



## KSIGN (Guangdong) Testing Co., Ltd.

West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park,  
Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, People's Republic of China  
Tel.: + (86)755-29852678 Fax: + (86)755-29852397 E-mail: info@gdksign.cn Website: www.gdksign.com

# TEST REPORT

**Report No.** .....: **KS2008S00857E**

**FCC ID**.....: **2AT9W-YS600**

**Applicant**.....: **SHENZHEN CLOBOT INTELLIGENT TECHNOLOGY CO., LTD.**

**Address**.....: Area A&B, 7/F, Building 1, SZTZ Industrial Park, No.3 Tongguan Road,  
Yutang Street, Guangming New District, Shenzhen, China

**Manufacturer**.....: **SHENZHEN CLOBOT INTELLIGENT TECHNOLOGY CO., LTD.**

**Address**.....: Area A&B, 7/F, Building 1, SZTZ Industrial Park, No.3 Tongguan Road,  
Yutang Street, Guangming New District, Shenzhen, China

**Product Name**.....: **Robotic Vacuum Cleaner**

**Trade Mark**.....: /

**Model/Type reference**.....: YS-600

**Listed Model(s)**.....: YS-610, YS-620, YS-630, YS-640, YS-650, YS-660, YS-670, YS-680,  
YS-690

**Standard**.....: **FCC CFR Title 47 Part 15 Subpart C Section 15.247**

**Date of receipt of test sample**....: Aug 21, 2020

**Date of testing**.....: Aug 21, 2020-Sep. 15, 2020

**Date of issue**.....: Sep. 15, 2020

**Result**.....: **PASS**

Compiled by:  
(Printed name+signature) Rory Huang

Supervised by:  
(Printed name+signature) Kelly Cheng

Approved by:  
(Printed name+signature) Cary Luo



**Testing Laboratory Name**.....: **KSIGN(Guangdong) Testing Co., Ltd.**

**Address**.....: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu  
Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen,  
Guangdong, People's Republic of China

This test report may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by K SIGN. The test results in the report only apply to the tested sample. The test report shall be invalid without all the signatures of testing engineers, reviewer and approver. Any objections must be raised to K SIGN within 15 days since the date when the report is received. It will not be taken into consideration beyond this limit. The test report merely corresponds to the test sample.



## TABLE OF CONTENTS

## Page

|  |           |
|--|-----------|
| <b>1. TEST SUMMARY .....</b>                           | <b>3</b>  |
| 1.1. TEST STANDARDS .....                              | 3         |
| 1.2. REPORT VERSION .....                              | 3         |
| 1.3. TEST DESCRIPTION .....                            | 4         |
| 1.4. TEST FACILITY .....                               | 5         |
| 1.5. MEASUREMENT UNCERTAINTY .....                     | 6         |
| 1.6. ENVIRONMENTAL CONDITIONS .....                    | 6         |
| <b>2. GENERAL INFORMATION .....</b>                    | <b>7</b>  |
| 2.1. CLIENT INFORMATION .....                          | 7         |
| 2.2. GENERAL DESCRIPTION OF EUT .....                  | 7         |
| 2.3. OPERATION STATE .....                             | 8         |
| 2.4. MEASUREMENT INSTRUMENTS LIST .....                | 9         |
| 2.5. TEST SOFTWARE .....                               | 10        |
| <b>3. TEST ITEM AND RESULTS .....</b>                  | <b>11</b> |
| 3.1. ANTENNA REQUIREMENT .....                         | 11        |
| 3.2. CONDUCTED EMISSION .....                          | 12        |
| 3.3. BANDWIDTH .....                                   | 15        |
| 3.4. PEAK OUTPUT POWER .....                           | 32        |
| 3.5. POWER SPECTRAL DENSITY .....                      | 34        |
| 3.6. BAND EDGE AND SPURIOUS EMISSION (CONDUCTED) ..... | 43        |
| 3.7. BAND EDGE EMISSIONS(RADIATED) .....               | 52        |
| 3.8. SPURIOUS EMISSION (RADIATED) .....                | 57        |
| <b>4. EUT TEST PHOTOS .....</b>                        | <b>68</b> |
| <b>5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL .....</b>      | <b>70</b> |



## 1. TEST SUMMARY

### 1.1. Test Standards

The tests were performed according to following standards:

**FCC Rules Part 15.247:** Operation within the bands of 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.

**ANSI C63.10-2013:** American National Standard for Testing Unlicensed Wireless Devices.

### 1.2. Report version

| Revised No. | Date of issue | Description |
|-------------|---------------|-------------|
| 01          | Sep. 15, 2020 | Original    |



### 1.3. Test Description

| FCC Part 15 Subpart C(15.247)              |                  |        |               |
|--|------------------|--------|---------------|
| Test Item                                  | Standard Section | Result | Test Engineer |
|  | FCC              |        |               |
| Antenna Requirement                        | 15.203           | Pass   | Rory Huang    |
| Conducted Emission                         | 15.207           | Pass   | Rory Huang    |
| 6dB&99% Bandwidth                          | 15.247(a)(2)     | Pass   | Rory Huang    |
| Peak Output Power                          | 15.247(b)        | Pass   | Rory Huang    |
| Power Spectral Density                     | 15.247(e)        | Pass   | Rory Huang    |
| Restricted Band                            | 15.247(d)/15.205 | Pass   | Rory Huang    |
| Band Edge and Spurious Emission(Conducted) | 15.247(d)        | Pass   | Rory Huang    |
| Spurious Emission(Radiated)                | 15.247(d)&15.209 | Pass   | Rory Huang    |

Note: The measurement uncertainty is not included in the test result.



## 1.4. Test Facility

### Address of the report laboratory

#### **KSIGN(Guangdong) Testing Co., Ltd.**

West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, People's Republic of China

### Laboratory accreditation

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

#### **CNAS-Lab Code: L13261**

KSIGN(Guangdong) Testing Co., Ltd. has been assessed and proved to be in Compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

#### **A2LA-Lab Cert. No.: 5457.01**

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

#### **IC Registration No.: CN0096**

The 3m alternate test site of KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: CN0096

#### **FCC-Registration No.: CN1272**

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.



## 1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the KSIGN(Guangdong) Testing Co., Ltd. system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device. Below is the best measurement capability for KSIGN(Guangdong) Testing Co., Ltd.

| Test Items                              | Measurement Uncertainty | Notes |
|---|-------------------------|-------|
| Transmitter power conducted             | 0.42 dB                 | (1)   |
| Transmitter power Radiated              | 2.14 dB                 | (1)   |
| Conducted spurious emissions 9kHz~40GHz | 1.60 dB                 | (1)   |
| Radiated spurious emissions 9kHz~40GHz  | 2.20 dB                 | (1)   |
| Conducted Emissions 9kHz~30MHz          | 3.20 dB                 | (1)   |
| Radiated Emissions 30~1000MHz           | 4.70 dB                 | (1)   |
| Radiated Emissions 1~18GHz              | 5.00 dB                 | (1)   |
| Radiated Emissions 18~40GHz             | 5.54 dB                 | (1)   |
| Occupied Bandwidth                      | 2.80 dB                 | (1)   |

**Note (1):** This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

## 1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

|                    |             |
|--------------------|-------------|
| Temperature:       | 15~35°C     |
| Relative Humidity: | 30~60 %     |
| Air Pressure:      | 950~1050mba |



## 2. GENERAL INFORMATION

### 2.1. Client Information

|               |   |
|---------------|---|
| Applicant:    | SHENZHEN CLOBOT INTELLIGENT TECHNOLOGY CO., LTD.  |
| Address:      | Area A&B, 7/F, Building 1, SZTZ Industrial Park, No.3 Tongguan Road, Yutang Street, Guangming New District, Shenzhen, China |
| Manufacturer: | SHENZHEN CLOBOT INTELLIGENT TECHNOLOGY CO., LTD.  |
| Address:      | Area A&B, 7/F, Building 1, SZTZ Industrial Park, No.3 Tongguan Road, Yutang Street, Guangming New District, Shenzhen, China |

### 2.2. General Description of EUT

|                        |   |
|------------------------|---|
| Product Name:          | Robotic Vacuum Cleaner  |
| Trade Mark:            | /   |
| Model/Type reference:  | YS-600  |
| Listed Model(s):       | YS-610,YS-620,YS-630,YS-640,YS-650,YS-660,YS-670,YS-680,YS-690  |
| Model Different:       | The difference between product models only depends on the model naming and appearance color are different for the marketing requirement. Other power supply methods, interior structure, electrical circuits and key components are the same, which do not affect the safety and electromagnetic compatibility performance. |
| Power supply:          | MODEL:CZH015190060USWH<br>INPUT:100-240V~50/60Hz 0.5A Max<br>OUTPUT:19.0V===0.6A 11.4W  |
| Power supply(Battery): | DC 11.1V 2600mAh  |
| Hardware version:      | MT-6S REV2.0_20200522   |
| Software version:      | V1.1.1  |
| <b>WIFI</b>            |   |
| Modulation:            | 802.11b: DSSS(CCK, DQPSK, DBPSK)<br>802.11g/n: OFDM(BPSK,QPSK,16QAM,64QAM)  |
| Operation frequency:   | 802.11b/g/n(HT20): 2412MHz~2462MHz<br>802.11n(HT40): 2422MHz~2452MHz  |
| Max Peak Output Power: | 802.11b: 11.29dBm<br>802.11g: 9.24dBm<br>802.11n (HT20): 8.68dBm<br>802.11n (HT40): 7.96dBm   |
| Channel number:        | 802.11b/g/n(HT20):11 channels<br>802.11n(HT40):7 channels   |
| Test frequency:        | CH01/03: 2412MHz/2422MHz; CH06: 2437MHz; CH09/11: 2452MHz/2462MHz   |
| Channel separation:    | 5MHz  |
| Antenna type:          | PCB antenna   |
| Antenna gain:          | 2.5dBi  |



## 2.3. Operation state

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency List:

| Channel | Frequency (MHz) |
|---------|-----------------|
| 01      | 2412            |
| 02      | 2417            |
| 03      | 2422            |
| 04      | 2427            |
| 05      | 2432            |
| 06      | 2437            |
| 07      | 2442            |
| 08      | 2447            |
| 09      | 2452            |
| 10      | 2457            |
| 11      | 2462            |

Note: 1.CH 01~CH 11 for 802.11b/g/n(HT20/HT40), CH03~CH09 for 802.11n(HT40).

2.The display in grey were the channel selected for testing.

### Test mode

|  |
|--|
| For RF test items  |
| The engineering test program was provided and enabled to make EUT continuous transmit (duty cycle>98%).  |
| For AC power line conducted emissions:   |
| The EUT was set to connect with the WLAN AP under large package sizes transmission.  |
| For Radiated spurious emissions test item:   |
| The engineering test program was provided and enabled to make EUT continuous transmit(duty cycle>98%). The EUT in each of three orthogonal axis emissions had been tested ,but only the worst case (X axis) data Recorded in the report. |



## 2.4. Measurement Instruments List

| Tonscend JS0806-2 Test system |                                     |              |           |            |            |
|-------------------------------|-------------------------------------|--------------|-----------|------------|------------|
| Item                          | Test Equipment                      | Manufacturer | Model No. | Serial No. | Cal. Until |
| 1                             | Spectrum Analyzer                   | R&S          | FSV40-N   | 101798     | 04/07/2021 |
| 2                             | Vector Signal Generator             | Agilent      | N5182A    | MY50142520 | 04/07/2021 |
| 3                             | Analog Signal Generator             | HP           | 83752A    | 3344A00337 | 04/07/2021 |
| 4                             | Power Sensor                        | Agilent      | E9304A    | MY50390009 | 04/07/2021 |
| 5                             | Power Sensor                        | Agilent      | E9300A    | MY41498315 | 04/07/2021 |
| 6                             | Wideband Radio Communication Tester | R&S          | CMW500    | 157282     | 04/07/2021 |
| 7                             | Climate Chamber                     | Angul        | AGNH80L   | 1903042120 | 04/07/2021 |
| 8                             | Dual Output DC Power Supply         | Agilent      | E3646A    | MY40009992 | 04/07/2021 |
| 9                             | RF Control Unit                     | Tonscend     | JS0806-2  | /          | 04/07/2021 |

| Transmitter spurious emissions & Receiver spurious emissions |  |                     |              |            |            |
|--|--|---------------------|--------------|------------|------------|
| Item   | Test Equipment                             | Manufacturer        | Model No.    | Serial No. | Cal. Until |
| 1  | EMI Test Receiver                          | R&S                 | ESR          | 102525     | 04/07/2021 |
| 2  | High Pass Filter                           | Chengdu E-Microwave | OHF-3-18-S   | 0E01901038 | 03/27/2021 |
| 3  | High Pass Filter                           | Chengdu E-Microwave | OHF-6.5-18-S | 0E01901039 | 03/27/2021 |
| 4  | Spectrum Analyzer                          | HP                  | 8593E        | 3831U02087 | 04/07/2021 |
| 5  | Ultra-Broadband logarithmic period Antenna | Schwarzbeck         | VULB 9163    | 01230      | 03/29/2023 |
| 6  | Loop Antenna                               | Beijin ZHINAN       | ZN30900C     | 18050      | 03/25/2021 |
| 7  | Spectrum Analyzer                          | R&S                 | FSV40-N      | 101798     | 04/07/2021 |
| 8  | Horn Antenna                               | Schwarzbeck         | BBHA 9120 D  | 2023       | 03/29/2023 |
| 9  | Pre-Amplifier                              | Schwarzbeck         | BBV 9745     | 9745#129   | 04/07/2021 |
| 10   | Pre-Amplifier                              | EMCI                | EMC051835SE  | 980662     | 04/07/2021 |
| 11   | Pre-Amplifier                              | Schwarzbeck         | BBV-9721     | 57         | 04/07/2021 |
| 12   | Horn Antenna                               | Schwarzbeck         | BBHA 9170    | 00939      | 03/29/2021 |

| Item | Test Equipment    | Manufacturer | Model No. | Serial No.   | Calibrated until |
|------|-------------------|--------------|-----------|--------------|------------------|
| 1    | LISN              | R&S          | ENV432    | 1326.6105.02 | 03/27/2021       |
| 2    | EMI Test Receiver | R&S          | ESR       | 102524       | 04/07/2021       |
| 3    | Manual RF Switch  | JS TOYO      | /         | MSW-01/002   | 04/07/2021       |

Note:

1)The Cal. Interval was one year.

2)The cable loss has calculated in test result which connection between each test instruments.



## 2.5. Test Software

| Software name                           | Model    | Version       |
|---|----------|---------------|
| Conducted emission Measurement Software | EZ-EMC   | EMC-Con 3A1.1 |
| Radiated emission Measurement Software  | EZ-EMC   | FA-03A.2.RE   |
| Bluetooth and WIFI Test System          | JS1120-3 | 2.5.77.0418   |



### 3. TEST ITEM AND RESULTS

#### 3.1. Antenna requirement

##### Requirement

##### **FCC CFR Title 47 Part 15 Subpart C Section 15.203:**

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

##### **FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):**

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

##### Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.

Note: The antenna is permanently fixed to the EUT



## 3.2. Conducted Emission

### Limit

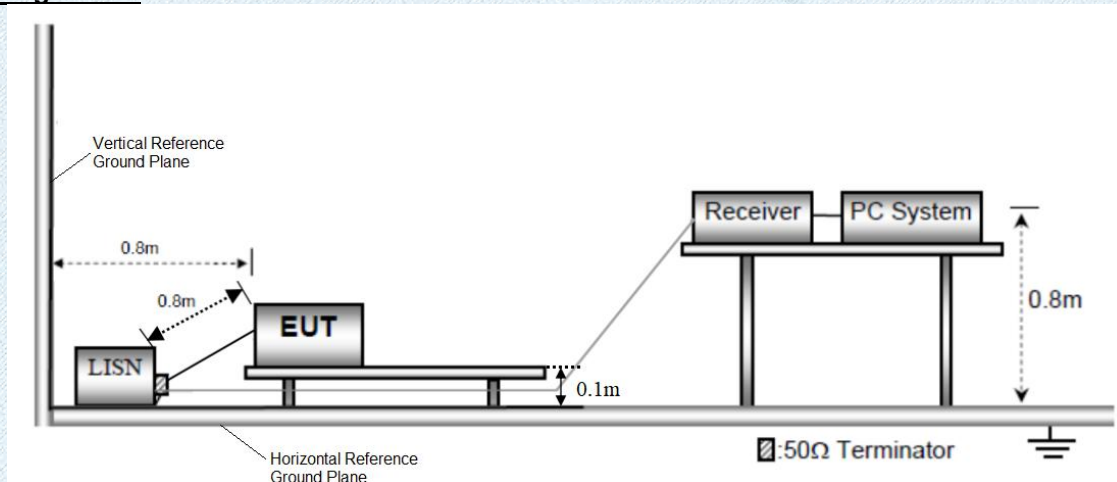
Conducted Emission Test Limit

| Frequency     | Maximum RF Line Voltage (dB $\mu$ V) |               |
|---------------|--------------------------------------|---------------|
|               | Quasi-peak Level                     | Average Level |
| 150kHz~500kHz | 66 ~ 56 *                            | 56 ~ 46 *     |
| 500kHz~5MHz   | 56                                   | 46            |
| 5MHz~30MHz    | 60                                   | 50            |

Notes:

- (1) \*Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### Test Configuration



### Test Procedure

1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 0.1m above the conducting ground plane. The vertical conducting plane was located 80 cm to the rear of the EUT. All other surfaces of EUT were at least 0.8m from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
7. During the above scans, the emissions were maximized by cable manipulation.

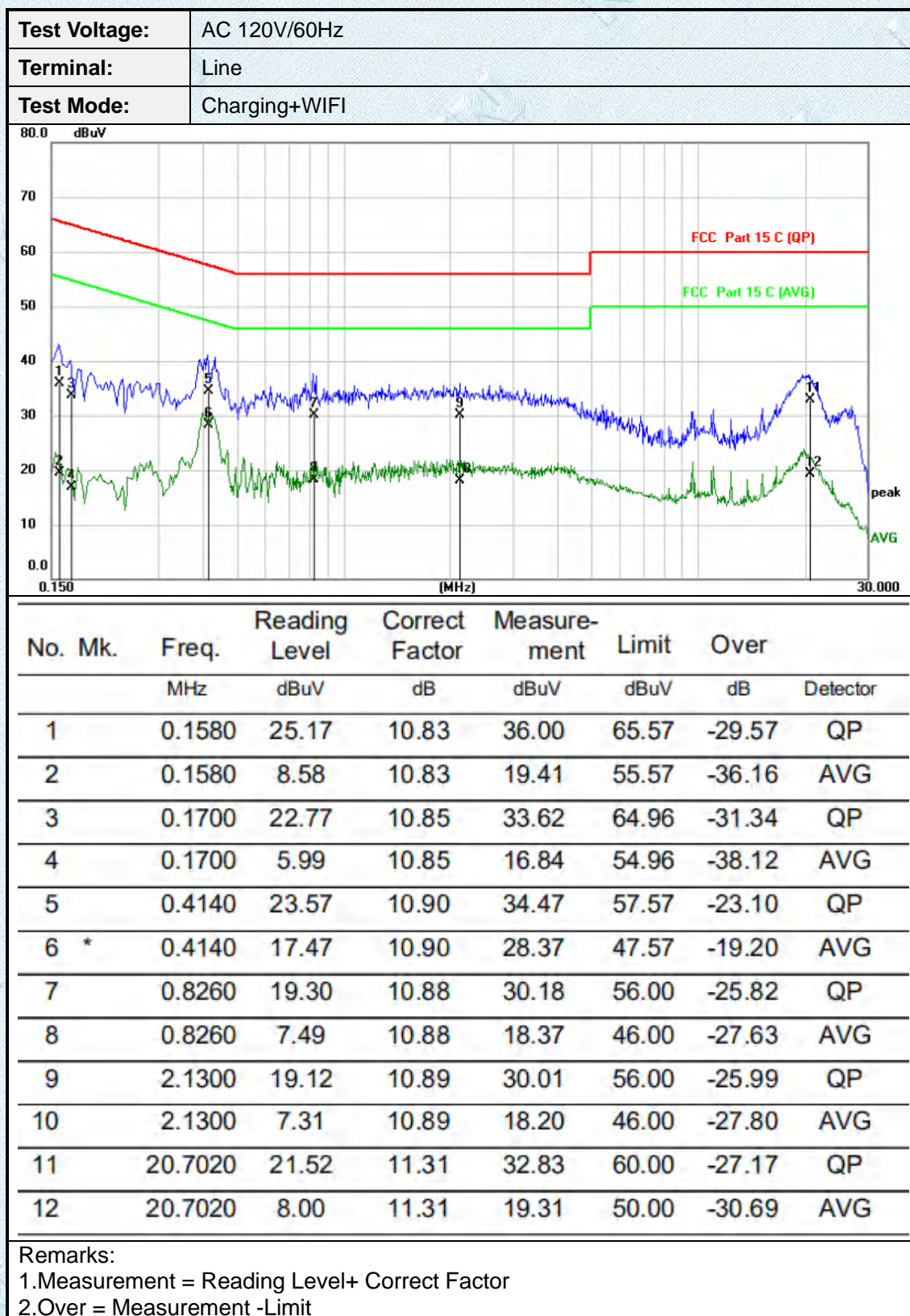
### Test Mode:

Please refer to the clause 2.3.

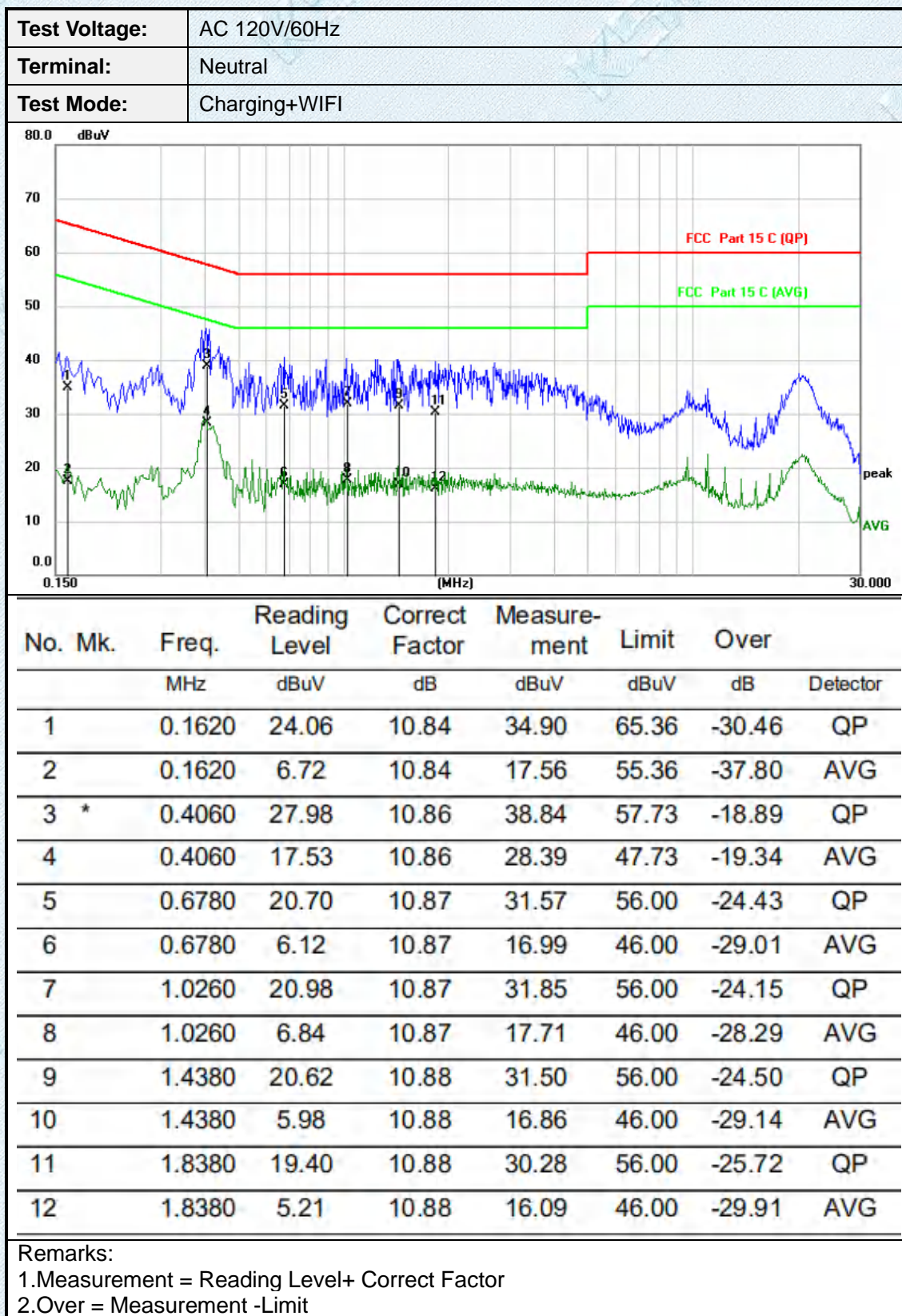
### Test Results

Pre-scan 802.11b/g/n(HT20/HT40) modulation, and found the 802.11b modulation 2412MHz which it is worse case, so only show the test data for worse case.









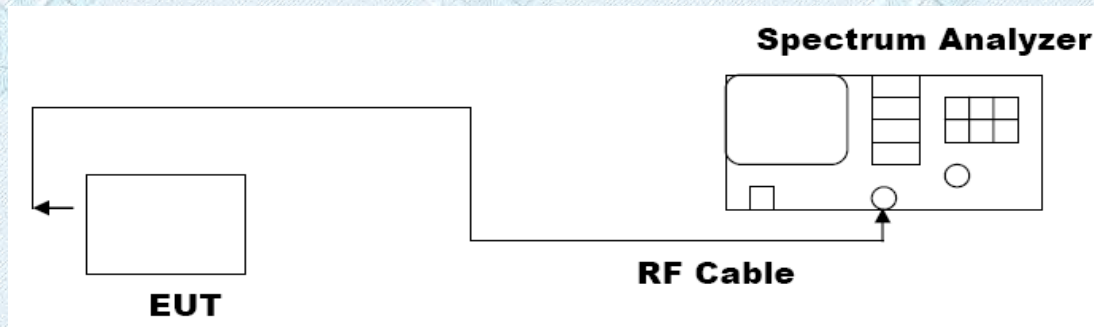


### 3.3. Bandwidth

#### Limit

| Test Item | Limit                             | Frequency Range(MHz) |
|-----------|-----------------------------------|----------------------|
| Bandwidth | $\geq 500$ KHz<br>(6dB bandwidth) | 2400~2483.5          |

#### Test Configuration



#### Test Procedure

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator:  
6db Bandwidth

- (1) Set RBW = 100 kHz.
- (2) Set the video bandwidth (VBW)  $\geq 3$  RBW.
- (3) Detector = Peak.
- (4) Trace mode = Max hold.
- (5) Sweep = Auto couple.

#### 99% Bandwidth

- (1) Set RBW = 500 kHz.
- (2) Set the video bandwidth (VBW) = 2MHz.
- (3) Detector = Peak.
- (4) Trace mode = Max hold.
- (5) Sweep = Auto couple.

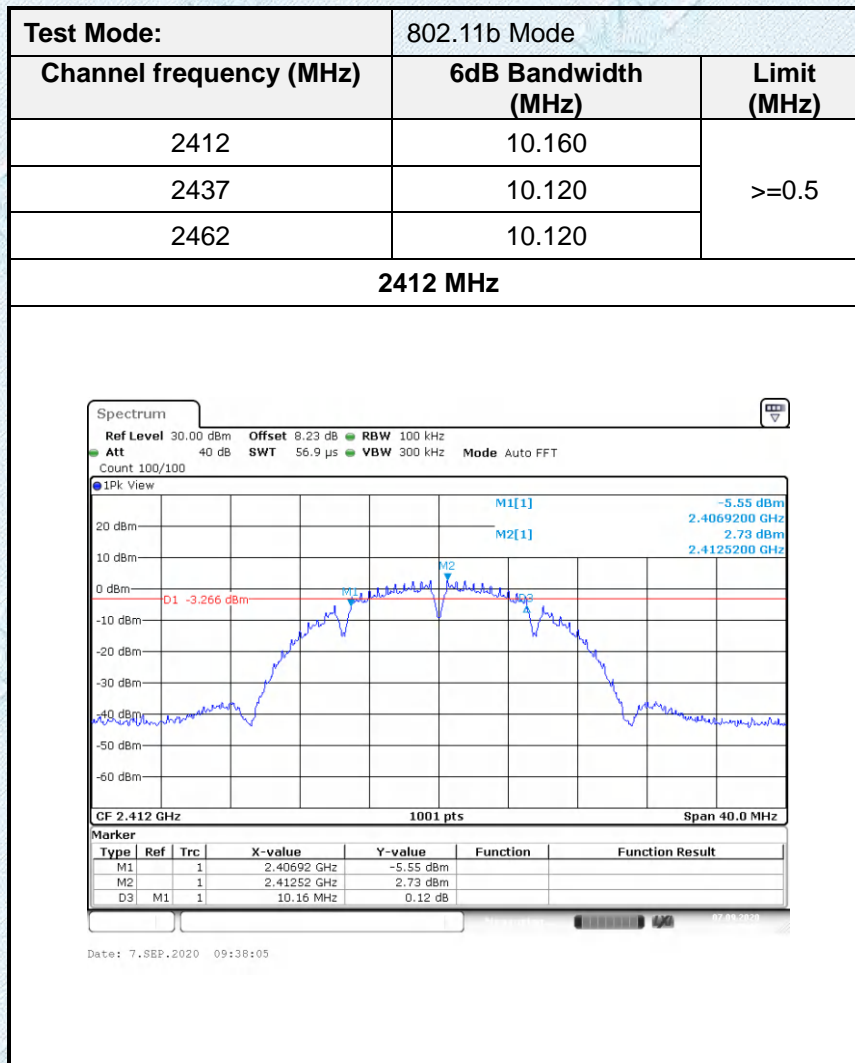
NOTE: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

#### Test Mode

Please refer to the clause 2.3.

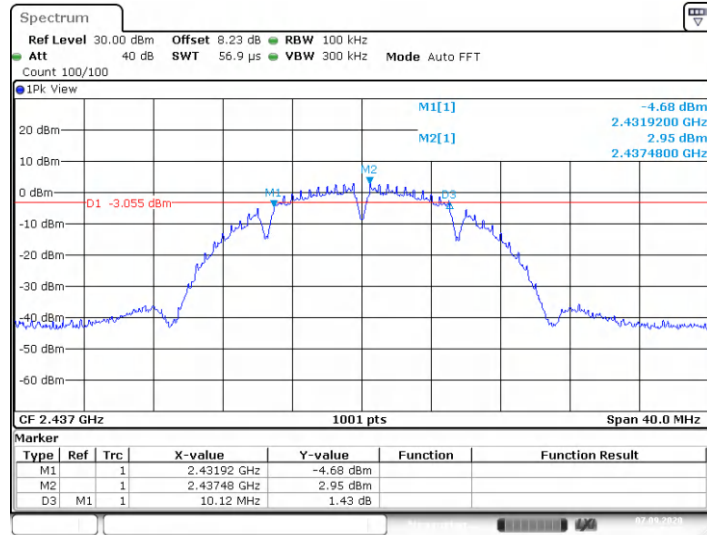
#### Test Results





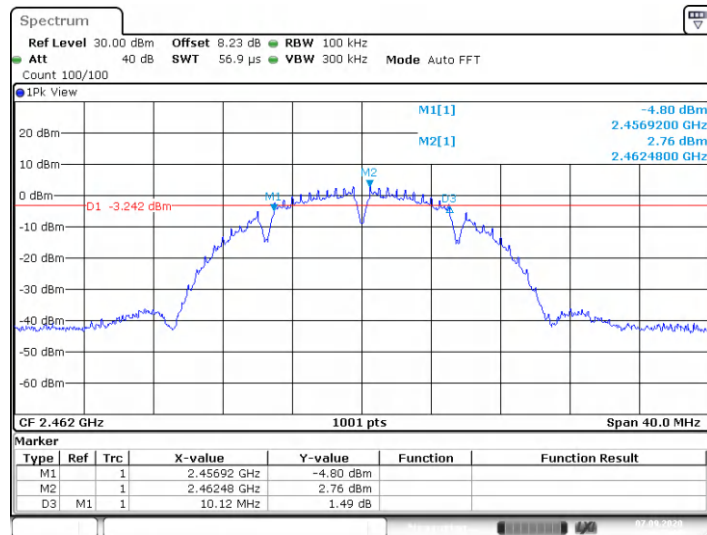


### 2437 MHz



Date: 7.SEP.2020 09:46:51

### 2462 MHz



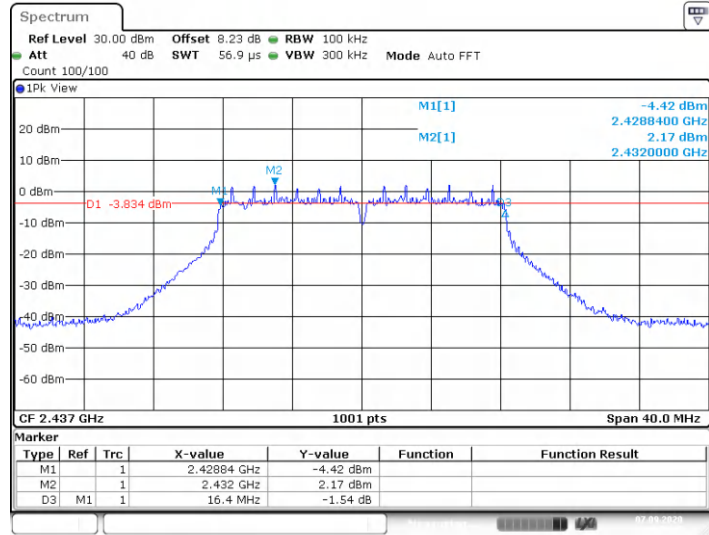
Date: 7.SEP.2020 09:52:05





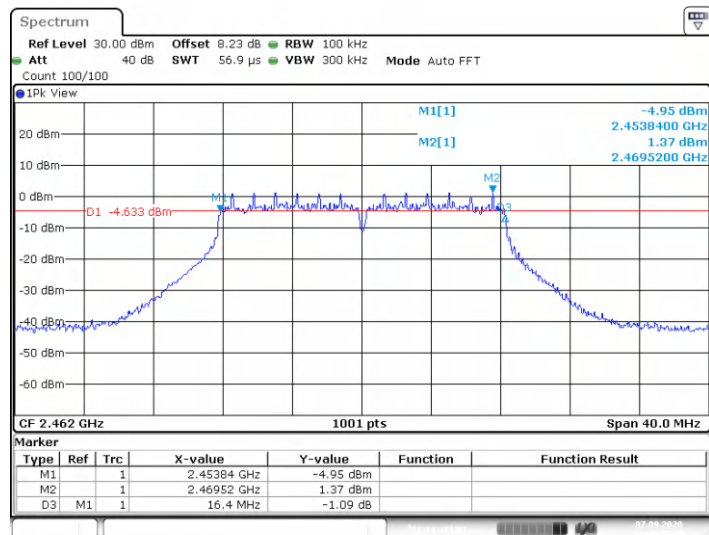


### 2437 MHz



Date: 7.SEP.2020 10:14:11

### 2462 MHz



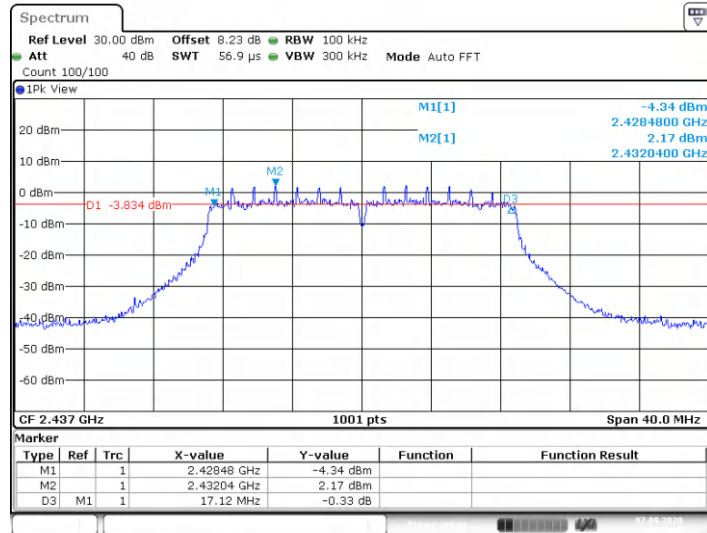
Date: 7.SEP.2020 10:17:17





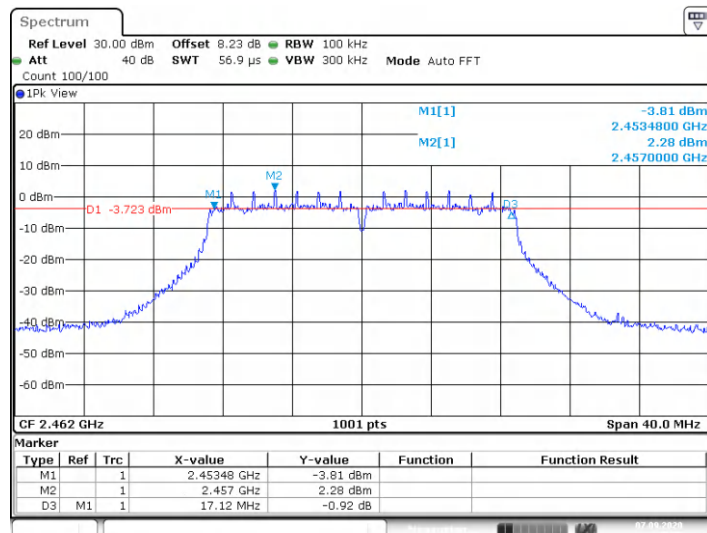


### 2437 MHz



Date: 7.SEP.2020 10:33:06

### 2462 MHz



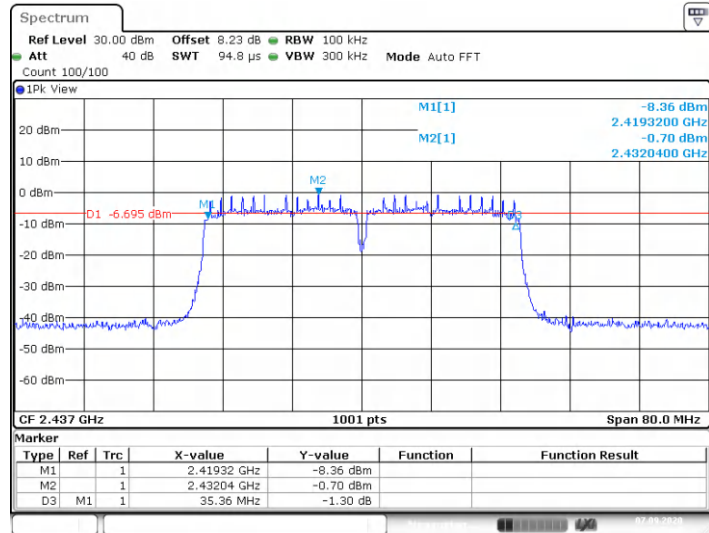
Date: 7.SEP.2020 10:57:59





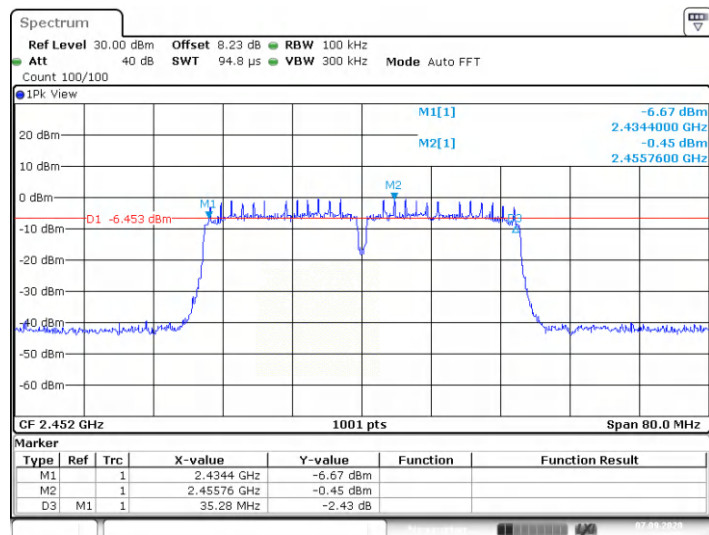


### 2437 MHz



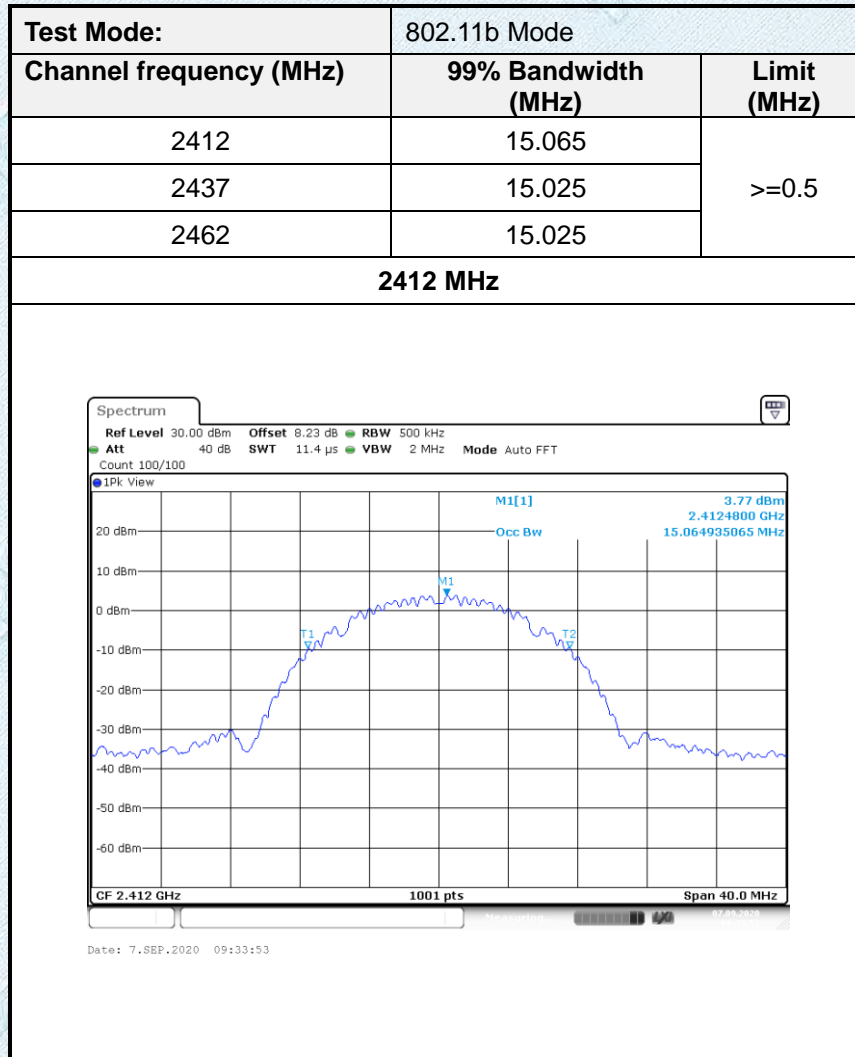
Date: 7.SEP.2020 11:11:11

### 2452 MHz



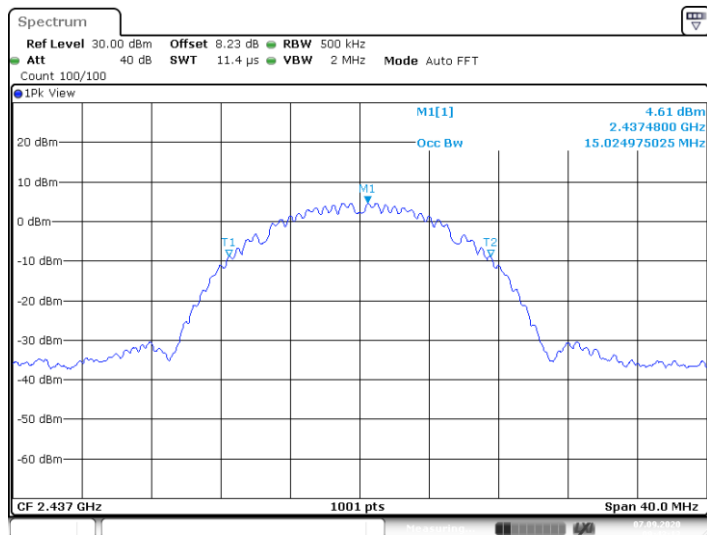
Date: 7.SEP.2020 11:14:55





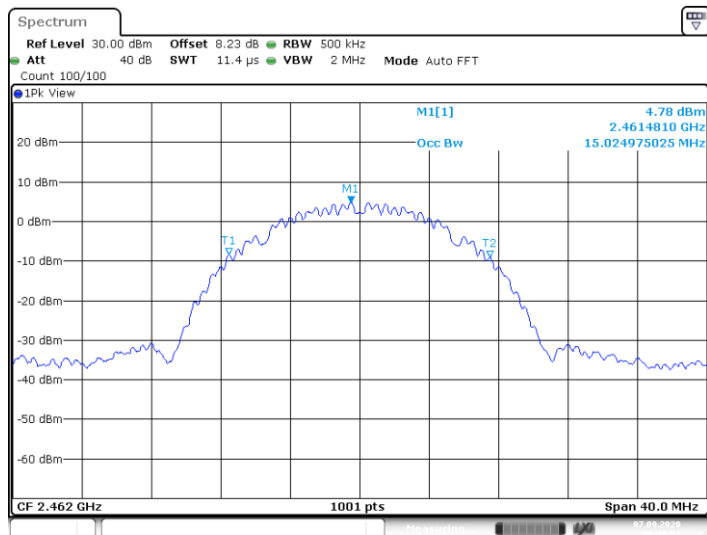


### 2437 MHz



Date: 7.SEP.2020 09:43:13

### 2462 MHz



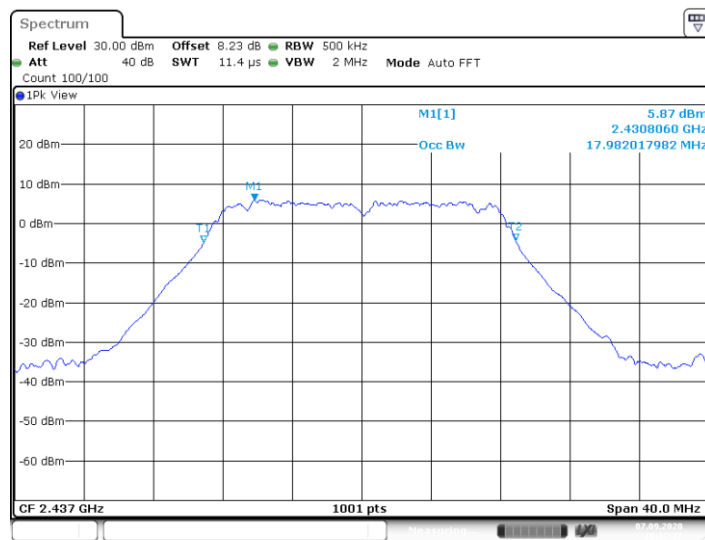
Date: 7.SEP.2020 09:49:51





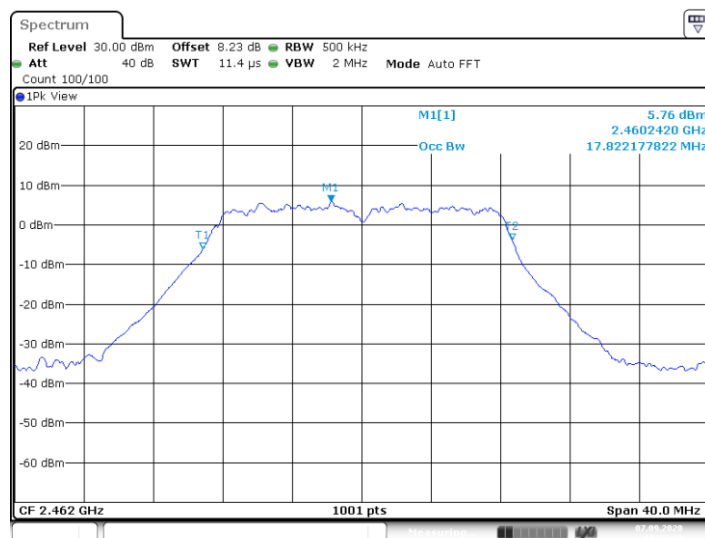


### 2437 MHz



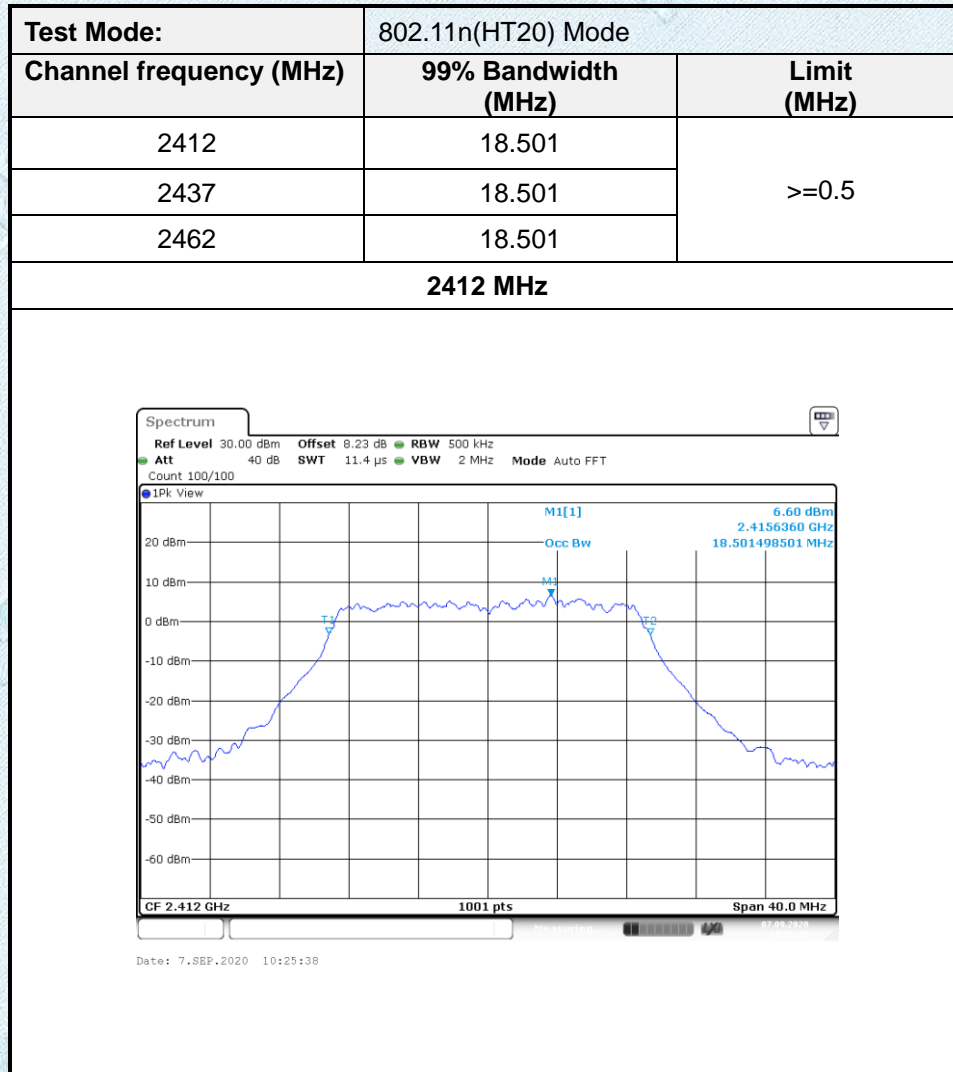
Date: 7.SEP.2020 10:12:27

### 2462 MHz



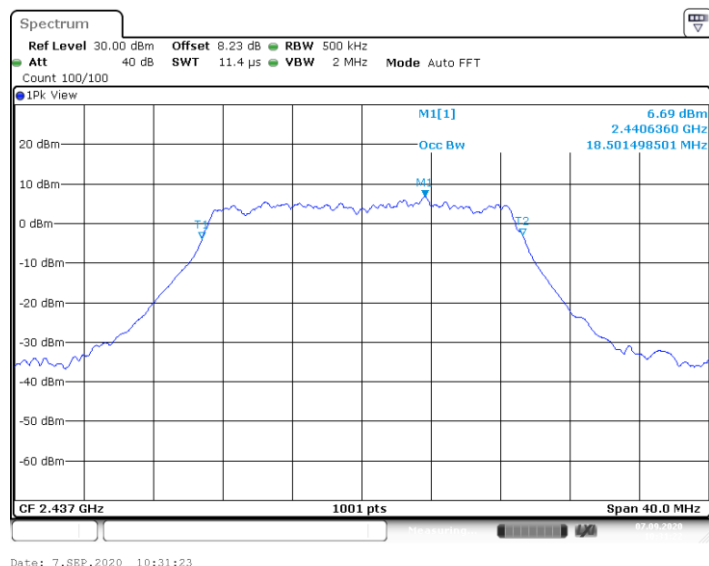
Date: 7.SEP.2020 10:15:48



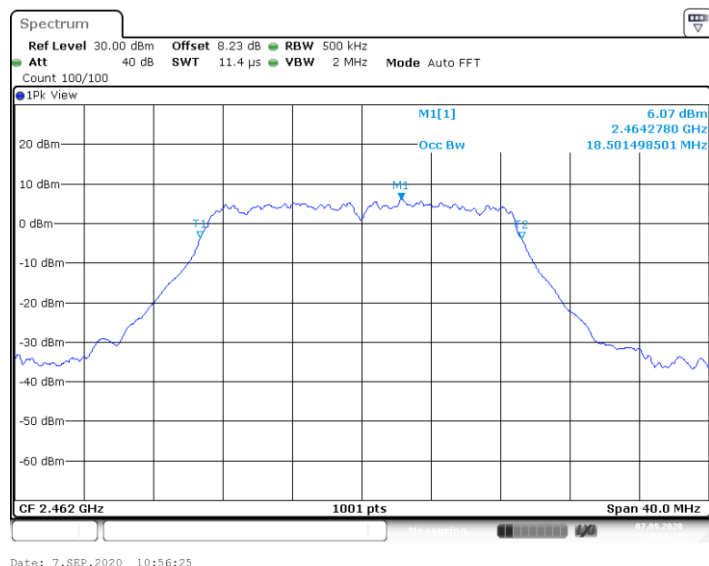




### 2437 MHz



### 2462 MHz

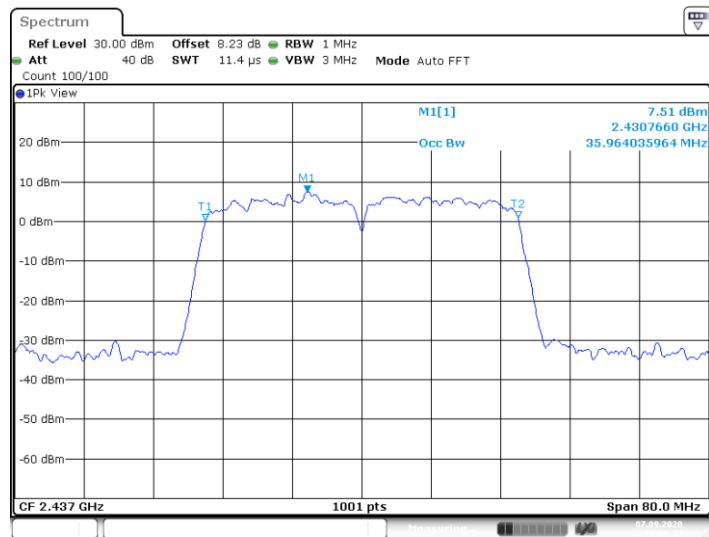




2422 MHz

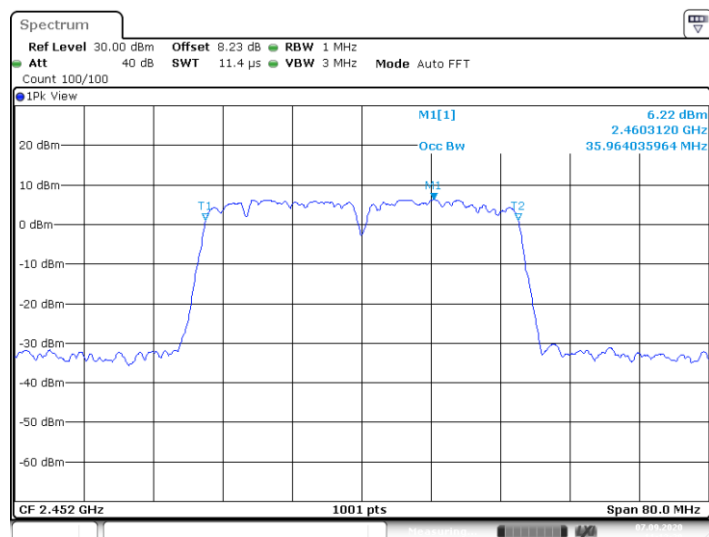


### 2437 MHz



Date: 7.SEP.2020 11:09:41

### 2452 MHz



Date: 7.SEP.2020 11:13:29

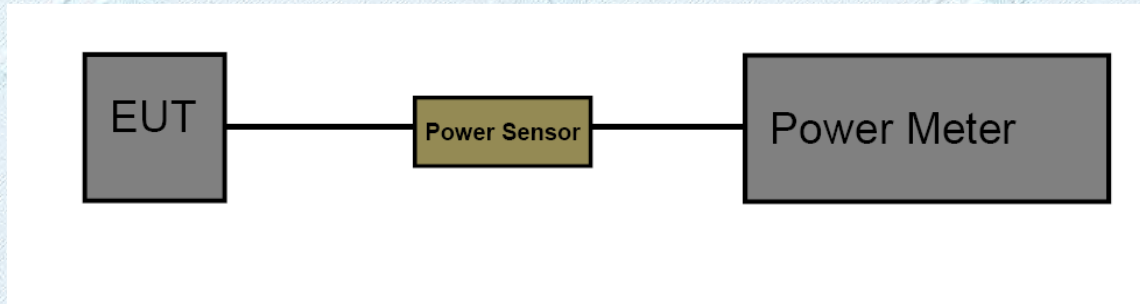


### 3.4. Peak Output Power

#### Limit

| Test Item         | Limit            | Frequency Range(MHz) |
|-------------------|------------------|----------------------|
| Peak Output Power | 1 Watt or 30 dBm | 2400~2483.5          |

#### Test Configuration



#### Test Procedure

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator.
2. The measurement is according to section 9.1.2 of KDB 558074 D01 15.247 DTS Meas Guidance v05.
3. Spectrum Setting:  
Set analyser center frequency to DTS channel center frequency.  
Set the RBW to: 1MHz  
Set the VBW to: 3MHz  
Detector: peak  
Sweep time: auto  
Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.
4. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

#### Test Mode

Please refer to the clause 2.3

#### Test Result



| Mode           | Channel frequency (MHz) | Test Result (dBm) | Limit (dBm) |
|----------------|-------------------------|-------------------|-------------|
| 802.11b        | 2412                    | 10.94             | 30          |
|                | 2437                    | 11.23             |             |
|                | 2462                    | 11.29             |             |
| 802.11g        | 2412                    | 9.20              |             |
|                | 2437                    | 9.24              |             |
|                | 2462                    | 8.84              |             |
| 802.11n (HT20) | 2412                    | 8.62              |             |
|                | 2437                    | 8.68              |             |
|                | 2462                    | 8.58              |             |
| 802.11n (HT40) | 2422                    | 7.96              |             |
|                | 2437                    | 7.46              |             |
|                | 2452                    | 7.51              |             |
| Result : PASS  |                         |                   |             |

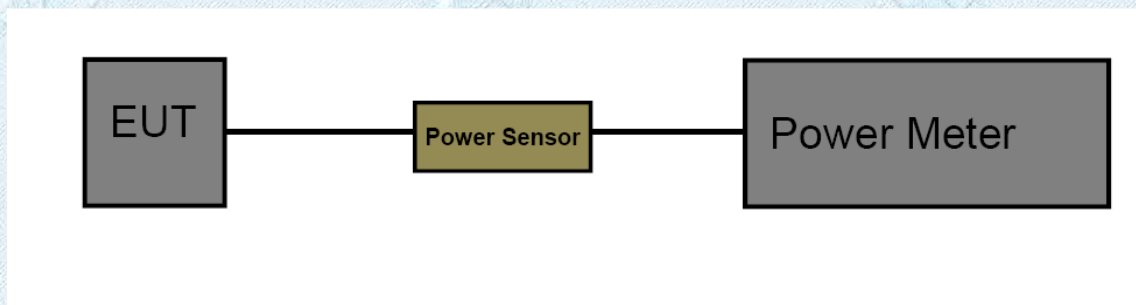


### 3.5. Power Spectral Density

#### Limit

| FCC Part 15 Subpart C(15.247) |                    |                      |
|-------------------------------|--------------------|----------------------|
| Test Item                     | Limit              | Frequency Range(MHz) |
| Power Spectral Density        | 8dBm(in any 3 kHz) | 2400~2483.5          |

#### Test Configuration



#### Test Procedure

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator.
2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 15.247 DTS Meas Guidance v05.
3. Spectrum Setting:  
 Set analyser center frequency to DTS channel center frequency.  
 Set the span to 1.5 times the DTS bandwidth.  
 Set the RBW to: 10 kHz  
 Set the VBW to: 30 kHz  
 Detector: peak  
 Sweep time: auto  
 Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

#### Test Mode

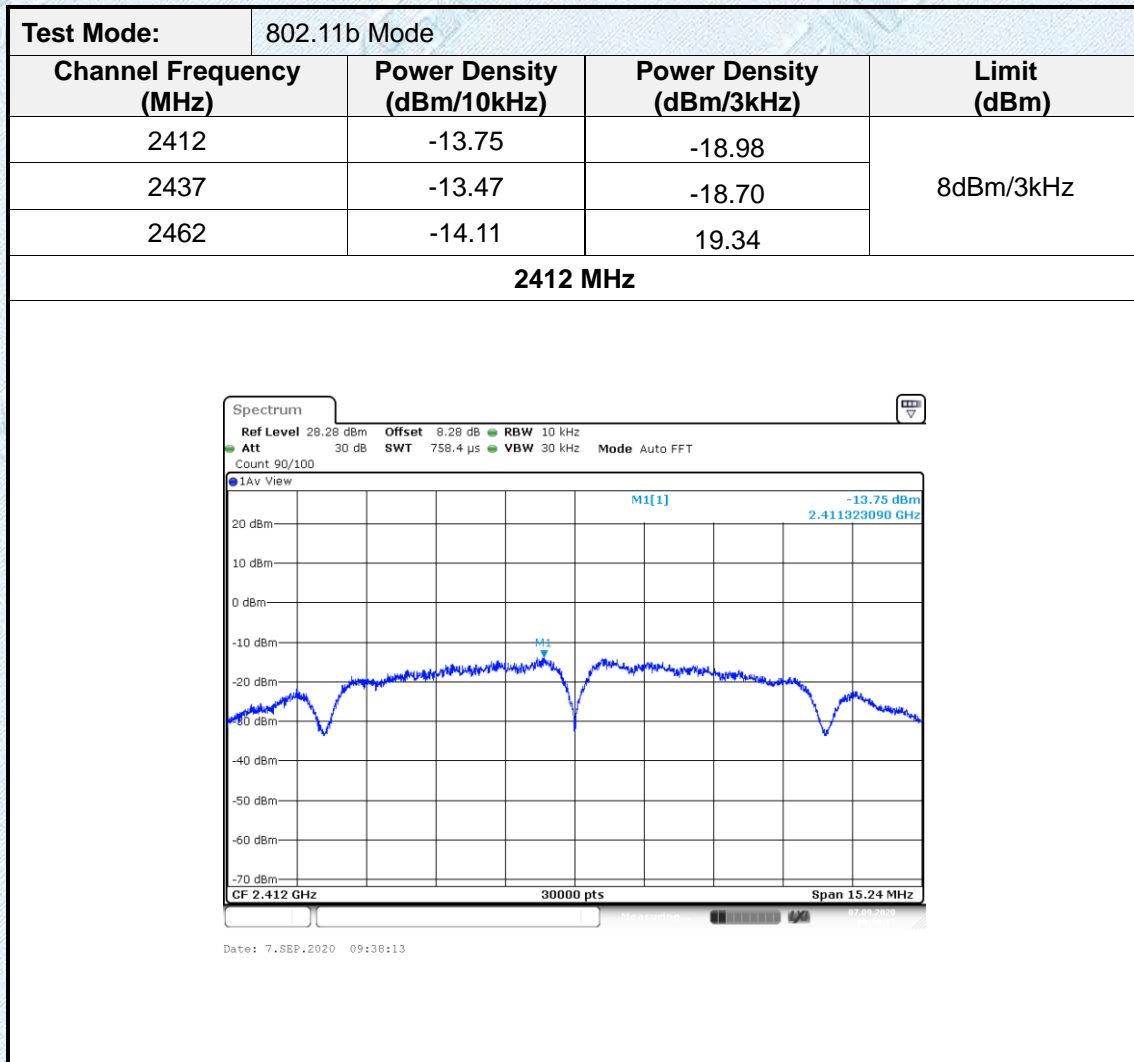
Please refer to the clause 2.3

#### Test Result

Note:

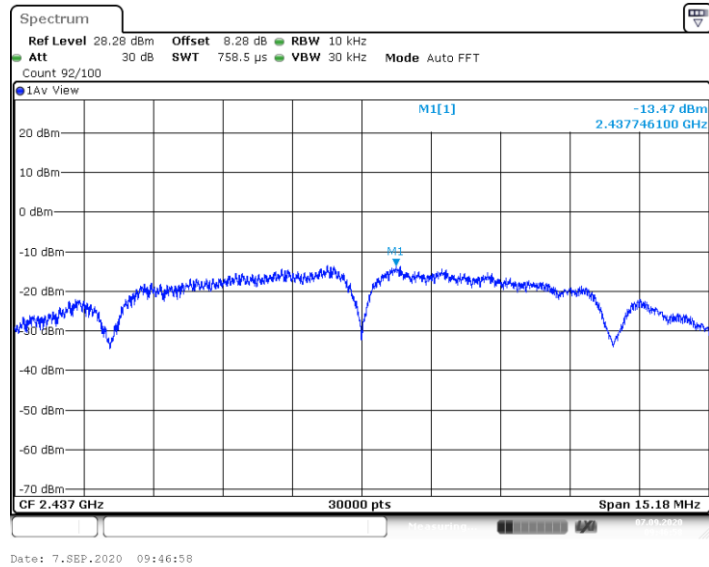
Power Density(dBm/3kHz)=Power Density(dBm/10kHz)-10\*Log(10/3)



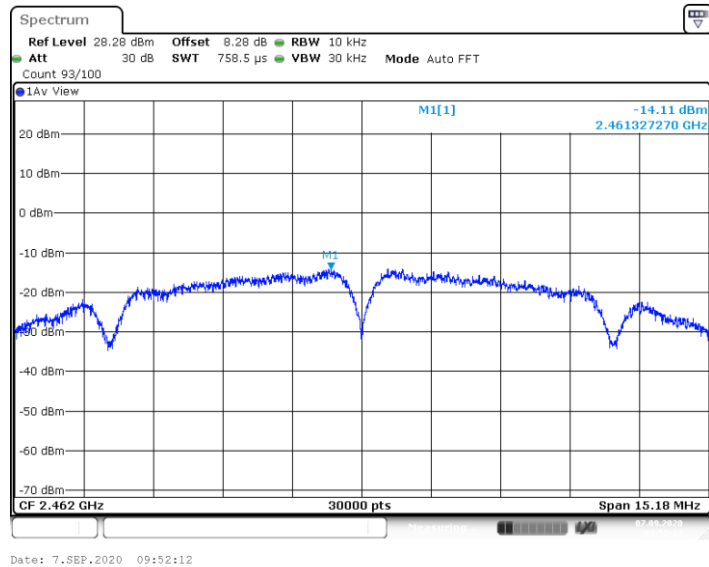




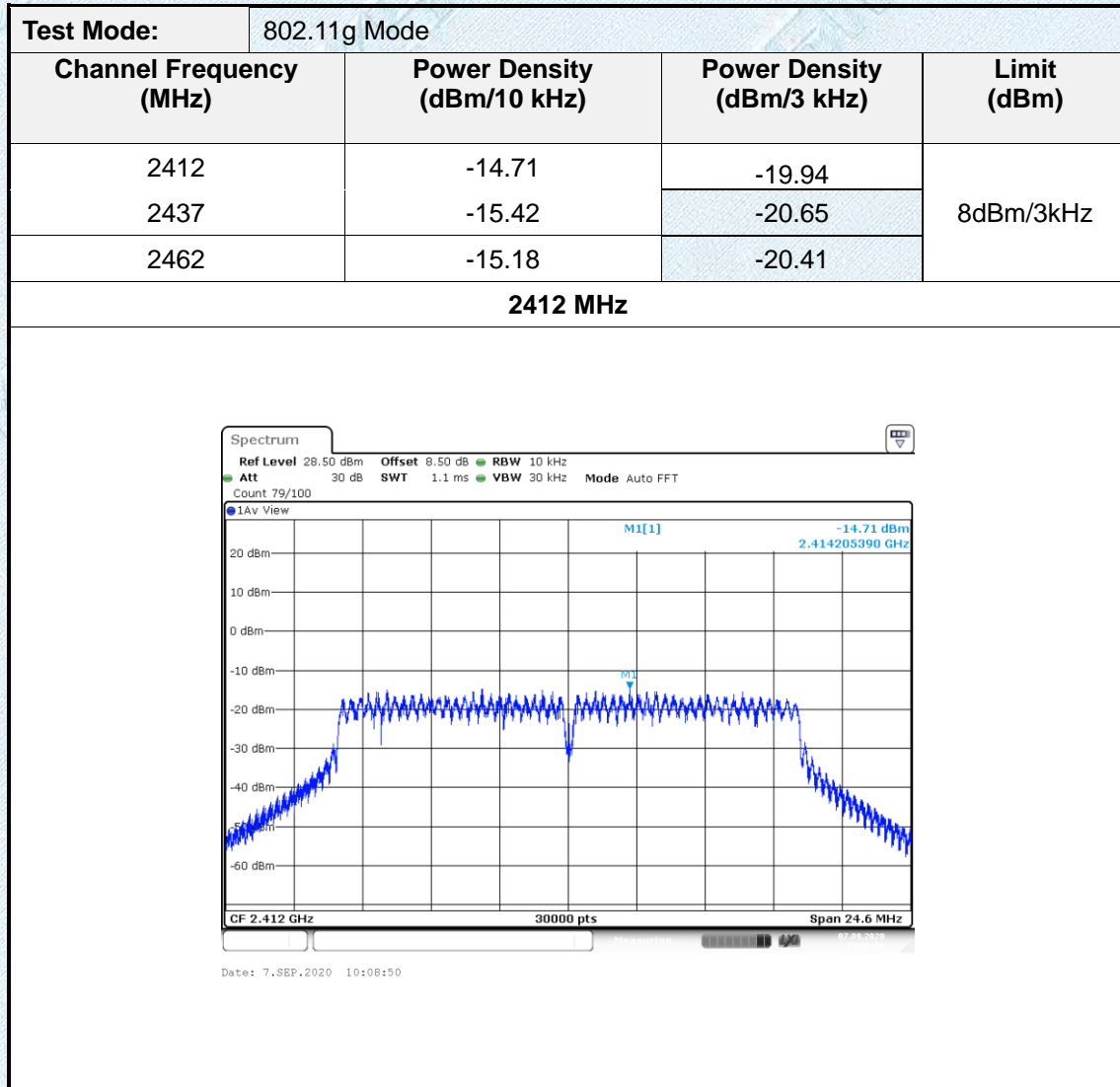
### 2437 MHz



### 2462 MHz

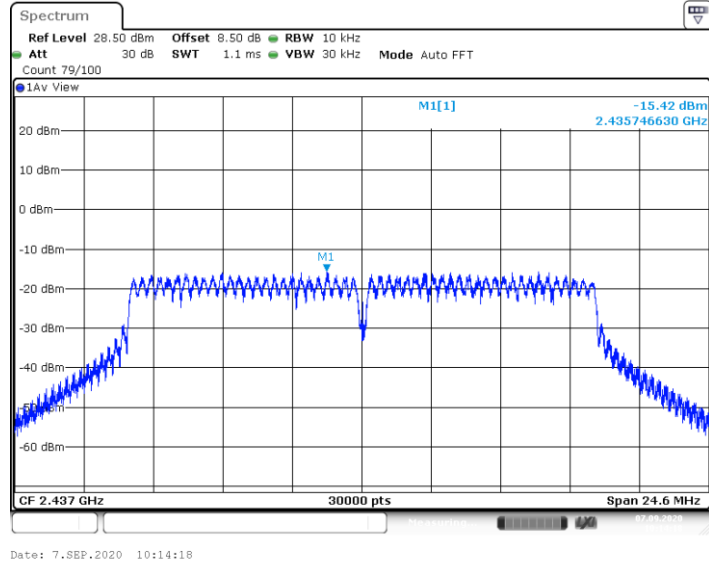




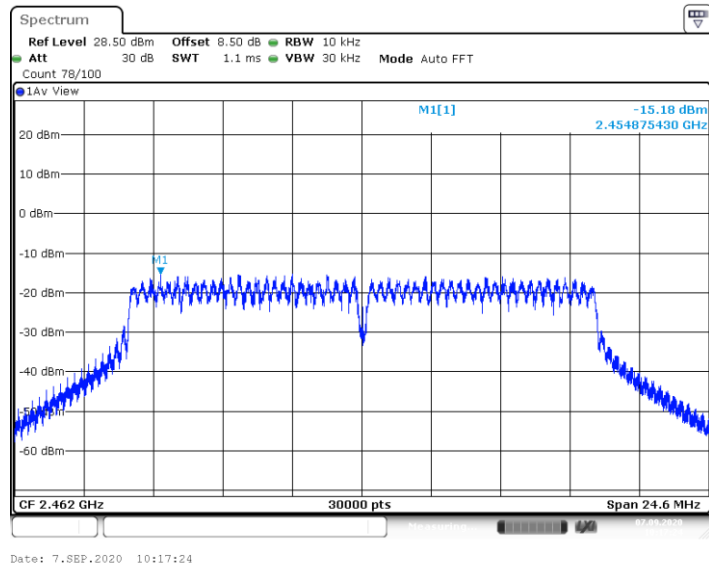




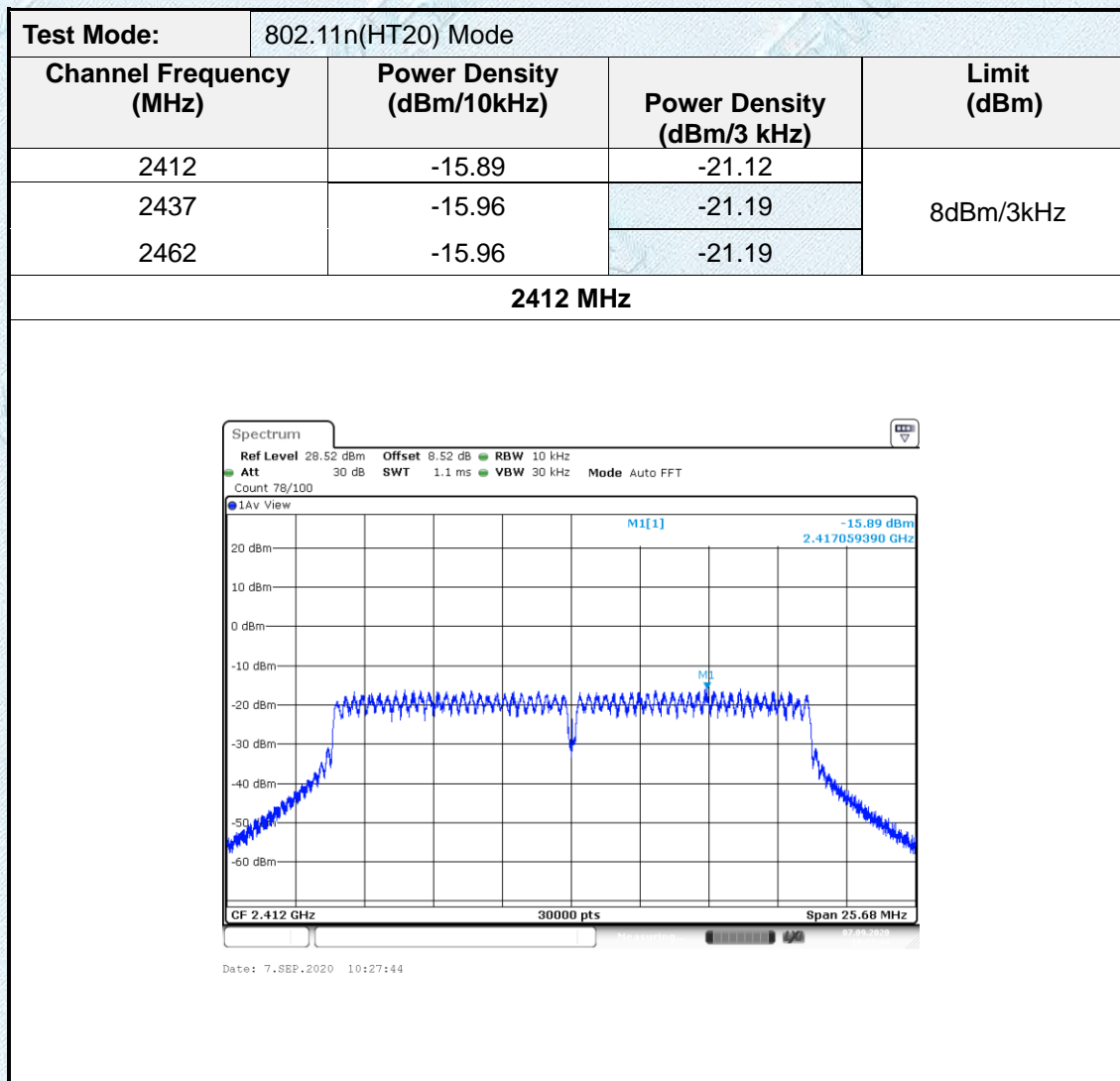
### 2437 MHz



### 2462 MHz

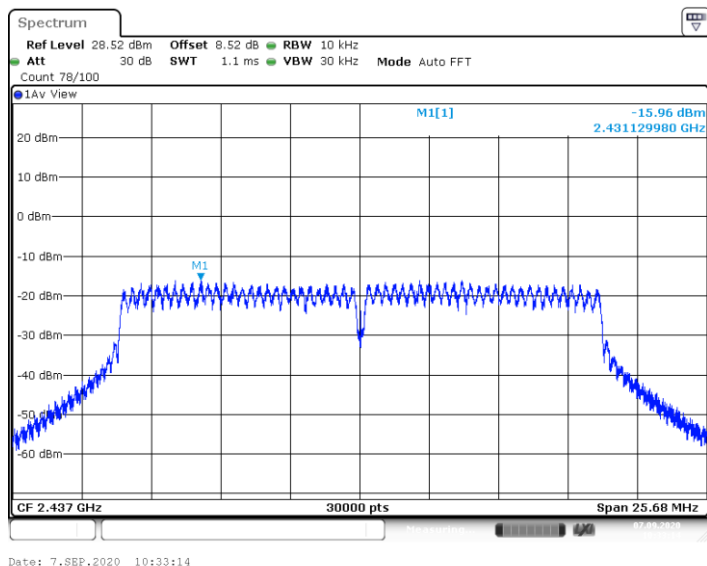




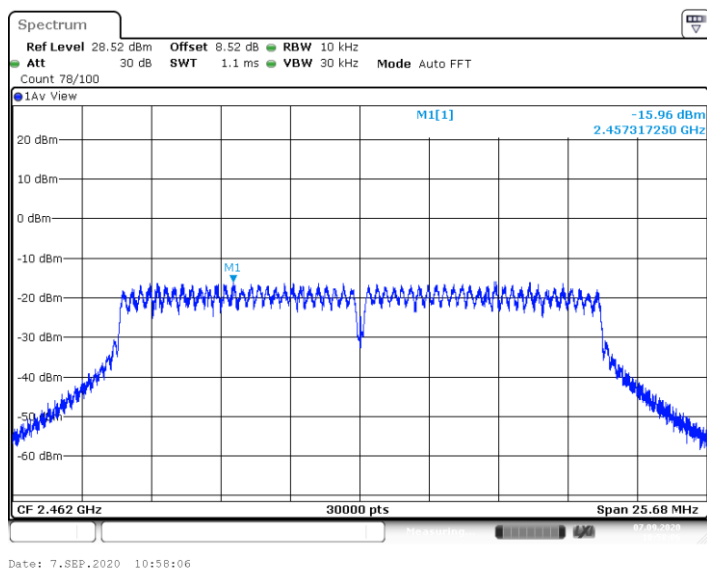




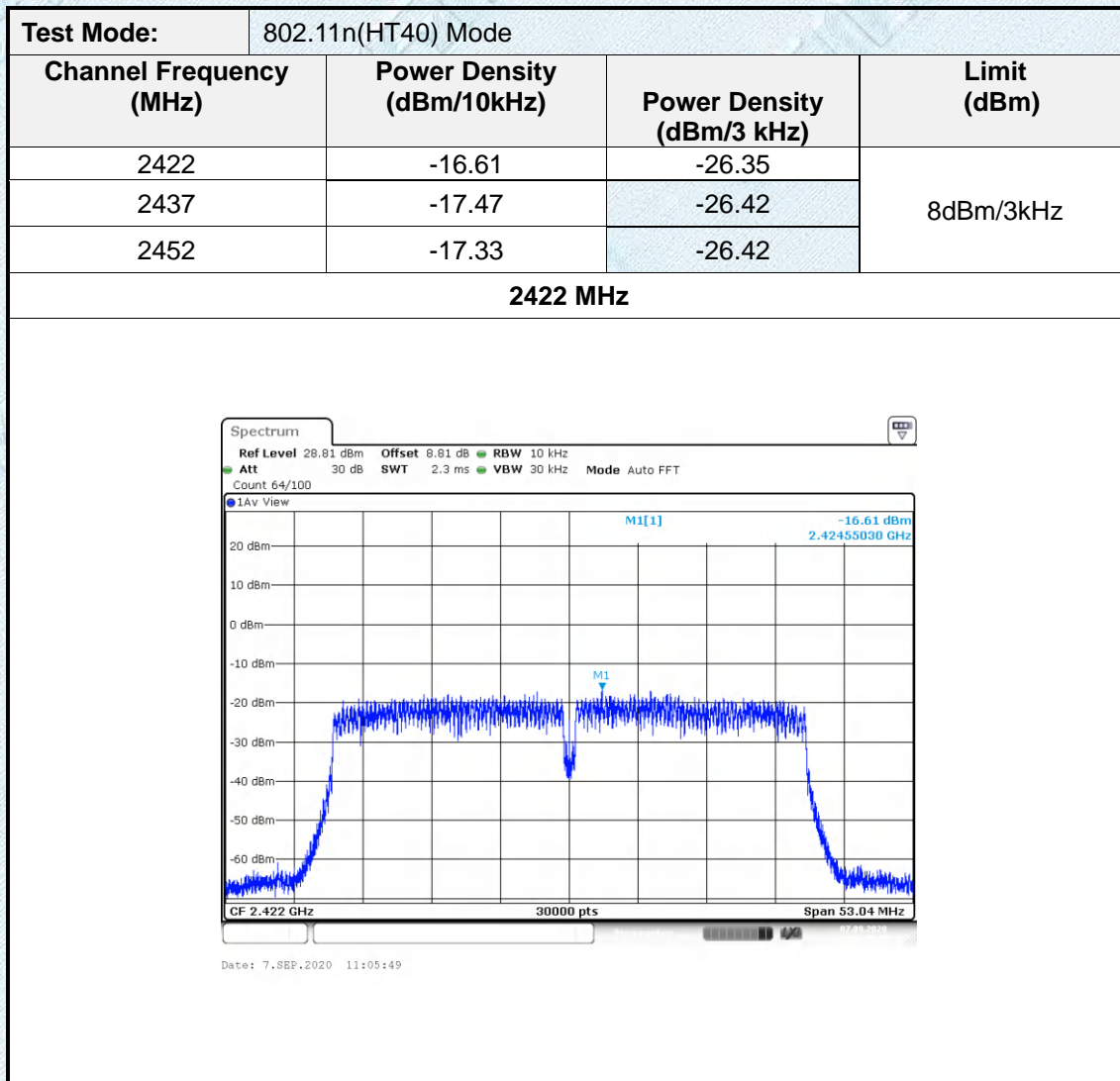
## 2437 MHz



## 2462 MHz

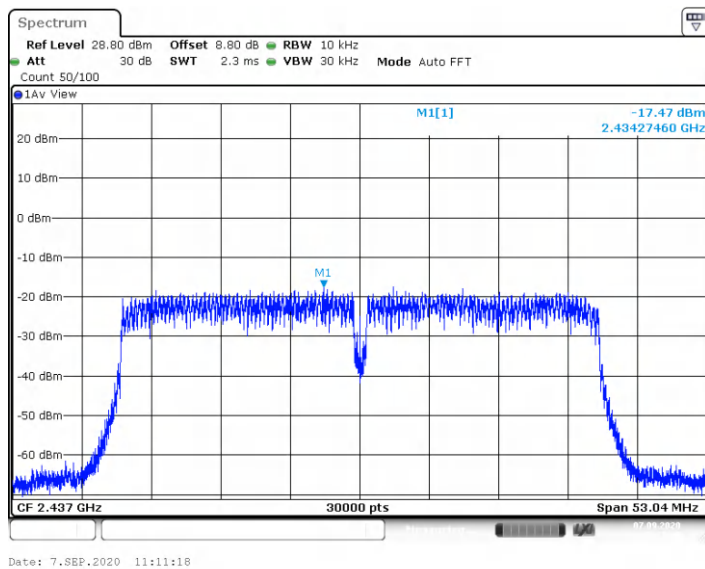




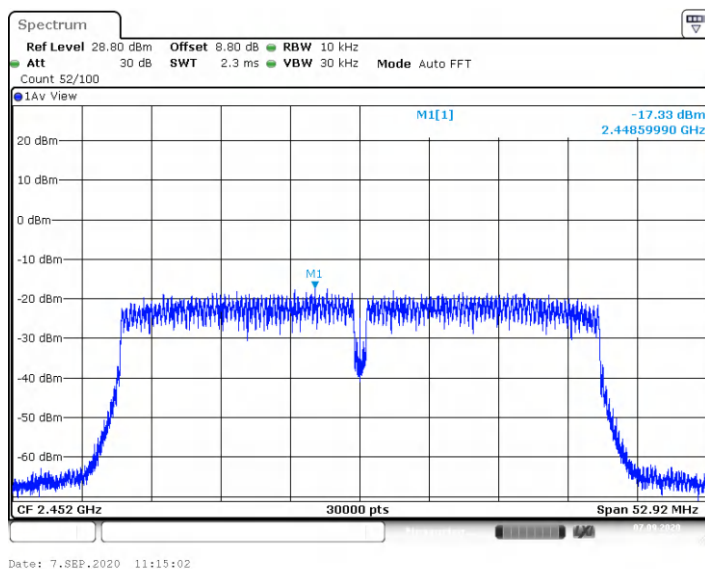




### 2437 MHz



### 2452 MHz





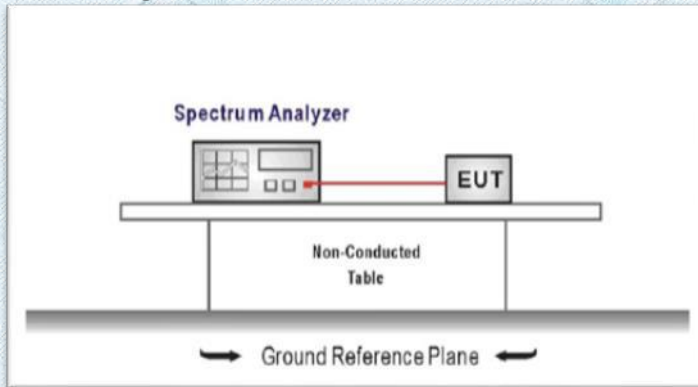
### 3.6. Band edge and Spurious Emission (conducted)

#### Limit

#### **FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

#### **Test Configuration**



#### **Test Procedure**

1. Connect EUT RF Output port to the Spectrum Analyzer through an RF attenuator.
2. Spectrum Setting:  
 $RBW \geq 100\text{KHz}$   
 $VBW \geq 300\text{KHz}$ .  
 Detector function: Peak.  
 Trace: Max hold.  
 Sweep = Auto couple.

Allow the trace to stabilize.

#### **Test Mode**

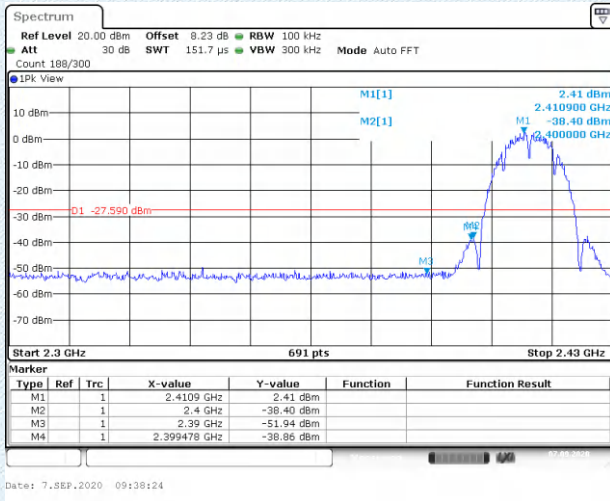
Please refer to the clause 2.3.

#### **Test Results**

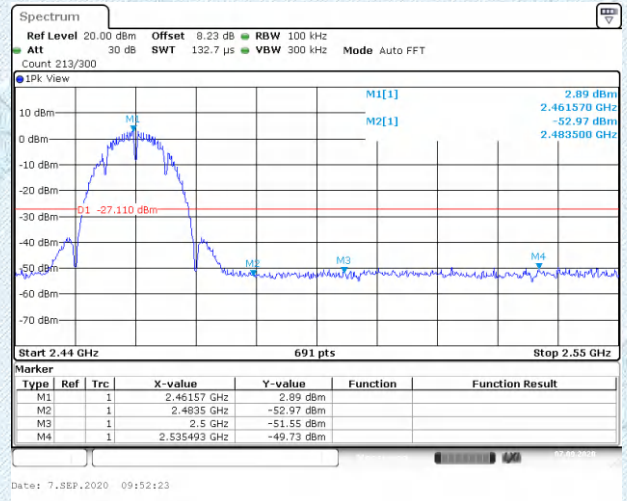


## 802.11b

## CH01-Bandedge



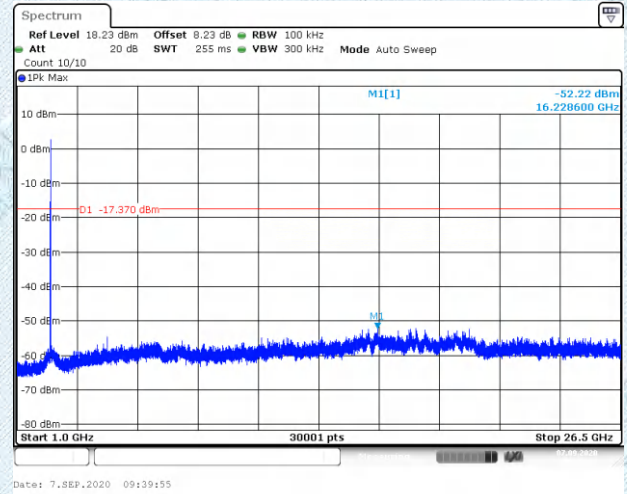
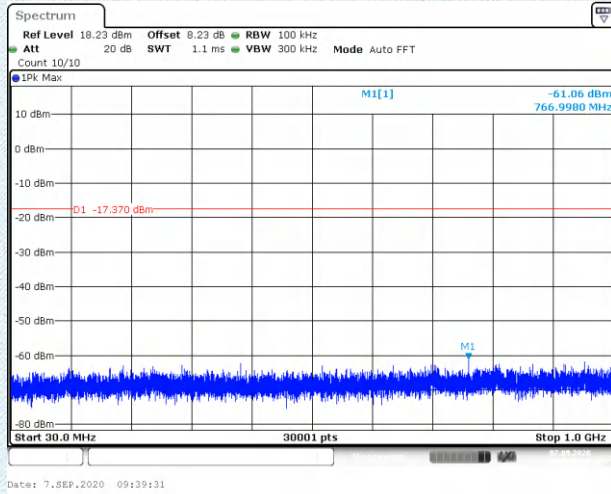
## CH11-Bandedge



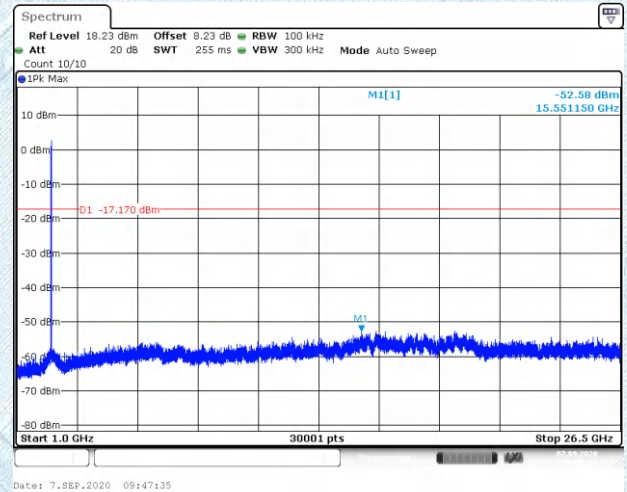
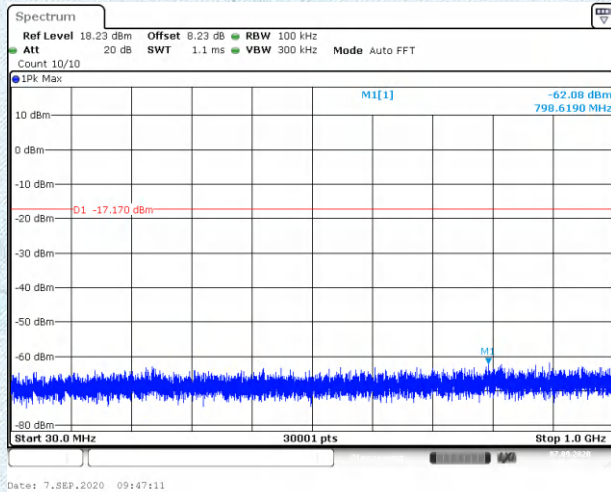


802.11b

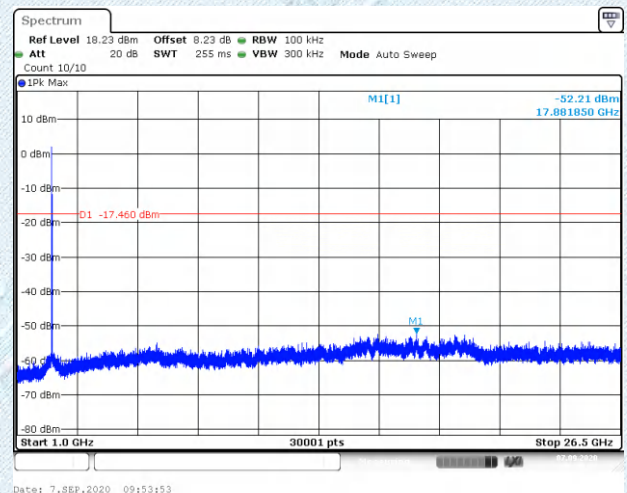
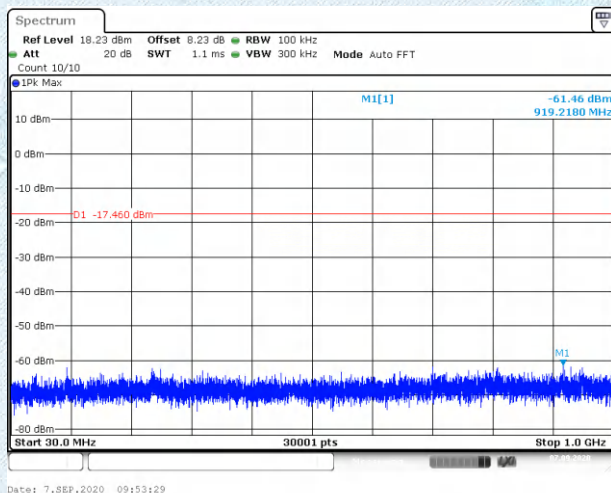
CH01-SE



CH06-SE



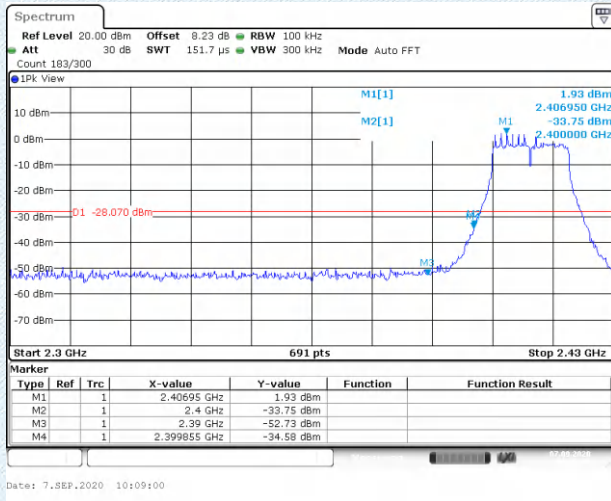
CH11-SE



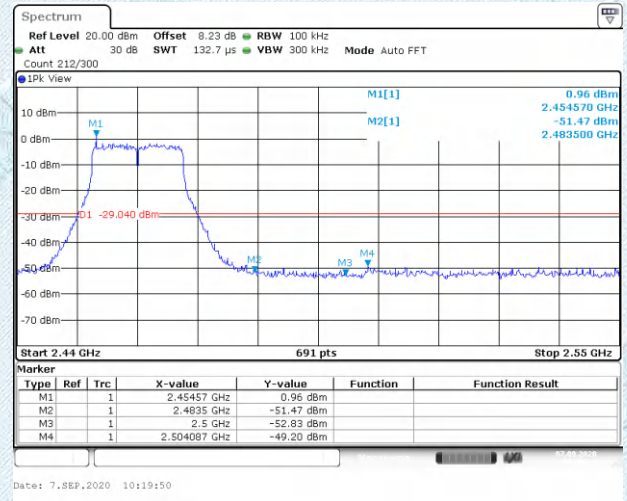


802.11g

## CH01-Bandedge



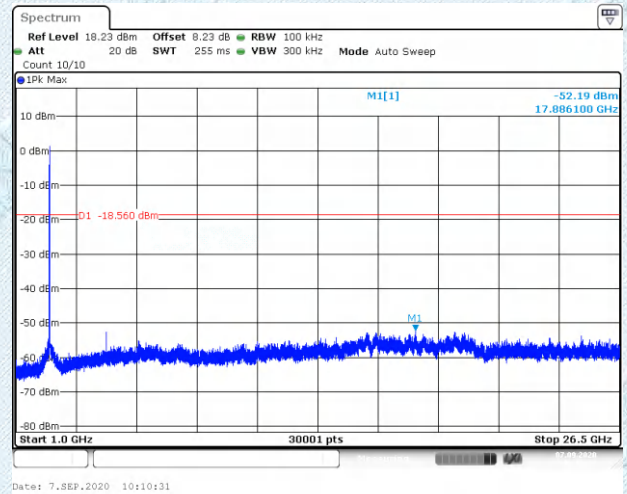
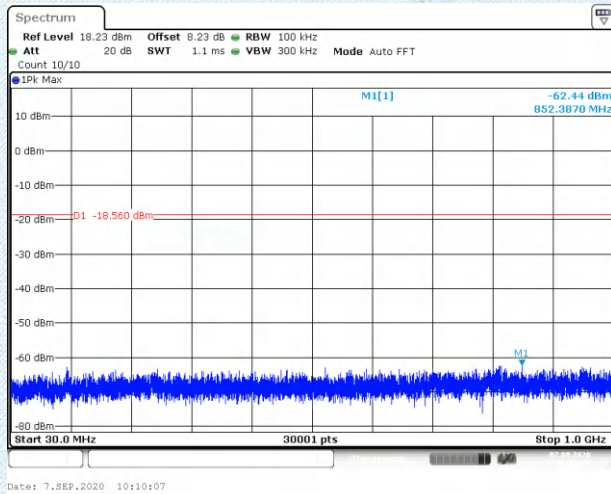
## CH11-Bandedge



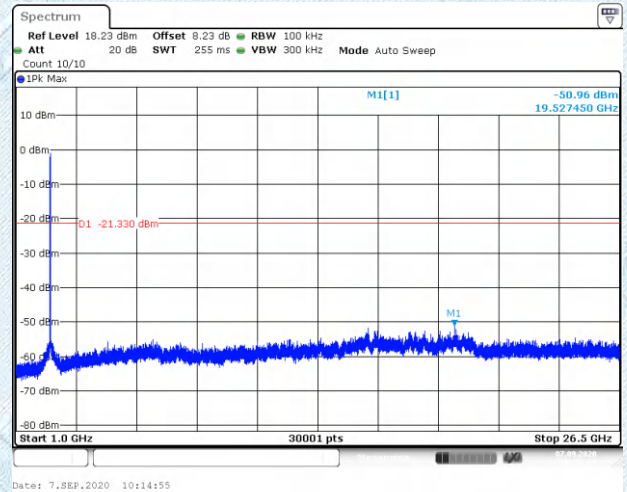
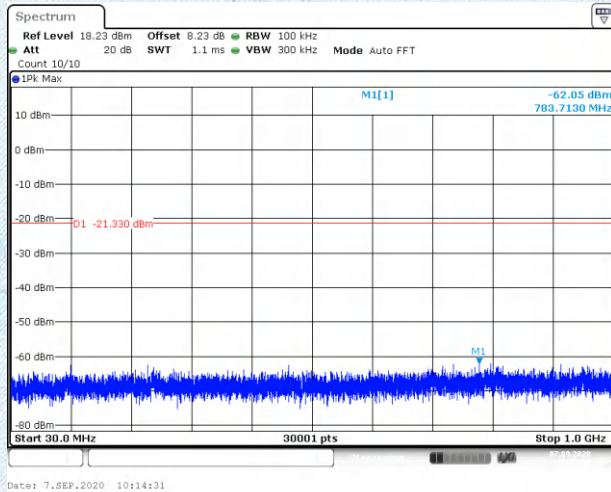


802.11g

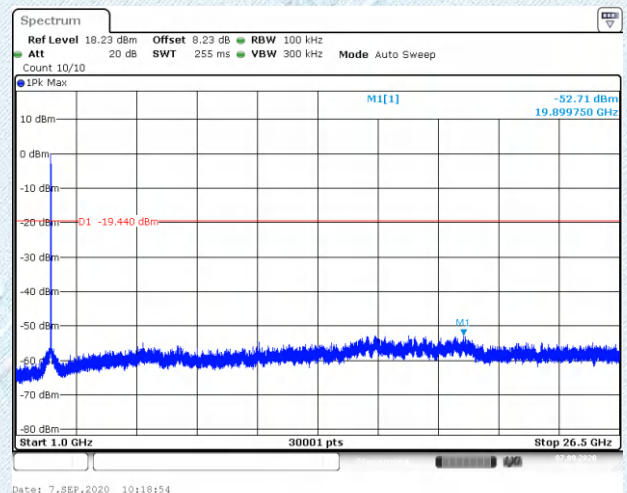
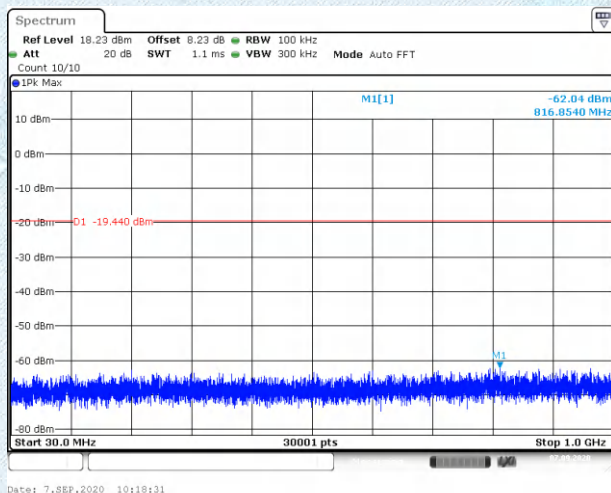
CH01-SE



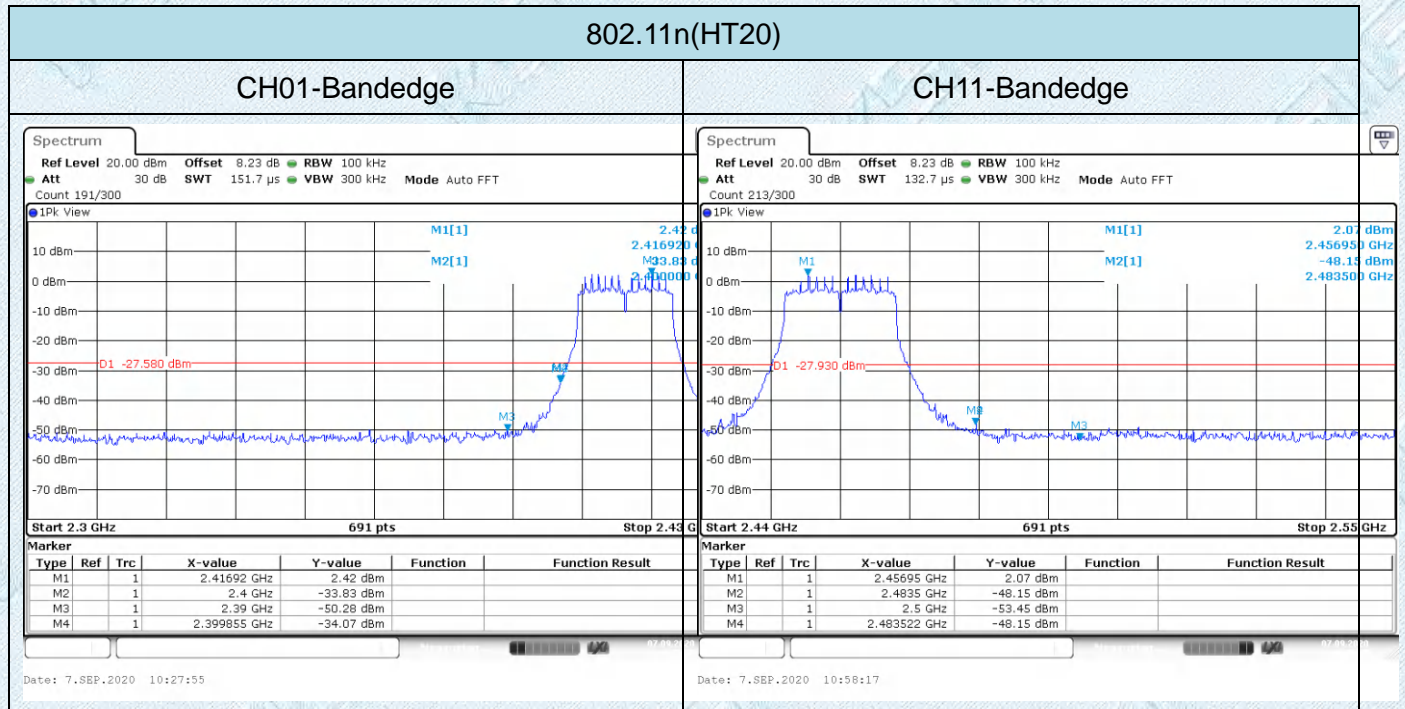
CH06-SE



CH11-SE



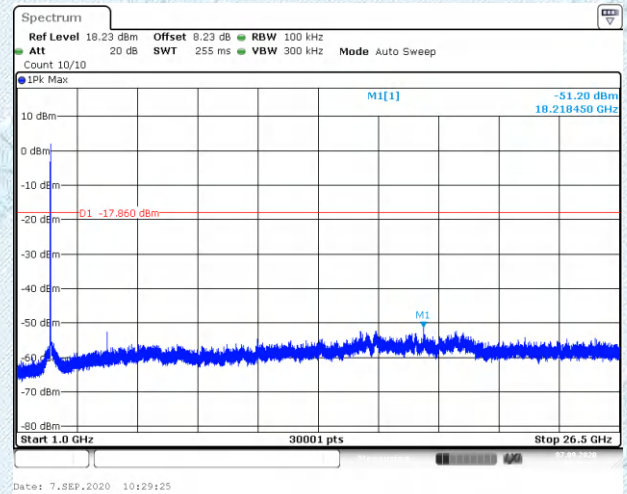
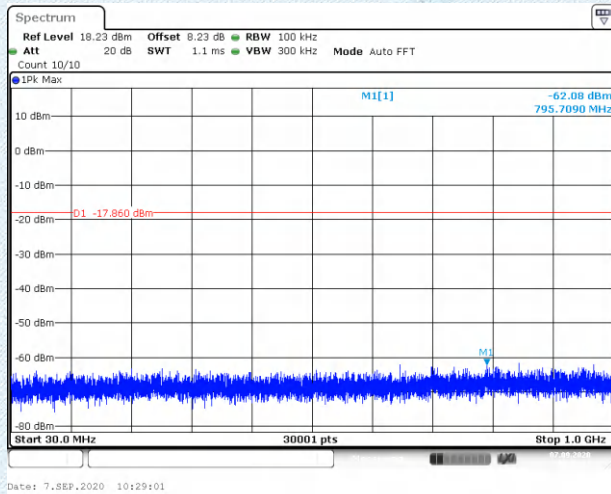




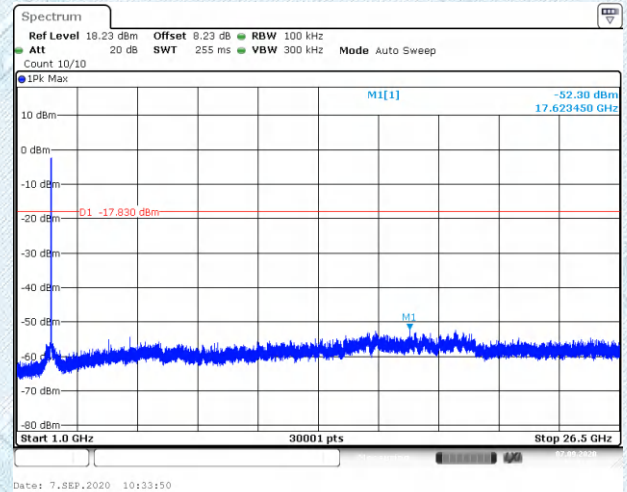
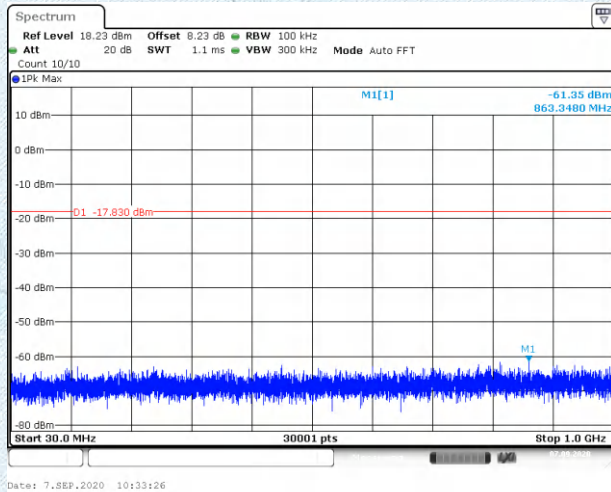


## 802.11n(HT20)

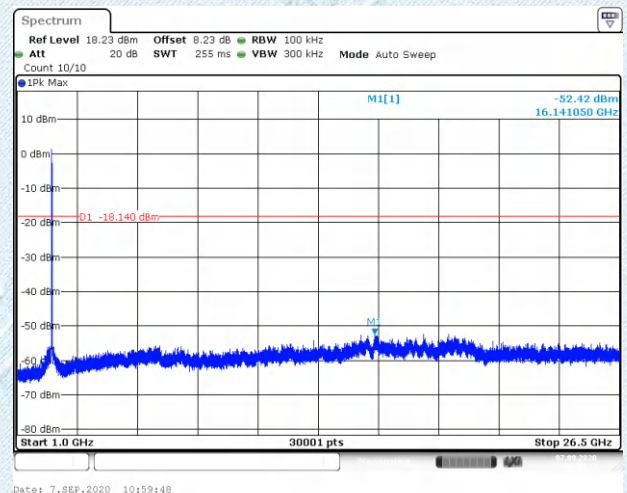
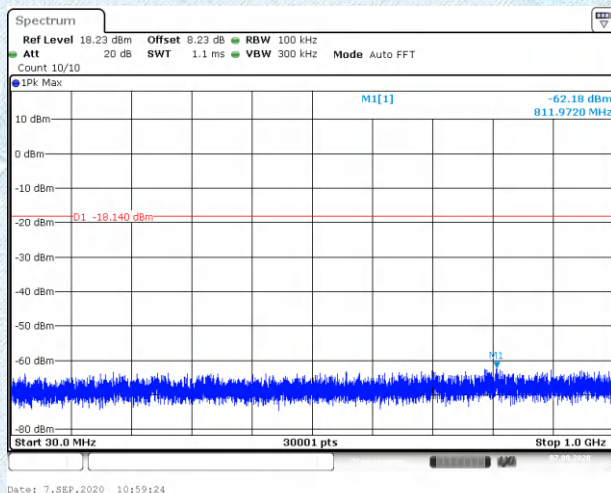
## CH01-SE



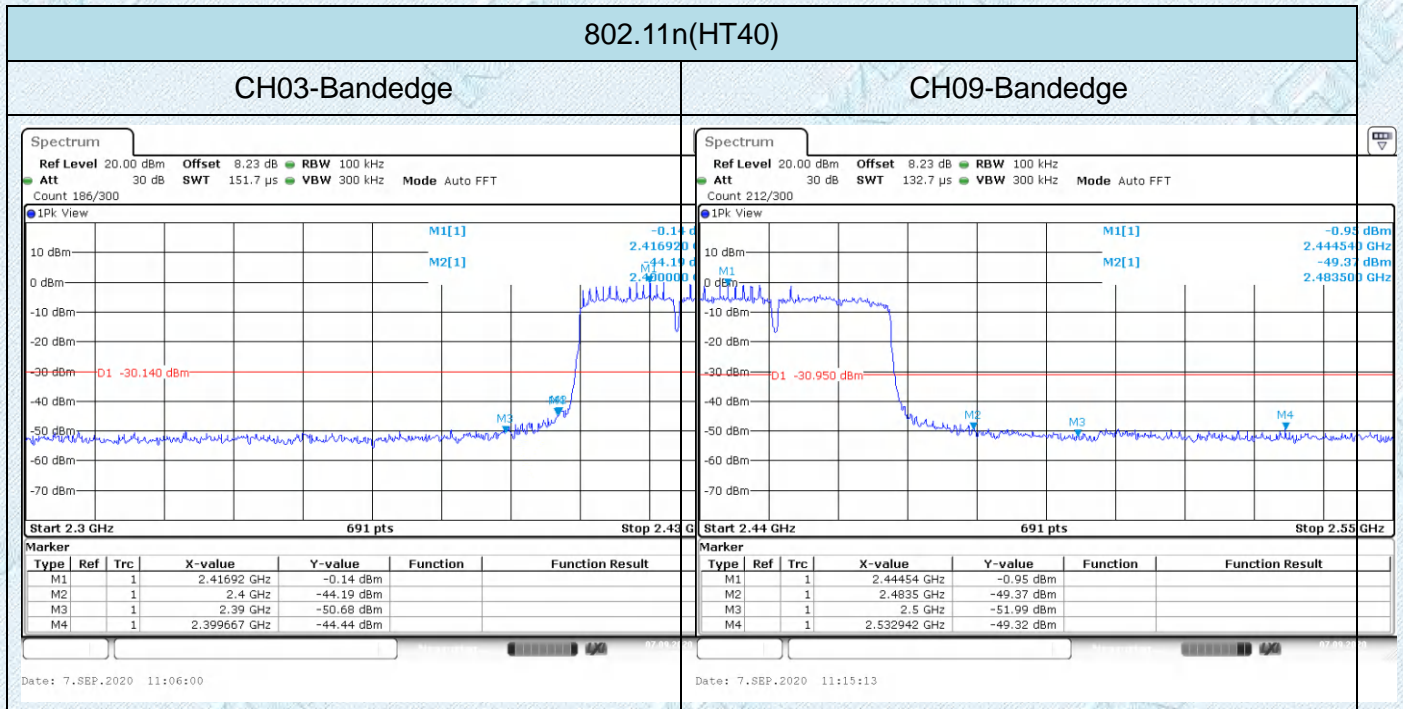
## CH06-SE



## CH11-SE



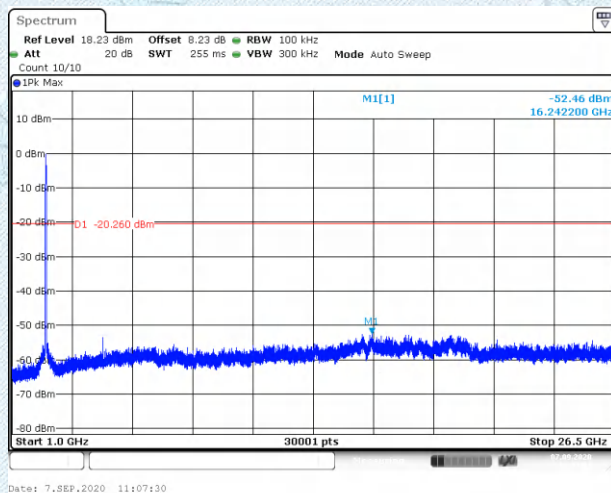
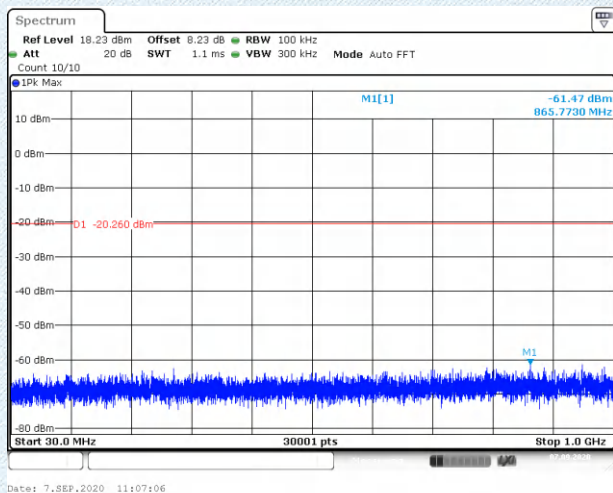




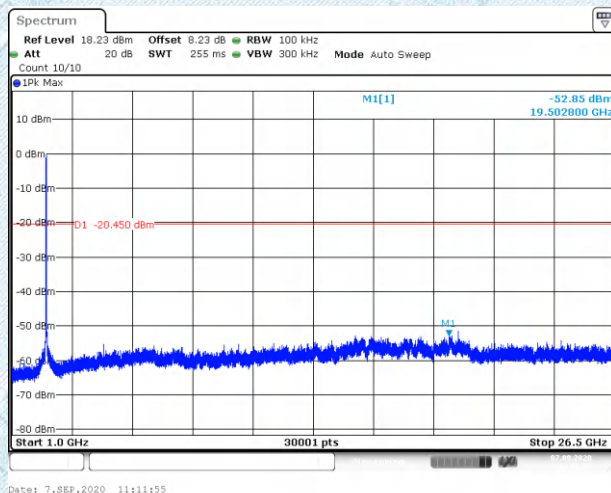
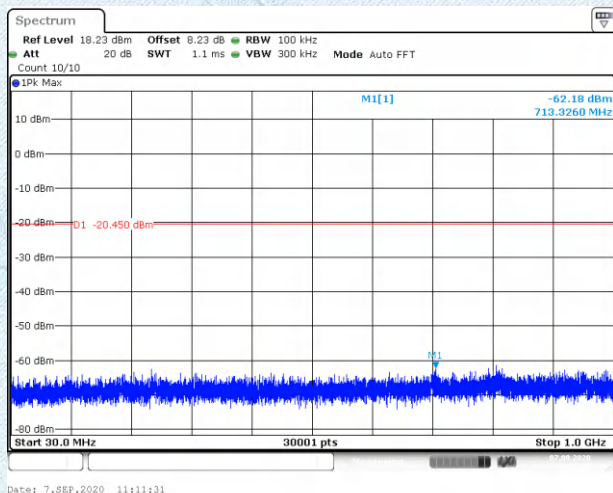


## 802.11n(HT40)

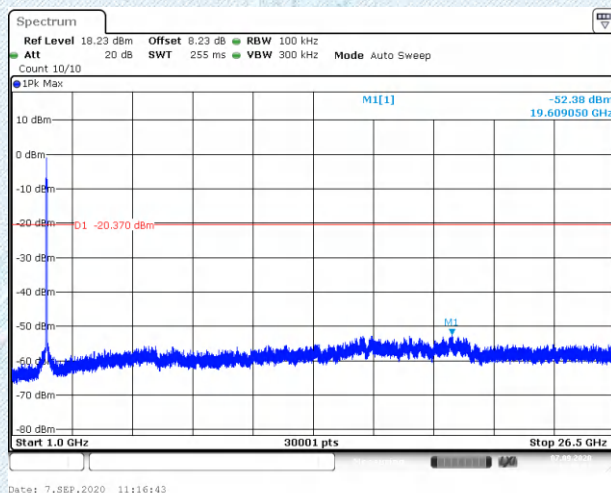
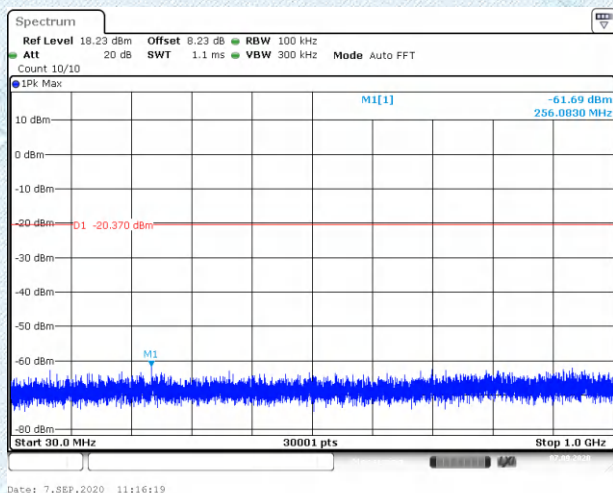
## CH03-SE



## CH06-SE



## CH09-SE



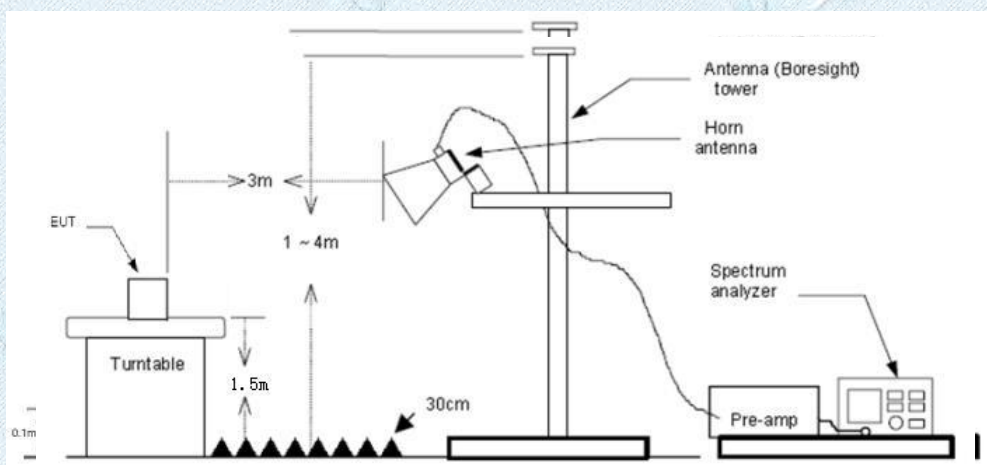


### 3.7. Band Edge Emissions(Radiated)

#### Limit

| Restricted Frequency Band (MHz)   | (dBuV/m)(at 3m) |         |
|---|-----------------|---------|
|   | Peak            | Average |
| 2310 ~2390  | 74              | 54      |
| 2483.5 ~2500  | 74              | 54      |
| <b>Note: All restriction bands have been tested, only the worst case is reported.</b> |                 |         |

#### Test Configuration



#### Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
5. The receiver set as follow:  
RBW=1MHz, VBW=3MHz PEAK detector for Peak value.  
RBW=1MHz, VBW=10Hz with Average detector for Average Value.

#### Test Mode

Please refer to the clause 2.3.

#### Test Results

Note:

1.Measurement = Reading level + Correct Factor

Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

2.Pre-scan 802.11b, 802.11g, 802.11n(HT20) and 802.11n(HT40) mode, and found the 802.11b mode which it is worse case, so only show the test data for worse case.