

# FCC DTS REPORT

## Certification

**Applicant Name:**  
SAMSUNG Electronics Co., Ltd.

**Date of Issue:**  
May 02, 2022

**Address:**  
129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

**Test Site/Location:**  
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA

**Report No.:** HCT-RF-2205-FC006

<b>FCC ID:</b>	<b>A3LSMG736B</b>
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<b>APPLICANT:</b>	<b>SAMSUNG Electronics Co., Ltd.</b>
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**Model:** SM-G736B/DS

**Additional Model:** SM-G736B

**EUT Type:** Mobile Phone

**Average Output Power:** 802.11ax(HE20) SUM (MIMO Ant 1 + MIMO Ant 2): 19.12 dBm

**Frequency Range:** 2 412 MHz ~ 2 472 MHz

**Modulation type:** OFDM, OFDMA

**FCC Classification:** Digital Transmission System(DTS)

**FCC Rule Part(s):** 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-2205-FC006

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REVIEWED BY



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

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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)

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## Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2205-FC006	May 02, 2022	- First Approval Report

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**1. EUT DESCRIPTION**

<b>Model</b>	SM-G736B/DS	
<b>Additional Model</b>	SM-G736B	
<b>EUT Type</b>	Mobile Phone	
<b>Power Supply</b>	DC 3.86 V	
<b>Frequency Range</b>	2 412 MHz ~ 2 472 MHz	
<b>Max. RF Output Power SUM (MIMO Ant 1 + MIMO Ant 2)</b>	<u>Peak Power</u> (For information only)	27.87 dBm
	<u>Average Power</u>	19.12 dBm
<b>Modulation Type</b>	OFDM, OFDMA	
<b>Number of Channels</b>	13 Channels	
<b>Date(s) of Tests</b>	March 28, 2022 ~ May 02, 2022	
<b>Serial number</b>	Radiated: R3CT20AKBFL Conducted : R3CT20AKENH	

**ANTENNA CONFIGURATIONS**

Configurations	SISO		MIMO	
	Ant1	Ant2	SDM	CDD
802.11ax(HE20)	X	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
- (5) SISO test was performed for the MIMO test result.

**3. Directional Gain Calculation**

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

Directional gain =

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

Ant Gain (dBi)		N <sub>ANT</sub> / N <sub>SS</sub>	Directional Gain (dBi)
ANT1	-1.20		
ANT2	-1.90		

**Note**

According to Ansi C63.10-2013 section 14.4.3, the directional gain is calculated using the formula, where GN is the gain of the nth antenna and NANT is the total number of antennas used.

$$Directional\ Gain = 10 \cdot \log \left( \frac{10^{(ANT1\ Gain/20)} + 10^{(ANT2\ Gain/20)}}{2} \right) \text{ dBi}$$

**Sample MIMO Calculation:**

Ex) Ant 1 : 11.58 dBm Ant 2 : 12.08 dBm

$$Ant1 + Ant 2 = MIMO$$

$$(11.58\ \text{dBm} + 12.08\ \text{dBm}) = (14.387\ \text{mW} + 16.143\ \text{mW}) = 30.53\ \text{mW} = 14.88\ \text{dBm}$$

## **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.

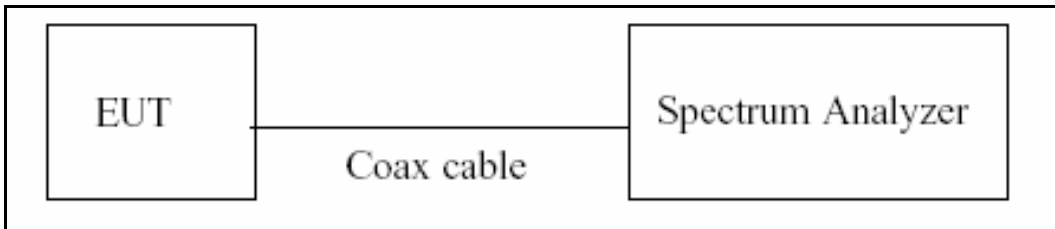
The measurement data shown herein meets or exceeds the  $U_{CISPR}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	2.00 ( Confidence level about 95 %, $k=2$ )
Radiated Disturbance (9 kHz ~ 30 MHz)	4.40 ( Confidence level about 95 %, $k=2$ )
Radiated Disturbance (30 MHz ~ 1 GHz)	5.74 ( Confidence level about 95 %, $k=2$ )
Radiated Disturbance (1 GHz ~ 18 GHz)	5.51 ( Confidence level about 95 %, $k=2$ )
Radiated Disturbance (18 GHz ~ 40 GHz)	5.92 ( Confidence level about 95 %, $k=2$ )
Radiated Disturbance (Above 40 GHz)	5.48 ( 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  $> 50/T$ .

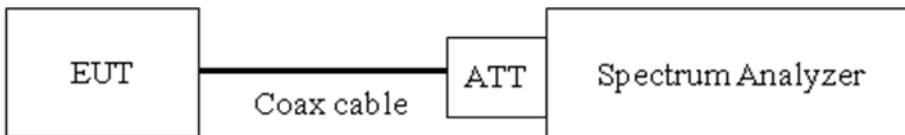
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ( $\geq$  RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep  $> 100$
6. Trace mode = Clear write
7. Measure  $T_{total}$  and  $T_{on}$
8. Calculate Duty Cycle =  $T_{on} / T_{total}$  and Duty Cycle Factor =  $10\log(1/\text{Duty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

## 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.

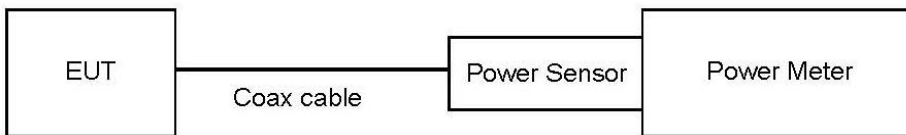
Note : We tested OBW using the automatic bandwidth measurement capability of a spectrum analyzer.

### 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

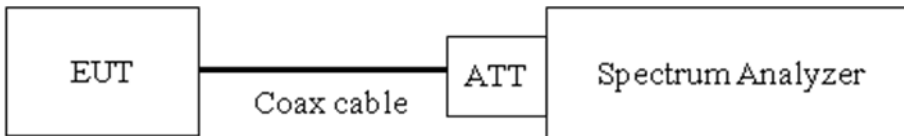
- Conducted Output Power(Peak) = Measured Value + ATT loss + Cable loss
- Conducted Output Power(Average) = Measured Value + ATT loss + Cable loss + Duty Cycle Factor

## 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 Value + ATT loss + Cable loss + Duty Cycle Factor

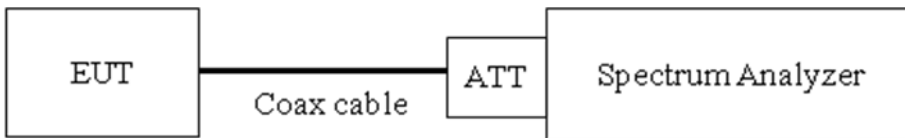
## 7.5. Conducted Band Edge(Out of Band Emissions) & Conducted Spurious Emissions

### 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	10.04
100	10.07
200	10.12
300	10.17
400	10.20
500	10.21
600	10.21
700	10.23
800	10.24
900	10.26
1000	10.27
2000	10.41
2400	10.43
2500	10.45
3000	10.52
4000	10.60
5000	10.71
6000	10.73
7000	10.80
8000	10.85
9000	10.91
10000	10.97
11000	11.02
12000	11.10
13000	11.19
14000	11.16
15000	11.21
16000	11.22
17000	11.25
18000	11.30
19000	11.32
20000	11.36
21000	11.48
22000	11.55
23000	11.55
24000	11.59
25000	11.68
26000	11.69

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

2. Factor = Attenuator loss(10 dB) + Cable loss(1ea)

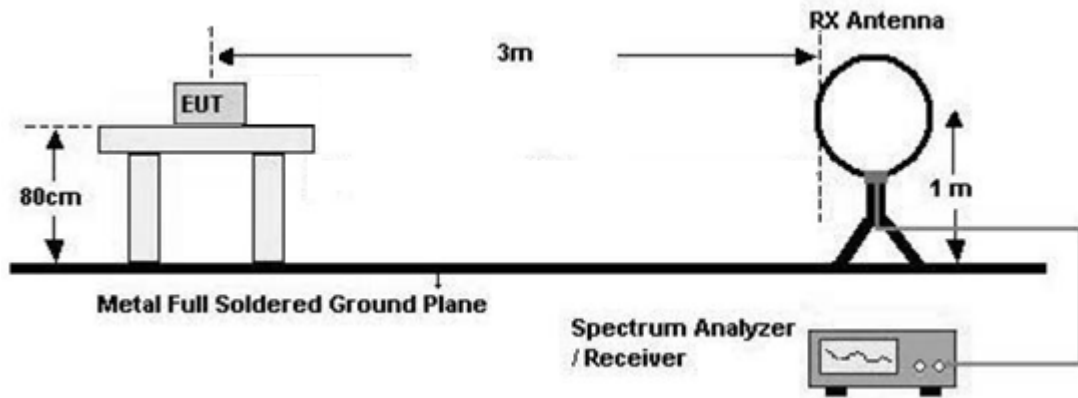
**7.6. Radiated Test**

Limit

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

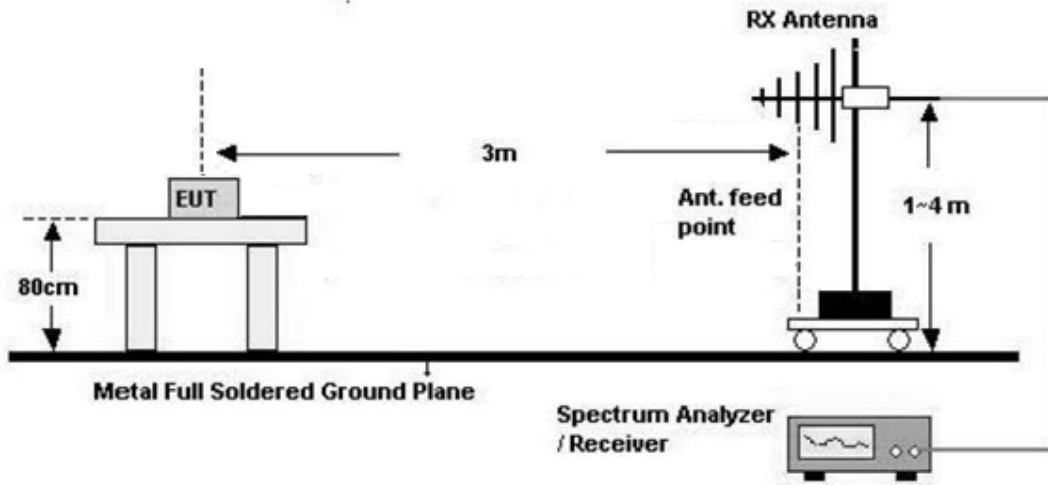
Test Configuration

Below 30 MHz

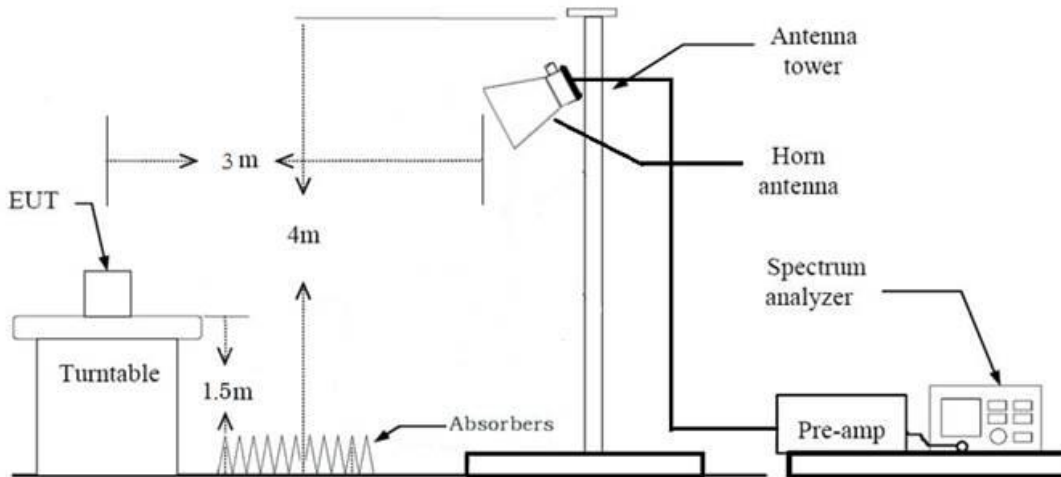




30 MHz - 1 GHz



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 value + 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 Value + 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)

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

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

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

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

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

### 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 x 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 x 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 x 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 value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
- Total(Measurement Type : Average, Duty cycle  $\geq$  98 %)  
= Measured value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
- Total(Measurement Type : Average, Duty cycle < 98 %)  
= Measured value + 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 μH/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dBμV)	
	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 Value + Correction Factor

**7.8. Test RU offset for Tones**

BW (MHz)	Tones (T)	RU offset	Test RU offset		
			Low	Mid	High
20	26	0~8	0	4	8
	52	37~40	37	38	40
	106	53~54	53	-	54
	242	61	-	61	-



**7.9. Worst case configuration and mode**

**Conducted test**

1. All data rate of operation were investigated and the worst case results are reported.  
(Worst case : MCS0)
2. Bandedge (Conducted)  
: All Mode(Channel, Tone, RU Offset) of operation were investigated and the worst case configuration results are reported

Tone	Channel	RU Index
26	1, 11, 12, 13	0, 8
52	1, 11, 12, 13	37, 40
106	1, 11, 12, 13	53, 54
242	1, 11, 12, 13	61

3. SM-G736B/DS, SM-G736B were tested and the worst case results are reported.  
(Worst case : SM-G736B/DS)

**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)
  - Worst case : Stand alone
2. EUT Axis
  - Radiated Spurious Emissions : Y
  - Radiated Restricted Band Edge : Z
3. All data rate of operation were investigated and the worst case results are reported.  
(Worst case : MCS0)
4. All Antenna of operation were investigated and the worst case results are reported
  - Mode : Ant2(SISO), Ant1+Ant2(SDM), Ant1+Ant2(CDD)
  - Worst case : Ant1+Ant2(CDD)
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

6. All mode(Tone, RU Offset) of operation were investigated and the worst case configuration results are reported

Test	TONE	RU OFFSET
RSE	WORST CASE : 26 T	CH1(RU8), CH6(RU8), CH11(RU8)
	ADDITIONAL TONE : 52T, 106T, 242T,SU	52T : CH11(RU40) 106T : CH11(RU53), 242T : CH1(RU61), CH6(RU61), CH11(RU61) SU : none
Band-Edge	WORST CASE : 242T	242T : 61
	ADDITIONAL TONE : 26T, 52T, 106T, SU	Low Edge : 0, 37, 53 High Edge : 8, 40, 54 SU : none

7. SM-G736B/DS, SM-G736B were tested and the worst case results are reported.  
(Worst case : SM-G736B/DS)

**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 (Note1)
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

**Note1:**

1. Please refer to the SM-G736B/DS[DTS] Test Report.

## 9. TEST RESULT

### 9.1 DUTY CYCLE

Mode	Tone (T)	Data Rate	On Time (ms)	Total Time (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11ax (HE20)	26	MCS0	2.594	2.617	0.991	0.04
	52	MCS0	2.592	2.614	0.991	0.04
	106	MCS0	1.436	1.457	0.986	0.06
	242	MCS0	0.676	0.697	0.971	0.13
802.11ax(SU)	BW 20	MCS0	5.453	5.468	0.997	0.01

**Test Plots**

**Note:**

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



**9.2 6 dB BANDWIDTH**

[MIMO ANT1]

BW	Frequency [MHz]	Channel No.	RU Index	6 dB BW (MHz)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	2.148	17.12	17.17	-	-
			Mid	8.943	15.15	-	19.01	19.01
			High	2.171	17.10	17.18	-	-
	2437	6	Low	2.137	17.09	17.14	-	-
			Mid	8.895	15.12	-	18.99	18.97
			High	17.063	17.12	17.86	-	-
	2462	11	Low	2.143	17.12	17.16	-	-
			Mid	8.886	15.14	-	18.98	18.99
			High	2.149	17.10	17.34	-	-
	2467	12	Low	17.078	17.14	18.14	-	-
			Mid	2.704	15.15	-	19.08	19.03
			High	2.152	17.09	17.17	-	-
	2472	13	Low	2.170	17.08	17.15	-	-
			Mid	8.878	15.15	-	19.06	19.07
			High	2.143	17.10	17.19	-	-

# Limit : > 500 kHz

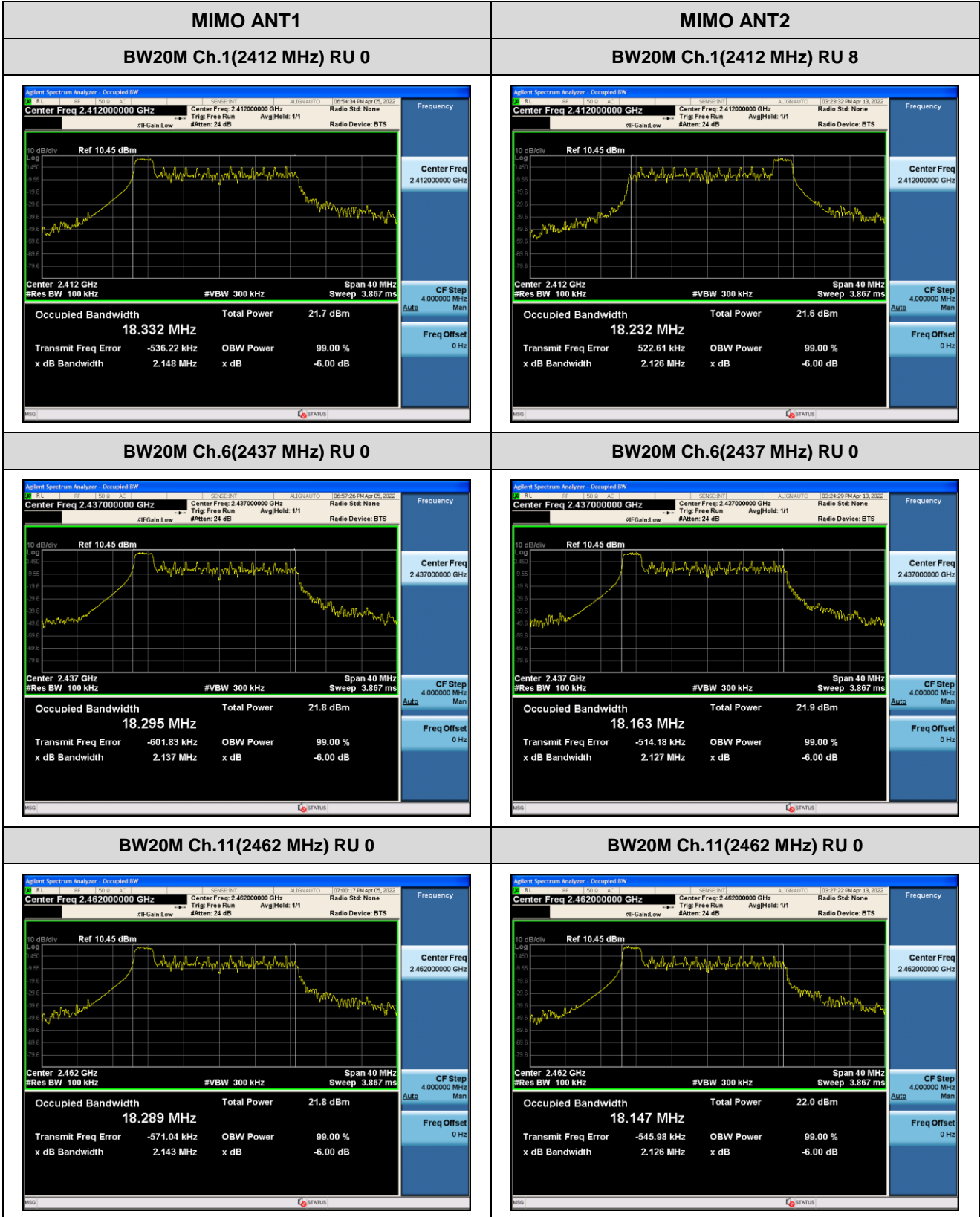
[MIMO ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	6 dB BW (MHz)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	2.156	17.02	17.71	-	-
			Mid	2.678	15.10	-	19.11	19.11
			High	2.126	17.09	17.20	-	-
	2437	6	Low	2.127	17.05	17.74	-	-
			Mid	2.699	15.10	-	19.13	19.13
			High	2.135	17.07	17.20	-	-
	2462	11	Low	2.126	14.55	17.17	-	-
			Mid	8.871	15.10	-	19.11	19.12
			High	2.141	17.09	17.21	-	-
	2467	12	Low	2.130	14.54	17.74	-	-
			Mid	2.686	15.10	-	19.12	19.12
			High	2.136	17.08	17.36	-	-
	2472	13	Low	2.127	4.54	17.19	-	-
			Mid	2.682	15.10	-	19.09	19.08
			High	2.130	17.06	17.35	-	-

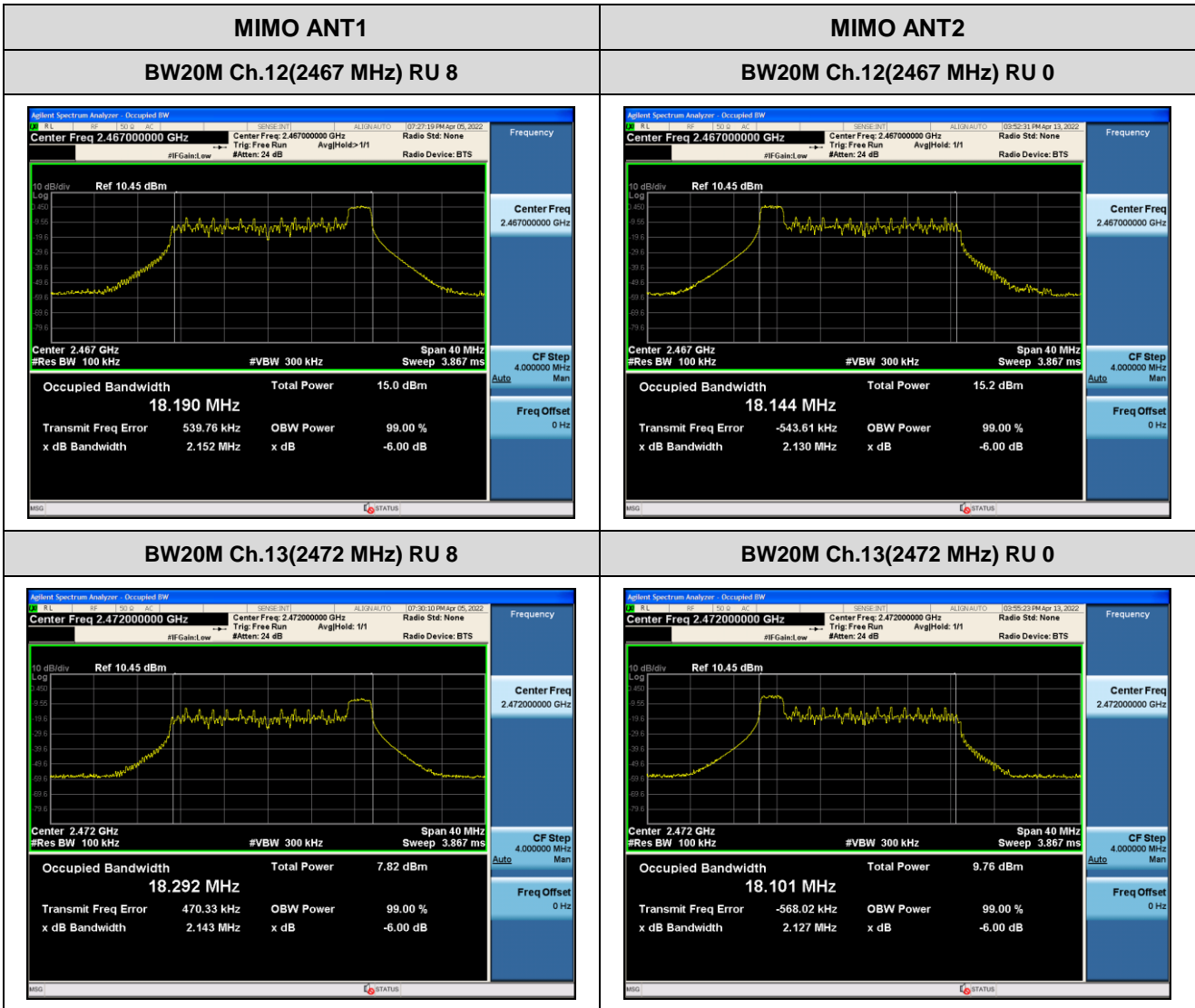
# Limit : > 500 kHz

▣ Test Plots

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







**9.3 OUTPUT POWER**

**Peak Power**

Power Meter offset  
Attenuator loss(10 dB) + Cable loss

**[MIMO ANT1]**

BW	Frequency [MHz]	Channel No.	RU Index	Total Peak Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	20.76	20.57	20.86	-	-
			Mid	20.98	20.57	-	19.47	25.00
			High	22.74	22.06	20.92	-	-
	2437	6	Low	22.75	22.34	22.17	-	-
			Mid	21.80	21.96	-	24.56	24.56
			High	21.86	21.25	21.31	-	-
	2462	11	Low	22.35	21.95	22.10	-	-
			Mid	22.09	21.79	-	19.44	22.82
			High	23.28	22.37	21.98	-	-
	2467	12	Low	15.91	15.86	14.89	-	-
			Mid	15.30	15.14	-	13.80	13.59
			High	16.03	15.63	15.49	-	-
	2472	13	Low	8.05	9.17	8.35	-	-
			Mid	7.70	8.44	-	6.73	8.14
			High	8.12	8.62	8.27	-	-

# Limit : 30 dBm

[MIMO ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	Total Peak Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	20.96	20.83	21.14	-	-
			Mid	20.90	20.82	-	19.66	24.72
			High	21.35	21.02	20.92	-	-
	2437	6	Low	22.52	22.35	22.34	-	-
			Mid	22.58	22.34	-	25.02	25.08
			High	22.99	22.52	22.16	-	-
	2462	11	Low	22.31	22.29	22.31	-	-
			Mid	21.90	21.94	-	19.82	22.72
			High	22.08	21.82	21.97	-	-
	2467	12	Low	16.69	16.08	13.99	-	-
			Mid	15.75	15.64	-	12.54	12.40
			High	16.14	15.43	13.48	-	-
	2472	13	Low	8.27	10.57	10.06	-	-
			Mid	7.87	10.40	-	8.24	8.27
			High	7.94	9.90	9.20	-	-

# Limit : 30 dBm

**[SUM (MIMO Ant 1 + MIMO Ant 2)]**

1. Total peak power for MIMO= $10 \cdot \log((10^{(MIMO \text{ Ant1 Total power} / 10)}) + (10^{(MIMO \text{ Ant2 Total power} / 10)}))$

BW	Frequency [MHz]	Channel No.	RU Index	SUM Peak Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	23.87	23.71	24.01	-	-
			Mid	23.95	23.71	-	22.58	27.87
			High	25.11	24.58	23.93	-	-
	2437	6	Low	25.65	25.35	25.27	-	-
			Mid	25.22	25.16	-	27.80	27.84
			High	25.47	24.94	24.77	-	-
	2462	11	Low	25.34	25.14	25.21	-	-
			Mid	25.01	24.87	-	22.65	25.78
			High	25.73	25.12	24.98	-	-
	2467	12	Low	19.33	18.98	17.48	-	-
			Mid	18.54	18.41	-	16.22	16.04
			High	19.09	18.54	17.61	-	-
	2472	13	Low	11.17	12.94	12.30	-	-
			Mid	10.80	12.54	-	10.56	11.21
			High	11.05	12.32	11.77	-	-

# Limit : 30 dBm

**Average Power**

Power Meter offset

Attenuator loss(10 dB) + Cable loss

**[MIMO ANT1]**

BW	Frequency [MHz]	Channel No.	RU Index	Total Average Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	10.06	9.94	10.73	-	-
			Mid	10.30	9.97	-	10.83	16.11
			High	11.96	11.98	10.75	-	-
	2437	6	Low	12.48	12.26	12.12	-	-
			Mid	11.43	11.75	-	15.89	15.80
			High	10.74	10.69	10.98	-	-
	2462	11	Low	11.78	11.57	11.63	-	-
			Mid	11.46	11.40	-	10.73	13.86
			High	12.19	11.98	11.89	-	-
	2467	12	Low	5.06	4.31	5.35	-	-
			Mid	4.76	4.15	-	5.34	5.23
			High	4.63	4.89	5.47	-	-
	2472	13	Low	-2.30	-0.43	-0.40	-	-
			Mid	-2.81	-0.68	-	-0.50	-0.59
			High	-2.56	-0.68	-0.52	-	-

# Limit : 30 dBm

[MIMO ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	Total Average Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	10.91	10.86	10.94	-	-
			Mid	10.63	10.67	-	10.97	15.79
			High	10.77	10.60	10.86	-	-
	2437	6	Low	12.10	12.01	12.24	-	-
			Mid	12.21	12.20	-	16.33	16.16
			High	12.30	12.15	12.20	-	-
	2462	11	Low	12.39	12.21	12.18	-	-
			Mid	11.71	11.98	-	11.11	13.95
			High	11.74	11.64	11.68	-	-
	2467	12	Low	5.22	5.08	4.01	-	-
			Mid	4.74	4.86	-	3.75	3.65
			High	5.04	4.67	3.52	-	-
	2472	13	Low	-2.06	0.24	-0.12	-	-
			Mid	-2.60	-0.11	-	-0.37	-0.51
			High	-3.18	-0.86	-0.86	-	-

# Limit : 30 dBm

**[SUM (MIMO Ant 1 + MIMO Ant 2)]**

1. Total average power for MIMO= $10 \cdot \log(((10^{Ant1 \text{ Total power} / 10}) + (10^{Ant2 \text{ Total power} / 10})))$

BW	Frequency [MHz]	Channel No.	RU Index	SUM Average Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	13.52	13.43	13.85	-	-
			Mid	13.48	13.34	-	13.91	18.96
			High	14.41	14.35	13.81	-	-
	2437	6	Low	15.31	15.14	15.19	-	-
			Mid	14.85	14.99	-	19.12	18.99
			High	14.60	14.49	14.65	-	-
	2462	11	Low	15.10	14.91	14.92	-	-
			Mid	14.60	14.71	-	13.93	16.91
			High	14.98	14.82	14.80	-	-
	2467	12	Low	8.15	7.72	7.74	-	-
			Mid	7.76	7.53	-	7.63	7.52
			High	7.85	7.79	7.61	-	-
	2472	13	Low	0.83	2.93	2.75	-	-
			Mid	0.31	2.62	-	2.57	2.46
			High	0.15	2.24	2.33	-	-

# Limit : 30 dBm

**9.4 POWER SPECTRAL DENSITY**

**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

Ant1&2 : Attenuator loss(10 dB) + Cable loss

3. Total PSD = Measured Value + Duty Cycle Factor

**[MIMO ANT1]**

BW	Frequency [MHz]	Channel No.	RU Index	Total PSD (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	-6.905	-9.616	-11.685	-	-
			Mid	-6.700	-9.697	-	-14.731	-8.623
			High	-4.582	-7.521	-11.697	-	-
	2437	6	Low	-4.498	-7.566	-10.213	-	-
			Mid	-5.312	-7.681	-	-9.492	-9.573
			High	-6.368	-9.235	-11.469	-	-
	2462	11	Low	-5.123	-7.925	-10.580	-	-
			Mid	-5.550	-8.288	-	-14.757	-11.696
			High	-4.658	-7.807	-10.721	-	-
	2467	12	Low	-11.587	-14.460	-16.544	-	-
			Mid	-11.722	-14.820	-	-19.771	-19.877
			High	-10.802	-14.474	-17.278	-	-
	2472	13	Low	-19.362	-20.060	-22.962	-	-
			Mid	-19.752	-20.226	-	-25.803	-25.986
			High	-19.341	-20.109	-23.084	-	-

# Limit : 8 dBm



[MIMO ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	Total PSD (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	-6.084	-9.725	-12.715	-	-
			Mid	-7.097	-9.096	-	-14.595	-9.868
			High	-6.674	-8.883	-11.591	-	-
	2437	6	Low	-4.690	-7.755	-10.221	-	-
			Mid	-4.721	-7.384	-	-8.863	-9.457
			High	-4.365	-7.196	-10.467	-	-
	2462	11	Low	-5.288	-8.370	-11.063	-	-
			Mid	-6.187	-8.585	-	-14.422	-11.479
			High	-5.835	-8.894	-11.560	-	-
	2467	12	Low	-11.333	-14.191	-18.452	-	-
			Mid	-12.055	-14.355	-	-20.794	-20.819
			High	-11.908	-14.700	-19.002	-	-
	2472	13	Low	-19.511	-18.649	-21.011	-	-
			Mid	-19.993	-19.354	-	-26.856	-25.160
			High	-20.978	-20.146	-21.600	-	-

# Limit : 8 dBm

[SUM (MIMO Ant 1 + MIMO Ant 2)]

BW	Frequency [MHz]	Channel No.	RU Index	SUM Total PSD (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	-3.465	-6.660	-9.159	-	-
			Mid	-3.884	-6.376	-	-11.652	-6.191
			High	-2.493	-5.138	-8.634	-	-
	2437	6	Low	-1.583	-4.649	-7.207	-	-
			Mid	-1.996	-4.520	-	-6.156	-6.504
			High	-2.242	-5.087	-7.929	-	-
	2462	11	Low	-2.194	-5.131	-7.805	-	-
			Mid	-2.847	-5.424	-	-11.576	-8.576
			High	-2.196	-5.306	-8.110	-	-
	2467	12	Low	-8.448	-11.313	-14.384	-	-
			Mid	-8.875	-11.571	-	-17.242	-17.312
			High	-8.310	-11.575	-15.045	-	-
	2472	13	Low	-16.426	-16.287	-18.868	-	-
			Mid	-16.861	-16.758	-	-23.287	-22.543
			High	-17.073	-17.117	-19.269	-	-

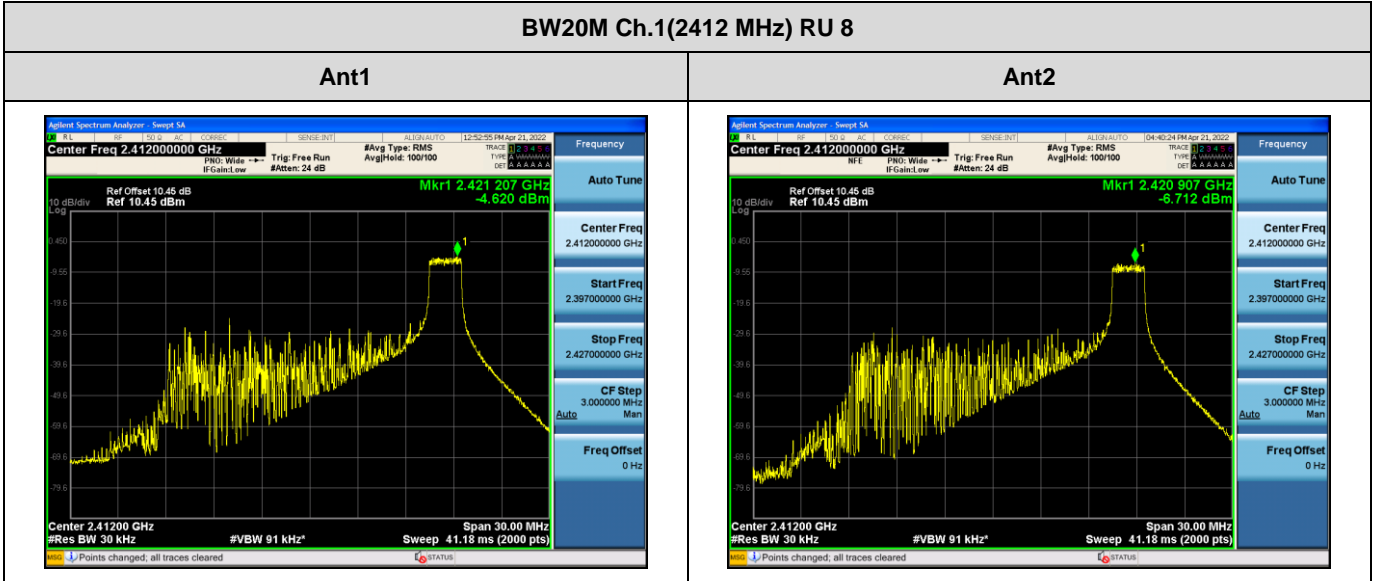
# Limit : 8 dBm

**Test Plots**

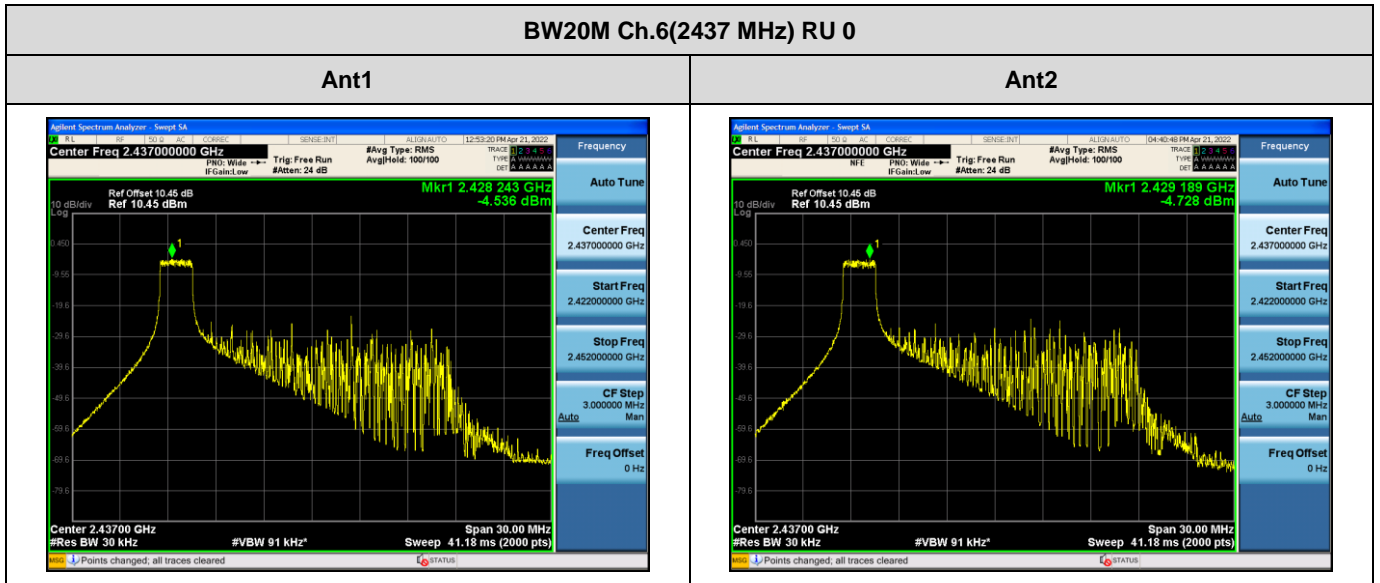
**Note:**

1. In order to simplify the report, attached plots were only the worst case PSD channel.
2. Total PSD(dBm) = Measured Value + Duty Cycle Factor

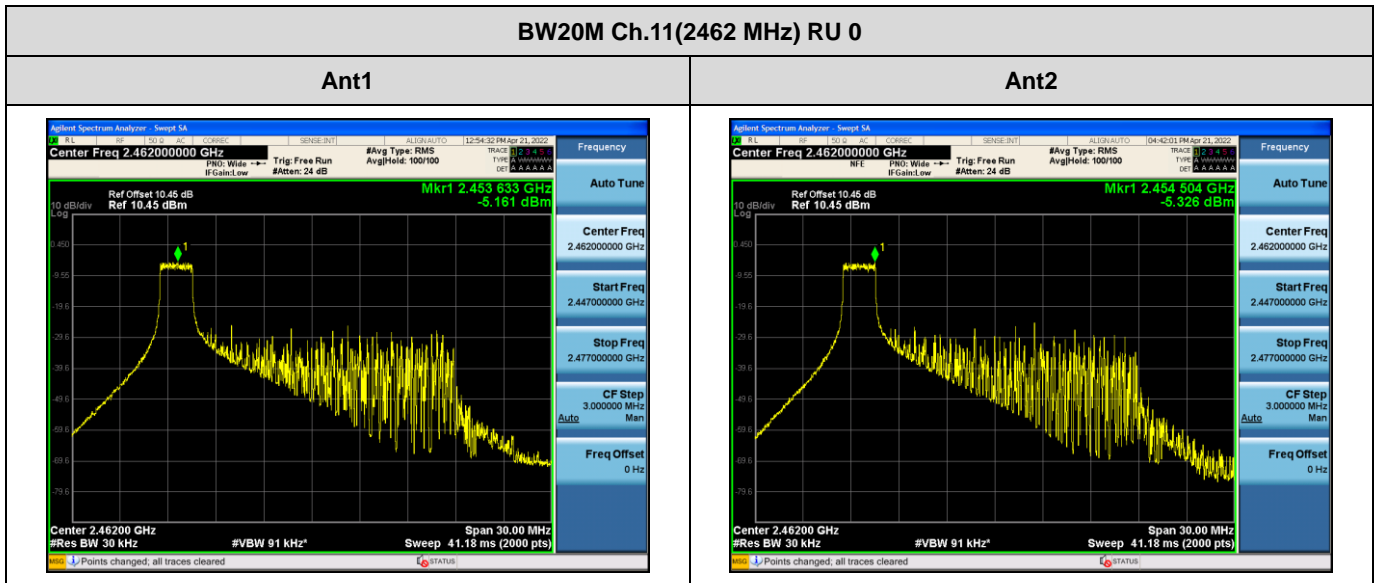
**[SUM (MIMO Ant 1 + MIMO Ant 2)]**



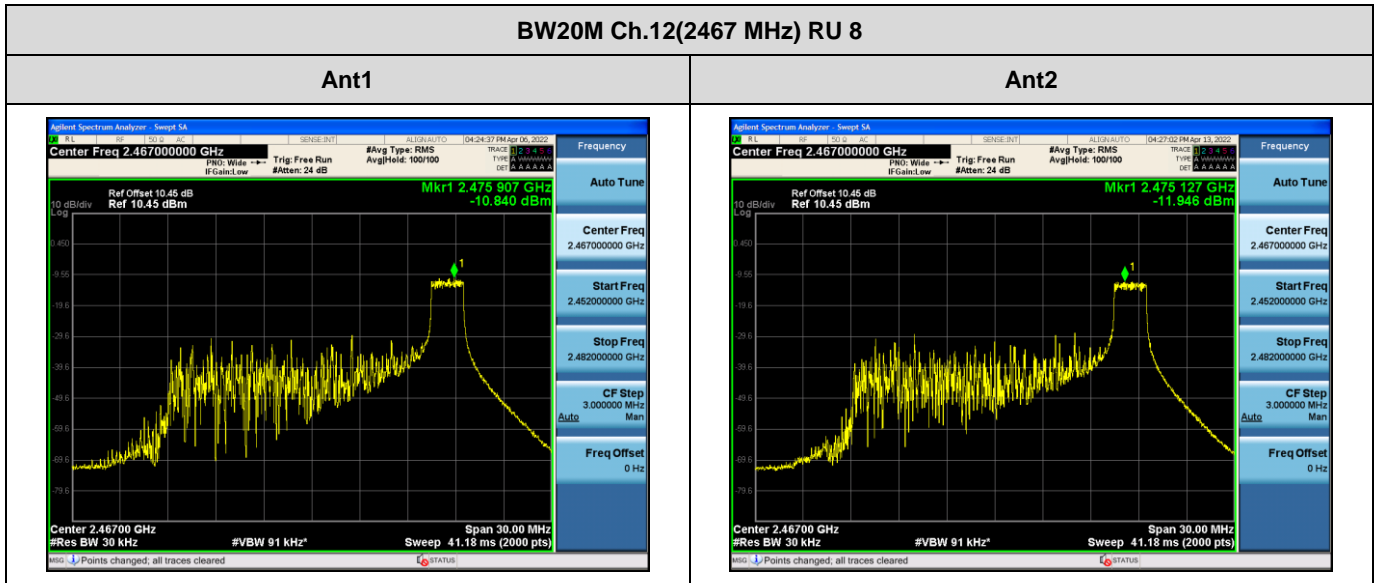
SUM PSD (dBm)	Duty Cycle Factor (dB)	Total SUM PSD (dBm)
-2.531	0.038	-2.493



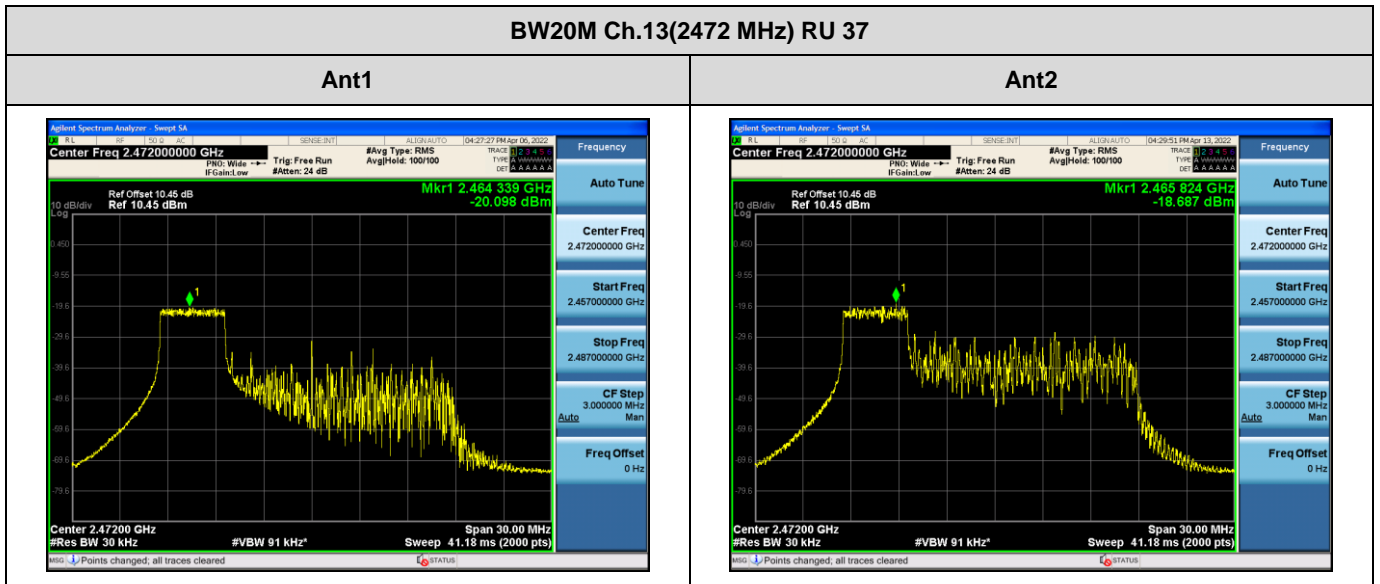
SUM PSD (dBm)	Duty Cycle Factor (dB)	Total SUM PSD (dBm)
-1.621	0.038	-1.583



SUM PSD (dBm)	Duty Cycle Factor (dB)	Total SUM PSD (dBm)
-2.232	0.038	-2.194



SUM PSD (dBm)	Duty Cycle Factor (dB)	Total SUM PSD (dBm)
-8.348	0.038	-8.310



SUM PSD (dBm)	Duty Cycle Factor (dB)	Total SUM PSD (dBm)
-16.325	0.038	-16.287

**9.5 BAND EDGE/ CONDUCTED SPURIOUS EMISSIONS**

**Band Edge**

[MIMO Ant1]

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)		
					26 T	52 T	106 T
HE20	2412	1	Low	Lowest Bandedge	33.806	33.939	33.029
	2462	11	Low	Lowest Bandedge	59.028	58.253	56.315
	2467	12	High	Highest Bandedge	55.489	52.533	50.429
	2472	13	High	Highest Bandedge	30.867	30.836	32.395

# Limit : 30 dBc

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)	
					242 T	SU
HE20	2412	1	Mid	Lowest Bandedge	34.833	38.514
	2462	11		Lowest Bandedge	43.548	56.023
	2467	12		Highest Bandedge	48.986	49.841
	2472	13		Highest Bandedge	31.706	34.710

# Limit : 30 dBc

**[MIMO Ant2]**

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)		
					26 T	52 T	106 T
HE20	2412	1	Low	Lowest Bandedge	35.273	31.514	33.202
	2462	11	Low	Lowest Bandedge	53.304	50.065	53.711
	2467	12	High	Highest Bandedge	56.333	53.304	50.649
	2472	13	High	Highest Bandedge	32.836	34.623	34.984

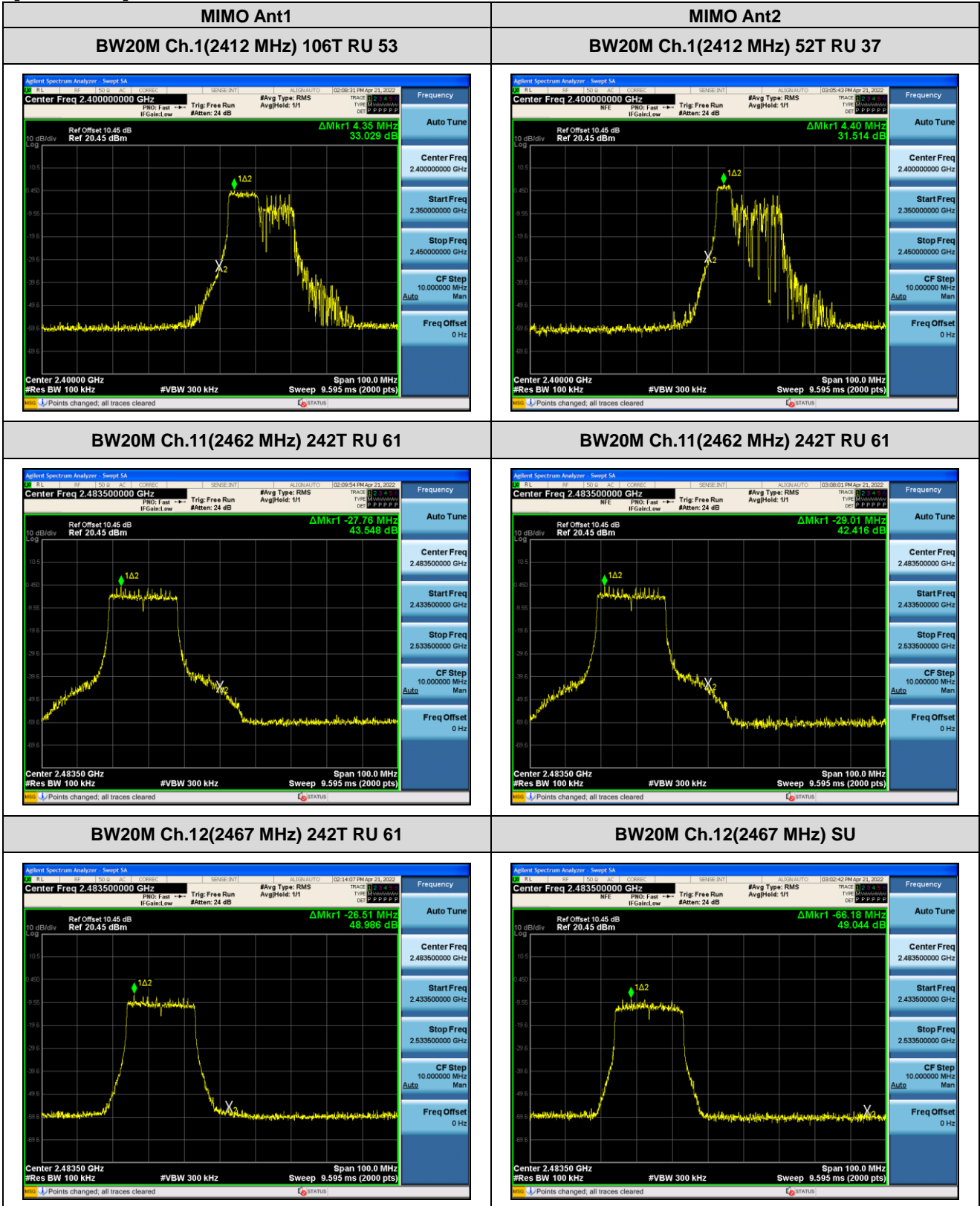
# Limit : 30 dBc

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)	
					242 T	SU
HE20	2412	1	Mid	Lowest Bandedge	35.717	33.295
	2462	11		Lowest Bandedge	42.416	57.624
	2467	12		Highest Bandedge	49.659	49.044
	2472	13		Highest Bandedge	35.400	35.341

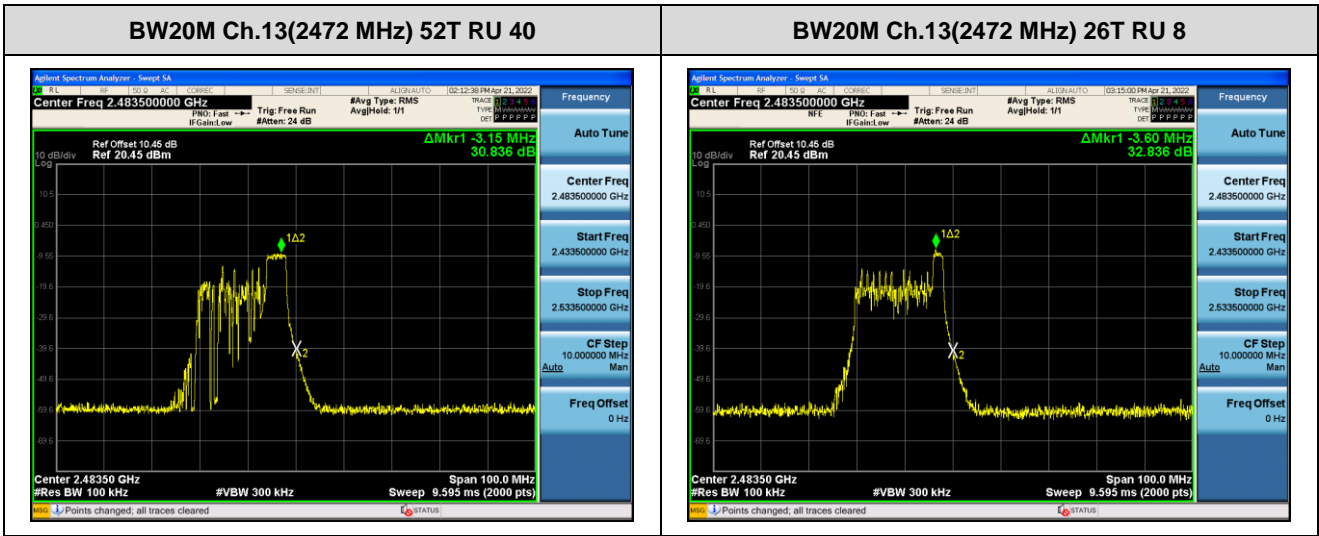
# Limit : 30 dBc

▣ Test Plots

**Note:** In order to simplify the report, attached plots were only the worst case.  
[MIMO Ant1]







**Conducted Spurious Emissions**

[MIMO ANT1]

BW	Frequency [MHz]	Channel No.	RU Index	Result (dB)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	61.384	59.401	57.274	-	-
			Mid	61.696	58.290	-	55.588	60.486
			High	64.133	61.240	57.457	-	-
	2437	6	Low	63.223	61.010	58.053	-	-
			Mid	62.469	58.952	-	61.027	62.051
			High	62.123	59.504	56.879	-	-
	2462	11	Low	63.856	59.910	58.137	-	-
			Mid	62.894	59.516	-	55.856	59.492
			High	64.128	61.484	58.732	-	-

# Limit : 30 dBc

**Note:** Channel 12 and 13 are less powerful than channel 11 so the test for high channel was performed at channel 11.

[MIMO ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	Result (dB)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	62.960	58.472	58.326	-	-
			Mid	61.802	59.615	-	54.291_	62.293
			High	61.973	59.982	57.586	-	-
	2437	6	Low	63.961	61.311	60.613	-	-
			Mid	63.889	62.220	-	61.815	59.968
			High	65.647	61.977	58.671	-	-
	2462	11	Low	65.702	61.875	60.183	-	-
			Mid	63.489	61.345	-	57.007	57.975
			High	63.078	61.355	58.238	-	-

# Limit : 30 dBc

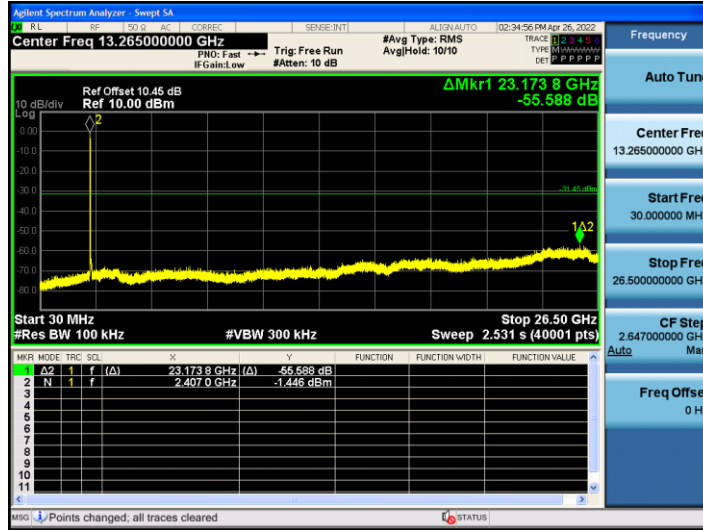
**Note:** Channel 12 and 13 are less powerful than channel 11 so the test for high channel was performed at channel 11.

☐ Test Plots

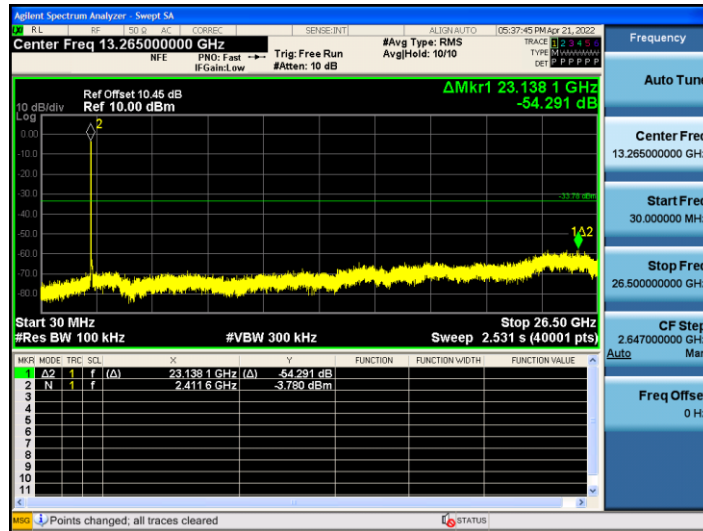
**Note:**

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

[MIMO ANT1] BW20M Ch.1(2 412 MHz) 242T RU 61



[MIMO ANT2] BW20M Ch.1(2 412 MHz) 242T RU 61



**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]	[dBµV/m]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/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 (dBµV) + Distance extrapolation factor

**Frequency Range : Below 1 GHz**

Frequency	Measured Value	A.F+C.L	POL	Total	Limit	Margin
[MHz]	[dBµV/m]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/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.

**Frequency Range : Above 1 GHz**

**[MIMO]**

**1. 26 Tone**

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	0
Operating Frequency	2412
Channel No.	01 Ch
RU offset	8

Frequency [MHz]	Measured Value [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	50.21	0.00	3.57	V	53.78	73.98	20.20	PK
4824	36.87	0.04	3.57	V	40.48	53.98	13.50	AV
7236	47.75	0.00	12.30	V	60.05	73.98	13.94	PK
7236	32.05	0.04	12.30	V	44.39	53.98	9.60	AV
4824	51.58	0.00	3.57	H	55.15	73.98	18.83	PK
4824	37.03	0.04	3.57	H	40.64	53.98	13.34	AV
7236	46.25	0.00	12.30	H	58.55	73.98	15.44	PK
7236	31.84	0.04	12.30	H	44.18	53.98	9.81	AV

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	0
Operating Frequency	2437
Channel No.	06 Ch
RU offset	8

Frequency [MHz]	Measured Value [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	48.23	0.00	3.76	V	51.99	73.98	22.00	PK
4874	34.28	0.04	3.76	V	38.08	53.98	15.91	AV
7311	40.58	0.00	11.51	V	52.09	73.98	21.89	PK
7311	28.02	0.04	11.51	V	39.57	53.98	14.41	AV
4874	49.69	0.00	3.76	H	53.45	73.98	20.54	PK
4874	35.46	0.04	3.76	H	39.26	53.98	14.73	AV
7311	40.74	0.00	11.51	H	52.25	73.98	21.73	PK
7311	28.35	0.04	11.51	H	39.90	53.98	14.08	AV

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	0
Operating Frequency	2462
Channel No.	11 Ch
RU offset	8

Frequency [MHz]	Measured Value [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
4924	46.68	0.00	4.78	V	51.46	73.98	22.52	PK
4924	32.27	0.04	4.78	V	37.09	53.98	16.89	AV
7386	48.96	0.00	12.03	V	60.99	73.98	12.99	PK
7386	33.26	0.04	12.03	V	45.33	53.98	8.65	AV
4924	45.56	0.00	4.78	H	50.34	73.98	23.64	PK
4924	32.16	0.04	4.78	H	36.98	53.98	17.00	AV
7386	49.29	0.00	12.03	H	61.32	73.98	12.66	PK
7386	34.31	0.04	12.03	H	46.38	53.98	7.60	AV

**Note:**

Channel 12 and 13 are less powerful than channel 11 so the test for high channel was performed at channel 11.

**2. 52 Tone**

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	0
Operating Frequency	2462
Channel No.	11 Ch
RU offset	40

Frequency [MHz]	Measured Value [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
4924	41.98	0.00	4.78	V	46.76	73.98	27.22	PK
4924	30.85	0.04	4.78	V	35.67	53.98	18.31	AV
7386	43.44	0.00	12.03	V	55.47	73.98	18.51	PK
7386	30.52	0.04	12.03	V	42.59	53.98	11.39	AV
4924	43.91	0.00	4.78	H	48.69	73.98	25.29	PK
4924	31.46	0.04	4.78	H	36.28	53.98	17.70	AV
7386	45.72	0.00	12.03	H	57.75	73.98	16.23	PK
7386	31.62	0.04	12.03	H	43.69	53.98	10.29	AV

**Note:**

Channel 12 and 13 are less powerful than channel 11 so the test for high channel was performed at channel 11.



**3. 106 Tone**

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	0
Operating Frequency	2462
Channel No.	11 Ch
RU offset	54

Frequency [MHz]	Measured Value [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
4924	42.82	0.00	4.78	V	47.60	73.98	26.38	PK
4924	31.26	0.06	4.78	V	36.10	53.98	17.88	AV
7386	43.54	0.00	12.03	V	55.57	73.98	18.41	PK
7386	28.66	0.06	12.03	V	40.75	53.98	13.23	AV
4924	43.17	0.00	4.78	H	47.95	73.98	26.03	PK
4924	31.36	0.06	4.78	H	36.20	53.98	17.78	AV
7386	44.14	0.00	12.03	H	56.17	73.98	17.81	PK
7386	29.67	0.06	12.03	H	41.76	53.98	12.22	AV

**Note:**

Channel 12 and 13 are less powerful than channel 11 so the test for high channel was performed at channel 11.

**4. 242 Tone**

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	0
Operating Frequency	2412
Channel No.	01 Ch
RU offset	61

Frequency [MHz]	Measured Value [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	46.54	0.00	3.57	V	50.11	73.98	23.87	PK
4824	32.72	0.13	3.57	V	36.42	53.98	17.56	AV
7236	43.79	0.00	12.30	V	56.09	73.98	17.90	PK
7236	30.75	0.13	12.30	V	43.18	53.98	10.81	AV
4824	48.20	0.00	3.57	H	51.77	73.98	22.21	PK
4824	33.95	0.13	3.57	H	37.65	53.98	16.33	AV
7236	44.16	0.00	12.30	H	56.46	73.98	17.53	PK
7236	31.04	0.13	12.30	H	43.47	53.98	10.52	AV

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	0
Operating Frequency	2437
Channel No.	06 Ch
RU offset	61

Frequency [MHz]	Measured Value [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	46.90	0.00	3.76	V	50.66	73.98	23.33	PK
4874	33.89	0.13	3.76	V	37.78	53.98	16.21	AV
7311	40.33	0.00	11.51	V	51.84	73.98	22.14	PK
7311	28.05	0.13	11.51	V	39.69	53.98	14.29	AV
4874	47.22	0.00	3.76	H	50.98	73.98	23.01	PK
4874	34.52	0.13	3.76	H	38.41	53.98	15.58	AV
7311	40.62	0.00	11.51	H	52.13	73.98	21.85	PK
7311	28.16	0.13	11.51	H	39.80	53.98	14.18	AV

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	0
Operating Frequency	2462
Channel No.	11 Ch
RU offset	61

Frequency [MHz]	Measured Value [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
4924	42.12	0.00	4.78	V	46.90	73.98	27.08	PK
4924	30.22	0.13	4.78	V	35.13	53.98	18.85	AV
7386	41.26	0.00	12.03	V	53.29	73.98	20.69	PK
7386	28.76	0.13	12.03	V	40.92	53.98	13.06	AV
4924	43.50	0.00	4.78	H	48.28	73.98	25.70	PK
4924	30.65	0.13	4.78	H	35.56	53.98	18.42	AV
7386	42.24	0.00	12.03	H	54.27	73.98	19.71	PK
7386	29.11	0.13	12.03	H	41.27	53.98	12.71	AV

**Note:**

Channel 12 and 13 are less powerful than channel 11 so the test for high channel was performed at channel 11.

**5. SU**

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2412  
 Channel No.: 01 Ch  
 RU offset: None

Frequency [MHz]	Measured Value [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	46.28	0.00	3.57	V	49.85	73.98	24.13	PK
4824	32.11	0.01	3.57	V	35.69	53.98	18.29	AV
7236	42.74	0.00	12.30	V	55.04	73.98	18.95	PK
7236	29.65	0.01	12.30	V	41.96	53.98	12.03	AV
4824	48.75	0.00	3.57	H	52.32	73.98	21.66	PK
4824	33.04	0.01	3.57	H	36.62	53.98	17.36	AV
7236	43.59	0.00	12.30	H	55.89	73.98	18.10	PK
7236	29.97	0.01	12.30	H	42.28	53.98	11.71	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2437  
 Channel No.: 06 Ch  
 RU offset: None

Frequency [MHz]	Measured Value [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	46.48	0.00	3.76	V	50.24	73.98	23.75	PK
4874	33.72	0.01	3.76	V	37.49	53.98	16.50	AV
7311	39.42	0.00	11.51	V	50.93	73.98	23.05	PK
7311	28.04	0.01	11.51	V	39.56	53.98	14.42	AV
4874	47.94	0.00	3.76	H	51.70	73.98	22.29	PK
4874	34.63	0.01	3.76	H	38.40	53.98	15.59	AV
7311	40.34	0.00	11.51	H	51.85	73.98	22.13	PK
7311	28.07	0.01	11.51	H	39.59	53.98	14.39	AV

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	0
Operating Frequency	2462
Channel No.	11 Ch
RU offset	None

Frequency [MHz]	Measured Value [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
4924	42.02	0.00	4.78	V	46.80	73.98	27.18	PK
4924	30.25	0.01	4.78	V	35.04	53.98	18.94	AV
7386	40.83	0.00	12.03	V	52.86	73.98	21.12	PK
7386	27.32	0.01	12.03	V	39.36	53.98	14.62	AV
4924	43.05	0.00	4.78	H	47.83	73.98	26.15	PK
4924	30.37	0.01	4.78	H	35.16	53.98	18.82	AV
7386	41.39	0.00	12.03	H	53.42	73.98	20.56	PK
7386	28.44	0.01	12.03	H	40.48	53.98	13.50	AV

**Note:**

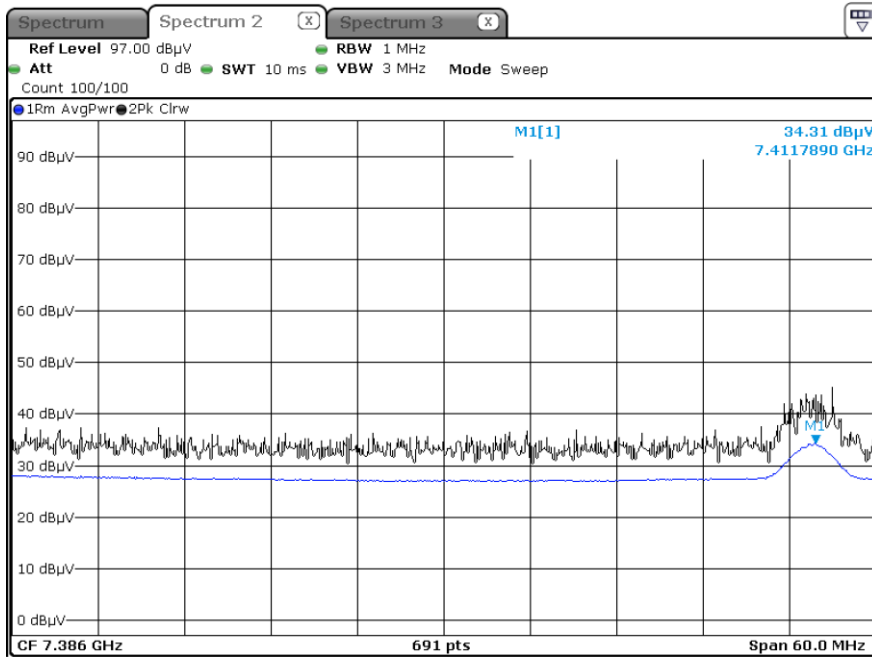
Channel 12 and 13 are less powerful than channel 11 so the test for high channel was performed at channel 11.

▣ Test Plots

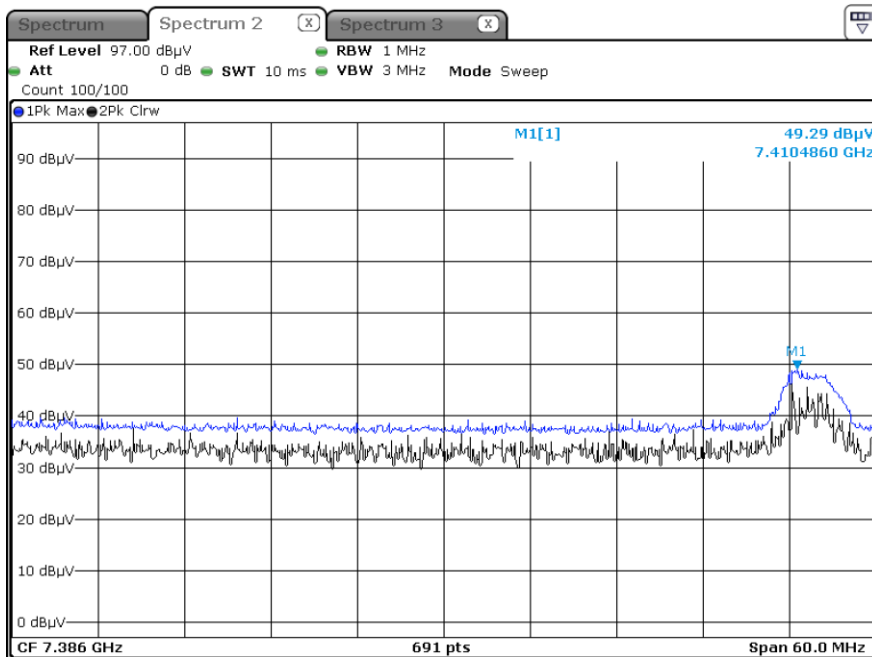
[MIMO]

(26 Tone RU 8) – Y-H

Radiated Spurious Emissions plot – Average result (802.11ax(HE20), Ch.11 3rd Harmonic)



Radiated Spurious Emissions plot – Peak result (802.11ax(HE20), Ch.11 3rd Harmonic)



**Note:**

Plot of worst case are only reported.

**9.7 RADIATED RESTRICTED BAND EDGES**

**[MIMO]**

**1. 26 Tone**

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	25.335	0.00	34.50	H	59.84	73.98	14.14	PK
2390.0	3.480	0.04	34.50	H	38.02	53.98	15.96	AV
2390.0	24.685	0.00	34.50	V	59.19	73.98	14.79	PK
2390.0	2.763	0.04	34.50	V	37.30	53.98	16.68	AV
# 2484	29.270	0.00	34.87	H	64.14	73.98	9.84	PK
# 2484	4.690	0.04	34.87	H	39.60	53.98	14.38	AV
# 2485	27.860	0.00	34.87	H	62.73	73.98	11.25	PK
# 2485	3.970	0.04	34.87	H	38.88	53.98	15.10	AV
2485.5~	34.804	0.00	34.87	H	69.68	73.98	4.30	PK
2485.5~	5.140	0.04	34.87	H	40.05	53.98	13.93	AV

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

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2417 MHz  
 Channel No.: 2 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	22.202	0.00	34.50	H	56.70	73.98	17.28	PK
2390.0	0.073	0.04	34.50	H	34.61	53.98	19.37	AV
2390.0	19.363	0.00	34.50	V	53.86	73.98	20.12	PK
2390.0	-0.053	0.04	34.50	V	34.49	53.98	19.49	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2467 MHz  
 Channel No.: 12 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	25.931	0.00	34.87	H	60.81	73.98	13.17	PK
2483.5	0.457	0.04	34.87	H	35.37	53.98	18.61	AV
2483.5	24.972	0.00	34.87	V	59.85	73.98	14.13	PK
2483.5	0.388	0.04	34.87	V	35.30	53.98	18.68	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2472 MHz  
 Channel No.: 13 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
# 2484	32.020	0.00	34.87	H	66.89	73.98	7.09	PK
# 2484	16.360	0.04	34.87	H	51.27	53.98	2.71	AV
# 2485	24.270	0.00	34.87	H	59.14	73.98	14.84	PK
# 2485	10.310	0.04	34.87	H	45.22	53.98	8.76	AV
2485.5~	31.379	0.00	34.87	H	66.25	73.98	7.73	PK
2485.5~	7.708	0.04	34.87	H	42.62	53.98	11.36	AV

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



**2. 52 Tone**

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	29.811	0.00	34.50	H	64.31	73.98	9.67	PK
2390.0	1.770	0.04	34.50	H	36.31	53.98	17.67	AV
2390.0	28.824	0.00	34.50	V	63.33	73.98	10.65	PK
2390.0	1.707	0.04	34.50	V	36.25	53.98	17.73	AV
# 2484	29.550	0.00	34.87	H	64.42	73.98	9.56	PK
# 2484	5.090	0.04	34.87	H	40.00	53.98	13.98	AV
# 2485	27.250	0.00	34.87	H	62.12	73.98	11.86	PK
# 2485	3.980	0.04	34.87	H	38.89	53.98	15.09	AV
2485.5~	36.197	0.00	34.87	H	71.07	73.98	2.91	PK
2485.5~	3.567	0.04	34.87	H	38.48	53.98	15.50	AV

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

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2417 MHz  
 Channel No. 2 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	26.831	0.00	34.50	H	61.33	73.98	12.65	PK
2390.0	0.428	0.04	34.50	H	34.97	53.98	19.01	AV
2390.0	25.219	0.00	34.50	V	59.72	73.98	14.26	PK
2390.0	0.216	0.04	34.50	V	34.76	53.98	19.22	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2422 MHz  
 Channel No. 3 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	21.586	0.00	34.50	H	56.09	73.98	17.89	PK
2390.0	-1.157	0.04	34.50	H	33.38	53.98	20.60	AV
2390.0	20.425	0.00	34.50	V	54.93	73.98	19.05	PK
2390.0	-1.742	0.04	34.50	V	32.80	53.98	21.18	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2467 MHz  
 Channel No. 12 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	24.496	0.00	34.87	H	59.37	73.98	14.61	PK
2483.5	1.002	0.04	34.87	H	35.92	53.98	18.06	AV
2483.5	22.139	0.00	34.87	V	57.01	73.98	16.97	PK
2483.5	0.944	0.04	34.87	V	35.86	53.98	18.12	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2472 MHz  
 Channel No.: 13 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
# 2484	29.600	0.00	34.87	H	64.47	73.98	9.51	PK
# 2484	16.190	0.04	34.87	H	51.10	53.98	2.88	AV
# 2485	24.510	0.00	34.87	H	59.38	73.98	14.60	PK
# 2485	10.390	0.04	34.87	H	45.30	53.98	8.68	AV
2485.5~	31.547	0.00	34.87	H	66.42	73.98	7.56	PK
2485.5~	8.368	0.04	34.87	H	43.28	53.98	10.70	AV

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

**3. 106 Tone**

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	34.906	0.00	34.50	H	69.41	73.98	4.57	PK
2390.0	8.729	0.06	34.50	H	43.29	53.98	10.69	AV
2390.0	32.050	0.00	34.50	V	66.55	73.98	7.43	PK
2390.0	7.408	0.06	34.50	V	41.97	53.98	12.01	AV
2483.5	36.389	0.00	34.87	H	71.26	73.98	2.72	PK
2483.5	6.585	0.06	34.87	H	41.52	53.98	12.46	AV
2483.5	35.421	0.00	34.87	V	70.30	73.98	3.68	PK
2483.5	5.522	0.06	34.87	V	40.46	53.98	13.52	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2467 MHz  
 Channel No.: 12 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	24.007	0.00	34.87	H	58.88	73.98	15.10	PK
2483.5	1.572	0.06	34.87	H	36.51	53.98	17.47	AV
2483.5	23.209	0.00	34.87	V	58.08	73.98	15.90	PK
2483.5	1.300	0.06	34.87	V	36.23	53.98	17.75	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2472 MHz  
 Channel No.: 13 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
# 2484	26.820	0.00	34.87	H	61.69	73.98	12.29	PK
# 2484	14.260	0.06	34.87	H	49.19	53.98	4.79	AV
# 2485	21.600	0.00	34.87	H	56.47	73.98	17.51	PK
# 2485	8.400	0.06	34.87	H	43.33	53.98	10.65	AV
2485.5~	28.460	0.00	34.87	H	63.33	73.98	10.65	PK
2485.5~	6.278	0.06	34.87	H	41.21	53.98	12.77	AV

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

**4. 242 Tone**

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	34.841	0.00	34.50	H	69.34	73.98	4.64	PK
2390.0	10.910	0.13	34.50	H	45.54	53.98	8.44	AV
2390.0	33.421	0.00	34.50	V	67.92	73.98	6.06	PK
2390.0	10.425	0.13	34.50	V	45.06	53.98	8.92	AV
2483.5	34.979	0.00	34.87	H	69.85	73.98	4.13	PK
2483.5	15.252	0.13	34.87	H	50.26	53.98	3.72	AV
2483.5	33.945	0.00	34.87	V	68.82	73.98	5.16	PK
2483.5	14.712	0.13	34.87	V	49.72	53.98	4.26	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2417 MHz  
 Channel No. 2 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	36.865	0.00	34.50	H	71.37	73.98	2.61	PK
2390.0	10.078	0.13	34.50	H	44.71	53.98	9.27	AV
2390.0	36.462	0.00	34.50	V	70.96	73.98	3.02	PK
2390.0	9.631	0.13	34.50	V	44.26	53.98	9.72	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2422 MHz  
 Channel No. 3 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	24.848	0.00	34.50	H	59.35	73.98	14.63	PK
2390.0	-0.059	0.13	34.50	H	34.57	53.98	19.41	AV
2390.0	23.994	0.00	34.50	V	58.50	73.98	15.48	PK
2390.0	-0.965	0.13	34.50	V	33.67	53.98	20.31	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2427 MHz  
 Channel No. 4 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	27.147	0.00	34.50	H	61.65	73.98	12.33	PK
2390.0	3.569	0.13	34.50	H	38.20	53.98	15.78	AV
2390.0	26.065	0.00	34.50	V	60.57	73.98	13.41	PK
2390.0	3.355	0.13	34.50	V	37.99	53.98	15.99	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2442 MHz  
 Channel No. 7 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	24.461	0.00	34.87	H	59.34	73.98	14.64	PK
2483.5	6.398	0.13	34.87	H	41.40	53.98	12.58	AV
2483.5	22.456	0.00	34.87	V	57.33	73.98	16.65	PK
2483.5	5.842	0.13	34.87	V	40.85	53.98	13.13	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2447 MHz  
 Channel No. 8 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	22.845	0.00	34.87	H	57.72	73.98	16.26	PK
2483.5	4.060	0.13	34.87	H	39.06	53.98	14.92	AV
2483.5	21.675	0.00	34.87	V	56.55	73.98	17.43	PK
2483.5	3.722	0.13	34.87	V	38.73	53.98	15.25	AV



Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2452 MHz  
 Channel No. 9 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	31.384	0.00	34.87	H	66.26	73.98	7.72	PK
2483.5	7.146	0.13	34.87	H	42.15	53.98	11.83	AV
2483.5	30.882	0.00	34.87	V	65.76	73.98	8.22	PK
2483.5	6.574	0.13	34.87	V	41.58	53.98	12.40	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2457 MHz  
 Channel No. 10 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	31.127	0.00	34.87	H	66.00	73.98	7.98	PK
2483.5	5.562	0.13	34.87	H	40.57	53.98	13.41	AV
2483.5	30.116	0.00	34.87	V	64.99	73.98	8.99	PK
2483.5	4.571	0.13	34.87	V	39.58	53.98	14.40	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2467 MHz  
 Channel No.: 12 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	25.778	0.00	34.87	H	60.65	73.98	13.33	PK
2483.5	3.887	0.13	34.87	H	38.89	53.98	15.09	AV
2483.5	24.698	0.00	34.87	V	59.57	73.98	14.41	PK
2483.5	2.241	0.13	34.87	V	37.25	53.98	16.73	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2472 MHz  
 Channel No.: 13 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	35.371	0.00	34.87	H	70.25	73.98	3.73	PK
2483.5	13.825	0.13	34.87	H	48.83	53.98	5.15	AV
2483.5	34.349	0.00	34.87	V	69.22	73.98	4.76	PK
2483.5	12.836	0.13	34.87	V	47.84	53.98	6.14	AV

**5. SU**

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	21.789	0.00	34.50	H	56.29	73.98	17.69	PK
2390.0	2.265	0.01	34.50	H	36.78	53.98	17.20	AV
2390.0	20.862	0.00	34.50	V	55.36	73.98	18.62	PK
2390.0	1.952	0.01	34.50	V	36.46	53.98	17.52	AV
2483.5	28.176	0.00	34.87	H	63.05	73.98	10.93	PK
2483.5	13.993	0.01	34.87	H	48.88	53.98	5.10	AV
2483.5	27.798	0.00	34.87	V	62.67	73.98	11.31	PK
2483.5	12.597	0.01	34.87	V	47.48	53.98	6.50	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2417 MHz  
 Channel No.: 2 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	24.965	0.00	34.50	H	59.47	73.98	14.51	PK
2390.0	8.406	0.01	34.50	H	42.92	53.98	11.06	AV
2390.0	23.824	0.00	34.50	V	58.33	73.98	15.65	PK
2390.0	8.063	0.01	34.50	V	42.57	53.98	11.41	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2422 MHz  
 Channel No.: 3 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	21.955	0.00	34.50	H	56.46	73.98	17.52	PK
2390.0	2.326	0.01	34.50	H	36.84	53.98	17.14	AV
2390.0	20.348	0.00	34.50	V	54.85	73.98	19.13	PK
2390.0	2.185	0.01	34.50	V	36.70	53.98	17.28	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2457 MHz  
 Channel No.: 10 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	31.829	0.00	34.87	H	66.70	73.98	7.28	PK
2483.5	14.733	0.01	34.87	H	49.62	53.98	4.36	AV
2483.5	30.077	0.00	34.87	V	64.95	73.98	9.03	PK
2483.5	13.988	0.01	34.87	V	48.87	53.98	5.11	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2467 MHz  
 Channel No.: 12 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	23.644	0.00	34.87	H	58.52	73.98	15.46	PK
2483.5	-0.489	0.01	34.87	H	34.40	53.98	19.58	AV
2483.5	22.594	0.00	34.87	V	57.47	73.98	16.51	PK
2483.5	-0.768	0.01	34.87	V	34.12	53.98	19.86	AV

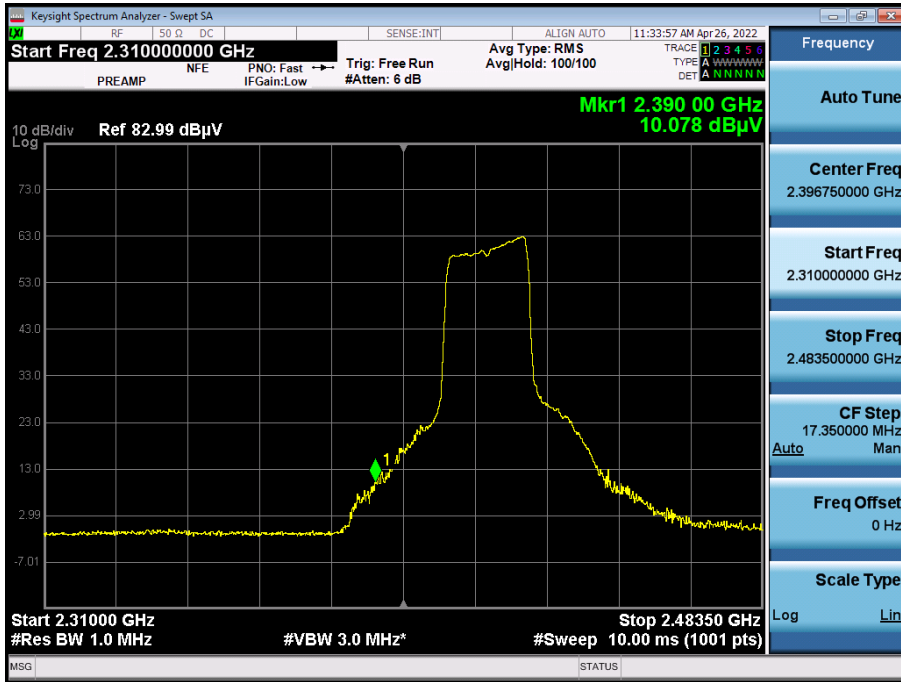
Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 0  
 Operating Frequency: 2472 MHz  
 Channel No.: 13 Ch

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor [dB]	A.F+C.L +D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	34.108	0.00	34.87	H	68.98	73.98	5.00	PK
2483.5	15.872	0.01	34.87	H	50.76	53.98	3.22	AV
2483.5	32.951	0.00	34.87	V	67.83	73.98	6.15	PK
2483.5	14.829	0.01	34.87	V	49.71	53.98	4.27	AV

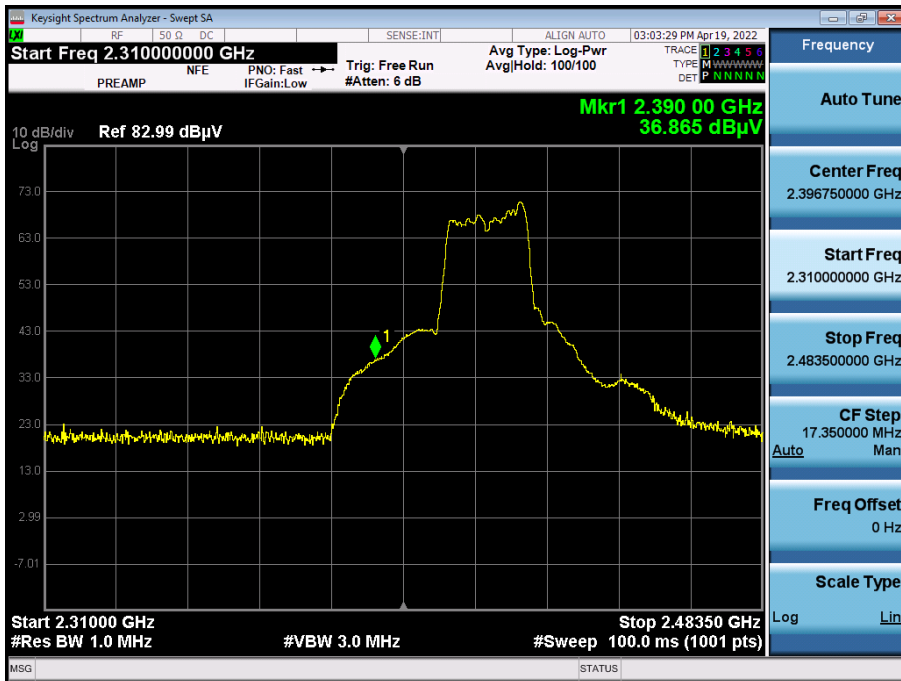
■ Test Plots (242 Tone, RU 61) Z-H

[MIMO]

Radiated Restricted Band Edges plot – Average result (802.11ax(HE20), MCS0, Ch.2)



Radiated Restricted Band Edges plot – Peak result (802.11ax(HE20), MCS0, Ch.2)



**Note:**

Plot of worst case are only reported.

## 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	03/04/2023	Annual
Signal Analyzer	N9030A	Agilent	MY49431210	01/11/2023	Annual
Power Measurement Set	OSP 120	Rohde & Schwarz	101231	07/02/2022	Annual
Power Meter	N1911A	Agilent	MY45100523	03/24/2023	Annual
Power Sensor	N1921A	Keysight	MY57820067	03/24/2023	Annual
Directional Coupler	87300B	Agilent	3116A03621	11/02/2022	Annual
Power Splitter	11667B	Hewlett Packard	05001	05/20/2022	Annual
DC Power Supply	E3646A	Agilent	MY40002937	12/14/2022	Annual
Attenuator(10 dB)	8493C	Hewlett Packard	07560	06/18/2022	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
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/17/2024	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	760	02/22/2023	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	02299	05/19/2022	Biennial
Horn Antenna (15GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	10/13/2022	Biennial
Spectrum Analyzer	FSV40-N	Rohde & Schwarz	102168	07/05/2022	Annual
Signal Analyzer	N9030A	Agilent	MY49431210	01/11/2023	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
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/06/2023	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/07/2023	Annual
High Pass Filter	WHK3.0/18G-10EF	Wainwright Instruments	8	01/21/2023	Annual
High Pass Filter	WHKX8-6090-7000-18000-40SS	Wainwright Instruments	25	01/21/2023	Annual
Attenuator (3 dB)	18B-03	Api tech.	1	01/21/2023	Annual
Attenuator(10 dB)	8493C-10	Agilent	08285	01/21/2023	Annual
Power Amplifier	CBLU1183540	CERNEX	22964	01/21/2023	Annual
Power Amplifier	CBL06185030	CERNEX	22965	01/21/2023	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/02/2022	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/11/2023	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-2205-FC006-P