



FCC RF Test Report

APPLICANT : Xiaomi Communications Co., Ltd.
EQUIPMENT : Tablet Computer
BRAND NAME : XIAOMI
MODEL NAME : 21051182G
FCC ID : 2AFZZ1182G
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure
TEST DATE(S) : Jun. 18, 2021 ~ Jul. 05, 2021

We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alex Wang

Approved by: Alex Wang / Manager



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People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR160318E	Rev. 01	Initial issue of report	Jul. 12, 2021

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	N/A	Report only
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 3.06 dB at 5150.000 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 16.96 dB at 0.283 MHz
3.6	15.203 & 15.407(a)	Antenna Requirement	15.203	Pass	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



1 General Description

1.1 Applicant

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.2 Manufacturer

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Tablet Computer
Brand Name	XIAOMI
Model Name	21051182G
FCC ID	2AFZZ1182G
HW Version	P2
SW Version	MIUI 12.5
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5700 MHz
Maximum Output Power to Antenna	<5180 MHz ~ 5240 MHz> 802.11a : 16.14 dBm / 0.0411 W 802.11n HT20 : 16.35 dBm / 0.0432 W 802.11n HT40 : 16.50 dBm / 0.0447 W 802.11ac VHT20 : 16.54 dBm / 0.0451 W 802.11ac VHT40 : 16.69 dBm / 0.0467 W 802.11ac VHT80 : 11.39 dBm / 0.0138 W <5260 MHz ~ 5320 MHz> 802.11a : 16.15 dBm / 0.0412 W 802.11n HT20 : 16.43 dBm / 0.0440 W 802.11n HT40 : 16.34 dBm / 0.0431 W 802.11ac VHT20 : 16.57 dBm / 0.0454 W 802.11ac VHT40 : 16.48 dBm / 0.0445 W 802.11ac VHT80 : 13.35 dBm / 0.0216 W <5500 MHz ~ 5700 MHz > 802.11a : 16.33 dBm / 0.0430 W 802.11n HT20 : 16.39 dBm / 0.0436 W 802.11n HT40 : 16.47 dBm / 0.0444 W 802.11ac VHT20 : 16.48 dBm / 0.0445 W 802.11ac VHT40 : 16.60 dBm / 0.0457 W 802.11ac VHT80 : 16.16 dBm / 0.0413 W
99% Occupied Bandwidth	<5180 MHz ~ 5240 MHz> 802.11a : 17.58 MHz 802.11ac VHT20 : 18.73 MHz 802.11ac VHT40 : 36.56 MHz 802.11ac VHT80 : 75.64 MHz <5260 MHz ~ 5320 MHz> 802.11a : 17.58 MHz 802.11ac VHT20 : 18.83 MHz 802.11ac VHT40 : 36.56 MHz 802.11ac VHT80 : 75.52 MHz <5500 MHz ~ 5700 MHz > 802.11a : 17.63 MHz 802.11ac VHT20 : 18.88 MHz 802.11ac VHT40 : 36.56 MHz 802.11ac VHT80 : 75.52 MHz
Antenna Type / Gain	<5150 MHz ~ 5250 MHz> <Ant. 1> : IFA Antenna with gain -2.93 dBi <Ant. 2> : IFA Antenna with gain -1.17 dBi <5250 MHz ~ 5350 MHz> <Ant. 1> : IFA Antenna with gain -1.92 dBi <Ant. 2> : IFA Antenna with gain -1.30 dBi <5470 MHz ~ 5725 MHz> <Ant. 1> : IFA Antenna with gain -1.50 dBi <Ant. 2> : IFA Antenna with gain -3.20 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM /

Antenna Function Description	256QAM)		
		Ant. 1	Ant. 2
	802.11 a SISO	V	V
	802.11 n/ac MIMO	V	

Note:

1. For WLAN SISO & MIMO mode for 802.11n/ac mode, the whole testing has assessed only MIMO mode by referring to their higher output power.
2. For 802.11n HT20/ac VHT20 and 802.11n HT40/ac VHT40 mode, the whole testing have assessed only 802.11ac VHT20/VHT40 by referring to the higher output power.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-KS 03CH06-KS TH01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH06-KS	AUDIX	E3	6.2009-8-24a1
2.	CO01-KS	AUDIX	E3	6.2009-8-24

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq.(MHz)	Channel	Freq.(MHz)
5150-5250 MHz U-NII-1	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42 [#]	5210		

Frequency Band	Channel	Freq.(MHz)	Channel	Freq.(MHz)
5250-5350 MHz U-NII-2A	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58 [#]	5290		

Frequency Band	Channel	Freq.(MHz)	Channel	Freq.(MHz)
5470-5725 MHz U-NII-2C	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106 [#]	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
TDWR Channel	118*	5590	124	5620
	120	5600	126*	5630
	122 [#]	5610	128	5640

Note:

1. The above Frequency and Channel in "*" were 802.11n HT40 and 802.11ac VHT40.
2. The above Frequency and Channel in "[#]" were 802.11ac VHT80.

2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

SISO Mode

Modulation	Data Rate
802.11a	6 Mbps

MIMO Mode

Modulation	Data Rate
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN Link (5G) + USB Cable (Charging from Adapter) + Keyboard + EUT Charger to Stylus for Sample 1
Remark: For Radiated Test Cases, The tests were pre-scanned with Adaptor / Earphone and Keyboard mode, the worst case of Adapter mode was reported.	

Ch. #		U-NII-1 : 5150-5250 MHz	U-NII-2A : 5250-5350 MHz	U-NII-2C : 5470-5725MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

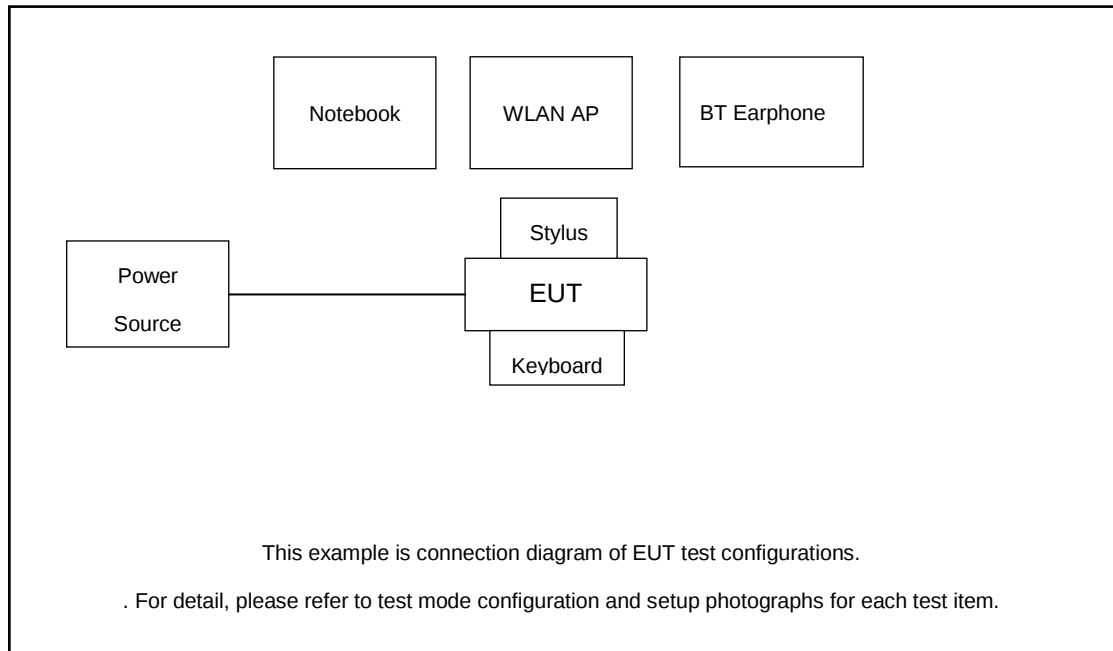
Ch. #		U-NII-1 : 5150-5250 MHz	U-NII-2A : 5250-5350 MHz	U-NII-2C : 5470-5725MHz
		802.11ac VHT20	802.11ac VHT20	802.11ac VHT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		U-NII-1 : 5150-5250 MHz	U-NII-2A : 5250-5350 MHz	U-NII-2C : 5470-5725MHz
		802.11ac VHT40	802.11ac VHT40	802.11ac VHT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

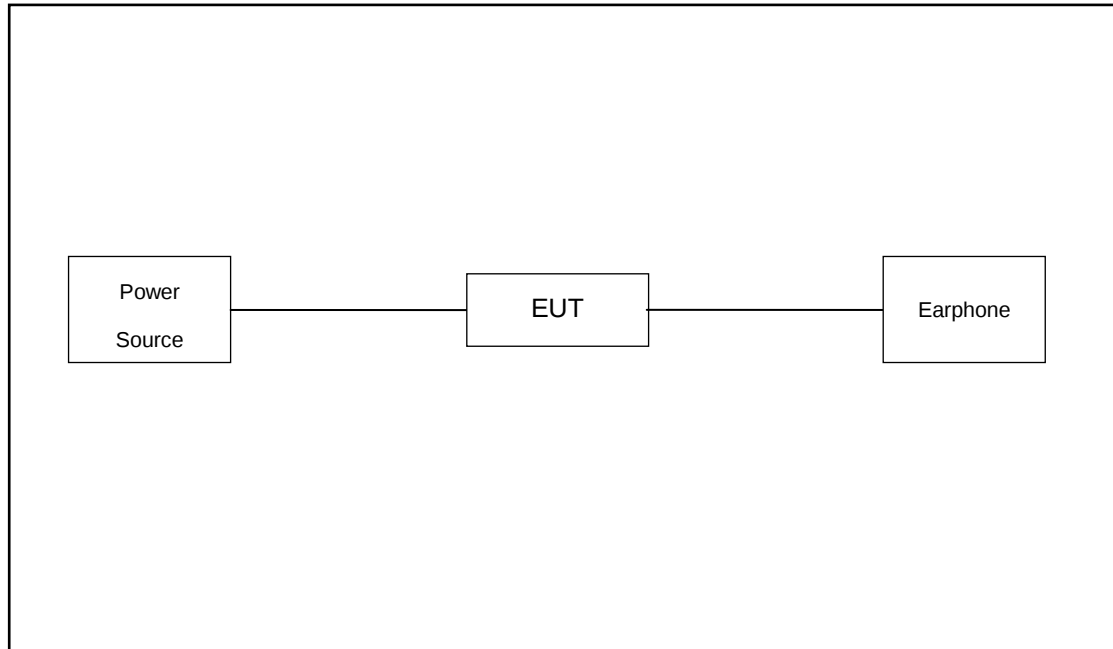
Ch. #		U-NII-1 : 5150-5250 MHz	U-NII-2A : 5250-5350 MHz	U-NII-2C : 5470-5725MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	-

2.3 Connection Diagram of Test System

For AC Conducted Emission:



For Radiated Emission:



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Xiaomi	LYEJ02LM	N/A	N/A	N/A
2.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
3.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
4.	Earphone	Xiaomi	N/A	N/A	Unshielded,1.2m	N/A
5.	Keyboard	N/A	N/A	N/A	N/A	N/A
6.	Stylus	N/A	N/A	N/A	N/A	N/A

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 7.2 dB.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 7.2 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

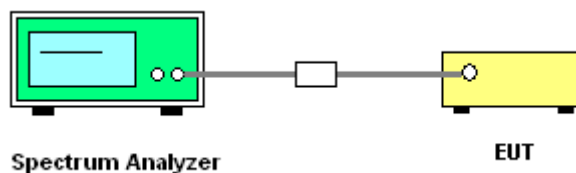
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

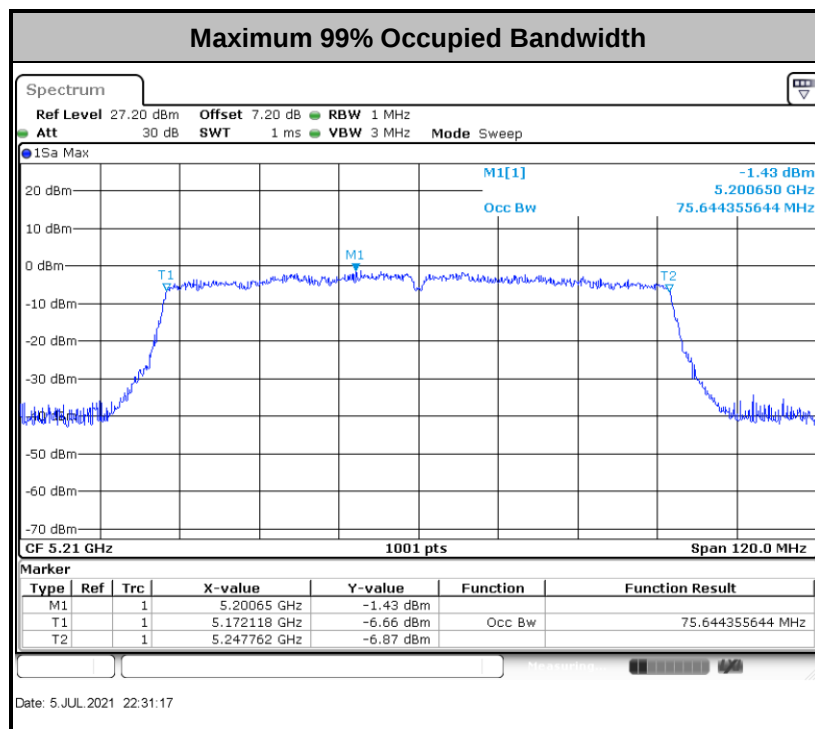
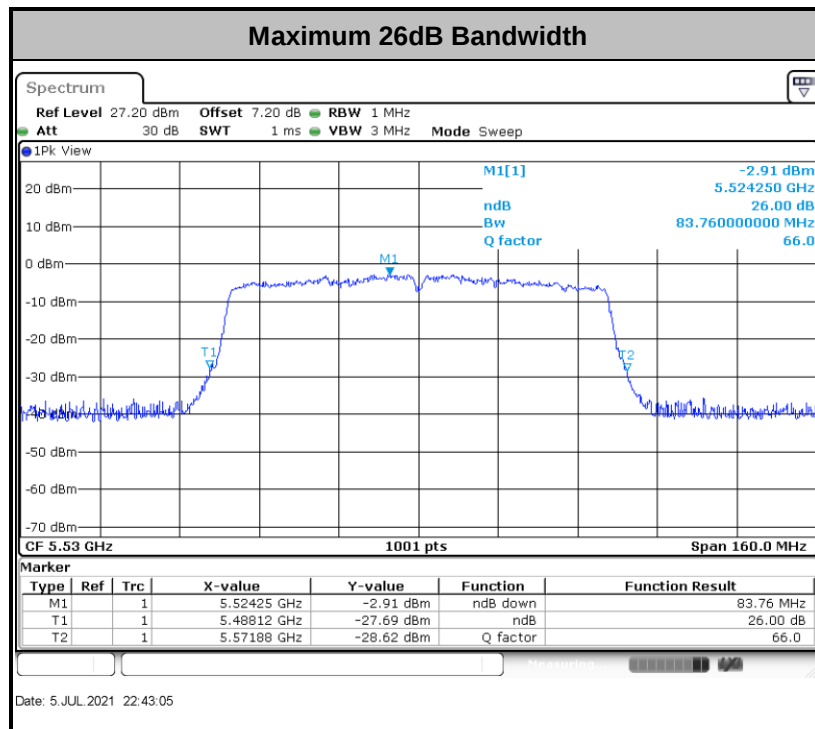
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1MHz and set the Video bandwidth (VBW) $\geq 3 * RBW$.
8. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm $10 \log B$, where B is the 26 dB emission bandwidth in megahertz.

For the 5.47–5.6 GHz and 5.65–5.725 GHz band, the maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever power is less. The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

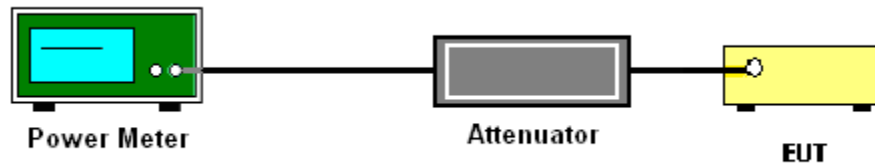
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, $10 \log(1/x)$, where x is the duty cycle.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Section F) Maximum power spectral density.

Method SA-2

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

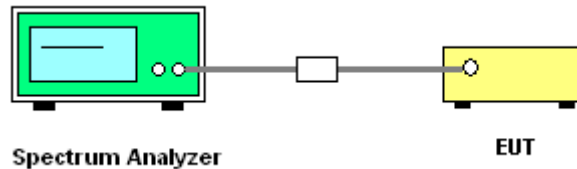
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW $\geq$ 3 MHz.
- Number of points in sweep $\geq$ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.

1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (a): Measure and sum the spectra across the outputs.

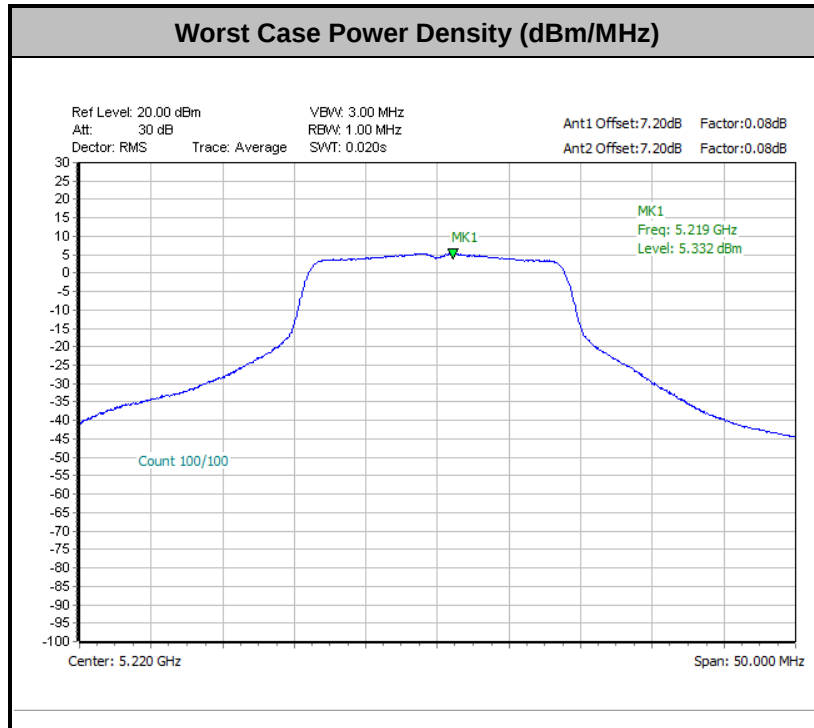
The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



3.4 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

3.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

- (2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table,

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27	68.2

Note: The following formula is used to convert the EIRP to field strength.

$$\text{EIRP} = E_{\text{Meas}} + 20\log(d_{\text{Meas}}) - 104.7$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E_{Meas} is the field strength of the emission at the measurement distance, in dBμV/m

d_{Meas} is the measurement distance, in m

3.4.2 Measuring Instruments

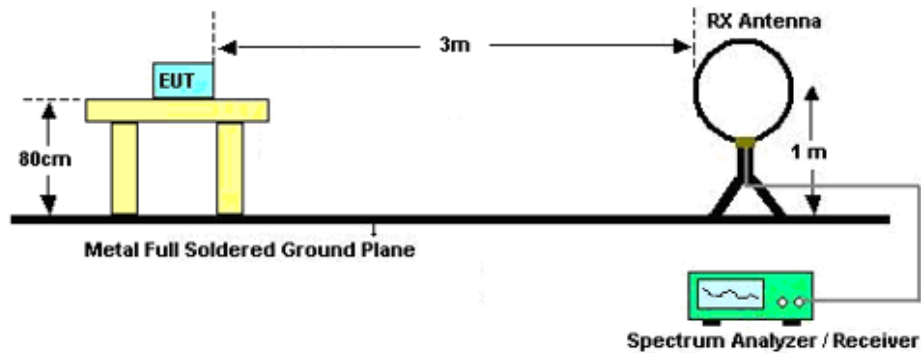
The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

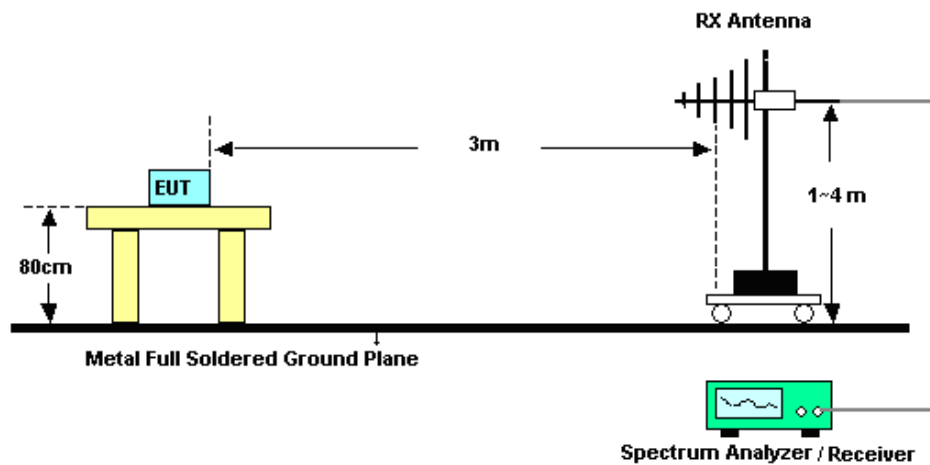
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

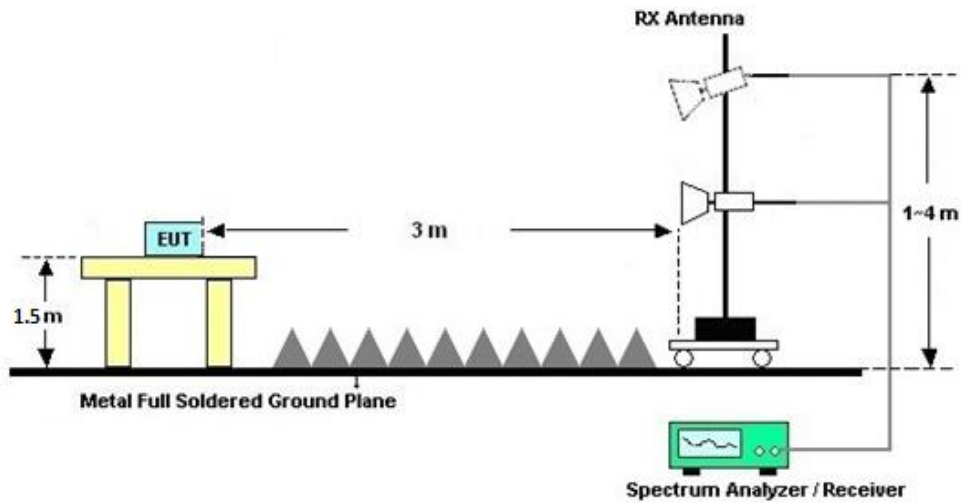
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

3.4.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix C.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

For equipment 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.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

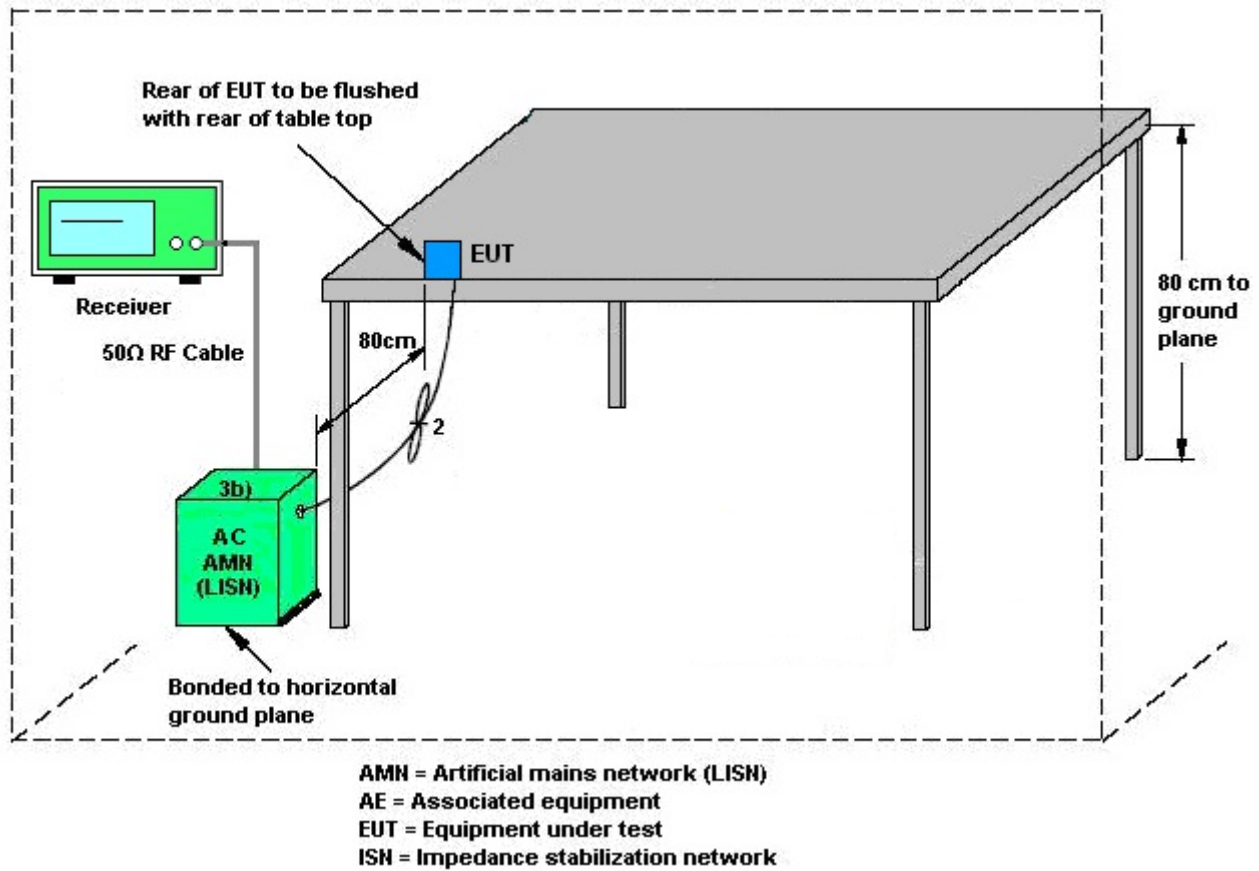
3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 Standard Applicable

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = GANT + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(\text{NANT}/\text{NSS}=1)$ dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $\text{NANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain GANT is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

<CDD Modes>						
	Ant. 1	Ant. 2	DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
Band I	-2.93	-1.17	-1.17	1.00	0.00	0.00
Band II	-1.92	-1.30	-1.30	1.41	0.00	0.00
Band III	-1.50	-3.20	-1.50	0.70	0.00	0.00

Power limit reduction = Composite gain – 6dBi, (min = 0)

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, (min = 0)



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Nov. 01, 2020	Jul. 05, 2021	Oct. 31, 2021	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 07, 2021	Jul. 05, 2021	Jan. 06, 2022	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 07, 2021	Jul. 05, 2021	Jan. 06, 2022	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz; Max 30dBm	Oct. 17, 2020	Jul. 03, 2021	Oct. 16, 2021	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz	Apr. 12, 2021	Jul. 03, 2021	Apr. 11, 2022	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 01, 2020	Jul. 03, 2021	Oct. 31, 2021	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	49921	30MHz~1GHz	May 28, 2021	Jul. 03, 2021	May 27, 2022	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 25, 2021	Jul. 03, 2021	Apr. 24, 2022	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Nov. 10, 2020	Jul. 03, 2021	Nov. 09, 2021	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	187289	9KHz ~1GHZ	Apr. 12, 2021	Jul. 03, 2021	Apr. 11, 2022	Radiation (03CH06-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 06, 2021	Jul. 03, 2021	Jan. 05, 2022	Radiation (03CH06-KS)
high gain Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	2025788	1Ghz-18Ghz	Jan. 06, 2021	Jul. 03, 2021	Jan. 05, 2022	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY53270203	500MHz~26.5GHz	Apr. 13, 2021	Jul. 03, 2021	Apr. 12, 2022	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jul. 03, 2021	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jul. 03, 2021	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jul. 03, 2021	NCR	Radiation (03CH06-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 21, 2021	Jun. 18, 2021	Apr. 20, 2022	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 17, 2020	Jun. 18, 2021	Oct. 16, 2021	Conduction (CO01-KS)
AC LISN	R&S	ENV216	100334	9kHz~30MHz	Oct. 17, 2020	Jun. 18, 2021	Oct. 16, 2021	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 17, 2020	Jun. 18, 2021	Oct. 16, 2021	Conduction (CO01-KS)

NCR: No Calibration Required.

5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage $K=2$ to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.94dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
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Appendix A. Conducted Test Results

Test Engineer:	Rise Liu/Long Wu	Temperature:	21~25	°C
Test Date:	2021/7/5	Relative Humidity:	51~54	%
Tool & Version		Test Site		

TEST RESULTS DATA
26dB and 99% OBW

U-NII-1 single antenna														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)			Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	36	5180	17.53	-	23.18	-	-		22.44	-		
11a	6Mbps	1	44	5220	17.58	-	23.53	-	-		22.45	-		
11a	6Mbps	1	48	5240	17.53	-	24.13	-	-		22.44	-		

U-NII-1 MIMO														
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)			Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2		
VHT20	MCS0	2	36	5180	18.73	18.63	25.33	24.63	-	-	22.70	-		
VHT20	MCS0	2	44	5220	18.73	18.68	25.43	24.58	-	-	22.71	-		
VHT20	MCS0	2	48	5240	18.73	18.73	24.83	24.58	-	-	22.73	-		
VHT40	MCS0	2	38	5190	36.56	36.56	41.54	41.54	-	-	23.01	-		
VHT40	MCS0	2	46	5230	36.46	36.36	41.72	41.54	-	-	23.01	-		
VHT80	MCS0	2	42	5210	75.64	75.64	82.80	83.12	-	-	23.01	-		

TEST RESULTS DATA
Average Power Table

FCC U-NII-1 single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	36	5180	15.97	7.46		24.00	24.00	-2.93	-1.17	Pass
11a	6Mbps	1	44	5220	16.14	6.67		24.00	24.00	-2.93	-1.17	Pass
11a	6Mbps	1	48	5240	16.03	6.95		24.00	24.00	-2.93	-1.17	Pass

FCC U-NII-1 MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HT20	MCS0	2	36	5180	15.73	6.73	16.25	24.00		-1.17		Pass
HT20	MCS0	2	44	5220	15.89	6.39	16.35	24.00		-1.17		Pass
HT20	MCS0	2	48	5240	15.83	6.44	16.30	24.00		-1.17		Pass
HT40	MCS0	2	38	5190	9.37	6.70	11.25	24.00		-1.17		Pass
HT40	MCS0	2	46	5230	16.05	6.39	16.50	24.00		-1.17		Pass
VHT20	MCS0	2	36	5180	15.84	6.83	16.35	24.00		-1.17		Pass
VHT20	MCS0	2	44	5220	16.08	6.53	16.54	24.00		-1.17		Pass
VHT20	MCS0	2	48	5240	15.99	6.62	16.47	24.00		-1.17		Pass
VHT40	MCS0	2	38	5190	9.47	6.90	11.38	24.00		-1.17		Pass
VHT40	MCS0	2	46	5230	16.24	6.65	16.69	24.00		-1.17		Pass
VHT80	MCS0	2	42	5210	9.43	6.99	11.39	24.00		-1.17		Pass

TEST RESULTS DATA
Power Spectral Density

FCC U-NII-1 single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	36	5180	5.05	-		11.00	-	-2.93	-1.17	Pass
11a	6Mbps	1	44	5220	4.93	-		11.00	-	-2.93	-1.17	Pass
11a	6Mbps	1	48	5240	4.82	-		11.00	-	-2.93	-1.17	Pass

FCC U-NII-1 MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
VHT20	MCS0	2	36	5180			4.81	11.00		1.00		Pass
VHT20	MCS0	2	44	5220			5.33	11.00		1.00		Pass
VHT20	MCS0	2	48	5240			5.15	11.00		1.00		Pass
VHT40	MCS0	2	38	5190			-2.83	11.00		1.00		Pass
VHT40	MCS0	2	46	5230			2.34	11.00		1.00		Pass
VHT80	MCS0	2	42	5210			-5.34	11.00		1.00		Pass

TEST RESULTS DATA
26dB and 99% OBW

U-NII-2A single antenna															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	52	5260	17.58	-	23.88	-	23.45	-	29.45	-	23.98	-	
11a	6Mbps	1	60	5300	17.48	-	23.68	-	23.43	-	29.43	-	23.98	-	
11a	6Mbps	1	64	5320	17.58	-	23.98	-	23.45	-	29.45	-	23.98	-	

U-NII-2A MIMO															
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
VHT20	MCS0	2	52	5260	18.78	18.83	24.98	24.78	23.74		29.74		23.98		
VHT20	MCS0	2	60	5300	18.78	18.68	25.23	24.83	23.71		29.71		23.98		
VHT20	MCS0	2	64	5320	18.78	18.73	24.93	24.78	23.73		29.73		23.98		
VHT40	MCS0	2	54	5270	36.46	36.56	41.90	41.90	23.98		30.00		23.98		
VHT40	MCS0	2	62	5310	36.46	36.46	41.90	41.81	23.98		30.00		23.98		
VHT80	MCS0	2	58	5290	75.52	75.52	83.12	83.28	23.98		30.00		23.98		

TEST RESULTS DATA
Average Power Table

FCC U-NII-2A single antenna													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	52	5260	16.15	7.04		23.98	23.98	-1.92	-1.30	26.99	Pass
11a	6Mbps	1	60	5300	16.14	6.60		23.98	23.98	-1.92	-1.30	26.99	Pass
11a	6Mbps	1	64	5320	15.99	7.33		23.98	23.98	-1.92	-1.30	26.99	Pass

FCC U-NII-2A MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
HT20	MCS0	2	52	5260	15.60	6.52	16.11	23.98		-1.30		26.99	Pass
HT20	MCS0	2	60	5300	15.91	6.95	16.43	23.98		-1.30		26.99	Pass
HT20	MCS0	2	64	5320	15.74	7.10	16.30	23.98		-1.30		26.99	Pass
HT40	MCS0	2	54	5270	15.81	6.89	16.34	23.98		-1.30		26.99	Pass
HT40	MCS0	2	62	5310	13.17	6.92	14.10	23.98		-1.30		26.99	Pass
VHT20	MCS0	2	52	5260	15.82	6.83	16.34	23.98		-1.30		26.99	Pass
VHT20	MCS0	2	60	5300	16.04	7.16	16.57	23.98		-1.30		26.99	Pass
VHT20	MCS0	2	64	5320	15.82	7.23	16.38	23.98		-1.30		26.99	Pass
VHT40	MCS0	2	54	5270	15.98	6.83	16.48	23.98		-1.30		26.99	Pass
VHT40	MCS0	2	62	5310	13.27	6.85	14.16	23.98		-1.30		26.99	Pass
VHT80	MCS0	2	58	5290	12.23	6.91	13.35	23.98		-1.30		26.99	Pass

TEST RESULTS DATA
Power Spectral Density

U-NII-2A single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	52	5260	4.64	-		11.00	-	-1.92	-1.30	Pass
11a	6Mbps	1	60	5300	4.94	-		11.00	-	-1.92	-1.30	Pass
11a	6Mbps	1	64	5320	5.19	-		11.00	-	-1.92	-1.30	Pass

U-NII-2A MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
VHT20	MCS0	2	52	5260			4.98	11.00		1.41		Pass
VHT20	MCS0	2	60	5300			5.22	11.00		1.41		Pass
VHT20	MCS0	2	64	5320			4.89	11.00		1.41		Pass
VHT40	MCS0	2	54	5270			1.97	11.00		1.41		Pass
VHT40	MCS0	2	62	5310			0.20	11.00		1.41		Pass
VHT80	MCS0	2	58	5290			-3.68	11.00		1.41		Pass

TEST RESULTS DATA
26dB and 99% OBW

U-NII-2C single antenna																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth In U-NII 2C (MHz)		26 dB Bandwidth In U-NII 2C (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		6 dB Bandwidth for Straddle Channel (MHz)	
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2
11a	6Mbps	1	100	5500	17.63	-	24.83	-	23.46	-	29.46	-	23.98	-	----	----
11a	6Mbps	1	116	5580	17.63	-	24.28	-	23.46	-	29.46	-	23.98	-	----	----
11a	6Mbps	1	140	5700	17.48	-	23.63	-	23.43	-	29.43	-	23.98	-	----	----

U-NII-2C MIMO																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth In U-NII 2C (MHz)		26 dB Bandwidth In U-NII 2C (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		6 dB Bandwidth for Straddle Channel (MHz)	
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2
VHT20	MCS0	2	100	5500	18.88	18.73	25.62	24.68	23.73		29.73		23.98	----	----	
VHT20	MCS0	2	116	5580	18.73	18.63	25.28	24.88	23.70		29.70		23.98	----	----	
VHT20	MCS0	2	140	5700	18.78	18.73	24.83	24.93	23.73		29.73		23.98	----	----	
VHT40	MCS0	2	102	5510	36.56	36.56	41.90	41.90	23.98		30.00		23.98	----	----	
VHT40	MCS0	2	110	5550	36.56	36.46	41.90	41.72	23.98		30.00		23.98	----	----	
VHT40	MCS0	2	134	5670	36.56	36.36	41.90	41.72	23.98		30.00		23.98	----	----	
VHT80	MCS0	2	106	5530	75.40	75.52	83.28	83.76	23.98		30.00		23.98	----	----	
VHT80	MCS0	2	122	5610	75.52	75.52	82.48	83.28	23.98		30.00		23.98	----	----	

TEST RESULTS DATA
Average Power Table

FCC U-NII-2C single antenna													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	100	5500	16.33	5.95		23.98	23.98	-1.50	-3.20	26.99	Pass
11a	6Mbps	1	116	5580	16.00	5.82		23.98	23.98	-1.50	-3.20	26.99	Pass
11a	6Mbps	1	140	5700	11.39	5.99		23.98	23.98	-1.50	-3.20	26.99	Pass

FCC U-NII-2C MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
HT20	MCS0	2	100	5500	16.06	4.95	16.39	23.98		-1.50		26.99	Pass
HT20	MCS0	2	116	5580	15.74	4.92	16.09	23.98		-1.50		26.99	Pass
HT20	MCS0	2	140	5700	11.10	5.36	12.13	23.98		-1.50		26.99	Pass
HT40	MCS0	2	102	5510	12.98	5.24	13.66	23.98		-1.50		26.99	Pass
HT40	MCS0	2	110	5550	16.08	5.37	16.44	23.98		-1.50		26.99	Pass
HT40	MCS0	2	134	5670	16.12	5.35	16.47	23.98		-1.50		26.99	Pass
VHT20	MCS0	2	100	5500	16.14	5.18	16.48	23.98		-1.50		26.99	Pass
VHT20	MCS0	2	116	5580	15.83	5.07	16.18	23.98		-1.50		26.99	Pass
VHT20	MCS0	2	140	5700	11.25	5.65	12.31	23.98		-1.50		26.99	Pass
VHT40	MCS0	2	102	5510	13.13	5.45	13.82	23.98		-1.50		26.99	Pass
VHT40	MCS0	2	110	5550	16.25	5.47	16.60	23.98		-1.50		26.99	Pass
VHT40	MCS0	2	134	5670	16.18	5.43	16.53	23.98		-1.50		26.99	Pass
VHT80	MCS0	2	106	5530	10.71	5.47	11.85	23.98		-1.50		26.99	Pass
VHT80	MCS0	2	122	5610	15.77	5.48	16.161	23.98		-1.50		26.99	Pass

TEST RESULTS DATA
Power Spectral Density

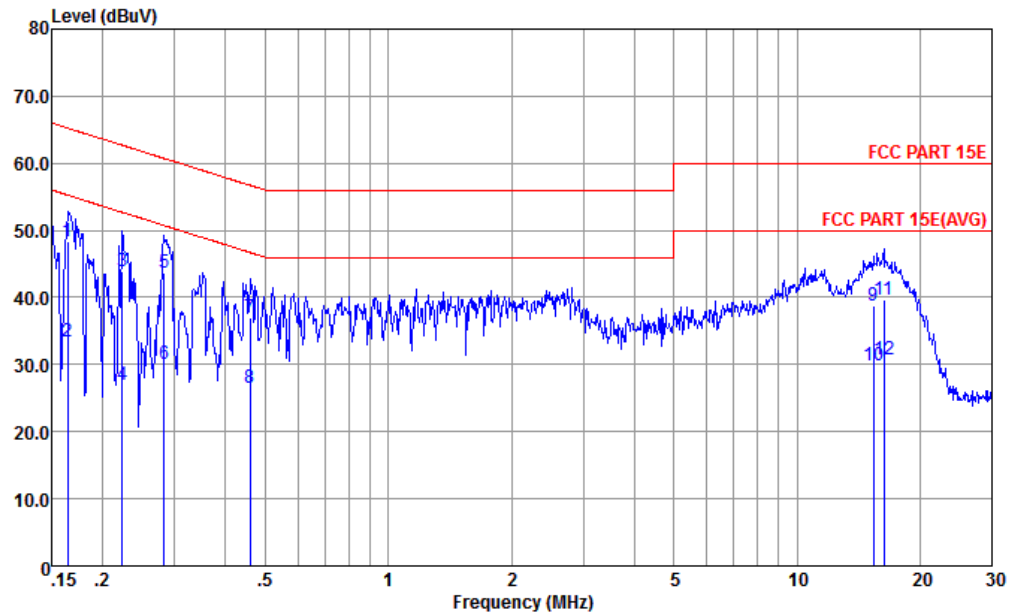
U-NII-2C single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	100	5500	5.44	-		11.00	-	-1.50	-3.20	Pass
11a	6Mbps	1	116	5580	5.23	-		11.00	-	-1.50	-3.20	Pass
11a	6Mbps	1	140	5700	0.57	-		11.00	-	-1.50	-3.20	Pass

U-NII-2C MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
VHT20	MCS0	2	100	5500			5.05	11.00		0.70		Pass
VHT20	MCS0	2	116	5580			4.82	11.00		0.70		Pass
VHT20	MCS0	2	140	5700			1.09	11.00		0.70		Pass
VHT40	MCS0	2	102	5510			-0.56	11.00		0.70		Pass
VHT40	MCS0	2	110	5550			2.66	11.00		0.70		Pass
VHT40	MCS0	2	134	5670			2.72	11.00		0.70		Pass
VHT80	MCS0	2	106	5530			-4.91	11.00		0.70		Pass
VHT80	MCS0	2	122	5610			-0.32	11.00		0.70		Pass



Appendix B. AC Conducted Emission Test Results

Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

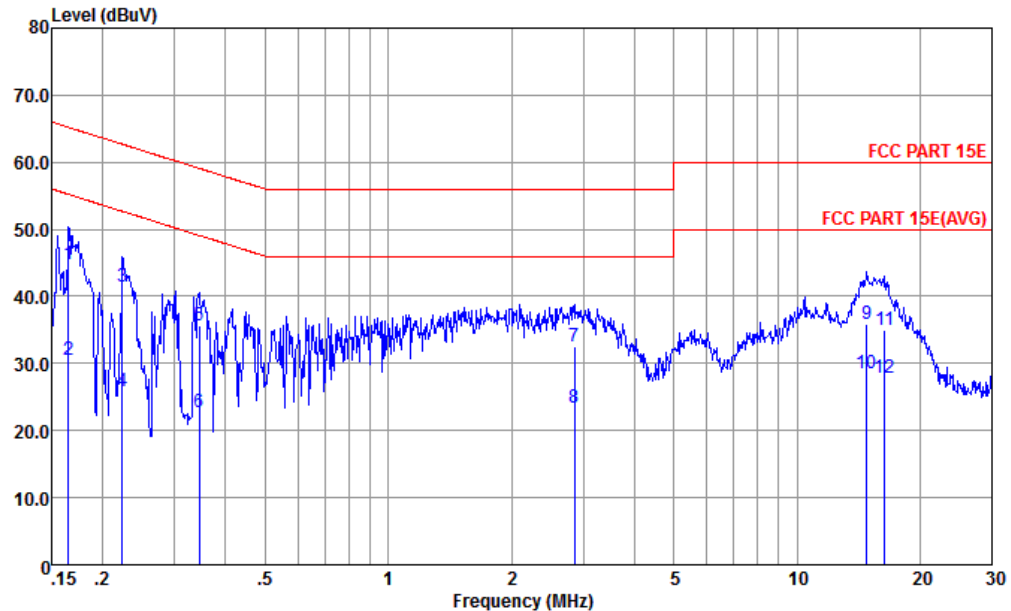


Site : CO01-KS
Condition : FCC PART 15E TWO-LISN-CN02-L LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.164	48.28	-16.97	65.25	28.20	9.64	10.44	QP
2	0.164	33.38	-21.87	55.25	13.30	9.64	10.44	Average
3	0.223	43.79	-18.91	62.70	23.80	9.64	10.35	QP
4	0.223	26.89	-25.81	52.70	6.90	9.64	10.35	Average
5 *	0.283	43.76	-16.96	60.72	23.80	9.64	10.32	QP
6	0.283	30.16	-20.56	50.72	10.20	9.64	10.32	Average
7	0.459	36.99	-19.72	56.71	17.09	9.65	10.25	QP
8	0.459	26.49	-20.22	46.71	6.59	9.65	10.25	Average
9	15.388	38.83	-21.17	60.00	17.51	10.92	10.40	QP
10	15.388	29.93	-20.07	50.00	8.61	10.92	10.40	Average
11	16.312	39.60	-20.40	60.00	18.21	10.97	10.42	QP
12	16.312	30.70	-19.30	50.00	9.31	10.97	10.42	Average



Test Engineer :	Amos Zhang	Temperature :	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC PART 15E TWO-LISN-CN02-N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1 *	0.165	44.77	-20.44	65.21	24.50	9.83	10.44	QP
2	0.165	30.57	-24.64	55.21	10.30	9.83	10.44	Average
3	0.223	41.41	-21.29	62.70	21.20	9.86	10.35	QP
4	0.223	25.81	-26.89	52.70	5.60	9.86	10.35	Average
5	0.345	35.66	-23.53	59.09	15.50	9.77	10.29	QP
6	0.345	22.66	-26.43	49.09	2.60	9.77	10.29	Average
7	2.854	32.49	-23.51	56.00	12.20	10.05	10.24	QP
8	2.854	23.49	-22.51	46.00	3.20	10.05	10.24	Average
9	14.828	35.93	-24.07	60.00	14.51	11.03	10.39	QP
10	14.828	28.53	-21.47	50.00	7.11	11.03	10.39	Average
11	16.398	34.90	-25.10	60.00	13.30	11.17	10.43	QP
12	16.398	27.80	-22.20	50.00	6.20	11.17	10.43	Average

Note:

1. Level(dBuV) = Read Level(dBuV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBuV) – Limit Line(dBuV)



Appendix C. Radiated Spurious Emission

SISO <Ant.1>

UNII 1 - 5150~5250MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
0		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5137.44	68.44	-5.56	74	53.9	35.28	11.99	32.73	100	327	P	H
		5150	48.66	-5.34	54	34.07	35.29	12.02	32.72	100	327	A	H
	*	5182	108.03	-	-	93.35	35.31	12.08	32.71	100	327	P	H
		5182	100.92	-	-	86.24	35.31	12.08	32.71	100	327	A	H
		5140.16	66.07	-7.93	74	51.85	34.93	12.02	32.73	289	84	P	V
		5146.88	50.65	-3.35	54	36.42	34.93	12.02	32.72	289	84	A	V
	*	5182	105.37	-	-	91.04	34.96	12.08	32.71	289	84	P	V
		5182	97.86	-	-	83.53	34.96	12.08	32.71	289	84	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 1 5150~5250MHz
WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		10358.36	44.86	-23.44	68.3	48.82	38.59	18.02	60.57	300	0	P	H
		10358.36	44.71	-23.59	68.3	49.5	37.76	18.02	60.57	100	360	P	V
802.11a CH 44 5220MHz		10438.44	45.75	-22.55	68.3	49.6	38.63	18.09	60.57	300	0	P	H
		10438.44	45.34	-22.96	68.3	50	37.82	18.09	60.57	100	360	P	V
802.11a CH 48 5240MHz		10478.47	45.38	-22.92	68.3	49.17	38.65	18.14	60.58	300	0	P	H
		10478.47	45.51	-22.79	68.3	50.09	37.86	18.14	60.58	100	360	P	V
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												



UNII 2A - 5250~5350MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 64 5320MHz		5356.3	62.79	-11.21	74	47.72	35.42	12.29	32.64	100	322	P	H
		5350.1	46.46	-7.54	54	31.4	35.42	12.29	32.65	100	322	A	H
	*	5320	105.85	-	-	90.87	35.39	12.25	32.66	100	322	P	H
		5320	97.95	-	-	82.97	35.39	12.25	32.66	100	322	A	H
		5353.5	63.66	-10.34	74	48.89	35.12	12.29	32.64	312	85	P	V
		5350.6	46.13	-7.87	54	31.37	35.12	12.29	32.65	312	85	A	V
	*	5320	106.29	-	-	91.61	35.09	12.25	32.66	312	85	P	V
		5320	98.42	-	-	83.74	35.09	12.25	32.66	312	85	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2A 5250~5350MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 52 5260MHz		10518.52	46.89	-21.41	68.3	50.63	38.67	18.17	60.58	300	0	P	H
		10518.52	44.39	-23.91	68.3	48.92	37.88	18.17	60.58	100	360	P	V
802.11a CH 60 5300MHz		10600	45.89	-28.11	74	49.5	38.72	18.24	60.57	300	0	P	H
		10600	45.67	-28.33	74	50.06	37.94	18.24	60.57	100	360	P	V
802.11a CH 64 5320MHz		10638.63	45.11	-28.89	74	48.66	38.74	18.27	60.56	300	0	P	H
		10638.63	44.79	-29.21	74	49.11	37.97	18.27	60.56	100	360	P	V
Remark		1. No other spurious found. 2. All results are PASS against Peak and Average limit line.											



UNII 2C - 5470~5725MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 100 5500MHz		5457.52	62.79	-11.21	74	47.53	35.48	12.38	32.6	115	310	P	H
		5461.68	61.68	-6.62	68.3	46.42	35.48	12.38	32.6	115	310	P	H
		5460	46.49	-7.51	54	31.23	35.48	12.38	32.6	115	310	A	H
	*	5500	106.59	-	-	91.25	35.5	12.42	32.58	115	310	P	H
		5500	99.16	-	-	83.82	35.5	12.42	32.58	115	310	A	H
		5456.88	61.83	-12.17	74	46.83	35.22	12.38	32.6	300	63	P	V
		5460.72	63.09	-5.21	68.3	48.09	35.22	12.38	32.6	300	63	P	V
		5459.92	46.27	-7.73	54	31.27	35.22	12.38	32.6	300	63	A	V
	*	5506	107.05	-	-	91.94	35.27	12.42	32.58	300	63	P	V
		5506	99.52	-	-	84.41	35.27	12.42	32.58	300	63	A	V
802.11a CH 140 5700MHz		5735.08	57.85	-10.45	68.3	42.19	35.72	12.67	32.73	100	217	P	H
	*	5698	100.77	-	-	85.2	35.67	12.6	32.7	100	217	P	H
		5698	92.95	-	-	77.38	35.67	12.6	32.7	100	217	A	H
	!	5733.16	64.86	-3.44	68.3	49.62	35.32	12.65	32.73	279	108	P	V
	*	5698	101.11	-	-	85.86	35.35	12.6	32.7	279	108	P	V
		5698	93.5	-	-	78.25	35.35	12.6	32.7	279	108	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2C - 5470~5725MHz
WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 100 5500MHz		11099.1	46.03	-27.97	74	48.89	38.98	18.67	60.51	300	0	P	H
		11099.1	45.28	-28.72	74	48.82	38.3	18.67	60.51	100	360	P	V
802.11a CH 116 5580MHz		11599.6	46.31	-27.69	74	48.29	39.48	19.09	60.55	300	0	P	H
		11599.6	45.15	-28.85	74	47.89	38.72	19.09	60.55	100	360	P	V
802.11a CH 140 5700MHz		11399.39	45.05	-28.95	74	47.46	39.15	18.93	60.49	300	0	P	H
		11399.39	45.26	-28.74	74	48.29	38.53	18.93	60.49	100	360	P	V
Remark		1. No other spurious found. 2. All results are PASS against Peak and Average limit line.											



UNII 2C - 5470~5725MHz

Emission below 1GHz

WIFI 802.11a (LF @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
0		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a LF		32.91	18.14	-21.86	40	26.54	23.68	0.62	32.7	-	-	P	H
		32.91	18.14	-21.86	40	26.54	23.68	0.62	32.7	-	-	P	H
		128.94	16.09	-27.41	43.5	30.31	16.79	1.83	32.84	-	-	P	H
		157.07	19.11	-24.39	43.5	32.95	16.98	2.02	32.84	-	-	P	H
		224.97	17.99	-28.01	46	31.92	16.75	2.42	33.1	-	-	P	H
		313.24	27.34	-18.66	46	37.75	19.62	2.87	32.9	313	258	P	H
		30	19.04	-20.96	40	25.86	25.3	0.58	32.7	-	-	P	V
		96.93	14.51	-28.99	43.5	30.02	15.68	1.59	32.78	-	-	P	V
		264.74	16.16	-29.84	46	27.83	18.74	2.63	33.04	-	-	P	V
		459.71	20.78	-25.22	46	26.72	23.29	3.49	32.72	-	-	P	V
		614.91	24.65	-21.35	46	27.03	26.14	4.04	32.56	-	-	P	V
		911.73	28.87	-17.13	46	26.87	29.53	4.92	32.45	185	346	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



SISO <Ant.2>

UNII 1 - 5150~5250MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preampl Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5149.28	62.92	-11.08	74	48.33	35.29	12.02	32.72	101	115	P	H
		5150	50.94	-3.06	54	36.35	35.29	12.02	32.72	101	115	A	H
	*	5176	109.16	-	-	94.49	35.3	12.08	32.71	101	115	P	H
		5176	101.33	-	-	86.66	35.3	12.08	32.71	101	115	A	H
		5148.96	58.96	-15.04	74	44.73	34.93	12.02	32.72	300	86	P	V
		5150	49.01	-4.99	54	34.78	34.93	12.02	32.72	300	86	A	V
	*	5176	105.71	-	-	91.38	34.96	12.08	32.71	300	86	P	V
		5176	98.33	-	-	84	34.96	12.08	32.71	300	86	A	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



UNII 1 5150~5250MHz
WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		10358.36	46.35	-21.95	68.3	50.31	38.59	18.02	60.57	300	0	P	H
		10358.36	45.17	-23.13	68.3	49.96	37.76	18.02	60.57	100	360	P	V
802.11a CH 44 5220MHz		10438.44	47.03	-21.27	68.3	50.88	38.63	18.09	60.57	300	0	P	H
		10438.44	48.08	-20.22	68.3	52.74	37.82	18.09	60.57	100	360	P	V
802.11a CH 48 5240MHz		10478.47	46.79	-21.51	68.3	50.58	38.65	18.14	60.58	300	0	P	H
		10478.47	46.84	-21.46	68.3	51.42	37.86	18.14	60.58	100	360	P	V
Remark	3. No other spurious found.												
	4. All results are PASS against Peak and Average limit line.												



UNII 2A - 5250~5350MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 64 5320MHz		5351.6	60.34	-13.66	74	45.28	35.42	12.29	32.65	100	114	P	H
		5350	50.89	-3.11	54	35.83	35.42	12.29	32.65	100	114	A	H
	*	5320	108.67	-	-	93.69	35.39	12.25	32.66	100	114	P	H
		5320	101.12	-	-	86.14	35.39	12.25	32.66	100	114	A	H
		5350.6	58.18	-15.82	74	43.42	35.12	12.29	32.65	300	96	P	V
		5350	48.61	-5.39	54	33.85	35.12	12.29	32.65	300	96	A	V
	*	5320	106.54	-	-	91.86	35.09	12.25	32.66	300	96	P	V
		5320	99.19	-	-	84.51	35.09	12.25	32.66	300	96	A	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



UNII 2A 5250~5350MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 52 5260MHz		10518.52	47.17	-21.13	68.3	50.91	38.67	18.17	60.58	300	0	P	H
		10518.52	46.85	-21.45	68.3	51.38	37.88	18.17	60.58	100	360	P	V
802.11a CH 60 5300MHz		10600	47.96	-26.04	74	51.57	38.72	18.24	60.57	300	0	P	H
		10600	47.91	-26.09	74	52.3	37.94	18.24	60.57	100	360	P	V
802.11a CH 64 5320MHz		10638.63	47.56	-26.44	74	51.11	38.74	18.27	60.56	300	0	P	H
		10640	48.13	-25.87	74	52.45	37.97	18.27	60.56	100	360	P	V
Remark	3. No other spurious found.												
	4. All results are PASS against Peak and Average limit line.												



UNII 2C - 5470~5725MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 100 5500MHz		5455.76	57.39	-16.61	74	42.13	35.48	12.38	32.6	101	114	P	H
		5469.68	62.78	-5.52	68.3	47.5	35.49	12.39	32.6	101	114	P	H
		5460	47.17	-6.83	54	31.91	35.48	12.38	32.6	101	114	A	H
	*	5500	109.18	-	-	93.84	35.5	12.42	32.58	101	114	P	H
		5500	101.64	-	-	86.3	35.5	12.42	32.58	101	114	A	H
		5455.92	56.17	-17.83	74	41.17	35.22	12.38	32.6	294	93	P	V
		5469.84	61.5	-6.8	68.3	46.47	35.24	12.39	32.6	294	93	P	V
		5460	46.32	-7.68	54	31.32	35.22	12.38	32.6	294	93	A	V
	*	5500	107	-	-	91.89	35.27	12.42	32.58	294	93	P	V
		5500	99.97	-	-	84.86	35.27	12.42	32.58	294	93	A	V
802.11a CH 140 5700MHz		5727.4	64.37	-3.93	68.3	48.72	35.72	12.65	32.72	100	109	P	H
	*	5698	109.32	-	-	93.75	35.67	12.6	32.7	100	109	P	H
		5698	102.4	-	-	86.83	35.67	12.6	32.7	100	109	A	H
		5725	63.15	-5.15	68.3	47.9	35.32	12.65	32.72	267	93	P	V
	*	5698	108.31	-	-	93.06	35.35	12.6	32.7	267	93	P	V
		5698	101.15	-	-	85.9	35.35	12.6	32.7	267	93	A	V
Remark	3. No other spurious found.												
	4. All results are PASS against Peak and Average limit line.												



UNII 2C - 5470~5725MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 100 5500MHz		10999	49.65	-24.35	74	52.64	38.93	18.59	60.51	300	0	P	H
		11004	60.05	-13.95	74	63.74	38.23	18.59	60.51	100	235	P	V
802.11a CH 116 5580MHz		11159.16	51.76	-22.24	74	54.51	39.02	18.73	60.5	300	0	P	H
		11159.16	60.23	-13.77	74	63.65	38.35	18.73	60.5	100	2	P	V
802.11a CH 140 5700MHz		11399.39	48.8	-25.2	74	51.21	39.15	18.93	60.49	300	0	P	H
		11399.39	55.33	-18.67	74	58.36	38.53	18.93	60.49	100	3	P	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

WIFI 802.11a (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a LF		31.94	19.41	-20.59	40	27.28	24.22	0.61	32.7	-	-	P	H
		128.94	16.02	-27.48	43.5	30.24	16.79	1.83	32.84	-	-	P	H
		157.07	17.85	-25.65	43.5	31.69	16.98	2.02	32.84	-	-	P	H
		186.17	16.7	-26.8	43.5	31.88	15.63	2.21	33.02	-	-	P	H
		270.56	16.87	-29.13	46	28.4	18.83	2.66	33.02	-	-	P	H
		881.66	27.95	-18.05	46	26.36	29.29	4.84	32.54	341	256	P	H
		30	19.04	-20.96	40	25.86	25.3	0.58	32.7	342	158	P	V
		96.93	14.51	-28.99	43.5	30.02	15.68	1.59	32.78	-	-	P	V
		157.07	13.7	-29.8	43.5	27.54	16.98	2.02	32.84	-	-	P	V
		264.74	16.16	-29.84	46	27.83	18.74	2.63	33.04	-	-	P	V
		485.9	21.14	-24.86	46	26.52	23.81	3.58	32.77	-	-	P	V
		614.91	24.65	-21.35	46	27.03	26.14	4.04	32.56	-	-	P	V
Remark	3. No other spurious found.												
	4. All results are PASS against limit line.												



MIMO <Ant.1+2>

UNII 1 - 5150~5250MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ac VHT20 CH 36 5180MHz		5149.28	58.45	-15.55	74	43.86	35.29	12.02	32.72	101	321	P	H
		5149.92	47.7	-6.3	54	33.11	35.29	12.02	32.72	101	321	A	H
		5182	107.87	-	-	93.19	35.31	12.08	32.71	101	321	P	H
		5182	98.47	-	-	83.79	35.31	12.08	32.71	101	321	A	H
		5149.12	58.88	-15.12	74	44.65	34.93	12.02	32.72	301	83	P	V
		5150	49.04	-4.96	54	34.81	34.93	12.02	32.72	301	83	A	V
		5182	108.37	-	-	94.04	34.96	12.08	32.71	301	83	P	V
		5182	98.53	-	-	84.2	34.96	12.08	32.71	301	83	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 1 5150~5250MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20		10360	45.28	-23.02	68.3	49.23	38.59	18.03	60.57	300	0	P	H
CH 36 5180MHz		10360	43.31	-24.99	68.3	48.08	37.77	18.03	60.57	100	360	P	V
802.11ac VHT20		10440	45.37	-22.93	68.3	49.22	38.63	18.09	60.57	300	0	P	H
CH 44 5220MHz		10440	44.99	-23.31	68.3	49.65	37.82	18.09	60.57	100	360	P	V
802.11ac VHT20		10480	45.76	-22.54	68.3	49.55	38.65	18.14	60.58	300	0	P	H
CH 48 5240MHz		10480	45.69	-22.61	68.3	50.27	37.86	18.14	60.58	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 1 5150~5250MHz
WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 38 5190MHz		5149.76	60.55	-13.45	74	45.96	35.29	12.02	32.72	109	267	P	H
	!	5149.98	50.9	-3.1	54	36.31	35.29	12.02	32.72	109	267	A	H
	*	5188	101.32	-	-	86.64	35.31	12.08	32.71	109	267	P	H
		5188	94.12	-	-	79.44	35.31	12.08	32.71	109	267	A	H
		5364	55.54	-18.46	74	40.45	35.42	12.31	32.64	109	267	P	H
		5353.2	45.9	-8.1	54	30.83	35.42	12.29	32.64	109	267	A	H
		5146.88	59.5	-14.5	74	45.27	34.93	12.02	32.72	261	88	P	V
	!	5149.76	49.65	-4.35	54	35.42	34.93	12.02	32.72	261	88	A	V
	*	5188	100.24	-	-	85.91	34.96	12.08	32.71	261	88	P	V
		5188	93.35	-	-	79.02	34.96	12.08	32.71	261	88	A	V
		5352.3	55.37	-18.63	74	40.61	35.12	12.29	32.65	261	88	P	V
		5352.84	45.51	-8.49	54	30.74	35.12	12.29	32.64	261	88	A	V
802.11ac VHT40 CH 46 5230MHz		5134.24	57.46	-16.54	74	42.92	35.28	11.99	32.73	100	337	P	H
		5136.64	48	-6	54	33.46	35.28	11.99	32.73	100	337	A	H
		5230	106.25	-	-	91.45	35.34	12.15	32.69	100	337	P	H
		5230	99.38	-	-	84.58	35.34	12.15	32.69	100	337	A	H
		5370.66	55.1	-18.9	74	40	35.43	12.31	32.64	100	337	P	H
		5350.68	46.08	-7.92	54	31.02	35.42	12.29	32.65	100	337	A	H
		5145.6	58.34	-15.66	74	44.11	34.93	12.02	32.72	289	95	P	V
		5146.24	47.26	-6.74	54	33.03	34.93	12.02	32.72	289	95	A	V
		5224	106.36	-	-	91.93	34.99	12.13	32.69	289	95	P	V
		5224	98.46	-	-	84.03	34.99	12.13	32.69	289	95	A	V
		5398.92	56.14	-17.86	74	41.25	35.17	12.35	32.63	289	95	P	V
		5350.01	45.55	-8.45	54	30.79	35.12	12.29	32.65	289	95	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 1 5150~5250MHz
WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40		10378.38	44.34	-23.96	68.3	48.26	38.6	18.05	60.57	300	0	P	H
CH 38 5190MHz		10378.38	43.52	-24.78	68.3	48.26	37.78	18.05	60.57	100	360	P	V
802.11ac VHT40		10458.46	45.42	-22.88	68.3	49.25	38.64	18.11	60.58	300	0	P	H
CH 46 5230MHz		10458.46	45.81	-22.49	68.3	50.45	37.83	18.11	60.58	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 1 5150~5250MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 42 5210MHz		5144.8	59.85	-14.15	74	45.26	35.29	12.02	32.72	100	223	P	H
		5145.44	50.43	-3.57	54	35.84	35.29	12.02	32.72	100	223	A	H
	*	5200	97.99	-	-	83.26	35.32	12.11	32.7	100	223	P	H
		5200	89.44	-	-	74.71	35.32	12.11	32.7	100	223	A	H
		5379.3	54.56	-19.44	74	39.43	35.43	12.33	32.63	100	223	P	H
		5388.3	46.13	-7.87	54	30.99	35.44	12.33	32.63	100	223	A	H
		5136.48	59.83	-14.17	74	45.66	34.91	11.99	32.73	300	77	P	V
		5138.08	49.98	-4.02	54	35.81	34.91	11.99	32.73	300	77	A	V
	*	5218	96.14	-	-	81.71	34.99	12.13	32.69	300	77	P	V
		5218	89.02	-	-	74.59	34.99	12.13	32.69	300	77	A	V
		5357.88	55.12	-18.88	74	40.35	35.12	12.29	32.64	300	77	P	V
		5355.9	45.88	-8.12	54	31.11	35.12	12.29	32.64	300	77	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 1 5150~5250MHz
WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80		10418.42	45.37	-22.93	68.3	49.24	38.62	18.08	60.57	300	0	P	H
CH 42 5210MHz		10418.42	44.22	-24.08	68.3	48.9	37.81	18.08	60.57	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2A - 5250~5350MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 64 5320MHz		5350.8	55.49	-18.51	74	40.43	35.42	12.29	32.65	100	317	P	H
		5350	46.52	-7.48	54	31.46	35.42	12.29	32.65	100	317	A	H
	*	5320	107.06	-	-	92.08	35.39	12.25	32.66	100	317	P	H
		5320	97.89	-	-	82.91	35.39	12.25	32.66	100	317	A	H
		5351.9	55.32	-18.68	74	40.56	35.12	12.29	32.65	300	83	P	V
		5350	46.09	-7.91	54	31.33	35.12	12.29	32.65	300	83	A	V
	*	5314	107.53	-	-	92.85	35.09	12.25	32.66	300	83	P	V
		5314	98.18	-	-	83.5	35.09	12.25	32.66	300	83	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2A 5250~5350MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20		10520	45.5	-22.8	68.3	49.24	38.67	18.17	60.58	300	0	P	H
CH 52 5260MHz		10520	44.92	-23.38	68.3	49.45	37.88	18.17	60.58	100	360	P	V
802.11ac VHT20		10600	45.67	-28.33	74	49.28	38.72	18.24	60.57	300	0	P	H
CH 60 5300MHz		10600	46.53	-27.47	74	50.92	37.94	18.24	60.57	100	360	P	V
802.11ac VHT20		10640	46.49	-27.51	74	50.04	38.74	18.27	60.56	300	0	P	H
CH 64 5320MHz		10640	47.02	-26.98	74	51.34	37.97	18.27	60.56	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2A 5250~5350MHz
WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 54 5270MHz		5142.08	57.23	-16.77	74	42.65	35.28	12.02	32.72	193	335	P	H
		5140.32	47.15	-6.85	54	32.58	35.28	12.02	32.73	193	335	A	H
	*	5272	106.15	-	-	91.28	35.36	12.19	32.68	193	335	P	H
		5272	98.41	-	-	83.54	35.36	12.19	32.68	193	335	A	H
		5358.5	55.23	-18.77	74	40.16	35.42	12.29	32.64	193	335	P	H
		5353.4	46.4	-7.6	54	31.33	35.42	12.29	32.64	193	335	A	H
		5133.12	56.24	-17.76	74	42.07	34.91	11.99	32.73	320	92	P	V
		5143.68	46.9	-7.1	54	32.67	34.93	12.02	32.72	320	92	A	V
	*	5284	104.94	-	-	90.34	35.06	12.21	32.67	320	92	P	V
		5284	98.29	-	-	83.69	35.06	12.21	32.67	320	92	A	V
		5350.7	55.99	-18.01	74	41.23	35.12	12.29	32.65	320	92	P	V
		5350	46.15	-7.85	54	31.39	35.12	12.29	32.65	320	92	A	V
802.11ac VHT40 CH 62 5310MHz		5112.96	57.55	-16.45	74	43.07	35.26	11.96	32.74	100	220	P	H
		5131.68	47.41	-6.59	54	32.87	35.28	11.99	32.73	100	220	A	H
	*	5314	104.42	-	-	89.44	35.39	12.25	32.66	100	220	P	H
		5314	96.92	-	-	81.94	35.39	12.25	32.66	100	220	A	H
		5353.9	61.36	-12.64	74	46.29	35.42	12.29	32.64	100	220	P	H
		5354.1	50.32	-3.68	54	35.25	35.42	12.29	32.64	100	220	A	H
		5107.36	56.31	-17.69	74	42.19	34.9	11.96	32.74	301	87	P	V
		5143.2	47.1	-6.9	54	32.87	34.93	12.02	32.72	301	87	A	V
	*	5308	104.81	-	-	90.16	35.08	12.23	32.66	301	87	P	V
		5308	98.36	-	-	83.71	35.08	12.23	32.66	301	87	A	V
		5351.3	57.69	-16.31	74	42.93	35.12	12.29	32.65	301	87	P	V
		5350	50.25	-3.75	54	35.49	35.12	12.29	32.65	301	87	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2A 5250~5350MHz

WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40		10538.54	45.97	-22.33	68.3	49.69	38.68	18.18	60.58	300	0	P	H
CH 54 5270MHz		10538.54	46.33	-21.97	68.3	50.83	37.9	18.18	60.58	100	360	P	V
802.11ac VHT40		10618.62	45.98	-28.02	74	49.55	38.73	18.26	60.56	300	0	P	H
CH 62 5310MHz		10618.62	45.04	-28.96	74	49.38	37.96	18.26	60.56	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2A 5250~5350MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 58 5290MHz		5123.2	56.42	-17.58	74	41.9	35.26	11.99	32.73	100	113	P	H
		5131.84	48.01	-5.99	54	33.47	35.28	11.99	32.73	100	113	A	H
	*	5278	99.62	-	-	84.73	35.36	12.21	32.68	100	113	P	H
		5278	92	-	-	77.11	35.36	12.21	32.68	100	113	A	H
		5360.5	62.23	-11.77	74	47.16	35.42	12.29	32.64	100	113	P	H
		5350.2	50.81	-3.19	54	35.75	35.42	12.29	32.65	100	113	A	H
		5123.36	57.64	-16.36	74	43.47	34.91	11.99	32.73	269	89	P	V
		5147.68	47.51	-6.49	54	33.28	34.93	12.02	32.72	269	89	A	V
	*	5284	99.72	-	-	85.12	35.06	12.21	32.67	269	89	P	V
		5284	92.1	-	-	77.5	35.06	12.21	32.67	269	89	A	V
		5365.7	57.73	-16.27	74	42.92	35.14	12.31	32.64	269	89	P	V
		5361.4	49.2	-4.8	54	34.39	35.14	12.31	32.64	269	89	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**UNII 2A 5250~5350MHz****WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80		10578.58	45.85	-22.45	68.3	49.51	38.7	18.21	60.57	300	0	P	H
CH 58 5290MHz		10578.58	44.56	-23.74	68.3	49	37.92	18.21	60.57	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2C - 5470~5725MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 100 5500MHz		5460	56.02	-17.98	74	40.76	35.48	12.38	32.6	100	302	P	H
		5469.52	56.24	-12.06	68.3	40.96	35.49	12.39	32.6	100	302	P	H
		5459.28	46.15	-7.85	54	30.89	35.48	12.38	32.6	100	302	A	H
	*	5500	108.66	-	-	93.32	35.5	12.42	32.58	100	302	P	H
		5500	101.48	-	-	86.14	35.5	12.42	32.58	100	302	A	H
		5457.84	55.44	-18.56	74	40.44	35.22	12.38	32.6	265	90	P	V
		5470	56.75	-11.55	68.3	41.72	35.24	12.39	32.6	265	90	P	V
		5459.76	46.02	-7.98	54	31.02	35.22	12.38	32.6	265	90	A	V
	*	5500	109.04	-	-	93.93	35.27	12.42	32.58	265	90	P	V
		5500	100.89	-	-	85.78	35.27	12.42	32.58	265	90	A	V
802.11ac VHT20 CH 140 5700MHz		5725.08	61.55	-6.75	68.3	45.9	35.72	12.65	32.72	100	267	P	H
	*	5698	107.81	-	-	92.24	35.67	12.6	32.7	100	267	P	H
		5698	101.05	-	-	85.48	35.67	12.6	32.7	100	267	A	H
		5725.24	61.91	-6.39	68.3	46.66	35.32	12.65	32.72	278	92	P	V
	*	5704	108.49	-	-	93.22	35.34	12.63	32.7	278	92	P	V
		5704	101.28	-	-	86.01	35.34	12.63	32.7	278	92	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2C - 5470~5725MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20		10999	44.72	-29.28	74	47.71	38.93	18.59	60.51	300	0	P	H
CH 100 5500MHz		10999	43.82	-30.18	74	47.51	38.23	18.59	60.51	100	360	P	V
802.11ac VHT20		11159.16	50.18	-23.82	74	52.93	39.02	18.73	60.5	300	0	P	H
CH 116 5580MHz		11159.16	57.95	-16.05	74	61.37	38.35	18.73	60.5	100	3	P	V
802.11ac VHT20		11399.39	49.24	-24.76	74	51.65	39.15	18.93	60.49	300	0	P	H
CH 140 5700MHz		11399.39	55.51	-18.49	74	58.54	38.53	18.93	60.49	100	12	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2C - 5470~5725MHz

WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 102 5510MHz		5459.76	59.98	-14.02	74	44.72	35.48	12.38	32.6	104	220	P	H
		5466.48	64.2	-4.1	68.3	48.93	35.48	12.39	32.6	104	220	P	H
		5459.98	50.41	-3.59	54	35.15	35.48	12.38	32.6	104	220	A	H
	*	5506	104.57	-	-	89.22	35.51	12.42	32.58	104	220	P	H
		5506	96.92	-	-	81.57	35.51	12.42	32.58	104	220	A	H
		5733.32	58.13	-10.17	68.3	42.49	35.72	12.65	32.73	104	220	P	H
		5425.84	56.8	-17.2	74	41.86	35.19	12.36	32.61	290	92	P	V
		5468.88	64.94	-3.36	68.3	49.91	35.24	12.39	32.6	290	92	P	V
		5459.98	46.89	-7.11	54	31.89	35.22	12.38	32.6	290	92	A	V
	*	5506	103.17	-	-	88.06	35.27	12.42	32.58	290	92	P	V
		5506	96.07	-	-	80.96	35.27	12.42	32.58	290	92	A	V
		5731.88	57.26	-11.04	68.3	42.02	35.32	12.65	32.73	290	92	P	V
802.11ac VHT40 CH 134 5670MHz		5447.6	56.34	-17.66	74	41.09	35.47	12.38	32.6	100	225	P	H
		5470	53.81	-14.49	68.3	38.53	35.49	12.39	32.6	100	225	P	H
		5447.6	49.33	-4.67	54	34.08	35.47	12.38	32.6	100	225	A	H
	*	5668	107.24	-	-	91.73	35.62	12.58	32.69	100	225	P	H
		5668	99.26	-	-	83.75	35.62	12.58	32.69	100	225	A	H
		5732.44	63.01	-5.29	68.3	47.37	35.72	12.65	32.73	100	225	P	H
		5447.76	56.35	-17.65	74	41.35	35.22	12.38	32.6	277	94	P	V
		5468.08	53.54	-14.76	68.3	38.51	35.24	12.39	32.6	277	94	P	V
		5447.44	48.99	-5.01	54	33.99	35.22	12.38	32.6	277	94	A	V
	*	5668	107.29	-	-	92.03	35.37	12.58	32.69	277	94	P	V
		5668	100.01	-	-	84.75	35.37	12.58	32.69	277	94	A	V
		5726.2	63.72	-4.58	68.3	48.47	35.32	12.65	32.72	277	94	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2C - 5470~5725MHz

WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 102 5510MHz		11019.02	46.37	-27.63	74	49.34	38.94	18.6	60.51	300	0	P	H
		11019.02	47.69	-26.31	74	51.36	38.24	18.6	60.51	100	360	P	V
802.11ac VHT40 CH 110 5550MHz		11099.1	48.12	-25.88	74	50.98	38.98	18.67	60.51	300	0	P	H
		11100	50.46	-23.54	74	54	38.3	18.67	60.51	100	360	P	V
802.11ac VHT40 CH 134 5670MHz		11339.33	46.75	-27.25	74	49.27	39.11	18.87	60.5	300	0	P	H
		11339.33	49.93	-24.07	74	53.08	38.48	18.87	60.5	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2C 5470~5725MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 106 5530MHz		5454.16	59.48	-14.52	74	44.22	35.48	12.38	32.6	101	221	P	H
		5462.16	61.11	-7.19	68.3	45.85	35.48	12.38	32.6	101	221	P	H
		5459.98	50.66	-3.34	54	35.4	35.48	12.38	32.6	101	221	A	H
	*	5524	97.61	-	-	82.26	35.52	12.43	32.6	101	221	P	H
		5524	90.86	-	-	75.51	35.52	12.43	32.6	101	221	A	H
		5742.36	56.55	-11.75	68.3	40.86	35.75	12.67	32.73	101	221	P	H
		5448.88	60.89	-13.11	74	45.89	35.22	12.38	32.6	280	94	P	V
		5466.8	60.83	-7.47	68.3	45.8	35.24	12.39	32.6	280	94	P	V
		5450.32	49.59	-4.41	54	34.59	35.22	12.38	32.6	280	94	A	V
	*	5530	97.9	-	-	82.78	35.29	12.43	32.6	280	94	P	V
		5530	91.09	-	-	75.97	35.29	12.43	32.6	280	94	A	V
		5763.08	56.26	-12.04	68.3	41.03	35.29	12.69	32.75	280	94	P	V
802.11ac VHT80 CH 122 5610MHz		5459.92	56.49	-17.51	74	41.23	35.48	12.38	32.6	100	113	P	H
		5466.16	55.58	-12.72	68.3	40.31	35.48	12.39	32.6	100	113	P	H
		5459.98	47.17	-6.83	54	31.91	35.48	12.38	32.6	100	113	A	H
	*	5602	105.13	-	-	89.71	35.57	12.49	32.64	100	113	P	H
		5602	96.93	-	-	81.51	35.57	12.49	32.64	100	113	A	H
		5726.04	64.86	-3.44	68.3	49.21	35.72	12.65	32.72	100	113	P	H
		5444.72	55.56	-18.44	74	40.59	35.21	12.37	32.61	296	103	P	V
		5462.16	54.81	-13.49	68.3	39.81	35.22	12.38	32.6	296	103	P	V
		5459.76	46.21	-7.79	54	31.21	35.22	12.38	32.6	296	103	A	V
	*	5602	105.24	-	-	90.02	35.37	12.49	32.64	296	103	P	V
		5602	97.16	-	-	81.94	35.37	12.49	32.64	296	103	A	V
		5733	63.54	-4.76	68.3	48.3	35.32	12.65	32.73	296	103	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII 2C 5470~5725MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80		11059.05	46.23	-27.77	74	49.13	38.96	18.65	60.51	300	0	P	H
CH 106 5530MHz		11059.05	48.19	-25.81	74	51.77	38.28	18.65	60.51	100	360	P	V
802.11ac VHT80		11219.21	45.22	-28.78	74	47.9	39.05	18.77	60.5	300	0	P	H
CH 122 5610MHz		11219.21	47.34	-26.66	74	50.68	38.39	18.77	60.5	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

5GHz WIFI 802.11ac VHT40 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11ac VHT40 LF		31.94	19.41	-20.59	40	27.28	24.22	0.61	32.7	148	256	P	H
		128.94	15.98	-27.52	43.5	30.2	16.79	1.83	32.84	-	-	P	H
		157.07	17.85	-25.65	43.5	31.69	16.98	2.02	32.84	-	-	P	H
		186.17	16.39	-27.11	43.5	31.57	15.63	2.21	33.02	-	-	P	H
		270.56	16.87	-29.13	46	28.4	18.83	2.66	33.02	-	-	P	H
		632.37	23.53	-22.47	46	25.64	26.42	4.1	32.63	-	-	P	H
		46.49	27.77	-12.23	40	43.74	16.13	0.83	32.93	145	311	P	V
		87.23	21.37	-18.63	40	38.28	14.37	1.44	32.72	-	-	P	V
		190.05	15.99	-27.51	43.5	31.34	15.45	2.24	33.04	-	-	P	V
		309.36	24.03	-21.97	46	34.55	19.53	2.85	32.9	-	-	P	V
		421.88	22.63	-23.37	46	29.62	22.43	3.34	32.76	-	-	P	V
		696.39	24.58	-21.42	46	26.38	26.7	4.29	32.79	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



For Co-location:

UNII 1 - 5150~5250MHz

WIFI 802.11a CH 36 + BLE-2M CH39 (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preampl Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
11a CH36 5180MHz		5148.16	66.98	-7.02	74	52.39	35.29	12.02	32.72	100	113	P	H
		5150	47.82	-6.18	54	33.23	35.29	12.02	32.72	100	113	A	H
		5182	103.67	-	-	88.99	35.31	12.08	32.71	100	113	P	H
		5182	96.87	-	-	82.19	35.31	12.08	32.71	100	113	A	H
		5137.92	64.36	-9.64	74	50.19	34.91	11.99	32.73	283	82	P	V
		5150	46.99	-7.01	54	32.76	34.93	12.02	32.72	283	82	A	V
		5182	101.37	-	-	87.04	34.96	12.08	32.71	283	82	P	V
		5182	94.14	-	-	79.81	34.96	12.08	32.71	283	82	A	V
Remark		3. No other spurious found.											
		4. All results are PASS against Peak and Average limit line.											

WIFI 802.11a CH 36 + BLE-2M CH39 (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preampl Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
11a CH36 5180MHz		10360	44.81	-23.49	68.3	48.76	38.59	18.03	60.57	300	0	P	H
		10360	44.69	-23.61	68.3	49.46	37.77	18.03	60.57	100	360	P	V
Remark		3. No other spurious found.											
		4. All results are PASS against Peak and Average limit line.											



2.4GHz 2400~2483.5MHz

WIFI 802.11a CH 36 + BLE-2M CH39 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT 5.0 CH 39 2480MHz		2483.5	57.02	-16.98	74	50.43	31.8	8.22	33.43	128	325	P	H
		2483.5	49.73	-4.27	54	43.14	31.8	8.22	33.43	128	325	A	H
		2480	102.21	-	-	95.62	31.8	8.22	33.43	128	325	P	H
		2480	100.85	--	--	94.26	31.8	8.22	33.43	128	325	A	H
		2493.82	54.92	-19.08	74	47.37	32.73	8.24	33.42	298	222	P	V
		2483.5	46.97	-7.03	54	39.32	32.86	8.22	33.43	298	222	A	V
		2480	95.85	-	-	88.2	32.86	8.22	33.43	298	222	P	V
		2480	94.46	--	--	86.81	32.86	8.22	33.43	298	222	A	V
Remark - No other spurious found. - All results are PASS against Peak and Average limit line.													

2.4GHz 2400~2483.5MHz

WIFI 802.11a CH 36 + BLE-2M CH39 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT 5.0 CH39		4962	39.98	-34.02	74	54.17	35.14	11.71	61.04	300	0	P	H
		7440	42.09	-31.91	74	51.37	36.89	14.88	61.05	300	0	P	H
		4962	38.79	-35.21	74	53.31	34.81	11.71	61.04	300	360	P	V
		7440	41.47	-32.53	74	51.17	36.47	14.88	61.05	300	360	P	V
Remark - No other spurious found. - All results are PASS against Peak and Average limit line.													

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	P eak or A verage
H/V	H orizontal or V ertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

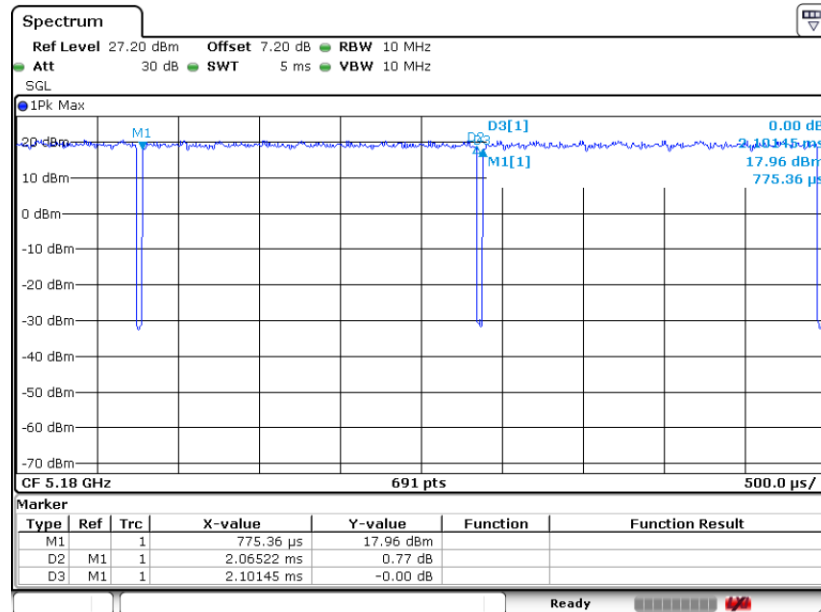
Both peak and average measured complies with the limit line, so test result is “PASS”.

Appendix D. Duty Cycle Plots

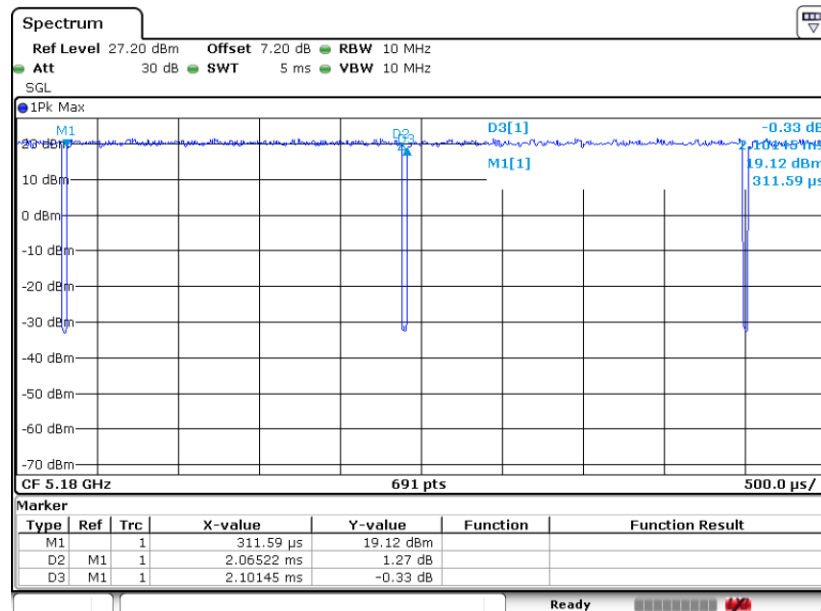
Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1	802.11a	98.28	-	-	10Hz
2	802.11a	98.28	-	-	10Hz
1+2	802.11ac VHT20	98.16	-	-	10Hz
1+2	802.11ac VHT40	96.35	0.957	1.045	1.1KHz
1+2	802.11ac VHT80	92.20	0.462	2.163	2.2KHz



802.11a Ant 1



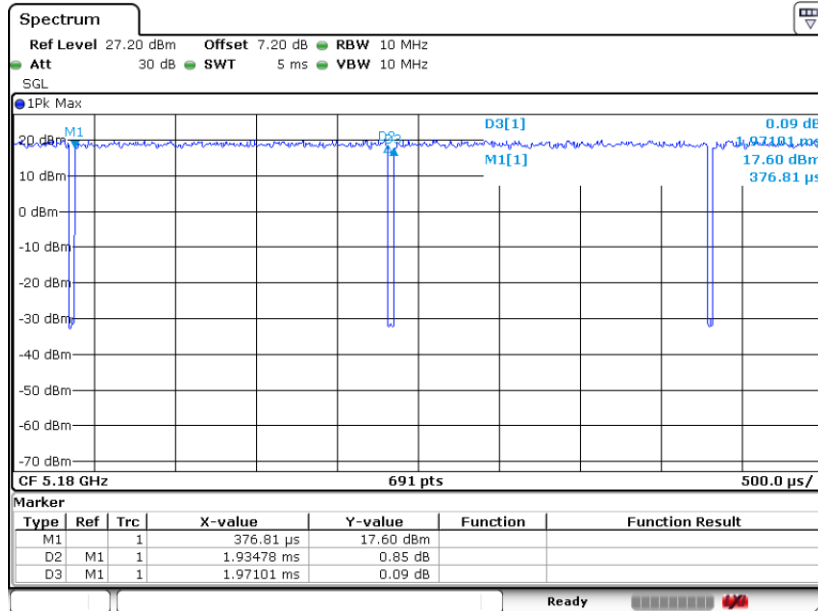
802.11a Ant 2



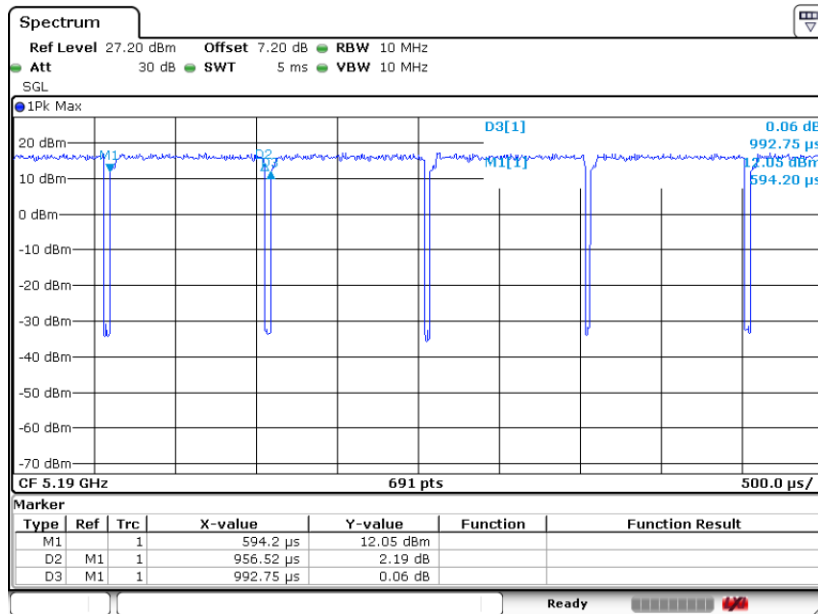


<MIMO Ant.1+2>

802.11ac VHT20



802.11ac VHT40





802.11ac VHT80

