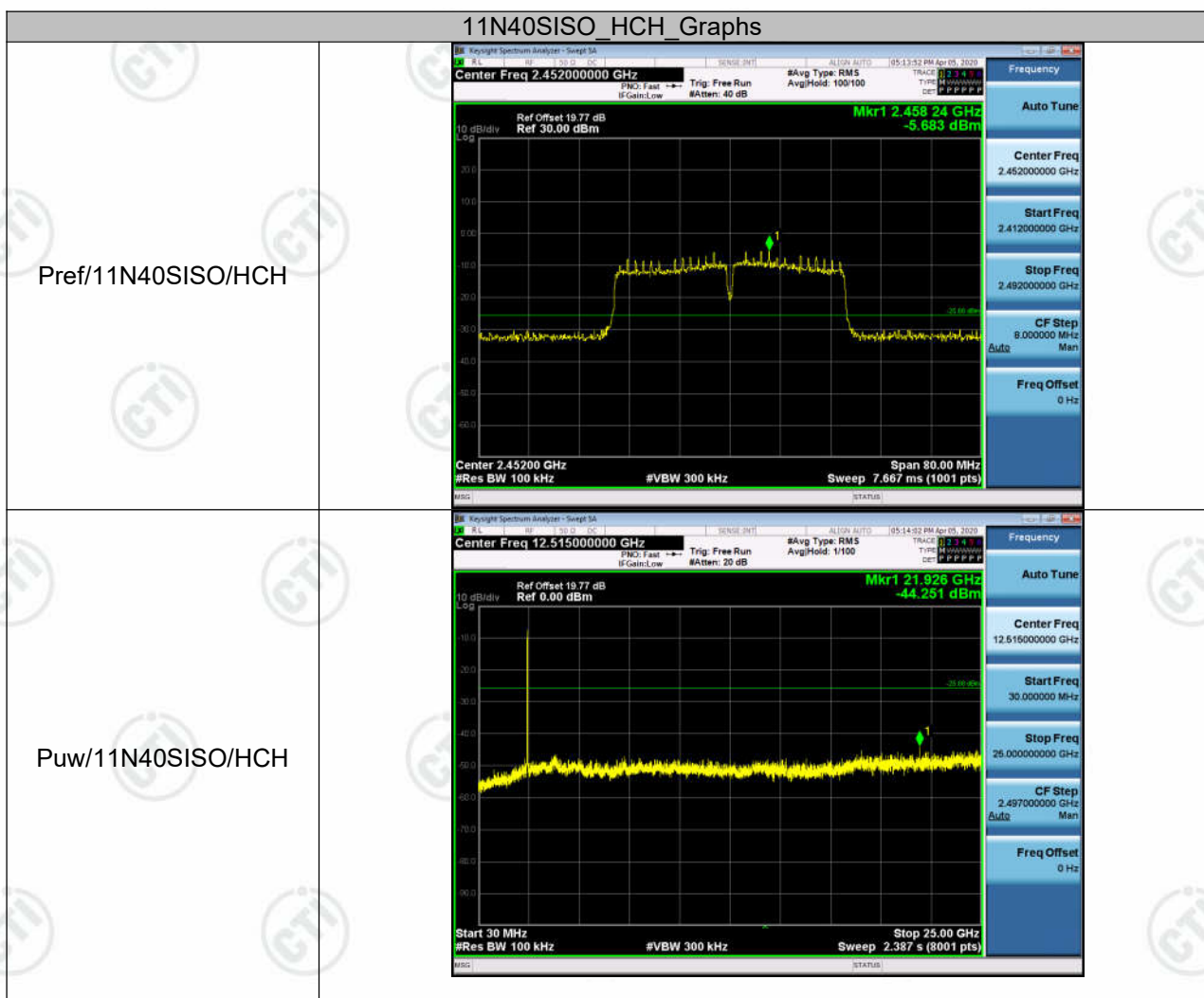












## Appendix E): Power Spectral Density

### Test Limit

According to §15.247(e),

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

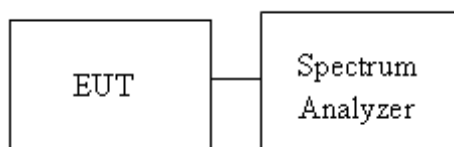
|       |                                                                                                                                                                                                                         |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Limit | <input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 8dBm<br><input type="checkbox"/> Antenna with DG greater than 6 dBi :<br>[ Limit = 8 – (DG – 6) ]<br><input type="checkbox"/> Point-to-point operation : |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Test Procedure

Test method Refer as KDB 558074 D01.

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 10kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss was compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

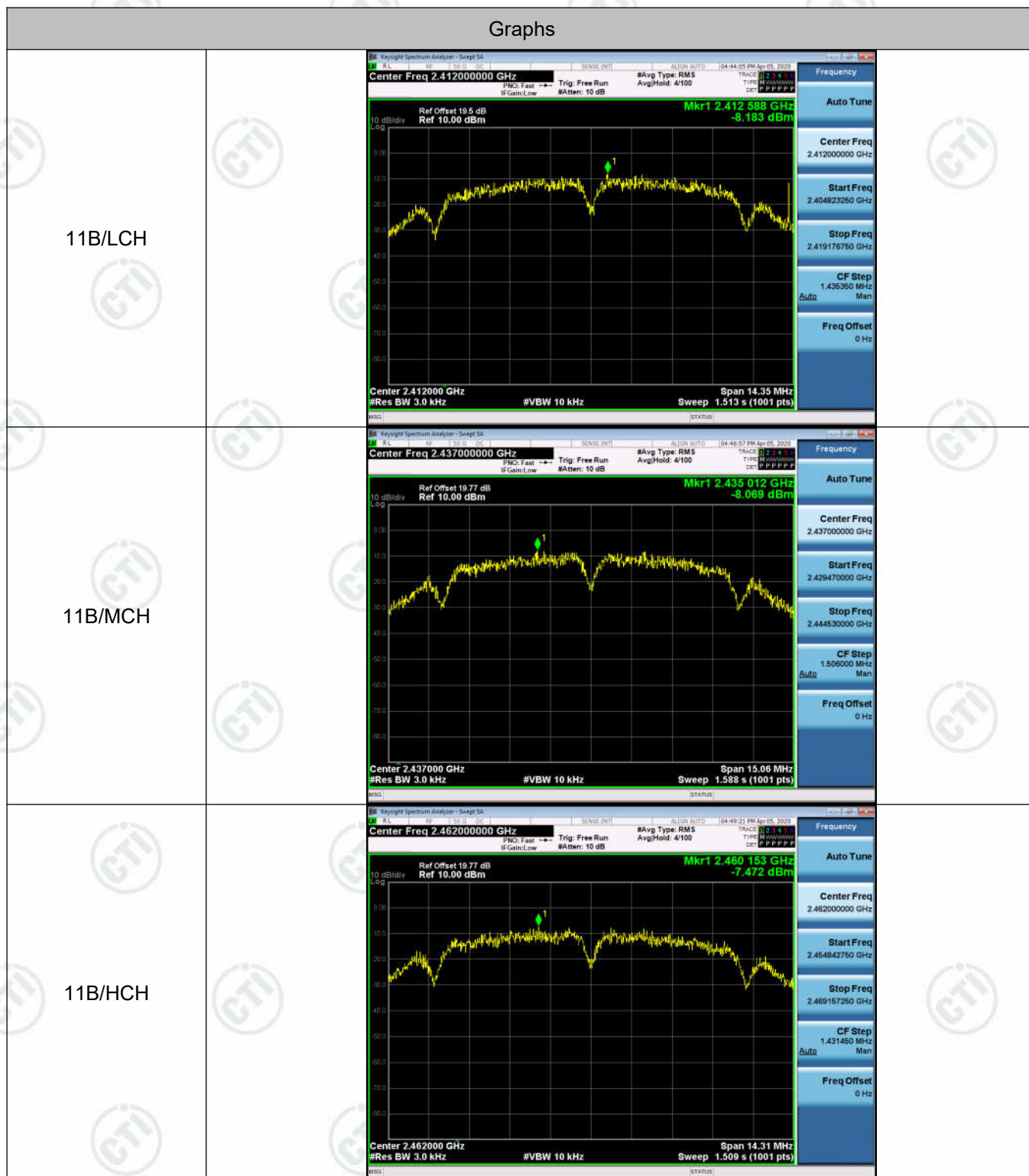
### Test Setup

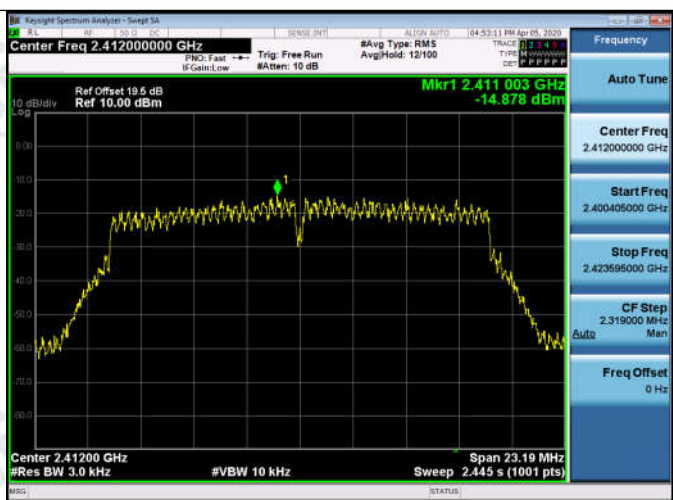
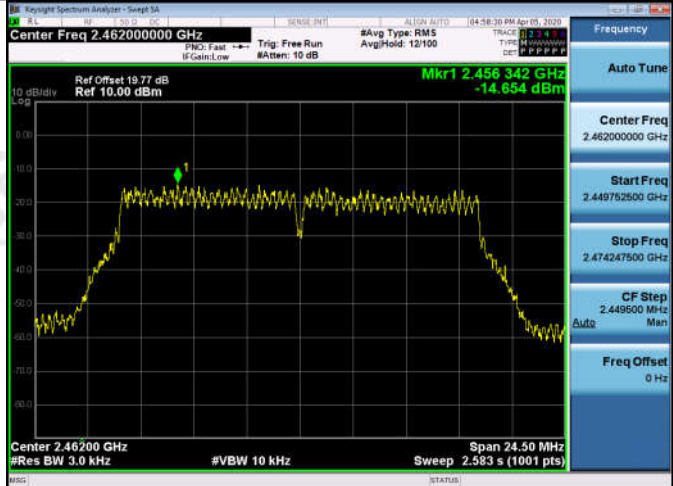


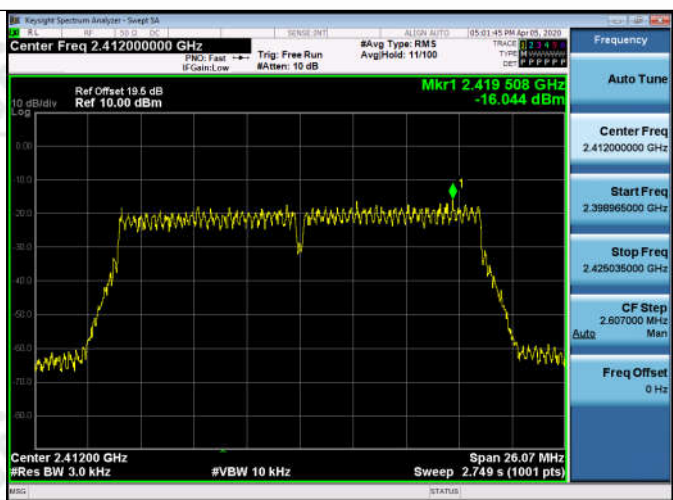
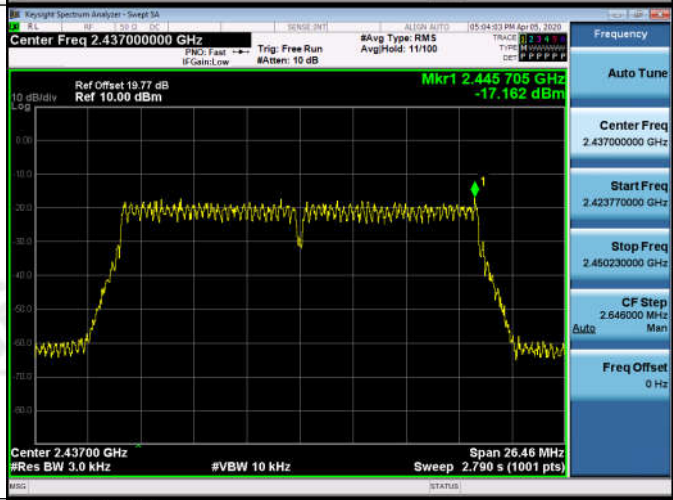
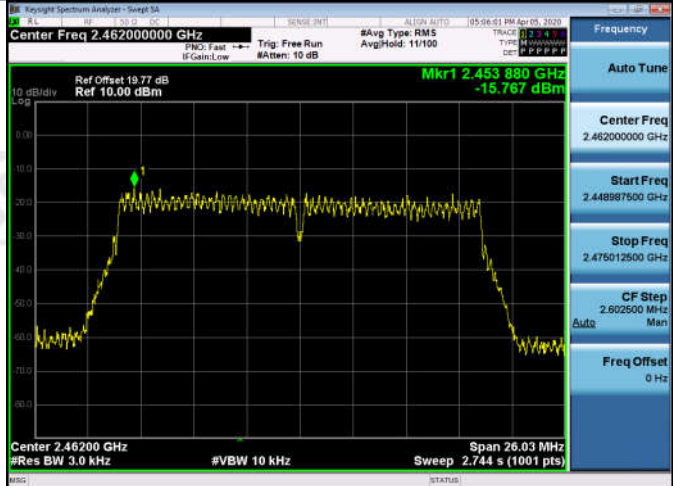
### Result Table

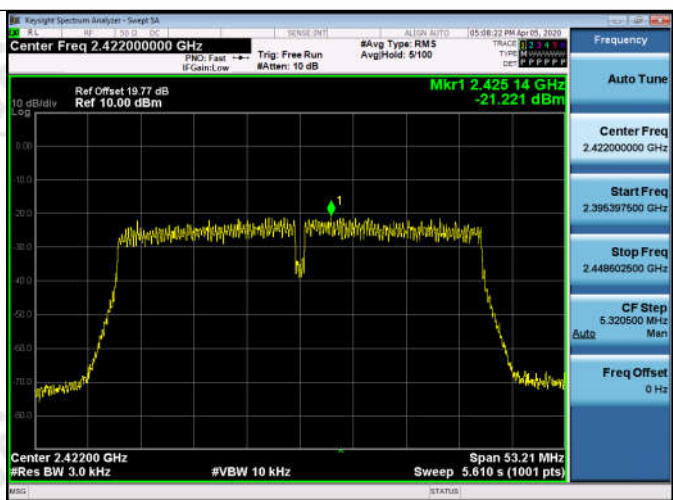
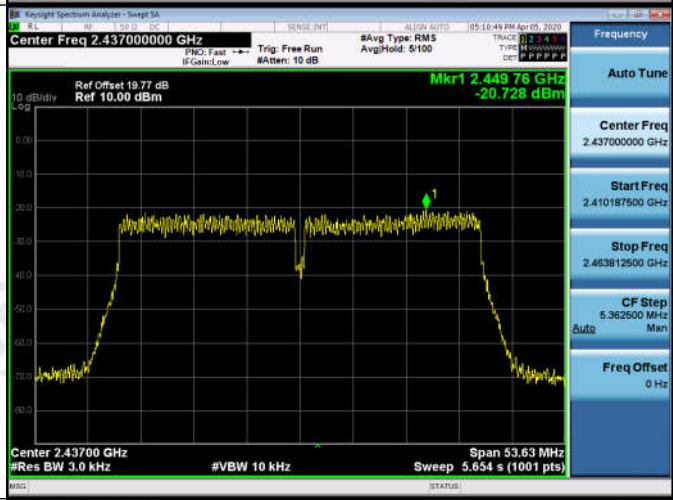
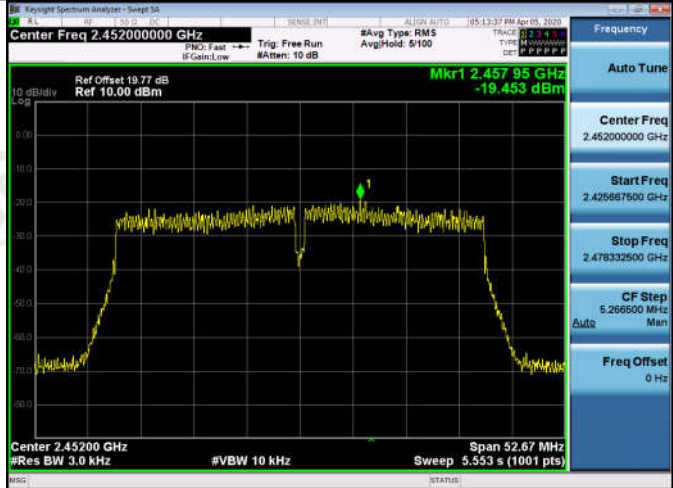
| Mode      | Channel | Power Spectral Density [dBm] | Verdict |
|-----------|---------|------------------------------|---------|
| 11B       | LCH     | -8.183                       | PASS    |
| 11B       | MCH     | -8.069                       | PASS    |
| 11B       | HCH     | -7.472                       | PASS    |
| 11G       | LCH     | -14.878                      | PASS    |
| 11G       | MCH     | -15.175                      | PASS    |
| 11G       | HCH     | -14.654                      | PASS    |
| 11N20SISO | LCH     | -16.044                      | PASS    |
| 11N20SISO | MCH     | -17.162                      | PASS    |
| 11N20SISO | HCH     | -15.767                      | PASS    |
| 11N40SISO | LCH     | -21.221                      | PASS    |
| 11N40SISO | MCH     | -20.728                      | PASS    |
| 11N40SISO | HCH     | -19.453                      | PASS    |

## Test Graph



|         |                                                                                      |
|---------|--------------------------------------------------------------------------------------|
| 11G/LCH |    |
| 11G/MCH |   |
| 11G/HCH |  |

|               |                                                                                      |
|---------------|--------------------------------------------------------------------------------------|
| 11N20SISO/LCH |    |
| 11N20SISO/MCH |   |
| 11N20SISO/HCH |  |

|               |                                                                                      |
|---------------|--------------------------------------------------------------------------------------|
| 11N40SISO/LCH |    |
| 11N40SISO/MCH |   |
| 11N40SISO/HCH |  |

## Appendix F): Antenna Requirement

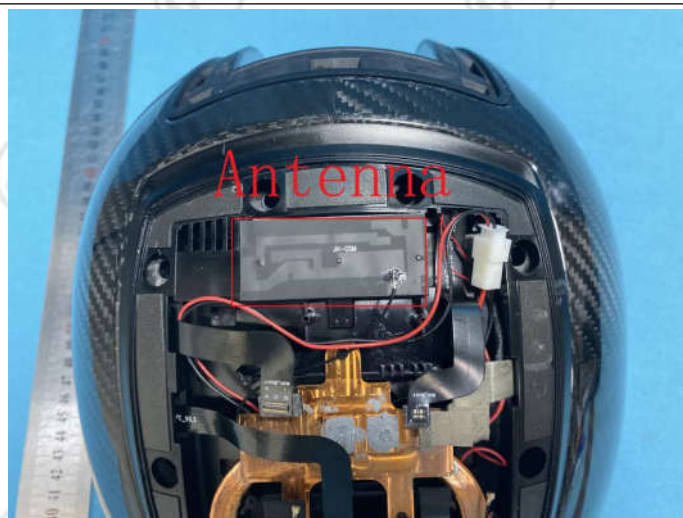
### 15.203 requirement:

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 permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### 15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### EUT Antenna:



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 3 dBi

## Appendix G): AC Power Line Conducted Emission

| Test Procedure:       | <p>Test frequency range :150KHz-30MHz</p> <ol style="list-style-type: none"> <li>1)The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a <math>50\Omega/50\mu\text{H} + 5\Omega</math> linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3)The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.</li> </ol> |           |                       |                    |  |            |         |          |           |           |       |    |    |      |    |    |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------|--------------------|--|------------|---------|----------|-----------|-----------|-------|----|----|------|----|----|
| Limit:                | <table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dB<math>\mu</math>V)</th></tr> <tr> <th>Quasi-peak</th><th>Average</th></tr> </thead> <tbody> <tr> <td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr> <tr> <td>0.5-5</td><td>56</td><td>46</td></tr> <tr> <td>5-30</td><td>60</td><td>50</td></tr> </tbody> </table> <p>* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.<br/>NOTE : The lower limit is applicable at the transition frequency</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           | Frequency range (MHz) | Limit (dB $\mu$ V) |  | Quasi-peak | Average | 0.15-0.5 | 66 to 56* | 56 to 46* | 0.5-5 | 56 | 46 | 5-30 | 60 | 50 |
| Frequency range (MHz) | Limit (dB $\mu$ V)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |           |                       |                    |  |            |         |          |           |           |       |    |    |      |    |    |
|                       | Quasi-peak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Average   |                       |                    |  |            |         |          |           |           |       |    |    |      |    |    |
| 0.15-0.5              | 66 to 56*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 56 to 46* |                       |                    |  |            |         |          |           |           |       |    |    |      |    |    |
| 0.5-5                 | 56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 46        |                       |                    |  |            |         |          |           |           |       |    |    |      |    |    |
| 5-30                  | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 50        |                       |                    |  |            |         |          |           |           |       |    |    |      |    |    |

### Measurement Data

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

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

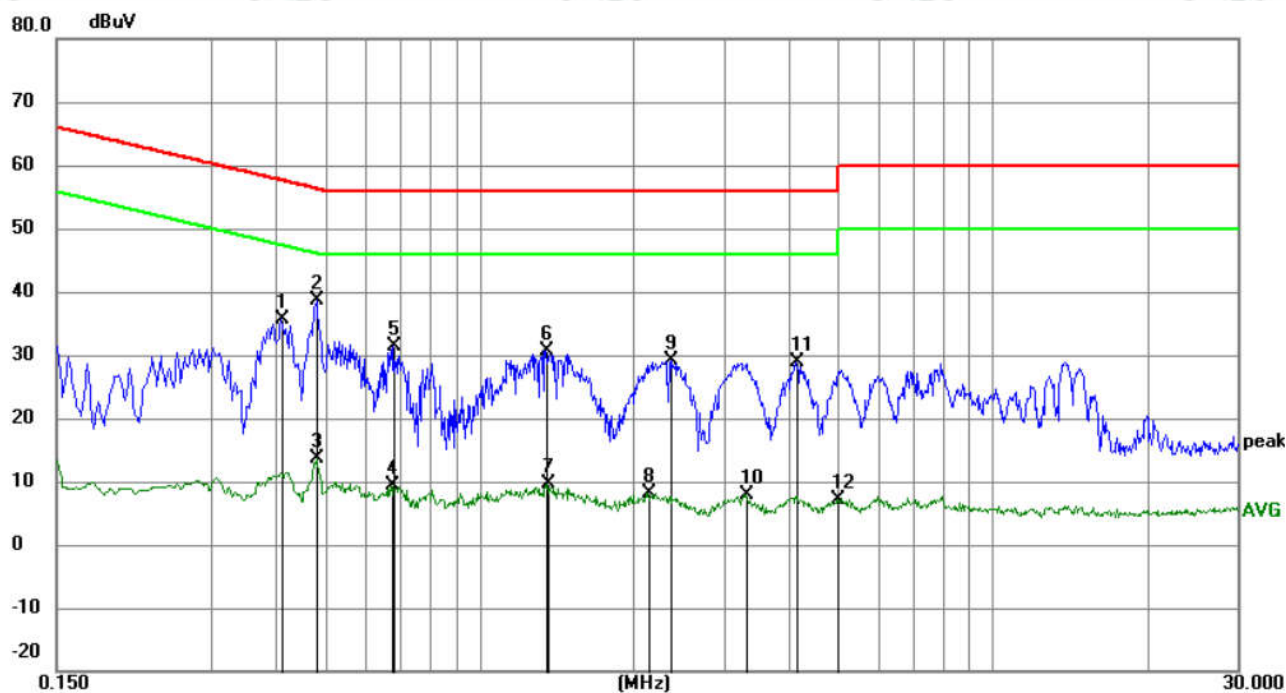
**Product** : Smart Helmet

**Model/Type reference** : KC-N901

**Temperature** : 23°C

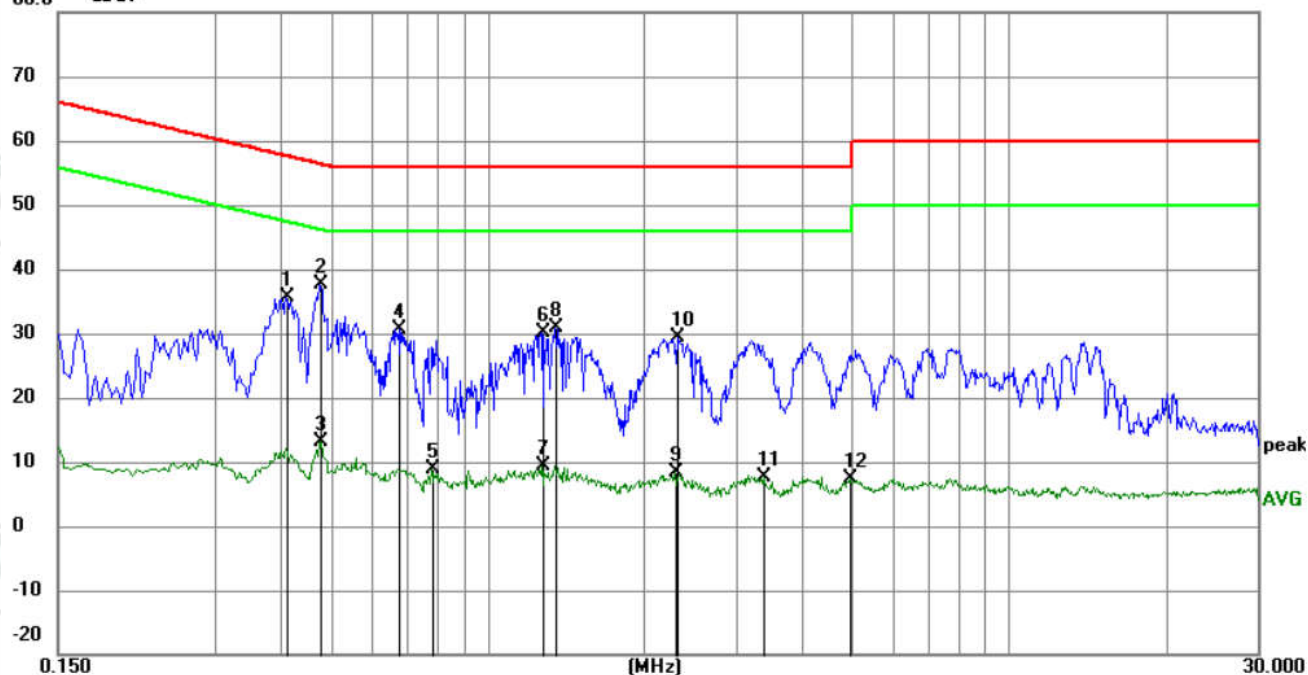
**Humidity** : 54%

Live line:



| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit | Margin | Detector | Comment |
|-----|-----|--------|---------------|----------------|-------------|-------|--------|----------|---------|
|     |     | MHz    | dBuV          | dB             | dBuV        | dBuV  | dB     |          |         |
| 1   |     | 0.4110 | 25.69         | 10.00          | 35.69       | 57.63 | -21.94 | QP       |         |
| 2   | *   | 0.4830 | 28.72         | 10.00          | 38.72       | 56.29 | -17.57 | QP       |         |
| 3   |     | 0.4830 | 3.52          | 10.00          | 13.52       | 46.29 | -32.77 | AVG      |         |
| 4   |     | 0.6720 | -0.50         | 9.77           | 9.27        | 46.00 | -36.73 | AVG      |         |
| 5   |     | 0.6809 | 21.58         | 9.73           | 31.31       | 56.00 | -24.69 | QP       |         |
| 6   |     | 1.3515 | 20.76         | 9.88           | 30.64       | 56.00 | -25.36 | QP       |         |
| 7   |     | 1.3560 | -0.31         | 9.88           | 9.57        | 46.00 | -36.43 | AVG      |         |
| 8   |     | 2.1390 | -1.64         | 9.83           | 8.19        | 46.00 | -37.81 | AVG      |         |
| 9   |     | 2.3640 | 19.32         | 9.83           | 29.15       | 56.00 | -26.85 | QP       |         |
| 10  |     | 3.2955 | -1.87         | 9.83           | 7.96        | 46.00 | -38.04 | AVG      |         |
| 11  |     | 4.1415 | 19.13         | 9.83           | 28.96       | 56.00 | -27.04 | QP       |         |
| 12  |     | 4.9785 | -2.75         | 9.83           | 7.08        | 46.00 | -38.92 | AVG      |         |

Neutral line:  
80.0 dBuV



| No. Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Margin<br>dB | Detector | Comment |
|---------|--------------|--------------------------|-------------------------|--------------------------|---------------|--------------|----------|---------|
| 1       | 0.4110       | 25.71                    | 10.00                   | 35.71                    | 57.63         | -21.92       | QP       |         |
| 2 *     | 0.4785       | 27.55                    | 10.00                   | 37.55                    | 56.37         | -18.82       | QP       |         |
| 3       | 0.4785       | 3.22                     | 10.00                   | 13.22                    | 46.37         | -33.15       | AVG      |         |
| 4       | 0.6765       | 20.79                    | 9.75                    | 30.54                    | 56.00         | -25.46       | QP       |         |
| 5       | 0.7799       | -0.88                    | 9.86                    | 8.98                     | 46.00         | -37.02       | AVG      |         |
| 6       | 1.2750       | 20.34                    | 9.89                    | 30.23                    | 56.00         | -25.77       | QP       |         |
| 7       | 1.2750       | -0.50                    | 9.89                    | 9.39                     | 46.00         | -36.61       | AVG      |         |
| 8       | 1.3515       | 21.11                    | 9.88                    | 30.99                    | 56.00         | -25.01       | QP       |         |
| 9       | 2.2920       | -1.54                    | 9.83                    | 8.29                     | 46.00         | -37.71       | AVG      |         |
| 10      | 2.3190       | 19.46                    | 9.83                    | 29.29                    | 56.00         | -26.71       | QP       |         |
| 11      | 3.3855       | -2.08                    | 9.83                    | 7.75                     | 46.00         | -38.25       | AVG      |         |
| 12      | 4.9740       | -2.40                    | 9.83                    | 7.43                     | 46.00         | -38.57       | AVG      |         |

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

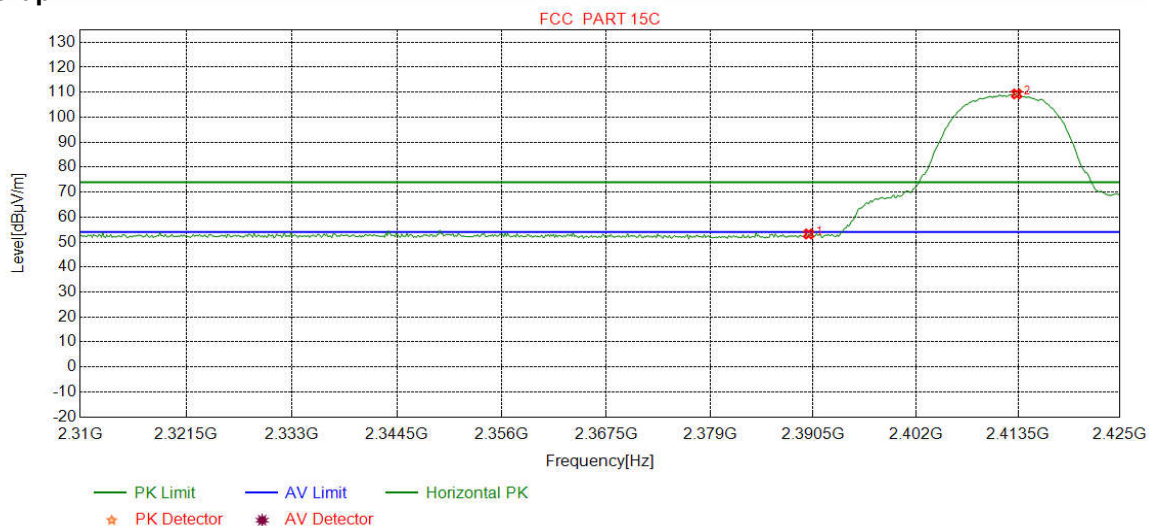
## Appendix H): Restricted bands around fundamental frequency (Radiated)

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |        |                  |            |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------|------------------|------------|
| Receiver Setup: | Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Detector           | RBW    | VBW              | Remark     |
|                 | 30MHz-1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Quasi-peak         | 120kHz | 300kHz           | Quasi-peak |
|                 | Above 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Peak               | 1MHz   | 3MHz             | Peak       |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Peak               | 1MHz   | 10Hz             | Average    |
| Test Procedure: | <p><b>Below 1GHz test procedure as below:</b></p> <ol style="list-style-type: none"> <li>The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel</li> </ol> <p><b>Above 1GHz test procedure as below:</b></p> <ol style="list-style-type: none"> <li>Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber change form table 0.8 meter to 1.5 meter( Above 18GHz the distance is 1 meter and table is 1.5 meter).</li> <li>Test the EUT in the lowest channel , the Highest channel</li> <li>The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.</li> <li>Repeat above procedures until all frequencies measured was complete.</li> </ol> |                    |        |                  |            |
| Limit:          | Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Limit (dBμV/m @3m) |        | Remark           |            |
|                 | 30MHz-88MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 40.0               |        | Quasi-peak Value |            |
|                 | 88MHz-216MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 43.5               |        | Quasi-peak Value |            |
|                 | 216MHz-960MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 46.0               |        | Quasi-peak Value |            |
|                 | 960MHz-1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 54.0               |        | Quasi-peak Value |            |
|                 | Above 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 54.0               |        | Average Value    |            |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 74.0               |        | Peak Value       |            |

**Test plot as follows:**

|         |                              |          |      |
|---------|------------------------------|----------|------|
| Mode:   | 802.11 b(1Mbps) Transmitting | Channel: | 2412 |
| Remark: | PK                           |          |      |

**Test Graph**



| NO | Freq. [MHz] | Ant Factor [dB] | Cable loss [dB] | Pream gain [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity   |
|----|-------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|-------------|--------|------------|
| 1  | 2390.0000   | 32.25           | 13.37           | -43.12          | 50.73          | 53.23          | 74.00          | 20.77       | Pass   | Horizontal |
| 2  | 2413.3417   | 32.28           | 13.36           | -43.12          | 106.78         | 109.30         | 74.00          | -35.30      | Pass   | Horizontal |