



FCC RF Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2215-2, XT2215-3, XT2215-4, XT2215DL
FCC ID : IHDT56AA4
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure
TEST DATE(S) : Dec. 19, 2021 ~ Jan. 17, 2022

We, Sporton International Inc. (ShenZhen), 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 Inc. (ShenZhen), the test report shall not be reproduced except in full.

Reviewed by: Derreck Chen / Supervisor

Approved by: Eric Shih / Manager



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 People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR1N0903E	Rev. 01	Initial issue of report	Jan. 30, 2022



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	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 3.11 dB at 5353.44 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 15.34 dB at 0.54 MHz
3.6	15.203 & 15.407(a)	Antenna Requirement	15.203 & 15.407(a)	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

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2215-2, XT2215-3, XT2215-4, XT2215DL
FCC ID	IHDT56AA4
IMEI Code	Conducted: 351475460011330 Conduction: 351475460015273 Radiation: 35147560011876
HW Version	DVT2
SW Version	S1SD32.29
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. The four models XT2215-2, XT2215-3, XT2215-4 and XT2215DL are only for market differentiation, all the others are the same.



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	<p><5180 MHz ~ 5240 MHz> 802.11a : 20.31 dBm / 0.1074 W 802.11n HT20 : 20.21 dBm / 0.1050 W 802.11n HT40 : 19.10 dBm / 0.0813 W 802.11ac VHT20 : 19.39 dBm / 0.0869 W 802.11ac VHT40 : 19.06 dBm / 0.0805 W 802.11ac VHT80 : 14.83 dBm / 0.0304 W</p> <p><5260 MHz ~ 5320 MHz> 802.11a : 20.39 dBm / 0.1094 W 802.11n HT20 : 20.38 dBm / 0.1091 W 802.11n HT40 : 19.22 dBm / 0.0836 W 802.11ac VHT20 : 19.16 dBm / 0.0824 W 802.11ac VHT40 : 19.17 dBm / 0.0826 W 802.11ac VHT80 : 19.05 dBm / 0.0804 W</p> <p><5500 MHz ~ 5700 MHz > 802.11a : 20.45 dBm / 0.1109 W 802.11n HT20 : 20.46 dBm / 0.1112 W 802.11n HT40 : 19.17 dBm / 0.0826 W 802.11ac VHT20 : 19.20 dBm / 0.0832 W 802.11ac VHT40 : 19.09 dBm / 0.0811 W 802.11ac VHT80 : 16.49 dBm / 0.0446 W</p>
99% Occupied Bandwidth	<p><5180 MHz ~ 5240 MHz> 802.11a : 17.48 MHz 802.11n HT20 : 18.33 MHz 802.11n HT40 : 36.56 MHz 802.11ac VHT80 : 75.76 MHz</p> <p><5260 MHz ~ 5320 MHz > 802.11a : 17.13 MHz 802.11n HT20 : 18.18 MHz 802.11n HT40 : 36.56 MHz 802.11ac VHT80 : 75.64 MHz</p> <p><5500 MHz ~ 5700 MHz > 802.11a : 17.03 MHz 802.11n HT20 : 18.13 MHz 802.11n HT40 : 36.66 MHz 802.11ac VHT80 : 75.76 MHz</p>
Antenna Type / Gain	<p><5150 MHz ~ 5250 MHz> PIFA Antenna with gain -6.0 dBi</p> <p><5250 MHz ~ 5350 MHz> PIFA Antenna with gain -6.0 dBi</p> <p><5470 MHz ~ 5725 MHz> PIFA Antenna with gain -6.5 dBi</p>
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)



Note:

- 1. WLAN operation in 5600 MHz ~ 5650 MHz is notched.
- 2. Note: For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing have assessed only 802.11n HT20/HT40 by referring to their maximum conducted power.

1.5 Modification of EUT

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

1.6 Specification of Accessory

Specification of Accessory				
AC Adapter 1	Brand Name	Motorola(Chenyang)	Model Name	MC-101
AC Adapter 2	Brand Name	Motorola(Salcomp)	Model Name	MC-101
AC Adapter 3	Brand Name	Motorola(AOHAI)	Model Name	MC-101
Battery	Brand Name	Motorola(ATL)	Model Name	MD50
USB Cable 1	Brand Name	Motorola(Saibao)	Model Name	SC18D22297
USB Cable 2	Brand Name	Motorola(Cabletech)	Model Name	SC18D22298
USB Cable 3	Brand Name	Motorola(Luxshare)	Model Name	SC18D22299



1.7 Testing Location

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-SZ TH01-SZ	CN1256	421272

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH02-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH02-SZ	AUDIX	E3	6.2009-8-24a
2.	CO01-SZ	AUDIX	E3	6.120613b

1.9 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.
- ANSI C63.10-2013

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.



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 (Y 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

Note:

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



2.2 Test Mode

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

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link(5G) + USB Cable1(Charging from Adapter1) + Earphone
Remark: For Radiated Test Cases, The tests were performance with Adapter 1, Earphone, and USB Cable 1.	



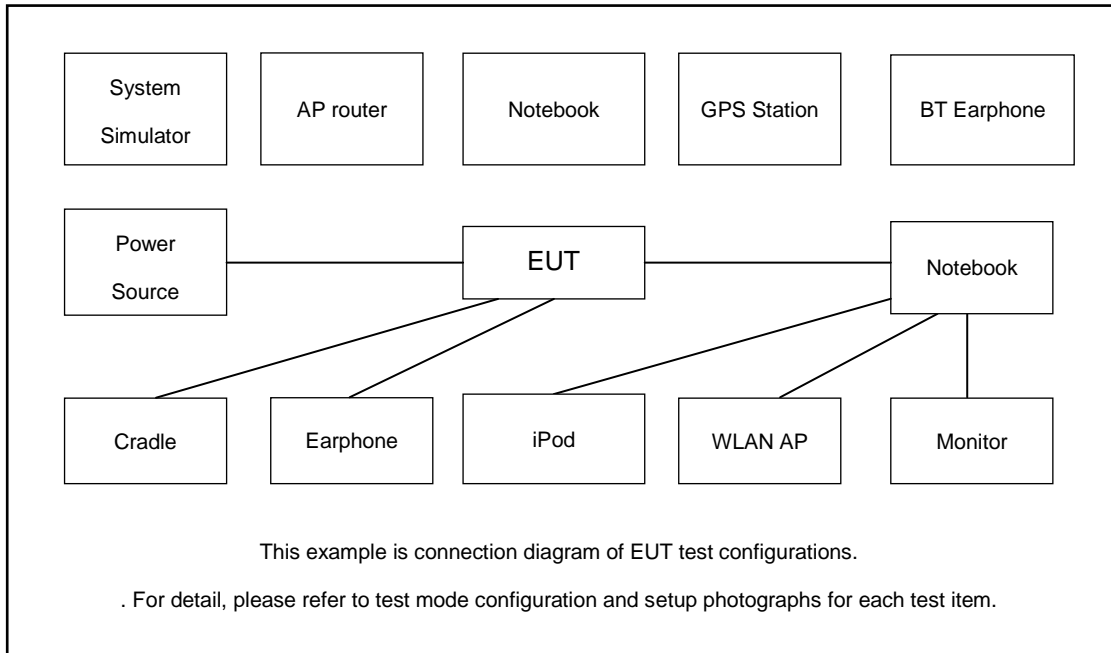
Ch. #		U-NII-1 : 5150-5250 MHz	U-NII-2A : 5250-5350 MHz	U-NII-2C : 5470-5725MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		U-NII-1 : 5150-5250 MHz	U-NII-2A : 5250-5350 MHz	U-NII-2C : 5470-5725MHz
		802.11n HT20	802.11n HT20	802.11n HT20
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
		802.11n HT40	802.11n HT40	802.11n HT40
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



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Earphone	MOTO	N/A	N/A	N/A	N/A
2.	WLAN AP	Dlink	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	E540	FCC DoC	AC I/P : Unshielded, 1.2m DC O/P : Shielded, 1.8m	N/A
4.	Base Station(LTE)	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
5.	Bluetooth Earphone	Samsung	EO-MG900	PYAHS-107W	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.

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 and attenuator factor 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 and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.7 dB and 20dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.7 + 20 = 24.7 \text{ (dB)} \end{aligned}$$

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.

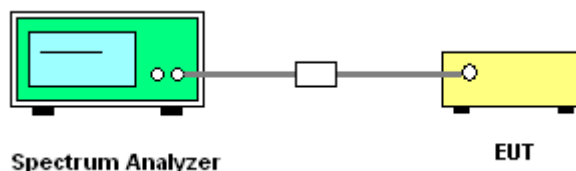
3.1.2 Measuring Instruments

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 1% to 5% of the OBW and set the Video bandwidth (VBW) $\geq 3 * RBW$.
8. Measure and record the results in the test report.

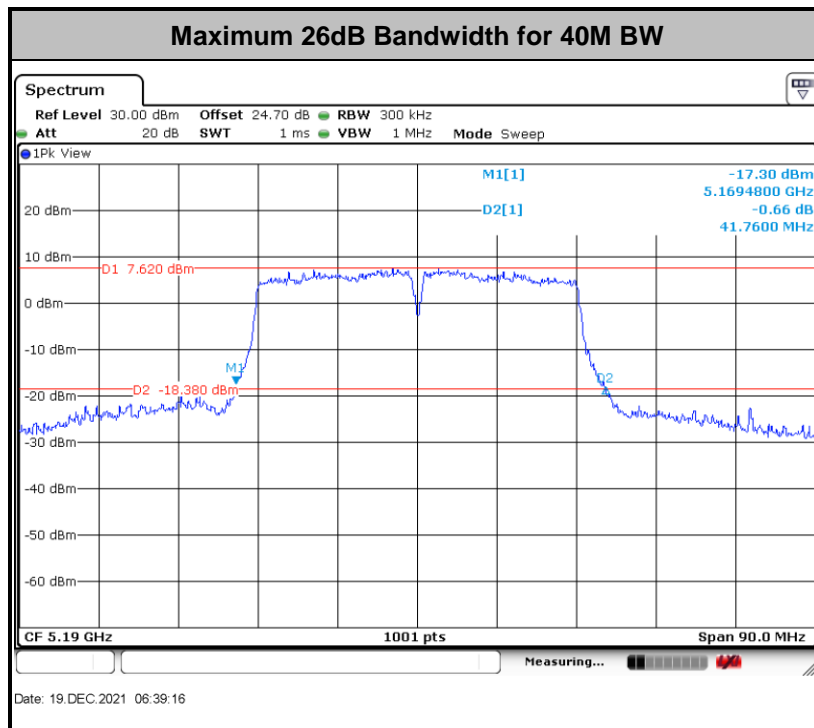
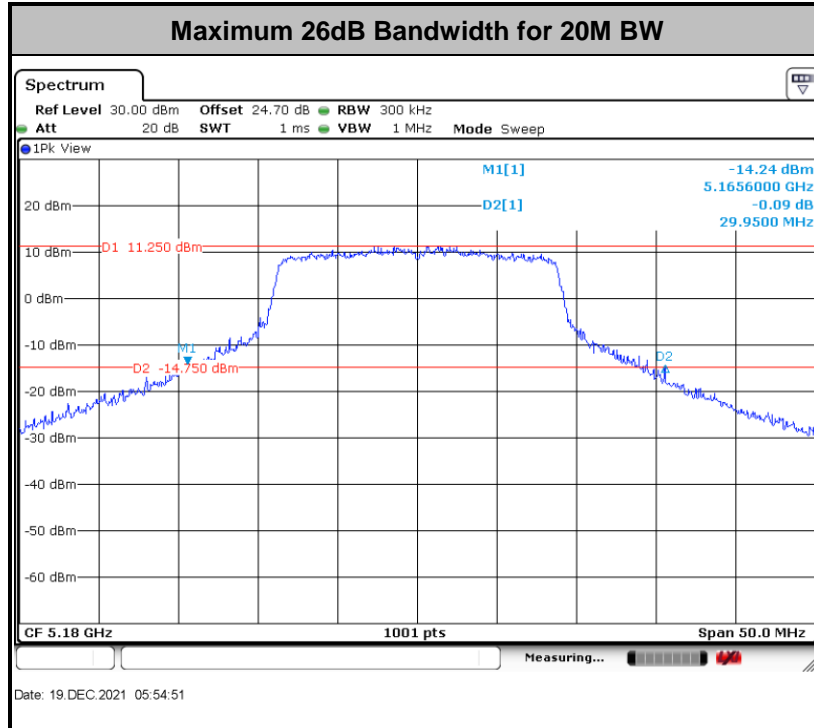
3.1.4 Test Setup

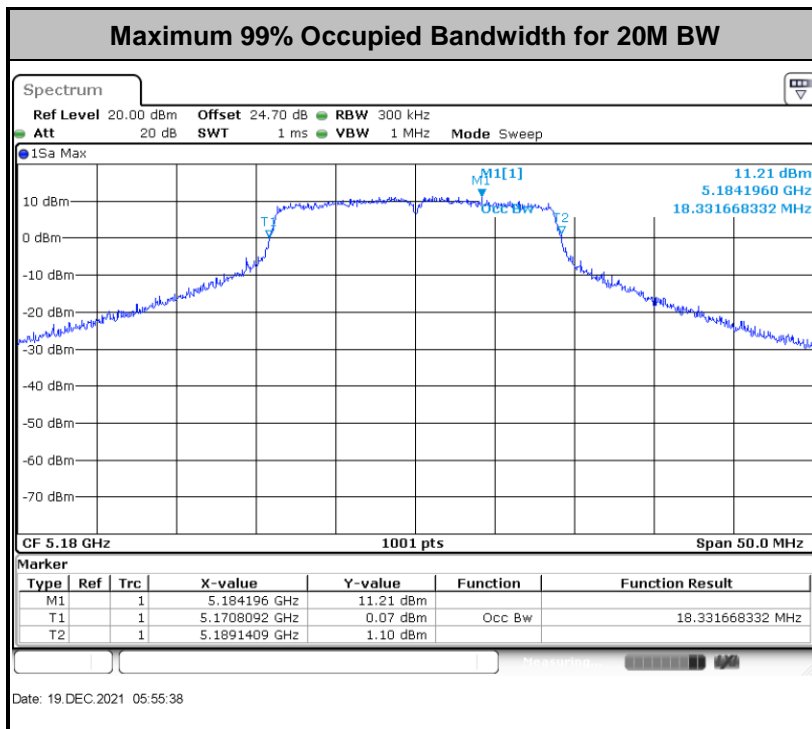
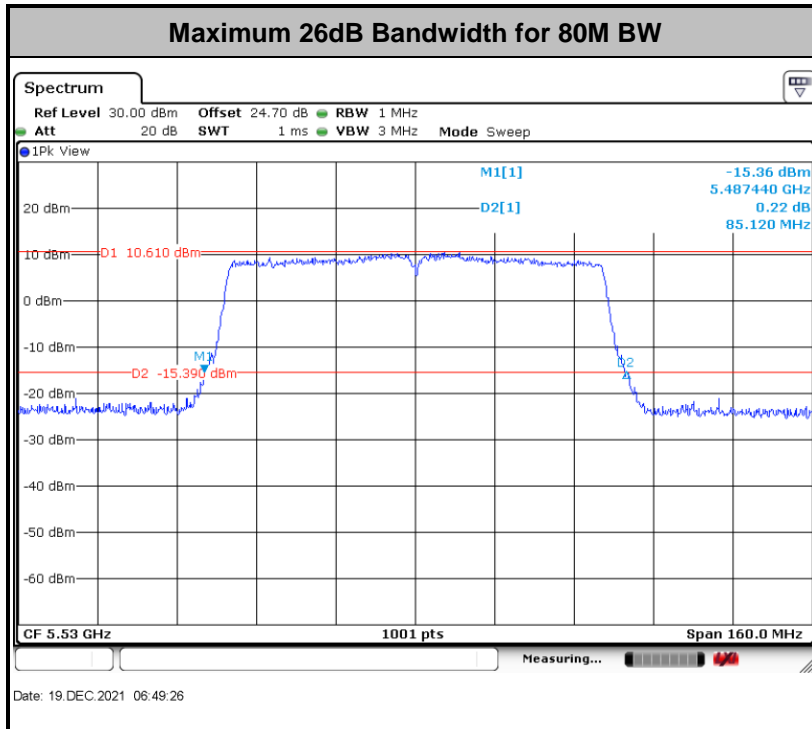


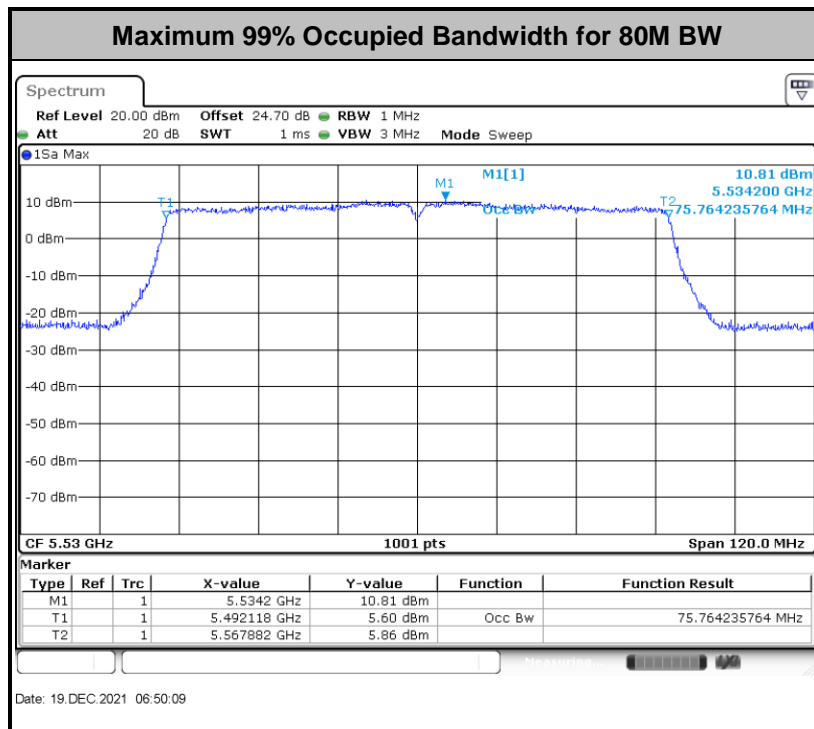
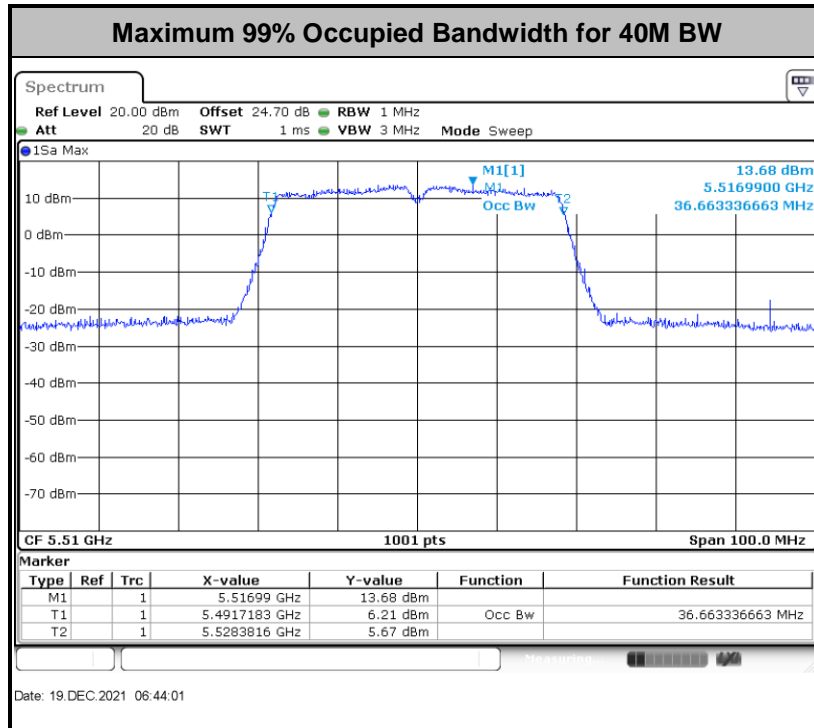


3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

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 $11 + 10 \log B$, dBm, 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.

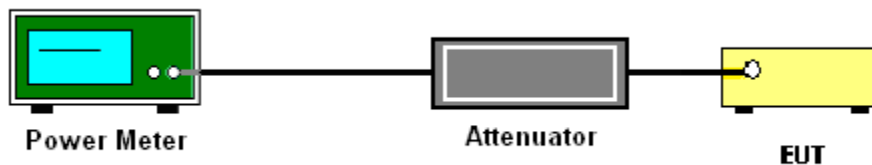
3.2.3 Test Procedures

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.
4. For MIMO mode, the measure-and-sum technique should be used for measuring the in-band transmit power of a device.

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 5.25–5.725 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.

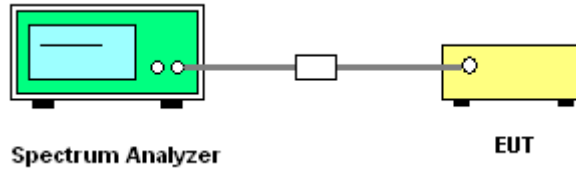
Method (b): Measure and sum spectral maxima across the outputs.

The measurement on each individual output were performed with the same span and number on each individual output. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs.

Method (c): Measure and add $10 \log(N_{ANT})$ dB, where N_{ANT} is the number of outputs.

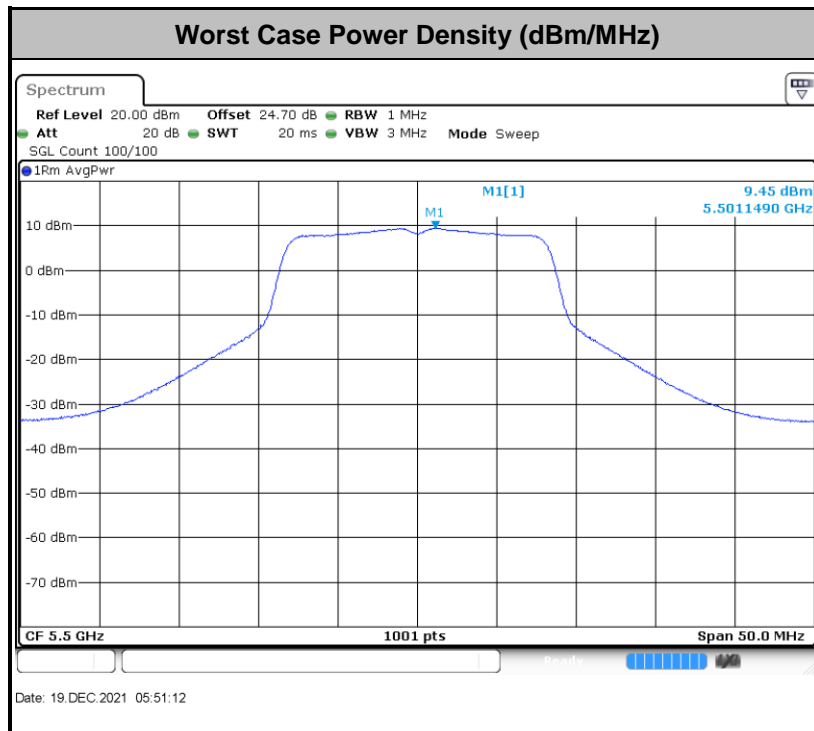
The measurement on each individual output were performed with the same span and number on each individual output. The quantity $10 \log(N_{ANT})$ dB is added to each spectrum value before comparing to the emission limit.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



Note: Average Power Density (dB) = Measured value+ Duty Factor



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 5470-5725 MHz band: all emissions outside of the 5470-5725 MHz 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.

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

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.

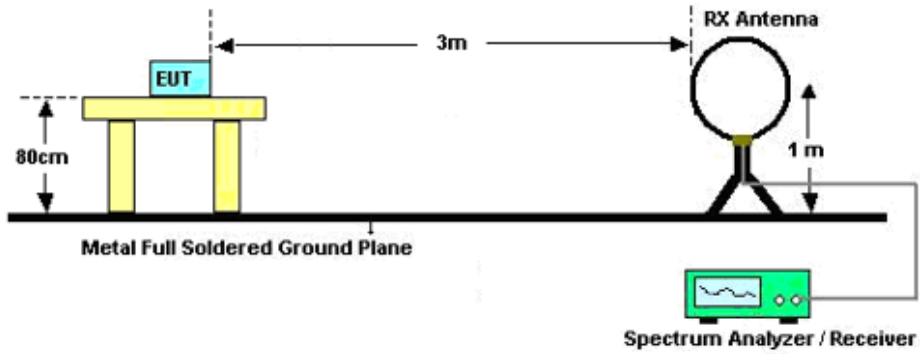


3.4.3 Test Procedures

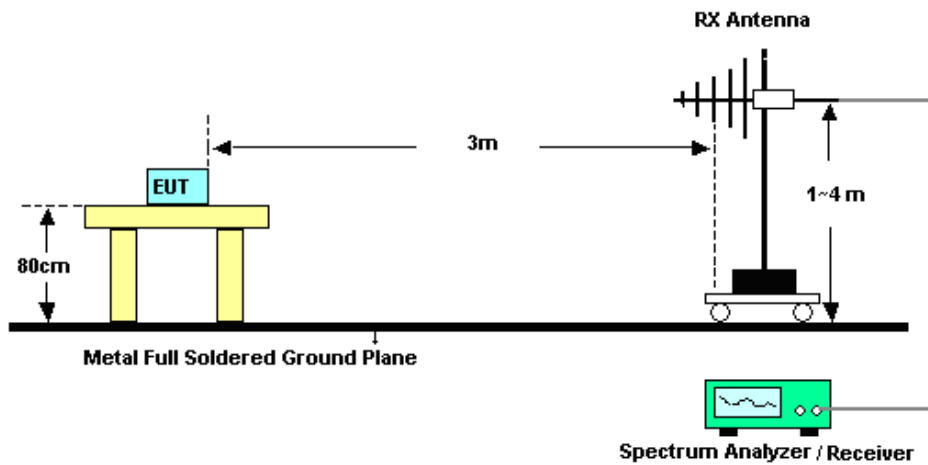
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak 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

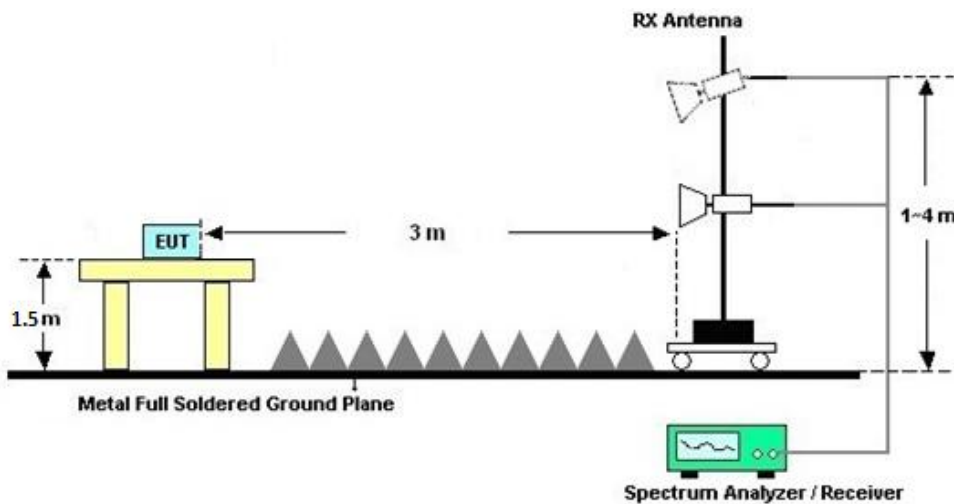
For radiated emissions below 30MHz



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.

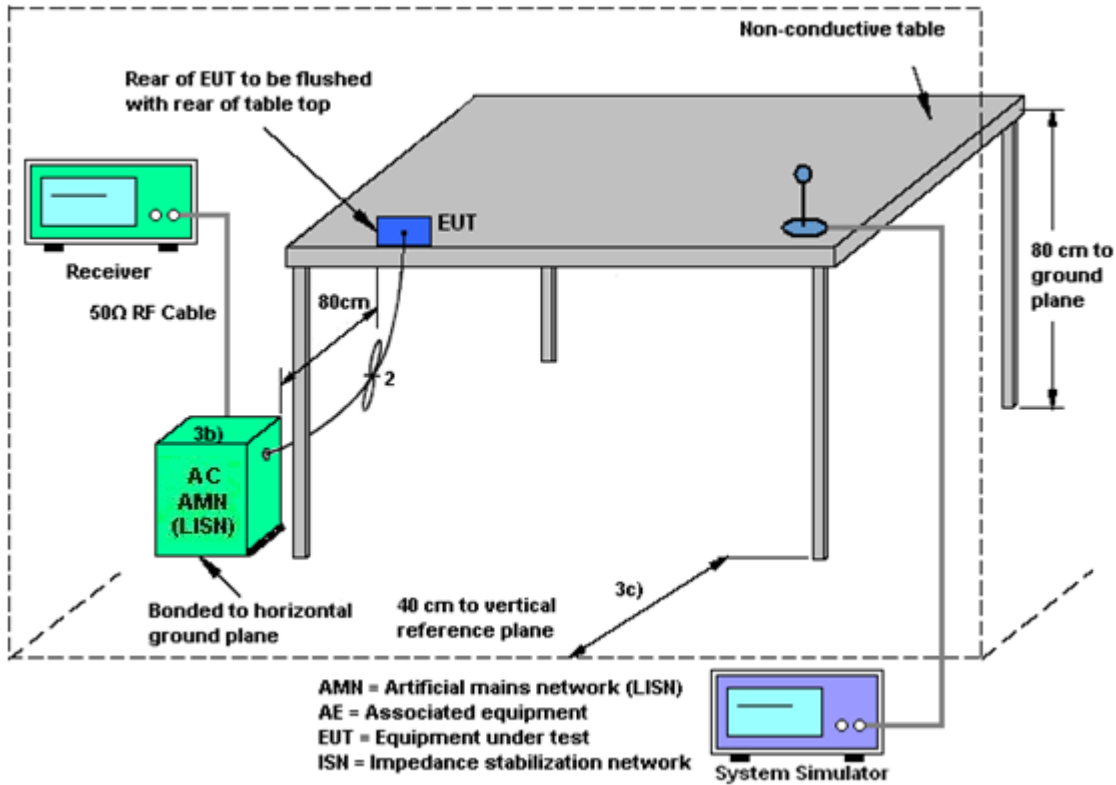
3.5.2 Measuring Instruments

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

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 08, 2021	Dec. 19, 2021	Apr. 07, 2022	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Dec. 25, 2020	Dec. 19, 2021	Dec. 24, 2021	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Dec. 25, 2020	Dec. 19, 2021	Dec. 24, 2021	Conducted (TH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 13, 2021	Jan. 17, 2022	Jul. 12, 2022	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 22, 2021	Jan. 17, 2022	Jun. 21, 2022	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz~2GHz	Jul. 15, 2021	Jan. 17, 2022	Jul. 14, 2022	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 25, 2021	Jan. 17, 2022	Jul. 24, 2022	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Apr. 11, 2021	Jan. 17, 2022	Apr. 10, 2022	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 22, 2021	Jan. 17, 2022	Oct. 21, 2022	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 22, 2021	Jan. 17, 2022	Oct. 21, 2022	Radiation (03CH02-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5GHz	Oct. 22, 2021	Jan. 17, 2022	Oct. 21, 2022	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 13, 2021	Jan. 17, 2022	Jul. 12, 2022	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010002470	N/A	NCR	Jan. 17, 2022	NCR	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Jan. 17, 2022	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Jan. 17, 2022	NCR	Radiation (03CH02-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Mar. 08, 2021	Dec. 23, 2021	Mar. 07, 2022	Conduction (CO01-SZ)
AC LISN	R&S	ENV216	100063	9kHz~30MHz	Sep. 01, 2021	Dec. 23, 2021	Aug. 31, 2022	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 28, 2021	Dec. 23, 2021	Oct. 27, 2022	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 14, 2021	Dec. 23, 2021	Jul. 13, 2022	Conduction (CO01-SZ)

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))	2.2dB
---	-------

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0dB
---	-------

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.1dB
---	-------

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.1dB
---	-------

----- THE END -----



Appendix A. Conducted Test Results

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Zhang Xue Yi	Temperature:	21~25	°C
Test Date:	2021/12/19	Relative Humidity:	51~54	%

TEST RESULTS DATA
26dB and 99% OBW

Band I										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)		
11a	6Mbps	1	36	5180	17.18	27.55	-	22.35		
11a	6Mbps	1	44	5220	17.48	26.85	-	22.43		
11a	6Mbps	1	48	5240	17.13	27.85	-	22.34		
HT20	MCS0	1	36	5180	18.33	29.95	-	22.63		
HT20	MCS0	1	44	5220	18.28	28.20	-	22.62		
HT20	MCS0	1	48	5240	18.18	28.35	-	22.60		
HT40	MCS0	1	38	5190	36.56	41.76	-	23.01		
HT40	MCS0	1	46	5230	36.56	41.49	-	23.01		
VHT80	MCS0	1	42	5210	75.76	84.96	-	23.01		

TEST RESULTS DATA
Average Power Table

FCC Band I										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6Mbps	1	36	5180	0.08	20.23	24.00	-6.00		Pass
11a	6Mbps	1	44	5220	0.08	20.31	24.00	-6.00		Pass
11a	6Mbps	1	48	5240	0.08	20.20	24.00	-6.00		Pass
HT20	MCS0	1	36	5180	0.09	20.14	24.00	-6.00		Pass
HT20	MCS0	1	44	5220	0.09	20.21	24.00	-6.00		Pass
HT20	MCS0	1	48	5240	0.09	20.12	24.00	-6.00		Pass
HT40	MCS0	1	38	5190	0.14	15.68	24.00	-6.00		Pass
HT40	MCS0	1	46	5230	0.14	19.10	24.00	-6.00		Pass
VHT20	MCS0	1	36	5180	0.07	19.39	24.00	-6.00		Pass
VHT20	MCS0	1	44	5220	0.07	19.03	24.00	-6.00		Pass
VHT20	MCS0	1	48	5240	0.07	19.05	24.00	-6.00		Pass
VHT40	MCS0	1	38	5190	0.14	15.62	24.00	-6.00		Pass
VHT40	MCS0	1	46	5230	0.14	19.06	24.00	-6.00		Pass
VHT80	MCS0	1	42	5210	0.36	14.83	24.00	-6.00		Pass

TEST RESULTS DATA
Power Spectral Density

FCC Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)	-	Pass/Fail
11a	6Mbps	1	36	5180	0.08	8.95	11.00	-6.00		Pass
11a	6Mbps	1	44	5220	0.08	8.96	11.00	-6.00		Pass
11a	6Mbps	1	48	5240	0.08	8.83	11.00	-6.00		Pass
HT20	MCS0	1	36	5180	0.09	8.56	11.00	-6.00		Pass
HT20	MCS0	1	44	5220	0.09	8.58	11.00	-6.00		Pass
HT20	MCS0	1	48	5240	0.09	8.40	11.00	-6.00		Pass
HT40	MCS0	1	38	5190	0.14	4.88	11.00	-6.00		Pass
HT40	MCS0	1	46	5230	0.14	4.47	11.00	-6.00		Pass
VHT80	MCS0	1	42	5210	0.36	1.28	11.00	-6.00		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band II											
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	
11a	6M bps	1	52	5260	17.08	26.70	23.33	29.33	23.98		
11a	6M bps	1	60	5300	17.13	26.50	23.34	29.34	23.98		
11a	6M bps	1	64	5320	17.08	25.85	23.33	29.33	23.98		
HT20	MCS 0	1	52	5260	18.13	27.70	23.58	29.58	23.98		
HT20	MCS 0	1	60	5300	18.13	26.75	23.58	29.58	23.98		
HT20	MCS 0	1	64	5320	18.18	27.20	23.60	29.60	23.98		
HT40	MCS 0	1	54	5270	36.56	41.49	23.98	30.00	23.98		
HT40	MCS 0	1	62	5310	36.56	41.13	23.98	30.00	23.98		
VHT80	MCS 0	1	58	5290	75.64	84.32	23.98	30.00	23.98		

TEST RESULTS DATA
Average Power Table

FCC Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	52	5260	0.08	20.21	23.98	-6.00	26.99	Pass
11a	6M bps	1	60	5300	0.08	20.39	23.98	-6.00	26.99	Pass
11a	6M bps	1	64	5320	0.08	20.33	23.98	-6.00	26.99	Pass
HT20	MCS 0	1	52	5260	0.09	20.17	23.98	-6.00	26.99	Pass
HT20	MCS 0	1	60	5300	0.09	20.34	23.98	-6.00	26.99	Pass
HT20	MCS 0	1	64	5320	0.09	20.38	23.98	-6.00	26.99	Pass
HT40	MCS 0	1	54	5270	0.14	19.06	23.98	-6.00	26.99	Pass
HT40	MCS 0	1	62	5310	0.14	19.22	23.98	-6.00	26.99	Pass
VHT20	MCS 0	1	52	5260	0.07	19.01	23.98	-6.00	26.99	Pass
VHT20	MCS 0	1	60	5300	0.07	19.16	23.98	-6.00	26.99	Pass
VHT20	MCS 0	1	64	5320	0.07	19.11	23.98	-6.00	26.99	Pass
VHT40	MCS 0	1	54	5270	0.14	19.02	23.98	-6.00	26.99	Pass
VHT40	MCS 0	1	62	5310	0.14	19.17	23.98	-6.00	26.99	Pass
VHT80	MCS 0	1	58	5290	0.36	19.05	23.98	-6.00	26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	52	5260	0.08	8.83	11.00	-6.00		Pass
11a	6M bps	1	60	5300	0.08	9.13	11.00	-6.00		Pass
11a	6M bps	1	64	5320	0.08	9.02	11.00	-6.00		Pass
HT20	MCS 0	1	52	5260	0.09	8.42	11.00	-6.00		Pass
HT20	MCS 0	1	60	5300	0.09	8.77	11.00	-6.00		Pass
HT20	MCS 0	1	64	5320	0.09	8.73	11.00	-6.00		Pass
HT40	MCS 0	1	54	5270	0.14	4.44	11.00	-6.00		Pass
HT40	MCS 0	1	62	5310	0.14	4.54	11.00	-6.00		Pass
VHT80	MCS 0	1	58	5290	0.36	1.16	11.00	-6.00		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band III										
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
11a	6M bps	1	100	5500	17.03	25.60	23.31	29.31	23.98	
11a	6M bps	1	116	5580	17.03	26.55	23.31	29.31	23.98	
11a	6M bps	1	140	5700	17.03	26.30	23.31	29.31	23.98	
HT20	MCS 0	1	100	5500	18.08	25.50	23.57	29.57	23.98	
HT20	MCS 0	1	116	5580	18.08	26.15	23.57	29.57	23.98	
HT20	MCS 0	1	140	5700	18.13	27.75	23.58	29.58	23.98	
HT40	MCS 0	1	102	5510	36.66	41.67	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	36.56	41.67	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	36.56	41.22	23.98	30.00	23.98	
VHT80	MCS 0	1	106	5530	75.76	85.12	23.98	30.00	23.98	

TEST RESULTS DATA
Average Power Table

FCC Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	100	5500	0.08	20.37	23.98	-6.50	26.99	Pass
11a	6M bps	1	116	5580	0.08	20.45	23.98	-6.50	26.99	Pass
11a	6M bps	1	140	5700	0.08	20.34	23.98	-6.50	26.99	Pass
HT20	MCS 0	1	100	5500	0.09	20.33	23.98	-6.50	26.99	Pass
HT20	MCS 0	1	116	5580	0.09	20.46	23.98	-6.50	26.99	Pass
HT20	MCS 0	1	140	5700	0.09	20.22	23.98	-6.50	26.99	Pass
HT40	MCS 0	1	102	5510	0.14	19.11	23.98	-6.50	26.99	Pass
HT40	MCS 0	1	110	5550	0.14	19.17	23.98	-6.50	26.99	Pass
HT40	MCS 0	1	134	5670	0.14	19.08	23.98	-6.50	26.99	Pass
VHT20	MCS 0	1	100	5500	0.07	19.07	23.98	-6.50	26.99	Pass
VHT20	MCS 0	1	116	5580	0.07	19.20	23.98	-6.50	26.99	Pass
VHT20	MCS 0	1	140	5700	0.07	19.03	23.98	-6.50	26.99	Pass
VHT40	MCS 0	1	102	5510	0.14	19.05	23.98	-6.50	26.99	Pass
VHT40	MCS 0	1	110	5550	0.14	19.09	23.98	-6.50	26.99	Pass
VHT40	MCS 0	1	134	5670	0.14	19.02	23.98	-6.50	26.99	Pass
VHT80	MCS 0	1	106	5530	0.36	16.49	23.98	-6.50	26.99	Pass

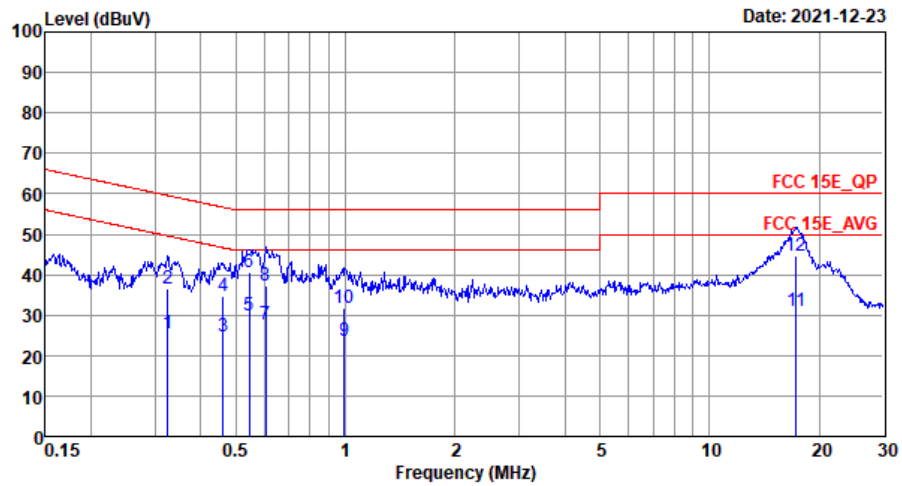
TEST RESULTS DATA
Power Spectral Density

Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	100	5500	0.08	9.53	11.00	-6.50		Pass
11a	6M bps	1	116	5580	0.08	9.26	11.00	-6.50		Pass
11a	6M bps	1	140	5700	0.08	8.83	11.00	-6.50		Pass
HT20	MCS 0	1	100	5500	0.09	9.29	11.00	-6.50		Pass
HT20	MCS 0	1	116	5580	0.09	8.92	11.00	-6.50		Pass
HT20	MCS 0	1	140	5700	0.09	8.53	11.00	-6.50		Pass
HT40	MCS 0	1	102	5510	0.14	4.91	11.00	-6.50		Pass
HT40	MCS 0	1	110	5550	0.14	4.75	11.00	-6.50		Pass
HT40	MCS 0	1	134	5670	0.14	4.12	11.00	-6.50		Pass
VHT80	MCS 0	1	106	5530	0.36	1.56	11.00	-6.50		Pass



Appendix B. AC Conducted Emission Test Results

Test Engineer :	Xie YuQiang	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

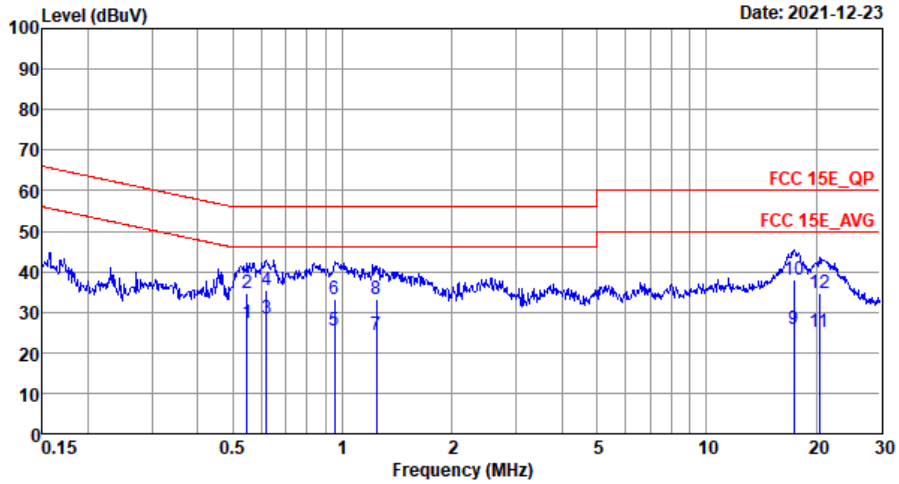


Site : CO01-SZ
Condition: FCC 15E_QP LISN_20210901_L LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.33	25.58	-23.99	49.57	4.40	10.12	11.06	Average
2	0.33	36.38	-23.19	59.57	15.20	10.12	11.06	QP
3	0.46	24.72	-21.95	46.67	2.90	10.11	11.71	Average
4	0.46	34.72	-21.95	56.67	12.90	10.11	11.71	QP
5	0.54	30.06	-15.94	46.00	8.30	10.11	11.65	Average
6 *	0.54	40.66	-15.34	56.00	18.90	10.11	11.65	QP
7	0.60	27.71	-18.29	46.00	6.20	10.10	11.41	Average
8	0.60	37.41	-18.59	56.00	15.90	10.10	11.41	QP
9	0.99	23.77	-22.23	46.00	3.40	10.12	10.25	Average
10	0.99	31.67	-24.33	56.00	11.30	10.12	10.25	QP
11	17.29	31.02	-18.98	50.00	10.80	9.87	10.35	Average
12	17.29	44.62	-15.38	60.00	24.40	9.87	10.35	QP



Test Engineer :	Xie YuQiang	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
 Condition: FCC 15E QP LISN 20210901_N NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.55	27.47	-18.53	46.00	5.61	10.21	11.65	Average
2	0.55	34.67	-21.33	56.00	12.81	10.21	11.65	QP
3 *	0.62	28.40	-17.60	46.00	6.79	10.24	11.37	Average
4	0.62	35.50	-20.50	56.00	13.89	10.24	11.37	QP
5	0.95	25.57	-20.43	46.00	5.00	10.23	10.34	Average
6	0.95	33.07	-22.93	56.00	12.50	10.23	10.34	QP
7	1.24	24.18	-21.82	46.00	3.70	10.25	10.23	Average
8	1.24	33.18	-22.82	56.00	12.70	10.25	10.23	QP
9	17.38	25.95	-24.05	50.00	5.80	9.80	10.35	Average
10	17.38	37.85	-22.15	60.00	17.70	9.80	10.35	QP
11	20.38	25.13	-24.87	50.00	5.00	9.77	10.36	Average
12	20.38	34.83	-25.17	60.00	14.70	9.77	10.36	QP

Note:

- Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
- Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



Appendix C. Radiated Spurious Emission

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.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5149.24	52.22	-21.78	74	41.52	34	9.34	32.64	133	330	P	H
		5149.76	45.15	-8.85	54	34.45	34	9.34	32.64	133	330	A	H
		5180	111.46	-	-	100.69	34	9.4	32.63	133	330	P	H
		5180	103.13	-	-	92.36	34	9.4	32.63	133	330	A	H
		5015.6	49.83	-24.17	74	39.45	33.8	9.09	32.51	104	297	P	V
		5149.76	40.15	-13.85	54	29.34	34	9.34	32.53	104	297	A	V
		5180	98.66	-	-	87.8	34	9.4	32.54	104	297	P	V
		5180	91.12	-	-	80.26	34	9.4	32.54	104	297	A	V
802.11a CH 44 5220MHz		5149.24	56.6	-17.4	74	40.06	34	10.06	27.52	145	25	P	H
		5150	47.62	-6.38	54	31.08	34	10.06	27.52	145	25	A	H
		5220	114.83	-	-	98.39	34.03	10.13	27.72	145	25	P	H
		5220	107.68	-	-	91.24	34.03	10.13	27.72	145	25	A	H
		5433.36	52.87	-21.13	74	36.6	34.2	10.38	28.31	145	25	P	H
		5452.32	45.17	-8.83	54	28.96	34.2	10.38	28.37	145	25	A	H
		5059.28	54.8	-19.2	74	38.25	33.83	9.99	27.27	175	60	P	V
		5047.84	45.48	-8.52	54	28.92	33.8	9.99	27.23	175	60	A	V
		5220	106.19	-	-	89.75	34.03	10.13	27.72	175	60	P	V
		5220	99.08	-	-	82.64	34.03	10.13	27.72	175	60	A	V
		5442.24	52.8	-21.2	74	36.56	34.2	10.38	28.34	175	60	P	V
	5452.56	43.79	-10.21	54	27.58	34.2	10.38	28.37	175	60	A	V	



802.11a CH 48 5240MHz	5008.32	55.27	-18.73	74	38.64	33.8	9.95	27.12	168	19	P	H
	5007.8	45.79	-8.21	54	29.16	33.8	9.95	27.12	168	19	A	H
	5240	114.93	-	-	98.46	34.07	10.17	27.77	168	19	P	H
	5240	107.73	-	-	91.26	34.07	10.17	27.77	168	19	A	H
	5389.44	52.96	-21.04	74	36.61	34.2	10.34	28.19	168	19	P	H
	5350.56	44.09	-9.91	54	27.67	34.2	10.3	28.08	168	19	A	H
	5043.68	54.82	-19.18	74	38.25	33.8	9.99	27.22	128	14	P	V
	5045.24	45.69	-8.31	54	29.13	33.8	9.99	27.23	128	14	A	V
	5240	105.68	-	-	89.21	34.07	10.17	27.77	128	14	P	V
	5240	97.47	-	-	81	34.07	10.17	27.77	128	14	A	V
	5357.52	52.41	-21.59	74	36.01	34.2	10.3	28.1	128	14	P	V
	5447.28	43.33	-10.67	54	27.1	34.2	10.38	28.35	128	14	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 											



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

Table with 14 columns: 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). Rows include data for 802.11a CH 36 (5180MHz) and CH 44 (5220MHz), and 802.11a CH 48 (5240MHz).

Remark

- 1. No other spurious found.
2. All results are PASS against Peak and Average limit line.



UNII-1 5150~5250MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

Table with 14 columns: 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). Rows include data for 802.11n HT20 CH 36 (5180MHz) and 802.11n HT20 CH 44 (5220MHz).



802.11n HT20 CH 48 5240MHz		5072.54	55.57	-18.43	74	39.01	33.87	9.99	27.3	182	17	P	H
		5050.18	45.76	-8.24	54	29.21	33.8	9.99	27.24	182	17	A	H
		5240	112.78	-	-	96.31	34.07	10.17	27.77	182	17	P	H
		5240	105.73	-	-	89.26	34.07	10.17	27.77	182	17	A	H
		5352.48	53.63	-20.37	74	37.22	34.2	10.3	28.09	182	17	P	H
		5351.28	43.9	-10.1	54	27.48	34.2	10.3	28.08	182	17	A	H
		5097.5	54.61	-19.39	74	38.06	33.9	10.02	27.37	266	82	P	V
		5066.3	45.7	-8.3	54	29.17	33.83	9.99	27.29	266	82	A	V
		5240	105.58	-	-	89.11	34.07	10.17	27.77	266	82	P	V
		5240	98.83	-	-	82.36	34.07	10.17	27.77	266	82	A	V
		5457.6	52.47	-21.53	74	36.27	34.2	10.38	28.38	266	82	P	V
	5460	43.39	-10.61	54	27.2	34.2	10.38	28.39	266	82	A	V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



UNII-1 5150~5250MHz
WIFI 802.11n HT20 (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)
802.11n HT20 CH 36		10360	46.7	-21.6	68.3	56.91	37.22	11.56	58.99	-	-	P	H
		15540	50.15	-23.85	74	54.23	40.13	14.74	58.95	-	-	P	H
5180MHz		10360	46.8	-21.5	68.3	57.01	37.22	11.56	58.99	-	-	P	V
		15540	50.06	-23.94	74	54.14	40.13	14.74	58.95	-	-	P	V
802.11n HT20 CH 44		10440	47.64	-20.66	68.3	57.69	37.26	11.61	58.92	-	-	P	H
		15660	50.37	-23.63	74	54.44	40.22	14.78	59.07	-	-	P	H
		10440	47.68	-20.62	68.3	57.73	37.26	11.61	58.92	-	-	P	V
		15660	50.2	-23.8	74	54.27	40.22	14.78	59.07	-	-	P	V
802.11n HT20 CH 48		10480	47.9	-20.4	68.3	57.86	37.29	11.61	58.86	-	-	P	H
		15720	50.64	-23.36	74	54.74	40.28	14.74	59.12	-	-	P	H
		10480	46.95	-21.35	68.3	56.91	37.29	11.61	58.86	-	-	P	V
		15720	50.66	-23.34	74	54.76	40.28	14.74	59.12	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-1 5150~5250MHz
WIFI 802.11n HT40 (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)
802.11n HT40 CH 38 5190MHz		5146.12	56.07	-17.93	74	44.65	34	10.06	32.64	202	31	P	H
		5149.76	50.05	-3.95	54	38.63	34	10.06	32.64	202	31	A	H
		5190	103.32	-	-	91.86	34	10.09	32.63	202	31	P	H
		5190	95.59	-	-	84.13	34	10.09	32.63	202	31	A	H
		5412.68	51.69	-22.31	74	39.68	34.2	10.34	32.53	202	31	P	H
		5412.68	46.46	-7.54	54	34.45	34.2	10.34	32.53	202	31	A	H
		5144.82	50.97	-23.03	74	39.55	34	10.06	32.64	248	32	P	V
		5148.72	44.66	-9.34	54	33.24	34	10.06	32.64	248	32	A	V
		5190	95.39	-	-	83.93	34	10.09	32.63	248	32	P	V
		5190	87.7	-	-	76.24	34	10.09	32.63	248	32	A	V
		5379.92	48.58	-25.42	74	36.62	34.2	10.3	32.54	248	32	P	V
		5412.96	41.63	-12.37	54	29.62	34.2	10.34	32.53	248	32	A	V
802.11n HT40 CH 46 5230MHz		5005.72	51.28	-22.72	74	40.23	33.8	9.95	32.7	133	32	P	H
		5007.54	44.81	-9.19	54	33.76	33.8	9.95	32.7	133	32	A	H
		5230	106.18	-	-	94.59	34.07	10.13	32.61	133	32	P	H
		5230	98.82	-	-	87.23	34.07	10.13	32.61	133	32	A	H
		5453.28	56.93	-17.07	74	44.86	34.2	10.38	32.51	133	32	P	H
		5452.56	50.84	-3.16	54	38.77	34.2	10.38	32.51	133	32	A	H
		5084.5	50.46	-23.54	74	39.24	33.87	10.02	32.67	114	284	P	V
		5132.08	42.44	-11.56	54	31.06	33.97	10.06	32.65	114	284	A	V
		5230	95.97	-	-	84.38	34.07	10.13	32.61	114	284	P	V
		5230	88.85	-	-	77.26	34.07	10.13	32.61	114	284	A	V
	5398.8	48.55	-25.45	74	36.54	34.2	10.34	32.53	114	284	P	V	
	5452.56	42.41	-11.59	54	30.34	34.2	10.38	32.51	114	284	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-1 5150~5250MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

Table with 14 columns: 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). Rows include data for 802.11n HT40 CH 38 and 5190MHz, and 802.11n HT40 CH 46 and 5230MHz. A Remark section at the bottom states: 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)

Table with 14 columns: 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). Rows include test data for 802.11ac VHT80 CH 42 5210MHz and a Remark section.



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

Table with 14 columns: 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). Rows include 802.11ac VHT80 CH 42 5210MHz and a Remark section.



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 52 5260MHz		5091.26	54.31	-19.69	74	37.75	33.9	10.02	27.36	167	17	P	H
		5027.56	45.79	-8.21	54	29.22	33.8	9.95	27.18	167	17	A	H
		5260	114.67	-	-	98.2	34.13	10.17	27.83	167	17	P	H
		5260	107.71	-	-	91.24	34.13	10.17	27.83	167	17	A	H
		5351.52	52.51	-21.49	74	36.09	34.2	10.3	28.08	167	17	P	H
		5351.04	44.42	-9.58	54	28	34.2	10.3	28.08	167	17	A	H
		5054.34	55.08	-18.92	74	38.54	33.8	9.99	27.25	250	54	P	V
		5045.76	45.68	-8.32	54	29.12	33.8	9.99	27.23	250	54	A	V
		5260	107.6	-	-	91.13	34.13	10.17	27.83	250	54	P	V
		5260	100.74	-	-	84.27	34.13	10.17	27.83	250	54	A	V
		5376.96	51.77	-22.23	74	35.43	34.2	10.3	28.16	250	54	P	V
		5350.56	43.62	-10.38	54	27.2	34.2	10.3	28.08	250	54	A	V
802.11a CH 60 5300MHz		5055.65	55	-19	74	38.44	33.83	9.99	27.26	148	23	P	H
		5067.55	46.19	-7.81	54	29.66	33.83	9.99	27.29	148	23	A	H
		5300	113.95	-	-	97.48	34.2	10.21	27.94	148	23	P	H
		5300	106.59	-	-	90.12	34.2	10.21	27.94	148	23	A	H
		5373.36	54.56	-19.44	74	38.21	34.2	10.3	28.15	148	23	P	H
		5350.32	46.39	-7.61	54	29.97	34.2	10.3	28.08	148	23	A	H
		5056.35	55.26	-18.74	74	38.7	33.83	9.99	27.26	282	72	P	V
		5046.9	45.92	-8.08	54	29.36	33.8	9.99	27.23	282	72	A	V
		5300	105.93	-	-	89.46	34.2	10.21	27.94	282	72	P	V
		5300	97.59	-	-	81.12	34.2	10.21	27.94	282	72	A	V
		5388	53.33	-20.67	74	36.98	34.2	10.34	28.19	282	72	P	V
		5353.2	43.87	-10.13	54	27.46	34.2	10.3	28.09	282	72	A	V



802.11a CH 64 5320MHz		5320	114.07	-	-	97.61	34.2	10.26	28	192	41	P	H
		5320	106.58	-	-	90.12	34.2	10.26	28	192	41	A	H
		5379.84	55.2	-18.8	74	38.86	34.2	10.3	28.16	192	41	P	H
		5350.08	48.42	-5.58	54	32	34.2	10.3	28.08	192	41	A	H
		5320	106.34	-	-	89.88	34.2	10.26	28	269	40	P	V
		5320	97.81	-	-	81.35	34.2	10.26	28	269	40	A	V
		5371.2	51.88	-22.12	74	35.52	34.2	10.3	28.14	269	40	P	V
		5350.08	44.85	-9.15	54	28.43	34.2	10.3	28.08	269	40	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. 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		10520	48.97	-19.33	68.3	47.2	37.51	15.37	51.11	-	-	P	H
		15780	50.32	-23.68	74	45.22	40.3	17.9	53.1	-	-	P	H
		10520	47.93	-20.37	68.3	46.16	37.51	15.37	51.11	-	-	P	V
		15780	50.43	-23.57	74	45.33	40.3	17.9	53.1	-	-	P	V
802.11a CH 60 5300MHz		10600	47.94	-26.06	74	45.99	37.56	15.55	51.16	-	-	P	H
		15900	50.34	-23.66	74	45.27	40.41	17.97	53.31	-	-	P	H
		10600	48.04	-25.96	74	46.09	37.56	15.55	51.16	-	-	P	V
		15900	50.37	-23.63	74	45.3	40.41	17.97	53.31	-	-	P	V
802.11a CH 64 5320MHz		10640	47.95	-26.05	74	45.9	37.58	15.65	51.18	-	-	P	H
		15960	50.13	-23.87	74	45.09	40.47	18.01	53.44	-	-	P	H
		10640	48.17	-25.83	74	46.12	37.58	15.65	51.18	-	-	P	V
		15960	50.06	-23.94	74	45.02	40.47	18.01	53.44	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-2A 5250~5350MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

Table with 14 columns: 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). Rows include data for 802.11n HT20 CH 52 (5260MHz) and 802.11n HT20 CH 60 (5300MHz).



802.11n HT20 CH 64 5320MHz		5320	113.44	-	-	96.98	34.2	10.26	28	213	18	P	H
		5320	105.69	-	-	89.23	34.2	10.26	28	213	18	A	H
		5351.36	55.2	-18.8	74	38.78	34.2	10.3	28.08	213	18	P	H
		5350.08	48.57	-5.43	54	32.15	34.2	10.3	28.08	213	18	A	H
		5320	105.81	-	-	89.35	34.2	10.26	28	273	54	P	V
		5320	98.62	-	-	82.16	34.2	10.26	28	273	54	A	V
		5352.16	53.14	-20.86	74	36.73	34.2	10.3	28.09	273	54	P	V
		5350.08	45.38	-8.62	54	28.96	34.2	10.3	28.08	273	54	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-2A 5250~5350MHz
WIFI 802.11n HT20 (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)
802.11n		10520	48.46	-19.84	68.3	58.31	37.32	11.65	58.82	-	-	P	H
HT20		15780	50.89	-23.11	74	54.97	40.32	14.78	59.18	-	-	P	H
CH 52		10520	47.88	-20.42	68.3	57.73	37.32	11.65	58.82	-	-	P	V
5260MHz		15780	50.35	-23.65	74	54.43	40.32	14.78	59.18	-	-	P	V
802.11n		10600	47.8	-26.2	74	57.25	37.42	11.86	58.73	-	-	P	H
HT20		15900	48.67	-25.33	74	52.69	40.42	14.86	59.3	-	-	P	H
CH 60		10600	47.34	-26.66	74	56.79	37.42	11.86	58.73	-	-	P	V
5300MHz		15900	50.31	-23.69	74	54.33	40.42	14.86	59.3	-	-	P	V
802.11n		10640	46.96	-27.04	74	56.35	37.47	11.83	58.69	-	-	P	H
HT20		15960	50.06	-23.94	74	54.05	40.47	14.89	59.35	-	-	P	H
CH 64		10640	47.08	-26.92	74	56.47	37.47	11.83	58.69	-	-	P	V
5320MHz		15960	49.73	-24.27	74	53.72	40.47	14.89	59.35	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-2A 5250~5350MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

Table with 14 columns: 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). Rows include test data for 802.11n HT40 CH 54 (5270MHz) and 802.11n HT40 CH 62 (5310MHz), and a Remark section at the bottom.



UNII-2A 5250~5350MHz
WIFI 802.11n HT40 (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)
802.11n HT40 CH 54 5270MHz		10540	48.22	-20.08	68.3	57.99	37.34	11.69	58.8	-	-	P	H
		15810	50.81	-23.19	74	54.85	40.35	14.81	59.2	-	-	P	H
		10540	48.39	-19.91	68.3	58.16	37.34	11.69	58.8	-	-	P	V
		15810	50.11	-23.89	74	54.15	40.35	14.81	59.2	-	-	P	V
802.11n HT40 CH 62 5310MHz		10620	47.33	-26.67	74	56.75	37.44	11.85	58.71	-	-	P	H
		15930	49.59	-24.41	74	53.6	40.44	14.88	59.33	-	-	P	H
		10620	48.43	-25.57	74	57.85	37.44	11.85	58.71	-	-	P	V
		15930	49.93	-24.07	74	53.94	40.44	14.88	59.33	-	-	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)

Table with 14 columns: 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). Rows include test results for 802.11ac VHT80 CH 58 5290MHz and a Remark section.



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

Table with 14 columns: 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). Rows include 802.11ac VHT80 CH 58 5290MHz and a Remark section.



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		5452.4	56.19	-17.81	74	39.98	34.2	10.38	28.37	135	22	P	H
		5470	59.41	-8.89	68.3	43.2	34.2	10.43	28.42	135	22	P	H
		5460	49.95	-4.05	54	33.76	34.2	10.38	28.39	135	22	A	H
		5500	114.25	-	-	98.12	34.2	10.43	28.5	135	22	P	H
		5500	107.49	-	-	91.36	34.2	10.43	28.5	135	22	A	H
		5450.8	53.34	-20.66	74	37.12	34.2	10.38	28.36	175	60	P	V
		5468.24	53.28	-15.02	68.3	37.06	34.2	10.43	28.41	175	60	P	V
		5459.92	44.96	-9.04	54	28.77	34.2	10.38	28.39	175	60	A	V
		5500	107.26	-	-	91.13	34.2	10.43	28.5	175	60	P	V
		5500	99.54	-	-	83.41	34.2	10.43	28.5	175	60	A	V
802.11a CH 116 5580MHz		5381.2	53.49	-20.51	74	37.16	34.2	10.3	28.17	145	25	P	H
		5460.64	52.43	-15.87	68.3	36.24	34.2	10.38	28.39	145	25	P	H
		5458.48	44.03	-9.97	54	27.83	34.2	10.38	28.38	145	25	A	H
		5580	114.13	-	-	97.7	34.23	10.52	28.32	145	25	P	H
		5580	106.66	-	-	90.23	34.23	10.52	28.32	145	25	A	H
		5735.075	54.49	-13.81	68.3	37.26	34.6	10.61	27.98	145	25	P	H
		5398.48	52.77	-21.23	74	36.45	34.2	10.34	28.22	175	57	P	V
		5469.76	52.72	-15.58	68.3	36.51	34.2	10.43	28.42	175	57	P	V
		5459.68	43.56	-10.44	54	27.37	34.2	10.38	28.39	175	57	A	V
		5580	106.55	-	-	90.12	34.23	10.52	28.32	175	57	P	V
	5580	99.55	-	-	83.12	34.23	10.52	28.32	175	57	A	V	
	5751.77	54.36	-13.94	68.3	37.06	34.63	10.62	27.95	175	57	P	V	



802.11a CH 140 5700MHz	5700	113.23	-	-	96.18	34.5	10.61	28.06	178	42	P	H
	5700	106.28	-	-	89.23	34.5	10.61	28.06	178	42	A	H
	5727.16	62.07	-6.23	68.3	44.89	34.57	10.61	28	178	42	P	H
	5700	106.06	-	-	89.01	34.5	10.61	28.06	270	70	P	V
	5700	99.18	-	-	82.13	34.5	10.61	28.06	270	70	A	V
	5725.64	56.78	-11.52	68.3	39.6	34.57	10.61	28	270	70	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 (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		11000	47.15	-26.85	74	55.54	37.9	12.01	58.3	-	-	P	H
		16500	50.96	-17.34	68.3	52.96	41.57	15.27	58.84	-	-	P	H
		11000	47.42	-26.58	74	55.81	37.9	12.01	58.3	-	-	P	V
		16500	50.37	-17.93	68.3	52.37	41.57	15.27	58.84	-	-	P	V
802.11a CH 116 5580MHz		11160	47.88	-26.12	74	55.84	38.05	12.1	58.11	-	-	P	H
		16740	50.97	-17.33	68.3	52.07	42.07	15.41	58.58	-	-	P	H
		11160	47.7	-26.3	74	55.66	38.05	12.1	58.11	-	-	P	V
		16740	50.63	-17.67	68.3	51.73	42.07	15.41	58.58	-	-	P	V
802.11a CH 140 5700MHz		11400	48.92	-25.08	74	56.31	38.27	12.19	57.85	-	-	P	H
		17100	51.12	-17.18	68.3	51.37	42.46	15.45	58.16	-	-	P	H
		11400	48.97	-25.03	74	56.36	38.27	12.19	57.85	-	-	P	V
		17100	50.7	-17.6	68.3	50.95	42.46	15.45	58.16	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-2C - 5470~5725MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

Table with 14 columns: 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). Rows include data for 802.11n HT20 CH 100 (5500MHz) and 802.11n HT20 CH 116 (5580MHz).



802.11n	5700	113.82	-	-	96.77	34.5	10.61	28.06	185	16	P	H
	5700	106.28	-	-	89.23	34.5	10.61	28.06	185	16	A	H
HT20	5725.08	60.97	-7.33	68.3	43.79	34.57	10.61	28	185	16	P	H
CH 140	5700	103.87	-	-	86.82	34.5	10.61	28.06	251	121	P	V
5700MHz	5700	96.31	-	-	79.26	34.5	10.61	28.06	251	121	A	V
	5725.72	58.9	-9.4	68.3	41.72	34.57	10.61	28	251	121	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.											



UNII-2C - 5470~5725MHz
WIFI 802.11n HT20 (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)
802.11n HT20		11000	47.03	-26.97	74	55.42	37.9	12.01	58.3	-	-	P	H
		16500	50.53	-17.77	68.3	52.53	41.57	15.27	58.84	-	-	P	H
CH 100 5500MHz		11000	46.48	-27.52	74	54.87	37.9	12.01	58.3	-	-	P	V
		16500	50.64	-17.66	68.3	52.64	41.57	15.27	58.84	-	-	P	V
802.11n HT20 CH 116 5580MHz		11160	48.04	-25.96	74	56	38.05	12.1	58.11	-	-	P	H
		16740	49.79	-18.51	68.3	50.89	42.07	15.41	58.58	-	-	P	H
		11160	48.68	-25.32	74	56.64	38.05	12.1	58.11	-	-	P	V
		16740	50.04	-18.26	68.3	51.14	42.07	15.41	58.58	-	-	P	V
802.11n HT20 CH 140 5700MHz		11400	48.9	-25.1	74	56.29	38.27	12.19	57.85	-	-	P	H
		17100	51.47	-16.83	68.3	51.72	42.46	15.45	58.16	-	-	P	H
		11400	48.21	-25.79	74	55.6	38.27	12.19	57.85	-	-	P	V
		17100	50.77	-17.53	68.3	51.02	42.46	15.45	58.16	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-2C - 5470~5725MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

Table with 14 columns: 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). Rows include data for 802.11n HT40 CH 102 (5510MHz) and 802.11n HT40 CH 110 (5550MHz).



802.11n HT40 CH 134 5670MHz		5446.95	52.6	-21.4	74	40.54	34.2	10.38	32.52	202	29	P	H
		5460	49.34	-18.96	68.3	37.27	34.2	10.38	32.51	202	29	P	H
		5447.65	46.5	-7.5	54	34.44	34.2	10.38	32.52	202	29	A	H
		5670	106.4	-	-	93.91	34.4	10.59	32.5	202	29	P	H
		5670	98.72	-	-	86.23	34.4	10.59	32.5	202	29	A	H
		5728.32	53.68	-14.62	68.3	41	34.57	10.61	32.5	202	29	P	H
		5418.95	49.41	-24.59	74	37.4	34.2	10.34	32.53	218	81	P	V
		5467.25	47.79	-20.51	68.3	35.67	34.2	10.43	32.51	218	81	P	V
		5448	42.55	-11.45	54	30.49	34.2	10.38	32.52	218	81	A	V
		5670	98.83	-	-	86.34	34.4	10.59	32.5	218	81	P	V
		5670	90.75	-	-	78.26	34.4	10.59	32.5	218	81	A	V
		6280.69	52.41	-15.89	68.3	38.93	35.33	11.09	32.94	218	81	P	V
Remark	<p>1. No other spurious found.</p> <p>2. All results are PASS against Peak and Average limit line.</p>												



UNII-2C - 5470~5725MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

Table with 14 columns: 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). Rows include test results for channels 102, 110, and 134 at various frequencies.

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)

Table with 14 columns: 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). Rows include test results for 802.11ac VHT80 CH 106 5530MHz and a Remark section.



UNII-2C 5470~5725MHz
WIFI 802.11ac VHT80 (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)
802.11ac		11060	47.05	-26.95	74	55.2	37.96	12.12	58.23	-	-	P	H
VHT80		16590	50.49	-17.81	68.3	52.24	41.75	15.25	58.75	-	-	P	H
CH 106		11060	47.7	-26.3	74	55.85	37.96	12.12	58.23	-	-	P	V
5530MHz		16590	50.05	-18.25	68.3	51.8	41.75	15.25	58.75	-	-	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

5GHz WIFI 802.11ac VHT80 (LF)

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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11ac VHT80 LF		106.63	23.05	-20.45	43.5	39.9	15.87	2.47	35.19	-	-	P	H
		181.32	28.96	-14.54	43.5	43.56	17.82	2.68	35.1	-	-	P	H
		273.47	19.69	-26.31	46	32.58	19.05	3.01	34.95	-	-	P	H
		376.29	20.56	-25.44	46	30.59	21.55	3.27	34.85	-	-	P	H
		454.86	22.66	-23.34	46	30.81	23.23	3.32	34.7	-	-	P	H
		582.9	24.73	-21.27	46	30	25.45	3.81	34.53	-	-	P	H
		30	23.61	-16.39	40	37.91	18.85	1.85	35	-	-	P	V
		106.63	23.53	-19.97	43.5	40.38	15.87	2.47	35.19	-	-	P	V
		179.38	32.91	-10.59	43.5	47.28	18.06	2.67	35.1	-	-	P	V
		281.23	23.03	-22.97	46	35.54	19.37	3.06	34.94	-	-	P	V
	474.26	23.21	-22.79	46	31.04	23.49	3.38	34.7	-	-	P	V	
	612.97	25.83	-20.17	46	30.49	25.95	3.89	34.5	-	-	P	V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Co-location Mode

UNII-2A - 5250~5350MHz

WIFI 802.11ac (Band Edge @ 3m)

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)
802.11ac CH 58 5290MHz & LTE Band48	*	5071.75	52.3	-21.7	74	38.82	33.87	12.13	32.52	103	325	P	H
	*	5129.85	41.81	-12.19	54	28.22	33.97	12.15	32.53	103	325	A	H
		5290	92.85	-	-	78.85	34.37	12.19	32.56	103	325	P	
		5290	85.59	-	-	71.59	34.37	12.19	32.56	103	325	A	H
		5370	53.57	-20.43	74	39.53	34.4	12.21	32.57	103	325	P	H
		5375.04	43.9	-10.1	54	29.86	34.4	12.22	32.58	103	325	A	H
	*	5144.55	52.55	-21.45	74	38.93	34	12.15	32.53	145	26	P	V
		5147.35	42.75	-11.25	54	29.13	34	12.15	32.53	145	26	A	V
		5290	103.5	-	-	89.5	34.37	12.19	32.56	145	26	P	
		5290	95.88	-	-	81.88	34.37	12.19	32.56	145	26	A	V
		5364.24	63.52	-10.48	74	49.48	34.4	12.21	32.57	145	26	P	V
	5352.72	50.87	-3.13	54	36.83	34.4	12.21	32.57	145	26	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 (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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac CH 58 5290MHz & LTE Band48		7232	49.2	-19.1	68.3	51.19	35.75	14.12	51.86	-	-	P	H
		10580	49.71	-18.59	68.3	47.8	37.55	15.51	51.15	-	-	P	H
		10848	50.1	-23.9	74	47.57	37.71	16.13	51.31	-	-	P	H
		14464	49.28	-19.02	68.3	45.55	39.06	17.27	52.6	-	-	P	H
		15870	49.67	-24.33	74	44.61	40.39	17.95	53.28	-	-	P	H
		7232	48.6	-19.7	68.3	50.59	35.75	14.12	51.86	-	-	P	V
		10580	49.37	-18.93	68.3	47.46	37.55	15.51	51.15	-	-	P	V
		10848	49.65	-24.35	74	47.12	37.71	16.13	51.31	-	-	P	V
		14464	49.6	-18.7	68.3	45.87	39.06	17.27	52.6	-	-	P	V
	15870	50.92	-23.08	74	45.86	40.39	17.95	53.28	-	-	P	V	
Remark	1. No other spurious found. 2. 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	Peak or Average
H/V	Horizontal or Vertical



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

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)
802.11b		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. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path 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) + Path 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)

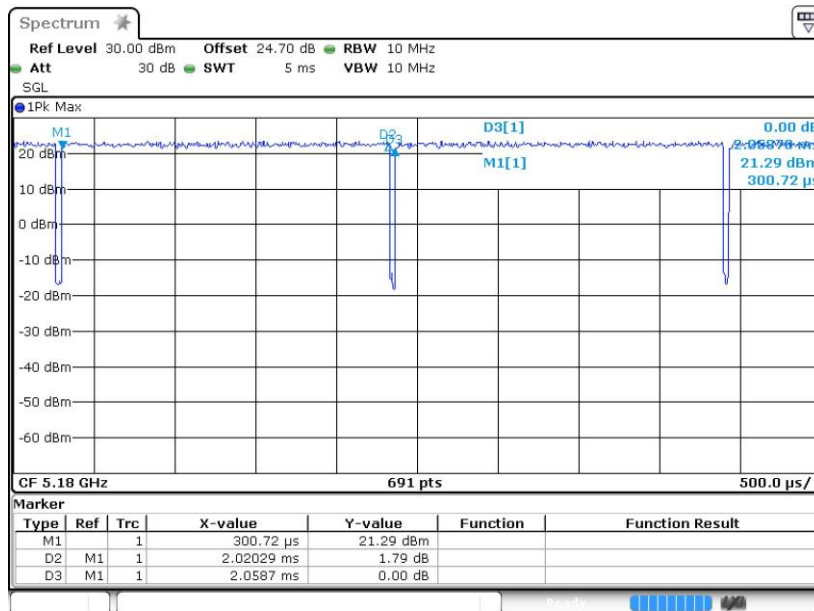
Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	98.13	-	-	10Hz
802.11n HT20	98.00	-	-	10Hz
802.11n HT40	96.77	0.933	1.071	3KHz
802.11ac VHT80	91.95	0.455	2.197	3KHz

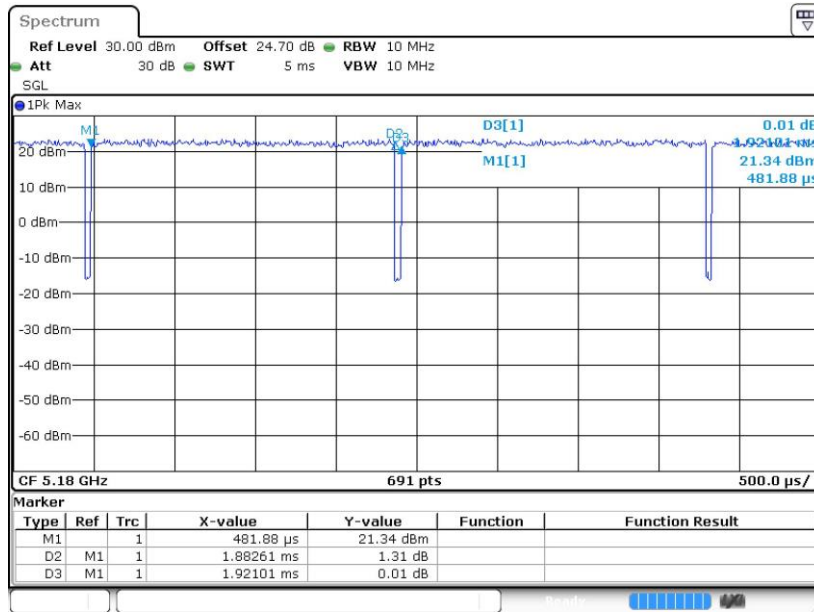
802.11a



Date: 15.DEC.2021 01:17:56

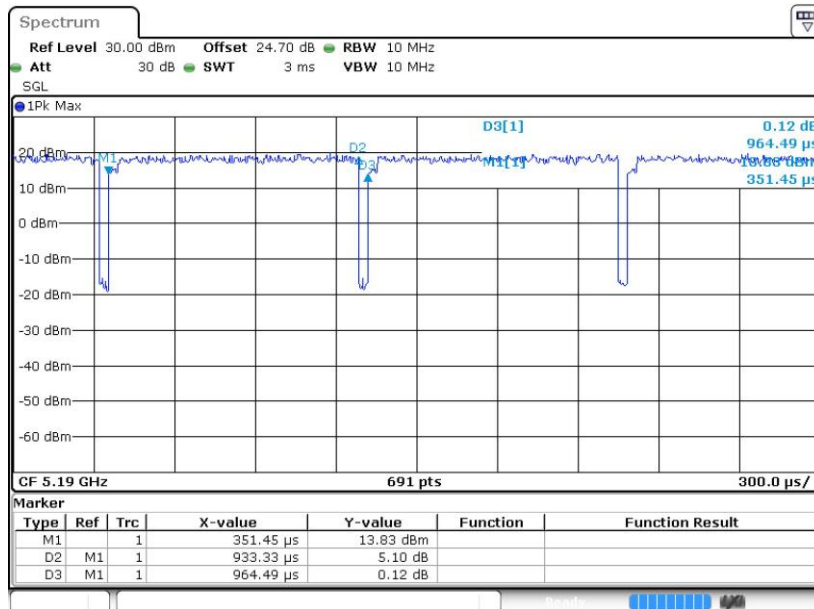


802.11n HT20



Date: 15.DEC.2021 01:18:54

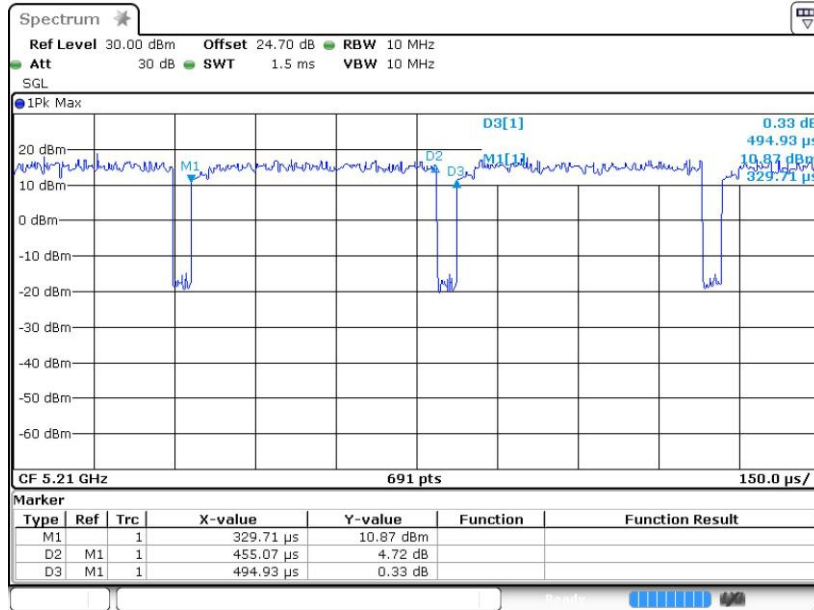
802.11n HT40



Date: 15.DEC.2021 01:16:49



802.11ac VHT80



Date: 15.DEC.2021 01:14:27