

# FCC DTS REPORT

## Certification

<b>Applicant Name:</b> SAMSUNG Electronics Co., Ltd.	<b>Date of Issue:</b> November 05, 2021
<b>Address:</b> 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea	<b>Test Site/Location:</b> 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
	<b>Report No.:</b> HCT-RF-2110-FC027-R1

<b>FCC ID:</b>	<b>A3LSMS901B</b>
<b>APPLICANT:</b>	<b>SAMSUNG Electronics Co., Ltd.</b>

<b>Model:</b>	SM-S901B/DS
<b>EUT Type:</b>	Mobile Phone
<b>Average Output Power:</b>	Ant.1 - 802.11b : 17.44 dBm, 802.11g : 16.57 dBm, 802.11n(HT20) : 16.36 dBm Ant.2 - 802.11b : 17.91 dBm, 802.11g : 17.22 dBm, 802.11n(HT20) : 16.98 dBm Ant.1&2 - 802.11b : 20.69 dBm, 802.11g : 19.77 dBm, 802.11n(HT20) : 19.63 dBm
<b>Frequency Range:</b>	2 412 MHz ~ 2 472 MHz
<b>Modulation type:</b>	CCK/DSSS/OFDM
<b>FCC Classification:</b>	Digital Transmission System(DTS)
<b>FCC Rule Part(s):</b>	Part 15.247

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

Report No.: HCT-RF-2110-FC027-R1

---

REVIEWED BY



---

Report prepared by : Jeong Ho Kim  
Engineer of Telecommunication Testing Center

---

Report approved by : Jong Seok Lee  
Manager of Telecommunication Testing Center

This test results were applied only to the test methods required by the standard.

This laboratory is not accredited for the test results marked \*.

The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (HCT Accreditation No.: KT197)

\* The report shall not be reproduced except in full(only partly) without approval of the laboratory.

## Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2110-FC027	October 28, 2021	- First Approval Report
HCT-RF-2110-FC027-R1	November 05, 2021	- Additional Model delete

# Table of Contents

REVIEWED BY .....	2
1. EUT DESCRIPTION .....	5
ANTENNA CONFIGURATIONS .....	6
2. TEST METHODOLOGY .....	8
EUT CONFIGURATION .....	8
EUT EXERCISE .....	8
GENERAL TEST PROCEDURES .....	8
DESCRIPTION OF TEST MODES .....	8
3. INSTRUMENT CALIBRATION.....	9
4. FACILITIES AND ACCREDITATIONS .....	9
FACILITIES .....	9
EQUIPMENT .....	9
5. ANTENNA REQUIREMENTS .....	10
6. MEASUREMENT UNCERTAINTY .....	10
7. DESCRIPTION OF TESTS.....	11
8. SUMMARY TEST OF RESULTS .....	28
9. TEST RESULT .....	29
9.1 DUTY CYCLE.....	29
9.2 6 dB BANDWIDTH .....	32
9.3 OUTPUT POWER .....	38
9.4 POWER SPECTRAL DENSITY .....	69
9.5 BAND EDGE / CONDUCTED SPURIOUS EMISSIONS.....	76
9.6 RADIATED SPURIOUS EMISSIONS .....	109
9.7 RADIATED RESTRICTED BAND EDGES .....	122
9.8 POWERLINE CONDUCTED EMISSIONS .....	130
10. LIST OF TEST EQUIPMENT .....	134
11. ANNEX A_ TEST SETUP PHOTO .....	136

**1. EUT DESCRIPTION**

<b>Model</b>	SM-S901B/DS		
<b>Additional Model</b>	-		
<b>EUT Type</b>	Mobile Phone		
<b>Power Supply</b>	DC 3.88 V		
<b>Frequency Range</b>	2 412 MHz ~ 2 472 MHz		
<b>Max. RF Output Power</b>	<u>Peak Power</u> (For information only)	Ant. 1	802.11b : 22.95 dBm 802.11g : 24.75 dBm 802.11n(HT20) : 24.25 dBm
		Ant.2	802.11b : 23.34 dBm 802.11g : 25.16 dBm 802.11n(HT20) : 24.79 dBm
		Ant.1&2 (MIMO)	802.11b : 26.12 dBm 802.11g : 27.86 dBm 802.11n(HT20) : 27.31 dBm
	<u>Average Power</u>	Ant. 1	802.11b : 17.44 dBm 802.11g : 16.57 dBm 802.11n(HT20) : 16.36 dBm
		Ant.2	802.11b : 17.91 dBm 802.11g : 17.22 dBm 802.11n(HT20) : 16.98 dBm
		Ant.1&2 (MIMO)	802.11b : 20.69 dBm 802.11g : 19.77 dBm 802.11n(HT20) : 19.63 dBm
<b>Modulation Type</b>	DSSS/CCK : 802.11b OFDM : 802.11g, 802.11n		
<b>Number of Channels</b>	13 Channels		
<b>Date(s) of Tests</b>	September 24, 2021 ~ October 28, 2021		
<b>Serial number</b>	Radiated: R3CR90EYFYM Conducted: R3CR90EYJRZ		

### ANTENNA CONFIGURATIONS

1. The device employs MIMO technology. Below are the possible configurations

Configurations	SISO		SDM	CDD
	Ant1	Ant2	Ant1 + Ant2	Ant1 + Ant2
802.11b	O	O	X	O
802.11g	O	O	X	O
802.11n(HT20)	O	O	O	O

**Note:**

- (1) O = Support, X = Not Support
- (2) SISO = Single Input Single Output
- (3) SDM = Spatial Diversity Multiplexing
- (4) CDD = Cyclic Delay Diversity

2. This device supports simultaneous transmission operation, which allows for two channels to operate independent of one another in the 2.4 GHz and 5 GHz bands simultaneously on each antenna.

RSDB Scenario	2.4 GHz	2.4 GHz	5GHz	5GHz	Bluetooth Ant.1	Bluetooth Ant.2 (N/A)
	WiFi Ant.1	WiFi Ant.2	WiFi Ant.1	WiFi Ant.2		
2.4 GHz WiFi MIMO + 5GHz WiFi	On	On	On			-
2.4 GHz WiFi MIMO + 5GHz WiFi MIMO	On	On	On	On		-
2.4 GHz WiFi + 5GHz WiFi + Bluetooth		On	On		On	-
2.4 GHz WiFi + 5GHz WiFi MIMO + Bluetooth		On	On	On	On	-

Non-DBS	2.4 GHz	2.4 GHz	5GHz	5GHz	Bluetooth Ant.1	Bluetooth Ant.2 (N/A)
	WiFi Ant.1	WiFi Ant.2	WiFi Ant.1	WiFi Ant.2		
5GHz WiFi MIMO + Bluetooth			On	On	On	-
			On	On		-

### 3. Directional Gain Calculation

According to KDB 662911 D01 Multiple Transmitter Output v02r01 F) 2) f) (ii)

Directional gain =

$$\bullet \quad \text{Directional Gain} = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

Ant Gain (dBi)		$N_{ANT}/ N_{SS}$	Directional Gain (dBi)
ANT1(Core 0)	-4.15	2 / 2	CDD :-1.79
ANT2(Core 1)	-5.52		SDM: -4.15

## **2. TEST METHODOLOGY**

FCC KDB 558074 D01 15.247 Meas Guidance v05r02 dated April 02, 2019 entitled “guidance for compliance measurements on digital transmission system, frequency hopping spread spectrum system, and hybrid system devices and the measurement procedure described in ANSI C63.10(Version : 2013) ‘the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices’.

### **EUT CONFIGURATION**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

### **EUT EXERCISE**

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

## **GENERAL TEST PROCEDURES**

### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10. (Version :2013) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and average detector modes.

### **Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1 GHz. Above 1 GHz with 1.5 m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 6.6.5 of ANSI C63.10. (Version: 2013)

## **DESCRIPTION OF TEST MODES**

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.



### **3. INSTRUMENT CALIBRATION**

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment's, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

### **4. FACILITIES AND ACCREDITATIONS**

#### **FACILITIES**

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated April 02, 2018 (Registration Number: KR0032).

#### **EQUIPMENT**

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

## 5. ANTENNA REQUIREMENTS

### According to FCC 47 CFR §15.203:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section.”

- (1) The antennas of this E.U.T are permanently attached.
- (2) The E.U.T Complies with the requirement of §15.203

## 6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of  $k = 2$  to indicate a 95 % level of confidence.

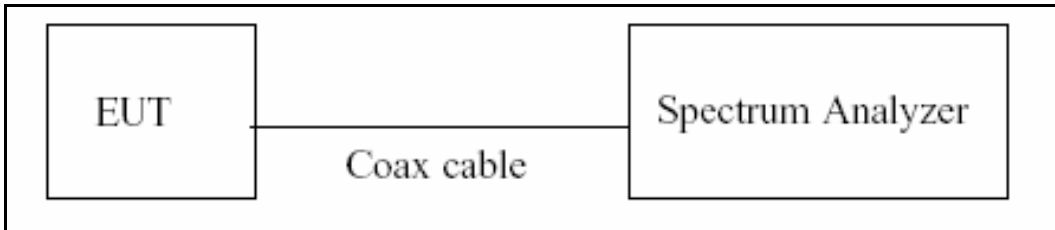
The measurement data shown herein meets or exceeds the  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.82 ( Confidence level about 95 %, $k=2$ )
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40 ( Confidence level about 95 %, $k=2$ )
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80 ( Confidence level about 95 %, $k=2$ )
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70 ( Confidence level about 95 %, $k=2$ )
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05 ( Confidence level about 95 %, $k=2$ )

## 7. DESCRIPTION OF TESTS

### 7.1. Duty Cycle

#### Test Configuration



#### Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

We tested according to the zero-span measurement method.

The largest available value of RBW is 8 MHz and VBW is 50 MHz.

The zero-span method of measuring duty cycle shall not be used if  $T \leq 6.25$  microseconds. ( $50/6.25 = 8$ )

The zero-span method was used because all measured  $T$  data are  $> 6.25$  microseconds and both RBW and VBW are  $> 50/T$ .

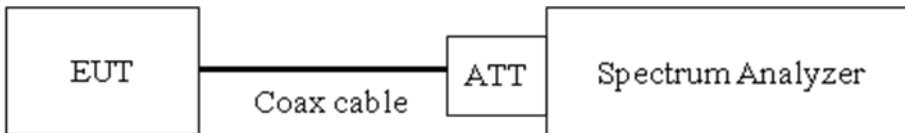
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ( $\geq$  RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep  $> 100$
6. Trace mode = Clear write
7. Measure  $T_{total}$  and  $T_{on}$
8. Calculate Duty Cycle =  $T_{on} / T_{total}$  and Duty Cycle Factor =  $10\log(1/\text{Duty Cycle})$

## 7.2. 6 dB Bandwidth

### Limit

The minimum permissible 6 dB bandwidth is 500 kHz.

### Test Configuration



### Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to (Procedure 11.8.1 in ANSI 63.10-2013)

- 1) RBW = 100 kHz
- 2) VBW  $\geq 3 \times$  RBW
- 3) Detector = Peak
- 4) Trace mode = max hold
- 5) Sweep = auto couple
- 6) Allow the trace to stabilize
- 7) We tested 6 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set 6 dB.

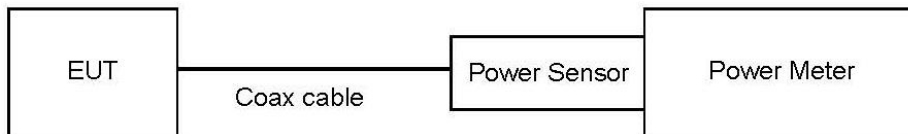
Note : We tested OBW using the automatic bandwidth measurement capability of a spectrum analyzer.

### 7.3. Output Power

#### Limit

The maximum permissible conducted output power is 1 Watt.

#### Test Configuration



#### Test Procedure

The transmitter output is connected to the Power Meter.

- Peak Power (Procedure 11.9.1.3 in ANSI 63.10-2013)  
: Measure the peak power of the transmitter.
  
- Average Power (Procedure 11.9.2.3 in ANSI 63.10-2013)
  - 1) Measure the duty cycle.
  - 2) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
  - 3) Add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

#### Sample Calculation

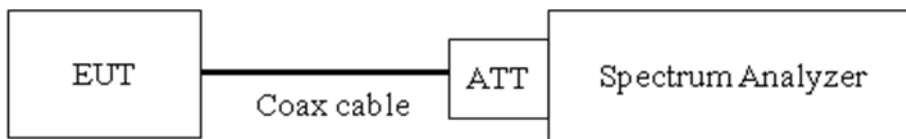
- Conducted Output Power(Peak) = Measured Level + ATT loss + Cable loss
- Conducted Output Power(Average) = Measured Level + ATT loss + Cable loss + Duty Cycle Factor

## 7.4. Power Spectral Density

### Limit

The transmitter power density average over 1-second interval shall not be greater than 8 dBm in any 3 kHz BW.

### Test Configuration



### Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

We tested according to Procedure 8.4 in KDB 558074 v05r02, Procedure 11.10 in ANSI 63.10-2013.

The spectrum analyzer is set to :

- 1) Set analyzer center frequency to DTS channel center frequency.
- 2) Set span to at least 1.5 times the OBW.
- 3)  $RBW = 3 \text{ kHz} \leq RBW \leq 100 \text{ kHz}$ .
- 4)  $VBW \geq 3 \times RBW$ .
- 5) Sweep = auto couple
- 6) Detector = power averaging (rms) or sample detector (when rms not available).
- 7) Ensure that the number of measurement points in the sweep  $\geq [2 \times \text{span} / RBW]$ .
- 8) Employ trace averaging (rms) mode over a minimum of 100 traces
- 9) Use the peak marker function to determine the maximum amplitude level.
- 10) Use the peak marker function to determine the maximum amplitude level within the RBW.  
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 11) if then duty factor shall be added to adjust the result if the duty cycle is less than 98 %

### Sample Calculation

- Power Spectral Density = Measured Level + ATT loss + Cable loss

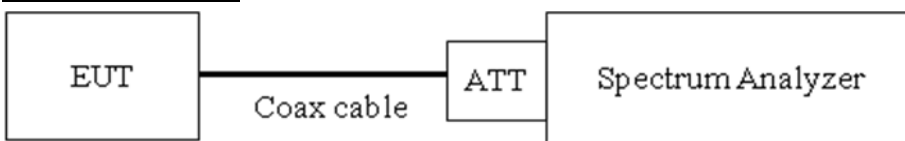
## 7.5. Conducted Band Edge(Out of Band Emissions) & Conducted Spurious Emissions

### Limit

The maximum conducted (Average) output power was used to demonstrate compliance, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least relative to the maximum in-band peak PSD level in 100 kHz.

[ Conducted > 30 dBc ]

### Test Configuration



### Test Procedure

The transmitter output is connected to the spectrum analyzer.

(Procedure 11.11 in ANSI 63.10-2013)

- 1) RBW = 100 kHz
- 2) VBW  $\geq 3 \times$  RBW
- 3) Set span to encompass the spectrum to be examined
- 4) Detector = Peak
- 5) Trace Mode = max hold
- 6) Sweep time = auto couple
- 7) Ensure that the number of measurement points  $\geq 2 \times$  Span/RBW
- 8) Allow trace to fully stabilize.
- 9) Use peak marker function to determine the maximum amplitude level.

Measurements are made over the 30 MHz to 25 GHz range with the transmitter set to the lowest, middle, and highest channels.

**Factors for frequency**

Freq(MHz)	Factor(dB)
30	20.04
100	20.09
200	20.13
300	20.19
400	20.22
500	20.23
600	20.23
700	20.25
800	20.27
900	20.29
1000	20.31
2000	20.46
2400	20.52
2480	20.52
2500	20.52
3000	20.57
4000	20.67
5000	20.75
5150	20.77
5850	20.82
6000	20.82
7000	20.91
8000	20.98
9000	21.05
10 000	21.12
11 000	21.16
12 000	21.24
13 000	21.32
14 000	21.30
15 000	21.32
16 000	21.37
17 000	21.41
18 000	21.47
19 000	21.50
20 000	21.56
21 000	21.77
22 000	21.74
23 000	21.94
24 000	21.77

Note : 1. 2 400 ~ 2 500 MHz is fundamental frequency range.

2. Factor = Attenuator loss(20 dB) + Cable loss(1ea)



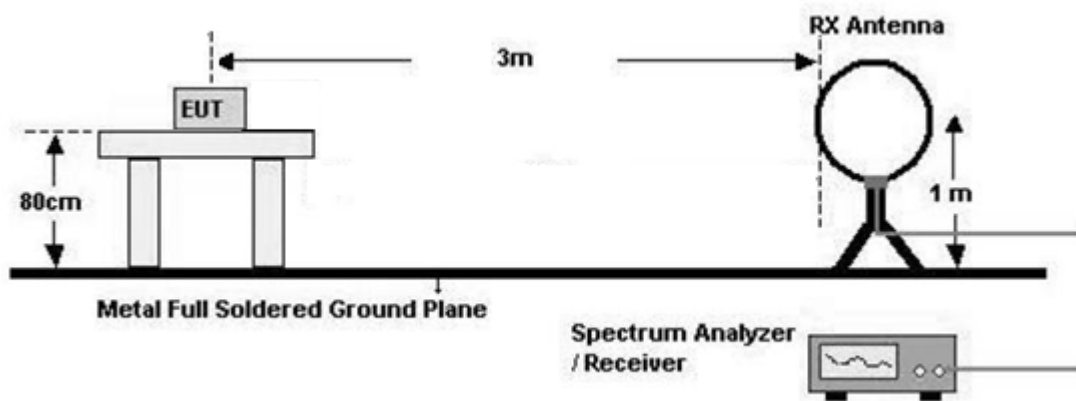
## 7.6. Radiated Test

### Limit

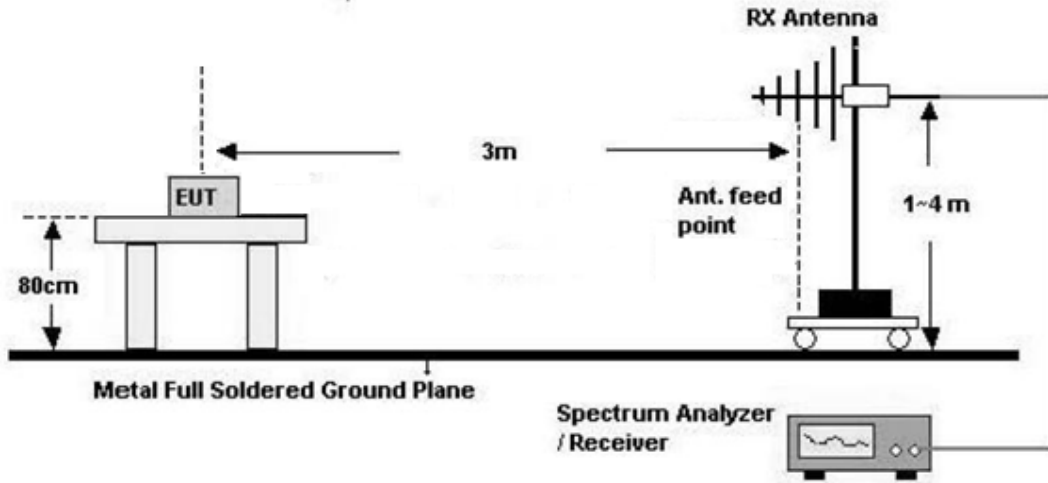
Frequency (MHz)	Field Strength ( $\mu\text{V/m}$ )	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

### Test Configuration

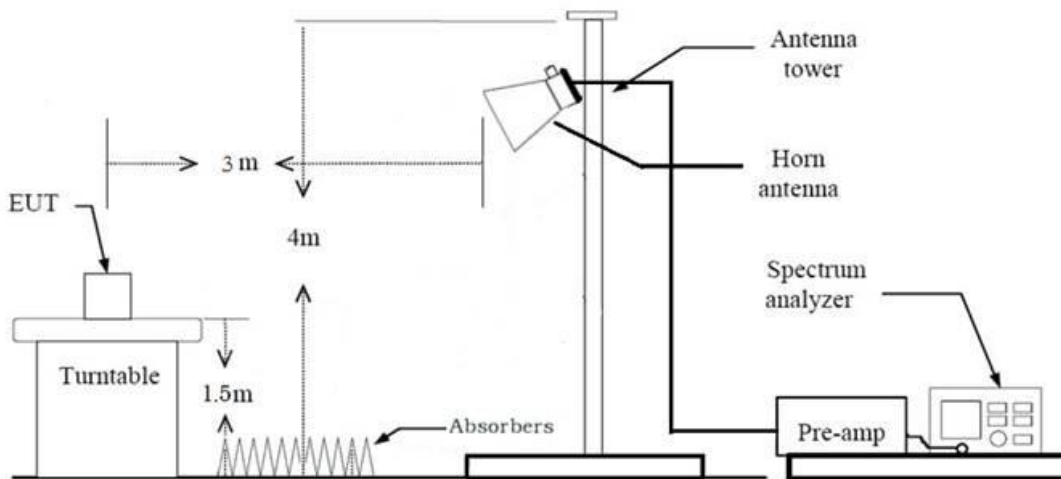
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



**Test Procedure of Radiated spurious emissions(Below 30 MHz)**

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3 m from the EUT
3. The EUT is placed on a turntable, which is 0.8 m above ground plane.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) =  $40\log(3\text{ m}/300\text{ m}) = - 80\text{ dB}$   
Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) =  $40\log(3\text{ m}/30\text{ m}) = - 40\text{ dB}$   
Measurement Distance : 3 m
8. Spectrum Setting
  - Frequency Range = 9 kHz ~ 30 MHz
  - Detector = Peak
  - Trace = Maxhold
  - RBW = 9 kHz
  - VBW  $\geq 3 \times$  RBW
9. Total = Measured Level + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

**KDB 414788 OFS and Chamber Correlation Justification**

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

**Test Procedure of Radiated spurious emissions(Below 1 GHz)**

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8 m above ground plane.
3. The Hybrid antenna was placed at a location 3 m from the EUT, which is varied from 1 m to 4 m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting
  - (1) Measurement Type(Peak):
    - Measured Frequency Range : 30 MHz – 1 GHz
    - Detector = Peak
    - Trace = Maxhold
    - RBW = 100 kHz
    - VBW  $\geq$  3 x RBW
  - (2) Measurement Type(Quasi-peak):
    - Measured Frequency Range : 30 MHz – 1 GHz
    - Detector = Quasi-Peak
    - RBW = 120 kHz
- ※ In general, (1) is used mainly
7. Total = Measured Level + Antenna Factor(A.F) + Cable Loss(C.L)
8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

**Test Procedure of Radiated spurious emissions (Above 1 GHz)**

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting (Method 8.6 in KDB 558074 v05r02, Procedure 11.12 in ANSI 63.10-2013)
  - (1) Measurement Type(Peak):
    - Measured Frequency Range : 1 GHz – 25 GHz
    - Detector = Peak

- Trace = Maxhold
- RBW = 1 MHz
- VBW  $\geq 3 \times$  RBW

(2) Measurement Type(Average): Duty cycle  $\geq 98 \%$

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW  $\geq 3 \times$  RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).

(3) Measurement Type(Average): Duty cycle  $< 98 \%$ , duty cycle variations are less than  $\pm 2 \%$

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW  $\geq 3 \times$  RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 % duty cycle.
- Duty Cycle Factor (dB) : Please refer to the please refer to section 9.1.

9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin  $> 20$  dB from the applicable limit) and considered that's already beyond the background noise floor.

10. Distance extrapolation factor =  $20\log$  (test distance / specific distance) (dB)

11. Total(Measurement Type : Peak)

$$= \text{Measured Level} + \text{Antenna Factor(A.F)} + \text{Cable Loss(C.L)} - \text{Amp Gain(A.G)} + \text{Distance Factor(D.F)}$$

Total(Measurement Type : Average, Duty cycle  $\geq 98 \%$ )

$$= \text{Measured Level} + \text{Antenna Factor(A.F)} + \text{Cable Loss(C.L)} - \text{Amp Gain(A.G)} + \text{Distance Factor(D.F)}$$

Total(Measurement Type : Average, Duty cycle  $< 98 \%$ )

$$= \text{Measured Level} + \text{Antenna Factor(A.F)} + \text{Cable Loss(C.L)} - \text{Amp Gain(A.G)} + \text{Distance Factor(D.F)} \\ + \text{Duty Cycle Factor}$$

**Test Procedure of Radiated Restricted Band Edge**

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting
  - (1) Measurement Type(Peak):
    - Measured Frequency Range : 2310 MHz ~ 2390 MHz/ 2483.5 MHz ~ 2500 MHz
    - Detector = Peak
    - Trace = Maxhold
    - RBW = 1 MHz
    - VBW  $\geq 3 \times$  RBW
  - (2) Measurement Type(Average): Duty cycle  $\geq 98 \%$ ,
    - Measured Frequency Range : 2310 MHz ~ 2390 MHz/ 2483.5 MHz ~ 2500 MHz
    - Detector = RMS
    - Averaging type = power (*i.e.*, RMS)
    - RBW = 1 MHz
    - VBW  $\geq 3 \times$  RBW
    - Sweep time = auto.
    - Trace mode = average (at least 100 traces).
  - (3) Measurement Type(Average): Duty cycle  $< 98 \%$ , duty cycle variations are less than  $\pm 2 \%$ 
    - Measured Frequency Range : 2310 MHz ~ 2390 MHz/ 2483.5 MHz ~ 2500 MHz
    - Detector = RMS
    - Averaging type = power (*i.e.*, RMS)
    - RBW = 1 MHz
    - VBW  $\geq 3 \times$  RBW
    - Sweep time = auto.
    - Trace mode = average (at least 100 traces).
    - Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 % duty cycle.

- Duty Cycle Factor (dB) : Please refer to the please refer to section 9.1.

9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

10. Distance extrapolation factor =  $20\log(\text{test distance} / \text{specific distance})$  (dB)

11. Total(Measurement Type : Peak)

= Measured Level + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)

Total(Measurement Type : Average, Duty cycle  $\geq$  98 %)

= Measured Level + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)

Total(Measurement Type : Average, Duty cycle < 98 %)

= Measured Level + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F) + Duty Cycle Factor

## 7.7. AC Power line Conducted Emissions

### Limit

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56 <sup>(a)</sup>	56 to 46 <sup>(a)</sup>
0.50 to 5	56	46
5 to 30	60	50

<sup>(a)</sup>Decreases with the logarithm of the frequency.

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

### Test Configuration

See test photographs attached in Annex A for the actual connections between EUT and support equipment.

### Test Procedure

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors : Quasi Peak and Average Detector.

### Sample Calculation

Quasi-peak(Final Result) = Measured Level + Correction Factor



**7.8. Worst case configuration and mode**

**Radiated test**

1. All modes of operation were investigated and the worst case configuration results are reported.
  - Mode : Stand alone, Stand alone + External accessories(Earphone, etc)
  - Worstcase : Stand alone
2. EUT Axis
  - Radiated Spurious Emissions : X, Z, Y
  - Radiated Restricted Band Edge : X, Y
3. Duty cycle factor applies only 802.11g/n/ac (Duty cycle < 98 %).
4. All data rate of operation were investigated and the test results are worst case in lowest Data Rate of each mode.
  - 802.11b : 1 Mbps
  - 802.11g : 6 Mbps
  - 802.11n(HT20): MCS0
5. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.
  - Position : Horizontal, Vertical, Parallel to the ground plane

**Radiated test(RSDB)**

1. All modes of operation were investigated and the worst case configuration results are reported.
  - Mode : Stand alone, Stand alone + External accessories(Earphone, etc)
  - Worstcase : Stand alone
2. EUT Axis
  - Radiated Spurious Emissions : X, Z
3. Test case

RSDB Scenario	2.4 GHz	2.4 GHz	5GHz	5GHz	Bluetooth	Bluetooth
	WiFi	WiFi	WiFi	WiFi		
	Ant.1	Ant.2	Ant.1	Ant.2	Ant.1	Ant.2 (N/A)
2.4 GHz WiFi MIMO + 5GHz WiFi	On	On	On			-
2.4 GHz WiFi MIMO + 5GHz WiFi MIMO	On	On	On	On		-
2.4 GHz WiFi + 5GHz WiFi + Bluetooth		On	On		On	-
2.4 GHz WiFi + 5GHz WiFi MIMO + Bluetooth		On	On	On	On	-

Non-DBS	2.4 GHz WiFi Ant.1	2.4 GHz WiFi Ant.2	5GHz WiFi Ant.1	5GHz WiFi Ant.2	Bluetooth Ant.1	Bluetooth Ant.2 (N/A)
5GHz WiFi MIMO + Bluetooth			On	On	On	-
			On	On		-

4. The following tables show the worst case configurations determined during testing.

(Worst case: The lowest margin condition the channels and modes were selected for test.)

(Test case 1,2,3,4 Result : Please refer to the SM-S901B/DS [BT, UNII, UNII ax, DTS ax] Test Report.)

Case	Description	Bluetooth Emission	5 GHz Emission
1	Antenna	Ant 1	Ant All
	Channel	78	52
	Data Rate	1 Mbps	MCS 0
	Mode	GFSK : DH5	802.11n(HT20)
Case	Description	Bluetooth Emission	5 GHz Emission
2	Antenna	Ant 1	Ant All
	Channel	0	36
	Data Rate	1 Mbps	6 Mbps
	Mode	GFSK : DH5	802.11a
Case	Description	2.4 GHz Emission	5 GHz Emission
3	Antenna	Ant All	Ant All
	Channel	6	36
	Data Rate	MCS 0	MCS 0
	Mode	802.11ax(HE20)	802.11ax(HE20)
	Tone / RU	SU	SU
Case	Description	2.4 GHz Emission	5 GHz Emission
4	Antenna	Ant All	Ant All
	Channel	1	36
	Data Rate	MCS 0	MCS 0
	Mode	802.11ax(HE20)	802.11ax(HE20)
	Tone / RU	26 / 4	36 / 4
Case	Description	2.4 GHz Emission	5 GHz Emission
5	Antenna	Ant All	Ant All
	Channel	6	36
	Data Rate	1 Mbps	6 Mbps
	Mode	802.11b	802.11a
Case	Description	2.4 GHz Emission	5 GHz Emission
6	Antenna	Ant All	Ant All
	Channel	1	36
	Data Rate	1 Mbps	MCS 0
	Mode	802.11b	802.11n(HT20)

**AC Power line Conducted Emissions**

1. All modes of operation were investigated and the worst case configuration results are reported.

- Mode : Stand alone + External accessories(Earphone, etc)+Travel Adapter,  
Stand alone + Travel Adapter
- Worstcase : Stand alone + Travel Adapter

**Conducted test**

1. The EUT was configured with data rate of highest power.

**8. SUMMARY TEST OF RESULTS**

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
6 dB Bandwidth	§15.247(a)(2)	> 500 kHz	Conducted	PASS
Conducted Maximum Output Power	§15.247(b)(3)	< 1 Watt		PASS
Power Spectral Density	§15.247(e)	< 8 dBm / 3 kHz Band		PASS
Band Edge (Out of Band Emissions)	§15.247(d)	Conducted > 30 dBc		PASS
AC Power line Conducted Emissions	§15.207	cf. Section 7.7		PASS
Radiated Spurious Emissions	§15.247(d), 15.205, 15.209	cf. Section 7.6	Radiated	PASS
Radiated Restricted Band Edge	§15.247(d), 15.205, 15.209	cf. Section 7.6		PASS

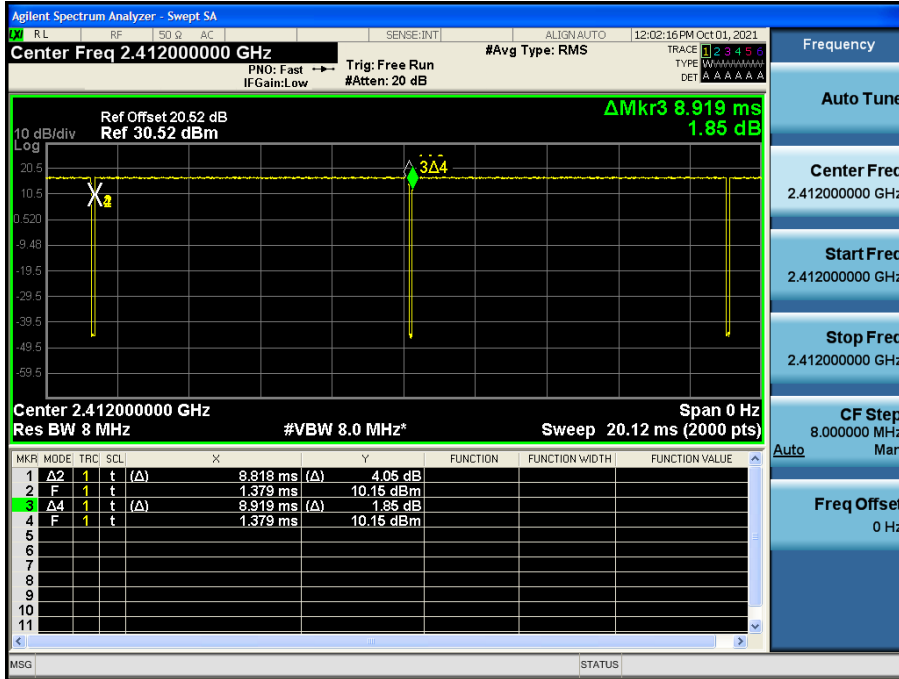
## 9. TEST RESULT

### 9.1 DUTY CYCLE

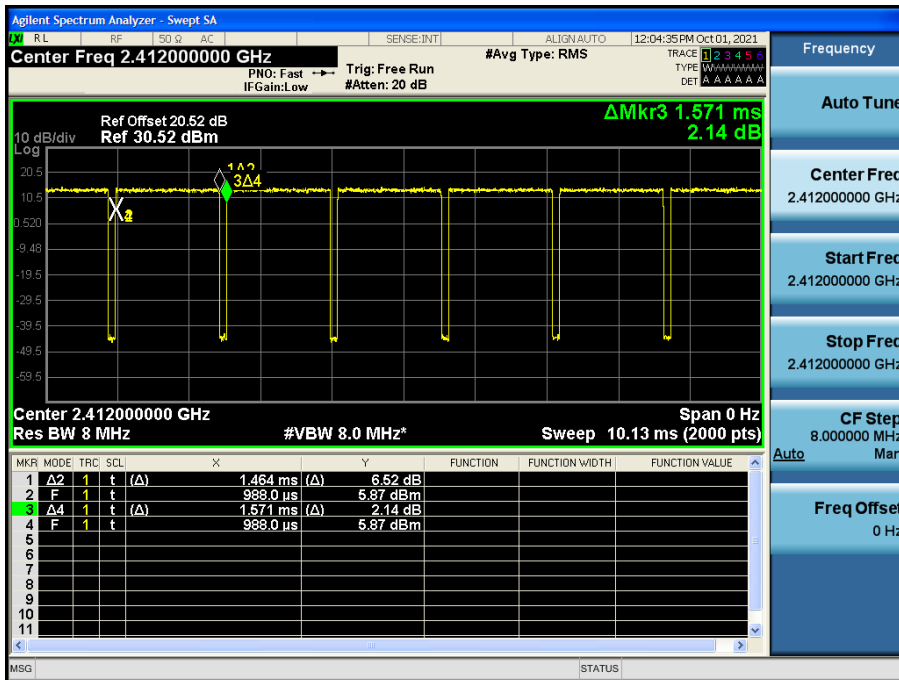
Mode	Data Rate (Mbps)	T <sub>on</sub> (ms)	T <sub>total</sub> (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11b	1	8.818	8.919	0.989	0.049
	2	4.404	4.508	0.977	0.101
	5.5	1.667	1.768	0.943	0.256
	11	0.877	0.983	0.892	0.498
802.11g	6	1.464	1.571	0.932	0.305
	9	0.983	1.094	0.898	0.467
	12	0.740	0.851	0.869	0.610
	18	0.502	0.608	0.825	0.835
	24	0.380	0.486	0.781	1.072
	36	0.263	0.370	0.712	1.473
	48	0.203	0.309	0.656	1.833
	54	0.182	0.289	0.632	1.996
802.11n (HT20)	6.5 (MCS0)	1.246	1.358	0.918	0.372
	13 (MCS1)	0.638	0.750	0.851	0.699
	19.5 (MCS2)	0.436	0.547	0.796	0.989
	26 (MCS3)	0.339	0.446	0.761	1.184
	39 (MCS4)	0.243	0.345	0.706	1.513
	52 (MCS5)	0.187	0.294	0.638	1.952
	58.5 (MCS6)	0.172	0.279	0.618	2.089
	65 (MCS7)	0.162	0.269	0.604	2.191

Test Plots

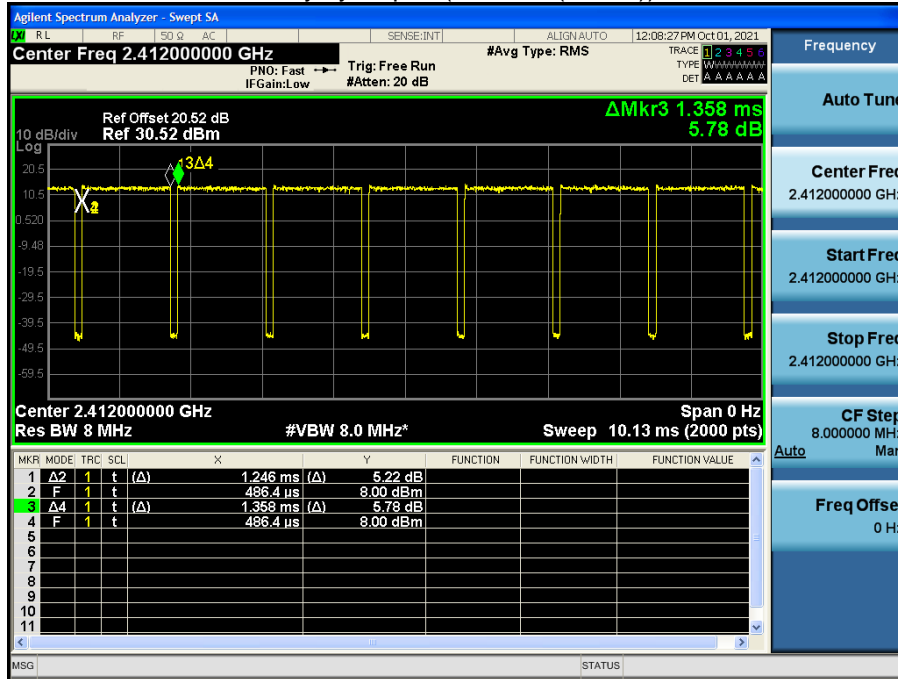
Duty cycle plot (802.11b(1 Mbps))



Duty cycle plot (802.11g(6 Mbps))



Duty cycle plot (802.11n(MCS0))



**Note:**

In order to simplify the report, attached plots were only the most lowest data rate.

**9.2 6 dB BANDWIDTH**

[Ant.1]

802.11b Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	7.583	0.5
2417	2	7.570	0.5
2437	6	7.562	0.5
2457	10	7.621	0.5
2462	11	7.649	0.5
2467	12	7.673	0.5
2472	13	8.114	0.5

802.11g Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	14.46	0.5
2417	2	15.11	0.5
2437	6	15.16	0.5
2457	10	15.15	0.5
2462	11	15.74	0.5
2467	12	15.15	0.5
2472	13	15.14	0.5

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	14.69	0.5
2417	2	15.14	0.5
2437	6	15.47	0.5
2457	10	15.14	0.5
2462	11	15.96	0.5
2467	12	15.12	0.5
2472	13	15.14	0.5



**[Ant.2]**

802.11b Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	8.118	0.5
2417	2	7.580	0.5
2437	6	8.120	0.5
2457	10	8.107	0.5
2462	11	8.124	0.5
2467	12	8.070	0.5
2472	13	8.109	0.5

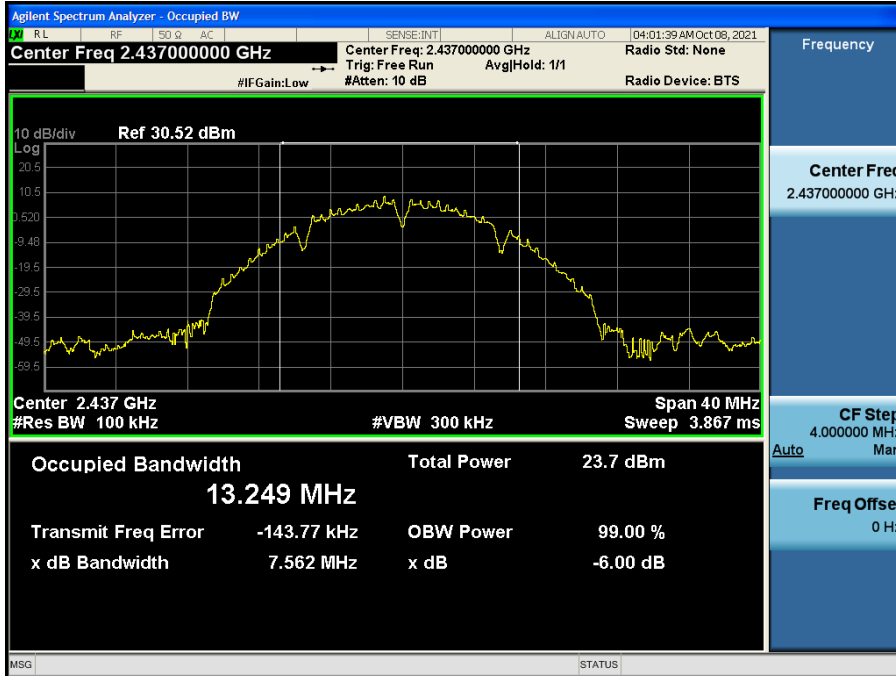
802.11g Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	15.43	0.5
2417	2	15.15	0.5
2437	6	15.14	0.5
2457	10	15.16	0.5
2462	11	15.72	0.5
2467	12	15.11	0.5
2472	13	15.13	0.5

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	14.75	0.5
2417	2	15.10	0.5
2437	6	15.14	0.5
2457	10	15.96	0.5
2462	11	16.33	0.5
2467	12	15.15	0.5
2472	13	15.16	0.5

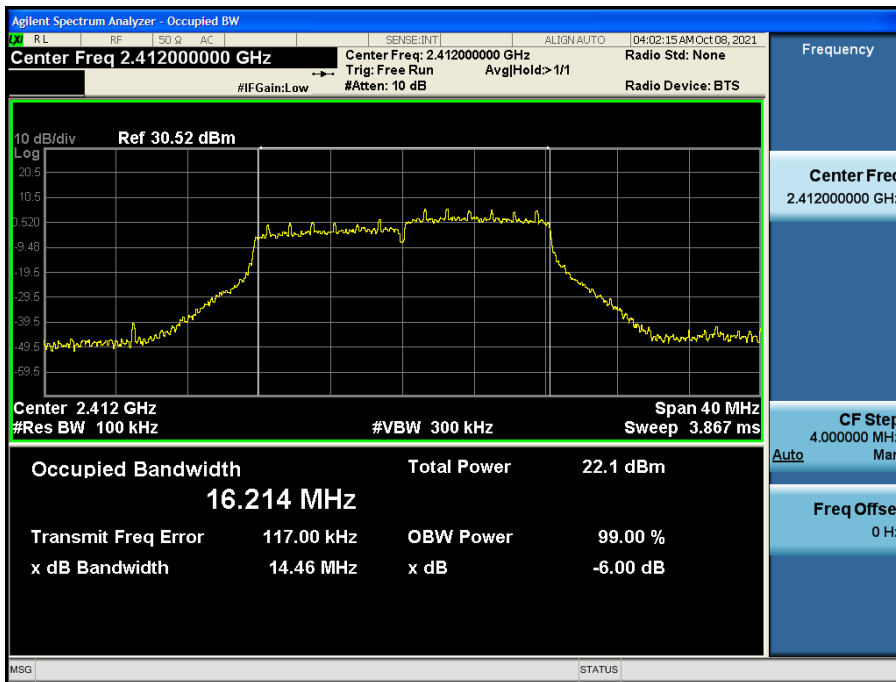
[Ant.1]

▣ Test Plots

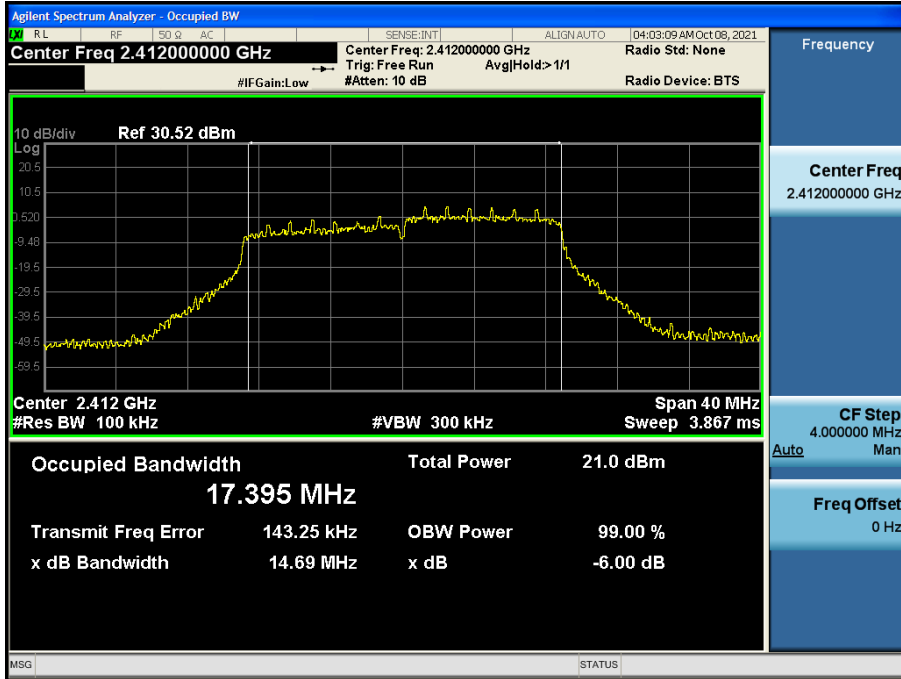
6 dB Bandwidth plot (802.11b-CH 6)



6 dB Bandwidth plot (802.11g-CH 1)



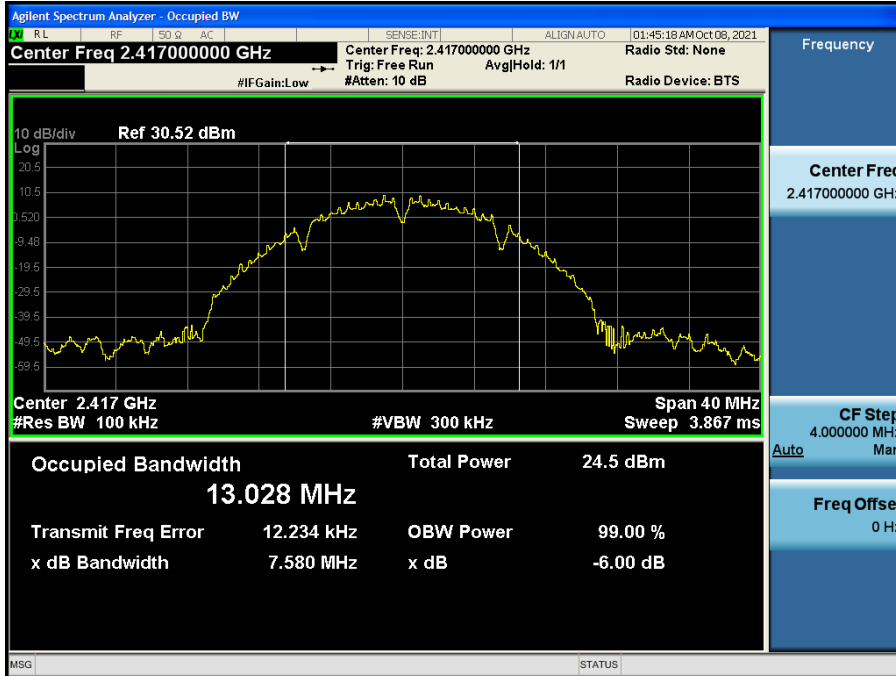
6 dB Bandwidth plot (802.11n\_HT20-CH 1)



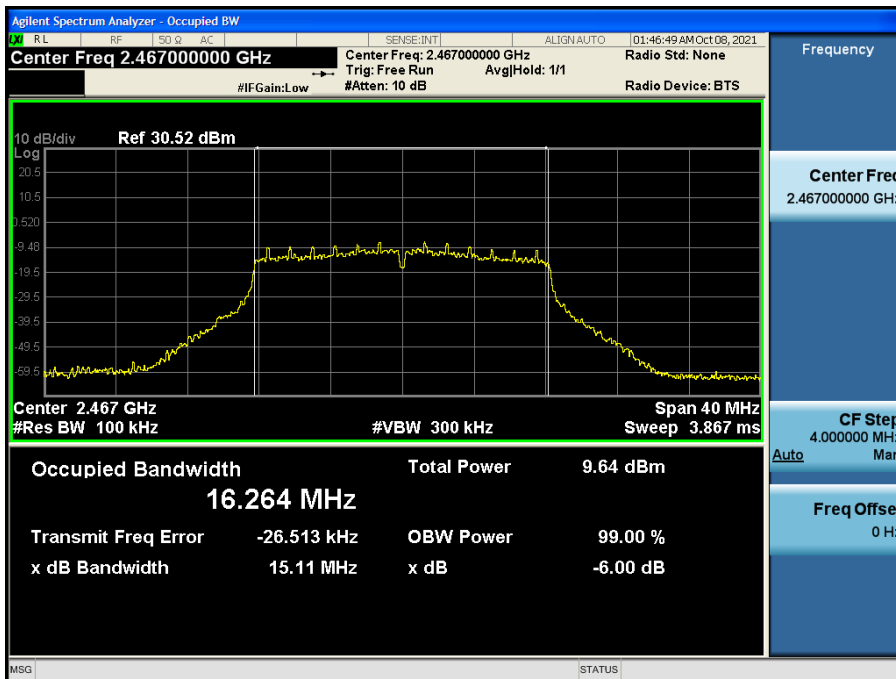
[Ant.2]

▣ Test Plots

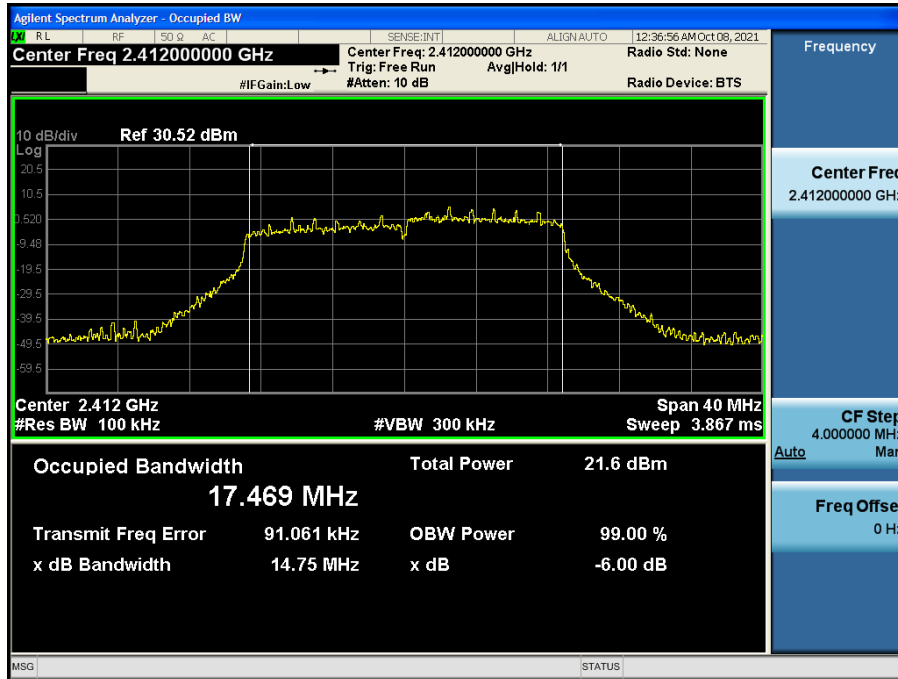
6 dB Bandwidth plot (802.11b-CH 2)



6 dB Bandwidth plot (802.11g-CH 12)



6 dB Bandwidth plot (802.11n\_HT20-CH 1)



**Note:**

In order to simplify the report, attached plots were only the most narrow 6 dB BW channel.

**9.3 OUTPUT POWER****Power LevelSetting**

Mode	Frequency [MHz]	Channel No.	PLS
802.11b	2412	1	18
	2417	2	18
	2437	6	18
	2457	10	18
	2462	11	18
	2467	12	1
	2472	13	0

Mode	Frequency [MHz]	Channel No.	PLS
802.11g	2412	1	15
	2417	2	17
	2437	6	17
	2457	10	17
	2462	11	15
	2467	12	1
	2472	13	0

Mode	Frequency [MHz]	Channel No.	PLS
802.11n(HT20)	2412	1	14
	2417	2	17
	2437	6	17
	2457	10	17
	2462	11	14
	2467	12	1
	2472	13	0

**Peak Power**

Power Meter offset

Attenuator loss(20 dB) + Cable loss + EUT Cable loss

**[Ant.1]**

802.11b Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	1	19.67	30
		2	20.08	30
		5.5	21.54	30
		11	22.95	30
2417	2	1	19.36	30
		2	19.80	30
		5.5	21.32	30
		11	22.62	30
2437	6	1	19.34	30
		2	19.74	30
		5.5	21.25	30
		11	22.67	30
2457	10	1	19.45	30
		2	19.84	30
		5.5	21.33	30
		11	22.77	30
2462	11	1	19.52	30
		2	19.87	30
		5.5	21.41	30
		11	22.81	30
2467	12	1	2.77	30
		2	3.02	30
		5.5	4.51	30
		11	5.92	30
2472	13	1	2.47	30
		2	2.76	30
		5.5	4.25	30
		11	5.64	30

802.11g Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	6	22.47	30
		9	22.54	30
		12	21.97	30
		18	22.59	30
		24	23.09	30
		36	22.71	30
		48	22.74	30
		54	22.90	30
2417	2	6	24.04	30
		9	24.23	30
		12	23.56	30
		18	23.99	30
		24	24.47	30
		36	24.07	30
		48	24.16	30
		54	24.32	30
2437	6	6	23.87	30
		9	24.06	30
		12	23.40	30
		18	23.83	30
		24	24.37	30
		36	23.97	30
		48	24.00	30
		54	24.14	30
2457	10	6	24.34	30
		9	24.38	30
		12	23.84	30
		18	24.23	30
		24	24.75	30
		36	24.40	30
		48	24.41	30
		54	24.49	30
2462	11	6	22.77	30
		9	22.91	30
		12	22.29	30
		18	22.55	30
		24	23.17	30
		36	22.83	30
		48	22.90	30
		54	23.04	30
2467	12	6	9.19	30
		9	9.32	30
		12	8.61	30
		18	8.10	30
		24	8.79	30
		36	8.50	30
		48	8.54	30
		54	8.64	30
2472	13	6	8.60	30
		9	8.77	30



802.11g Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
		12	8.17	30
		18	7.64	30
		24	8.51	30
		36	8.17	30
		48	8.10	30
		54	8.35	30

802.11n(HT20) Mode		MCS Index	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	0	21.13	30
		1	20.75	30
		2	20.99	30
		3	21.03	30
		4	21.05	30
		5	21.16	30
		6	21.15	30
		7	21.01	30
2417	2	0	23.62	30
		1	23.52	30
		2	23.73	30
		3	23.86	30
		4	23.62	30
		5	23.72	30
		6	23.64	30
		7	23.60	30
2437	6	0	23.52	30
		1	23.42	30
		2	23.52	30
		3	23.60	30
		4	23.53	30
		5	23.60	30
		6	23.53	30
		7	23.51	30
2457	10	0	24.03	30
		1	23.95	30
		2	24.10	30
		3	24.25	30
		4	24.08	30
		5	24.07	30
		6	24.25	30
		7	23.97	30
2462	11	0	21.72	30
		1	21.45	30
		2	21.57	30
		3	21.70	30
		4	21.59	30
		5	21.64	30
		6	21.67	30
		7	21.59	30
2467	12	0	9.09	30
		1	9.02	30
		2	8.14	30
		3	8.34	30
		4	8.06	30
		5	8.10	30
		6	8.11	30
		7	8.02	30
2472	13	0	8.60	30
		1	8.43	30

802.11n(HT20) Mode		MCS Index	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
		2	7.67	30
		3	7.98	30
		4	7.73	30
		5	7.71	30
		6	7.70	30
		7	7.72	30

[Ant.2]

802.11b Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	1	20.02	30
		2	20.37	30
		5.5	21.87	30
		11	23.27	30
2417	2	1	20.07	30
		2	20.42	30
		5.5	21.93	30
		11	23.34	30
2437	6	1	20.01	30
		2	20.37	30
		5.5	21.86	30
		11	23.29	30
2457	10	1	19.36	30
		2	19.84	30
		5.5	21.33	30
		11	22.75	30
2462	11	1	19.89	30
		2	20.28	30
		5.5	21.79	30
		11	23.20	30
2467	12	1	3.87	30
		2	4.12	30
		5.5	5.49	30
		11	6.99	30
2472	13	1	3.17	30
		2	3.43	30
		5.5	4.91	30
		11	6.33	30

802.11g Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	6	23.23	30
		9	23.36	30
		12	22.70	30
		18	23.34	30
		24	23.74	30
		36	23.37	30
		48	23.46	30
		54	23.57	30
2417	2	6	24.71	30
		9	24.81	30
		12	24.18	30
		18	24.56	30
		24	25.05	30
		36	24.76	30
		48	24.74	30
		54	24.96	30
2437	6	6	24.89	30
		9	24.96	30
		12	24.37	30
		18	24.80	30
		24	25.16	30
		36	24.93	30
		48	24.90	30
		54	25.08	30
2457	10	6	24.70	30
		9	24.84	30
		12	24.14	30
		18	24.60	30
		24	24.95	30
		36	24.71	30
		48	24.69	30
		54	24.93	30
2462	11	6	23.25	30
		9	23.45	30
		12	22.68	30
		18	22.98	30
		24	23.63	30
		36	23.33	30
		48	23.42	30
		54	23.55	30
2467	12	6	10.24	30
		9	10.34	30
		12	9.68	30
		18	9.14	30
		24	9.99	30
		36	9.64	30
		48	9.64	30
		54	9.84	30
2472	13	6	9.45	30
		9	9.59	30

802.11g Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
		12	8.95	30
		18	8.48	30
		24	8.86	30
		36	8.44	30
		48	8.56	30
		54	8.75	30

802.11n(HT20) Mode		MCS Index	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	0	21.96	30
		1	21.70	30
		2	21.89	30
		3	22.00	30
		4	21.97	30
		5	22.08	30
		6	22.06	30
		7	21.96	30
2417	2	0	24.34	30
		1	24.23	30
		2	24.28	30
		3	24.46	30
		4	24.33	30
		5	24.37	30
		6	24.35	30
		7	24.32	30
2437	6	0	24.64	30
		1	24.41	30
		2	24.64	30
		3	24.79	30
		4	24.60	30
		5	24.68	30
		6	24.67	30
		7	24.60	30
2457	10	0	24.36	30
		1	24.19	30
		2	24.21	30
		3	24.34	30
		4	24.21	30
		5	24.36	30
		6	24.33	30
		7	24.27	30
2462	11	0	22.06	30
		1	21.80	30
		2	21.94	30
		3	22.00	30
		4	22.11	30
		5	22.21	30
		6	22.23	30
		7	22.09	30
2467	12	0	10.24	30
		1	10.16	30
		2	9.26	30
		3	9.54	30
		4	9.39	30
		5	9.48	30
		6	9.51	30
		7	9.42	30
2472	13	0	9.37	30
		1	9.29	30

802.11n(HT20) Mode		MCS Index	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
		2	8.49	30
		3	8.22	30
		4	8.01	30
		5	8.17	30
		6	8.20	30
		7	8.10	30



[MIMO]

802.11b Mode		Rate (Mbps)	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
2412	1	1	19.67	20.02	22.86	30
		2	20.08	20.37	23.24	30
		5.5	21.54	21.87	24.72	30
		11	22.95	23.27	26.12	30
2417	2	1	19.36	20.07	22.74	30
		2	19.80	20.42	23.13	30
		5.5	21.32	21.93	24.64	30
		11	22.62	23.34	26.00	30
2437	6	1	19.34	20.01	22.69	30
		2	19.74	20.37	23.07	30
		5.5	21.25	21.86	24.58	30
		11	22.67	23.29	26.00	30
2457	10	1	19.45	19.36	22.42	30
		2	19.84	19.84	22.85	30
		5.5	21.33	21.33	24.34	30
		11	22.77	22.75	25.77	30
2462	11	1	19.52	19.89	22.72	30
		2	19.87	20.28	23.09	30
		5.5	21.41	21.79	24.61	30
		11	22.81	23.20	26.02	30
2467	12	1	2.77	3.87	6.36	30
		2	3.02	4.12	6.61	30
		5.5	4.51	5.49	8.04	30
		11	5.92	6.99	9.50	30
2472	13	1	2.47	3.17	5.84	30
		2	2.76	3.43	6.12	30
		5.5	4.25	4.91	7.60	30
		11	5.64	6.33	9.01	30

802.11g Mode		Rate (Mbps)	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
2412	1	6	22.47	23.23	25.88	30
		9	22.54	23.36	25.98	30
		12	21.97	22.70	25.36	30
		18	22.59	23.34	25.99	30
		24	23.09	23.74	26.44	30
		36	22.71	23.37	26.06	30
		48	22.74	23.46	26.12	30
		54	22.90	23.57	26.26	30
2417	2	6	24.04	24.71	27.40	30
		9	24.23	24.81	27.54	30
		12	23.56	24.18	26.89	30
		18	23.99	24.56	27.29	30
		24	24.47	25.05	27.78	30
		36	24.07	24.76	27.44	30
		48	24.16	24.74	27.47	30
		54	24.32	24.96	27.66	30
2437	6	6	23.87	24.89	27.42	30
		9	24.06	24.96	27.54	30
		12	23.40	24.37	26.92	30
		18	23.83	24.80	27.35	30
		24	24.37	25.16	27.80	30
		36	23.97	24.93	27.49	30
		48	24.00	24.90	27.48	30
		54	24.14	25.08	27.64	30
2457	10	6	24.34	24.70	27.53	30
		9	24.38	24.84	27.63	30
		12	23.84	24.14	27.00	30
		18	24.23	24.60	27.43	30
		24	24.75	24.95	27.86	30
		36	24.40	24.71	27.57	30
		48	24.41	24.69	27.56	30
		54	24.49	24.93	27.73	30
2462	11	6	22.77	23.25	26.03	30
		9	22.91	23.45	26.20	30
		12	22.29	22.68	25.50	30
		18	22.55	22.98	25.78	30
		24	23.17	23.63	26.42	30
		36	22.83	23.33	26.10	30
		48	22.90	23.42	26.18	30
		54	23.04	23.55	26.31	30
2467	12	6	9.19	10.24	12.76	30
		9	9.32	10.34	12.87	30
		12	8.61	9.68	12.19	30
		18	8.10	9.14	11.66	30
		24	8.79	9.99	12.44	30
		36	8.50	9.64	12.12	30
		48	8.54	9.64	12.13	30
		54	8.64	9.84	12.29	30
2472	13	6	8.60	9.45	12.06	30
		9	8.77	9.59	12.21	30
		12	8.17	8.95	11.58	30

802.11g Mode		Rate (Mbps)	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
		18	7.64	8.48	11.10	30
		24	8.51	8.86	11.70	30
		36	8.17	8.44	11.32	30
		48	8.10	8.56	11.35	30
		54	8.35	8.75	11.56	30

802.11n(HT20) Mode		MCS Index	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
2412	1	0	21.13	21.96	24.58	30
		1	20.75	21.70	24.26	30
		2	20.99	21.89	24.47	30
		3	21.03	22.00	24.55	30
		4	21.05	21.97	24.55	30
		5	21.16	22.08	24.65	30
		6	21.15	22.06	24.64	30
		7	21.01	21.96	24.52	30
2417	2	0	23.62	24.34	27.00	30
		1	23.52	24.23	26.90	30
		2	23.73	24.28	27.03	30
		3	23.86	24.46	27.18	30
		4	23.62	24.33	27.00	30
		5	23.72	24.37	27.07	30
		6	23.64	24.35	27.02	30
		7	23.60	24.32	26.99	30
2437	6	0	23.52	24.64	27.13	30
		1	23.42	24.41	26.95	30
		2	23.52	24.64	27.12	30
		3	23.60	24.79	27.25	30
		4	23.53	24.60	27.11	30
		5	23.60	24.68	27.18	30
		6	23.53	24.67	27.15	30
		7	23.51	24.60	27.10	30
2457	10	0	24.03	24.36	27.21	30
		1	23.95	24.19	27.08	30
		2	24.10	24.21	27.17	30
		3	24.25	24.34	27.31	30
		4	24.08	24.21	27.15	30
		5	24.07	24.36	27.22	30
		6	24.25	24.33	27.30	30
		7	23.97	24.27	27.13	30
2462	11	0	21.72	22.06	24.90	30
		1	21.45	21.80	24.64	30
		2	21.57	21.94	24.77	30
		3	21.70	22.00	24.86	30
		4	21.59	22.11	24.87	30
		5	21.64	22.21	24.94	30
		6	21.67	22.23	24.97	30
		7	21.59	22.09	24.86	30
2467	12	0	9.09	10.24	12.71	30
		1	9.02	10.16	12.64	30
		2	8.14	9.26	11.75	30
		3	8.34	9.54	11.99	30
		4	8.06	9.39	11.79	30
		5	8.10	9.48	11.85	30
		6	8.11	9.51	11.88	30
		7	8.02	9.42	11.78	30
2472	13	0	8.60	9.37	12.01	30
		1	8.43	9.29	11.89	30
		2	7.67	8.49	11.11	30

802.11n(HT20) Mode		MCS Index	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
		3	7.98	8.22	11.11	30
		4	7.73	8.01	10.89	30
		5	7.71	8.17	10.96	30
		6	7.70	8.20	10.97	30
		7	7.72	8.10	10.93	30

**Average Power**

Power Meter offset Loss = Attenuator loss(20 dB) + Cable loss + EUT Cable loss

[Ant.1]

802.11b Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
2412	1	1	17.39	0.049	17.44	30
		2	17.29	0.101	17.39	30
		5.5	17.09	0.256	17.34	30
		11	16.94	0.498	17.43	30
2417	2	1	17.24	0.049	17.29	30
		2	17.02	0.101	17.12	30
		5.5	16.95	0.256	17.20	30
		11	16.66	0.498	17.15	30
2437	6	1	17.28	0.049	17.33	30
		2	16.95	0.101	17.06	30
		5.5	16.78	0.256	17.03	30
		11	16.60	0.498	17.09	30
2457	10	1	17.18	0.049	17.23	30
		2	17.06	0.101	17.16	30
		5.5	16.92	0.256	17.17	30
		11	16.72	0.498	17.22	30
2462	11	1	17.34	0.049	17.39	30
		2	17.07	0.101	17.17	30
		5.5	16.96	0.256	17.22	30
		11	16.76	0.498	17.26	30
2467	12	1	0.44	0.049	0.49	30
		2	0.18	0.101	0.28	30
		5.5	0.03	0.26	0.29	30
		11	-0.15	0.50	0.34	30
2472	13	1	-0.08	0.049	-0.03	30
		2	-0.07	0.101	0.03	30
		5.5	-0.21	0.256	0.04	30
		11	-0.36	0.498	0.14	30

802.11g Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
2412	1	6	14.45	0.305	14.75	30
		9	14.22	0.467	14.69	30
		12	13.43	0.610	14.04	30
		18	13.82	0.835	14.65	30
		24	13.58	1.072	14.65	30
		36	13.10	1.473	14.57	30
		48	12.49	1.833	14.32	30
		54	12.06	1.996	14.06	30
2417	2	6	16.26	0.305	16.57	30
		9	15.87	0.467	16.34	30
		12	14.91	0.610	15.52	30
		18	15.36	0.835	16.20	30
		24	14.97	1.072	16.04	30
		36	14.54	1.473	16.01	30
		48	13.97	1.833	15.80	30
		54	13.53	1.996	15.52	30
2437	6	6	15.91	0.305	16.21	30
		9	15.71	0.467	16.17	30
		12	14.92	0.610	15.53	30
		18	15.23	0.835	16.06	30
		24	14.93	1.072	16.00	30
		36	14.45	1.473	15.93	30
		48	13.85	1.833	15.68	30
		54	13.63	1.996	15.62	30
2457	10	6	16.24	0.305	16.54	30
		9	16.07	0.467	16.53	30
		12	15.23	0.610	15.84	30
		18	15.68	0.835	16.52	30
		24	15.25	1.072	16.32	30
		36	14.86	1.473	16.34	30
		48	14.35	1.833	16.18	30
		54	13.69	1.996	15.68	30
2462	11	6	14.64	0.305	14.94	30
		9	14.46	0.467	14.92	30
		12	13.59	0.610	14.20	30
		18	13.93	0.835	14.76	30
		24	13.63	1.072	14.70	30
		36	13.20	1.473	14.67	30
		48	12.52	1.833	14.35	30
		54	12.13	1.996	14.13	30
2467	12	6	1.33	0.305	1.64	30
		9	0.98	0.467	1.45	30
		12	-0.03	0.610	0.58	30
		18	-0.53	0.835	0.31	30
		24	-0.64	1.072	0.44	30
		36	-1.02	1.473	0.46	30
		48	-1.57	1.83	0.27	30

802.11g Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
		54	-2.13	2.00	-0.14	30
2472	13	6	0.51	0.305	0.81	30
		9	0.19	0.467	0.66	30
		12	-0.50	0.610	0.11	30
		18	-0.97	0.835	-0.13	30
		24	-0.93	1.072	0.14	30
		36	-1.41	1.473	0.07	30
		48	-2.05	1.833	-0.22	30
		54	-2.43	1.996	-0.43	30



802.11n(HT20) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
2412	1	0	13.20	0.372	13.57	30
		1	12.63	0.699	13.33	30
		2	12.53	0.989	13.52	30
		3	12.30	1.184	13.48	30
		4	12.01	1.513	13.53	30
		5	11.06	1.952	13.01	30
		6	10.72	2.089	12.81	30
		7	10.60	2.191	12.79	30
2417	2	0	15.77	0.372	16.14	30
		1	15.10	0.699	15.80	30
		2	15.07	0.989	16.06	30
		3	14.82	1.184	16.01	30
		4	14.42	1.513	15.93	30
		5	13.76	1.952	15.71	30
		6	13.53	2.089	15.62	30
		7	13.43	2.191	15.62	30
2437	6	0	15.61	0.372	15.98	30
		1	15.05	0.699	15.75	30
		2	14.96	0.989	15.95	30
		3	14.73	1.184	15.91	30
		4	14.43	1.513	15.95	30
		5	13.66	1.952	15.62	30
		6	13.59	2.089	15.67	30
		7	13.43	2.191	15.62	30
2457	10	0	15.99	0.372	16.36	30
		1	15.47	0.699	16.17	30
		2	15.36	0.989	16.35	30
		3	15.13	1.184	16.31	30
		4	14.80	1.513	16.31	30
		5	13.70	1.952	15.66	30
		6	13.61	2.089	15.70	30
		7	13.38	2.191	15.57	30
2462	11	0	13.50	0.372	13.88	30
		1	12.85	0.699	13.55	30
		2	12.78	0.989	13.77	30
		3	12.55	1.184	13.74	30
		4	12.17	1.513	13.68	30
		5	11.13	1.952	13.08	30
		6	10.74	2.089	12.83	30
		7	10.40	2.191	12.59	30
2467	12	0	1.02	0.372	1.39	30
		1	0.60	0.699	1.30	30
		2	-0.52	0.989	0.46	30
		3	-0.64	1.184	0.55	30
		4	-1.07	1.513	0.44	30
		5	-2.12	1.95	-0.17	30
		6	-2.50	2.09	-0.41	30

802.11n(HT20) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
		7	-2.50	2.19	-0.31	30
2472	13	0	0.42	0.372	0.79	30
		1	0.03	0.699	0.73	30
		2	-0.97	0.989	0.02	30
		3	-1.05	1.184	0.13	30
		4	-1.43	1.513	0.08	30
		5	-2.43	1.952	-0.48	30
		6	-2.94	2.089	-0.85	30
		7	-3.07	2.191	-0.88	30

[Ant.2]

802.11b Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
2412	1	1	17.86	0.049	17.91	30
		2	17.57	0.101	17.67	30
		5.5	17.41	0.256	17.66	30
		11	17.29	0.498	17.79	30
2417	2	1	17.86	0.049	17.91	30
		2	17.61	0.101	17.71	30
		5.5	17.45	0.256	17.70	30
		11	17.27	0.498	17.77	30
2437	6	1	17.80	0.049	17.85	30
		2	17.56	0.101	17.66	30
		5.5	17.43	0.256	17.68	30
		11	17.23	0.498	17.73	30
2457	10	1	17.40	0.049	17.45	30
		2	17.30	0.101	17.41	30
		5.5	17.16	0.256	17.42	30
		11	16.90	0.498	17.40	30
2462	11	1	17.57	0.049	17.62	30
		2	17.44	0.101	17.54	30
		5.5	17.32	0.256	17.57	30
		11	17.09	0.498	17.59	30
2467	12	1	1.50	0.049	1.55	30
		2	1.28	0.101	1.38	30
		5.5	1.05	0.256	1.31	30
		11	0.91	0.498	1.41	30
2472	13	1	0.61	0.049	0.66	30
		2	0.57	0.101	0.67	30
		5.5	0.42	0.256	0.67	30
		11	0.24	0.498	0.73	30

802.11g Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
2412	1	6	15.35	0.305	15.66	30
		9	14.94	0.467	15.40	30
		12	14.12	0.610	14.73	30
		18	14.51	0.835	15.34	30
		24	14.21	1.072	15.28	30
		36	13.70	1.473	15.17	30
		48	13.16	1.833	15.00	30
		54	12.65	1.996	14.65	30
2417	2	6	16.60	0.305	16.90	30
		9	16.40	0.467	16.86	30
		12	15.56	0.610	16.17	30
		18	15.89	0.835	16.73	30
		24	15.61	1.072	16.68	30
		36	15.17	1.473	16.64	30
		48	14.48	1.833	16.31	30
		54	14.11	1.996	16.11	30
2437	6	6	16.91	0.305	17.22	30
		9	16.56	0.467	17.02	30
		12	15.80	0.610	16.41	30
		18	16.26	0.835	17.10	30
		24	15.81	1.072	16.89	30
		36	15.43	1.473	16.91	30
		48	14.79	1.833	16.62	30
		54	14.30	1.996	16.29	30
2457	10	6	16.65	0.305	16.96	30
		9	16.48	0.467	16.95	30
		12	15.55	0.610	16.16	30
		18	16.01	0.835	16.84	30
		24	15.66	1.072	16.73	30
		36	15.20	1.473	16.68	30
		48	14.63	1.833	16.47	30
		54	14.12	1.996	16.12	30
2462	11	6	15.28	0.305	15.58	30
		9	14.97	0.467	15.44	30
		12	14.01	0.610	14.62	30
		18	14.34	0.835	15.17	30
		24	14.07	1.072	15.14	30
		36	13.67	1.473	15.15	30
		48	13.07	1.833	14.91	30
		54	12.60	1.996	14.60	30
2467	12	6	1.66	0.305	1.97	30
		9	1.43	0.467	1.89	30
		12	0.99	0.610	1.60	30
		18	0.48	0.835	1.32	30
		24	0.42	1.072	1.49	30
		36	-0.02	1.473	1.45	30
		48	-0.67	1.833	1.16	30

802.11g Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
		54	-1.06	1.996	0.93	30
2472	13	6	1.05	0.305	1.36	30
		9	0.83	0.467	1.30	30
		12	0.34	0.610	0.95	30
		18	-0.15	0.835	0.68	30
		24	-0.70	1.072	0.37	30
		36	-1.15	1.473	0.33	30
		48	-1.65	1.833	0.18	30
		54	-2.11	1.996	-0.11	30

802.11n(HT20) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
2412	1	0	13.84	0.372	14.21	30
		1	13.33	0.699	14.03	30
		2	13.21	0.989	14.20	30
		3	13.01	1.184	14.20	30
		4	12.65	1.513	14.16	30
		5	11.63	1.952	13.58	30
		6	11.31	2.089	13.40	30
		7	10.97	2.191	13.16	30
2417	2	0	16.39	0.372	16.76	30
		1	15.71	0.699	16.41	30
		2	15.67	0.989	16.65	30
		3	15.33	1.184	16.51	30
		4	15.08	1.513	16.59	30
		5	14.01	1.952	15.96	30
		6	13.60	2.089	15.69	30
		7	13.35	2.191	15.54	30
2437	6	0	16.61	0.372	16.98	30
		1	16.05	0.699	16.75	30
		2	15.88	0.989	16.87	30
		3	15.65	1.184	16.83	30
		4	15.28	1.513	16.79	30
		5	14.36	1.952	16.31	30
		6	13.94	2.089	16.03	30
		7	13.65	2.191	15.85	30
2457	10	0	16.49	0.372	16.86	30
		1	15.80	0.699	16.50	30
		2	15.72	0.989	16.71	30
		3	15.38	1.184	16.56	30
		4	15.16	1.513	16.67	30
		5	14.22	1.952	16.17	30
		6	13.72	2.089	15.81	30
		7	13.48	2.191	15.67	30
2462	11	0	13.92	0.372	14.29	30
		1	13.25	0.699	13.94	30
		2	13.15	0.989	14.14	30
		3	12.83	1.184	14.01	30
		4	12.65	1.513	14.16	30
		5	11.69	1.952	13.65	30
		6	11.33	2.089	13.42	30
		7	10.98	2.191	13.18	30
2467	12	0	1.61	0.372	1.98	30
		1	1.22	0.699	1.92	30
		2	0.52	0.989	1.51	30
		3	0.34	1.184	1.53	30
		4	-0.03	1.513	1.48	30
		5	-0.96	1.952	0.99	30
		6	-1.38	2.089	0.71	30

802.11n(HT20) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
		7	-1.63	2.191	0.56	30
2472	13	0	0.88	0.372	1.26	30
		1	0.53	0.699	1.23	30
		2	-0.14	0.989	0.85	30
		3	-0.81	1.184	0.37	30
		4	-1.19	1.513	0.32	30
		5	-2.09	1.952	-0.14	30
		6	-2.42	2.089	-0.33	30
		7	-2.77	2.191	-0.57	30

[MIMO]

802.11b Mode		Rate (Mbps)	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
2412	1	1	17.44	17.91	20.69	30
		2	17.39	17.67	20.54	30
		5.5	17.34	17.66	20.52	30
		11	17.43	17.79	20.63	30
2417	2	1	17.29	17.91	20.62	30
		2	17.12	17.71	20.44	30
		5.5	17.20	17.70	20.47	30
		11	17.15	17.77	20.48	30
2437	6	1	17.33	17.85	20.61	30
		2	17.06	17.66	20.38	30
		5.5	17.03	17.68	20.38	30
		11	17.09	17.73	20.44	30
2457	10	1	17.23	17.45	20.35	30
		2	17.16	17.41	20.30	30
		5.5	17.17	17.42	20.31	30
		11	17.22	17.40	20.32	30
2462	11	1	17.39	17.62	20.52	30
		2	17.17	17.54	20.37	30
		5.5	17.22	17.57	20.41	30
		11	17.26	17.59	20.44	30
2467	12	1	0.49	1.55	4.06	30
		2	0.28	1.38	3.87	30
		5.5	0.29	1.31	3.84	30
		11	0.34	1.41	3.92	30
2472	13	1	-0.03	0.66	3.34	30
		2	0.03	0.67	3.37	30
		5.5	0.04	0.67	3.38	30
		11	0.14	0.73	3.46	30



802.11g Mode		Rate (Mbps)	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
2412	1	6	14.75	15.66	18.24	30
		9	14.69	15.40	18.07	30
		12	14.04	14.73	17.41	30
		18	14.65	15.34	18.02	30
		24	14.65	15.28	17.99	30
		36	14.57	15.17	17.89	30
		48	14.32	15.00	17.68	30
		54	14.06	14.65	17.37	30
2417	2	6	16.57	16.90	19.75	30
		9	16.34	16.86	19.62	30
		12	15.52	16.17	18.87	30
		18	16.20	16.73	19.48	30
		24	16.04	16.68	19.38	30
		36	16.01	16.64	19.35	30
		48	15.80	16.31	19.07	30
		54	15.52	16.11	18.84	30
2437	6	6	16.21	17.22	19.76	30
		9	16.17	17.02	19.63	30
		12	15.53	16.41	19.00	30
		18	16.06	17.10	19.62	30
		24	16.00	16.89	19.48	30
		36	15.93	16.91	19.45	30
		48	15.68	16.62	19.19	30
		54	15.62	16.29	18.98	30
2457	10	6	16.54	16.96	19.77	30
		9	16.53	16.95	19.76	30
		12	15.84	16.16	19.01	30
		18	16.52	16.84	19.69	30
		24	16.32	16.73	19.54	30
		36	16.34	16.68	19.52	30
		48	16.18	16.47	19.34	30
		54	15.68	16.12	18.91	30
2462	11	6	14.94	15.58	18.28	30
		9	14.92	15.44	18.20	30
		12	14.20	14.62	17.43	30
		18	14.76	15.17	17.98	30
		24	14.70	15.14	17.94	30
		36	14.67	15.15	17.93	30
		48	14.35	14.91	17.65	30
		54	14.13	14.60	17.38	30
2467	12	6	1.64	1.97	4.82	30
		9	1.45	1.89	4.69	30
		12	0.58	1.60	4.13	30
		18	0.31	1.32	3.85	30
		24	0.44	1.49	4.00	30
		36	0.46	1.45	3.99	30
		48	0.27	1.16	3.75	30
		54	-0.14	0.93	3.44	30
2472	13	6	0.81	1.36	4.10	30
		9	0.66	1.30	4.00	30
		12	0.11	0.95	3.56	30

802.11g Mode		Rate (Mbps)	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
		18	-0.13	0.68	3.31	30
		24	0.14	0.37	3.27	30
		36	0.07	0.33	3.21	30
		48	-0.22	0.18	3.00	30
		54	-0.43	-0.11	2.74	30

802.11n(HT20) Mode		MCS Index	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
2412	1	0	13.57	14.21	16.91	30
		1	13.33	14.03	16.70	30
		2	13.52	14.20	16.88	30
		3	13.48	14.20	16.86	30
		4	13.53	14.16	16.87	30
		5	13.01	13.58	16.31	30
		6	12.81	13.40	16.12	30
		7	12.79	13.16	15.99	30
2417	2	0	16.14	16.76	19.47	30
		1	15.80	16.41	19.12	30
		2	16.06	16.65	19.38	30
		3	16.01	16.51	19.28	30
		4	15.93	16.59	19.28	30
		5	15.71	15.96	18.85	30
		6	15.62	15.69	18.67	30
		7	15.62	15.54	18.59	30
2437	6	0	15.98	16.98	19.52	30
		1	15.75	16.75	19.29	30
		2	15.95	16.87	19.45	30
		3	15.91	16.83	19.41	30
		4	15.95	16.79	19.40	30
		5	15.62	16.31	18.99	30
		6	15.67	16.03	18.87	30
		7	15.62	15.85	18.74	30
2457	10	0	16.36	16.86	19.63	30
		1	16.17	16.50	19.35	30
		2	16.35	16.71	19.54	30
		3	16.31	16.56	19.45	30
		4	16.31	16.67	19.50	30
		5	15.66	16.17	18.93	30
		6	15.70	15.81	18.76	30
		7	15.57	15.67	18.63	30
2462	11	0	13.88	14.29	17.10	30
		1	13.55	13.94	16.76	30
		2	13.77	14.14	16.97	30
		3	13.74	14.01	16.89	30
		4	13.68	14.16	16.94	30
		5	13.08	13.65	16.38	30
		6	12.83	13.42	16.15	30
		7	12.59	13.18	15.90	30
2467	12	0	1.39	1.98	4.71	30
		1	1.30	1.92	4.63	30
		2	0.46	1.51	4.03	30
		3	0.55	1.53	4.07	30
		4	0.44	1.48	4.00	30
		5	-0.17	0.99	3.46	30
		6	-0.41	0.71	3.19	30
		7	-0.31	0.56	3.16	30
2472	13	0	0.79	1.26	4.04	30
		1	0.73	1.23	4.00	30
		2	0.02	0.85	3.46	30

802.11n(HT20) Mode		MCS Index	Ant.1 Measured Power(dBm)	Ant.2 Measured Power(dBm)	MIMO Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.					
		3	0.13	0.37	3.26	30
		4	0.08	0.32	3.21	30
		5	-0.48	-0.14	2.70	30
		6	-0.85	-0.33	2.43	30
		7	-0.88	-0.57	2.29	30

**9.4 POWER SPECTRAL DENSITY**

[Ant.1]

Mode	Frequency (MHz)	Channel No.	Test Result			Limit (dBm)
			Measured PSD (dBm)	Duty Cycle Factor	Measured PSD(dBm) + Duty Cycle Factor	
802.11b	2412	1	-4.549	0.989	-3.560	8 dBm / 3 kHz
	2417	2	-4.493	0.989	-3.504	
	2437	6	-4.580	0.989	-3.591	
	2457	10	-4.451	0.989	-3.462	
	2462	11	-4.501	0.989	-3.512	
	2467	12	-21.365	0.989	-20.376	
	2472	13	-20.579	0.892	-19.687	
802.11g	2412	1	-8.130	0.932	-7.198	
	2417	2	-6.794	0.932	-5.862	
	2437	6	-7.150	0.932	-6.218	
	2457	10	-6.655	0.932	-5.723	
	2462	11	-8.409	0.932	-7.477	
	2467	12	-21.742	0.932	-20.810	
	2472	13	-21.915	0.932	-20.983	
802.11n(HT20)	2412	1	-9.685	0.918	-8.767	
	2417	2	-7.802	0.918	-6.884	
	2437	6	-7.800	0.918	-6.882	
	2457	10	-7.621	0.918	-6.703	
	2462	11	-10.193	0.918	-9.275	
	2467	12	-22.069	0.918	-21.151	
	2472	13	-22.615	0.918	-21.697	

[Ant.2]

Mode	Frequency (MHz)	Channel No.	Test Result			Limit (dBm)
			Measured PSD (dBm)	Duty Cycle Factor	Measured PSD(dBm) + Duty Cycle Factor	
802.11b	2412	1	-4.310	0.989	-3.321	8 dBm / 3 kHz
	2417	2	-4.329	0.989	-3.340	
	2437	6	-4.376	0.989	-3.387	
	2457	10	-4.410	0.989	-3.421	
	2462	11	-4.418	0.989	-3.429	
	2467	12	-20.322	0.989	-19.333	
	2472	13	-20.014	0.892	-19.122	
802.11g	2412	1	-8.209	0.932	-7.277	
	2417	2	-6.501	0.932	-5.569	
	2437	6	-6.180	0.932	-5.248	
	2457	10	-6.425	0.932	-5.493	
	2462	11	-8.105	0.932	-7.173	
	2467	12	-20.860	0.932	-19.928	
	2472	13	-21.685	0.932	-20.753	
802.11n(HT20)	2412	1	-9.601	0.918	-8.683	
	2417	2	-6.986	0.918	-6.068	
	2437	6	-7.287	0.918	-6.369	
	2457	10	-7.136	0.918	-6.218	
	2462	11	-9.677	0.918	-8.759	
	2467	12	-21.294	0.918	-20.376	
	2472	13	-22.001	0.918	-21.083	

[MIMO]

Mode	Frequency (MHz)	Channel No.	Test Result			Limit (dBm)
			Ant.1 Measured Power(dBm) + Duty Cycle Factor	Ant.2 Measured Power(dBm) + Duty Cycle Factor	MIMO Measured Power(dBm)	
802.11b	2412	1	-3.560	-3.321	-0.429	8 dBm / 3 kHz
	2417	2	-3.504	-3.340	-0.411	
	2437	6	-3.591	-3.387	-0.478	
	2457	10	-3.462	-3.421	-0.431	
	2462	11	-3.512	-3.429	-0.460	
	2467	12	-20.376	-19.333	-16.813	
	2472	13	-19.687	-19.122	-16.385	
802.11g	2412	1	-7.198	-7.277	-4.227	
	2417	2	-5.862	-5.569	-2.702	
	2437	6	-6.218	-5.248	-2.695	
	2457	10	-5.723	-5.493	-2.596	
	2462	11	-7.477	-7.173	-4.312	
	2467	12	-20.810	-19.928	-17.336	
	2472	13	-20.983	-20.753	-17.856	
802.11n(HT20)	2412	1	-8.767	-8.683	-5.715	
	2417	2	-6.884	-6.068	-3.447	
	2437	6	-6.882	-6.369	-3.608	
	2457	10	-6.703	-6.218	-3.444	
	2462	11	-9.275	-8.759	-5.999	
	2467	12	-21.151	-20.376	-17.736	
	2472	13	-21.697	-21.083	-18.369	

**Note :**

1. Spectrum Measured Levels are not plot data.

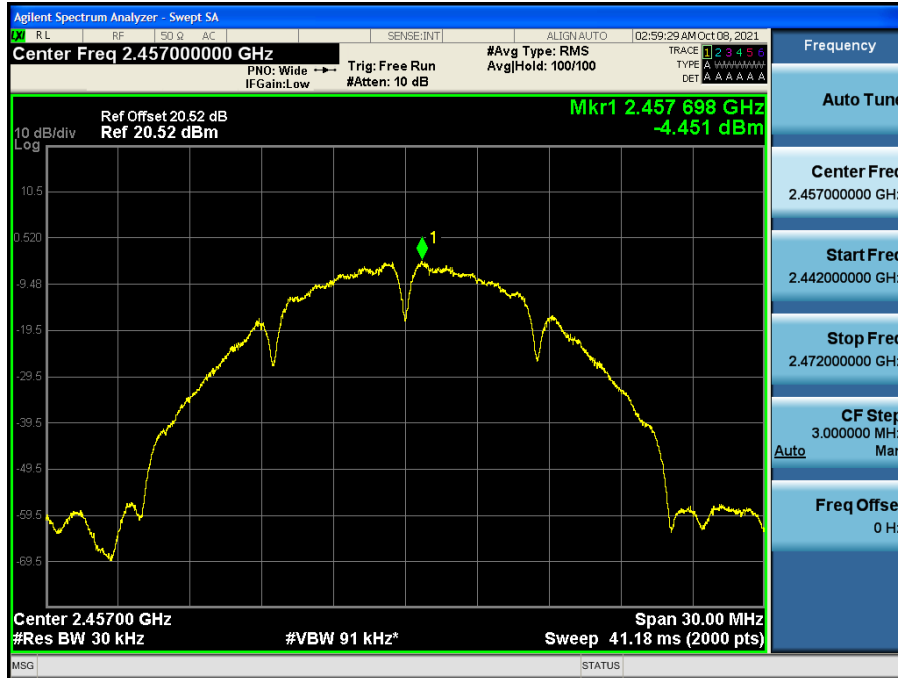
The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.

2. Spectrum offset Loss = Attenuator loss(20 dB) + Cable loss + EUT Cable loss

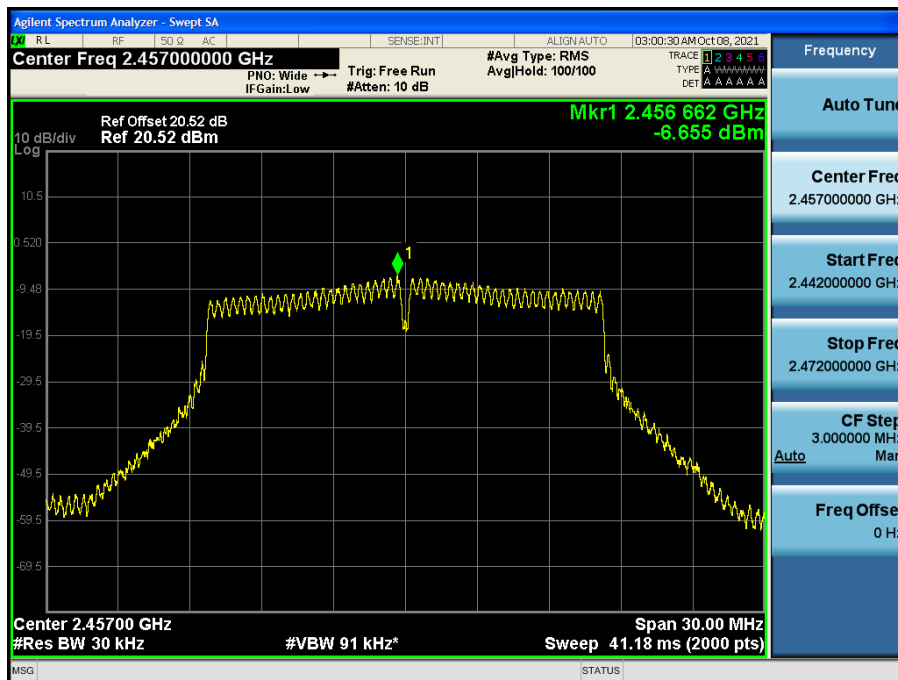
[Ant.1]

Test Plots

Power Spectral Density (802.11b-CH 10)

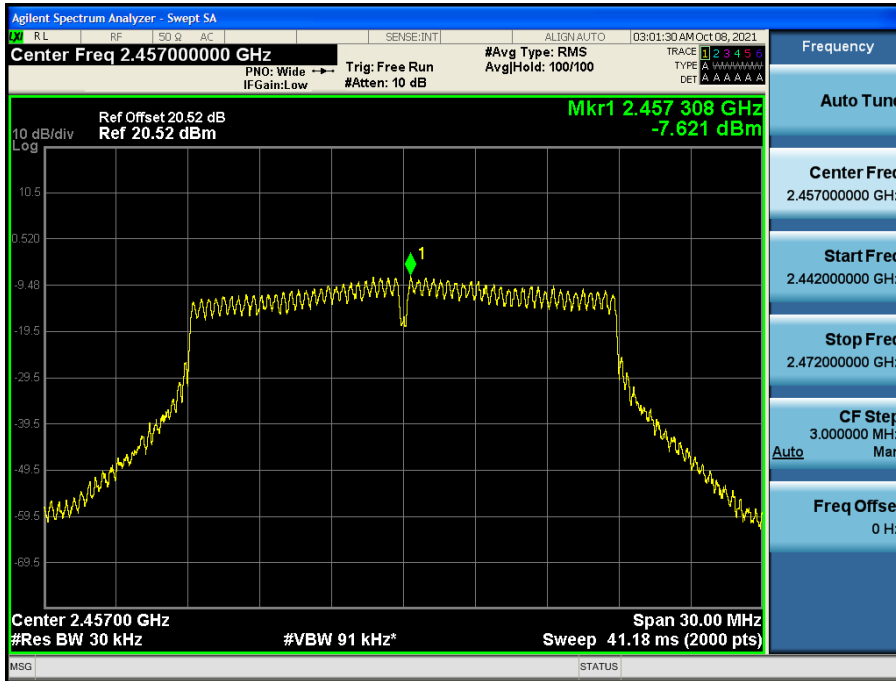


Power Spectral Density (802.11g-CH 10)





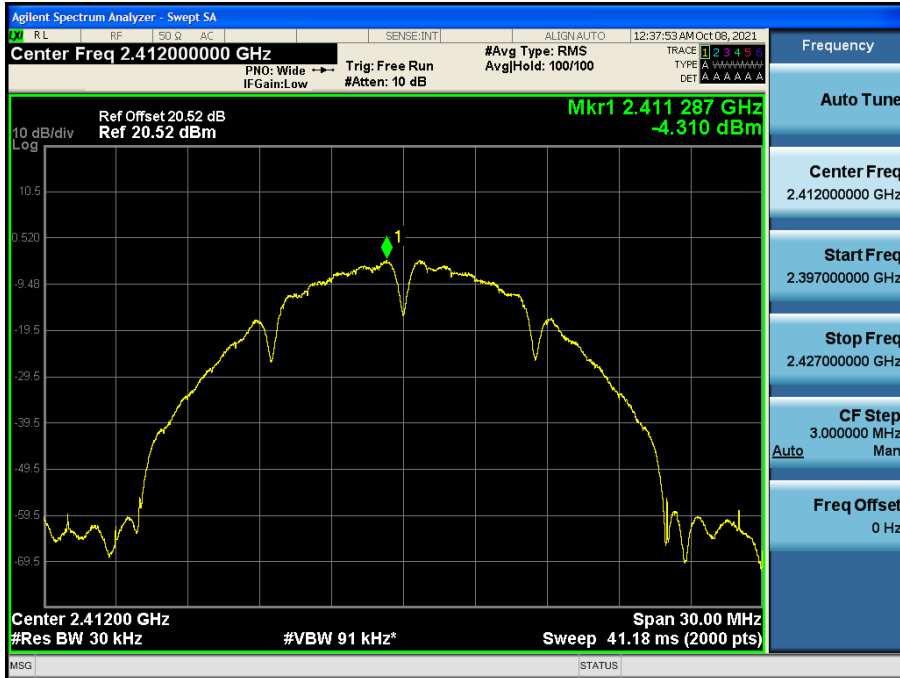
Power Spectral Density (802.11n\_HT20-CH 10)



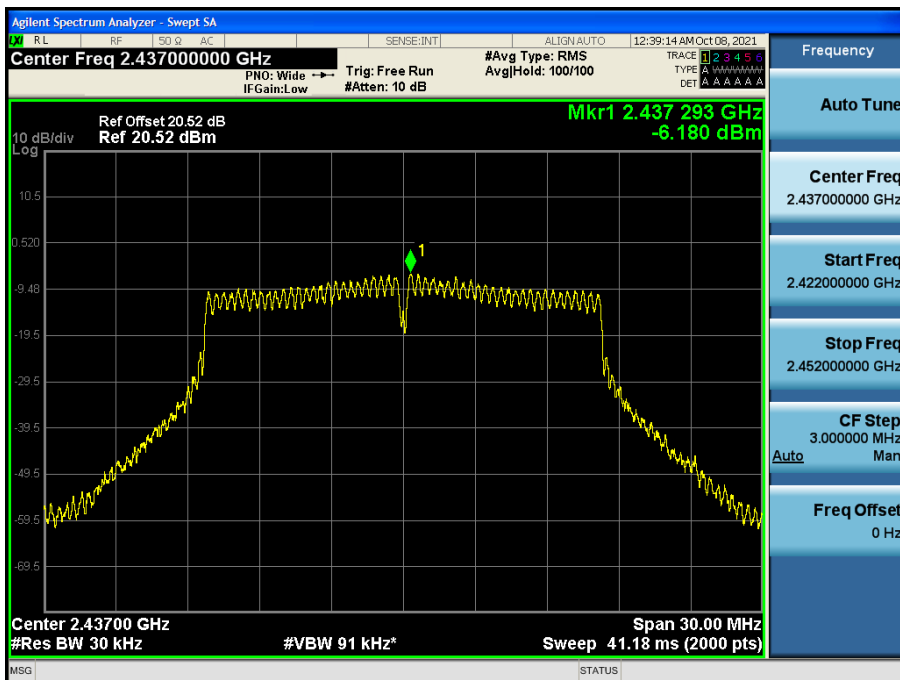
[Ant.2]

☑ Test Plots

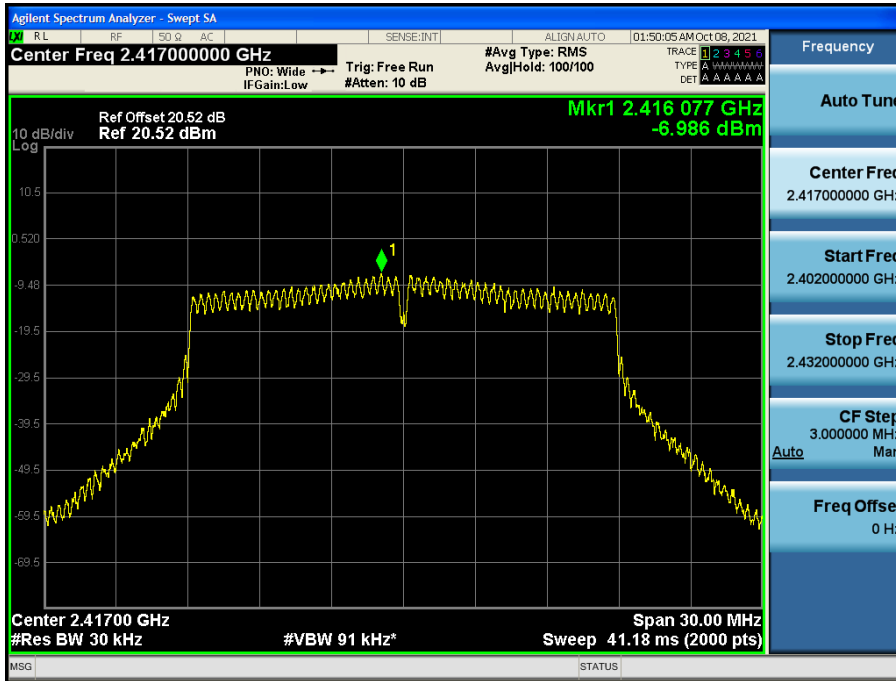
Power Spectral Density (802.11b-CH 1)



Power Spectral Density (802.11g-CH 6)



Power Spectral Density (802.11n\_HT20-CH 2)



**Note :**

In order to simplify the report, attached plots were only the worst case PSD channel.

## 9.5 BAND EDGE / CONDUCTED SPURIOUS EMISSIONS

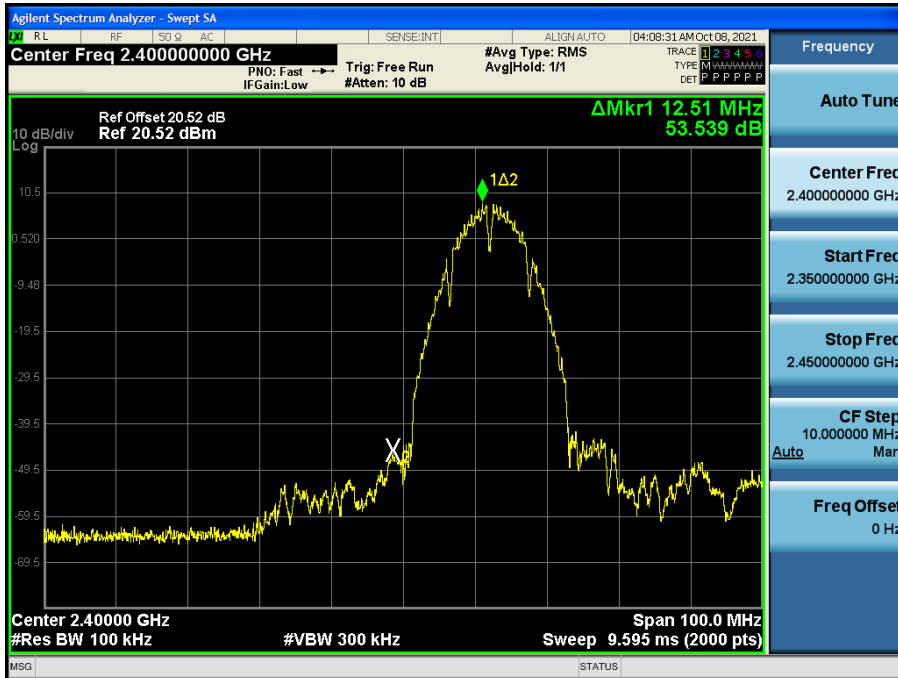
Test Result : please refer to the plot below.

In order to simplify the report, attached plots were only the worst case channel and data rate.

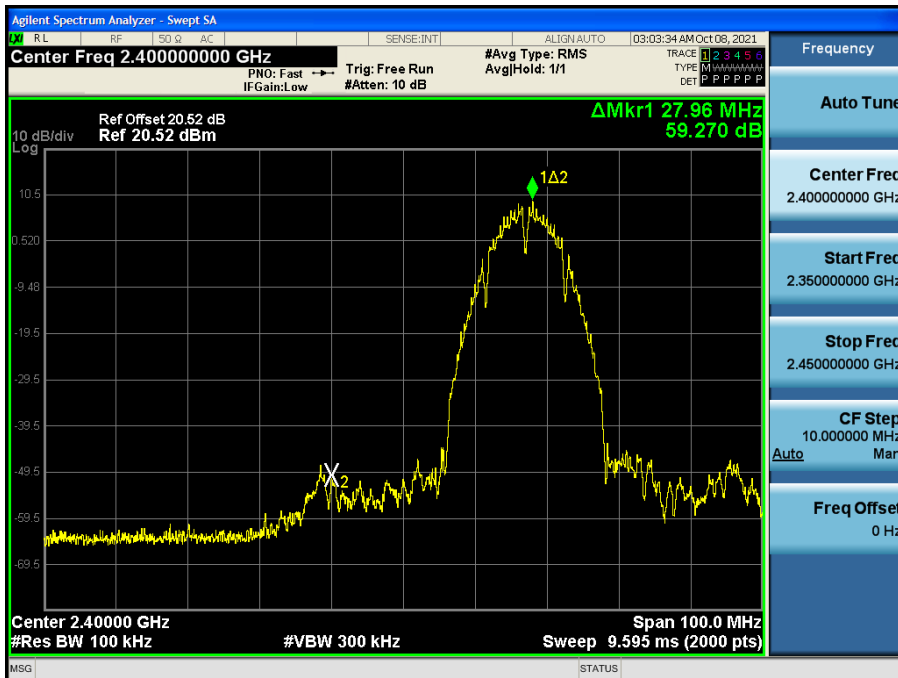
[Ant.1]

☑ Test Plots(Band Edge)

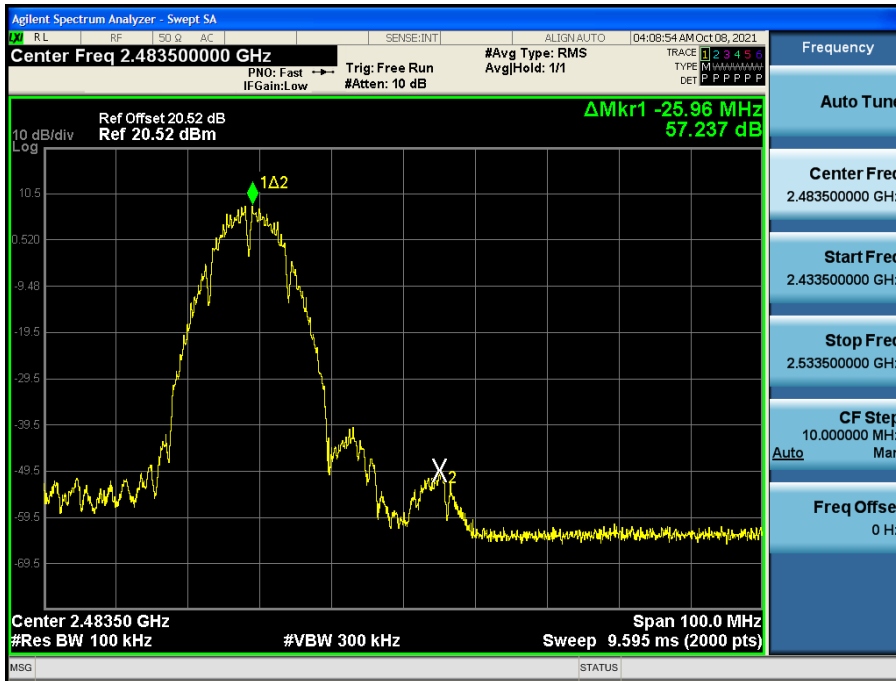
Band Edge (802.11b-CH1)



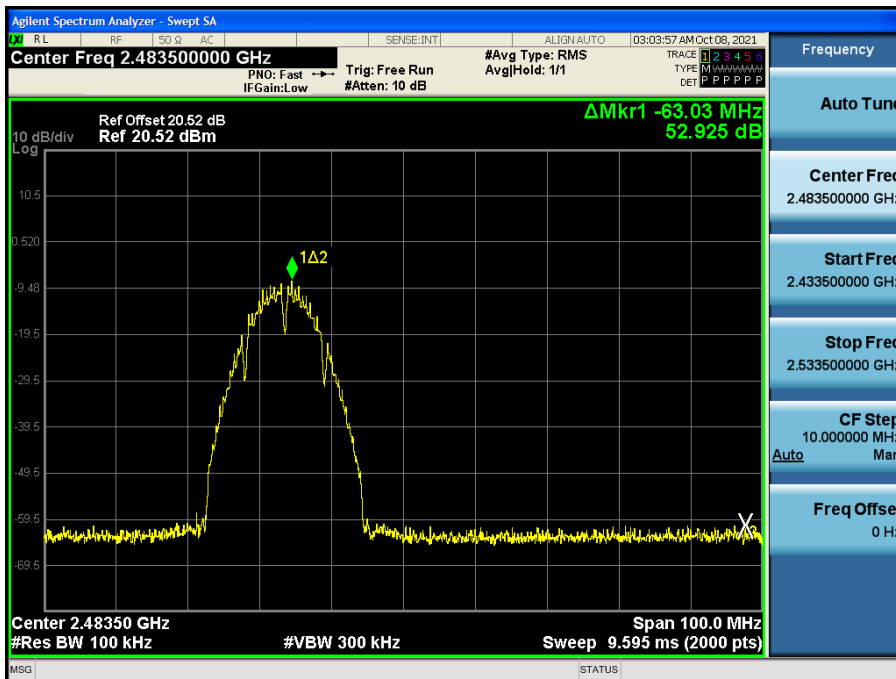
Band Edge (802.11b-CH2)



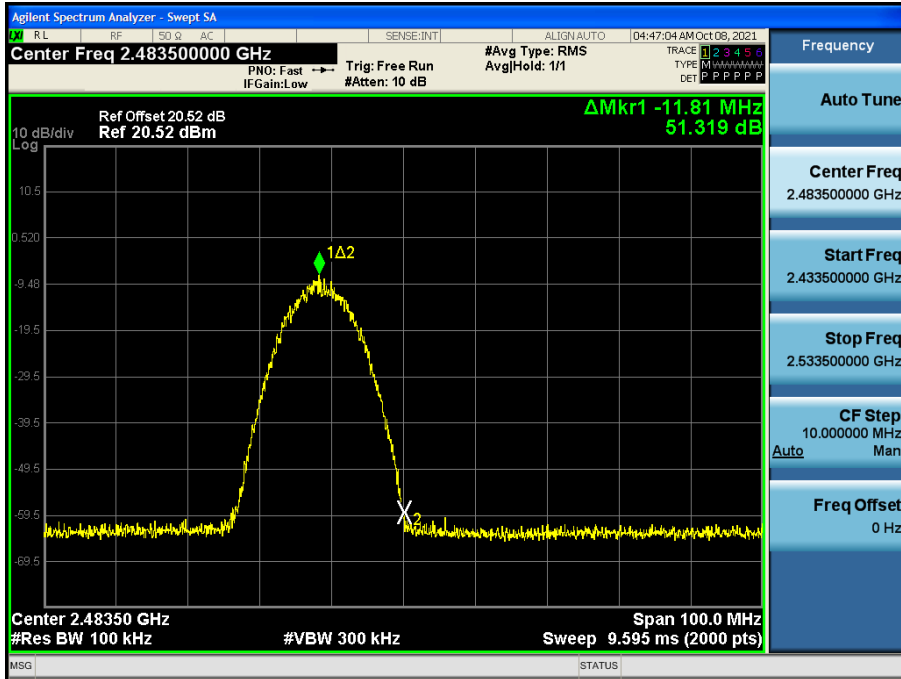
Band Edge (802.11b-CH11)



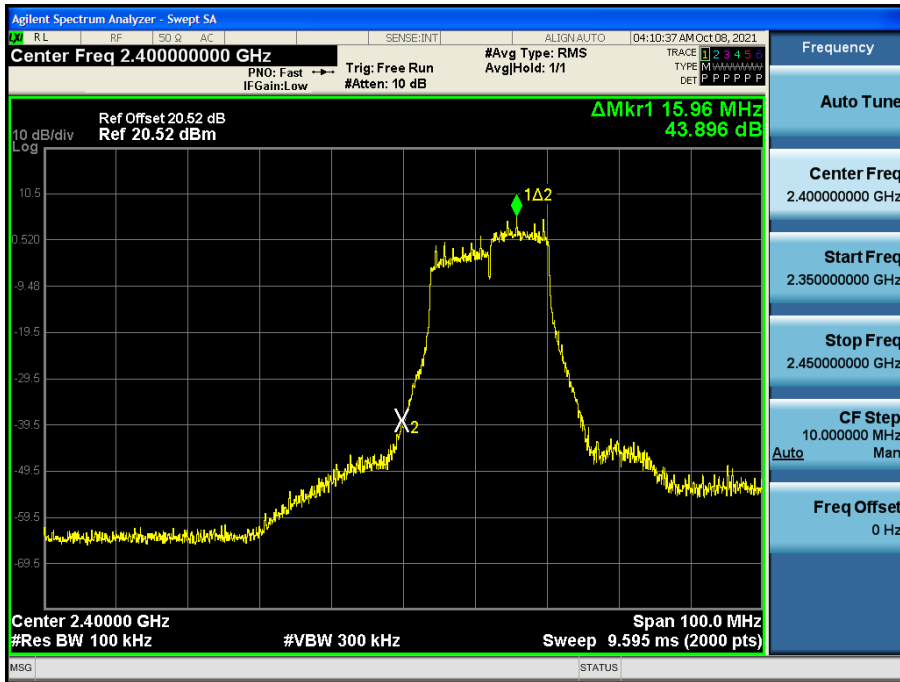
Band Edge (802.11b-CH12)



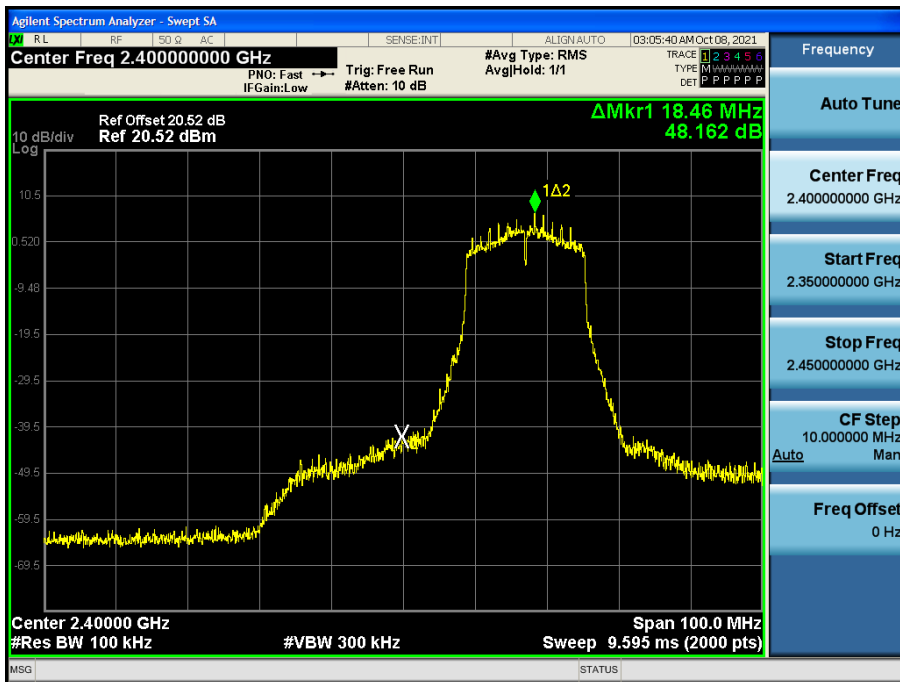
Band Edge (802.11b-CH13)



### Band Edge (802.11g-CH1)



### Band Edge (802.11g-CH2)

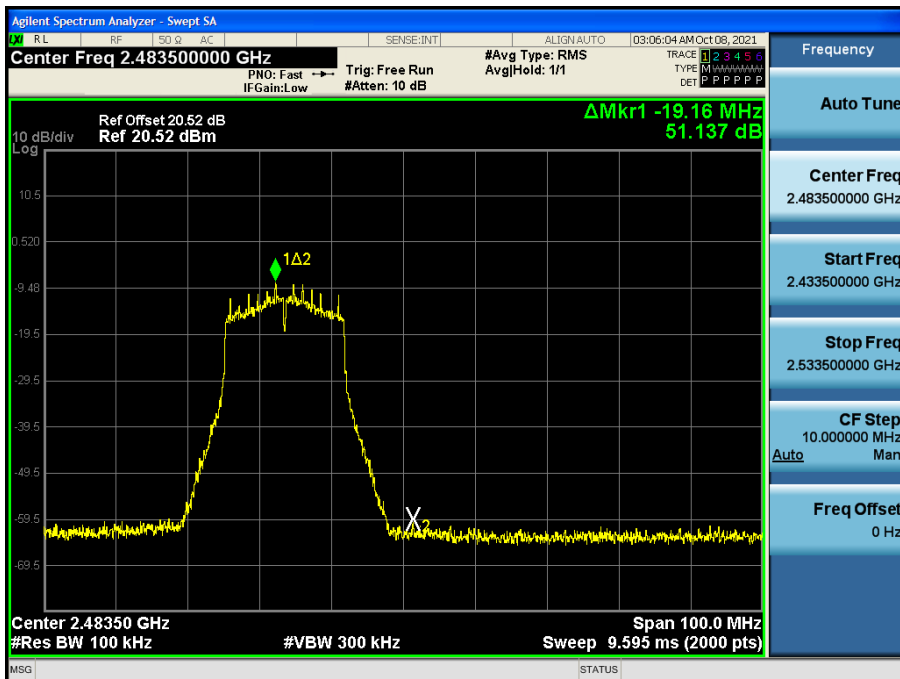




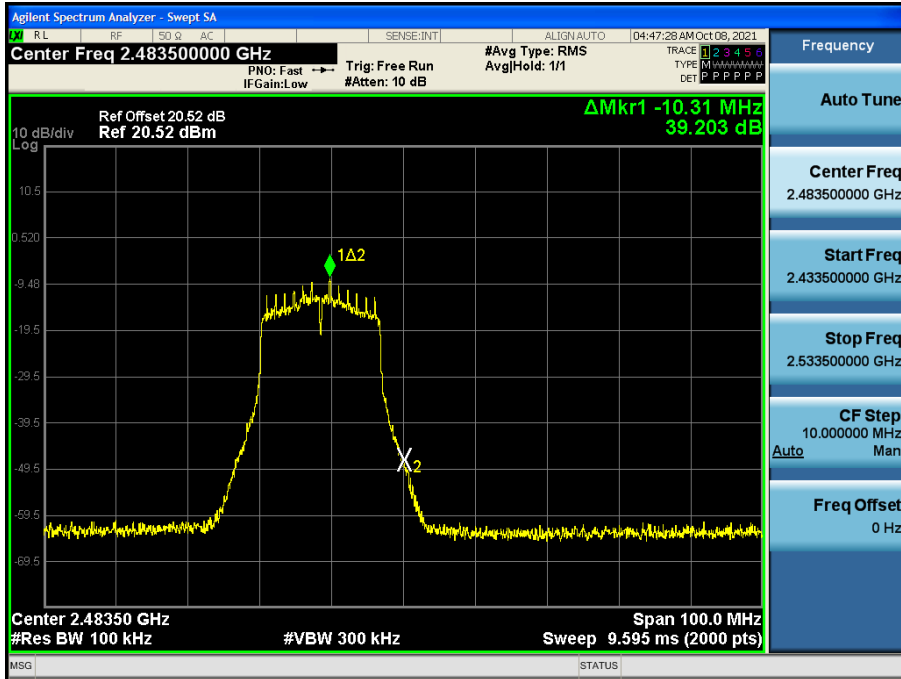
### Band Edge (802.11g-CH11)



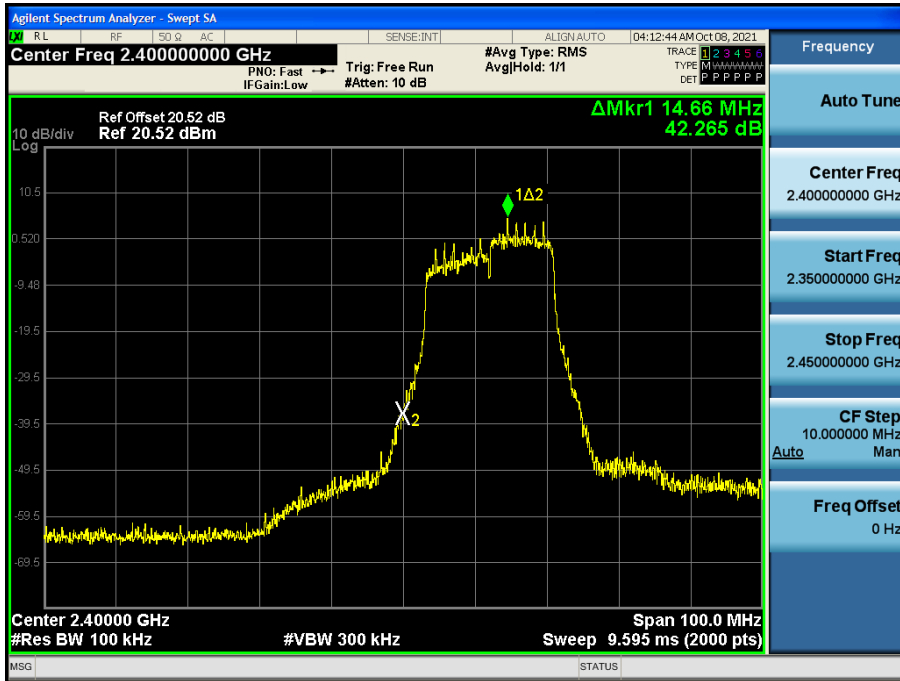
### Band Edge (802.11g-CH12)



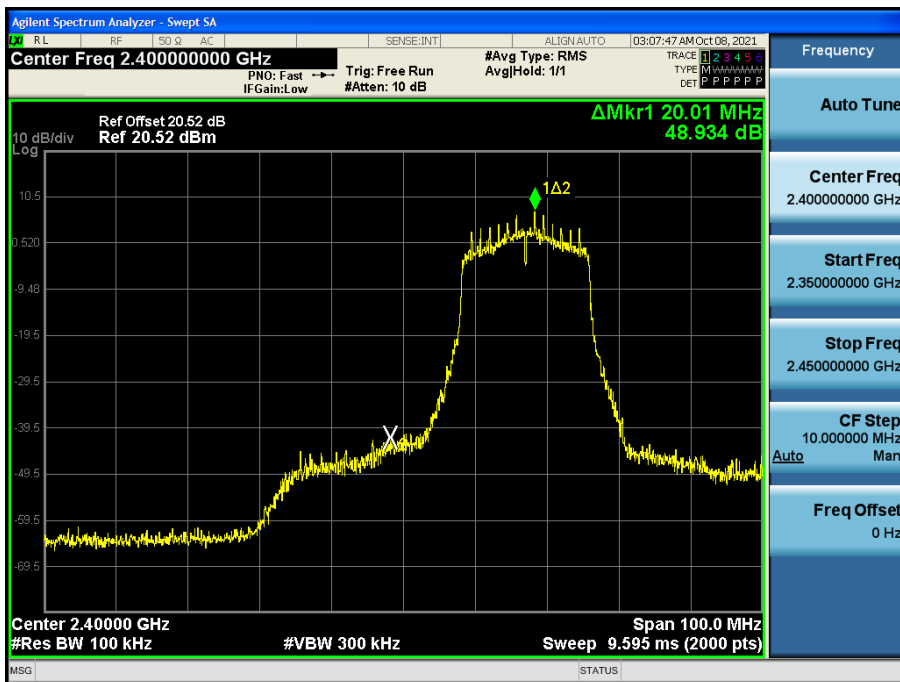
## Band Edge (802.11g-CH13)



Band Edge (802.11n\_HT20-CH1)



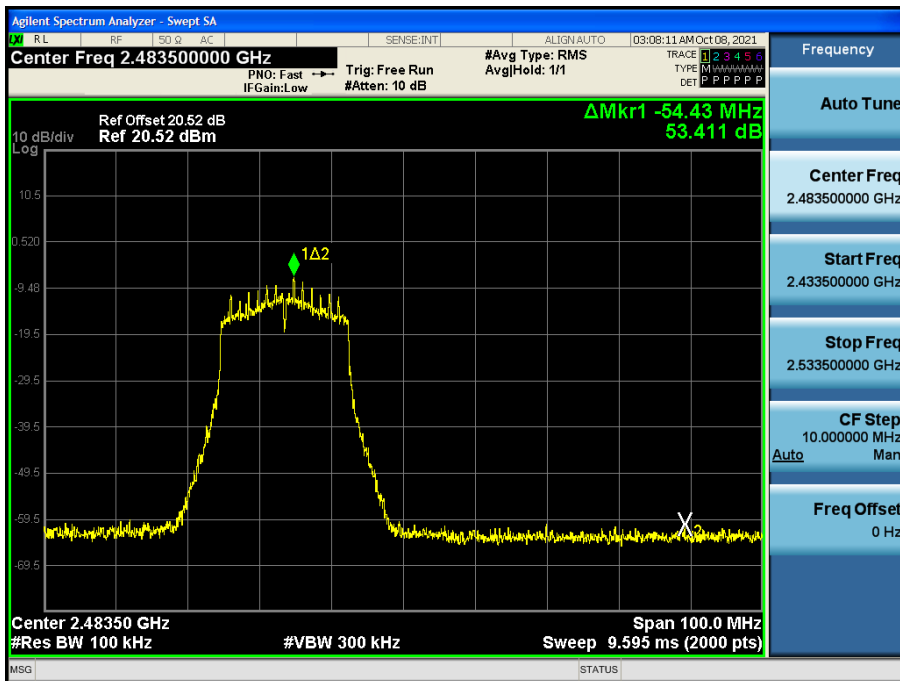
Band Edge (802.11n\_HT20-CH2)



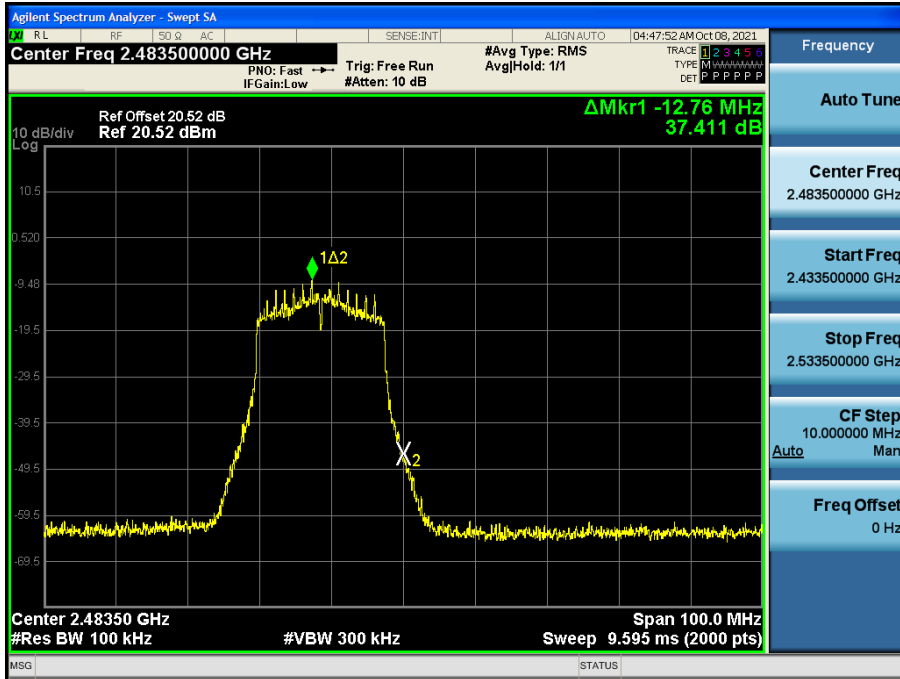
Band Edge (802.11n\_HT20-CH11)



Band Edge (802.11n\_HT20-CH12)



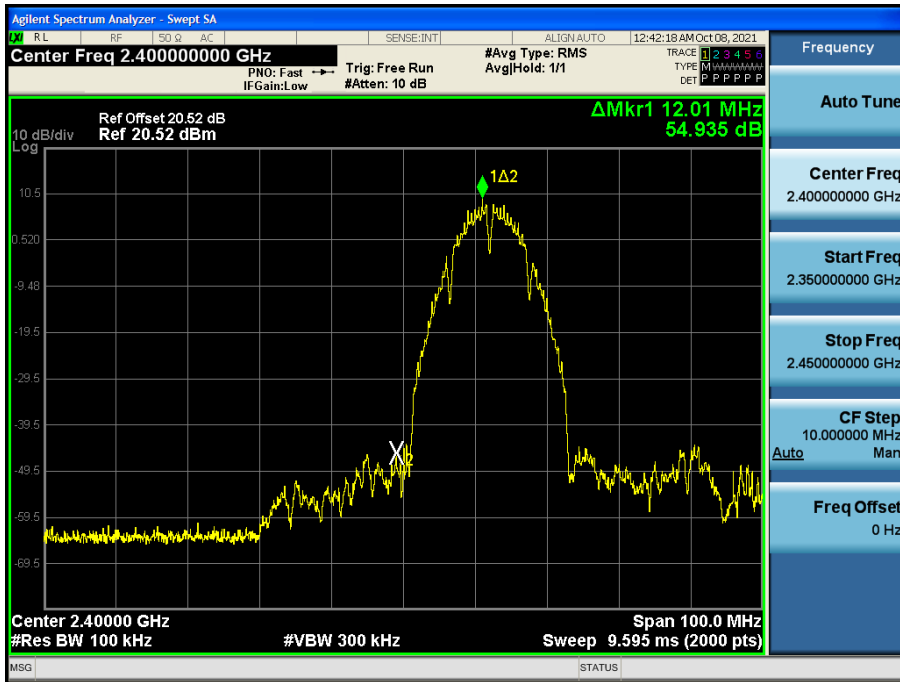
## Band Edge (802.11n\_HT20-CH13)



[Ant.2]

☑ Test Plots(Band Edge)

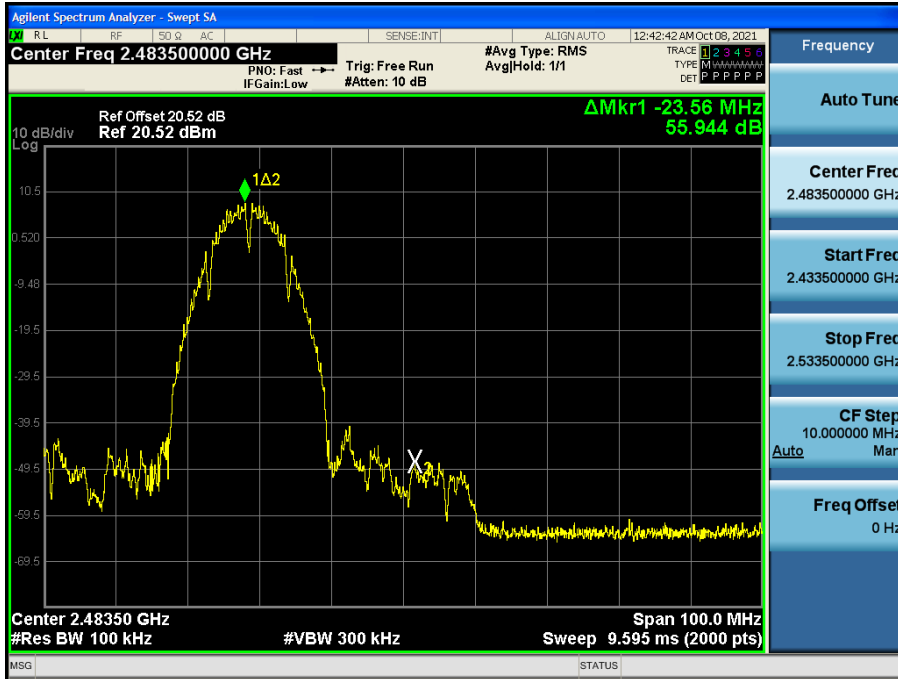
Band Edge (802.11b-CH1)



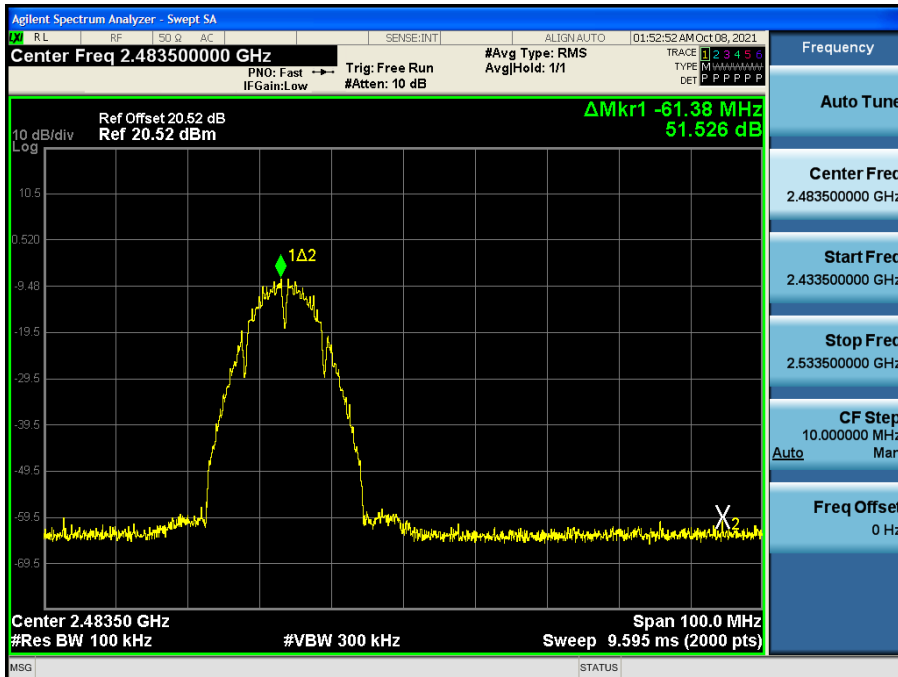
Band Edge (802.11b-CH2)



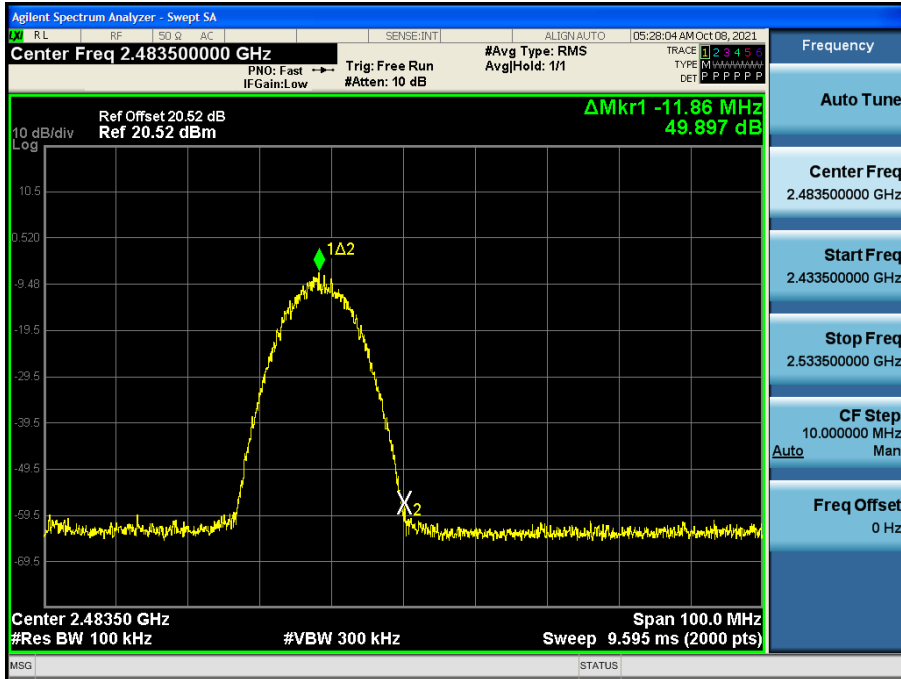
### Band Edge (802.11b-CH11)



### Band Edge (802.11b-CH12)

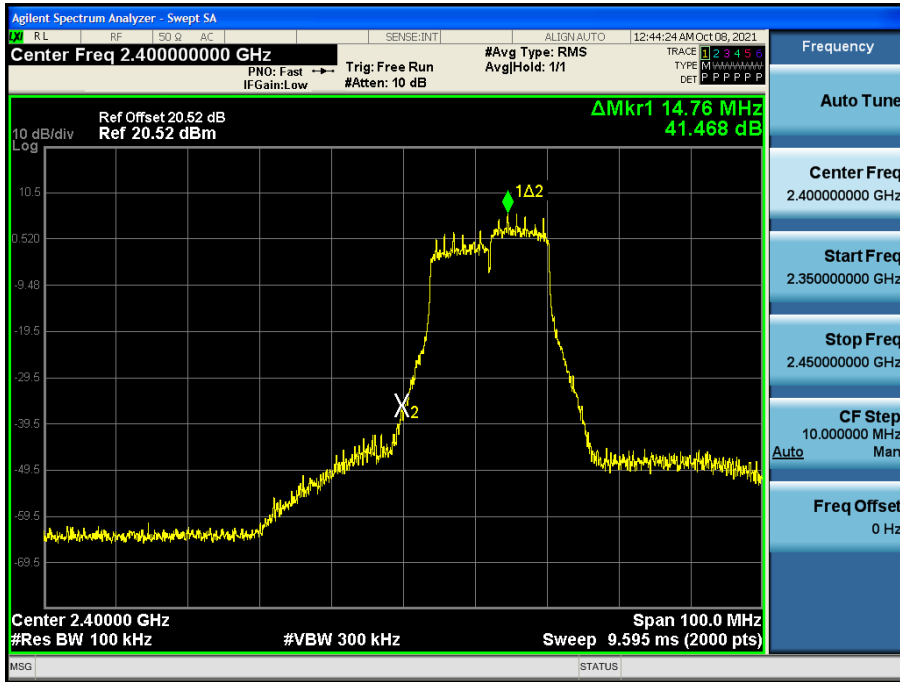


Band Edge (802.11b-CH13)

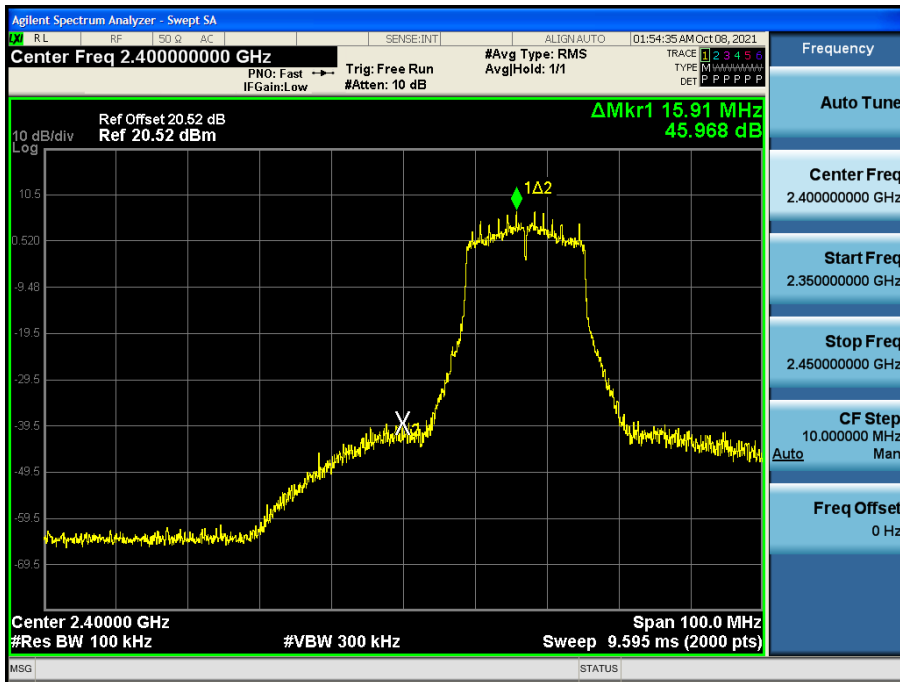




### Band Edge (802.11g-CH1)



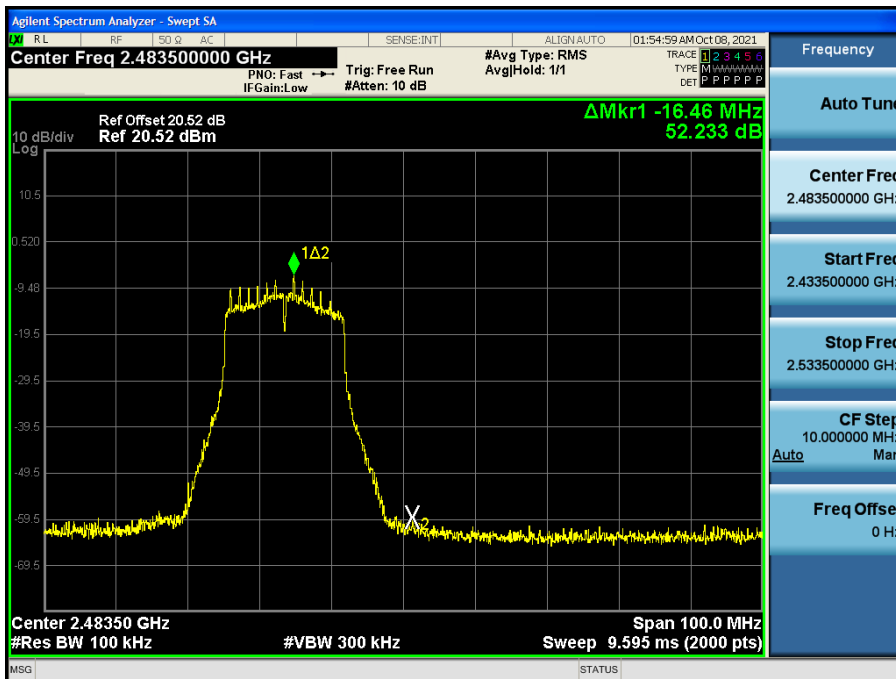
### Band Edge (802.11g-CH2)



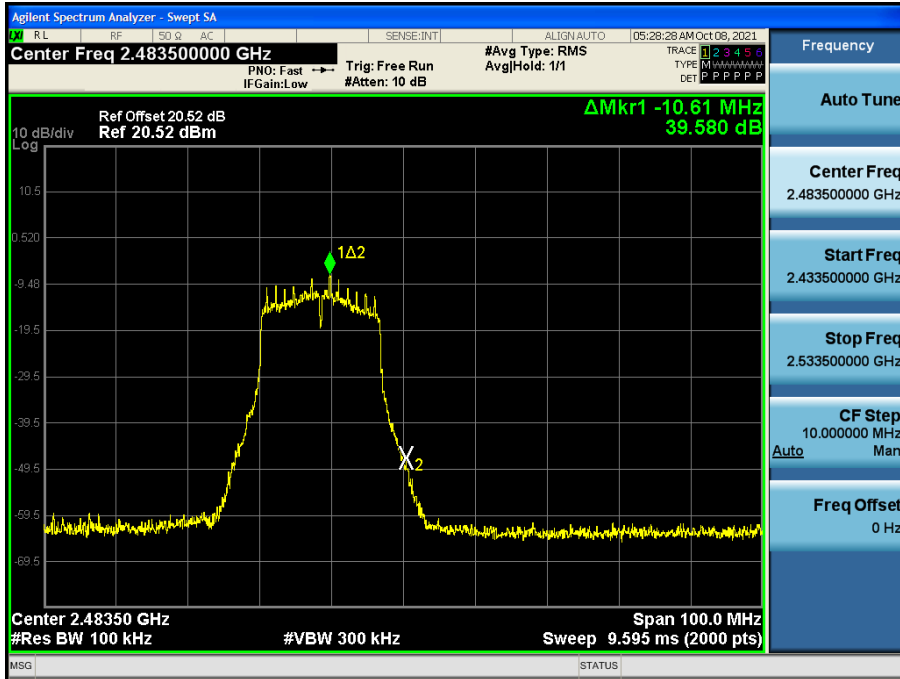
Band Edge (802.11g-CH11)



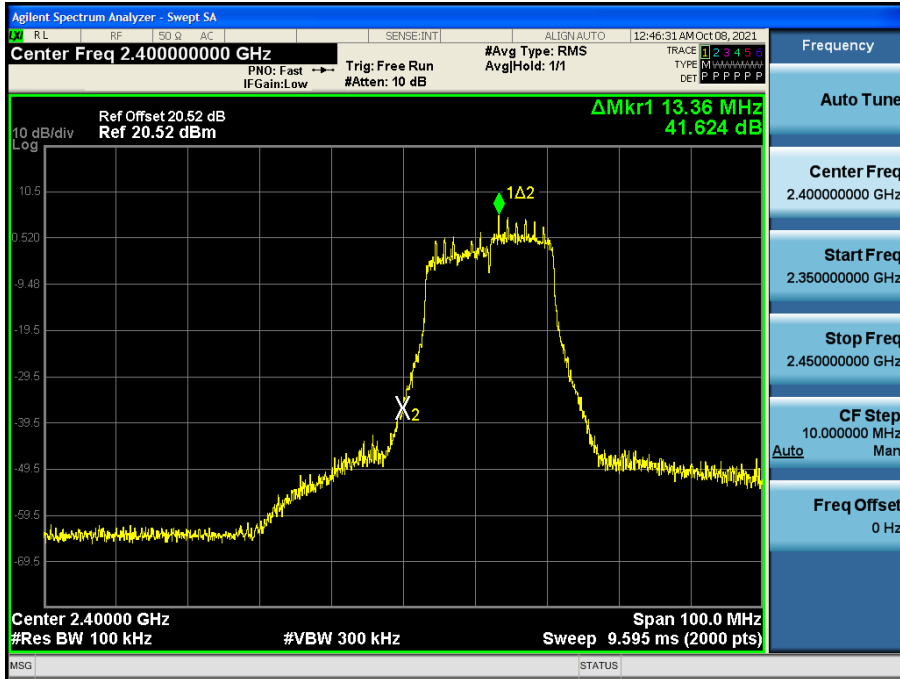
Band Edge (802.11g-CH12)



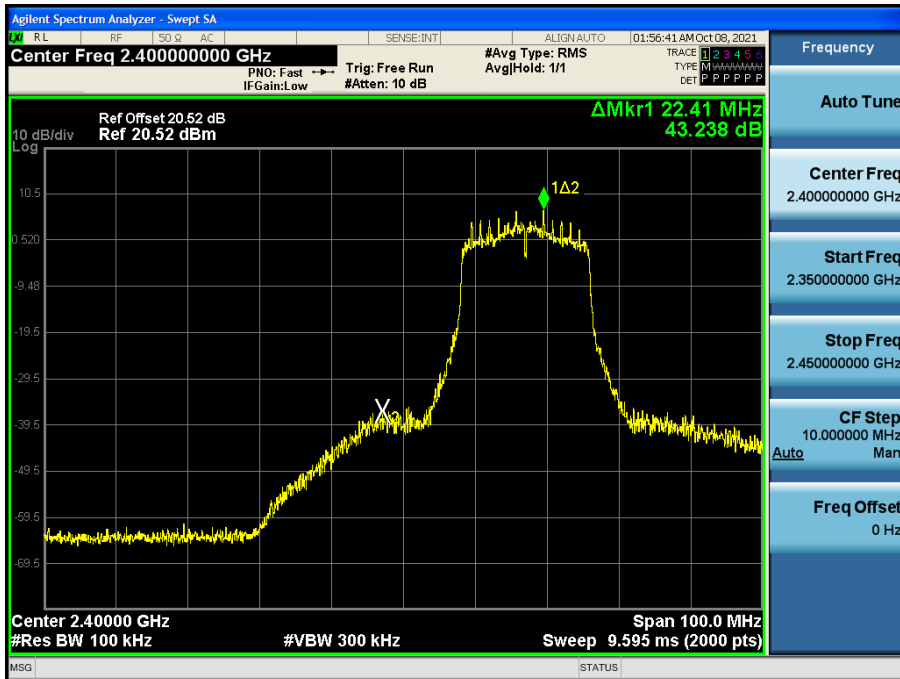
## Band Edge (802.11g-CH13)



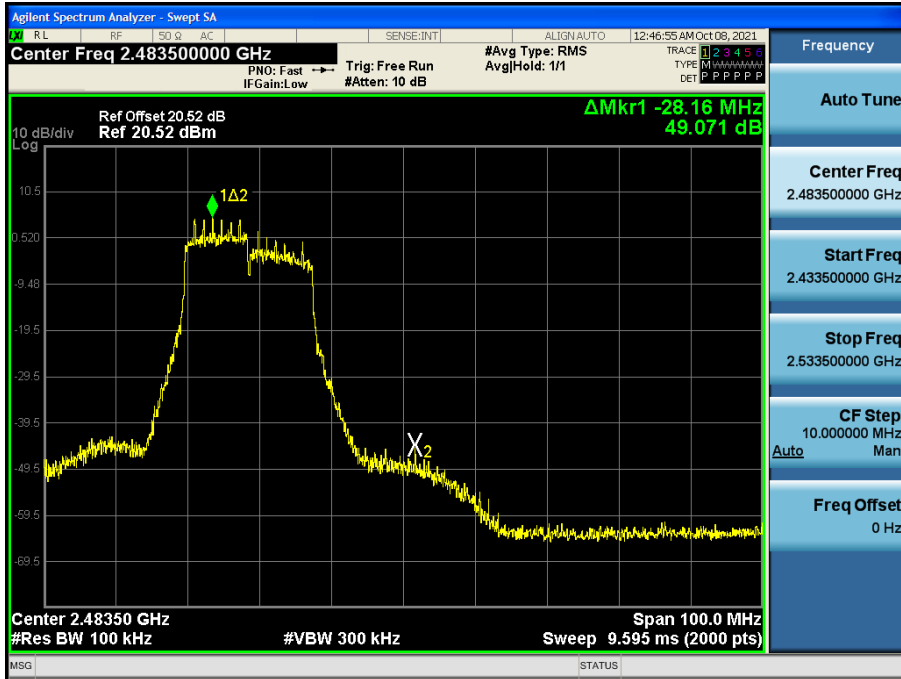
### Band Edge (802.11n\_HT20-CH1)



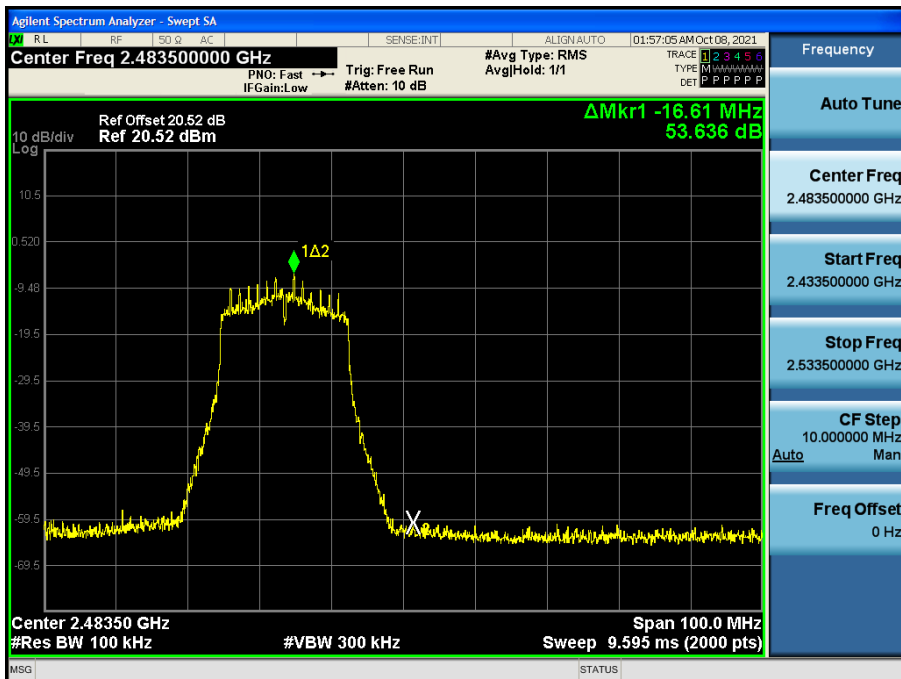
### Band Edge (802.11n\_HT20-CH2)



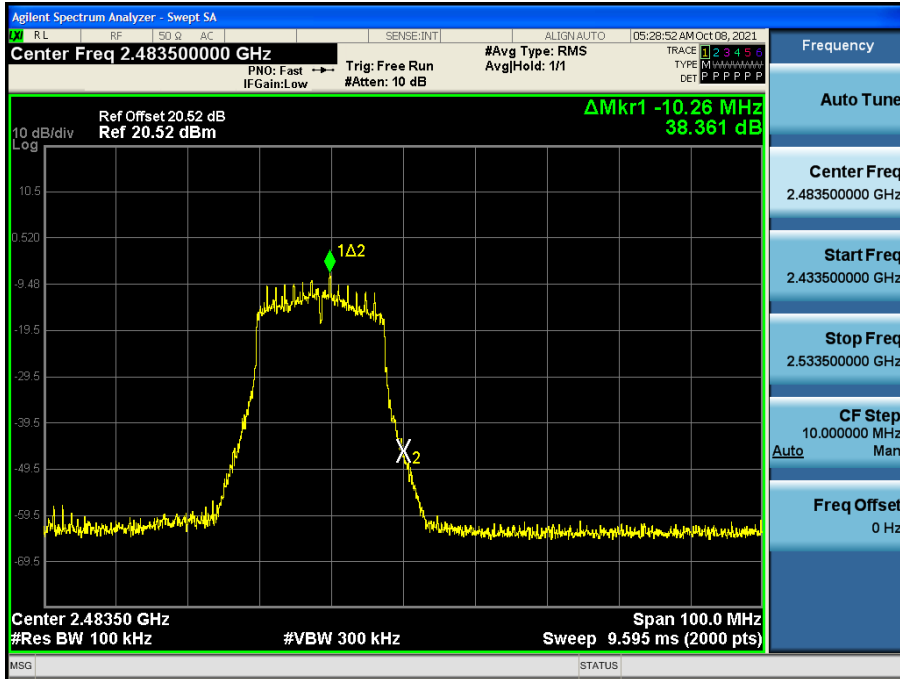
Band Edge (802.11n\_HT20-CH11)



Band Edge (802.11n\_HT20-CH12)



## Band Edge (802.11n\_HT20-CH13)

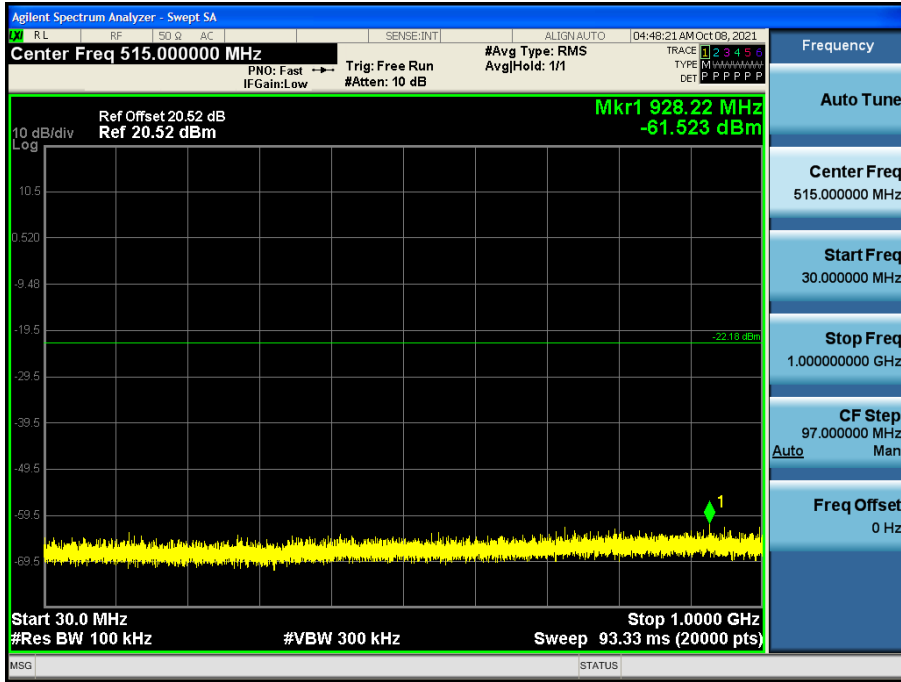


[Ant.1]

Test Plots(Conducted Spurious Emission)

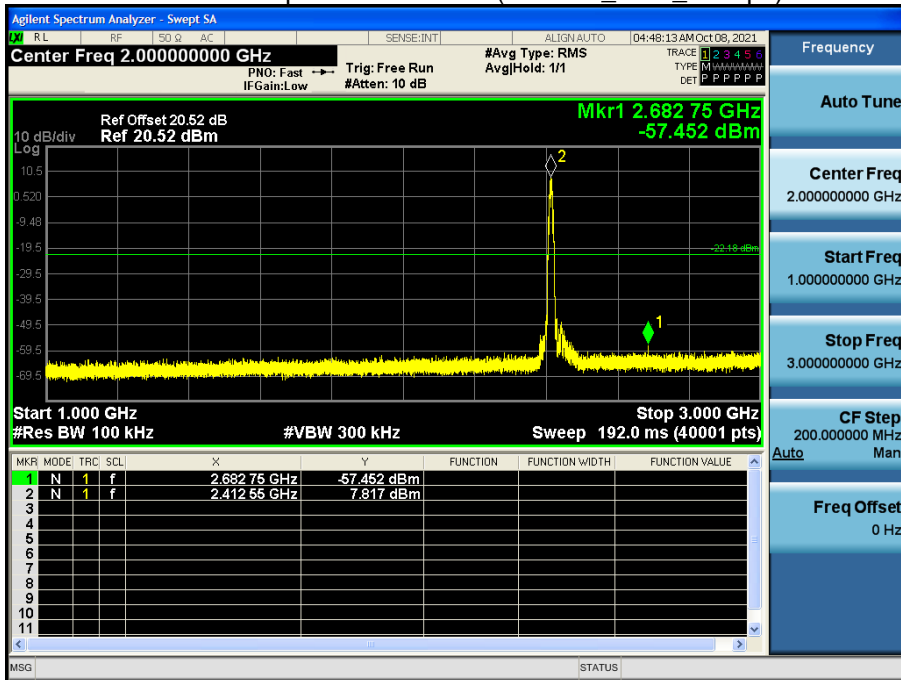
30 MHz ~ 1 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



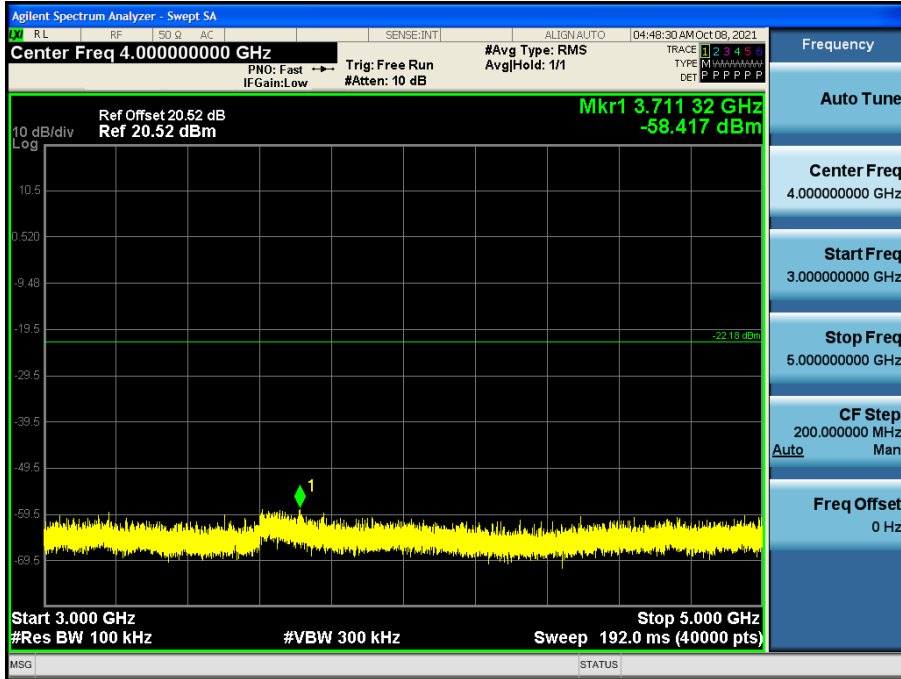
1 GHz ~ 3 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



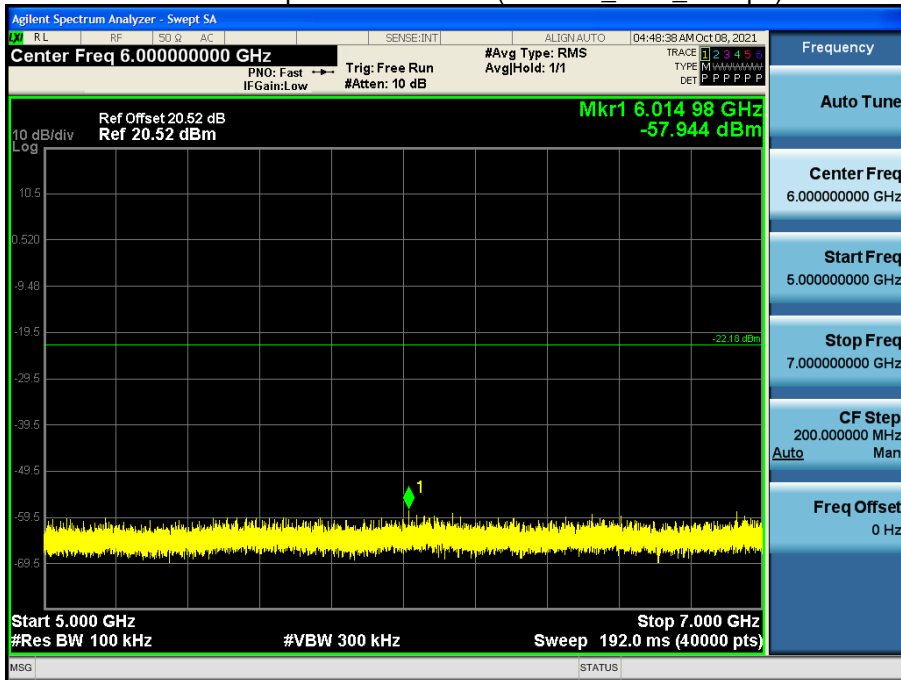
### 3 GHz ~ 5 GHz

#### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



### 5 GHz ~ 7 GHz

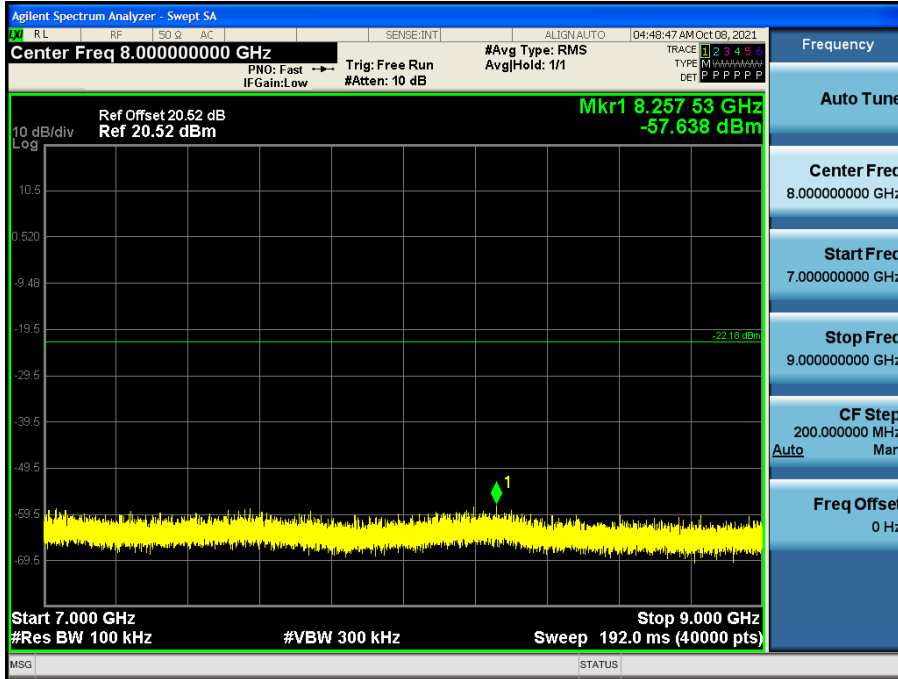
#### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)





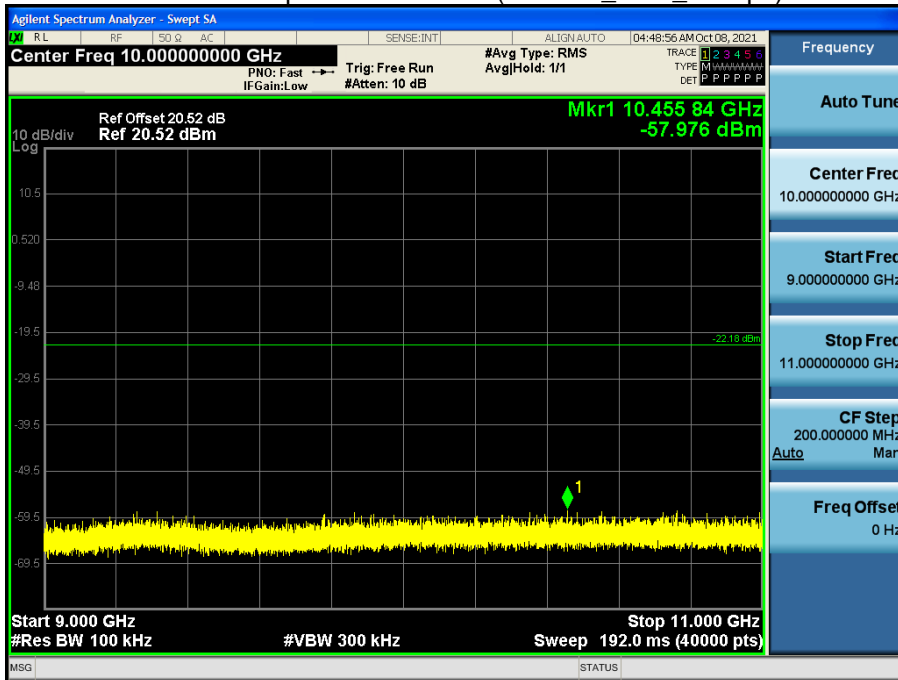
7 GHz ~ 9 GHz

### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



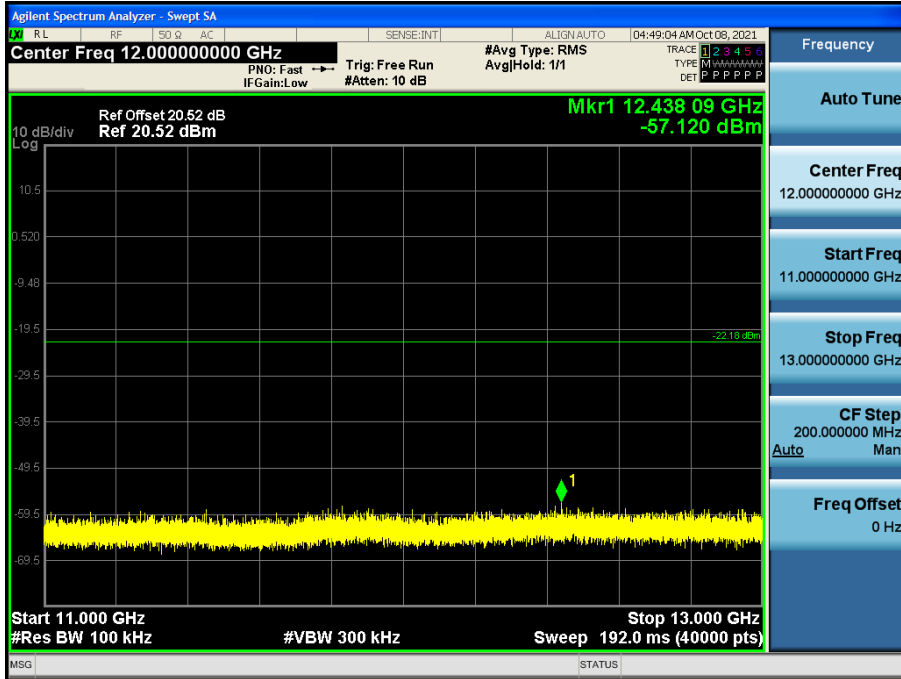
9 GHz ~ 11 GHz

### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



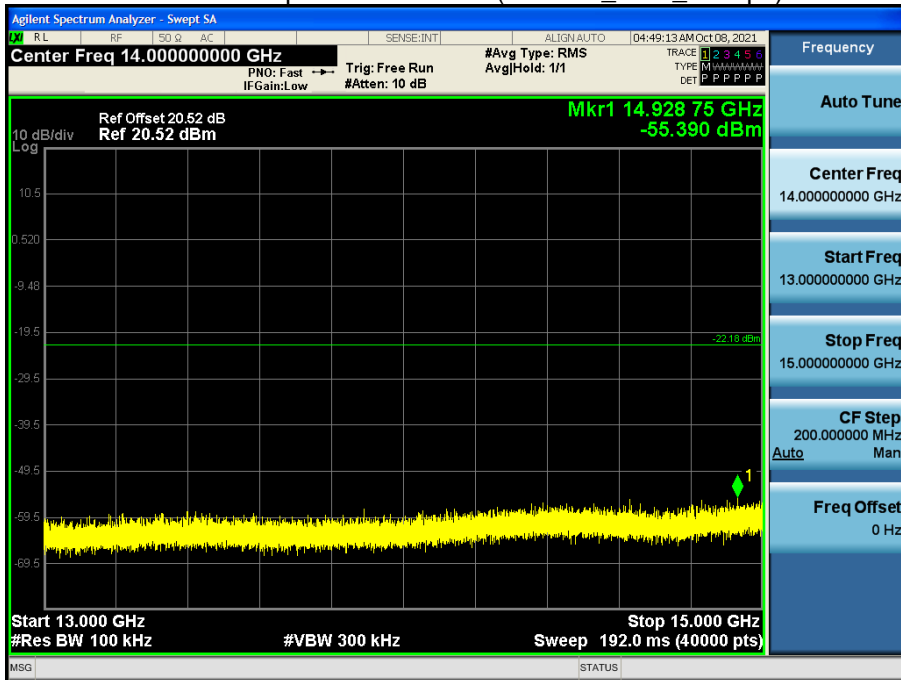
11 GHz ~ 13 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



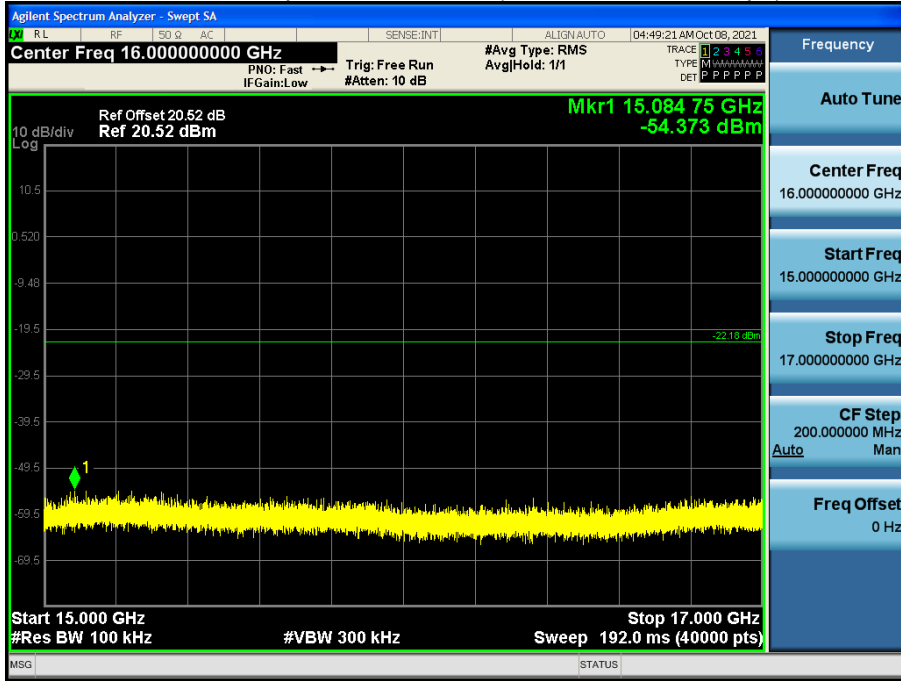
13 GHz ~ 15 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



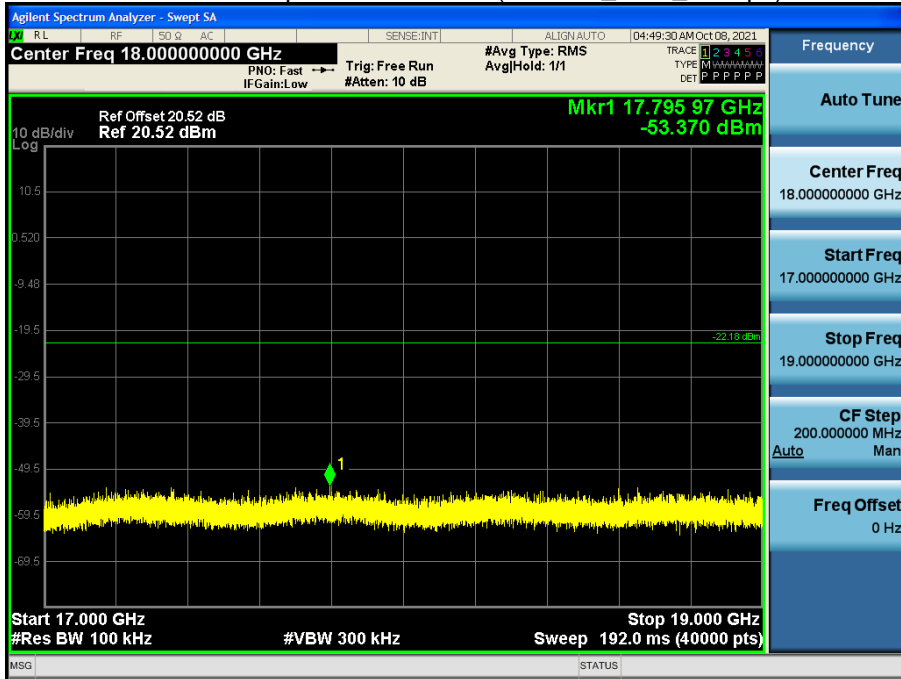
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



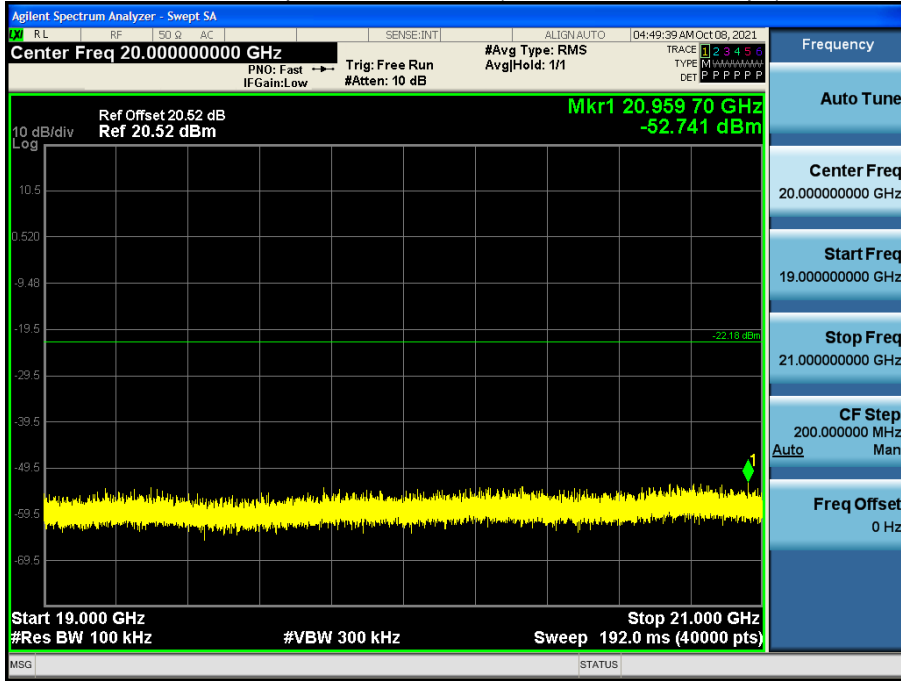
17 GHz ~ 19 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



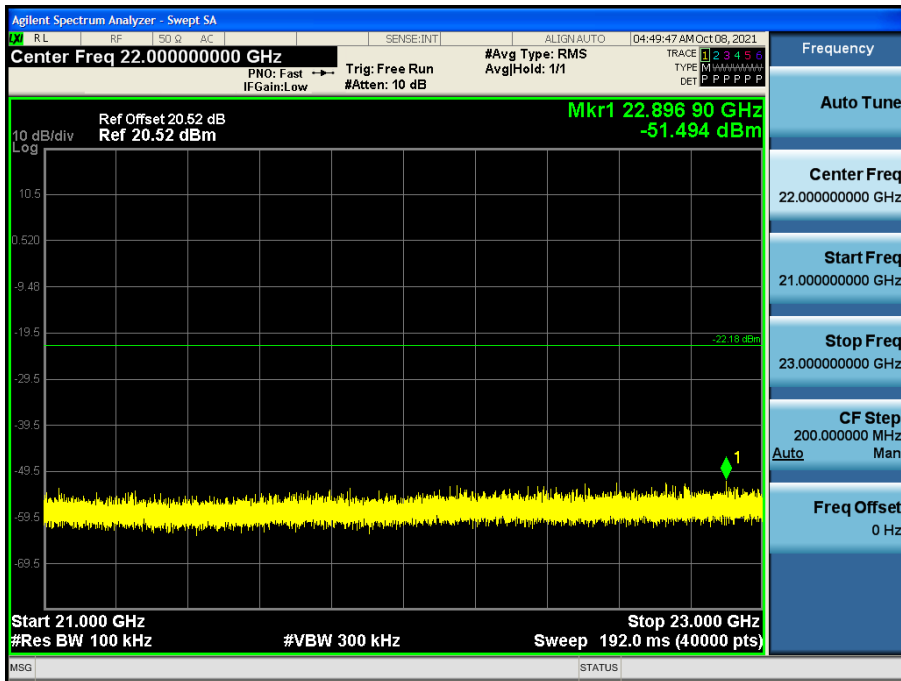
19 GHz ~ 21 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



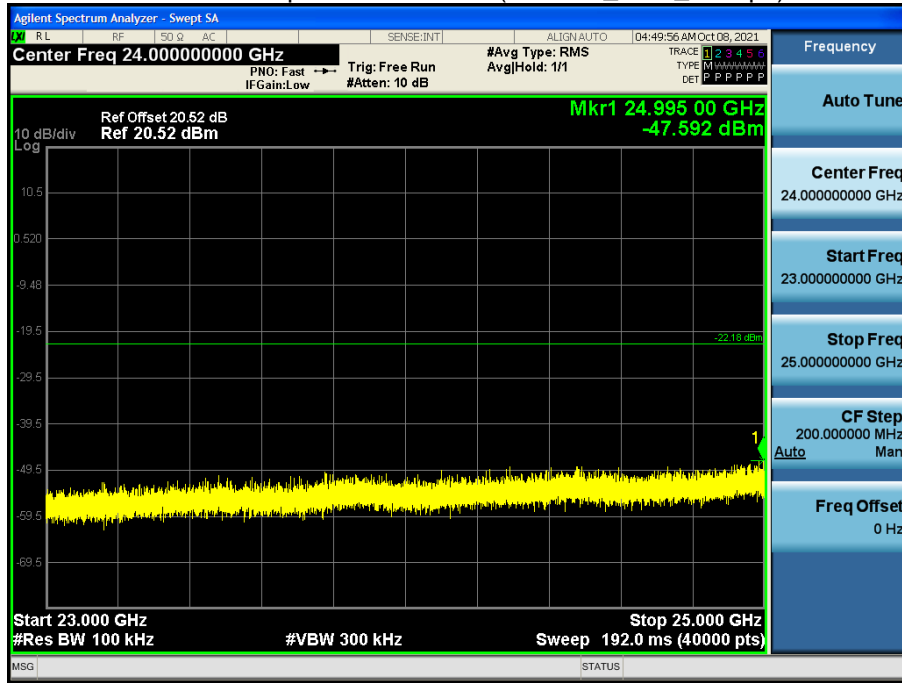
21 GHz ~ 23 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



23 GHz ~ 25 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)

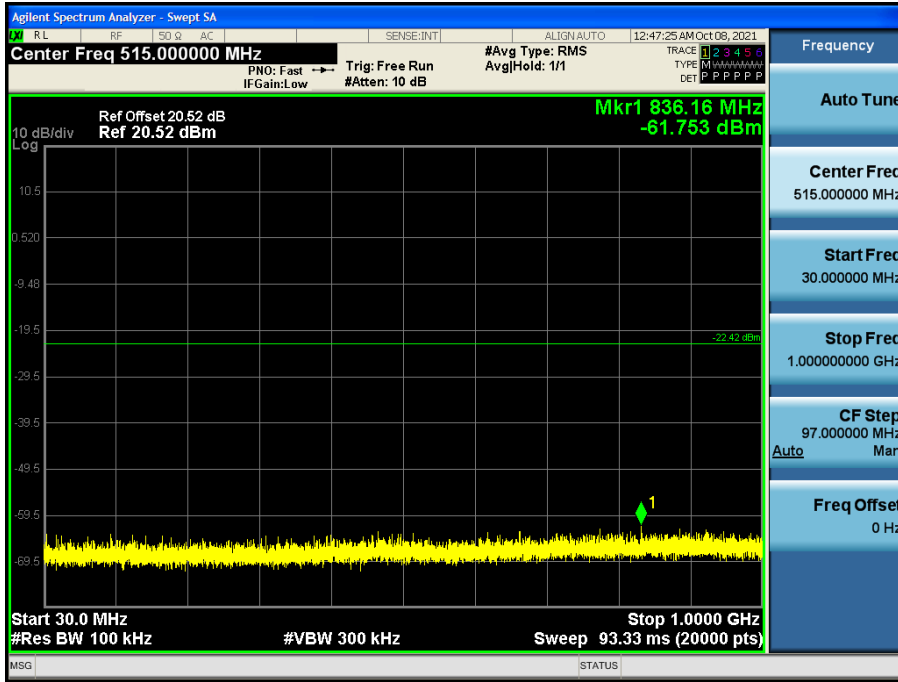


[Ant.2]

☑ Test Plots(Conducted Spurious Emission)

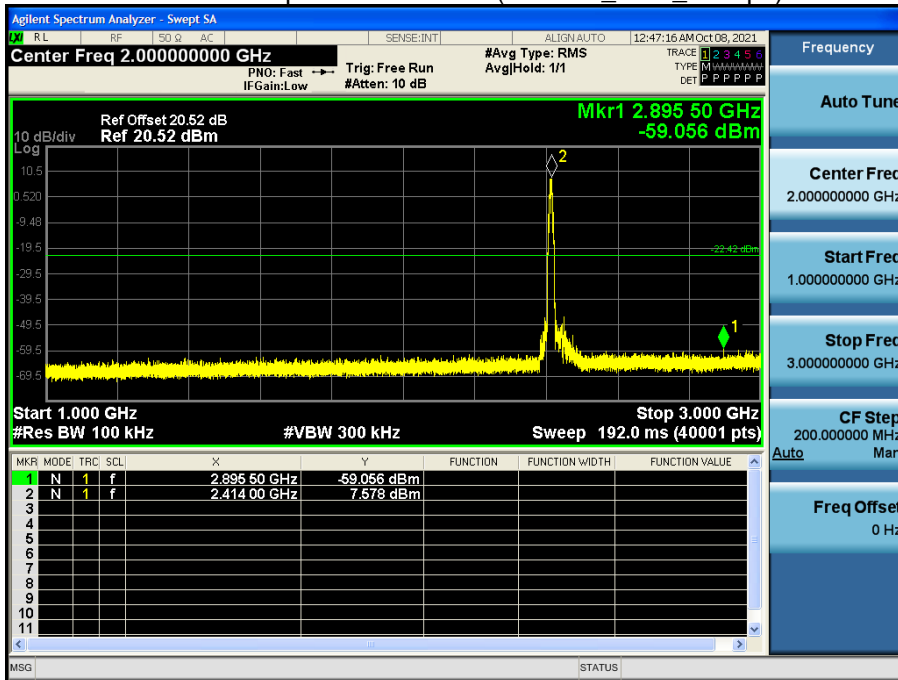
30 MHz ~ 1 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



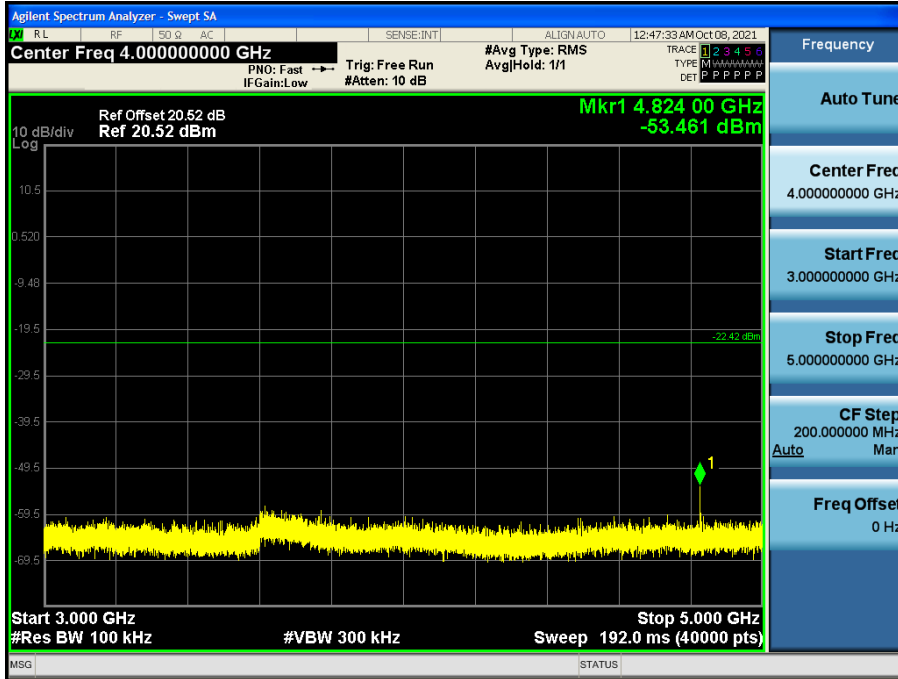
1 GHz ~ 3 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



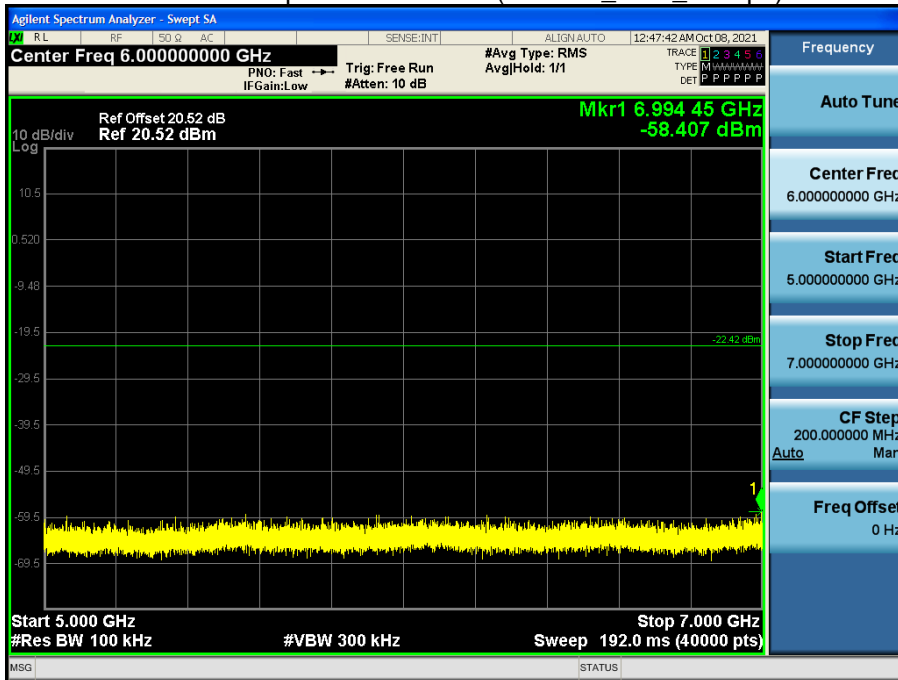
### 3 GHz ~ 5 GHz

#### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



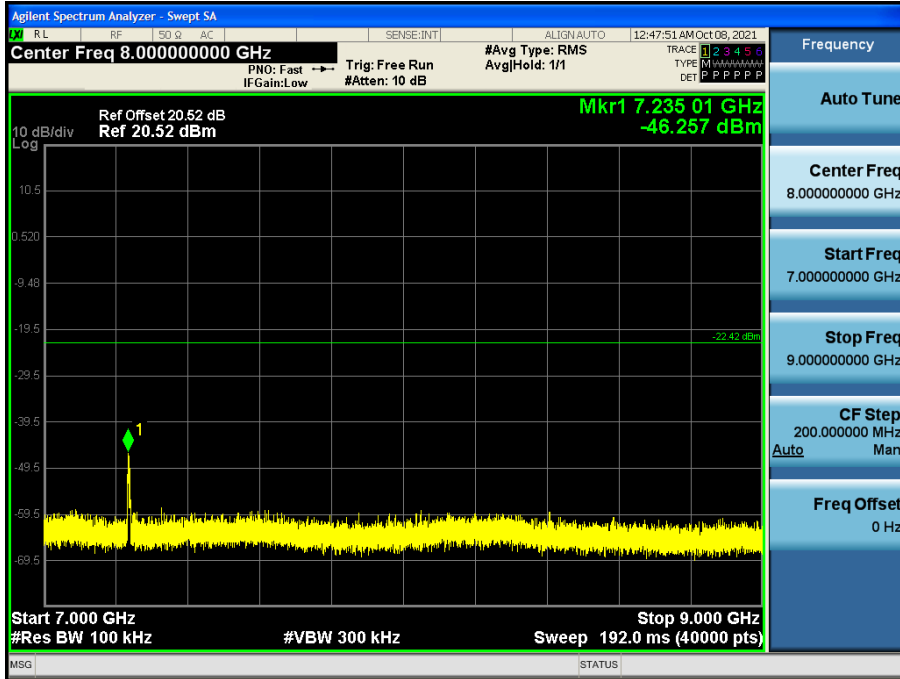
### 5 GHz ~ 7 GHz

#### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



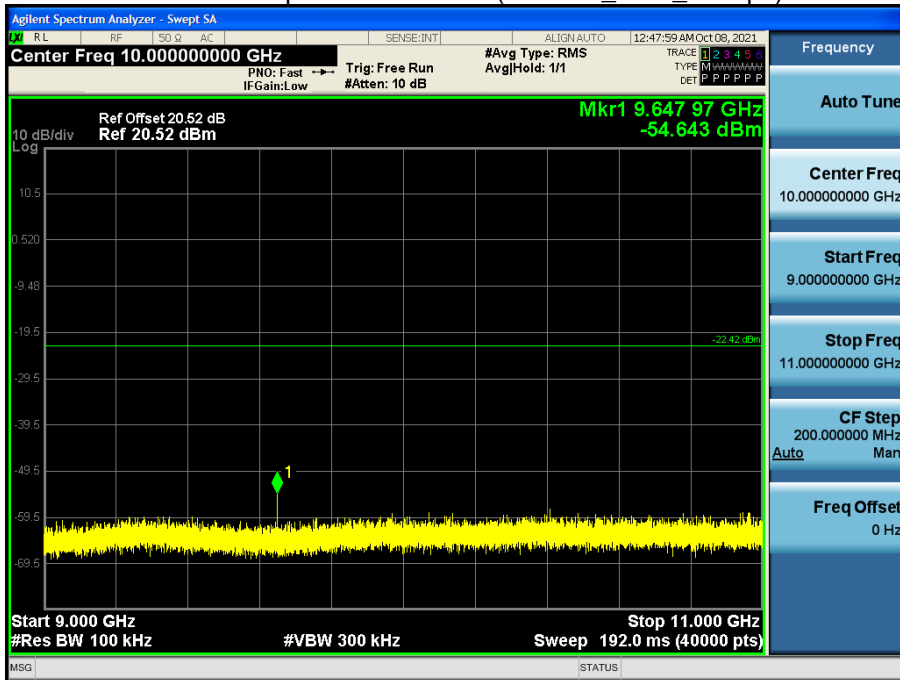
### 7 GHz ~ 9 GHz

#### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



### 9 GHz ~ 11 GHz

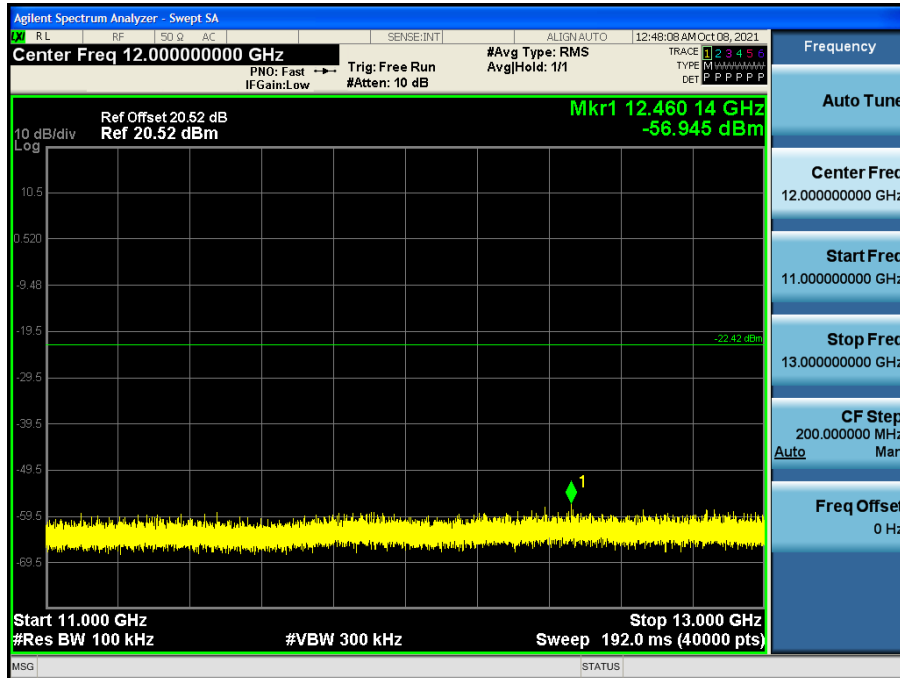
#### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)





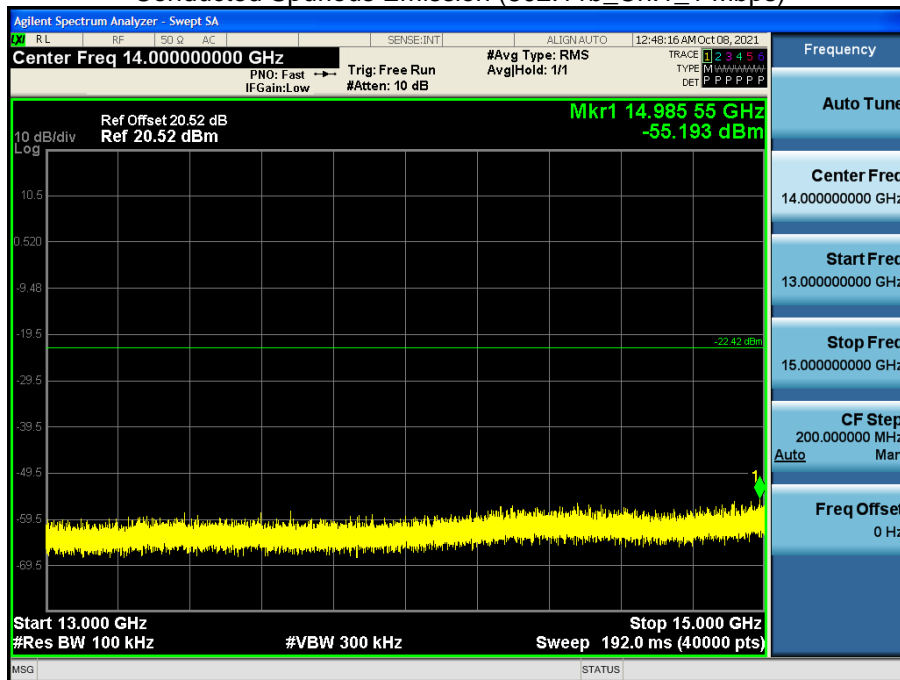
11 GHz ~ 13 GHz

### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



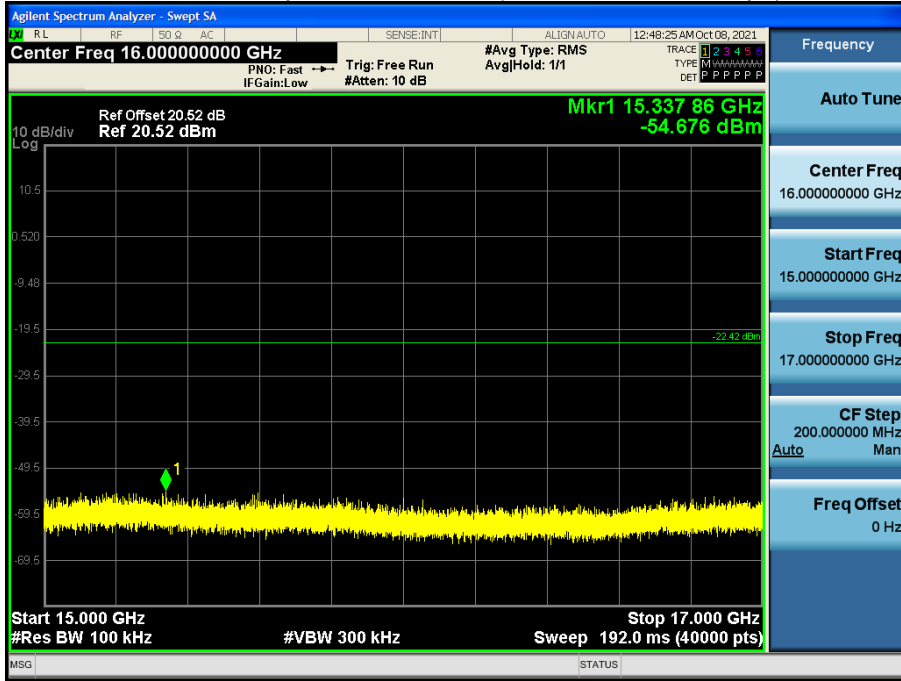
13 GHz ~ 15 GHz

### Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



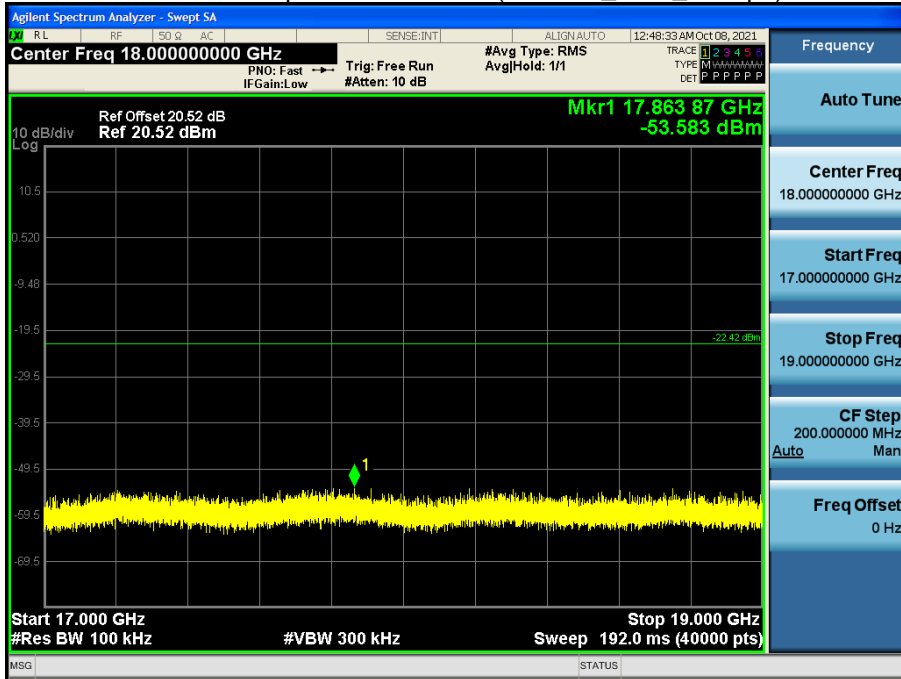
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



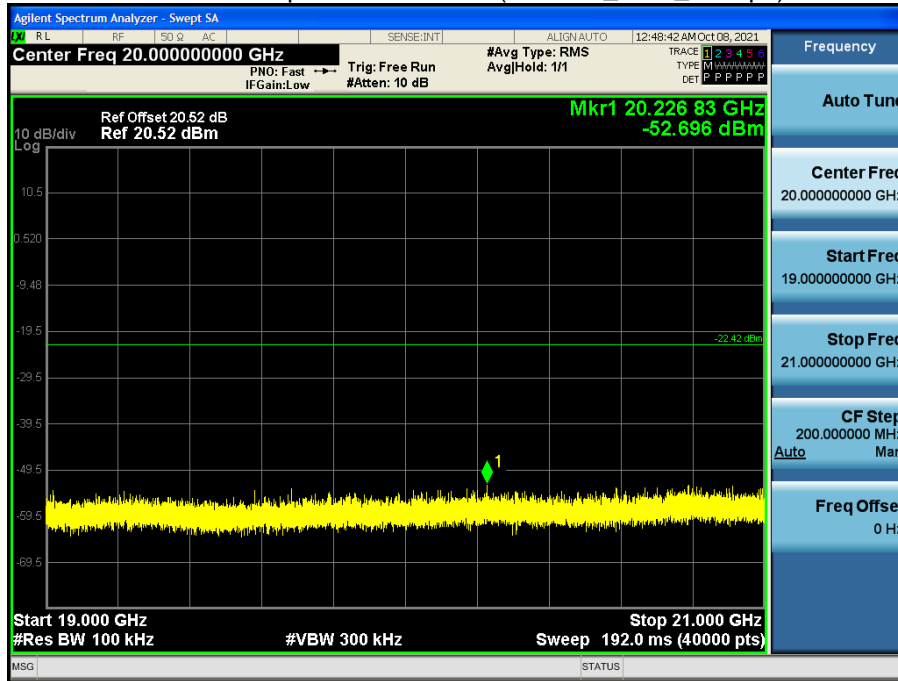
17 GHz ~ 19 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



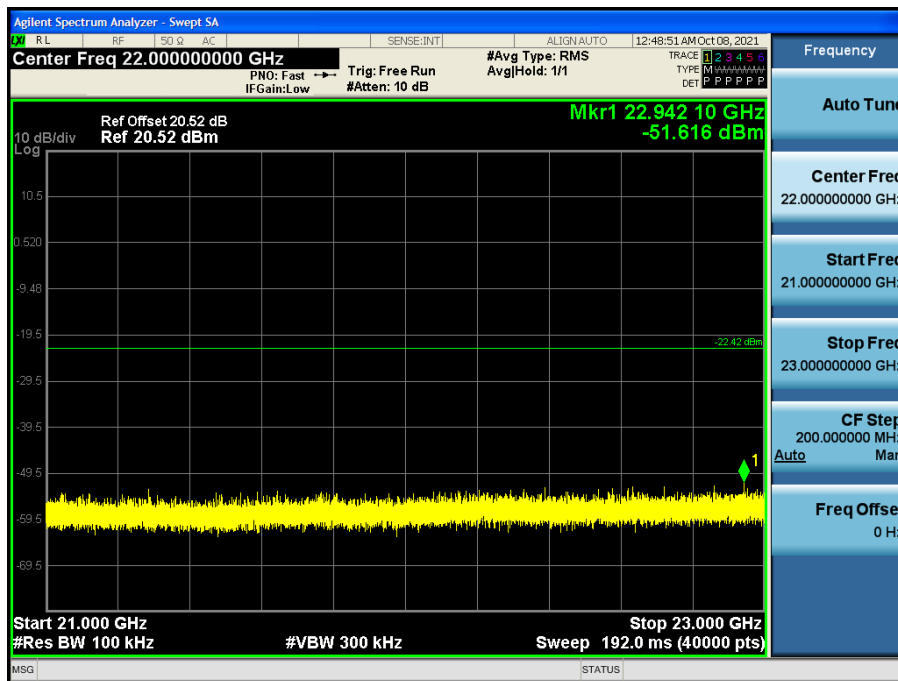
19 GHz ~ 21 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



21 GHz ~ 23 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



23 GHz ~ 25 GHz

Conducted Spurious Emission (802.11b\_Ch.1\_1 Mbps)



**9.6 RADIATED SPURIOUS EMISSIONS**

Frequency Range : 9 kHz – 30 MHz

Frequency	Measured Value	A.F+C.L+D.F	POL	Total	Limit	Margin
[MHz]	[dB $\mu$ V/m]	[dB/m]	[H/V]	[dB $\mu$ V/m]	[dB $\mu$ V/m]	[dB]
No Critical peaks found						

**Note:**

1. The Measured of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor =  $40\log(\text{specific distance} / \text{test distance})$  (dB)
3. Limit line = specific Limits (dB $\mu$ V) + Distance extrapolation factor
4. Radiated test is performed with hopping off.

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	POL	Total	Limit	Margin
[MHz]	[dB $\mu$ V/m]	[dB/m]	[H/V]	[dB $\mu$ V/m]	[dB $\mu$ V/m]	[dB]
No Critical peaks found						

**Note:**

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
2. Radiated test is performed with hopping off.

**Frequency Range : Above 1 GHz****[Ant.1&Ant.2\_MIMO(CDD)]**

Operation Mode: 802.11b  
Transfer Rate: 1 Mbps  
Operating Frequency: 2412 MHz  
Channel No. 01 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
4824	46.06	5.27	V	51.33	73.98	22.65	PK
4824	40.39	5.27	V	45.66	53.98	8.32	AV
7236	41.52	12.86	V	54.38	73.98	19.60	PK
7236	32.91	12.86	V	45.77	53.98	8.21	AV
4824	47.58	5.27	H	52.85	73.98	21.13	PK
4824	42.71	5.27	H	47.98	53.98	6.00	AV
7236	42.57	12.86	H	55.43	73.98	18.55	PK
7236	34.87	12.86	H	47.73	53.98	6.25	AV

Operation Mode: 802.11b  
Transfer Rate: 1 Mbps  
Operating Frequency: 2437 MHz  
Channel No. 06 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
4874	44.76	5.43	V	50.19	73.98	23.79	PK
4874	39.17	5.43	V	44.60	53.98	9.38	AV
<b>7311</b>	<b>45.13</b>	<b>12.90</b>	<b>V</b>	<b>58.03</b>	<b>73.98</b>	<b>15.95</b>	<b>PK</b>
<b>7311</b>	<b>37.87</b>	<b>12.90</b>	<b>V</b>	<b>50.77</b>	<b>53.98</b>	<b>3.21</b>	<b>AV</b>
4874	43.64	5.43	H	49.07	73.98	24.91	PK
4874	38.08	5.43	H	43.51	53.98	10.47	AV
7311	44.25	12.90	H	57.15	73.98	16.83	PK
7311	36.90	12.90	H	49.80	53.98	4.18	AV

Operation Mode: 802.11b  
Transfer Rate: 1 Mbps  
Operating Frequency: 2462 MHz  
Channel No.: 11 Ch

Frequency [MHz]	Measured Level [dBμV]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	45.03	5.94	V	50.97	73.98	23.01	PK
4924	39.13	5.94	V	45.07	53.98	8.91	AV
7386	41.43	12.66	V	54.09	73.98	19.89	PK
7386	32.89	12.66	V	45.55	53.98	8.43	AV
4924	46.28	5.94	H	52.22	73.98	21.76	PK
4924	40.62	5.94	H	46.56	53.98	7.42	AV
7386	42.27	12.66	H	54.93	73.98	19.05	PK
7386	33.83	12.66	H	46.49	53.98	7.49	AV

Operation Mode: 802.11b  
Transfer Rate: 1 Mbps  
Operating Frequency: 2467 MHz  
Channel No.: 12 Ch

Frequency [MHz]	Measured Level [dBμV]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4934	41.12	6.00	V	47.12	73.98	26.86	PK
4934	28.88	6.00	V	34.88	53.98	19.10	AV
7401	37.65	12.59	V	50.24	73.98	23.74	PK
7401	25.69	12.59	V	38.28	53.98	15.70	AV
4934	41.35	6.00	H	47.35	73.98	26.63	PK
4934	28.91	6.00	H	34.91	53.98	19.07	AV
7401	38.36	12.59	H	50.95	73.98	23.03	PK
7401	25.75	12.59	H	38.34	53.98	15.64	AV

Operation Mode: 802.11b  
Transfer Rate: 1 Mbps  
Operating Frequency: 2472 MHz  
Channel No.: 13 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
4944	41.25	6.00	V	47.25	73.98	26.73	PK
4944	28.89	6.00	V	34.89	53.98	19.09	AV
7416	37.87	12.49	V	50.36	73.98	23.62	PK
7416	25.77	12.49	V	38.26	53.98	15.72	AV
4944	41.38	6.00	H	47.38	73.98	26.60	PK
4944	28.90	6.00	H	34.90	53.98	19.08	AV
7416	38.12	12.49	H	50.61	73.98	23.37	PK
7416	25.80	12.49	H	38.29	53.98	15.69	AV



Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2412 MHz  
 Channel No.: 01 Ch

Frequency [MHz]	Measured Level [dBμV]	Duty Cycle Factor [dB]	A.F.+C.L.-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	43.26	0.00	5.27	V	48.53	73.98	25.45	PK
4824	30.57	0.10	5.27	V	35.94	53.98	18.04	AV
7236	41.68	0.00	12.86	V	54.54	73.98	19.44	PK
7236	27.62	0.10	12.86	V	40.58	53.98	13.40	AV
4824	44.54	0.00	5.27	H	49.81	73.98	24.17	PK
4824	31.93	0.10	5.27	H	37.30	53.98	16.68	AV
7236	41.86	0.00	12.86	H	54.72	73.98	19.26	PK
7236	27.85	0.10	12.86	H	40.81	53.98	13.17	AV

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2437 MHz  
 Channel No.: 06 Ch

Frequency [MHz]	Measured Level [dBμV]	Duty Cycle Factor [dB]	A.F.+C.L.-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4874	45.59	0.00	5.43	V	51.02	73.98	22.96	PK
4874	31.67	0.10	5.43	V	37.20	53.98	16.78	AV
7311	47.33	0.00	12.90	V	60.23	73.98	13.75	PK
7311	32.25	0.10	12.90	V	45.25	53.98	8.73	AV
4874	44.36	0.00	5.43	H	49.79	73.98	24.19	PK
4874	30.28	0.10	5.43	H	35.81	53.98	18.17	AV
7311	48.62	0.00	12.90	H	61.52	73.98	12.46	PK
7311	33.56	0.10	12.90	H	46.56	53.98	7.42	AV

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2462 MHz  
 Channel No. 11 Ch

Frequency [MHz]	Measure d Level [dBμV]	Duty Cycle Factor [dB]	A.F.+C.L. -A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measure ment Type
4924	43.63	0.00	5.94	V	49.57	73.98	24.41	PK
4924	31.25	0.10	5.94	V	37.29	53.98	16.69	AV
7386	42.50	0.00	12.66	V	55.16	73.98	18.82	PK
7386	28.52	0.10	12.66	V	41.28	53.98	12.70	AV
4924	43.81	0.00	5.94	H	49.75	73.98	24.23	PK
4924	31.44	0.10	5.94	H	37.48	53.98	16.50	AV
7386	42.98	0.00	12.66	H	55.64	73.98	18.34	PK
7386	28.85	0.10	12.66	H	41.61	53.98	12.37	AV

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2467 MHz  
 Channel No. 12 Ch

Frequency [MHz]	Measure d Level [dBμV]	Duty Cycle Factor [dB]	A.F.+C.L. -A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measure ment Type
4934	41.06	0.00	6.00	V	47.06	73.98	26.92	PK
4934	28.89	0.10	6.00	V	34.99	53.98	18.99	AV
7401	37.77	0.00	12.59	V	50.36	73.98	23.62	PK
7401	25.67	0.10	12.59	V	38.36	53.98	15.62	AV
4934	41.28	0.00	6.00	H	47.28	73.98	26.70	PK
4934	28.91	0.10	6.00	H	35.01	53.98	18.97	AV
7401	38.54	0.00	12.59	H	51.13	73.98	22.85	PK
7401	25.70	0.10	12.59	H	38.39	53.98	15.59	AV

Operation Mode: 802.11g  
Transfer Rate: 6 Mbps  
Operating Frequency: 2472 MHz  
Channel No.: 13 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	Duty Cycle Factor [dB]	A.F.+C.L. -A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
4944	41.07	0.00	6.00	V	47.07	73.98	26.91	PK
4944	28.87	0.10	6.00	V	34.97	53.98	19.01	AV
7416	37.85	0.00	12.49	V	50.34	73.98	23.64	PK
7416	25.79	0.10	12.49	V	38.38	53.98	15.60	AV
4944	41.24	0.00	6.00	H	47.24	73.98	26.74	PK
4944	28.89	0.10	6.00	H	34.99	53.98	18.99	AV
7416	38.02	0.00	12.49	H	50.51	73.98	23.47	PK
7416	25.81	0.10	12.49	H	38.40	53.98	15.58	AV

Operation Mode: 802.11n (HT20)  
Transfer MCS Index: 0  
Operating Frequency: 2412 MHz  
Channel No. 01 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	Duty Cycle Factor [dB]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
4824	42.83	0.00	5.27	V	48.10	73.98	25.88	PK
4824	30.10	0.07	5.27	V	35.44	53.98	18.54	AV
7236	39.78	0.00	12.86	V	52.64	73.98	21.34	PK
7236	26.22	0.07	12.86	V	39.15	53.98	14.83	AV
4824	43.96	0.00	5.27	H	49.23	73.98	24.75	PK
4824	30.89	0.07	5.27	H	36.23	53.98	17.75	AV
7236	40.00	0.00	12.86	H	52.86	73.98	21.12	PK
7236	26.43	0.07	12.86	H	39.36	53.98	14.62	AV

Operation Mode: 802.11n (HT20)  
Transfer MCS Index: 0  
Operating Frequency: 2437 MHz  
Channel No. 06 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	Duty Cycle Factor [dB]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
4874	45.57	0.00	5.43	V	51.00	73.98	22.98	PK
4874	31.41	0.07	5.43	V	36.91	53.98	17.07	AV
7311	46.72	0.00	12.90	V	59.62	73.98	14.36	PK
7311	31.13	0.07	12.90	V	44.10	53.98	9.88	AV
4874	44.24	0.00	5.43	H	49.67	73.98	24.31	PK
4874	30.06	0.07	5.43	H	35.56	53.98	18.42	AV
7311	47.96	0.00	12.90	H	60.86	73.98	13.12	PK
7311	32.31	0.07	12.90	H	45.28	53.98	8.70	AV

Operation Mode: 802.11n (HT20)  
Transfer MCS Index: 0  
Operating Frequency: 2462 MHz  
Channel No.: 11 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	Duty Cycle Factor [dB]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
4924	42.89	0.00	5.94	V	48.83	73.98	25.15	PK
4924	30.22	0.07	5.94	V	36.23	53.98	17.75	AV
7386	41.24	0.00	12.66	V	53.90	73.98	20.08	PK
7386	26.83	0.07	12.66	V	39.56	53.98	14.42	AV
4924	43.24	0.00	5.94	H	49.18	73.98	24.80	PK
4924	30.54	0.07	5.94	H	36.55	53.98	17.43	AV
7386	41.73	0.00	12.66	H	54.39	73.98	19.59	PK
7386	27.09	0.07	12.66	H	39.82	53.98	14.16	AV

Operation Mode: 802.11n (HT20)  
Transfer MCS Index: 0  
Operating Frequency: 2467 MHz  
Channel No.: 12 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	Duty Cycle Factor [dB]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
4934	41.30	0.00	6.00	V	47.30	73.98	26.68	PK
4934	28.87	0.07	6.00	V	34.94	53.98	19.04	AV
7401	37.69	0.00	12.59	V	50.28	73.98	23.70	PK
7401	25.68	0.07	12.59	V	38.34	53.98	15.64	AV
4934	41.47	0.00	6.00	H	47.47	73.98	26.51	PK
4934	28.93	0.07	6.00	H	35.00	53.98	18.98	AV
7401	38.18	0.00	12.59	H	50.77	73.98	23.21	PK
7401	25.73	0.07	12.59	H	38.39	53.98	15.59	AV

Operation Mode: 802.11n (HT20)  
Transfer MCS Index: 0  
Operating Frequency: 2472 MHz  
Channel No.: 13 Ch

Frequency [MHz]	Measure d Level [dB $\mu$ V]	Duty Cycle Factor [dB]	A.F.+C.L.- A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measure ment Type
4944	41.36	0.00	6.00	V	47.36	73.98	26.62	PK
4944	28.88	0.07	6.00	V	34.95	53.98	19.03	AV
7416	37.96	0.00	12.49	V	50.45	73.98	23.53	PK
7416	25.77	0.07	12.49	V	38.33	53.98	15.65	AV
4944	41.59	0.00	6.00	H	47.59	73.98	26.39	PK
4944	28.91	0.07	6.00	H	34.98	53.98	19.00	AV
7416	38.12	0.00	12.49	H	50.61	73.98	23.37	PK
7416	25.79	0.07	12.49	H	38.35	53.98	15.63	AV

[RSDB Mode]

Test case 5

802.11b ch.6 1 Mbps Ant All & 802.11a ch.36 6 Mbps Ant All

Frequency [MHz]	Measured Level [dBμV]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4874	50.12	7.60	V	57.72	73.98	16.26	PK
4874	41.67	7.60	V	49.27	53.98	4.71	AV
7311	38.52	14.96	V	53.48	73.98	20.50	PK
7311	26.53	14.96	V	41.49	53.98	12.49	AV
<b>4874</b>	<b>50.96</b>	<b>7.60</b>	<b>H</b>	<b>58.56</b>	<b>73.98</b>	<b>15.42</b>	<b>PK</b>
<b>4874</b>	<b>42.43</b>	<b>7.60</b>	<b>H</b>	<b>50.03</b>	<b>53.98</b>	<b>3.95</b>	<b>AV</b>
7311	38.29	14.96	H	53.25	73.98	20.73	PK
7311	26.44	14.96	H	41.40	53.98	12.58	AV

Test case 6

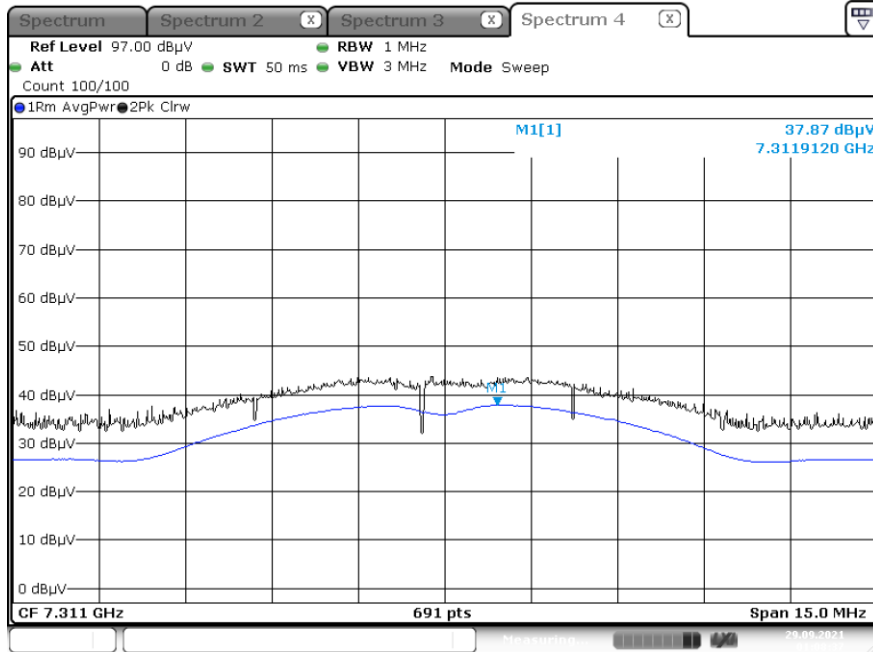
802.11b ch.1 1 Mbps Ant All & 802.11n(HT20) MCS 0 Ch.36 Ant All

Frequency [MHz]	Measured Level [dBμV]	A.F.+C.L.-A.G + D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	49.34	8.22	V	57.56	73.98	16.42	PK
4824	39.92	8.22	V	48.14	53.98	5.84	AV
7236	37.68	15.25	V	52.93	73.98	21.05	PK
7236	25.12	15.25	V	40.37	53.98	13.61	AV
4824	50.07	8.22	H	58.29	73.98	15.69	PK
4824	40.83	8.22	H	49.05	53.98	4.93	AV
7236	38.06	15.25	H	53.31	73.98	20.67	PK
7236	25.70	15.25	H	40.95	53.98	13.03	AV

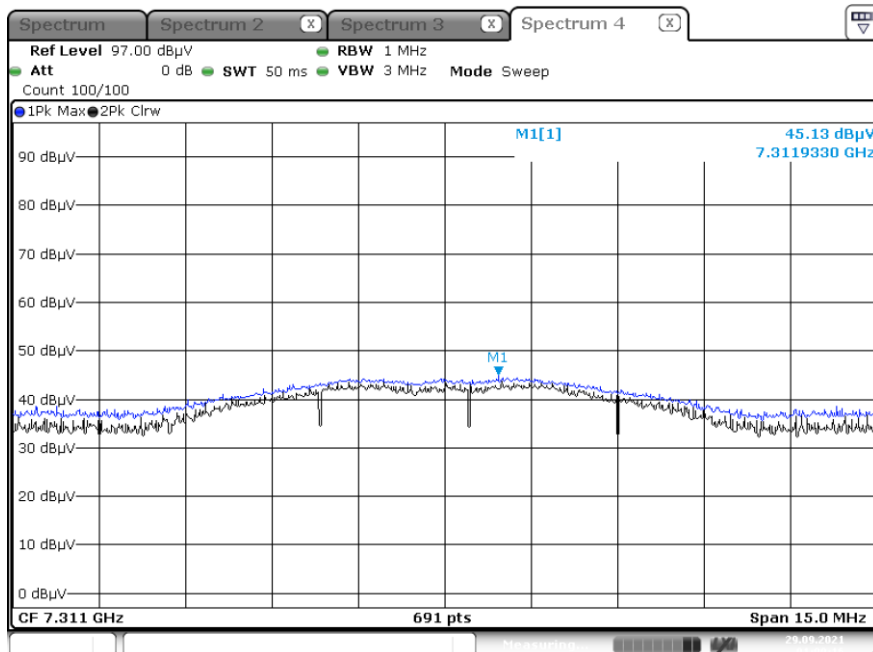
## [Ant.1&Ant.2\_MIMO(CDD)]

### ☑ Test Plots (Worst case : Y-V)

Radiated Spurious Emissions plot – Average Result (802.11b\_1 Mbps, Ch.6 3rd Harmonic)



Radiated Spurious Emissions plot – Peak Result (802.11b\_1 Mbps, Ch.6 3rd Harmonic)

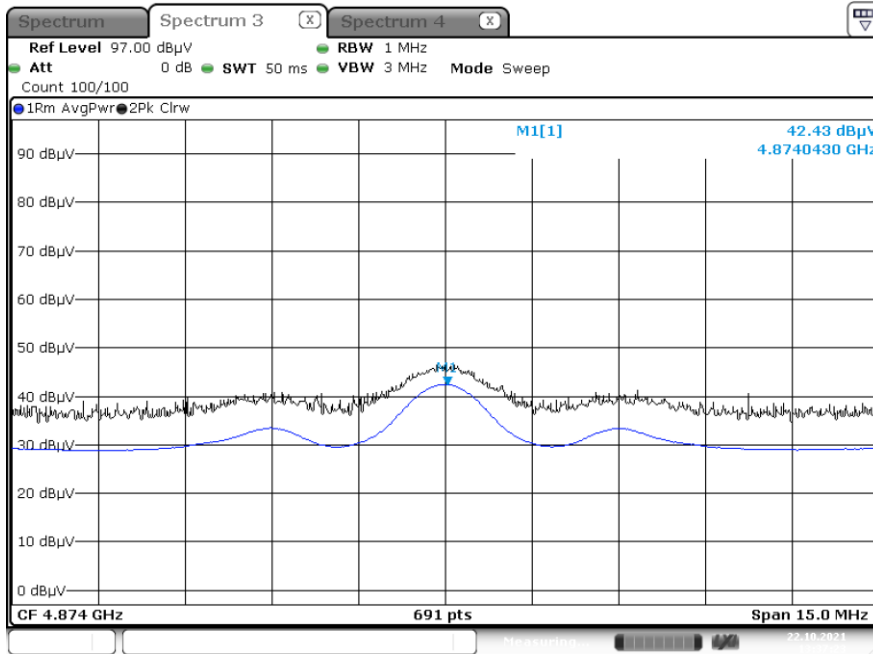


**Note:** Plot of worst case are only reported.

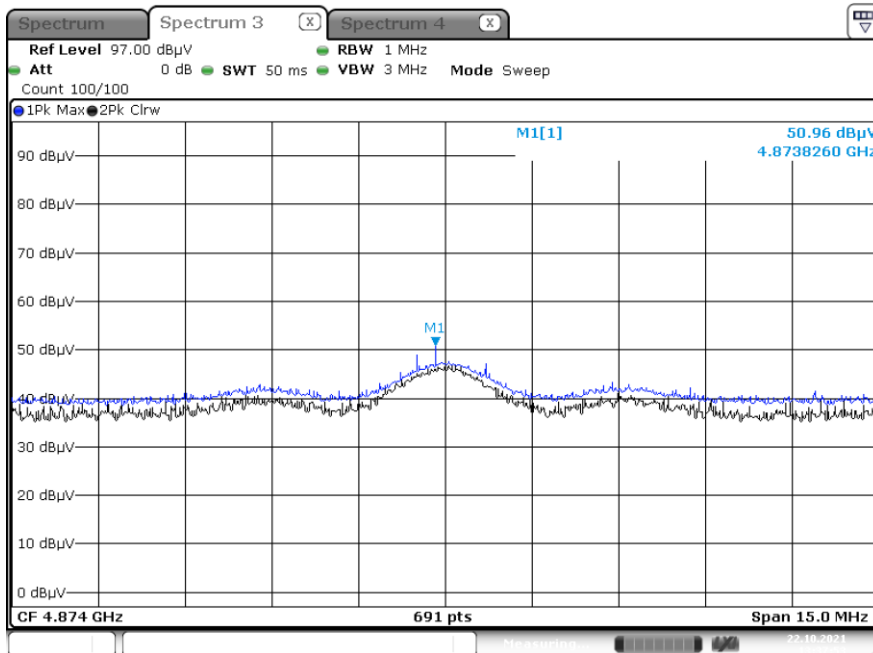


[RSDB]

Radiated Spurious Emissions plot – Average Result (Test case 5\_Z-H\_2nd Harmonic)



Radiated Spurious Emissions plot – Peak Result (Test case 5\_Z-H\_2nd Harmonic)



**Note:** Plot of worst case are only reported.

**9.7 RADIATED RESTRICTED BAND EDGES****[Ant.1&Ant.2\_MIMO(CDD)]**

Operation Mode:	802.11b
Transfer Rate:	1 Mbps
Operating Frequency	2412 MHz, 2462 MHz
Channel No.	01 Ch, 11 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
2390.0	52.59	2.99	H	55.58	73.98	18.40	PK
2390.0	44.51	2.99	H	47.50	53.98	6.48	AV
2390.0	51.64	2.99	V	54.63	73.98	19.35	PK
2390.0	43.70	2.99	V	46.69	53.98	7.29	AV
2483.5	51.01	4.20	H	55.21	73.98	18.77	PK
2483.5	41.49	4.20	H	45.69	53.98	8.29	AV
2483.5	50.12	4.20	V	54.32	73.98	19.66	PK
2483.5	40.29	4.20	V	44.49	53.98	9.49	AV

Operation Mode:	802.11b
Transfer Rate:	1 Mbps
Operating Frequency	2467 MHz
Channel No.	12 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
2483.5	48.88	4.20	H	53.08	73.98	20.90	PK
2483.5	36.72	4.20	H	40.92	53.98	13.06	AV
2483.5	48.48	4.20	V	52.68	73.98	21.30	PK
2483.5	36.61	4.20	V	40.81	53.98	13.17	AV

Operation Mode: 802.11b  
Transfer Rate: 1 Mbps  
Operating Frequency: 2472 MHz  
Channel No. 13 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
2483.5	55.15	4.20	H	59.35	73.98	14.63	PK
2483.5	37.98	4.20	H	42.18	53.98	11.80	AV
2483.5	54.39	4.20	V	58.59	73.98	15.39	PK
2483.5	37.22	4.20	V	41.42	53.98	12.56	AV

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Measured Level [dBμV]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
#2390(2389.5)	57.34	0.00	2.99	H	60.33	73.98	13.65	PK
#2390(2389.5)	46.54	0.10	2.99	H	49.63	53.98	4.35	AV
#2390(2388.5)	54.45	0.00	2.99	H	57.44	73.98	16.54	PK
#2390(2388.5)	44.30	0.10	2.99	H	47.39	53.98	6.59	AV
2310~2388	56.68	0.00	2.99	H	59.67	73.98	14.31	PK
2310~2388	44.26	0.10	2.99	H	47.35	53.98	6.63	AV
#2483.5 (2484)	55.06	0.00	4.20	H	59.26	73.98	14.72	PK
#2483.5 (2484)	45.18	0.10	4.20	H	49.48	53.98	4.50	AV
#2483.5(2485)	54.06	0.00	4.20	H	58.26	73.98	15.72	PK
#2483.5(2485)	43.26	0.10	4.20	H	47.56	53.98	6.42	AV
2485.5~2500	55.76	0.00	4.20	H	59.96	73.98	14.02	PK
2485.5~2500	43.69	0.10	4.20	H	47.99	53.98	5.99	AV

# Note : integration method Used (ANSI C63.10 Section11.13.3)

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2417 MHz  
 Channel No.: 02 Ch

Frequency [MHz]	Measured Level [dBμV]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390*(2389.5)	57.46	0.00	2.99	H	60.45	73.98	13.53	PK
2390*(2389.5)	47.16	0.10	2.99	H	50.25	53.98	3.73	AV
2390*(2388.5)	56.30	0.00	2.99	H	59.29	73.98	14.69	PK
2390*(2388.5)	45.64	0.10	2.99	H	48.73	53.98	5.25	AV
2310~2388	56.90	0.00	2.99	H	59.89	73.98	14.09	PK
2310~2388	45.31	0.10	2.99	H	48.40	53.98	5.58	AV

# Note : integration method Used (ANSI C63.10 Section11.13.3)

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2457 MHz  
 Channel No.: 10 Ch

Frequency [MHz]	Measured Level [dBμV]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	56.43	0.00	4.20	H	60.63	73.98	13.35	PK
2483.5	43.92	0.10	4.20	H	48.22	53.98	5.76	AV
2483.5	55.18	0.00	4.20	V	59.38	73.98	14.60	PK
2483.5	43.10	0.10	4.20	V	47.40	53.98	6.58	AV

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2467 MHz  
 Channel No.: 12 Ch

Frequency [MHz]	Measured Level [dBμV]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	49.15	0.00	4.20	H	53.35	73.98	20.63	PK
2483.5	36.81	0.10	4.20	H	41.11	53.98	12.87	AV
2483.5	48.65	0.00	4.20	V	52.85	73.98	21.13	PK
2483.5	36.76	0.10	4.20	V	41.06	53.98	12.92	AV

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2472 MHz  
 Channel No.: 13 Ch

Frequency [MHz]	Measured Level [dBμV]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	59.73	0.00	4.20	H	63.93	73.98	10.05	PK
2483.5	46.56	0.10	4.20	H	50.86	53.98	3.12	AV
2483.5	59.28	0.00	4.20	V	63.48	73.98	10.50	PK
2483.5	46.02	0.10	4.20	V	50.32	53.98	3.66	AV

Operation Mode: 802.11n (HT20)  
 Transfer Rate: 0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Measured Level [dBμV]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
#2390(2389.5)	58.08	0.00	2.99	H	61.07	73.98	12.91	PK
#2390(2389.5)	47.17	0.07	2.99	H	50.23	53.98	3.75	AV
#2390(2388.5)	57.23	0.00	2.99	H	60.22	73.98	13.76	PK
#2390(2388.5)	45.70	0.07	2.99	H	48.76	53.98	5.22	AV
2310~2388	58.86	0.00	2.99	H	61.85	73.98	12.13	PK
2310~2388	45.30	0.07	2.99	H	48.36	53.98	5.62	AV
2483.5	60.67	0.00	4.20	H	64.87	73.98	9.11	PK
2483.5	46.47	0.07	4.20	H	50.74	53.98	3.24	AV
2483.5	59.83	0.00	4.20	V	64.03	73.98	9.95	PK
2483.5	45.62	0.07	4.20	V	49.89	53.98	4.09	AV

# Note : integration method Used (ANSI C63.10 Section11.13.3)

Operation Mode: 802.11n (HT20)  
 Transfer Rate: 0  
 Operating Frequency: 2417 MHz  
 Channel No.: 02 Ch

Frequency [MHz]	Measured Level [dBμV]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	57.77	0.00	2.99	H	60.76	73.98	13.22	PK
2390.0	45.68	0.07	2.99	H	48.74	53.98	5.24	AV
2390.0	56.52	0.00	2.99	V	59.51	73.98	14.47	PK
2390.0	44.75	0.07	2.99	V	47.81	53.98	6.17	AV

Operation Mode: 802.11n (HT20)  
Transfer Rate: 0  
Operating Frequency: 2457 MHz  
Channel No.: 10 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
2483.5	56.67	0.00	4.20	H	60.87	73.98	13.11	PK
2483.5	44.43	0.07	4.20	H	48.70	53.98	5.28	AV
2483.5	55.28	0.00	4.20	V	59.48	73.98	14.50	PK
2483.5	43.21	0.07	4.20	V	47.48	53.98	6.50	AV

Operation Mode: 802.11n (HT20)  
Transfer Rate: 0  
Operating Frequency: 2467 MHz  
Channel No.: 12 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
2483.5	48.94	0.00	4.20	H	53.14	73.98	20.84	PK
2483.5	36.94	0.07	4.20	H	41.21	53.98	12.77	AV
2483.5	48.56	0.00	4.20	V	52.76	73.98	21.22	PK
2483.5	36.81	0.07	4.20	V	41.08	53.98	12.90	AV

Operation Mode: 802.11n (HT20)  
Transfer Rate: 0  
Operating Frequency: 2472 MHz  
Channel No. 13 Ch

Frequency [MHz]	Measured Level [dB $\mu$ V]	Duty Cycle Factor [dB]	A.F.+ C.L+ D.F [dB]	ANT. POL [H/V]	Total [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Measurement Type
#2483.5 (2484)	56.39	0.00	1.13	H	57.52	73.98	16.46	PK
#2483.5 (2484)	44.97	0.07	1.13	H	46.17	53.98	7.81	AV
#2483.5 (2485)	50.52	0.00	1.13	H	51.65	73.98	22.33	PK
#2483.5 (2485)	39.78	0.07	1.13	H	40.98	53.98	13.00	AV
2485.5~2500	50.94	0.00	1.13	H	52.07	73.98	21.91	PK
2485.5~2500	39.26	0.07	1.13	H	40.46	53.98	13.52	AV

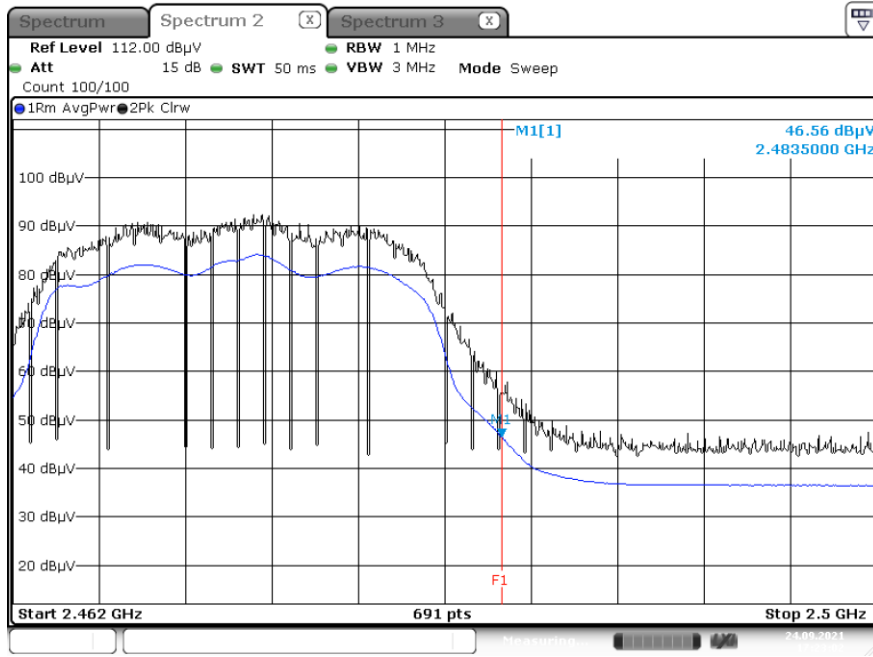
# Note : integration method Used (ANSI C63.10 Section11.13.3)



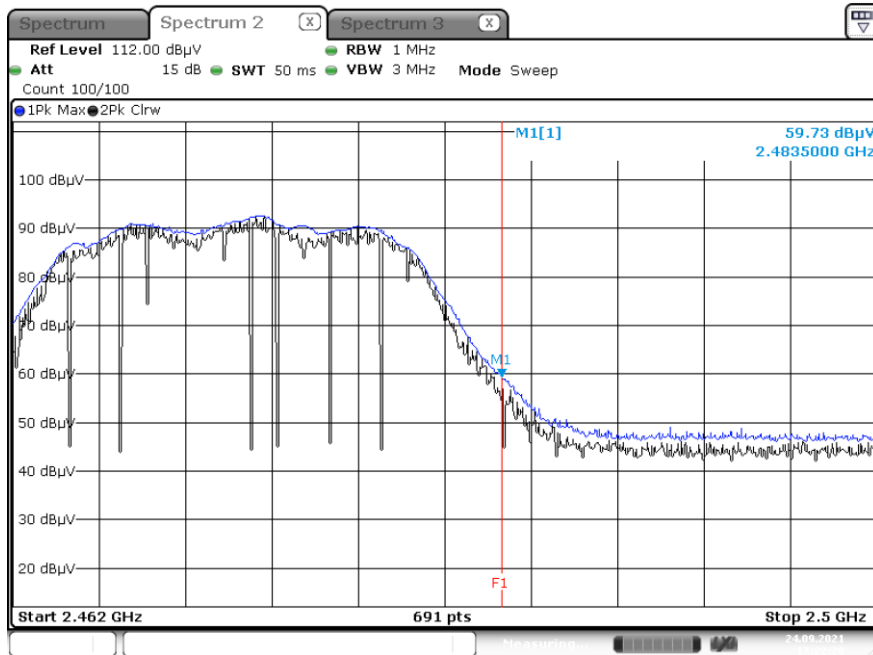
## Test Plots

[Ant.1&Ant.2\_MIMO(CDD)] (Worst case : X-H)

Radiated Restricted Band Edges plot – Average Result (802.11g\_6 Mbps Ch.13)



Radiated Restricted Band Edges plot – Peak Result (802.11g\_6 Mbps Ch.13)



### Note:

Plot of worst case are only reported.

### 9.8 POWERLINE CONDUCTED EMISSIONS

#### Conducted Emissions (Line 1)

WLAN 2.4G MODE\_L1

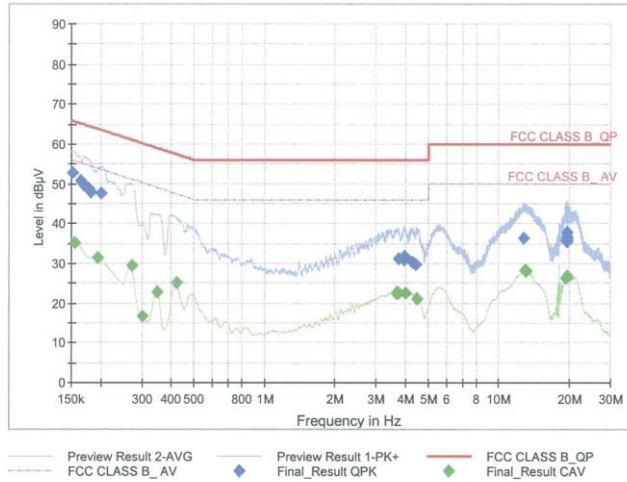
1 / 2

## Test Report

### Common Information

EUT : SM-S901B/DS  
 Manufacturer : SAMSUNG  
 Test Site : SHIELD ROOM  
 Operating Conditions : WLAN 2.4G MODE\_L1

Full Spectrum



### Final Result QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1523	52.82	65.88	13.06	9.000	L1	OFF	9.6
0.1635	50.79	65.28	14.49	9.000	L1	OFF	9.6
0.1703	49.58	64.95	15.36	9.000	L1	OFF	9.6
0.1770	48.64	64.63	15.99	9.000	L1	OFF	9.6
0.1815	47.92	64.42	16.49	9.000	L1	OFF	9.6
0.2018	47.64	63.54	15.90	9.000	L1	OFF	9.6
3.7288	31.29	56.00	24.71	9.000	L1	OFF	9.8
3.9448	30.95	56.00	25.05	9.000	L1	OFF	9.8
3.9763	31.75	56.00	24.25	9.000	L1	OFF	9.8
3.9853	31.53	56.00	24.47	9.000	L1	OFF	9.8
4.2935	30.19	56.00	25.81	9.000	L1	OFF	9.8
4.4510	29.79	56.00	26.21	9.000	L1	OFF	9.8
12.8188	36.43	60.00	23.57	9.000	L1	OFF	10.2
19.2853	35.65	60.00	24.35	9.000	L1	OFF	10.4
19.5485	37.92	60.00	22.08	9.000	L1	OFF	10.4
19.6205	36.73	60.00	23.27	9.000	L1	OFF	10.4
19.6318	35.93	60.00	24.07	9.000	L1	OFF	10.4
19.6363	35.49	60.00	24.51	9.000	L1	OFF	10.4

2021-09-30

오후 11:01:49

WLAN 2.4G MODE\_L1

2 / 2

### Final Result CAV

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1545	35.31	55.75	20.44	9.000	L1	OFF	9.6
0.1950	31.45	53.82	22.37	9.000	L1	OFF	9.6
0.2715	29.49	51.07	21.58	9.000	L1	OFF	9.6
0.3008	16.86	50.22	33.36	9.000	L1	OFF	9.6
0.3480	22.93	49.01	26.08	9.000	L1	OFF	9.6
0.4200	25.12	47.45	22.33	9.000	L1	OFF	9.6
3.6658	22.60	46.00	23.40	9.000	L1	OFF	9.8
3.7063	22.65	46.00	23.35	9.000	L1	OFF	9.8
3.7153	22.61	46.00	23.39	9.000	L1	OFF	9.8
3.7288	22.51	46.00	23.49	9.000	L1	OFF	9.8
3.9898	22.44	46.00	23.56	9.000	L1	OFF	9.8
4.4600	21.04	46.00	24.96	9.000	L1	OFF	9.8
12.9560	28.15	50.00	21.85	9.000	L1	OFF	10.2
12.9808	28.16	50.00	21.84	9.000	L1	OFF	10.2
13.0730	28.12	50.00	21.88	9.000	L1	OFF	10.2
19.2875	26.17	50.00	23.83	9.000	L1	OFF	10.4
19.5463	26.87	50.00	23.13	9.000	L1	OFF	10.4
19.6205	26.89	50.00	23.11	9.000	L1	OFF	10.4

2021-09-30

오후 11:01:49

**Conducted Emissions (Line 2)**

WLAN 2.4G MODE\_N

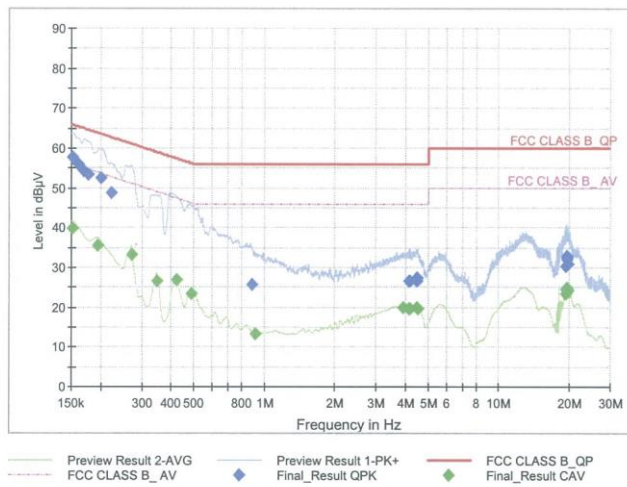
1 / 2

**Test Report**

**Common Information**

EUT : SM-S901B/DS  
 Manufacturer : SAMSUNG  
 Test Site: SHIELD ROOM  
 Operating Conditions : WLAN 2.4G MODE\_N

Full Spectrum



**Final Result QPK**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1523	57.81	65.88	8.07	9.000	N	OFF	9.6
0.1613	56.09	65.40	9.31	9.000	N	OFF	9.6
0.1703	54.33	64.95	10.61	9.000	N	OFF	9.6
0.1770	53.50	64.63	11.13	9.000	N	OFF	9.6
0.2018	52.64	63.54	10.90	9.000	N	OFF	9.6
0.2220	48.62	62.74	14.12	9.000	N	OFF	9.6
0.8870	25.69	56.00	30.31	9.000	N	OFF	9.7
4.1225	26.53	56.00	29.47	9.000	N	OFF	9.8
4.2125	26.49	56.00	29.51	9.000	N	OFF	9.8
4.4623	26.51	56.00	29.49	9.000	N	OFF	9.8
4.4825	27.27	56.00	28.73	9.000	N	OFF	9.8
4.4960	27.08	56.00	28.92	9.000	N	OFF	9.8
19.2425	30.38	60.00	29.62	9.000	N	OFF	10.4
19.5148	32.20	60.00	27.80	9.000	N	OFF	10.4
19.5193	32.46	60.00	27.54	9.000	N	OFF	10.4
19.5238	32.89	60.00	27.11	9.000	N	OFF	10.4
19.6048	32.10	60.00	27.90	9.000	N	OFF	10.4
19.6903	30.89	60.00	29.11	9.000	N	OFF	10.4

2021-09-30

오후 10:54:01

WLAN 2.4G MODE\_N

2 / 2

### Final Result CAV

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1523	39.71	55.88	16.17	9.000	N	OFF	9.6
0.1950	35.42	53.82	18.40	9.000	N	OFF	9.6
0.2715	33.29	51.07	17.79	9.000	N	OFF	9.6
0.3480	26.51	49.01	22.50	9.000	N	OFF	9.6
0.4200	26.78	47.45	20.67	9.000	N	OFF	9.6
0.4898	23.30	46.17	22.87	9.000	N	OFF	9.6
0.9163	13.14	46.00	32.86	9.000	N	OFF	9.7
3.9245	19.81	46.00	26.19	9.000	N	OFF	9.8
4.1270	19.58	46.00	26.42	9.000	N	OFF	9.8
4.2013	19.68	46.00	26.32	9.000	N	OFF	9.8
4.4960	19.95	46.00	26.05	9.000	N	OFF	9.8
4.5163	19.65	46.00	26.35	9.000	N	OFF	9.8
19.2448	23.30	50.00	26.70	9.000	N	OFF	10.4
19.4428	24.50	50.00	25.50	9.000	N	OFF	10.4
19.5260	24.50	50.00	25.50	9.000	N	OFF	10.4
19.6025	24.21	50.00	25.79	9.000	N	OFF	10.4
19.6700	24.77	50.00	25.23	9.000	N	OFF	10.4
19.7938	24.26	50.00	25.74	9.000	N	OFF	10.5

2021-09-30

오후 10:54:01

## 10. LIST OF TEST EQUIPMENT

### Conducted Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
LISN	ENV216	Rohde & Schwarz	102245	08/23/2022	Annual
EMI Test Receiver	ESR	Rohde & Schwarz	101910	06/17/2022	Annual
Temperature Chamber	SU-642	ESPEC	0093008124	03/15/2022	Annual
Signal Analyzer	N9030A	Agilent	MY49432108	03/09/2022	Annual
Power Meter	N1911A	Agilent	MY45100523	04/08/2022	Annual
Power Sensor	N1921A	Agilent	MY57820067	04/08/2022	Annual
Power Splitter	11667B	Hewlett Packard	10545	02/09/2022	Annual
DC Power Supply	E3632A	HP	MY50360067	02/26/2022	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C	HP	07560	06/18/2022	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C	HP	08285	06/28/2022	Annual
Attenuator(20 dB)	18N-20dB	Rohde & Schwarz	8	03/08/2022	Annual
Software	EMC32	Rohde & Schwarz	N/A	N/A	N/A
FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	HCT CO., LTD.	N/A	N/A	N/A

### **Note:**

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

**Radiated Test**

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller(Antenna mast)	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	N/A	N/A	N/A
Controller	EM1000	Audix	060520	N/A	N/A
Turn Table	N/A	Audix	N/A	N/A	N/A
Amp & Filter Bank Switch Controller	FBSM-01B	TNM system	TM19050002	N/A	N/A
Loop Antenna	1513	Schwarzbeck	1513-333	03/19/2022	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-0895	09/04/2022	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	02296	05/19/2022	Biennial
Horn Antenna(15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170124	04/12/2023	Biennial
Spectrum Analyzer	FSV(10 Hz ~ 40 GHz)	Rohde & Schwarz	101055	05/14/2022	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/06/2022	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/24/2022	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/24/2022	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/04/2021	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/23/2022	Annual
HPF(3~18GHz) LNA1(1~18GHz)	+ FMSR-05B	TNM system	F6	01/20/2022	Annual
ATT(10dB) + LNA1(1~18GHz)	FMSR -05B	TNM system	None	01/20/2022	Annual
ATT(3dB) + LNA1(1~18GHz)	FMSR -05B	TNM system	None	01/20/2022	Annual
LNA1(1~18GHz)	FMSR -05B	TNM system	25540	01/20/2022	Annual
HPF(7~18GHz) LNA2(6~18GHz)	+ FMSR -05B	TNM system	28550	01/20/2022	Annual
Thru(30MHz ~ 18GHz)	FMSR -05B	TNM system	None	01/20/2022	Annual

**Note:**

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5(Version : 2017).

**11. ANNEX A\_ TEST SETUP PHOTO**

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2110-FC027-P