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FCC DTS REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

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

Date of Issue:
May 16, 2022

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

Report No.: HCT-RF-2205-FC046

FCC ID:	**A3LSMG736U**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model:	SM-G736U
Additional Model:	SM-G736U1
EUT Type:	Mobile Phone
Average Output Power:	Ant.1 - 802.11b : 16.57 dBm, 802.11g : 16.51 dBm, 802.11n(HT20) : 16.58 dBm Ant.2 - 802.11b : 16.29 dBm, 802.11g : 15.56 dBm, 802.11n(HT20) : 15.61 dBm Ant.1&2 - 802.11b : 19.44 dBm, 802.11g : 19.05 dBm, 802.11n(HT20) : 19.13 dBm
Frequency Range:	2 412 MHz ~ 2 462 MHz
Modulation type:	CCK/DSSS/OFDM
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.

REVIEWED BY

Report prepared by : Woong Jin 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)

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2205-FC046	May 16, 2022	- First Approval Report

Table of Contents

1. EUT DESCRIPTION

Model	SM-G736U		
Additional Model	SM-G736U1		
EUT Type	Mobile Phone		
Power Supply	DC 3.86 V		
Frequency Range	2 412 MHz ~ 2 462 MHz		
Max. RF Output Power	Peak Power (For information only)	Ant. 1	802.11b : 22.10 dBm 802.11g : 25.01 dBm 802.11n(HT20) : 24.52 dBm
		Ant.2	802.11b : 21.35 dBm 802.11g : 23.99 dBm 802.11n(HT20) : 23.58 dBm
		Ant.1&2 (MIMO)	802.11b : 24.75 dBm 802.11g : 27.52 dBm 802.11n(HT20) : 27.08 dBm
	Average Power	Ant. 1	802.11b : 16.57 dBm 802.11g : 16.51 dBm 802.11n(HT20) : 16.58 dBm
		Ant.2	802.11b : 16.29 dBm 802.11g : 15.56 dBm 802.11n(HT20) : 15.61 dBm
		Ant.1&2 (MIMO)	802.11b : 19.44 dBm 802.11g : 19.05 dBm 802.11n(HT20) : 19.13 dBm
Modulation Type	DSSS/CCK : 802.11b OFDM : 802.11g, 802.11n		
Number of Channels	11 Channels		
Date(s) of Tests	March 30, 2022 ~ May 13, 2022		
Serial number	Radiated: R3CT30RY5WR Conducted : R3CT30RX81X		

ANTENNA CONFIGURATIONS

Configurations	SISO		MIMO	
	Ant1	Ant2	CDD	SDM
802.11b	X	O	O	X
802.11g	X	O	O	X
802.11n(HT20)	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_{ANT}/ N_{SS}	Directional Gain (dBi)
ANT1	-1.20	2 / 2	1.47
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 = $10 \cdot \log(((10^{(\text{ANT1 Gain}/20)}+10^{(\text{ANT2 Gain}/20)})^2)/2)$ dBi

Sample MIMO Calculation:

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

Ant1 + Ant 2 = MIMO

(11.58 dBm + 12.08 dBm) = (14.387 mW + 16.143 mW) = 30.53 mW = 14.88 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.

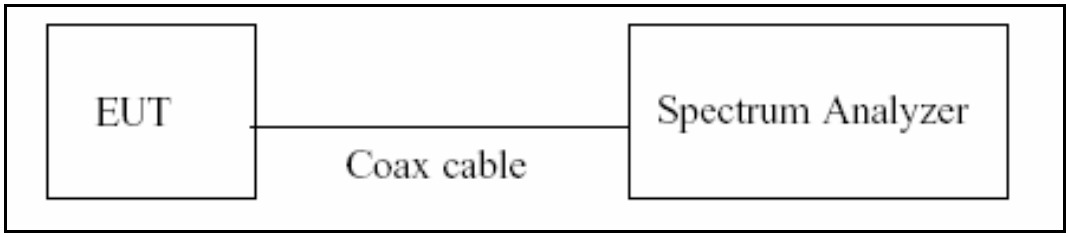
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

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 ≤ 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*.

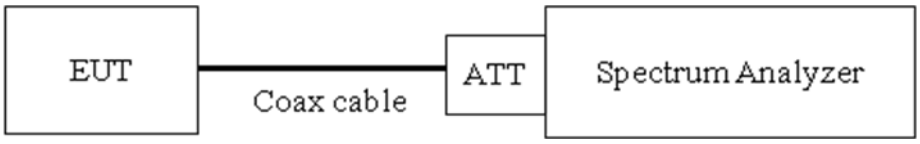
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on} / T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

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 ≥ 3 x 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.

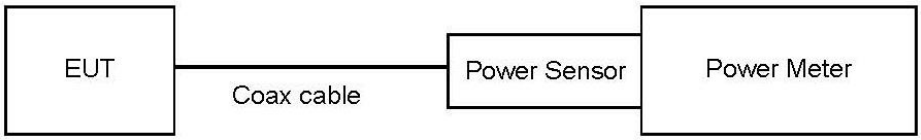
Note : We tested OBW using the automatic bandwidth measurement capability of a spectrum analyzer.

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

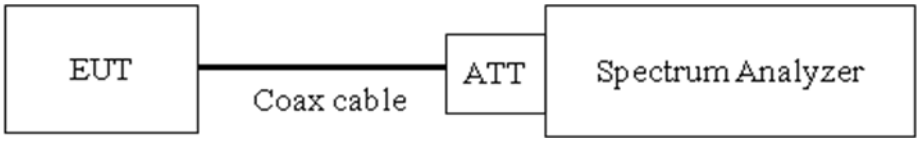
▪ Conducted Output Power(Average) = Measured Value + ATT loss + Cable loss + Duty Cycle Factor

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 kHz ≤ RBW ≤ 100 kHz.
4) VBW ≥ 3 x 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 ≥ [2 × 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

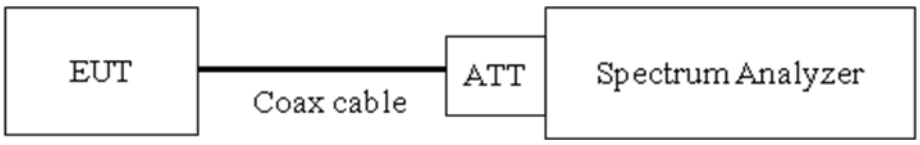
7.5. Conducted Band Edge(Out of Band Emissions) & Conducted Spurious Emissions

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 ≥ 3 x 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 ≥ 2 x 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
10000	21.12
11000	21.16
12000	21.24
13000	21.32
14000	21.30
15000	21.32
16000	21.37
17000	21.41
18000	21.47
19000	21.50
20000	21.56
21000	21.77
22000	21.74
23000	21.94

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

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

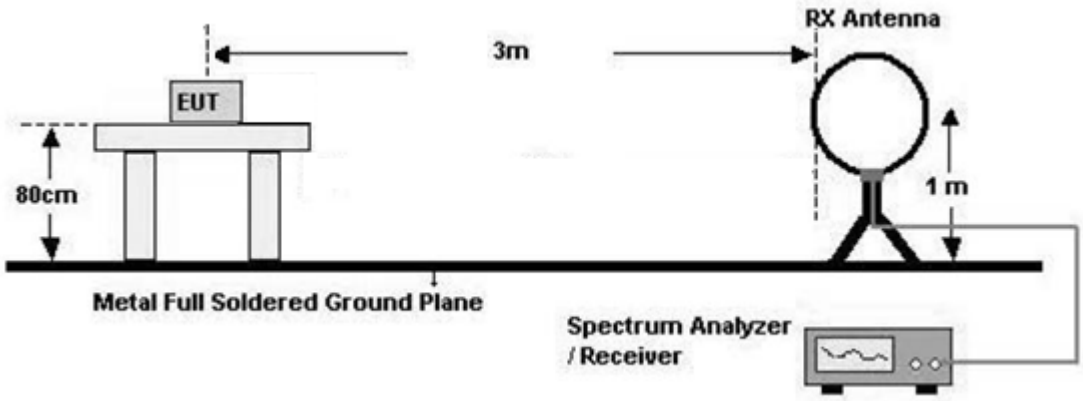
7.6. Radiated Test

Limit

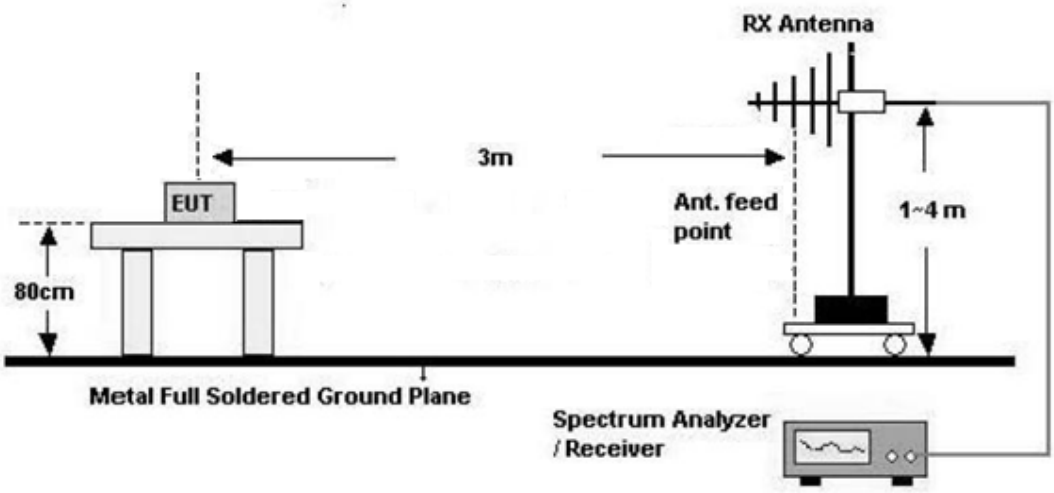
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

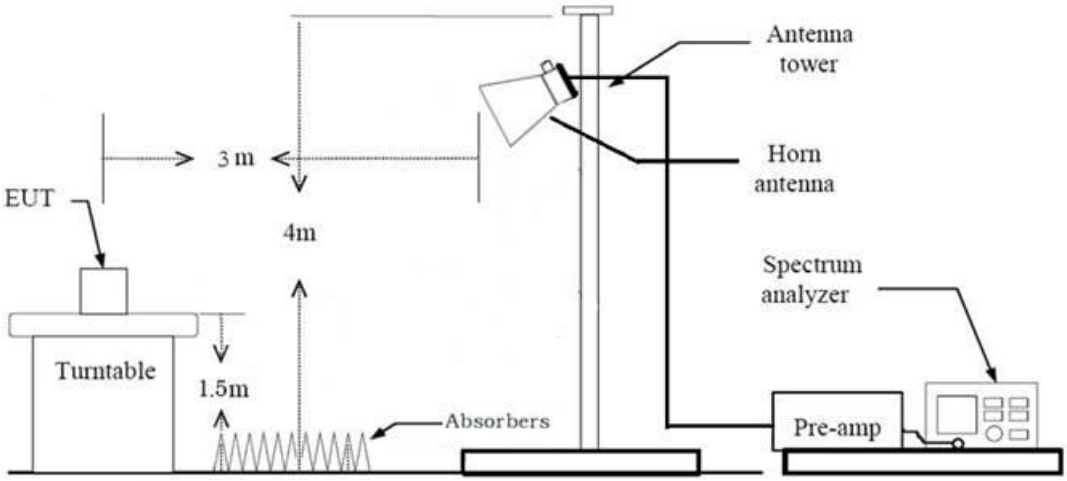
Below 30 MHz



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) = 40log(3 m/300 m) = - 80 dB
   Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) = 40log(3 m/30 m) = - 40 dB
   Measurement Distance : 3 m
8. Spectrum Setting
   - Frequency Range = 9 kHz ~ 30 MHz
   - Detector = Peak
   - Trace = Maxhold
   - RBW = 9 kHz
   - VBW ≥ 3 x 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 ≥ 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 ≥ 3 x RBW

(2) Measurement Type(Average): Duty cycle ≥ 98 %

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW ≥ 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 ±2 %

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW ≥ 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 = 20log (test distance / specific distance) (dB)
11. Total(Measurement Type : Peak)
    = Measured value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)

    Total(Measurement Type : Average, Duty cycle ≥ 98 %)
    = Measured value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)

    Total(Measurement Type : Average, Duty cycle < 98 %)
    = Measured value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)
    + 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 ≥ 3 x RBW

   (2) Measurement Type(Average): Duty cycle ≥ 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 ≥ 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 ±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 ≥ 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 = 20log (test distance / 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 ≥ 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[a]	56 to 46[a]
0.50 to 5	56	46
5 to 30	60	50

[a]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. 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 : Y, Z
   - Radiated Restricted Band Edge : Y, Z
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
6. SM-G736U, SM-G736U1 were tested and the worst case results are reported.

(Worst case : SM-G736U)

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
2. SM-G736U, SM-G736U1 were tested and the worst case results are reported.

(Worst case : SM-G736U)

Conducted test

1. The EUT was configured with data rate of highest power.
2. SM-G736U, SM-G736U1 were tested and the worst case results are reported.

(Worst case : SM-G736U)

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

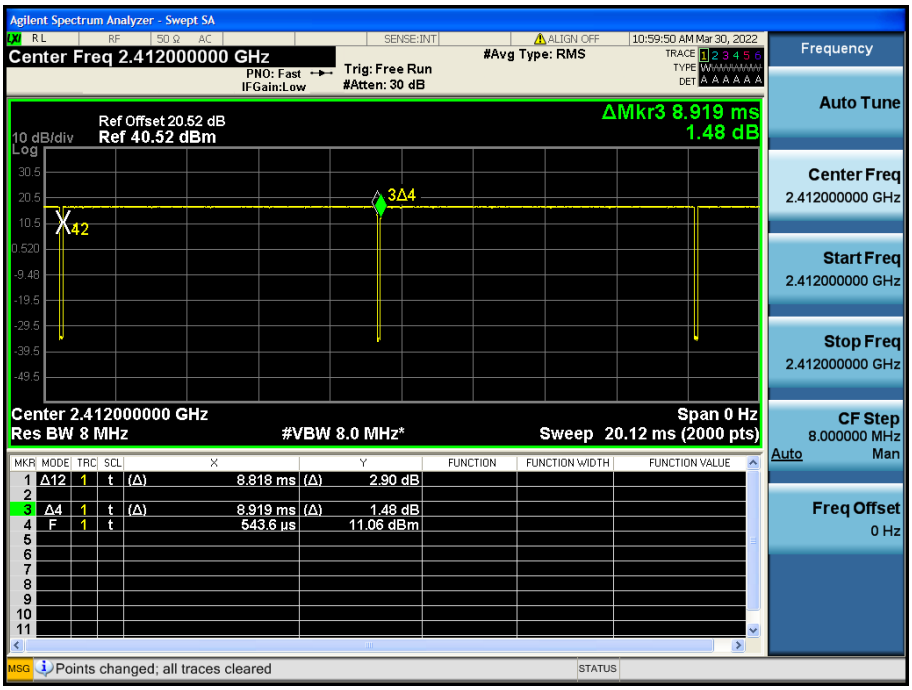
9. TEST RESULT

9.1 DUTY CYCLE

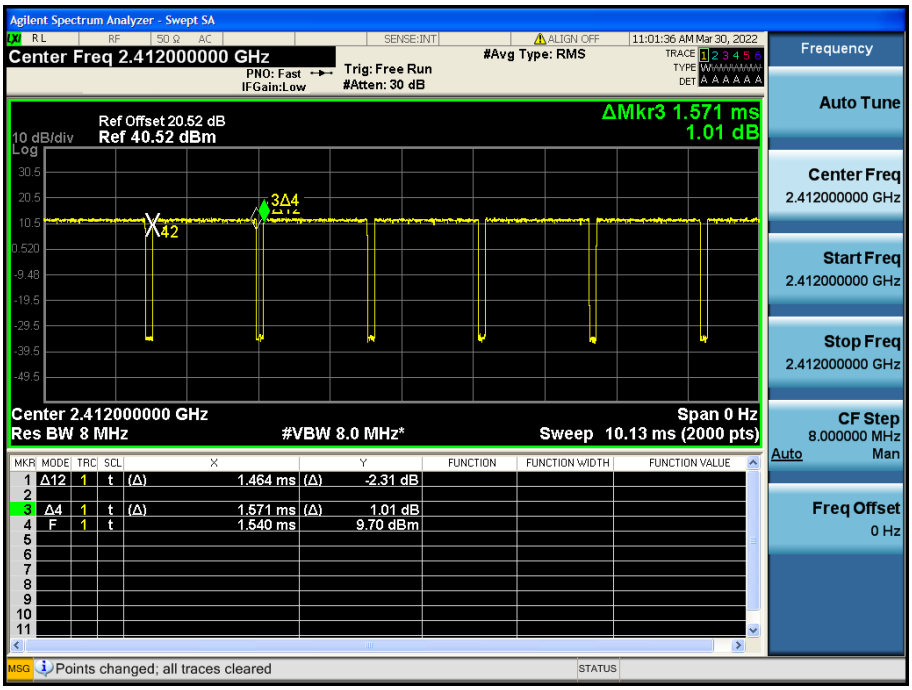
Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11b	1	8.818	8.919	0.989	0.049
	2	4.407	4.512	0.977	0.103
	5.5	1.667	1.768	0.943	0.256
	11	0.882	0.983	0.897	0.473
802.11g	6	1.464	1.571	0.932	0.305
	9	0.983	1.089	0.902	0.446
	12	0.745	0.851	0.875	0.580
	18	0.507	0.613	0.826	0.828
	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	1.353	0.921	0.356
	13 (MCS1)	0.643	0.750	0.858	0.665
	19.5 (MCS2)	0.441	0.547	0.806	0.939
	26 (MCS3)	0.345	0.451	0.764	1.169
	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	0.274	0.630	2.009
	65 (MCS7)	0.157	0.263	0.596	2.246

▣ Test Plots

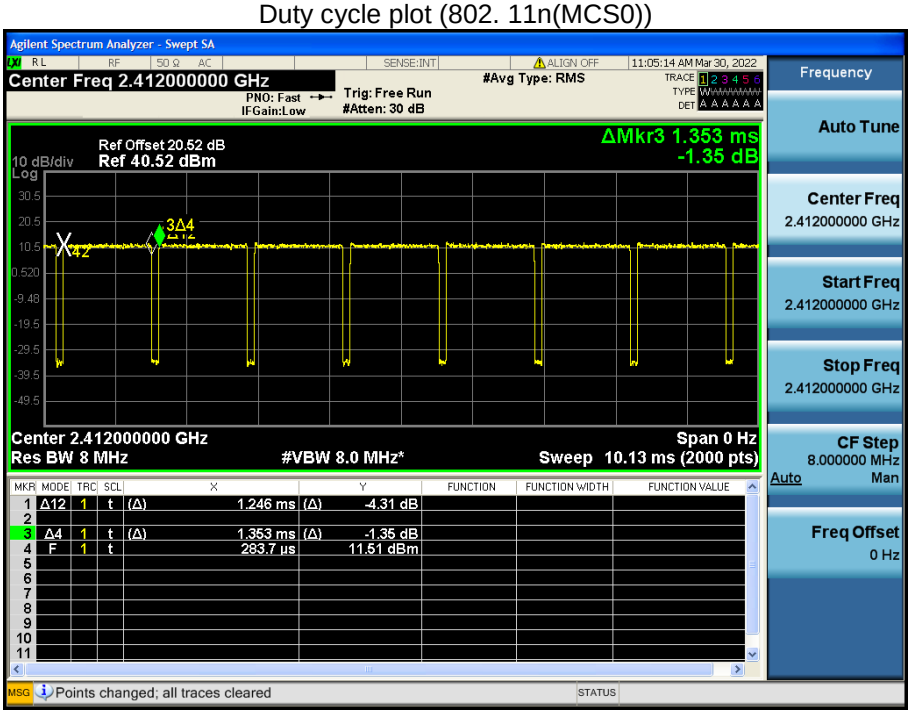
Duty cycle plot (802.11b(1 Mbps))



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	7.602	0.5
2437	6	8.071	0.5
2462	11	8.083	0.5

802.11g Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	16.07	0.5
2437	6	16.08	0.5
2462	11	16.09	0.5

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	16.39	0.5
2437	6	16.83	0.5
2462	11	16.56	0.5

[Ant.2]

802.11b Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	7.630	0.5
2437	6	8.124	0.5
2462	11	7.636	0.5

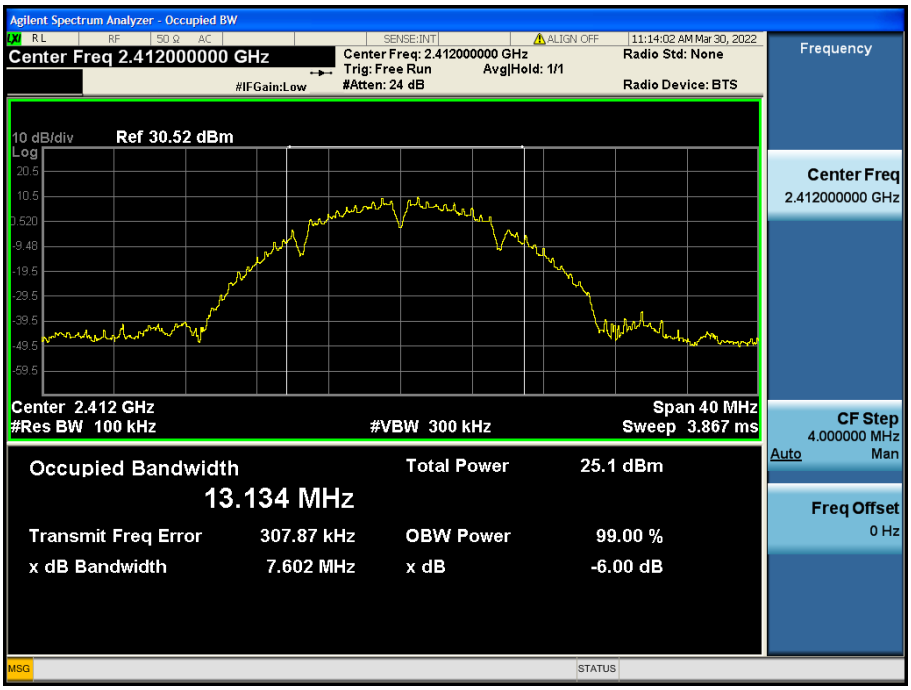
802.11g Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	15.83	0.5
2437	6	16.15	0.5
2462	11	15.75	0.5

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
Frequency [MHz]	Channel No.		
2412	1	16.55	0.5
2437	6	16.79	0.5
2462	11	16.01	0.5

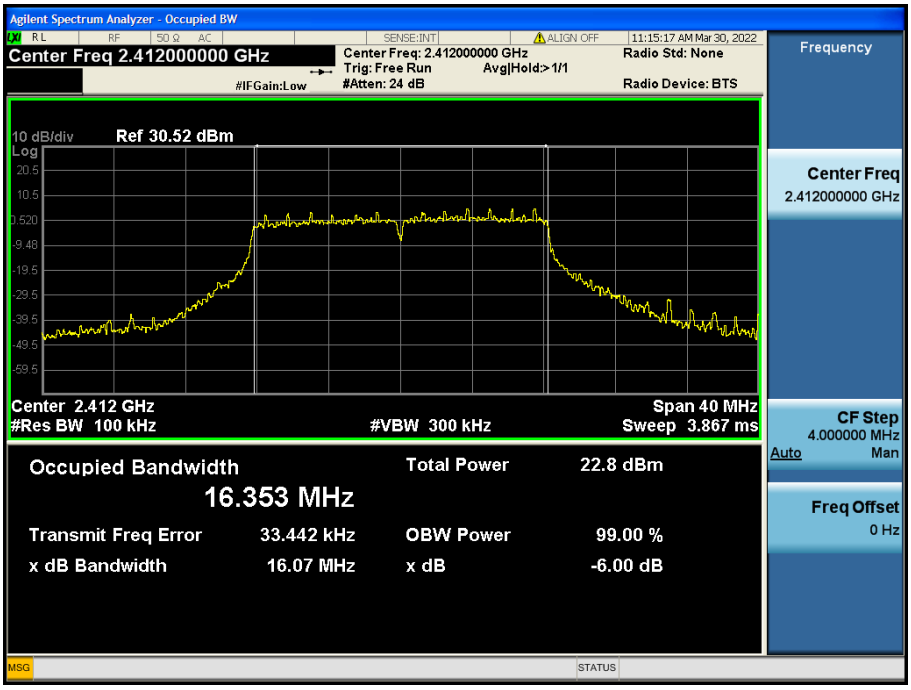
[Ant.1]

▣ Test Plots

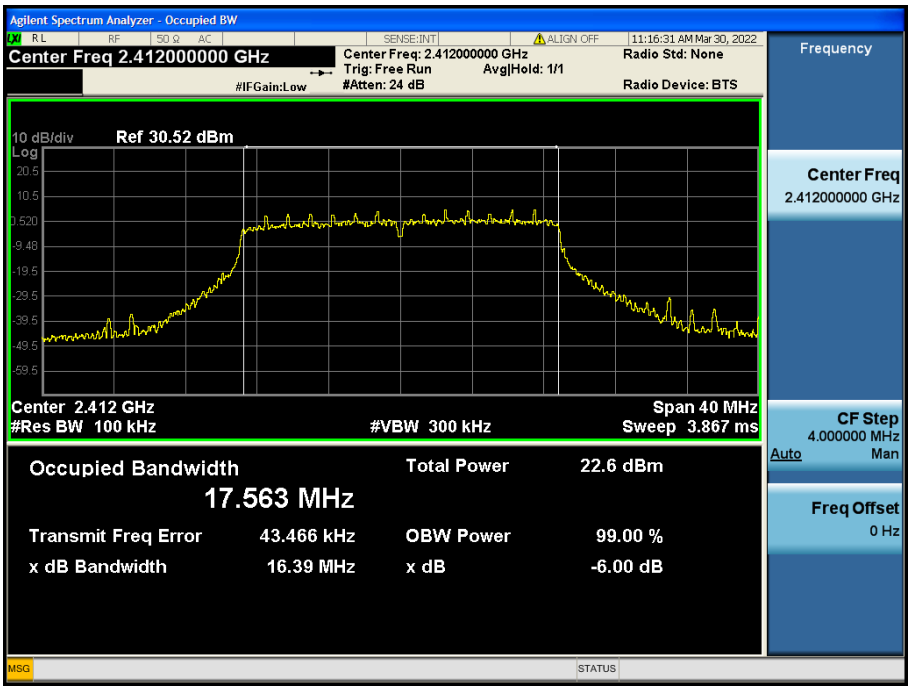
6 dB Bandwidth plot (802.11b-CH 1)



6 dB Bandwidth plot (802.11g-CH 1)



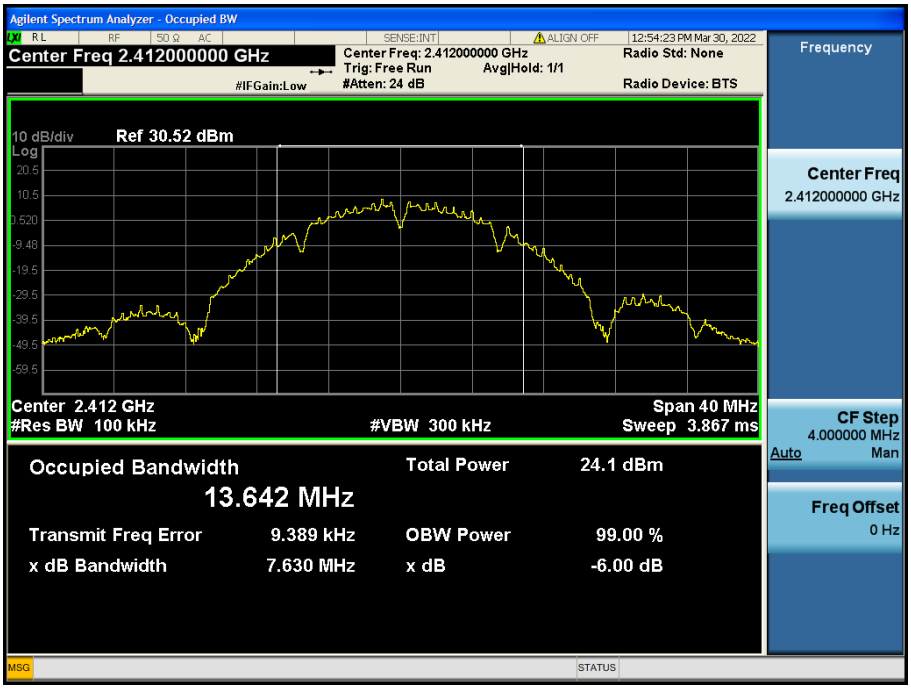
6 dB Bandwidth plot (802.11n_HT20-CH 1)



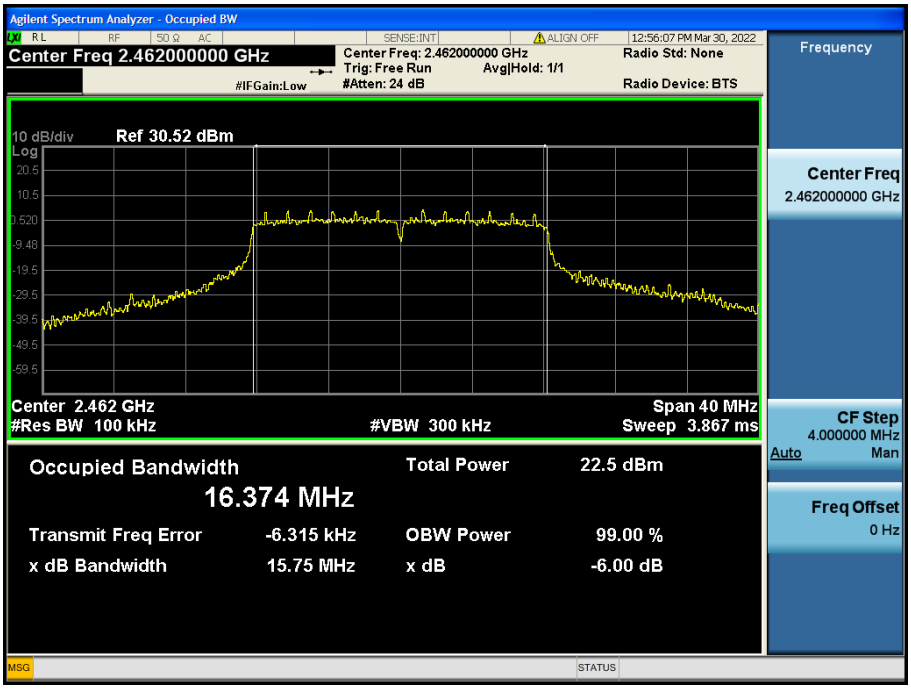
[Ant.2]

▣ Test Plots

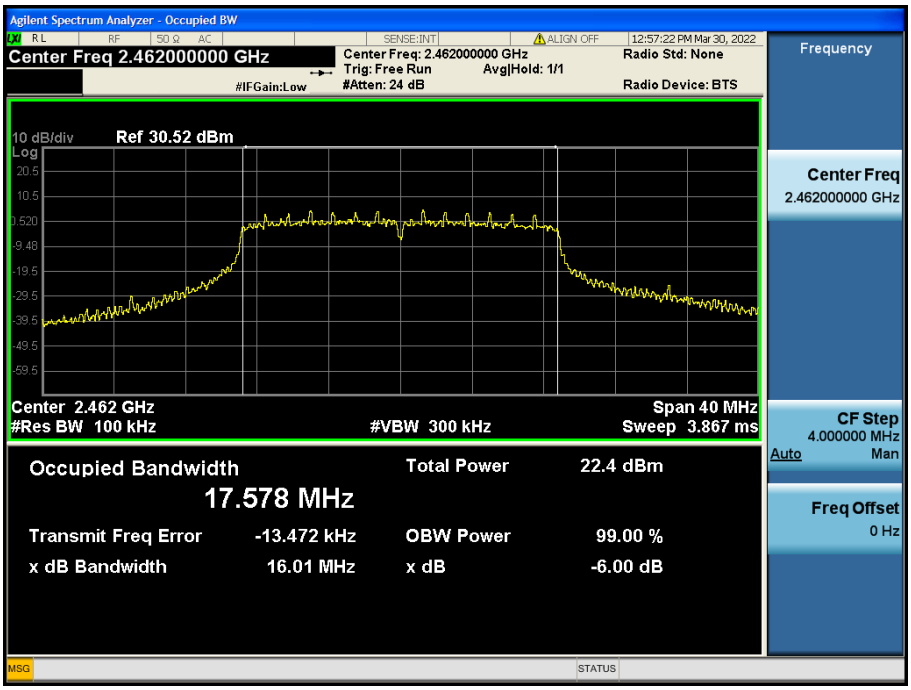
6 dB Bandwidth plot (802.11b-CH 1)



6 dB Bandwidth plot (802.11g-CH 11)



6 dB Bandwidth plot (802.11n_HT20-CH 11)



Note:

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

9.3 OUTPUT POWER

Power Level Setting

Peak Power

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

[Ant.1]

802.11b Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	1	17.90	30
		2	18.29	30
		5.5	19.77	30
		11	21.14	30
2437	6	1	18.83	30
		2	19.21	30
		5.5	20.67	30
		11	22.10	30
2462	11	1	17.97	30
		2	18.35	30
		5.5	19.79	30
		11	21.19	30

802.11g Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	6	23.98	30
		9	24.09	30
		12	23.24	30
		18	23.65	30
		24	25.01	30
		36	24.62	30
		48	24.78	30
		54	24.85	30
2437	6	6	23.82	30
		9	23.94	30
		12	23.01	30
		18	23.40	30
		24	24.82	30
		36	24.45	30
		48	24.58	30
		54	24.69	30
2462	11	6	22.84	30
		9	22.97	30
		12	22.07	30
		18	22.56	30
		24	23.88	30
		36	23.52	30
		48	23.71	30
		54	23.75	30

802.11n(HT20) Mode		MCS Index	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	0	23.71	30
		1	23.37	30
		2	23.53	30
		3	23.76	30
		4	24.29	30
		5	24.42	30
		6	24.52	30
		7	24.34	30
2437	6	0	23.64	30
		1	23.37	30
		2	23.40	30
		3	23.65	30
		4	24.28	30
		5	24.49	30
		6	24.50	30
		7	24.33	30
2462	11	0	22.68	30
		1	22.38	30
		2	22.50	30
		3	22.67	30
		4	23.31	30
		5	23.41	30
		6	23.49	30
		7	23.32	30

[Ant.2]

802.11b Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	1	16.96	30
		2	17.35	30
		5.5	18.81	30
		11	20.22	30
2437	6	1	18.06	30
		2	18.44	30
		5.5	19.94	30
		11	21.35	30
2462	11	1	17.04	30
		2	17.41	30
		5.5	18.95	30
		11	20.31	30

802.11g Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	6	22.99	30
		9	23.04	30
		12	22.25	30
		18	22.66	30
		24	23.95	30
		36	23.63	30
		48	23.74	30
		54	23.87	30
2437	6	6	23.02	30
		9	23.10	30
		12	22.30	30
		18	22.69	30
		24	23.99	30
		36	23.54	30
		48	23.67	30
		54	23.76	30
2462	11	6	21.99	30
		9	22.12	30
		12	21.28	30
		18	21.81	30
		24	23.11	30
		36	22.69	30
		48	22.90	30
		54	23.00	30

802.11n(HT20) Mode		MCS Index	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	0	22.69	30
		1	22.42	30
		2	22.58	30
		3	22.83	30
		4	23.40	30
		5	23.53	30
		6	23.55	30
		7	23.42	30
2437	6	0	22.82	30
		1	22.51	30
		2	22.69	30
		3	22.88	30
		4	23.44	30
		5	23.51	30
		6	23.58	30
		7	23.43	30
2462	11	0	21.82	30
		1	21.59	30
		2	21.71	30
		3	21.79	30
		4	22.43	30
		5	22.60	30
		6	22.53	30
		7	22.39	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	17.90	16.96	20.47	30
		2	18.29	17.35	20.85	30
		5.5	19.77	18.81	22.33	30
		11	21.14	20.22	23.71	30
2437	6	1	18.83	18.06	21.47	30
		2	19.21	18.44	21.85	30
		5.5	20.67	19.94	23.33	30
		11	22.10	21.35	24.75	30
2462	11	1	17.97	17.04	20.54	30
		2	18.35	17.41	20.92	30
		5.5	19.79	18.95	22.40	30
		11	21.19	20.31	23.78	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	23.98	22.99	26.52	30
		9	24.09	23.04	26.61	30
		12	23.24	22.25	25.78	30
		18	23.65	22.66	26.19	30
		24	25.01	23.95	27.52	30
		36	24.62	23.63	27.17	30
		48	24.78	23.74	27.30	30
		54	24.85	23.87	27.39	30
2437	6	6	23.82	23.02	26.45	30
		9	23.94	23.10	26.55	30
		12	23.01	22.30	25.68	30
		18	23.40	22.69	26.07	30
		24	24.82	23.99	27.44	30
		36	24.45	23.54	27.03	30
		48	24.58	23.67	27.16	30
		54	24.69	23.76	27.26	30
2462	11	6	22.84	21.99	25.45	30
		9	22.97	22.12	25.58	30
		12	22.07	21.28	24.70	30
		18	22.56	21.81	25.21	30
		24	23.88	23.11	26.52	30
		36	23.52	22.69	26.14	30
		48	23.71	22.90	26.33	30
		54	23.75	23.00	26.40	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	23.71	22.69	26.24	30
		1	23.37	22.42	25.93	30
		2	23.53	22.58	26.09	30
		3	23.76	22.83	26.33	30
		4	24.29	23.40	26.88	30
		5	24.42	23.53	27.01	30
		6	24.52	23.55	27.07	30
		7	24.34	23.42	26.91	30
2437	6	0	23.64	22.82	26.26	30
		1	23.37	22.51	25.97	30
		2	23.40	22.69	26.07	30
		3	23.65	22.88	26.29	30
		4	24.28	23.44	26.89	30
		5	24.49	23.51	27.04	30
		6	24.50	23.58	27.08	30
		7	24.33	23.43	26.92	30
2462	11	0	22.68	21.82	25.28	30
		1	22.38	21.59	25.01	30
		2	22.50	21.71	25.13	30
		3	22.67	21.79	25.26	30
		4	23.31	22.43	25.90	30
		5	23.41	22.60	26.03	30
		6	23.49	22.53	26.05	30
		7	23.32	22.39	25.89	30

Average Power

Power Meter offset = Attenuator loss(20 dB) + 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	15.59	0.049	15.64	30
		2	15.64	0.103	15.74	30
		5.5	15.47	0.256	15.72	30
		11	15.26	0.473	15.73	30
2437	6	1	16.38	0.049	16.43	30
		2	16.47	0.103	16.57	30
		5.5	16.26	0.256	16.52	30
		11	16.05	0.473	16.52	30
2462	11	1	15.47	0.049	15.52	30
		2	15.58	0.103	15.68	30
		5.5	15.39	0.256	15.65	30
		11	15.17	0.473	15.65	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	15.70	0.305	16.01	30
		9	15.56	0.446	16.01	30
		12	14.70	0.580	15.28	30
		18	15.13	0.828	15.96	30
		24	15.43	1.072	16.51	30
		36	14.92	1.473	16.39	30
		48	14.66	1.833	16.49	30
		54	14.47	1.996	16.47	30
2437	6	6	15.54	0.305	15.85	30
		9	15.40	0.446	15.85	30
		12	14.47	0.580	15.05	30
		18	14.90	0.828	15.73	30
		24	15.26	1.072	16.33	30
		36	14.77	1.473	16.24	30
		48	14.44	1.833	16.28	30
		54	14.28	1.996	16.28	30
2462	11	6	14.61	0.305	14.91	30
		9	14.47	0.446	14.92	30
		12	13.56	0.580	14.14	30
		18	14.01	0.828	14.84	30
		24	14.34	1.072	15.41	30
		36	13.85	1.473	15.33	30
		48	13.51	1.833	15.35	30
		54	13.34	1.996	15.33	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	15.35	0.356	15.71	30
		1	14.92	0.665	15.58	30
		2	14.90	0.939	15.84	30
		3	14.69	1.169	15.86	30
		4	14.96	1.513	16.47	30
		5	14.62	1.952	16.58	30
		6	14.44	2.009	16.45	30
		7	14.28	2.246	16.53	30
2437	6	0	15.17	0.356	15.52	30
		1	14.77	0.665	15.43	30
		2	14.65	0.939	15.59	30
		3	14.44	1.169	15.61	30
		4	14.76	1.513	16.27	30
		5	14.43	1.952	16.38	30
		6	14.37	2.009	16.37	30
		7	14.13	2.246	16.38	30
2462	11	0	14.27	0.356	14.63	30
		1	13.82	0.665	14.49	30
		2	13.80	0.939	14.74	30
		3	13.51	1.169	14.68	30
		4	13.84	1.513	15.35	30
		5	13.52	1.952	15.47	30
		6	13.36	2.009	15.37	30
		7	13.20	2.246	15.44	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	15.00	0.049	15.05	30
		2	15.08	0.103	15.19	30
		5.5	14.82	0.256	15.08	30
		11	14.63	0.473	15.11	30
2437	6	1	16.00	0.049	16.05	30
		2	16.19	0.103	16.29	30
		5.5	15.98	0.256	16.24	30
		11	15.70	0.473	16.17	30
2462	11	1	14.95	0.049	15.00	30
		2	15.13	0.103	15.23	30
		5.5	14.91	0.256	15.17	30
		11	14.74	0.473	15.22	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	14.79	0.305	15.09	30
		9	14.62	0.446	15.06	30
		12	13.96	0.580	14.54	30
		18	14.15	0.828	14.98	30
		24	14.44	1.072	15.51	30
		36	14.02	1.473	15.49	30
		48	13.64	1.833	15.48	30
		54	13.48	1.996	15.47	30
2437	6	6	14.78	0.305	15.09	30
		9	14.58	0.446	15.03	30
		12	13.95	0.580	14.53	30
		18	14.15	0.828	14.98	30
		24	14.49	1.072	15.56	30
		36	13.84	1.473	15.31	30
		48	13.50	1.833	15.33	30
		54	13.35	1.996	15.35	30
2462	11	6	13.79	0.305	14.09	30
		9	13.66	0.446	14.11	30
		12	13.10	0.580	13.68	30
		18	13.38	0.828	14.21	30
		24	13.56	1.072	14.63	30
		36	13.04	1.473	14.51	30
		48	12.80	1.833	14.63	30
		54	12.61	1.996	14.60	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	14.25	0.356	14.61	30
		1	13.87	0.665	14.54	30
		2	13.86	0.939	14.80	30
		3	13.73	1.169	14.90	30
		4	14.00	1.513	15.51	30
		5	13.66	1.952	15.61	30
		6	13.45	2.009	15.46	30
		7	13.36	2.246	15.61	30
2437	6	0	14.36	0.356	14.72	30
		1	13.92	0.665	14.59	30
		2	13.97	0.939	14.91	30
		3	13.73	1.169	14.90	30
		4	13.89	1.513	15.40	30
		5	13.60	1.952	15.56	30
		6	13.40	2.009	15.41	30
		7	13.27	2.246	15.51	30
2462	11	0	13.48	0.356	13.84	30
		1	13.14	0.665	13.81	30
		2	13.13	0.939	14.07	30
		3	12.79	1.169	13.96	30
		4	13.14	1.513	14.65	30
		5	12.83	1.952	14.78	30
		6	12.71	2.009	14.72	30
		7	12.47	2.246	14.72	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	15.64	15.05	18.37	30
		2	15.74	15.19	18.48	30
		5.5	15.72	15.08	18.42	30
		11	15.73	15.11	18.44	30
2437	6	1	16.43	16.05	19.26	30
		2	16.57	16.29	19.44	30
		5.5	16.52	16.24	19.39	30
		11	16.52	16.17	19.36	30
2462	11	1	15.52	15.00	18.28	30
		2	15.68	15.23	18.47	30
		5.5	15.65	15.17	18.43	30
		11	15.65	15.22	18.45	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	16.01	15.09	18.58	30
		9	16.01	15.06	18.57	30
		12	15.28	14.54	17.93	30
		18	15.96	14.98	18.51	30
		24	16.51	15.51	19.05	30
		36	16.39	15.49	18.98	30
		48	16.49	15.48	19.02	30
		54	16.47	15.47	19.01	30
2437	6	6	15.85	15.09	18.49	30
		9	15.85	15.03	18.47	30
		12	15.05	14.53	17.81	30
		18	15.73	14.98	18.38	30
		24	16.33	15.56	18.97	30
		36	16.24	15.31	18.81	30
		48	16.28	15.33	18.84	30
		54	16.28	15.35	18.85	30
2462	11	6	14.91	14.09	17.53	30
		9	14.92	14.11	17.54	30
		12	14.14	13.68	16.93	30
		18	14.84	14.21	17.55	30
		24	15.41	14.63	18.05	30
		36	15.33	14.51	17.95	30
		48	15.35	14.63	18.01	30
		54	15.33	14.60	17.99	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	15.71	14.61	18.20	30
		1	15.58	14.54	18.10	30
		2	15.84	14.80	18.36	30
		3	15.86	14.90	18.41	30
		4	16.47	15.51	19.03	30
		5	16.58	15.61	19.13	30
		6	16.45	15.46	18.99	30
		7	16.53	15.61	19.10	30
2437	6	0	15.52	14.72	18.15	30
		1	15.43	14.59	18.04	30
		2	15.59	14.91	18.28	30
		3	15.61	14.90	18.28	30
		4	16.27	15.40	18.87	30
		5	16.38	15.56	19.00	30
		6	16.37	15.41	18.93	30
		7	16.38	15.51	18.98	30
2462	11	0	14.63	13.84	17.26	30
		1	14.49	13.81	17.17	30
		2	14.74	14.07	17.42	30
		3	14.68	13.96	17.34	30
		4	15.35	14.65	18.03	30
		5	15.47	14.78	18.15	30
		6	15.37	14.72	18.06	30
		7	15.44	14.72	18.11	30

9.4 POWER SPECTRAL DENSITY

[Ant.1]

Mode	Frequency (MHz)	Channel No.	Test Result			
			Measured PSD (dBm)	Duty Cycle Factor	Measured PSD(dBm) + Duty Cycle Factor	Limit (dBm)
802.11b	2412	1	-4.587	0.103	-4.484	8 dBm / 3 kHz
	2437	6	-3.579	0.103	-3.476	
	2462	11	-4.645	0.103	-4.542	
802.11g	2412	1	-8.619	1.072	-7.547	
	2437	6	-7.988	1.072	-6.916	
	2462	11	-9.833	1.072	-8.761	
802.11n(HT20)	2412	1	-7.879	1.952	-5.927	
	2437	6	-8.152	1.952	-6.200	
	2462	11	-8.610	1.952	-6.658	

[Ant.2]

Mode	Frequency (MHz)	Channel No.	Test Result			
			Measured PSD (dBm)	Duty Cycle Factor	Measured PSD(dBm) + Duty Cycle Factor	Limit (dBm)
802.11b	2412	1	-5.783	0.103	-5.680	8 dBm / 3 kHz
	2437	6	-3.952	0.103	-3.849	
	2462	11	-4.896	0.103	-4.793	
802.11g	2412	1	-9.490	1.072	-8.418	
	2437	6	-9.395	1.072	-8.323	
	2462	11	-10.497	1.072	-9.425	
802.11n(HT20)	2412	1	-8.876	1.952	-6.924	
	2437	6	-9.604	1.952	-7.652	
	2462	11	-9.511	1.952	-7.559	

[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	-4.484	-5.680	-2.031	8 dBm / 3 kHz
	2437	6	-3.476	-3.849	-0.648	
	2462	11	-4.542	-4.793	-1.656	
802.11g	2412	1	-7.547	-8.418	-4.950	
	2437	6	-6.916	-8.323	-4.552	
	2462	11	-8.761	-9.425	-6.070	
802.11n(HT20)	2412	1	-5.927	-6.924	-3.386	
	2437	6	-6.200	-7.652	-3.855	
	2462	11	-6.658	-7.559	-4.075	

Note :

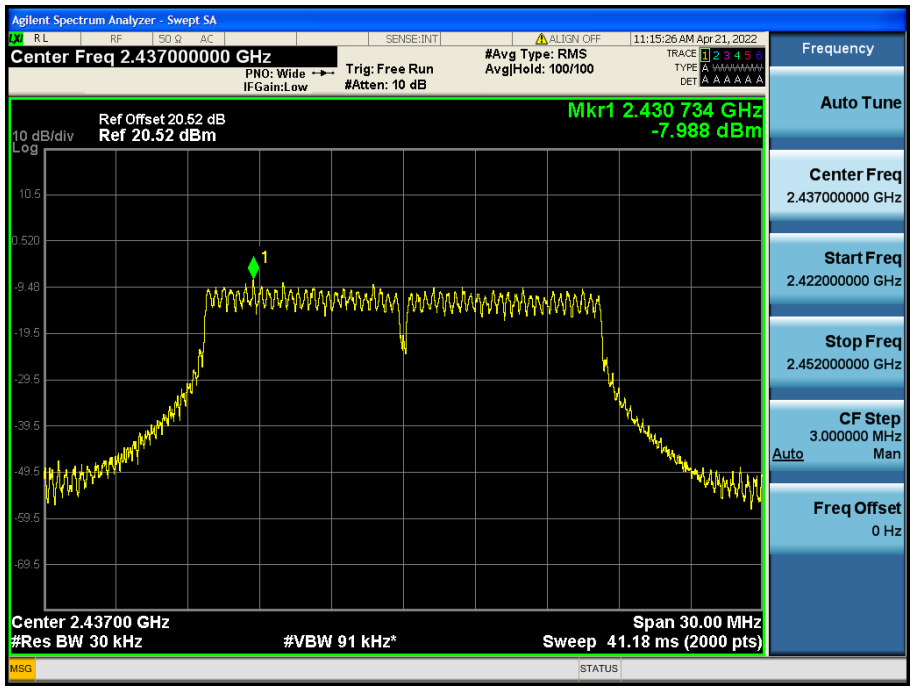
1. Spectrum Measured Levels are not plot data.
   The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset Loss = Attenuator loss(20 dB) + Cable loss

[Ant.1]

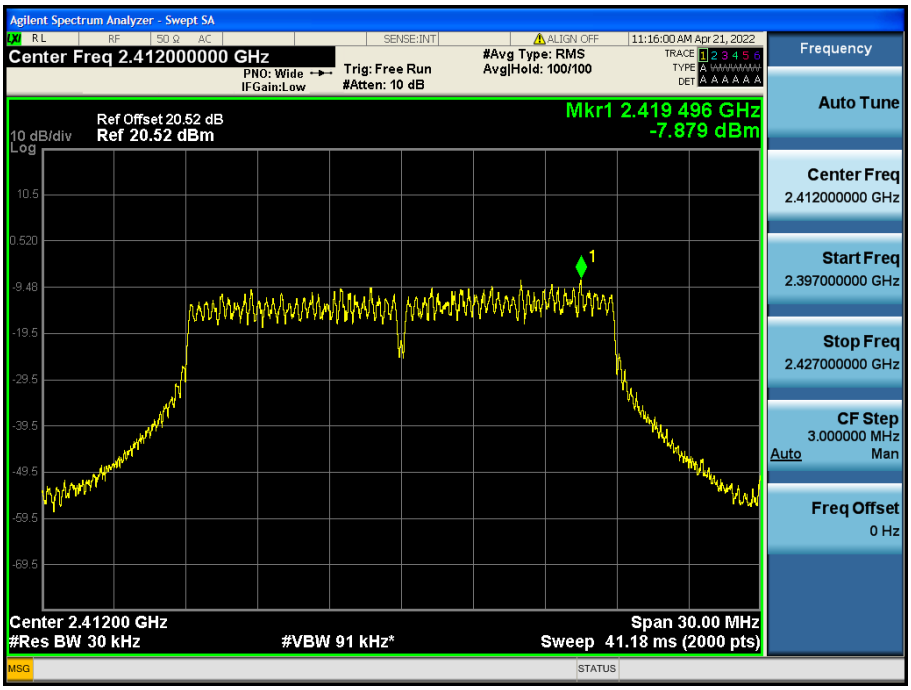
▣ Test Plots

Power Spectral Density (802.11b-CH 6)

Power Spectral Density (802.11g-CH 6)



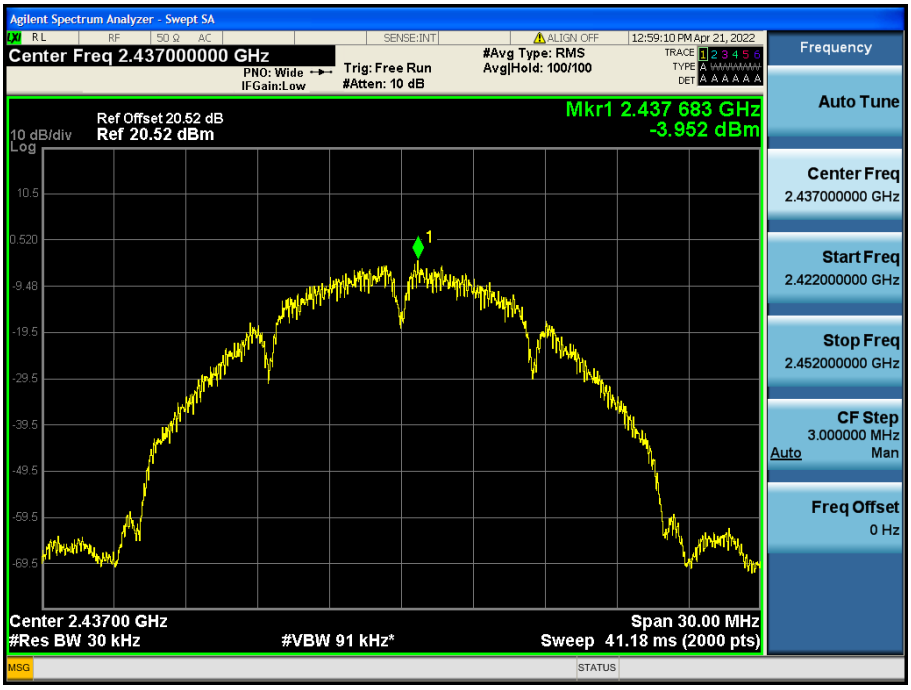
Power Spectral Density (802.11n_HT20-CH 1)



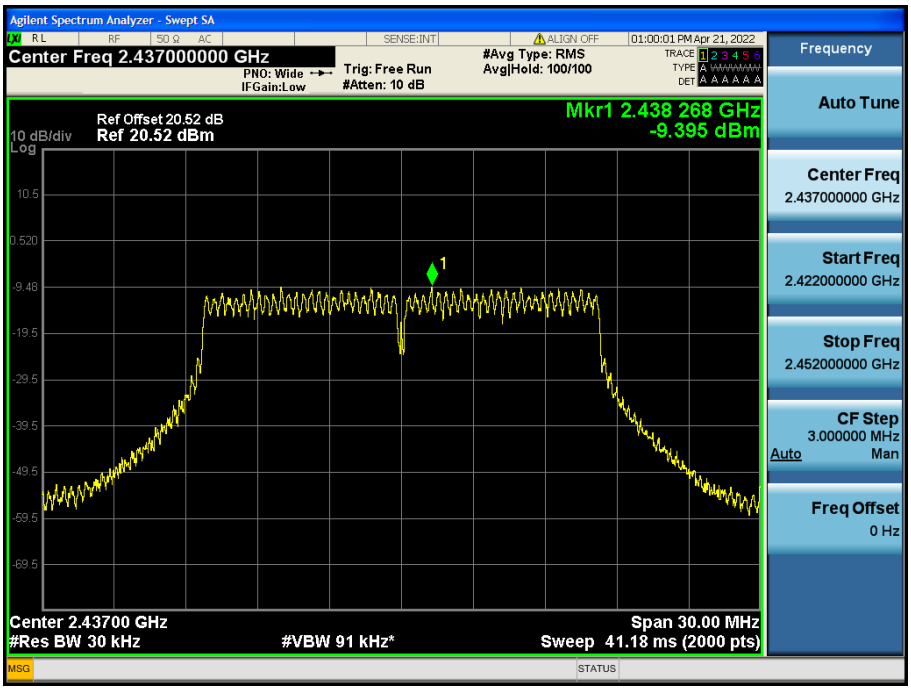
[Ant.2]

▣ Test Plots

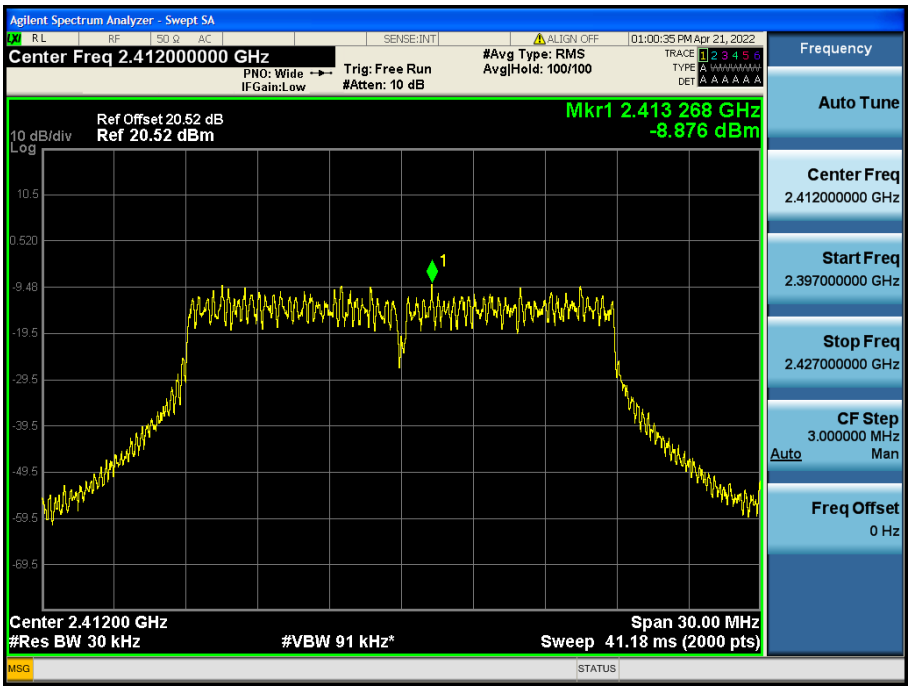
Power Spectral Density (802.11b-CH 6)



Power Spectral Density (802.11g-CH 6)



Power Spectral Density (802.11n_HT20-CH 1)



Note :

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

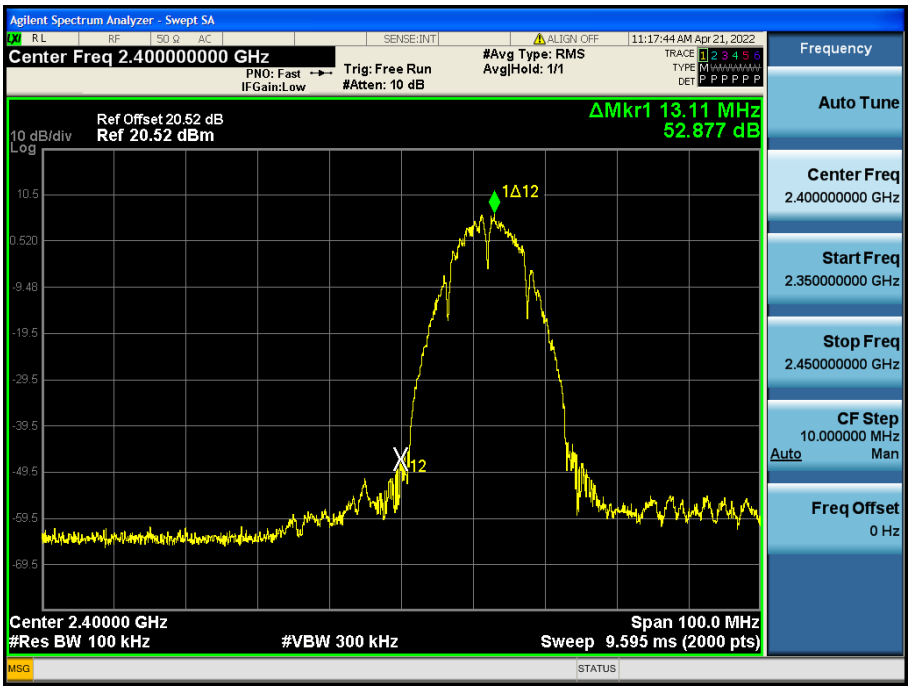
9.5 BAND EDGE / CONDUCTED SPURIOUS EMISSIONS

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)

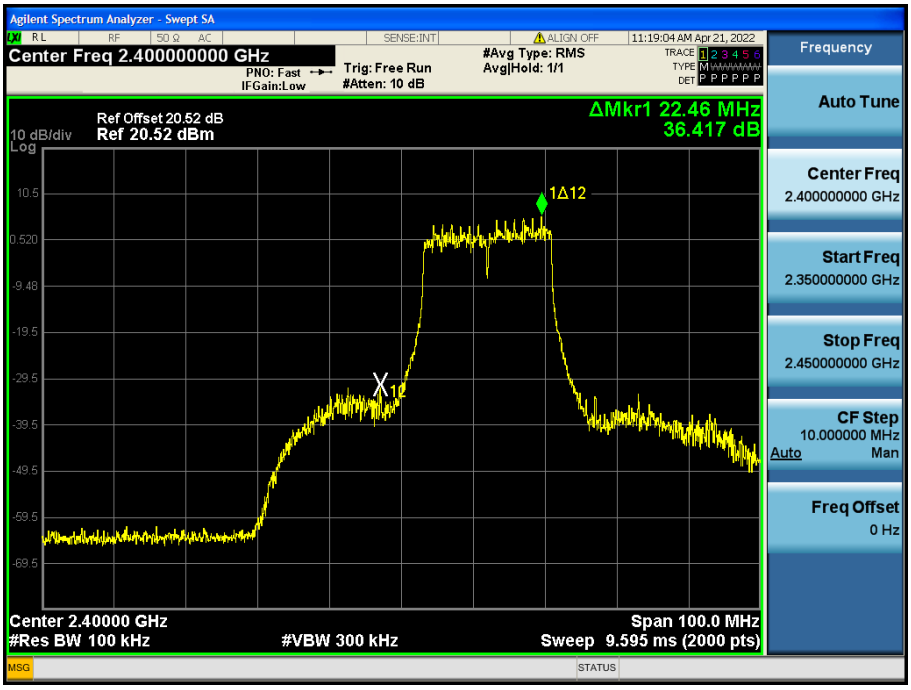


Band Edge (802.11b-CH11)

Band Edge (802.11g-CH1)

Band Edge (802.11g-CH11)

Band Edge (802.11n_HT20-CH1)

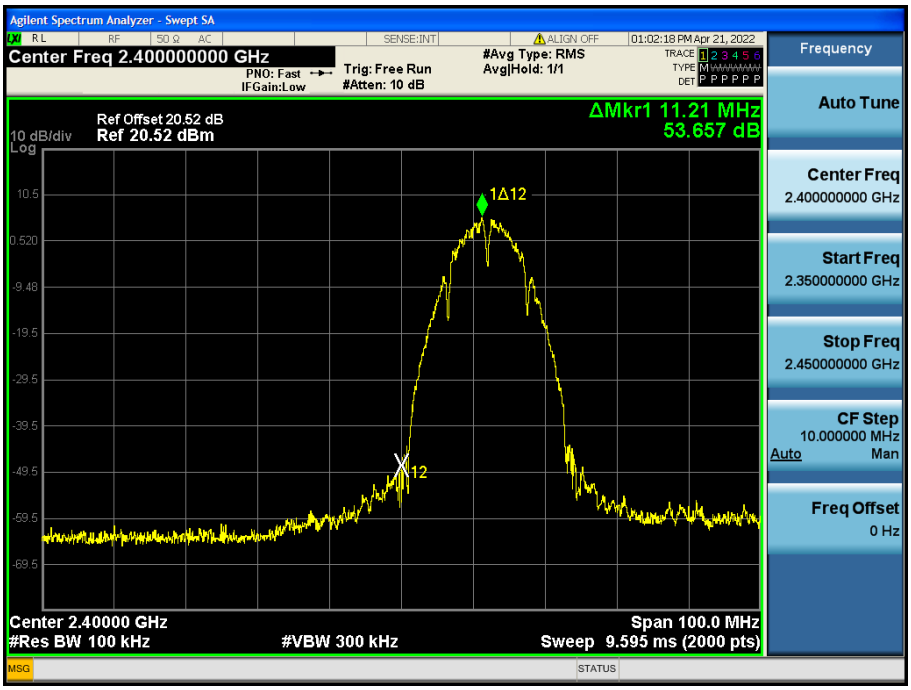


Band Edge (802.11n_HT20-CH11)

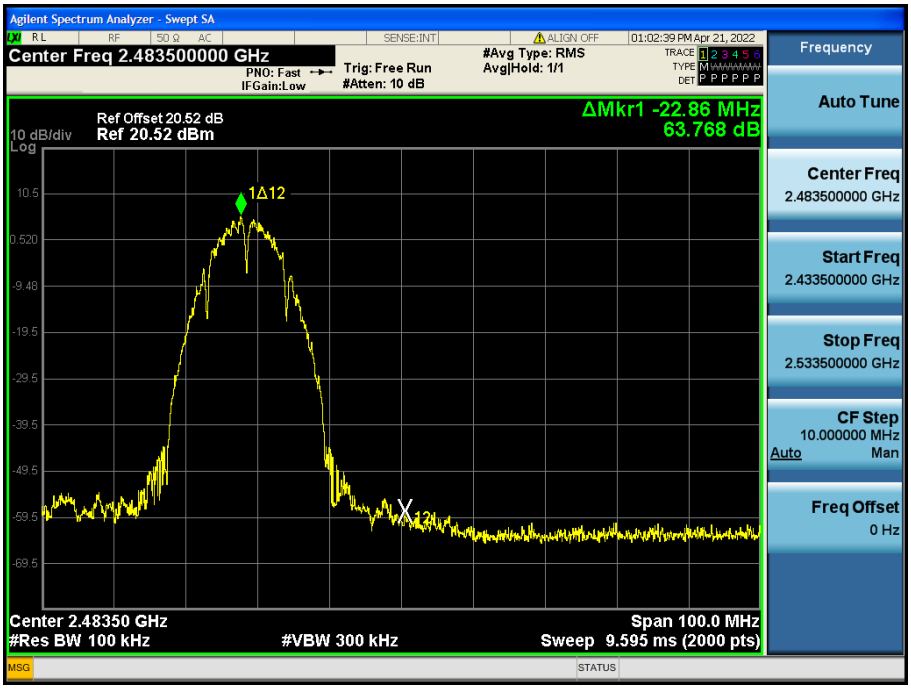
[Ant.2]

▣ Test Plots(Band Edge)

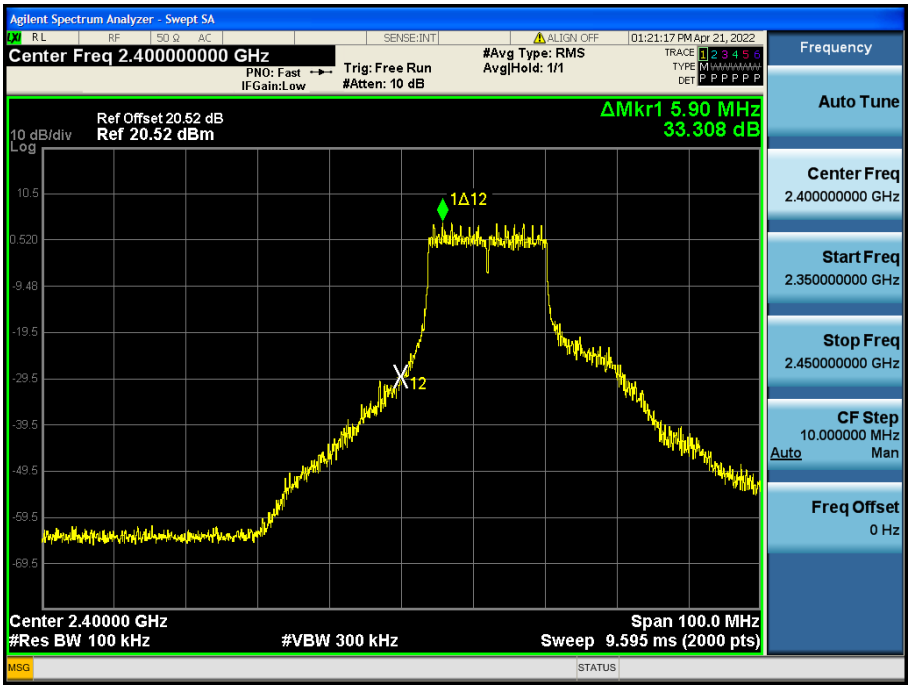
Band Edge (802.11b-CH1)



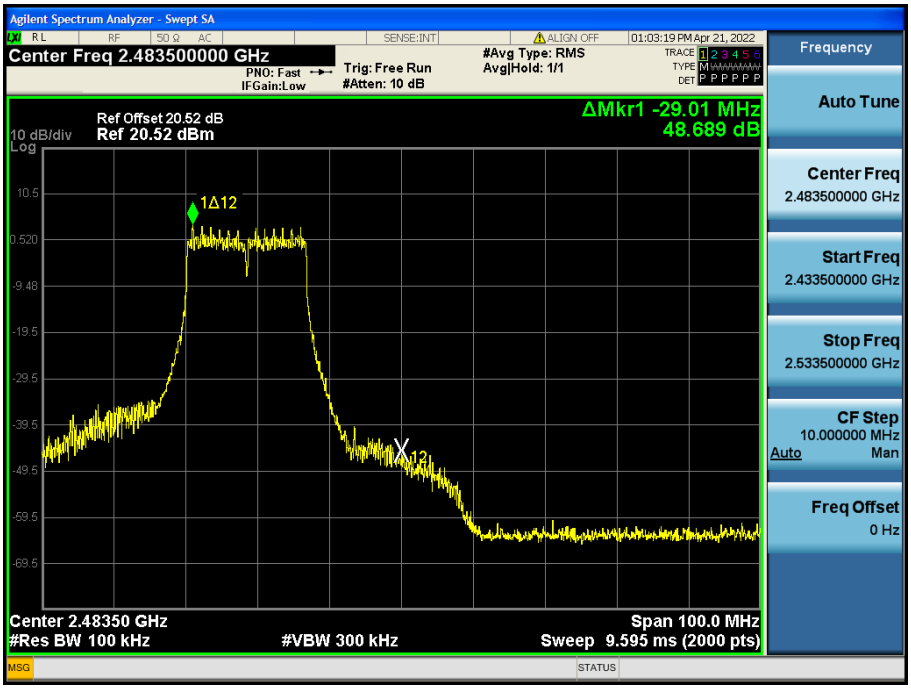
Band Edge (802.11b-CH11)



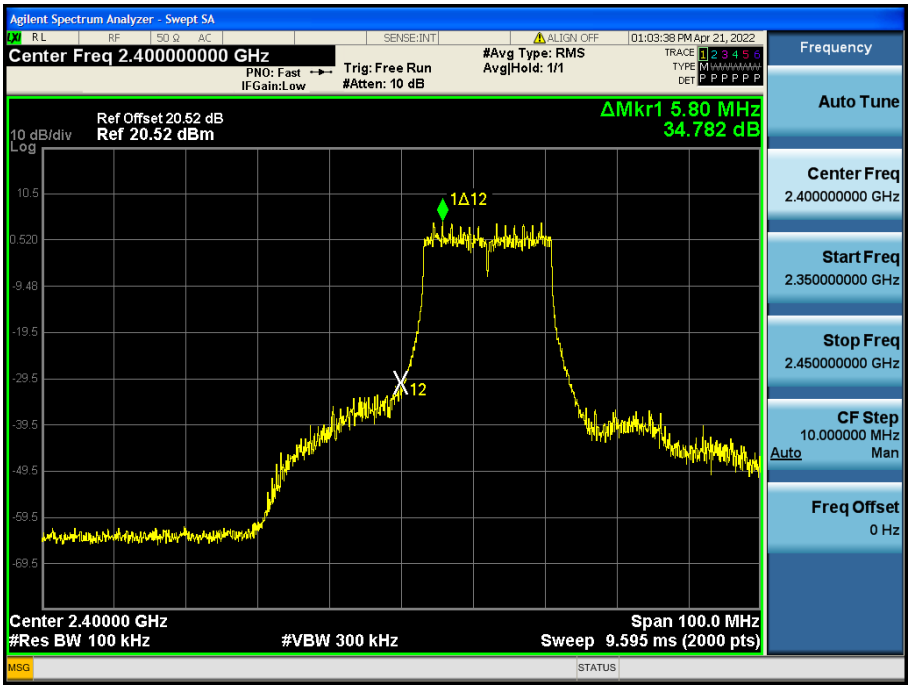
Band Edge (802.11g-CH1)



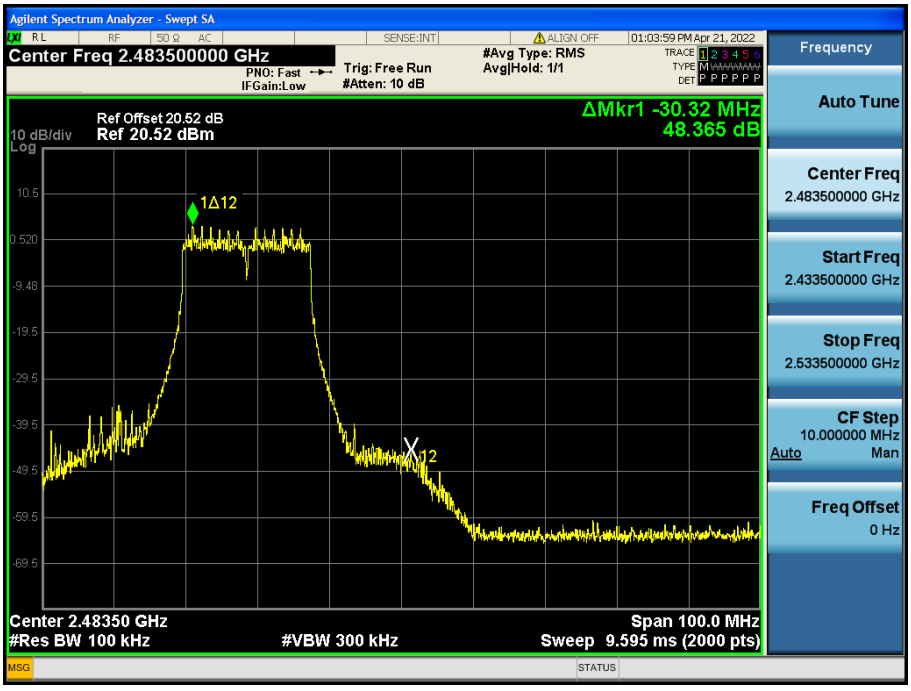
Band Edge (802.11g-CH11)



Band Edge (802.11n_HT20-CH1)



Band Edge (802.11n_HT20-CH11)

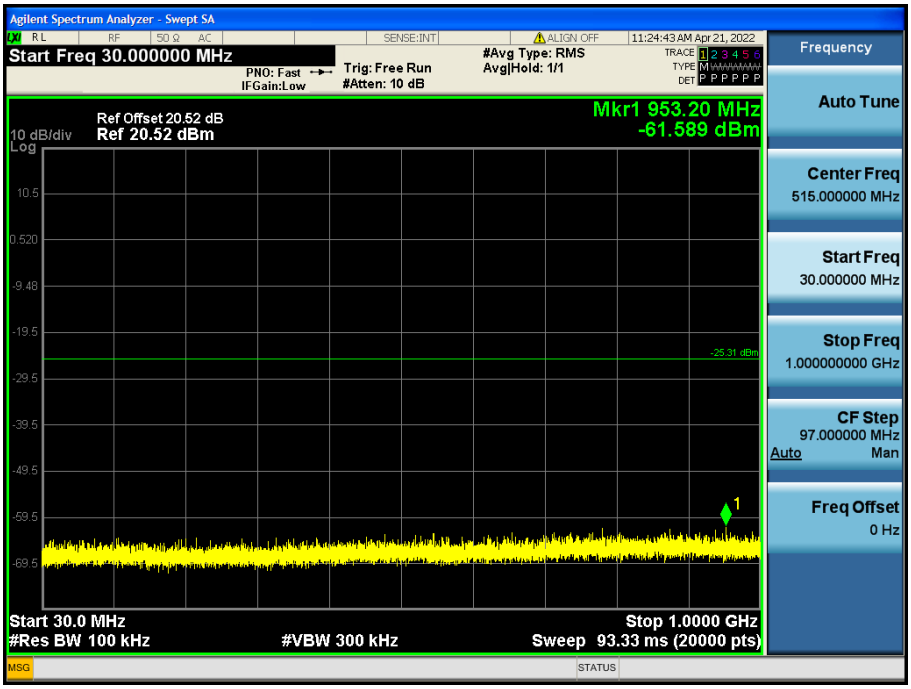


[Ant.1]

▣ Test Plots(Conducted Spurious Emission)

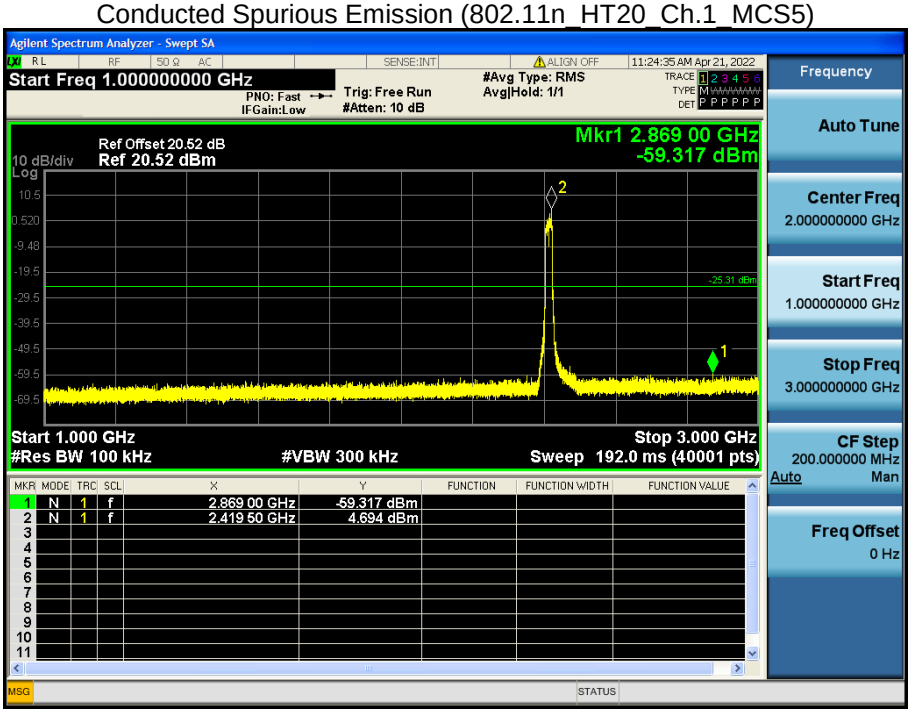
30 MHz ~ 1 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



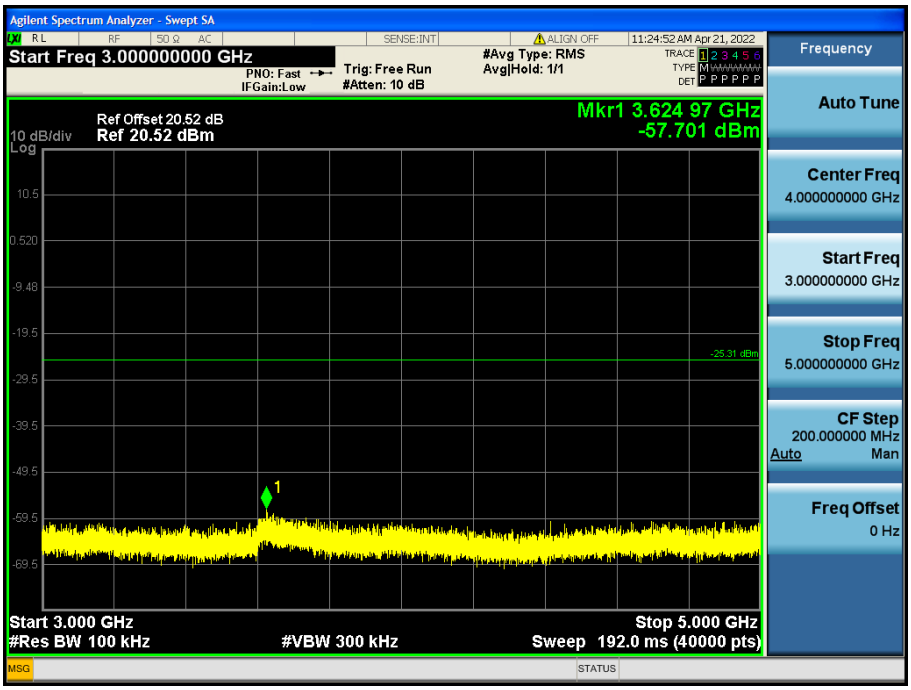
1 GHz ~ 3 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



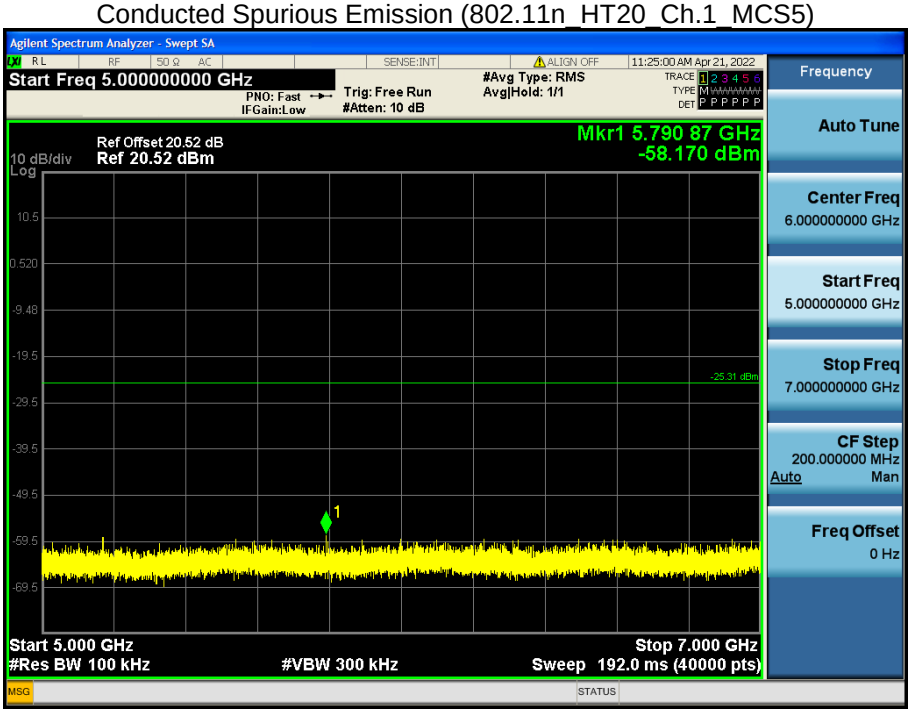
3 GHz ~ 5 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



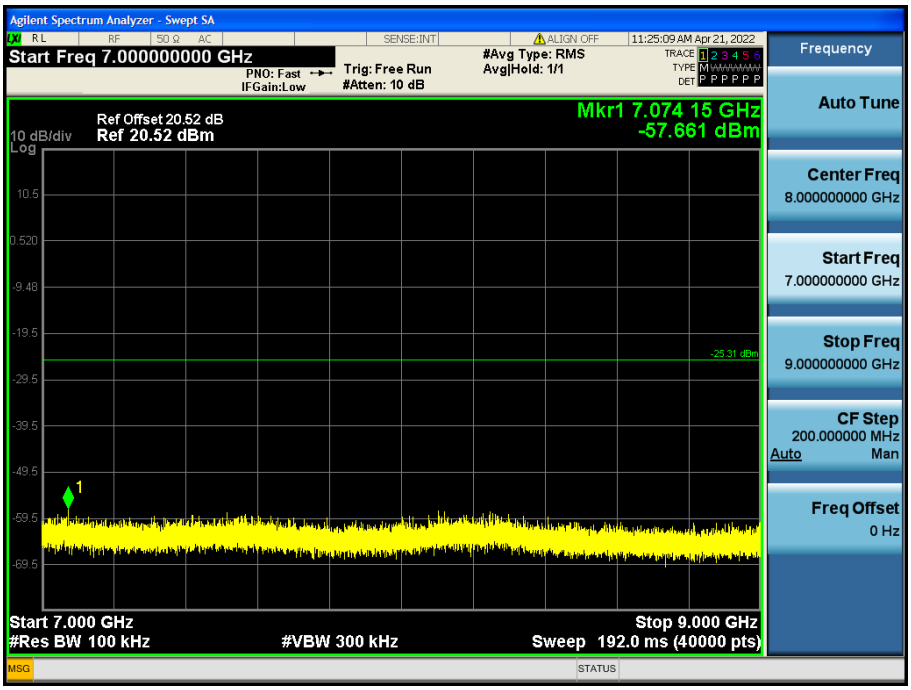
5 GHz ~ 7 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



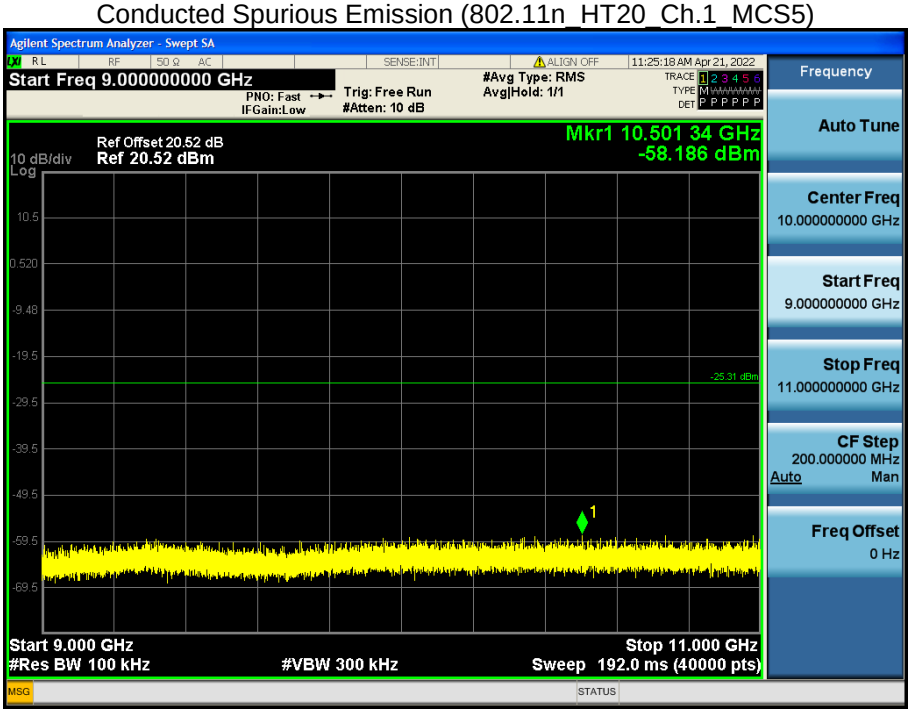
7 GHz ~ 9 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



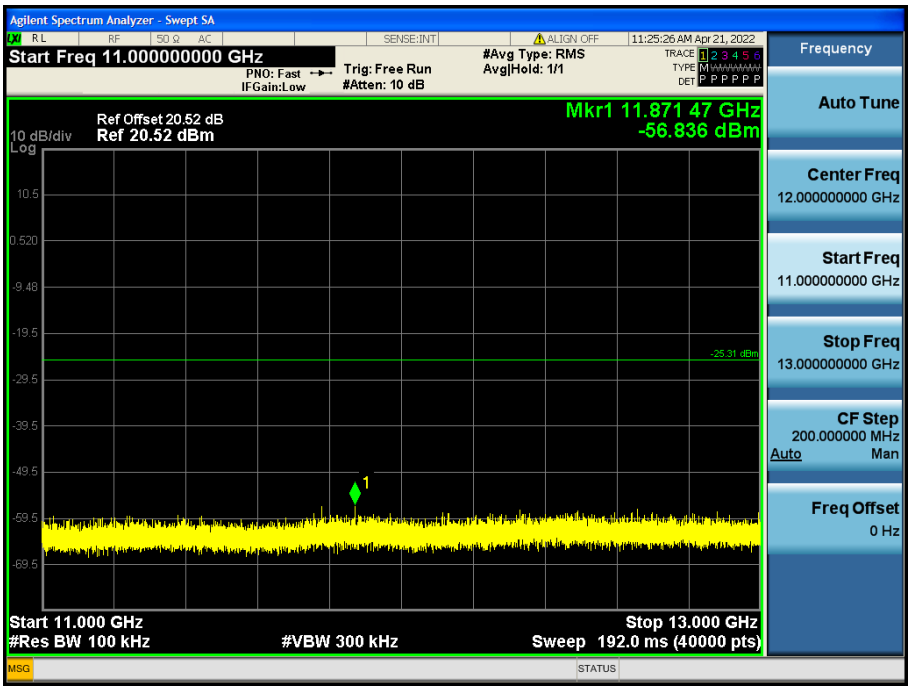
9 GHz ~ 11 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



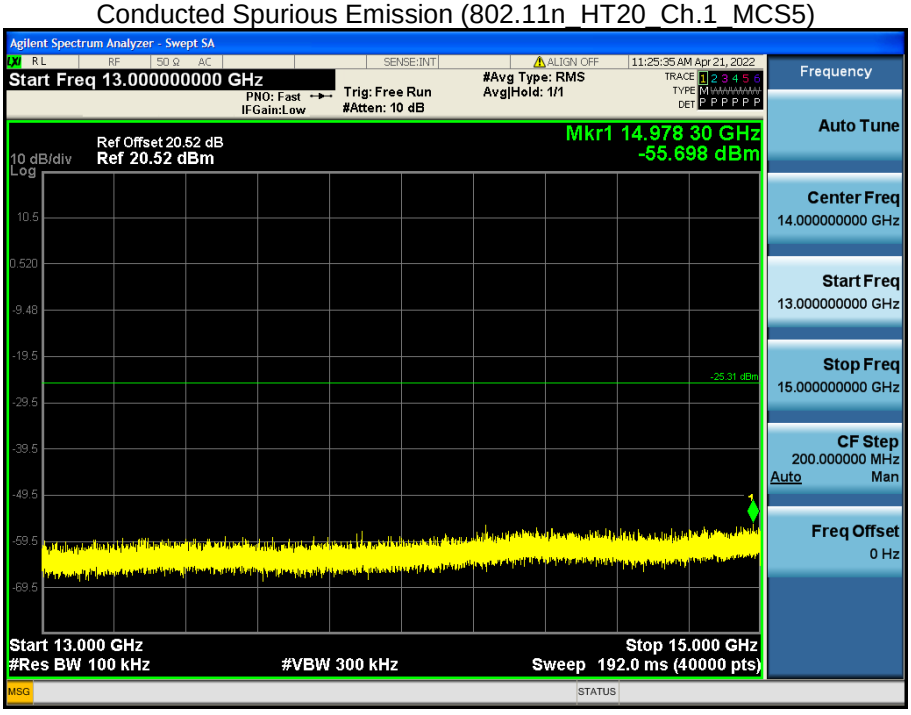
11 GHz ~ 13 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



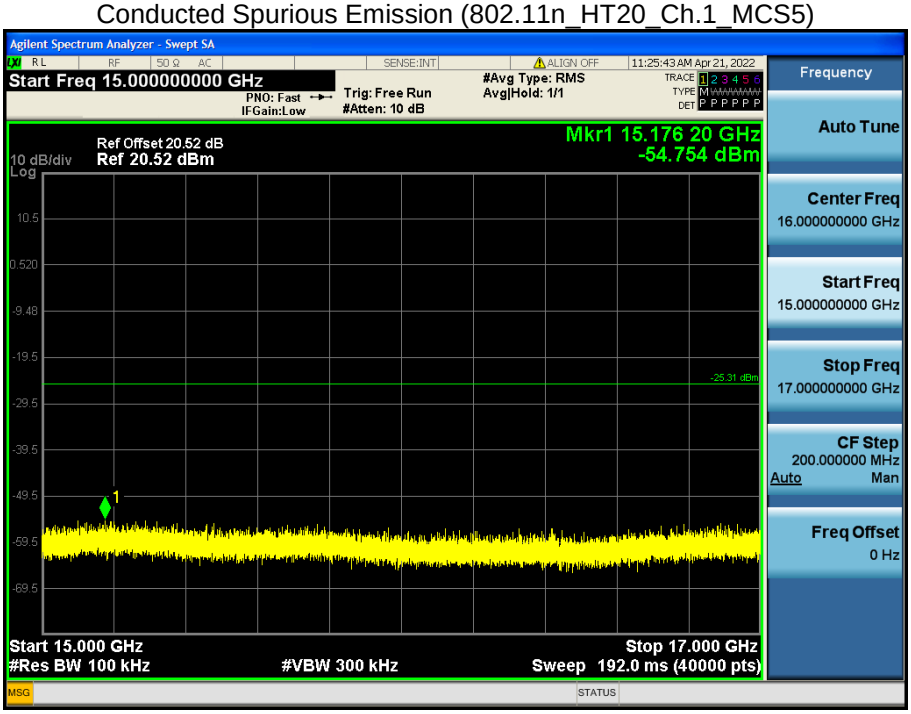
13 GHz ~ 15 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



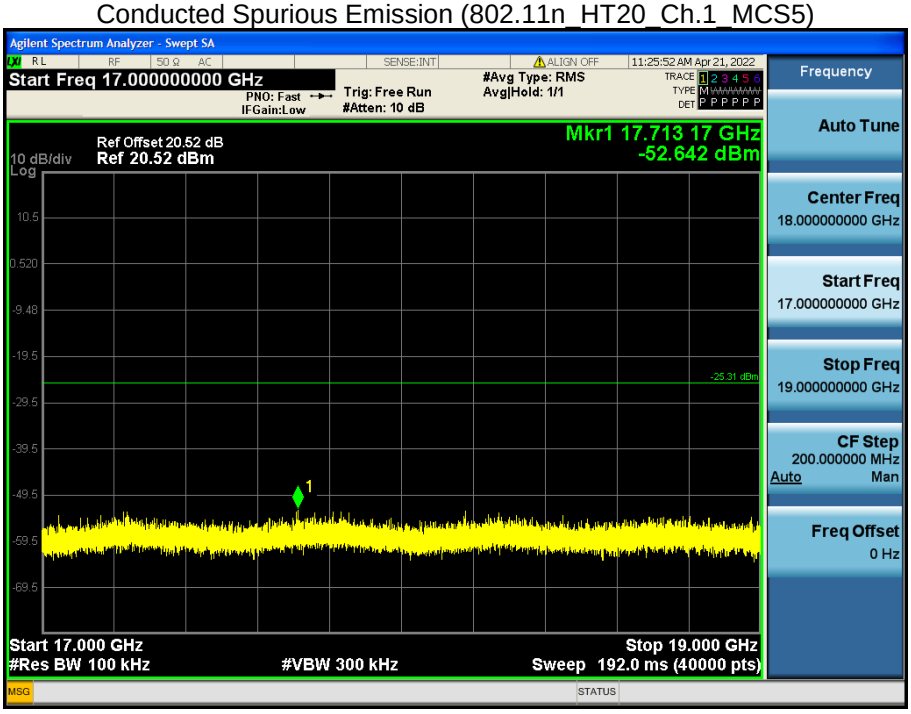
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



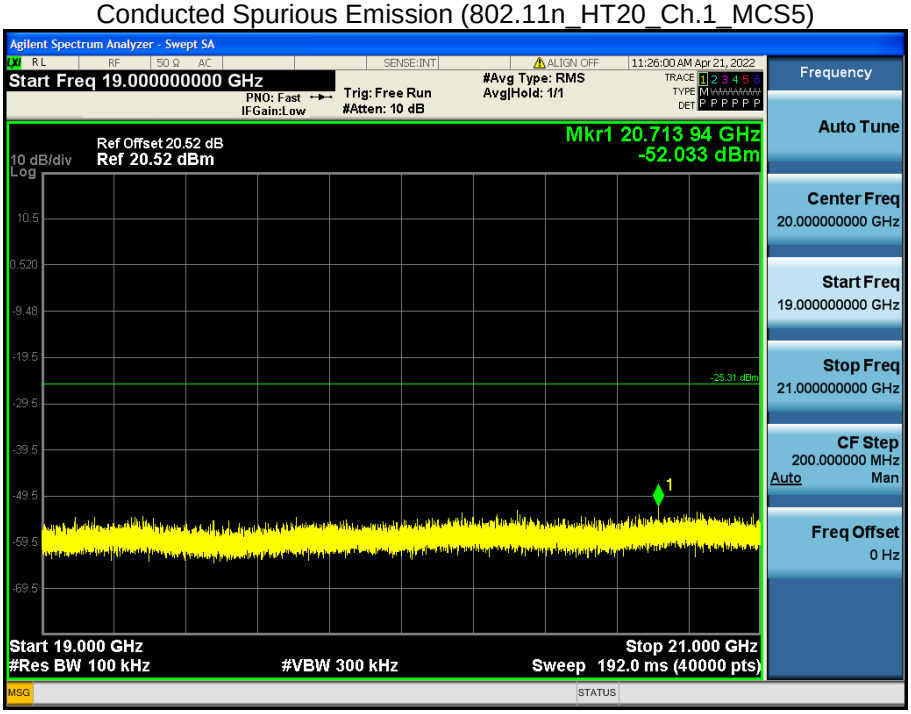
17 GHz ~ 19 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



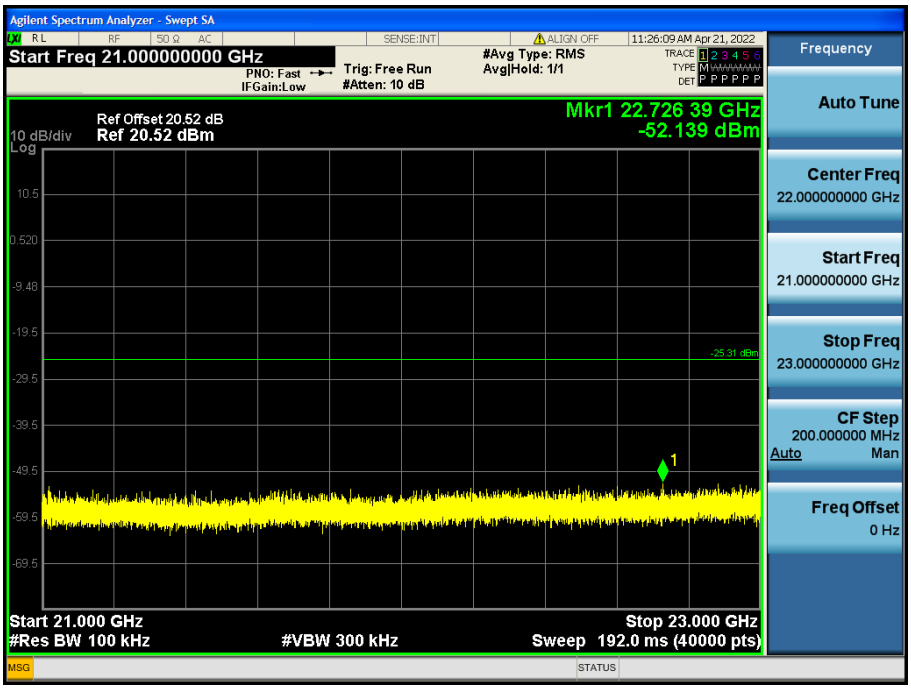
19 GHz ~ 21 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



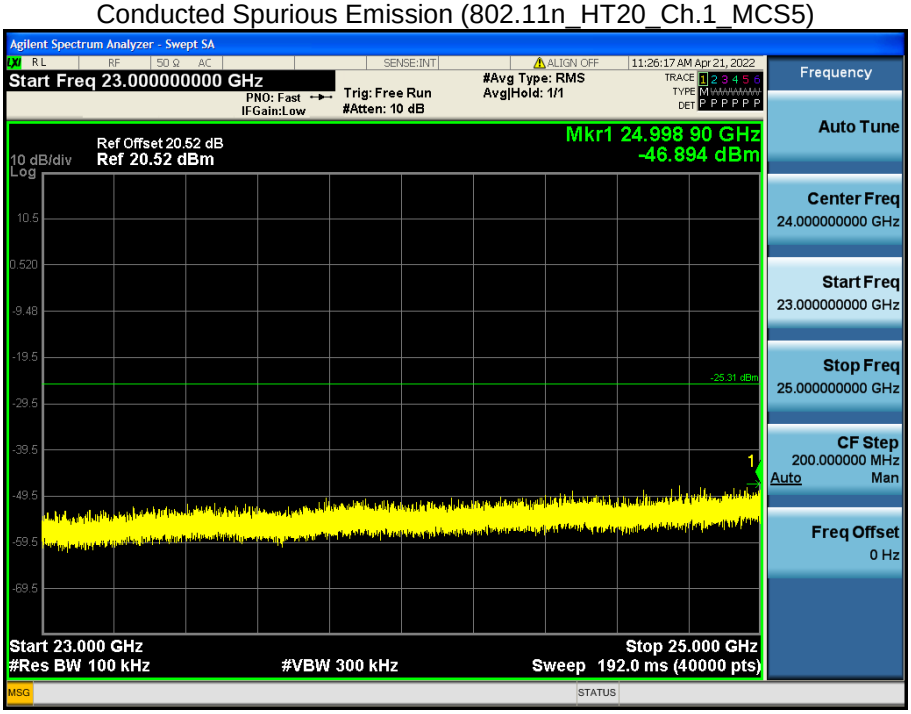
21 GHz ~ 23 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)



23 GHz ~ 25 GHz

Conducted Spurious Emission (802.11n_HT20_Ch.1_MCS5)

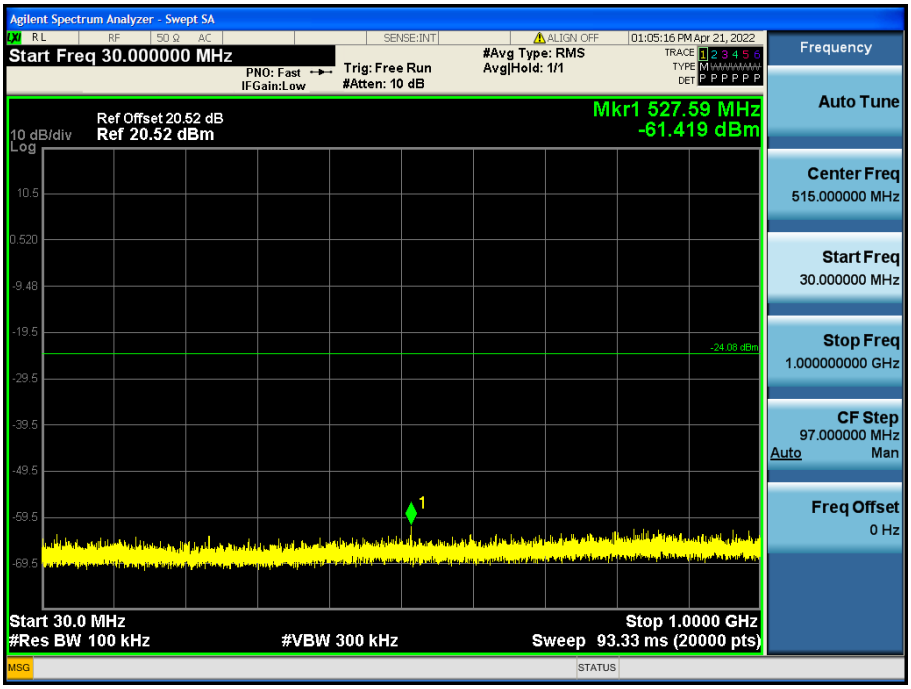


[Ant.2]

▣ Test Plots(Conducted Spurious Emission)

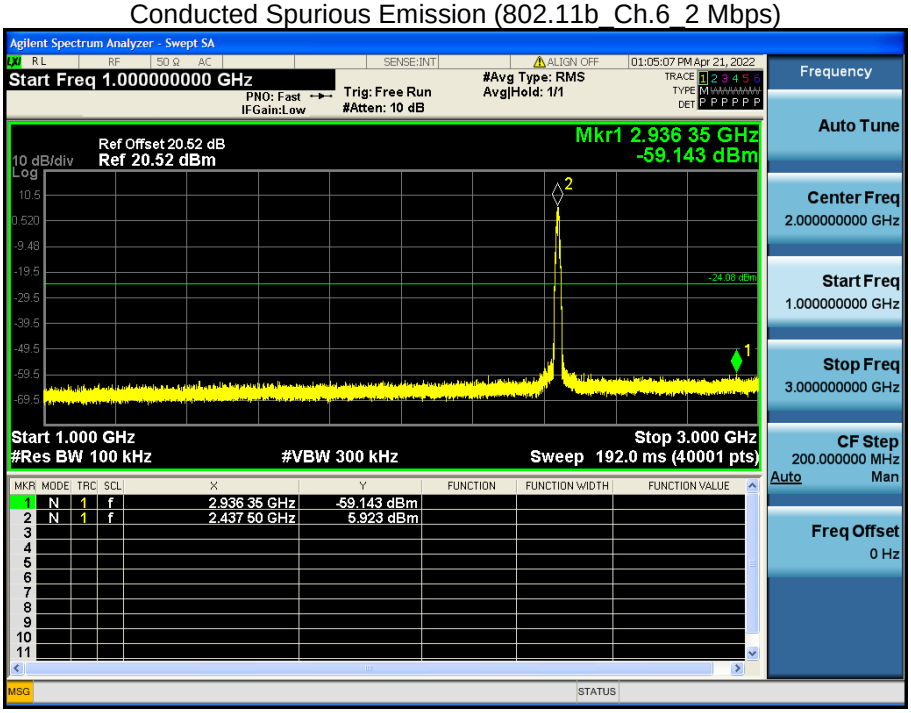
30 MHz ~ 1 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



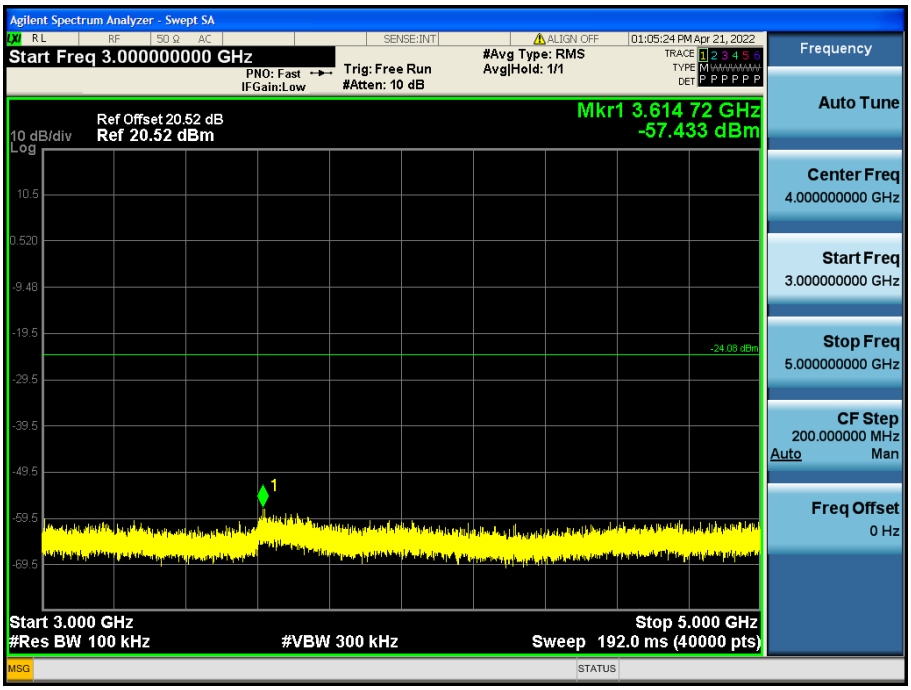
1 GHz ~ 3 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



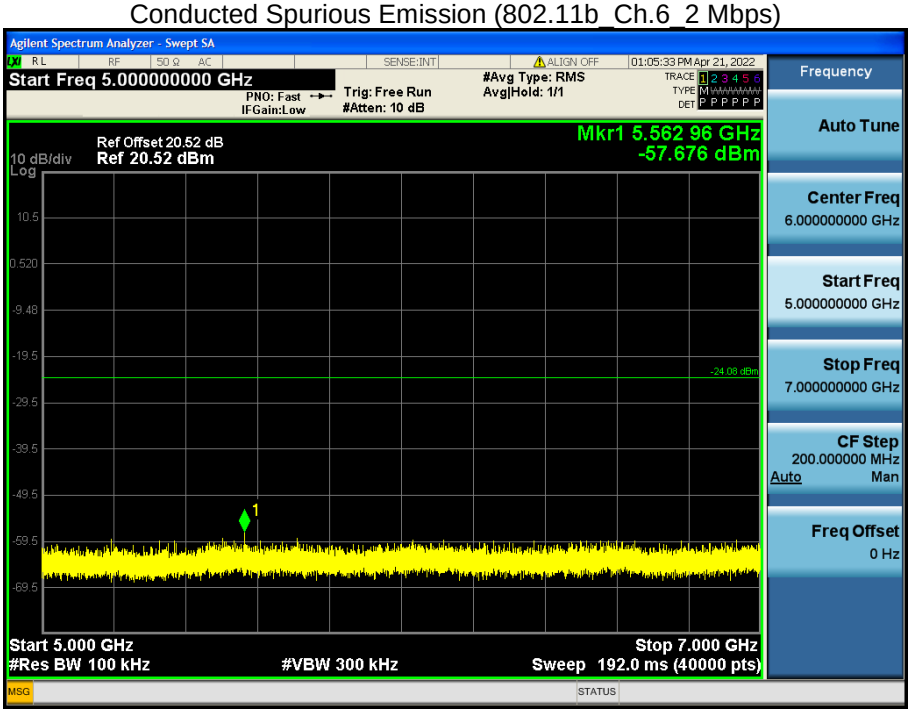
3 GHz ~ 5 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



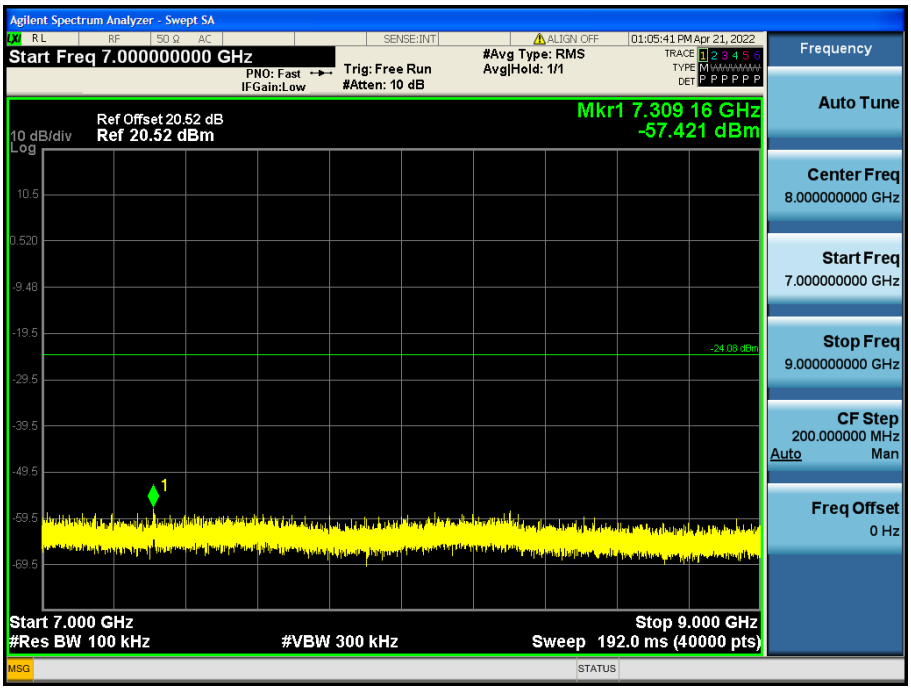
5 GHz ~ 7 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



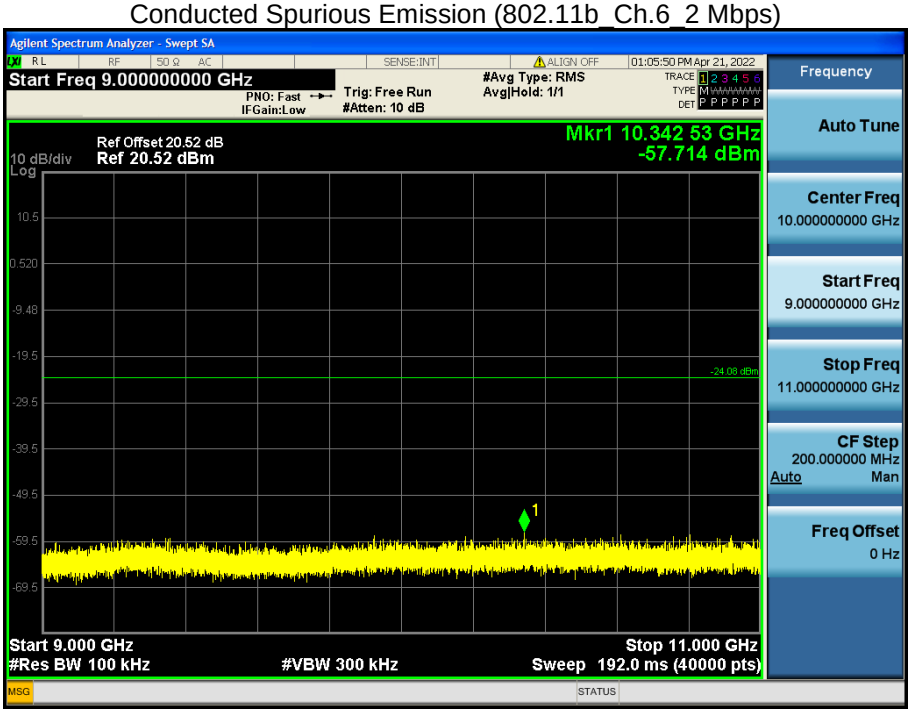
7 GHz ~ 9 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



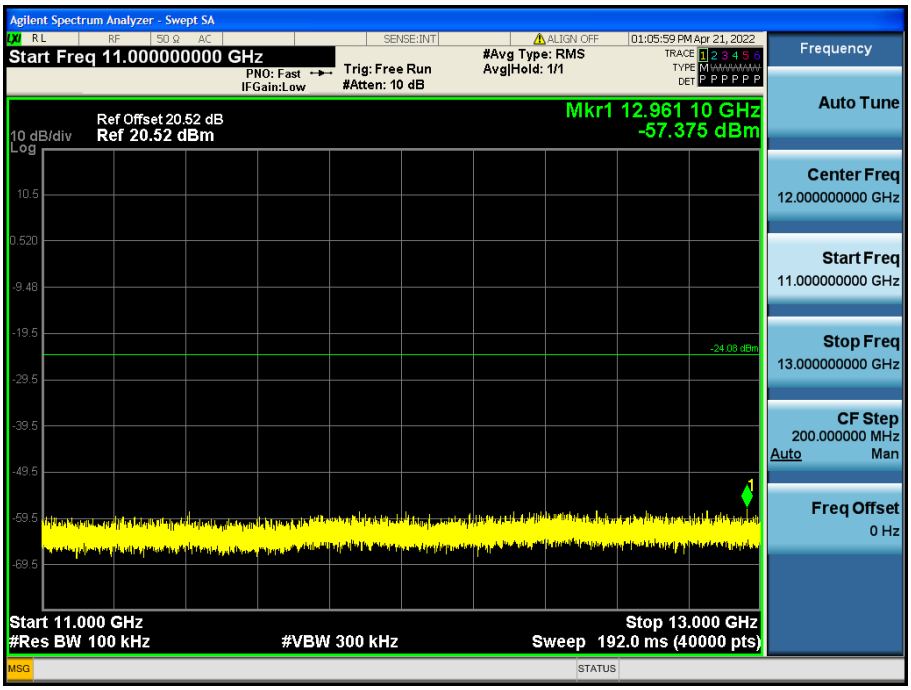
9 GHz ~ 11 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



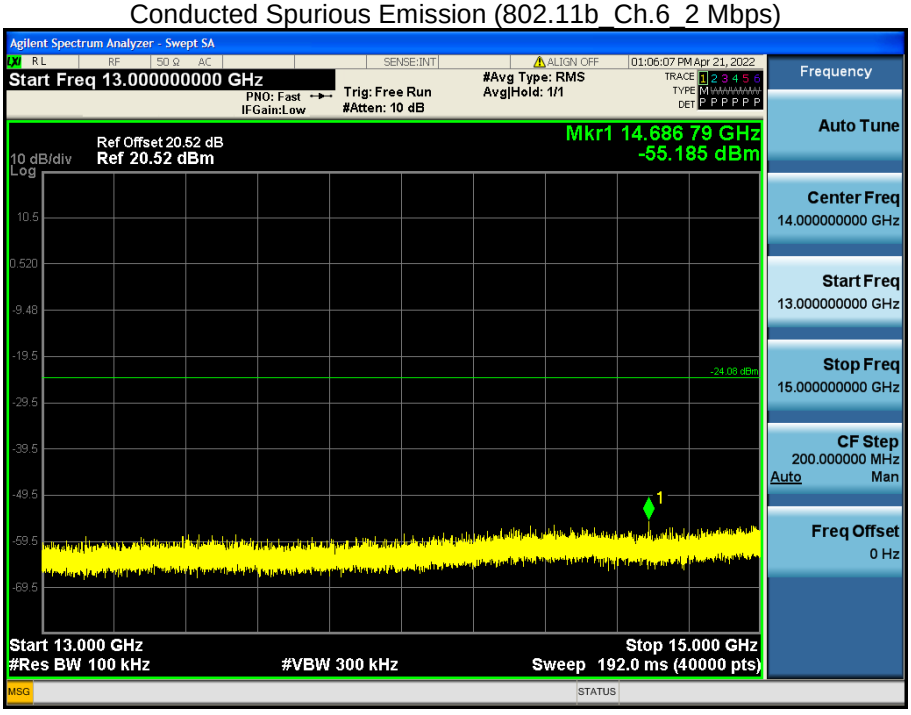
11 GHz ~ 13 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



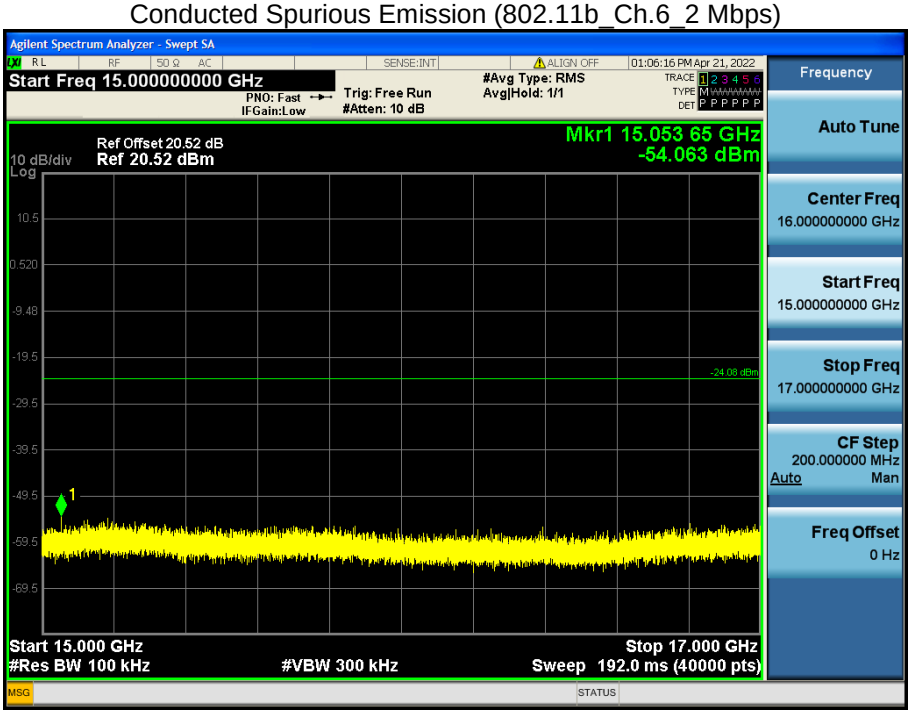
13 GHz ~ 15 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



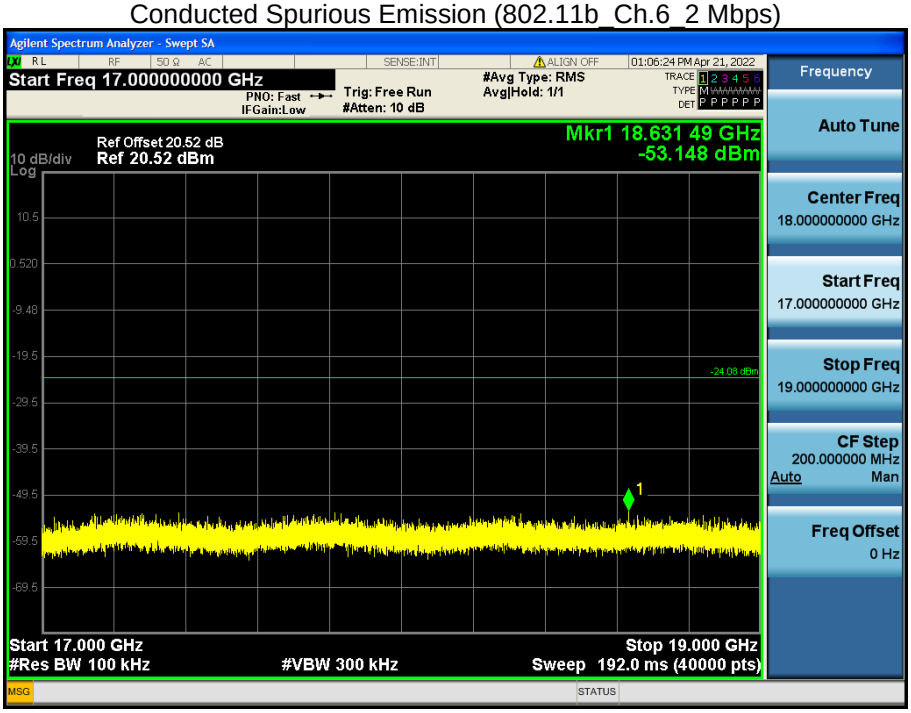
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



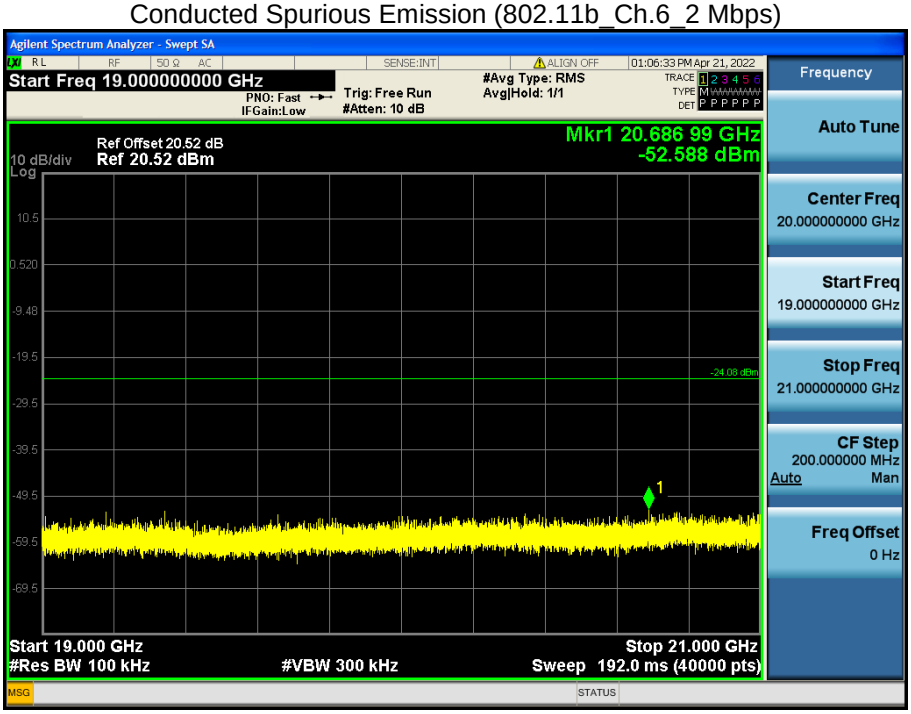
17 GHz ~ 19 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



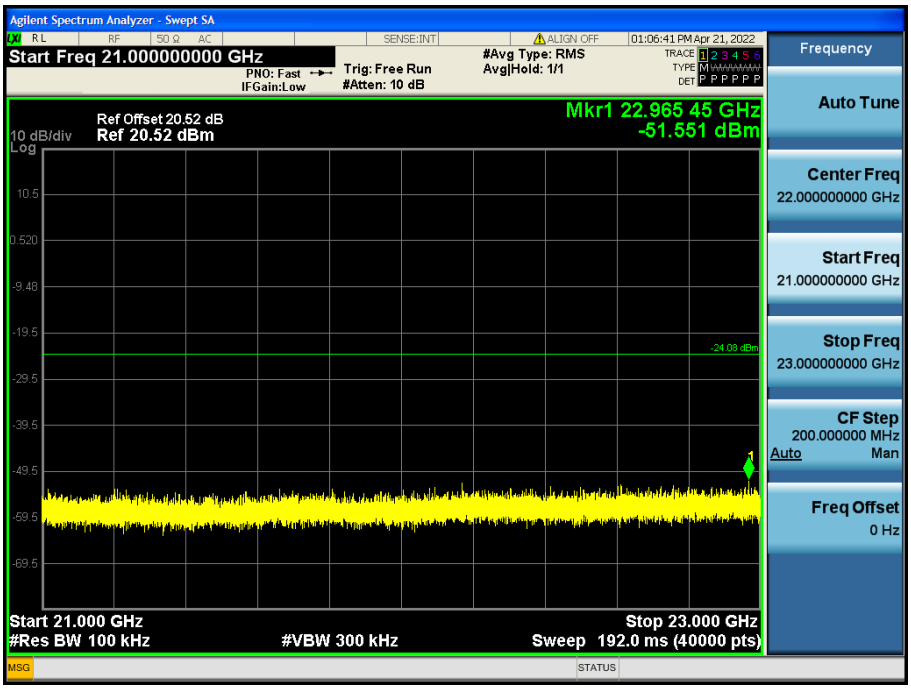
19 GHz ~ 21 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



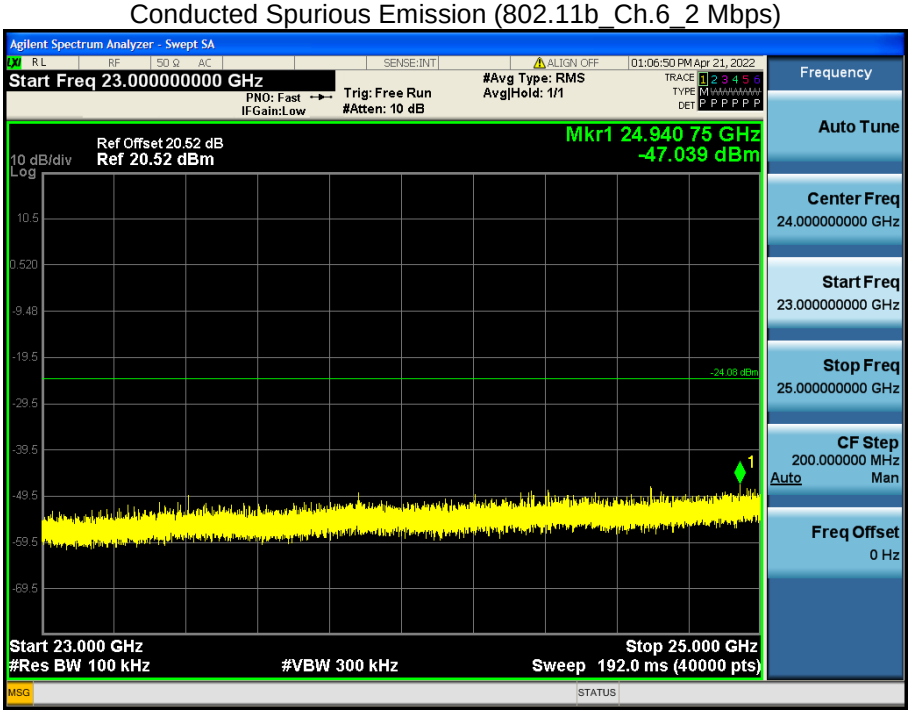
21 GHz ~ 23 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



23 GHz ~ 25 GHz

Conducted Spurious Emission (802.11b_Ch.6_2 Mbps)



9.6 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30 MHz

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

Note:

1. The Measured value 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 = 40log (specific distance / test distance) (dB)
3. Limit line = specific Limits (dBμV) + Distance extrapolation factor

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	Ant. POL	Total	Limit	Margin
[MHz]	[dBμV]	[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

[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 Value [dBµV/m]	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	48.55	4.02	V	52.57	73.98	21.41	PK
4824	43.98	4.02	V	48.00	53.98	5.98	AV
7236	41.62	11.57	V	53.19	73.98	20.79	PK
7236	31.02	11.57	V	42.59	53.98	11.39	AV
4824	48.87	4.02	H	52.89	73.98	21.09	PK
4824	44.50	4.02	H	48.52	53.98	5.46	AV
7236	41.81	11.57	H	53.38	73.98	20.60	PK
7236	31.22	11.57	H	42.79	53.98	11.19	AV

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

Frequency [MHz]	Measured Value [dBµV/m]	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	48.48	4.25	V	52.73	73.98	21.25	PK
4874	43.68	4.25	V	47.93	53.98	6.05	AV
7311	41.69	12.01	V	53.70	73.98	20.28	PK
7311	33.25	12.01	V	45.26	53.98	8.72	AV
4874	48.65	4.25	H	52.90	73.98	21.08	PK
4874	43.85	4.25	H	48.10	53.98	5.88	AV
7311	40.66	12.01	H	52.67	73.98	21.31	PK
7311	31.62	12.01	H	43.63	53.98	10.35	AV

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

Frequency [MHz]	Measured Value [dBµV/m]	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	47.32	4.41	V	51.73	73.98	22.25	PK
4924	41.89	4.41	V	46.30	53.98	7.68	AV
7386	41.76	11.96	V	53.72	73.98	20.26	PK
7386	34.22	11.96	V	46.18	53.98	7.80	AV
4924	47.52	4.41	H	51.93	73.98	22.05	PK
4924	42.50	4.41	H	46.91	53.98	7.07	AV
7386	41.55	11.96	H	53.51	73.98	20.47	PK
7386	34.02	11.96	H	45.98	53.98	8.00	AV

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

Frequency [MHz]	Measured Value [dBµV/m]	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	46.02	0.000	4.02	V	50.04	73.98	23.94	PK
4824	33.22	0.306	4.02	V	37.55	53.98	16.43	AV
7236	42.55	0.000	11.57	V	54.12	73.98	19.86	PK
7236	28.89	0.306	11.57	V	40.77	53.98	13.21	AV
4824	46.20	0.000	4.02	H	50.22	73.98	23.76	PK
4824	33.55	0.306	4.02	H	37.88	53.98	16.10	AV
7236	42.99	0.000	11.57	H	54.56	73.98	19.42	PK
7236	29.12	0.306	11.57	H	41.00	53.98	12.98	AV

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

Frequency [MHz]	Measured Value [dBµV/m]	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	49.89	0.000	4.25	V	54.14	73.98	19.84	PK
4874	35.68	0.306	4.25	V	40.24	53.98	13.74	AV
7311	40.88	0.000	12.01	V	52.89	73.98	21.09	PK
7311	28.35	0.306	12.01	V	40.67	53.98	13.31	AV
4874	50.02	0.000	4.25	H	54.27	73.98	19.71	PK
4874	35.81	0.306	4.25	H	40.37	53.98	13.61	AV
7311	40.78	0.000	12.01	H	52.79	73.98	21.19	PK
7311	26.22	0.306	12.01	H	38.54	53.98	15.44	AV

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

Frequency [MHz]	Measured Value [dBµV/m]	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	43.51	0.000	4.41	V	47.92	73.98	26.06	PK
4924	30.89	0.306	4.41	V	35.61	53.98	18.37	AV
7386	41.70	0.000	11.96	V	53.66	73.98	20.32	PK
7386	28.67	0.306	11.96	V	40.94	53.98	13.04	AV
4924	43.81	0.000	4.41	H	48.22	73.98	25.76	PK
4924	31.11	0.306	4.41	H	35.83	53.98	18.15	AV
7386	41.55	0.000	11.96	H	53.51	73.98	20.47	PK
7386	28.48	0.306	11.96	H	40.75	53.98	13.23	AV

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

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	46.08	0.000	4.02	V	50.10	73.98	23.88	PK
4824	33.02	0.356	4.02	V	37.40	53.98	16.58	AV
7236	42.89	0.000	11.57	V	54.46	73.98	19.52	PK
7236	28.89	0.356	11.57	V	40.82	53.98	13.16	AV
4824	46.25	0.000	4.02	H	50.27	73.98	23.71	PK
4824	33.48	0.356	4.02	H	37.86	53.98	16.12	AV
7236	43.04	0.000	11.57	H	54.61	73.98	19.37	PK
7236	29.02	0.356	11.57	H	40.95	53.98	13.03	AV

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

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	49.85	0.000	4.25	V	54.10	73.98	19.88	PK
4874	35.68	0.356	4.25	V	40.29	53.98	13.69	AV
7311	40.99	0.000	12.01	V	53.00	73.98	20.98	PK
7311	28.12	0.356	12.01	V	40.49	53.98	13.49	AV
4874	50.14	0.000	4.25	H	54.39	73.98	19.59	PK
4874	35.85	0.356	4.25	H	40.46	53.98	13.52	AV
7311	40.78	0.000	12.01	H	52.79	73.98	21.19	PK
7311	27.89	0.356	12.01	H	40.26	53.98	13.72	AV

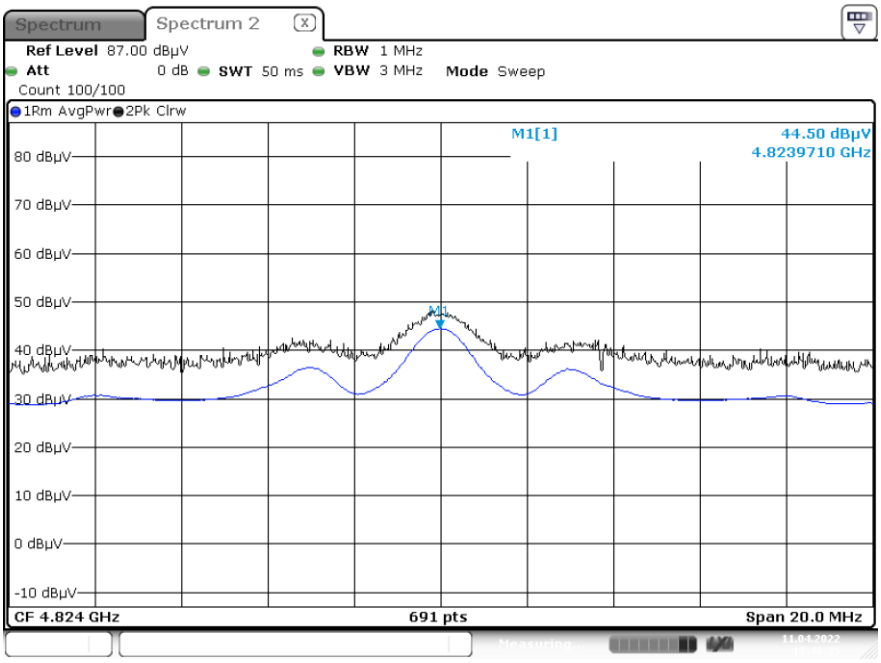
Operation Mode:	802.11n (HT20)
Transfer MCS Index:	0
Operating Frequency	2462 MHz
Channel No.	11 Ch

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	44.22	0.000	4.41	V	48.63	73.98	25.35	PK
4924	30.95	0.356	4.41	V	35.72	53.98	18.26	AV
7386	41.26	0.000	11.96	V	53.22	73.98	20.76	PK
7386	28.33	0.356	11.96	V	40.65	53.98	13.33	AV
4924	44.47	0.000	4.41	H	48.88	73.98	25.10	PK
4924	31.15	0.356	4.41	H	35.92	53.98	18.06	AV
7386	41.02	0.000	11.96	H	52.98	73.98	21.00	PK
7386	28.12	0.356	11.96	H	40.44	53.98	13.54	AV

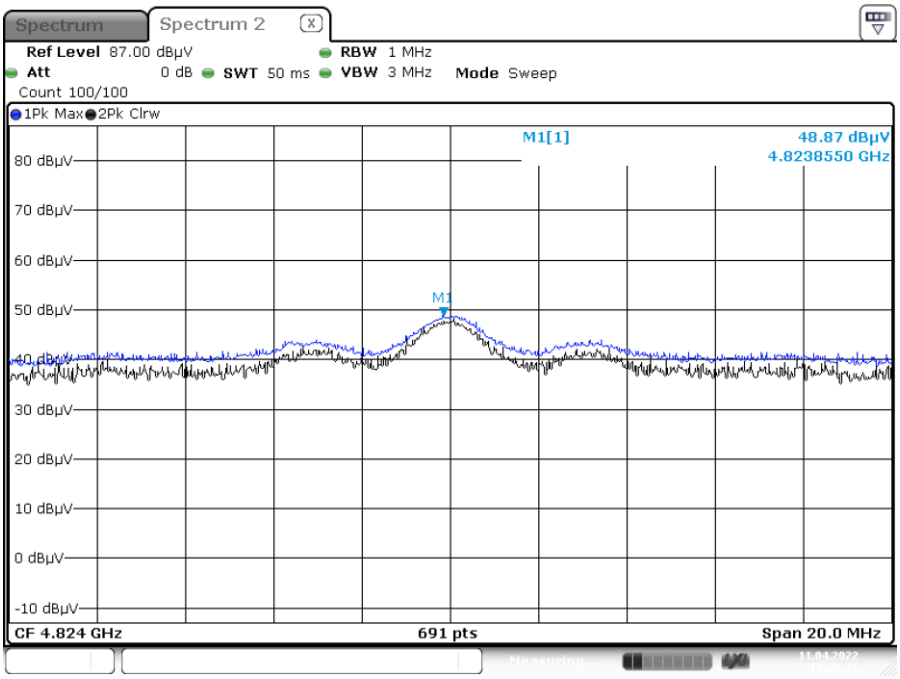
[Ant.1&Ant.2_MIMO(CDD)]

▣ Test Plots (Worst case : Y-H)

Radiated Spurious Emissions plot – Average Result (802.11b_1 Mbps, Ch.1 2nd Harmonic)



Radiated Spurious Emissions plot – Peak Result (802.11b_1 Mbps, Ch.1 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 Value [dBμV]	A.F.+ C.L+ D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2390.0	19.251	35.35	H	54.60	73.98	19.38	PK
2390.0	8.169	35.35	H	43.52	53.98	10.46	AV
2390.0	19.122	35.35	V	54.47	73.98	19.51	PK
2390.0	8.025	35.35	V	43.38	53.98	10.61	AV
2483.5	20.135	35.28	H	55.42	73.98	18.57	PK
2483.5	9.495	35.28	H	44.78	53.98	9.21	AV
2483.5	20.029	35.28	V	55.31	73.98	18.67	PK
2483.5	9.212	35.28	V	44.49	53.98	9.49	AV

Operation Mode:	802.11g
Transfer Rate:	6 Mbps
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	24.749	0.000	35.35	H	60.10	73.98	13.88	PK
2390.0	13.156	0.305	35.35	H	48.81	53.98	5.17	AV
2390.0	24.555	0.000	35.35	V	59.91	73.98	14.08	PK
2390.0	13.021	0.305	35.35	V	48.68	53.98	5.30	AV
2483.5	26.609	0.000	35.28	H	61.89	73.98	12.09	PK
2483.5	14.635	0.305	35.28	H	50.22	53.98	3.76	AV
2483.5	26.325	0.000	35.28	V	61.61	73.98	12.38	PK
2483.5	14.485	0.305	35.28	V	50.07	53.98	3.91	AV

Operation Mode:	802.11n (HT20)
Transfer Rate:	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	25.649	0.000	35.35	H	61.00	73.98	12.98	PK
2390.0	13.315	0.356	35.35	H	49.02	53.98	4.96	AV
2390.0	25.498	0.000	35.35	V	60.85	73.98	13.13	PK
2390.0	13.200	0.356	35.35	V	48.91	53.98	5.07	AV
2483.5	26.601	0.000	35.28	H	61.88	73.98	12.10	PK
2483.5	14.555	0.356	35.28	H	50.19	53.98	3.79	AV
2483.5	26.485	0.000	35.28	V	61.77	73.98	12.22	PK
2483.5	14.321	0.356	35.28	V	49.96	53.98	4.02	AV

▣ Test Plots

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

Radiated Restricted Band Edges plot – Average Result (802.11g_6 Mbps Ch.11)

Radiated Restricted Band Edges plot – Peak Result (802.11g_6 Mbps Ch.11)

Note:

Plot of worst case are only reported.

9.8 POWERLINE CONDUCTED EMISSIONS

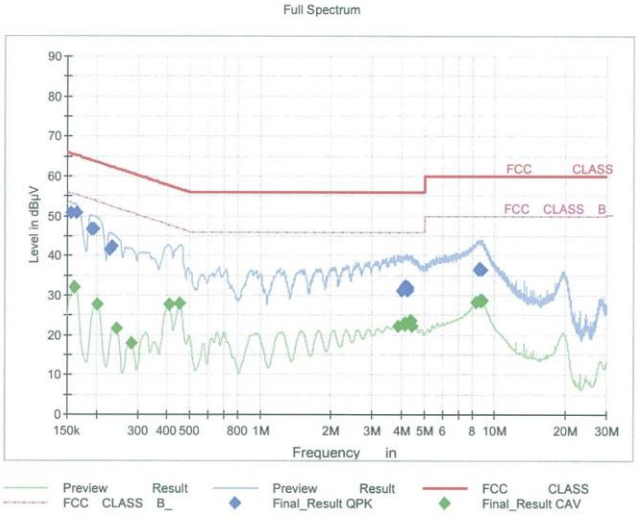
Conducted Emissions (Line 1)

WLAN 2.4G_L1 1 / 2

Test Report

Common Information

EUT :	SM-G736U
Manufacturer :	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions :	WLAN 2.4 GHz_L1



Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1545	50.81	65.75	14.95	9.000	L1	OFF	9.6
0.1635	50.66	65.28	14.63	9.000	L1	OFF	9.6
0.1905	46.77	64.02	17.25	9.000	L1	OFF	9.6
0.1950	46.76	63.82	17.06	9.000	L1	OFF	9.6
0.2265	41.57	62.58	21.00	9.000	L1	OFF	9.6
0.2333	42.31	62.33	20.02	9.000	L1	OFF	9.6
4.0033	31.29	56.00	24.71	9.000	L1	OFF	9.8
4.1203	32.44	56.00	23.56	9.000	L1	OFF	9.8
4.1788	31.90	56.00	24.10	9.000	L1	OFF	9.8
4.2395	31.91	56.00	24.09	9.000	L1	OFF	9.8
4.2485	31.11	56.00	24.89	9.000	L1	OFF	9.8
4.2553	31.76	56.00	24.24	9.000	L1	OFF	9.8
8.4943	36.45	60.00	23.55	9.000	L1	OFF	10.0
8.5370	36.33	60.00	23.67	9.000	L1	OFF	10.0
8.5910	37.05	60.00	22.95	9.000	L1	OFF	10.0
8.6135	37.03	60.00	22.97	9.000	L1	OFF	10.0
8.8250	36.41	60.00	23.59	9.000	L1	OFF	10.0
8.8340	36.46	60.00	23.54	9.000	L1	OFF	10.0

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WLAN 2.4G_L1 2 / 2

Final_Result_CAV

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1613	31.98	55.40	23.42	9.000	L1	OFF	9.6
0.2018	27.81	53.54	25.73	9.000	L1	OFF	9.6
0.2423	21.66	52.02	30.36	9.000	L1	OFF	9.6
0.2805	17.99	50.80	32.81	9.000	L1	OFF	9.6
0.4065	27.55	47.72	20.17	9.000	L1	OFF	9.7
0.4538	27.92	46.81	18.89	9.000	L1	OFF	9.7
3.8750	22.30	46.00	23.70	9.000	L1	OFF	9.8
4.1203	23.08	46.00	22.92	9.000	L1	OFF	9.8
4.1608	22.63	46.00	23.37	9.000	L1	OFF	9.8
4.1675	22.65	46.00	23.35	9.000	L1	OFF	9.8
4.3633	23.57	46.00	22.43	9.000	L1	OFF	9.8
4.4398	22.21	46.00	23.79	9.000	L1	OFF	9.8
8.3615	28.34	50.00	21.66	9.000	L1	OFF	10.0
8.6990	28.73	50.00	21.27	9.000	L1	OFF	10.0
8.7418	28.77	50.00	21.23	9.000	L1	OFF	10.0
8.7530	28.66	50.00	21.34	9.000	L1	OFF	10.0
8.8340	28.75	50.00	21.25	9.000	L1	OFF	10.0
8.8430	28.63	50.00	21.37	9.000	L1	OFF	10.0

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Conducted Emissions (Line 2)

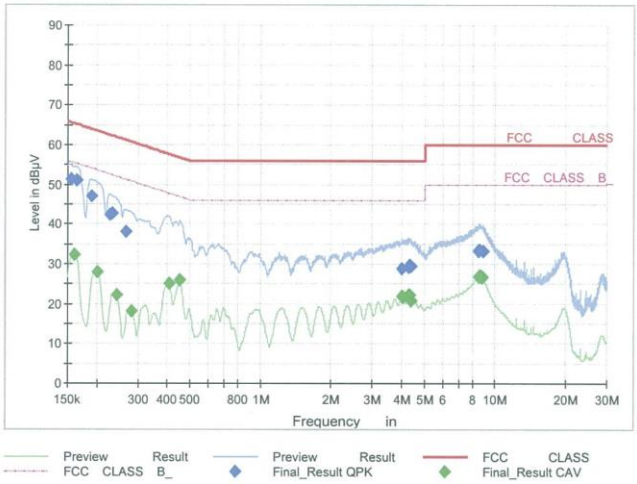
WLAN 2.4G_N 1 / 2

Test Report

Common Information

EUT :	SM-G736U
Manufacturer :	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions :	WLAN 2.4 GHz_N

Full Spectrum



Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1545	51.24	65.75	14.52	9.000	N	OFF	9.6
0.1635	50.98	65.28	14.31	9.000	N	OFF	9.6
0.1905	47.13	64.02	16.89	9.000	N	OFF	9.6
0.2265	42.35	62.58	20.23	9.000	N	OFF	9.6
0.2333	42.68	62.33	19.65	9.000	N	OFF	9.6
0.2648	38.05	61.28	23.23	9.000	N	OFF	9.6
4.0168	28.94	56.00	27.06	9.000	N	OFF	9.8
4.2643	29.03	56.00	26.97	9.000	N	OFF	9.8
4.2890	29.46	56.00	26.54	9.000	N	OFF	9.8
4.3003	29.45	56.00	26.55	9.000	N	OFF	9.8
4.3183	29.74	56.00	26.26	9.000	N	OFF	9.8
4.3723	29.48	56.00	26.52	9.000	N	OFF	9.8
8.5100	33.13	60.00	26.87	9.000	N	OFF	10.0
8.5348	33.32	60.00	26.68	9.000	N	OFF	10.0
8.5550	33.55	60.00	26.45	9.000	N	OFF	10.0
8.5708	33.40	60.00	26.60	9.000	N	OFF	10.0
8.6383	33.47	60.00	26.53	9.000	N	OFF	10.0
8.8588	33.13	60.00	26.87	9.000	N	OFF	10.0

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WLAN 2.4G_N 2 / 2

Final_Result_CAV

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1613	32.39	55.40	23.01	9.000	N	OFF	9.6
0.2018	27.96	53.54	25.58	9.000	N	OFF	9.6
0.2423	22.27	52.02	29.74	9.000	N	OFF	9.6
0.2828	18.16	50.74	32.57	9.000	N	OFF	9.6
0.4065	25.17	47.72	22.55	9.000	N	OFF	9.7
0.4538	25.92	46.81	20.88	9.000	N	OFF	9.7
4.0190	21.94	46.00	24.06	9.000	N	OFF	9.8
4.0370	21.80	46.00	24.20	9.000	N	OFF	9.8
4.0573	21.76	46.00	24.24	9.000	N	OFF	9.8
4.2913	22.22	46.00	23.78	9.000	N	OFF	9.8
4.3160	22.21	46.00	23.79	9.000	N	OFF	9.8
4.3993	20.81	46.00	25.19	9.000	N	OFF	9.8
8.5303	26.93	50.00	23.07	9.000	N	OFF	10.0
8.5685	27.02	50.00	22.98	9.000	N	OFF	10.0
8.6383	26.98	50.00	23.02	9.000	N	OFF	10.0
8.6495	26.88	50.00	23.12	9.000	N	OFF	10.0
8.7890	26.80	50.00	23.20	9.000	N	OFF	10.0
8.8385	26.57	50.00	23.43	9.000	N	OFF	10.0

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9.9 CONFIRMATION OF GEO-LOCATION MECHANISM

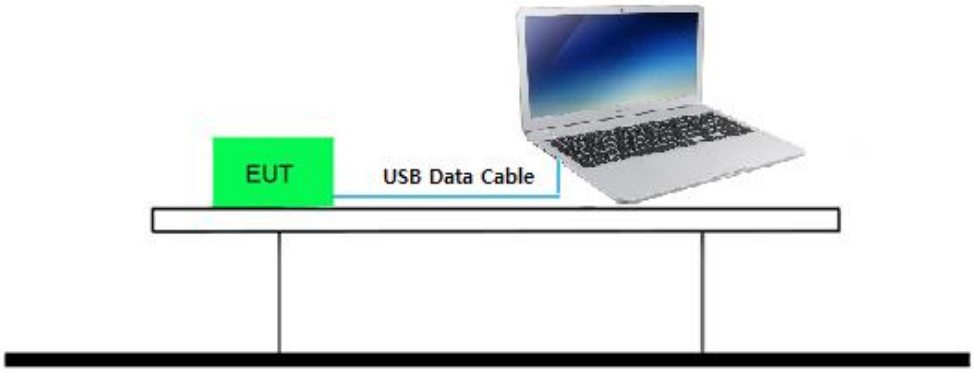
The device uses MCC information obtained from the public cellular carrier to determine that it is operating outside the U.S. and then enable channels 12 and 13 only if a non-US MCC that supports channel 12 and 13 is confirmed.

The device uses a geo-location mechanism based on the Country in order to only enable certain WLAN DTS bands when the device is not in the USA.

WLAN	Country code = US	Country code = KR(Korea)
CH 12	Did not connect	Connected
CH 13	Did not connect	Connected

The verification tests confirmed the operational of the geo-location mechanism.

Test Setup



Test Procedure

In case of Country code

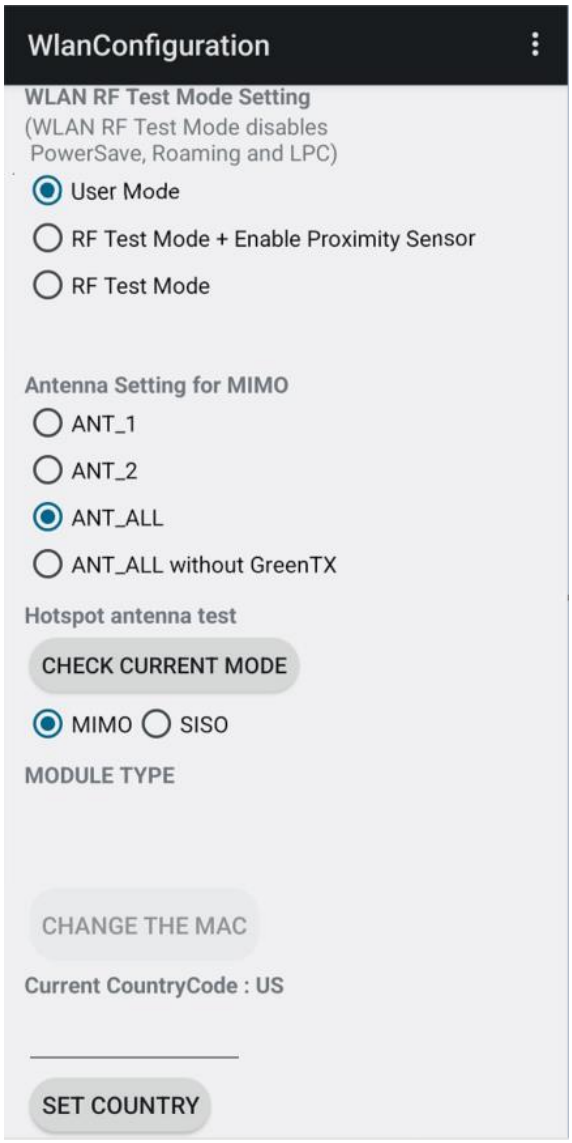
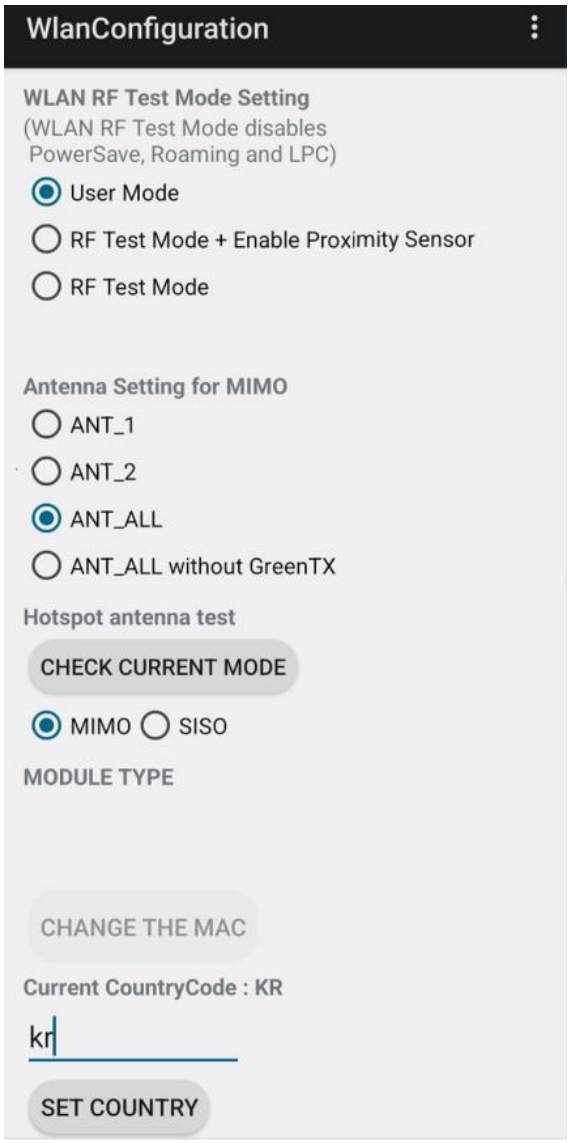
1. Open Command Prompt.
2. Setting the country for product
3. At the Command Prompt, enter the command.

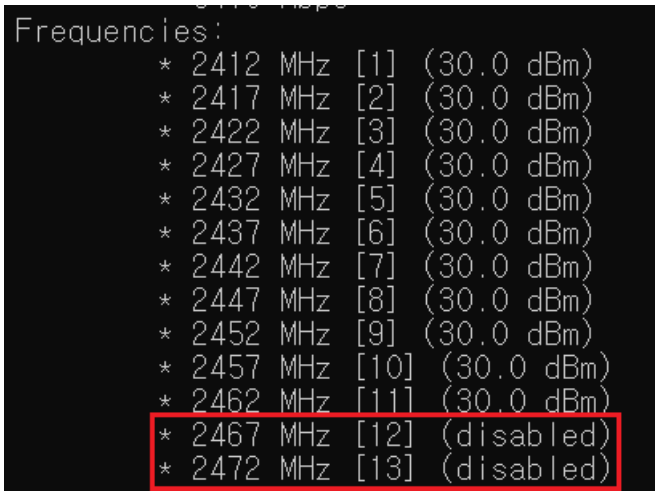
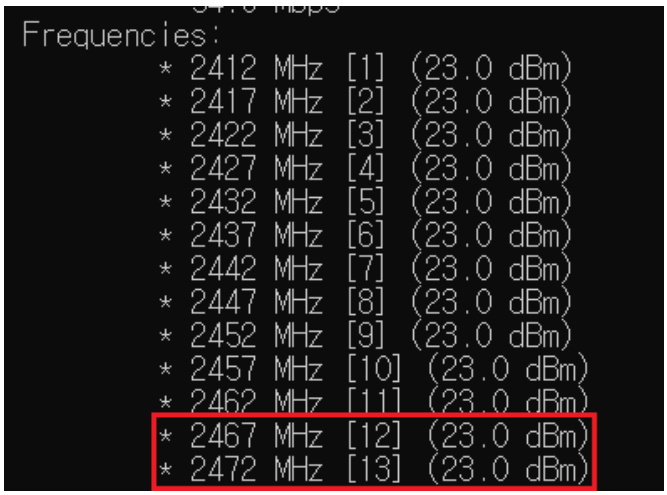
>adb root

>adb remount

>adb shell iw list

Setting the country for product

Country code = US	Country code = KR(Korea)
	

Country code = US

Country code = KR (Korea)


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	MY49432108	03/08/2023	Annual
Power Meter	N1911A	Agilent	MY45100523	03/24/2023	Annual
Power Sensor	N1921A	Agilent	MY57820067	03/24/2023	Annual
Directional Coupler	87300B	Agilent	3116A03621	11/02/2022	Annual
Power Splitter	11667B	Hewlett Packard	10545	02/03/2023	Annual
DC Power Supply	E3632A	HP	KR75303243	04/25/2023	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	03/07/2023	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
EM1000 / 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	FMZB 1513	Rohde & Schwarz	1513-333	03/17/2024	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-0895	09/04/2022	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1300	01/18/2024	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	01/06/2023	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
High Pass Filter(7 GHz ~ 18 GHz)	WHKX10-7150-8000-18000-50SS	Wainwright Instruments	1	03/11/2023	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/02/2022	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/11/2023	Annual
HPF(3~18GHz) + LNA1(1~18GHz)	FMSR-05B	TNM system	F6	01/19/2023	Annual
ATT(10dB) + LNA1(1~18GHz)	FMSR -05B	TNM system	None	01/19/2023	Annual
ATT(3dB) + LNA1(1~18GHz)	FMSR -05B	TNM system	None	01/19/2023	Annual
LNA1(1~18GHz)	FMSR -05B	TNM system	25540	01/19/2023	Annual
HPF(7~18GHz) + LNA2(6~18GHz)	FMSR -05B	TNM system	28550	01/19/2023	Annual
Thru(30MHz ~ 18GHz)	FMSR -05B	TNM system	None	01/19/2023	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-FC046-P