



FCC RF Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2203-1
FCC ID : IHDT56AE6
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure
TEST DATE(S) : Jan. 18, 2022 ~ Feb. 24, 2022

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

Reviewed by: Jason Jia / Supervisor

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
FR1D2901E	Rev. 01	Initial issue of report	Mar. 01, 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 3.05 dB at 5144.000 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 11.41 dB at 0.233 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	XT2203-1
FCC ID	IHDT56AE6
IMEI Code	Conducted: 354596750030032/354596750030040 Conduction: 354596750032137/354596750032145 Radiation: 354596750032137/354596750032145
HW Version	DVT2
SW Version	S1RD32.41
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 ~ 5720 MHz
Maximum Output Power to Antenna	<MIMO Ant. 1+2> <5180 MHz ~ 5240 MHz> 802.11a : 19.91 dBm / 0.0979 W 802.11n HT20 : 20.62 dBm / 0.1153 W 802.11n HT40 : 18.97 dBm / 0.0789 W 802.11ac VHT20 : 20.73 dBm / 0.1183 W 802.11ac VHT40 : 19.05 dBm / 0.0804 W 802.11ac VHT80 : 13.48 dBm / 0.0223 W 802.11ac VHT160 : 13.19 dBm / 0.0208 W 802.11ax HE20 : 20.87 dBm / 0.1222 W 802.11ax HE40 : 19.20 dBm / 0.0832 W 802.11ax HE80 : 13.57 dBm / 0.0228 W 802.11ax HE160 : 13.28 dBm / 0.0213 W <5260 MHz ~ 5320 MHz>



	<p>802.11a : 20.08 dBm / 0.1019 W 802.11n HT20 : 20.86 dBm / 0.1219 W 802.11n HT40 : 19.21 dBm / 0.0834 W 802.11ac VHT20 : 20.95 dBm / 0.1245 W 802.11ac VHT40 : 19.30 dBm / 0.0851 W 802.11ac VHT80 : 13.00 dBm / 0.0200 W 802.11ax HE20 : 21.07 dBm / 0.1279 W 802.11ax HE40 : 19.43 dBm / 0.0877 W 802.11ax HE80 : 13.10 dBm / 0.0204 W 802.11ax HE160 : 13.03 dBm / 0.0201 W</p> <p><5500 MHz ~ 5720 MHz > 802.11a : 20.26 dBm / 0.1062 W 802.11n HT20 : 20.60 dBm / 0.1148 W 802.11n HT40 : 18.88 dBm / 0.0773 W 802.11ac VHT20 : 20.69 dBm / 0.1172 W 802.11ac VHT40 : 18.96 dBm / 0.0787 W 802.11ac VHT80 : 18.96 dBm / 0.0787 W 802.11ac VHT160 : 13.36 dBm / 0.0217 W 802.11ax HE20 : 20.81 dBm / 0.1205 W 802.11ax HE40 : 19.10 dBm / 0.0813 W 802.11ax HE80 : 19.07 dBm / 0.0807 W 802.11ax HE160 : 13.48 dBm / 0.0223 W</p>
<p>99% Occupied Bandwidth</p>	<p><MIMO Ant. 1+2> <5180 MHz ~ 5240 MHz> 802.11a : 16.38 MHz 802.11ax HE20 : 18.93 MHz 802.11ax HE40 : 37.76 MHz 802.11ax HE80 : 77.08 MHz 802.11ax HE160 : 156.08 MHz</p> <p><5260 MHz ~ 5320 MHz > 802.11a : 16.33 MHz 802.11ax HE20 : 18.93 MHz 802.11ax HE40 : 37.76 MHz 802.11ax HE80 : 76.96 MHz</p> <p><5500 MHz ~ 5720 MHz > 802.11a : 16.48 MHz 802.11ax HE20 : 18.98 MHz 802.11ax HE40 : 37.86 MHz 802.11ax HE80 : 77.08 MHz 802.11ax HE160 : 155.60 MHz</p>
<p>Antenna Type / Gain</p>	<p><5180 MHz ~ 5240 MHz> <Ant. 1> : PIFA Antenna with gain -7.0 dBi <Ant. 2> : PIFA Antenna with gain -6.5 dBi</p> <p><5260 MHz ~ 5320 MHz> <Ant. 1> : PIFA Antenna with gain -7.0 dBi <Ant. 2> : PIFA Antenna with gain -6.5 dBi</p> <p><5500 MHz ~ 5720 MHz> <Ant. 1> : PIFA Antenna with gain -8.0 dBi <Ant. 2> : PIFA Antenna with gain -6.5 dBi</p>
<p>Type of Modulation</p>	<p>802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) 802.11ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)</p>



Note:

1. The device supports for MIMO only.
2. For 802.11n/ac & 11ax mode, the whole testing have assessed only 802.11ax mode by referring to the higher output power.
3. 802.11ax support OFDMA full RU tone and partial RU tone, both full RU and partial RU-left (for low CH) and partial RU-right (for high CH) test output power, the full RU power > partial RU, thus the full RU perform full test to cover partial RU.
4. Ant.1 corresponding to EUT photo Antenna 6, Ant.2 corresponding to EUT photo Antenna 5.

1.5 Modification of EUT

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

1.6 Testing Location

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

Test Firm	Sporton International Inc. (Kunshan)		
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 03CH05-KS TH01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH05-KS	AUDIX	E3	6.2009-8-24al
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.



1.9 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	Brand Name	Motorola (Salcomp)	Model Name	MC-331
AC Adapter 1(EU)	Brand Name	Motorola (Salcomp)	Model Name	MC-332
AC Adapter 1(UK)	Brand Name	Motorola (Salcomp)	Model Name	MC-333
AC Adapter 1(IN)	Brand Name	Motorola (Salcomp)	Model Name	MC-334
AC Adapter 1(AU)	Brand Name	Motorola (Salcomp)	Model Name	MC-335
AC Adapter 1(AR)	Brand Name	Motorola (Salcomp)	Model Name	MC-336
AC Adapter 1(BR)	Brand Name	Motorola (Salcomp)	Model Name	MC-337
AC Adapter 1(CHILE)	Brand Name	Motorola (Salcomp)	Model Name	MC-339
AC Adapter 2(US)	Brand Name	Motorola (Acbel)	Model Name	MC-331
AC Adapter 2(EU)	Brand Name	Motorola (Acbel)	Model Name	MC-332
AC Adapter 2(UK)	Brand Name	Motorola (Acbel)	Model Name	MC-333
AC Adapter 3(US)	Brand Name	Motorola (AOHAI)	Model Name	MC-331
AC Adapter 3(EU)	Brand Name	Motorola (AOHAI)	Model Name	MC-332
AC Adapter 3(UK)	Brand Name	Motorola (AOHAI)	Model Name	MC-333
Battery 1	Brand Name	Motorola (ATL)	Model Name	ND40
Battery 2	Brand Name	Motorola (SCUD)	Model Name	ND40
Earphone	Brand Name	Motorola (Lyand)	Model Name	MI181C
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



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)
5180-5240 MHz U-NII-1	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42 [#]	5210	50 ^{##}	5250
Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5260-5320 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)
5500- 5720 MHz U-NII-2C	100	5500	114 ^{##}	5570
	102*	5510	116	5580
	104	5520	132	5660
	106 [#]	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700
	112	5560		



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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	138 [#]	5690	144	5720
	142*	5710		

Note:

1. The above Frequency and Channel in "*" were 802.11n HT40 and 802.11ac VHT40 and 802.11ax HE 40
2. The above Frequency and Channel in "#n" were 802.11ac VHT80 and 802.11ax HE 80
3. The above Frequency and Channel in "##n" were 802.11ac VHT160 and 802.11ax HE 160



2.2 Test Mode

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

MIMO Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN(5G)Link + USB Cable 1(Charging from Adapter 1)
Remark:	
<ol style="list-style-type: none"> 1. For Radiated Test Cases, The tests were performed with Adapter 1 and USB Cable 1 2. All test modes of the Radiated Spurious Emission (RSE) were tested; only the test worse data were reported, test mode as below, <ol style="list-style-type: none"> 1) 802.11a ch140_5700MHz 2) 802.11ax HE20 Partial RU ch36_106/53_5180MHz 3) 802.11ax HE40 full RU ch62_5310MHz and Partial RU ch102_242/61_5510MHz 4) 802.11ax HE80 full RU ch42_5210MHz and Partial RU ch106_484/65_5530MHz 5) 802.11ax HE160 full RU ch50_5250MHz and Partial RU ch50_996/67_5250MHz 	

Simultaneous transmission
WIFI 802.11ax HE160 + LTE Band13 + BLE CH39



Ch. #		U-NII-1 : 5180-5240 MHz	U-NII-2A : 5260-5320 MHz	U-NII-2C : 5500- 5720 MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		U-NII-1 : 5180-5240 MHz	U-NII-2A : 5260-5320 MHz	U-NII-2C : 5500- 5720 MHz
		802.11ax HE20	802.11ax HE20	802.11ax HE20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

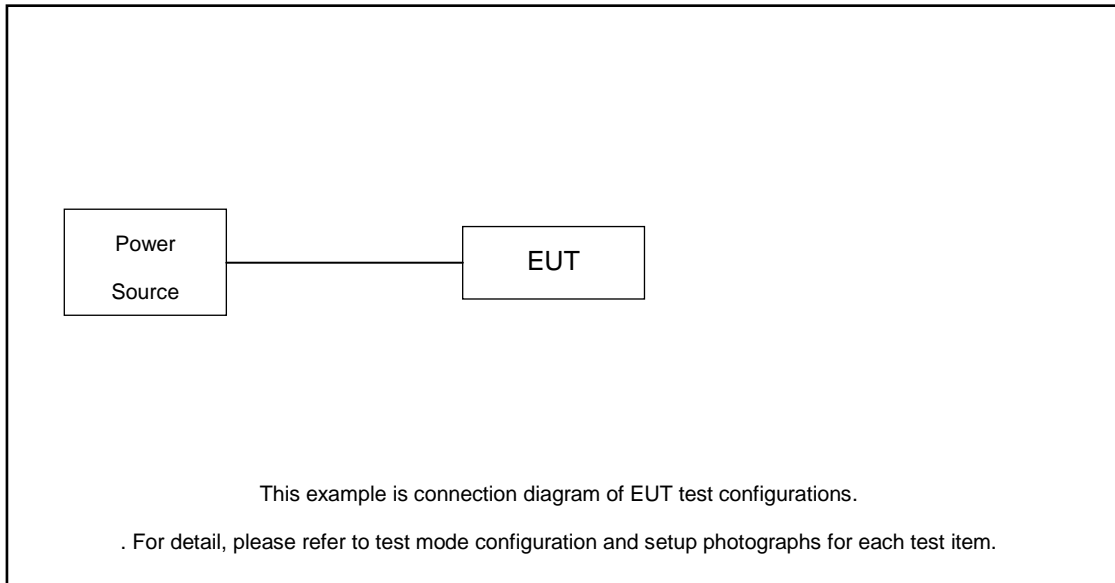
Ch. #		U-NII-1 : 5180-5240 MHz	U-NII-2A : 5260-5320 MHz	U-NII-2C : 5500- 5720 MHz
		802.11ax HE40	802.11ax HE40	802.11ax HE40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134
Straddle		-	-	142

Ch. #		U-NII-1 : 5180-5240 MHz	U-NII-2A : 5260-5320 MHz	U-NII-2C : 5500- 5720 MHz
		802.11ax HE80	802.11ax HE80	802.11ax HT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	122
Straddle		-	-	138

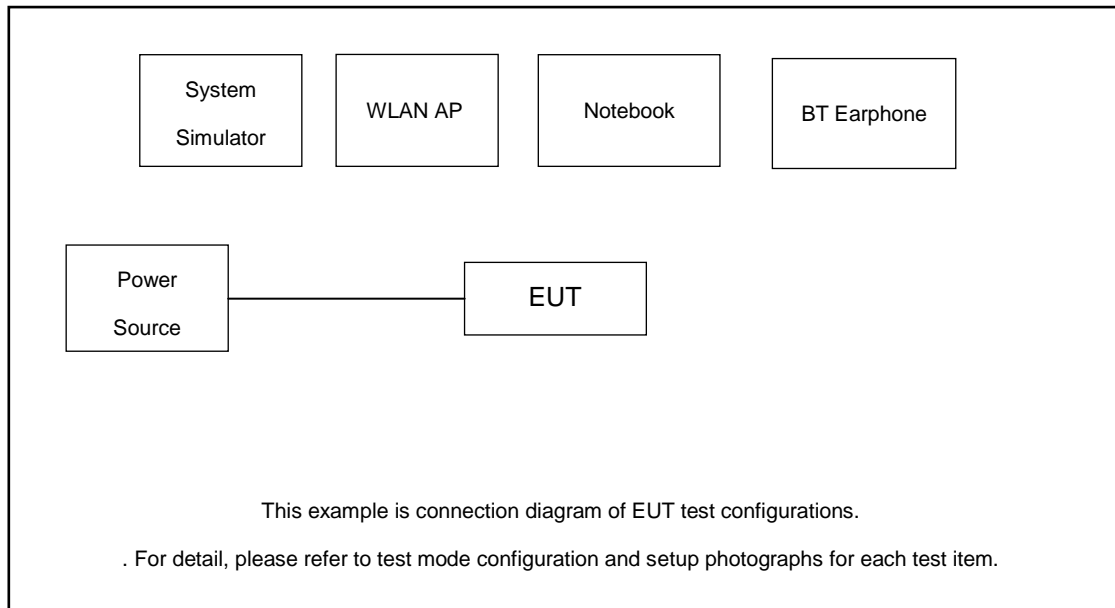
Ch. #		U-NII-1 : 5180-5240 MHz	U-NII-2A : 5260-5320 MHz	U-NII-2C : 5500- 5720 MHz
		802.11ax HE160		802.11ax HE160
L	Low	-	-	-
M	Middle	50		114
H	High	-	-	-

2.3 Connection Diagram of Test System

For Radiated Emission



For Conducted Emission





2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded,1.8m
2.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
3.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
4.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous 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 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.

$$\text{Offset} = \text{RF cable loss.}$$

Following shows an offset computation example with cable loss 7.0dB.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 7.0 \text{ (dB)} \end{aligned}$$

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.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

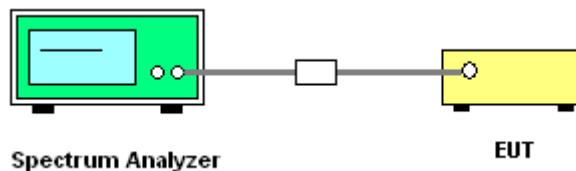
3.1.2 Measuring Instruments

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.

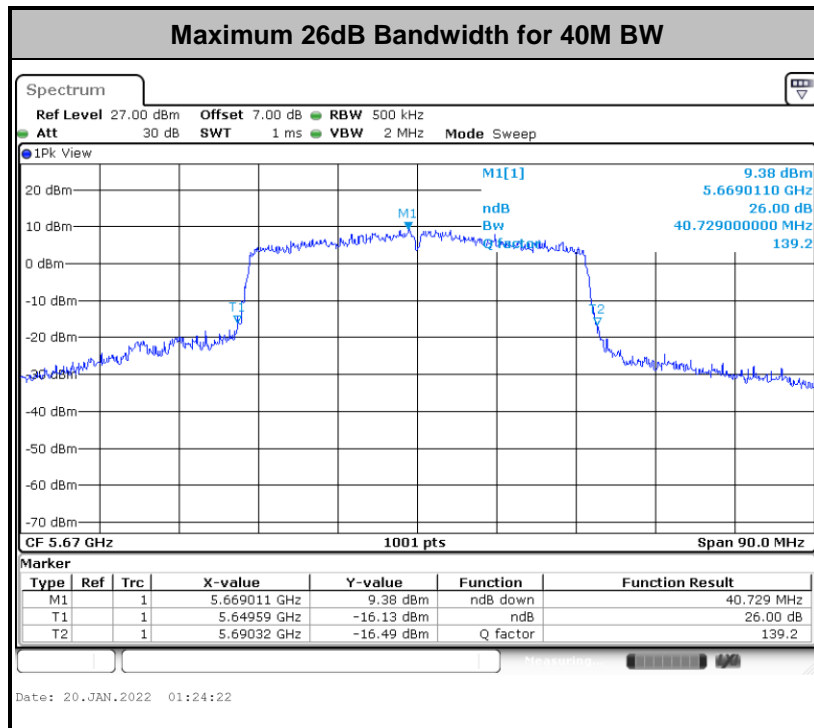
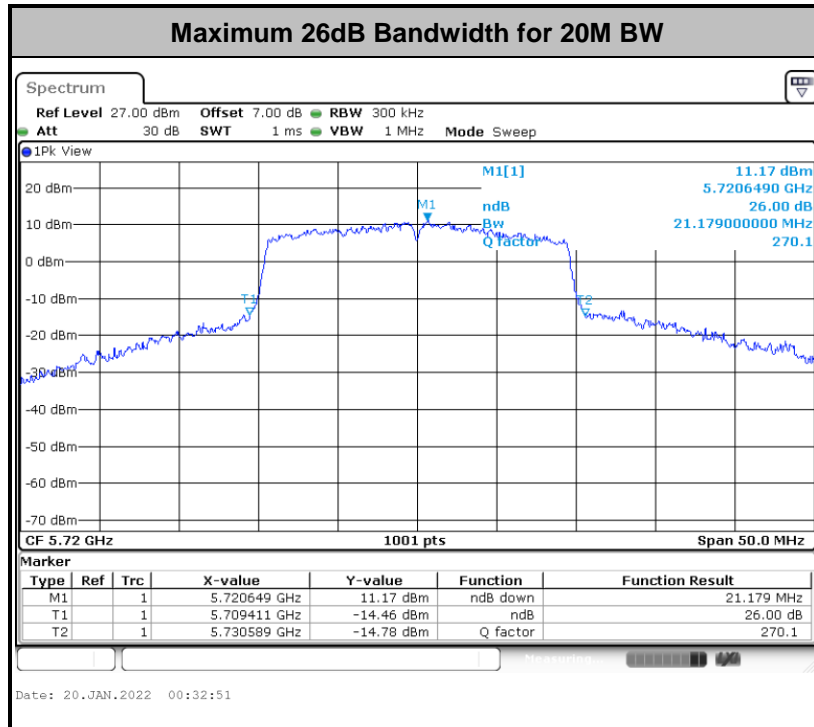
3.1.4 Test Setup

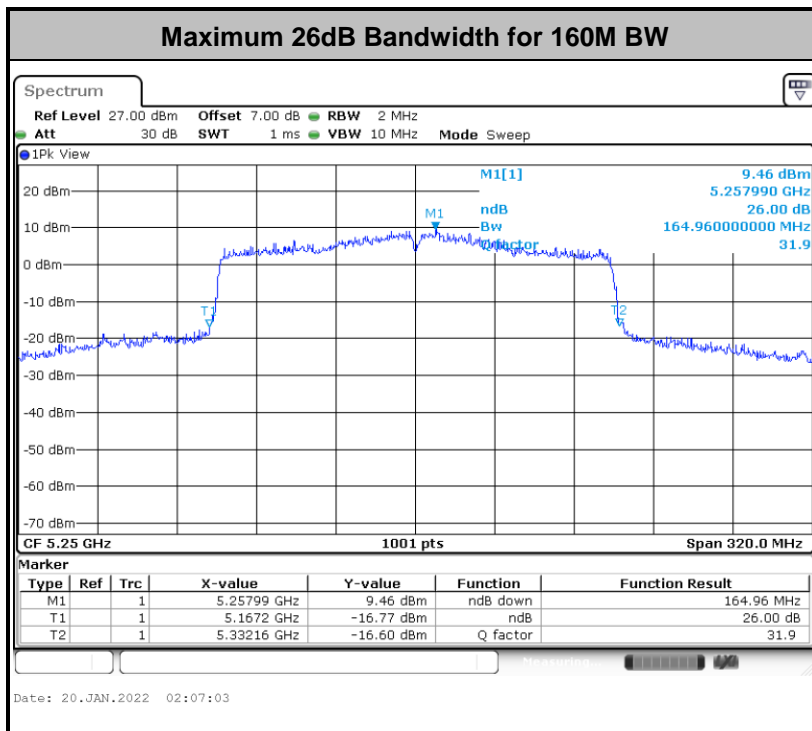
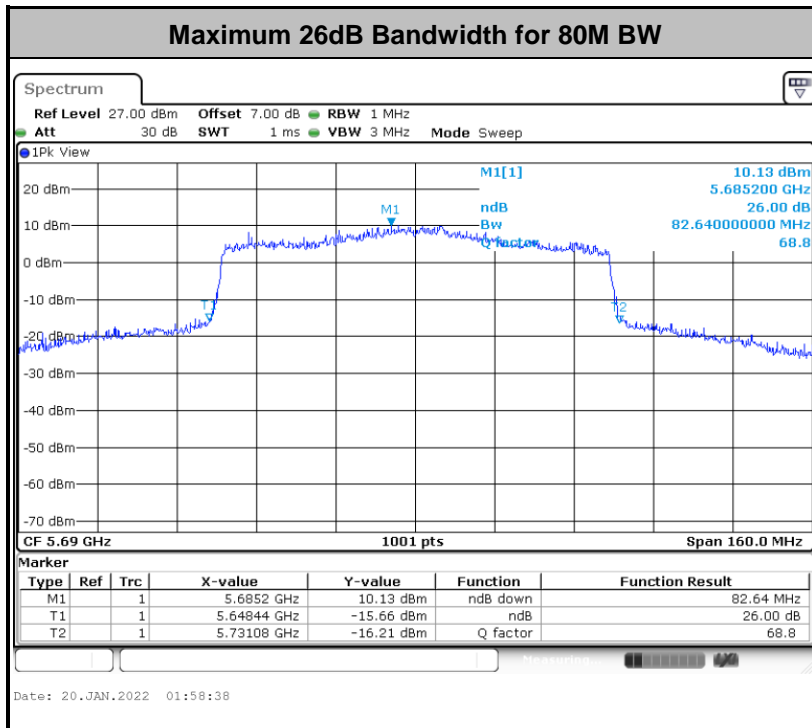


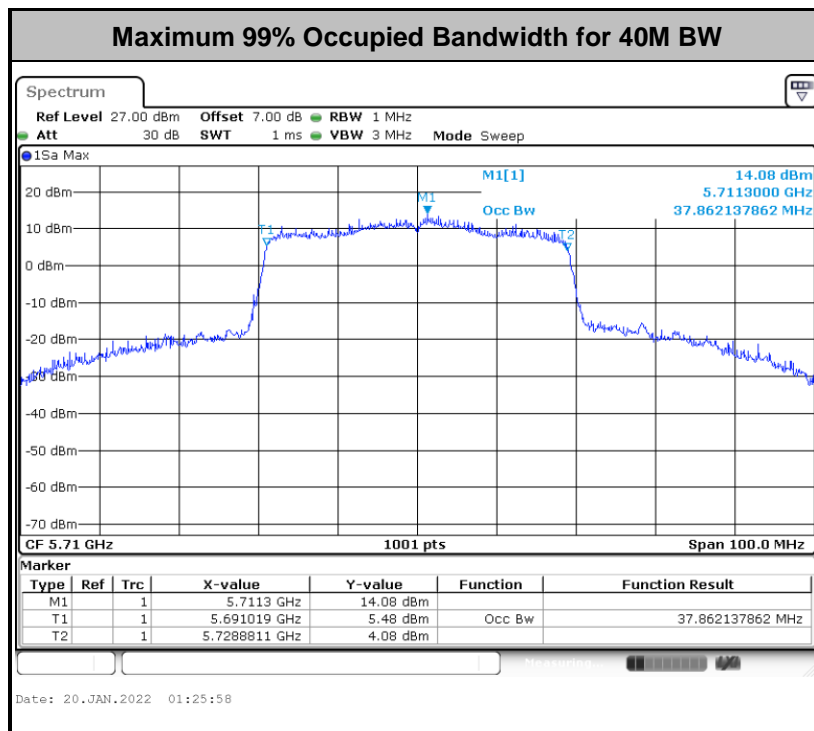
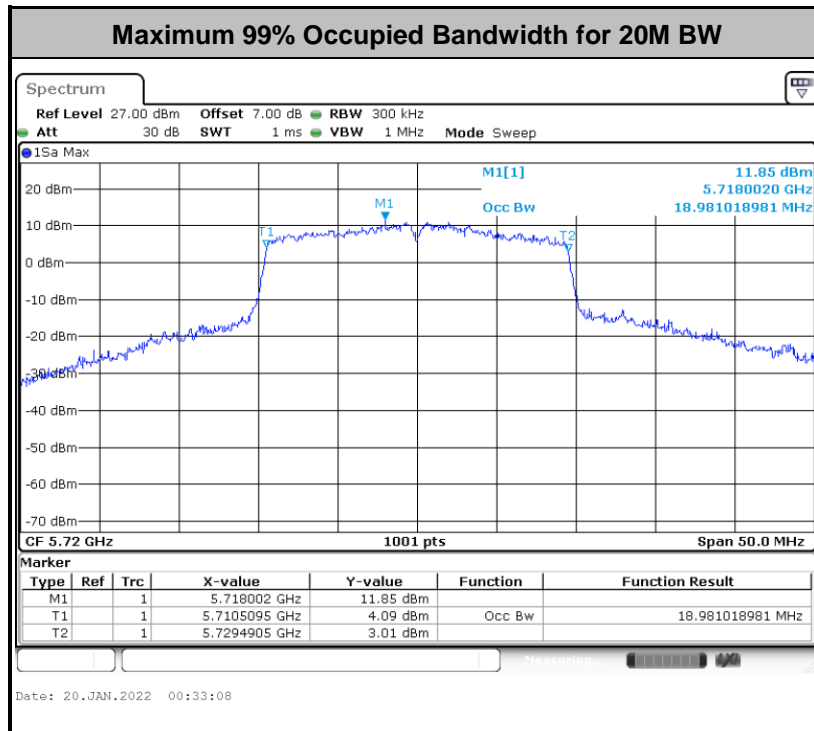


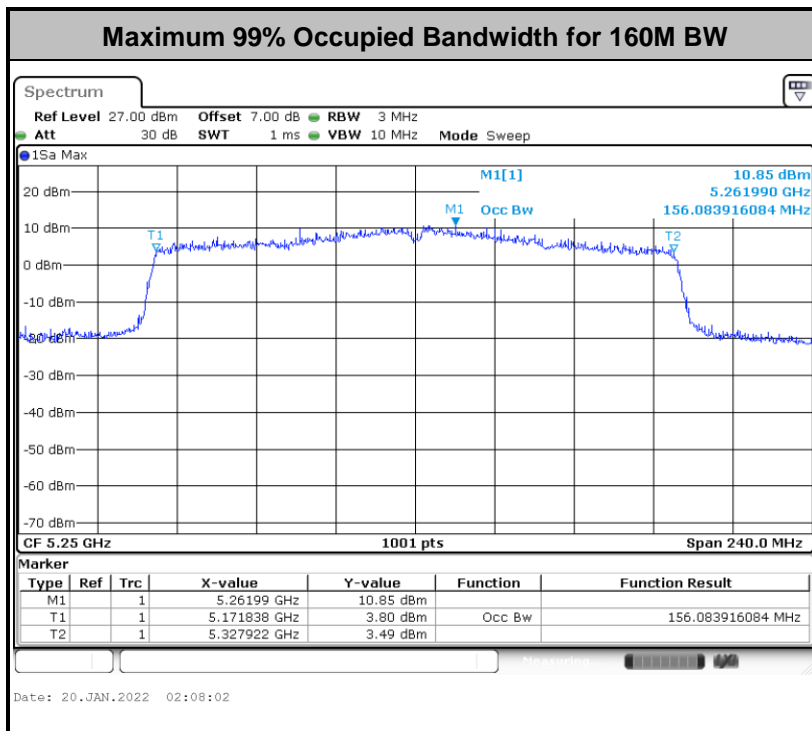
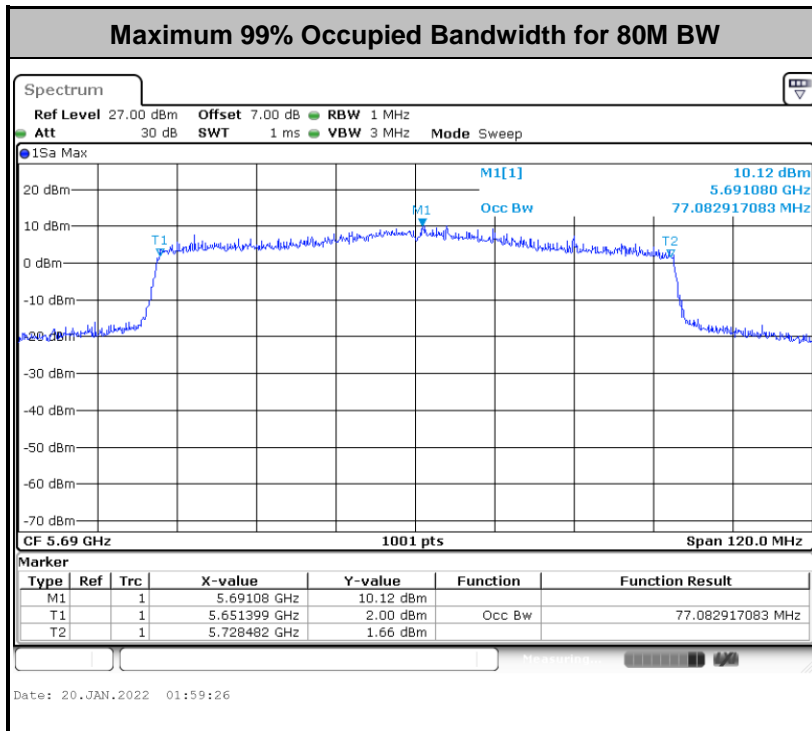
3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

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.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

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

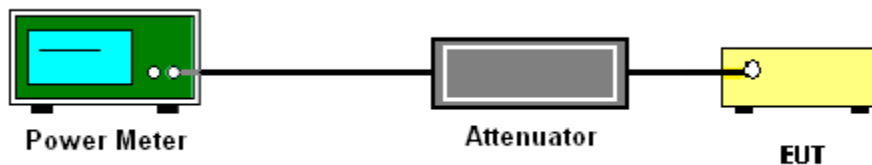
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

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.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

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 the bin-by-bin summation to obtain the combined spectrum. For the 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.

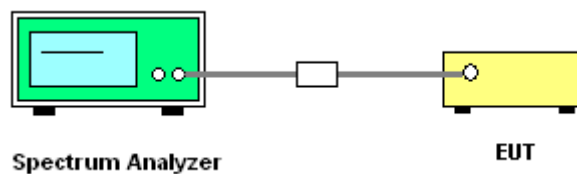
Method (b): Measure and sum spectral maxima across the outputs.

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.

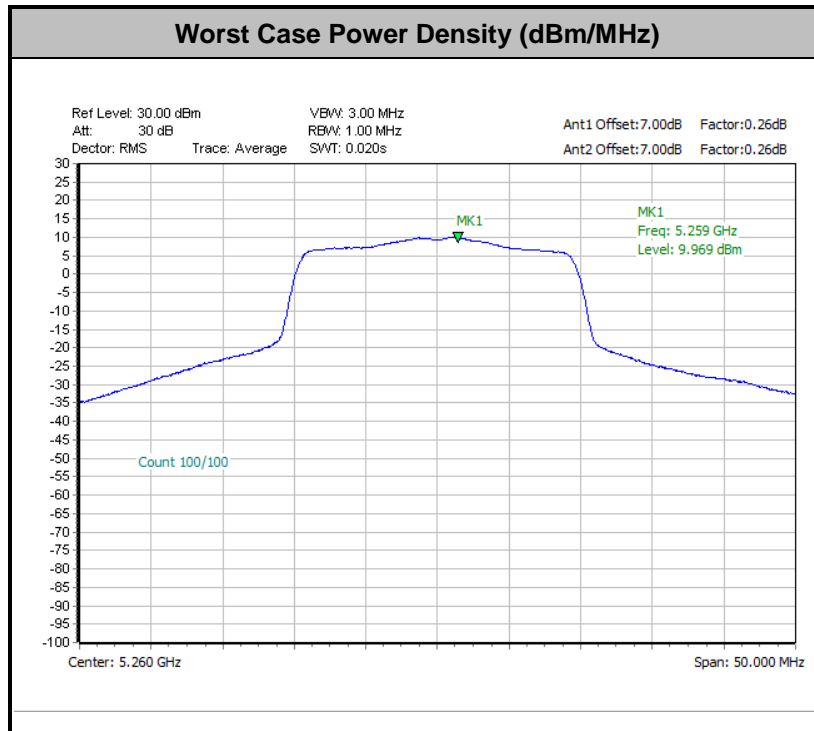
The measurement on each individual output were performed with the same span and number on each individual output. The quantity $10 \log(N_{ANT})$ dB is added to each spectrum value before comparing to the emission limit.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.





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	68.3

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.

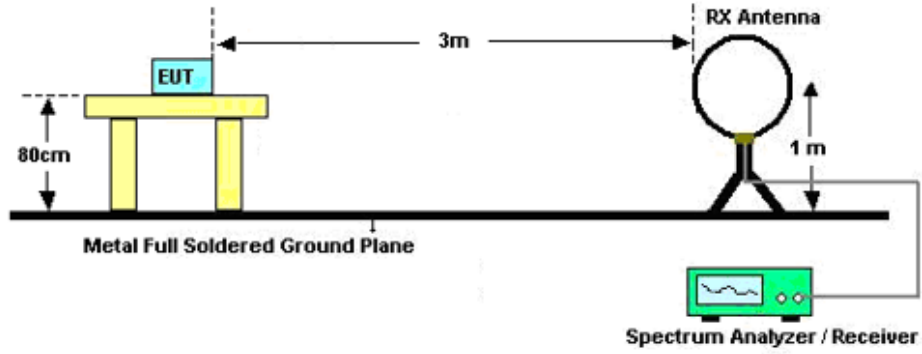


3.4.3 Test Procedures

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.

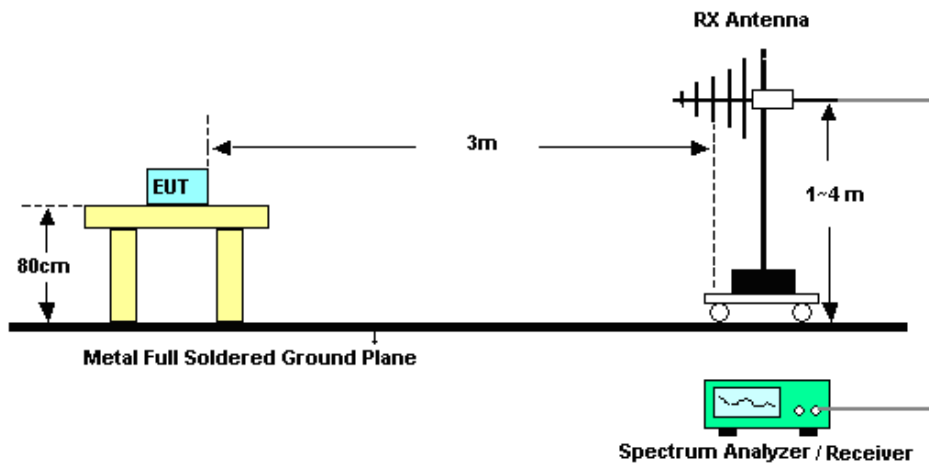
3.4.4 Test Setup

For radiated emissions below 30MHz



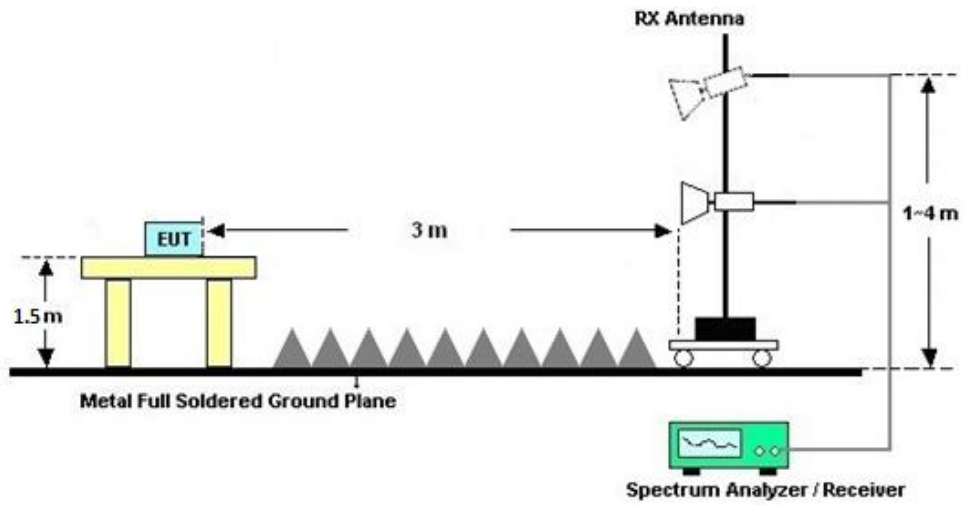
For radiated emissions from 30MHz to 1GHz

<CDD Mode>



For radiated emissions above 1GHz

<CDD Mode>





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.

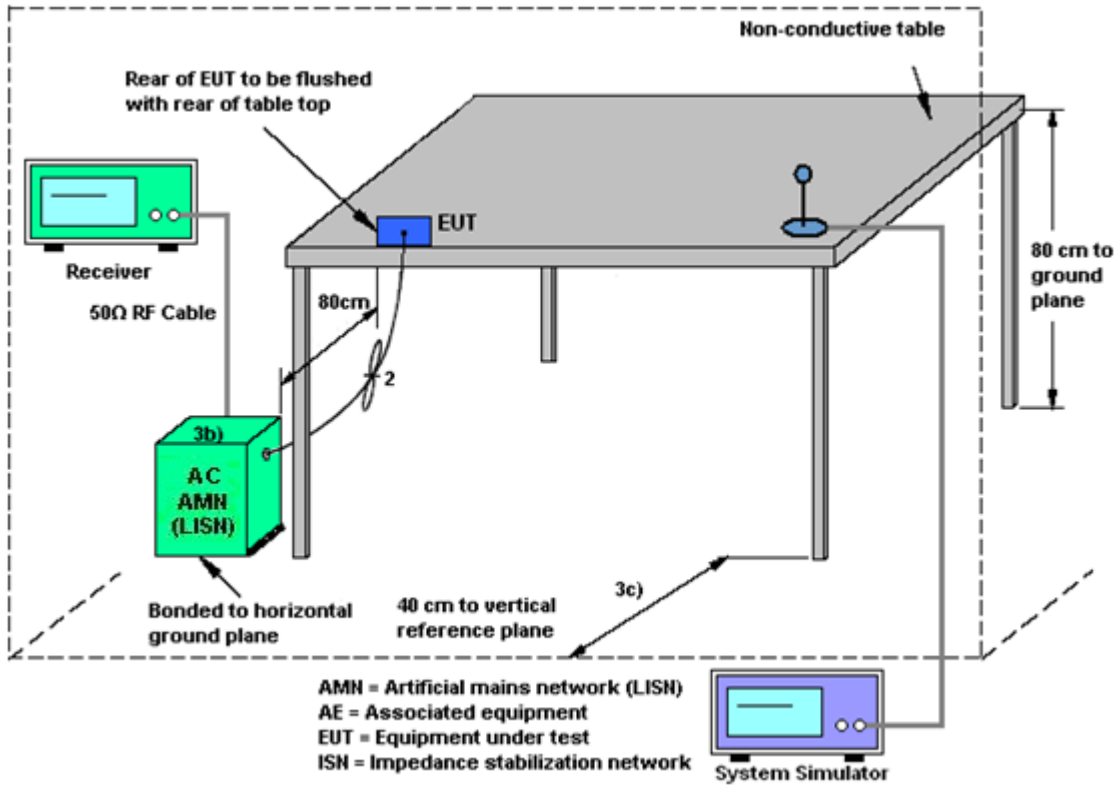
3.5.2 Measuring Instruments

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(NANT/NSS=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 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 (dBi)	Ant. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
Band I	-7.00	-6.50	-6.50	-3.74	0.00	0.00
Band II	-7.00	-6.50	-6.50	-3.74	0.00	0.00
Band III	-8.00	-6.50	-6.50	-4.21	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	Oct. 14, 2021	Jan. 18, 2022~ Jan. 20, 2022	Oct. 13, 2022	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 07, 2022	Jan. 18, 2022~ Jan. 20, 2022	Jan. 06, 2023	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 07, 2022	Jan. 18, 2022~ Jan. 20, 2022	Jan. 06, 2023	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY564000 04	3Hz~8.5GHz;Max 30dBm	Oct. 16, 2021	Feb. 24, 2022	Oct. 15, 2022	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY551502 44	10Hz~44G,MAX 30dB	Apr. 13, 2021	Feb. 24, 2022	Apr. 12, 2022	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Feb. 24, 2022	Oct. 29, 2022	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	May 30, 2021	Feb. 24, 2022	May 29, 2022	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 25, 2021	Feb. 24, 2022	Apr. 24, 2022	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Feb. 24, 2022	Jan. 04, 2023	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	187289	9kHz~1GHz	Jan. 05, 2022	Feb. 24, 2022	Jan. 04, 2023	Radiation (03CH05-KS)
Amplifier	MITEQ	EM18G40GG A	060728	18~40GHz	Jan. 05, 2022	Feb. 24, 2022	Jan. 04, 2023	Radiation (03CH05-KS)
high gain Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	2012228	1Ghz-18Ghz	Oct. 16, 2021	Feb. 24, 2022	Oct. 15, 2022	Radiation (03CH05-KS)
Amplifier	Keysight	83017A	MY532703 16	500MHz~26.5G Hz	Oct. 16, 2021	Feb. 24, 2022	Oct. 15, 2022	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F1040900 04	N/A	NCR	Feb. 24, 2022	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Feb. 24, 2022	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Feb. 24, 2022	NCR	Radiation (03CH05-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 21, 2021	Feb. 02, 2022	Apr. 20, 2022	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 14, 2021	Feb. 02, 2022	Oct. 13, 2022	Conduction (CO01-KS)
AC LISN	R&S	ENV216	100334	9kHz~30MHz	Oct. 14, 2021	Feb. 02, 2022	Oct. 13, 2022	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	AC 0V~300V, 45Hz~1000Hz	Oct. 14, 2021	Feb. 02, 2022	Oct. 13, 2022	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
---	-------

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

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

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



Appendix A. Conducted Test Results

A1. Conducted Test Results

Test Engineer:	Jacob Zhang	Temperature:	21~25	°C
Test Date:	2022/1/18~2022/1/20	Relative Humidity:	51~54	%

TEST RESULTS DATA
26dB and 99% OBW

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	
11a	6Mbps	2	36	5180	16.28	16.28	18.83	18.78	-	-	22.12		
11a	6Mbps	2	44	5220	16.33	16.33	19.03	19.68	-	-	22.13		
11a	6Mbps	2	48	5240	16.33	16.38	19.78	19.58	-	-	22.13		

TEST RESULTS DATA
Average Power Table

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	
11a	6Mbps	2	36	5180	16.53	17.24	19.91	24.00		-6.50		Pass
11a	6Mbps	2	44	5220	16.47	17.17	19.85	24.00		-6.50		Pass
11a	6Mbps	2	48	5240	16.36	17.31	19.87	24.00		-6.50		Pass
HT20	MCS0	2	36	5180	15.78	16.33	19.07	24.00		-6.50		Pass
HT20	MCS0	2	44	5220	17.20	17.99	20.62	24.00		-6.50		Pass
HT20	MCS0	2	48	5240	17.06	18.01	20.57	24.00		-6.50		Pass
HT40	MCS0	2	38	5190	14.68	15.36	18.04	24.00		-6.50		Pass
HT40	MCS0	2	46	5230	15.59	16.31	18.97	24.00		-6.50		Pass
VHT20	MCS0	2	36	5180	15.80	16.38	19.11	24.00		-6.50		Pass
VHT20	MCS0	2	44	5220	17.28	18.12	20.73	24.00		-6.50		Pass
VHT20	MCS0	2	48	5240	17.10	18.12	20.65	24.00		-6.50		Pass
VHT40	MCS0	2	38	5190	14.82	15.43	18.14	24.00		-6.50		Pass
VHT40	MCS0	2	46	5230	15.66	16.40	19.05	24.00		-6.50		Pass
VHT80	MCS0	2	42	5210	10.09	10.83	13.48	24.00		-6.50		Pass
VHT160	MCS0	2	50	5250	10.31	10.05	13.19	24.00		-6.50		Pass

TEST RESULTS DATA
Power Spectral Density

FCC U-NII-1 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	36	5180	0.24	0.23			9.64	11.00			-3.74	Pass
11a	6Mbps	2	44	5220	0.24	0.23			9.63	11.00			-3.74	Pass
11a	6Mbps	2	48	5240	0.24	0.23			9.88	11.00			-3.74	Pass

TEST RESULTS DATA
26dB and 99% OBW

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	
11a	6Mbps	2	52	5260	16.28	16.33	19.18	18.98	23.12		29.12		23.78		
11a	6Mbps	2	60	5300	16.33	16.33	19.08	19.53	23.13		29.13		23.81		
11a	6Mbps	2	64	5320	16.28	16.33	19.03	19.18	23.12		29.12		23.79		

TEST RESULTS DATA
Average Power Table

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		
11a	6Mbps	2	52	5260	16.85	17.20	20.04	23.78		-6.50		30	Pass
11a	6Mbps	2	60	5300	16.80	17.32	20.08	23.81		-6.50		30	Pass
11a	6Mbps	2	64	5320	16.76	17.23	20.01	23.79		-6.50		30	Pass
HT20	MCS0	2	52	5260	17.57	18.11	20.86	23.98		-6.50		30	Pass
HT20	MCS0	2	60	5300	17.52	18.02	20.79	23.98		-6.50		30	Pass
HT20	MCS0	2	64	5320	16.66	16.92	19.80	23.98		-6.50		30	Pass
HT40	MCS0	2	54	5270	15.98	16.41	19.21	23.98		-6.50		30	Pass
HT40	MCS0	2	62	5310	15.53	15.79	18.67	23.98		-6.50		30	Pass
VHT20	MCS0	2	52	5260	17.64	18.22	20.95	23.98		-6.50		30	Pass
VHT20	MCS0	2	60	5300	17.60	18.14	20.89	23.98		-6.50		30	Pass
VHT20	MCS0	2	64	5320	16.73	16.96	19.86	23.98		-6.50		30	Pass
VHT40	MCS0	2	54	5270	16.04	16.52	19.30	23.98		-6.50		30	Pass
VHT40	MCS0	2	62	5310	15.55	15.96	18.77	23.98		-6.50		30	Pass
VHT80	MCS0	2	58	5290	9.86	10.12	13.00	23.98		-6.50		30	Pass

TEST RESULTS DATA
Power Spectral Density

U-NII-2A MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	52	5260	0.24	0.23			9.74	11.00			-3.74	Pass
11a	6Mbps	2	60	5300	0.24	0.23			9.60	11.00			-3.74	Pass
11a	6Mbps	2	64	5320	0.24	0.23			9.80	11.00			-3.74	Pass

TEST RESULTS DATA
26dB and 99% OBW

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
11a	6Mbps	2	100	5500	16.33	16.33	18.98	19.28	23.13		29.13		23.78		----	----
11a	6Mbps	2	116	5580	16.48	16.28	19.98	19.13	23.12		29.12		23.82		----	----
11a	6Mbps	2	140	5700	16.33	16.38	18.88	20.28	23.13		29.13		23.76		----	----

U-NII-2C straddle channel 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
11a	6Mbps	2	144	5720	16.33	16.33	18.83	18.98	23.13		29.13		23.75		-	-

TEST RESULTS DATA
Average Power Table

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		
11a	6Mbps	2	100	5500	16.82	16.67	19.76	23.78		-6.50		30	Pass
11a	6Mbps	2	116	5580	16.87	16.74	19.82	23.82		-6.50		30	Pass
11a	6Mbps	2	140	5700	15.79	15.83	18.82	23.76		-6.50		30	Pass
HT20	MCS0	2	100	5500	17.57	17.36	20.48	23.98		-6.50		30	Pass
HT20	MCS0	2	116	5580	17.62	17.55	20.60	23.98		-6.50		30	Pass
HT20	MCS0	2	140	5700	14.34	14.51	17.44	23.98		-6.50		30	Pass
HT40	MCS0	2	102	5510	15.93	15.54	18.75	23.98		-6.50		30	Pass
HT40	MCS0	2	110	5550	16.07	15.66	18.88	23.98		-6.50		30	Pass
HT40	MCS0	2	134	5670	15.92	15.63	18.79	23.98		-6.50		30	Pass
VHT20	MCS0	2	100	5500	17.63	17.49	20.57	23.98		-6.50		30	Pass
VHT20	MCS0	2	116	5580	17.72	17.63	20.68	23.98		-6.50		30	Pass
VHT20	MCS0	2	140	5700	14.46	14.58	17.53	23.98		-6.50		30	Pass
VHT40	MCS0	2	102	5510	16.00	15.65	18.84	23.98		-6.50		30	Pass
VHT40	MCS0	2	110	5550	16.16	15.74	18.96	23.98		-6.50		30	Pass
VHT40	MCS0	2	134	5670	16.04	15.71	18.89	23.98		-6.50		30	Pass
VHT80	MCS0	2	106	5530	11.21	11.06	14.14	23.98		-6.50		30	Pass
VHT80	MCS0	2	122	5610	16.11	15.78	18.959	23.98		-6.50		30	Pass
VHT160	MCS0	2	114	5570	10.29	10.41	13.36	23.98		-6.50		30	Pass

FCC U-NII-2C straddle channel 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		
11a	6Mbps	2	144	5720	17.32	17.18	20.26	23.75		-6.50		30	Pass
HT20	MCS0	2	144	5720	17.53	17.62	20.59	23.98		-6.50		30	Pass
HT40	MCS0	2	142	5710	15.85	15.52	18.70	23.98		-6.50		30	Pass
VHT20	MCS0	2	144	5720	17.66	17.70	20.69	23.98		-6.50		30	Pass
VHT40	MCS0	2	142	5710	15.96	15.59	18.79	23.98		-6.50		30	Pass
VHT80	MCS0	2	138	5690	15.91	15.59	18.76	23.98		-6.50		30	Pass

TEST RESULTS DATA
Power Spectral Density

U-NII-2C MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	100	5500	0.24	0.23			9.88		11.00			Pass
11a	6Mbps	2	116	5580	0.24	0.23			9.66		11.00			Pass
11a	6Mbps	2	140	5700	0.24	0.23			8.29		11.00			Pass

U-NII-2C straddle channel MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	144	5720	0.24	0.23			9.92		11.00			Pass

TEST RESULTS DATA
26dB and 99% OBW

U-NII-1 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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	
HE20	MCS0	2	36	5180	Full	18.83	18.83	20.58	20.33	-	-	22.75	-	
HE20	MCS0	2	36	5180	26/0	-	-	-	-	-	-	-	-	
HE20	MCS0	2	36	5180	52/37	-	-	-	-	-	-	-	-	
HE20	MCS0	2	36	5180	106/53	-	-	-	-	-	-	-	-	
HE20	MCS0	2	44	5220	Full	18.83	18.88	20.73	20.68	-	-	22.75	-	
HE20	MCS0	2	44	5220	26/4	-	-	-	-	-	-	-	-	
HE20	MCS0	2	44	5220	52/38	-	-	-	-	-	-	-	-	
HE20	MCS0	2	44	5220	106/53	-	-	-	-	-	-	-	-	
HE20	MCS0	2	48	5240	Full	18.93	18.88	20.88	20.53	-	-	22.76	-	
HE20	MCS0	2	48	5240	26/8	-	-	-	-	-	-	-	-	
HE20	MCS0	2	48	5240	52/40	-	-	-	-	-	-	-	-	
HE20	MCS0	2	48	5240	106/54	-	-	-	-	-	-	-	-	
HE40	MCS0	2	38	5190	Full	37.66	37.76	40.01	40.28	-	-	23.01	-	
HE40	MCS0	2	38	5190	242/61	-	-	-	-	-	-	-	-	
HE40	MCS0	2	46	5230	Full	37.76	37.76	40.19	40.37	-	-	23.01	-	
HE40	MCS0	2	46	5230	242/62	-	-	-	-	-	-	-	-	
HE80	MCS0	2	42	5210	Full	76.96	77.08	82.32	82.48	-	-	23.01	-	
HE80	MCS0	2	42	5210	484/65	-	-	-	-	-	-	-	-	
HE160	MCS0	2	50	5250	Full	155.60	156.08	164.32	164.96	-	-	23.01	-	
HE160	MCS0	2	50	5250	996/67	-	-	-	-	-	-	-	-	

TEST RESULTS DATA
Average Power Table

FCC U-NII-1 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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	
HE20	MCS0	2	36	5180	Full	15.95	16.56	19.27	24.00		-6.50	Pass	
HE20	MCS0	2	36	5180	26/0	8.07	8.00	11.04	24.00		-6.50	Pass	
HE20	MCS0	2	36	5180	52/37	11.28	11.47	14.38	24.00		-6.50	Pass	
HE20	MCS0	2	36	5180	106/53	12.94	13.29	16.13	24.00		-6.50	Pass	
HE20	MCS0	2	44	5220	Full	17.43	18.25	20.87	24.00		-6.50	Pass	
HE20	MCS0	2	44	5220	26/4	11.04	10.67	13.87	24.00		-6.50	Pass	
HE20	MCS0	2	44	5220	52/38	13.12	13.55	16.35	24.00		-6.50	Pass	
HE20	MCS0	2	44	5220	106/53	15.89	16.27	19.09	24.00		-6.50	Pass	
HE20	MCS0	2	48	5240	Full	17.17	18.26	20.76	24.00		-6.50	Pass	
HE20	MCS0	2	48	5240	26/8	10.05	10.44	13.26	24.00		-6.50	Pass	
HE20	MCS0	2	48	5240	52/40	13.51	13.67	16.60	24.00		-6.50	Pass	
HE20	MCS0	2	48	5240	106/54	16.11	16.53	19.33	24.00		-6.50	Pass	
HE40	MCS0	2	38	5190	Full	14.96	15.57	18.29	24.00		-6.50	Pass	
HE40	MCS0	2	38	5190	242/61	12.31	12.96	15.66	24.00		-6.50	Pass	
HE40	MCS0	2	46	5230	Full	15.80	16.54	19.20	24.00		-6.50	Pass	
HE40	MCS0	2	46	5230	242/62	14.73	15.19	17.98	24.00		-6.50	Pass	
HE80	MCS0	2	42	5210	Full	10.17	10.92	13.57	24.00		-6.50	Pass	
HE80	MCS0	2	42	5210	484/65	9.18	9.95	12.59	24.00		-6.50	Pass	
HE160	MCS0	2	50	5250	Full	10.42	10.13	13.28	24.00		-6.50	Pass	
HE160	MCS0	2	50	5250	996/67	9.75	9.22	12.50	24.00		-6.50	Pass	

TEST RESULTS DATA
Power Spectral Density

FCC U-NII-1 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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	
HE20	MCS0	2	36	5180	Full			8.50	11.00	-3.74		Pass	
HE20	MCS0	2	36	5180	26/0			8.01	11.00	-3.74		Pass	
HE20	MCS0	2	36	5180	52/37			8.49	11.00	-3.74		Pass	
HE20	MCS0	2	36	5180	106/53			7.54	11.00	-3.74		Pass	
HE20	MCS0	2	44	5220	Full			9.60	11.00	-3.74		Pass	
HE20	MCS0	2	44	5220	26/4			9.36	11.00	-3.74		Pass	
HE20	MCS0	2	44	5220	52/38			9.39	11.00	-3.74		Pass	
HE20	MCS0	2	44	5220	106/53			9.46	11.00	-3.74		Pass	
HE20	MCS0	2	48	5240	Full			9.94	11.00	-3.74		Pass	
HE20	MCS0	2	48	5240	26/8			9.91	11.00	-3.74		Pass	
HE20	MCS0	2	48	5240	52/40			9.74	11.00	-3.74		Pass	
HE20	MCS0	2	48	5240	106/54			9.47	11.00	-3.74		Pass	
HE40	MCS0	2	38	5190	Full			4.15	11.00	-3.74		Pass	
HE40	MCS0	2	38	5190	242/61			3.13	11.00	-3.74		Pass	
HE40	MCS0	2	46	5230	Full			4.08	11.00	-3.74		Pass	
HE40	MCS0	2	46	5230	242/62			3.91	11.00	-3.74		Pass	
HE80	MCS0	2	42	5210	Full			-1.98	11.00	-3.74		Pass	
HE80	MCS0	2	42	5210	484/65			-2.68	11.00	-3.74		Pass	
HE160	MCS0	2	50	5250	Full			-5.17	11.00	-3.74		Pass	
HE160	MCS0	2	50	5250	996/67			-5.69	11.00	-3.74		Pass	
HE160	MCS0	2	50	5250	996/S67			-5.21	11.00	-3.74		Pass	

TEST RESULTS DATA
26dB and 99% OBW

U-NII-2A MIMO																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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	
HE20	MCS0	2	52	5260	Full	18.83	18.83	20.78	20.53	23.75	23.75	29.75	29.75	23.98		
HE20	MCS0	2	52	5260	26/0	-	-	-	-	-	-	-	-	-		
HE20	MCS0	2	52	5260	52/37	-	-	-	-	-	-	-	-	-		
HE20	MCS0	2	52	5260	106/53	-	-	-	-	-	-	-	-	-		
HE20	MCS0	2	60	5300	Full	18.93	18.88	20.73	20.53	23.76	23.76	29.76	29.76	23.98		
HE20	MCS0	2	60	5300	26/4	-	-	-	-	-	-	-	-	-		
HE20	MCS0	2	60	5300	52/38	-	-	-	-	-	-	-	-	-		
HE20	MCS0	2	60	5300	106/53	-	-	-	-	-	-	-	-	-		
HE20	MCS0	2	64	5320	Full	18.88	18.83	20.68	20.58	23.75	23.75	29.75	29.75	23.98		
HE20	MCS0	2	64	5320	26/8	-	-	-	-	-	-	-	-	-		
HE20	MCS0	2	64	5320	52/40	-	-	-	-	-	-	-	-	-		
HE20	MCS0	2	64	5320	106/54	-	-	-	-	-	-	-	-	-		
HE40	MCS0	2	54	5270	Full	37.76	37.76	40.37	40.10	23.98	23.98	30.00	30.00	23.98		
HE40	MCS0	2	54	5270	242/61	-	-	-	-	-	-	-	-	-		
HE40	MCS0	2	62	5310	Full	37.76	37.76	40.28	40.37	23.98	23.98	30.00	30.00	23.98		
HE40	MCS0	2	62	5310	242/62	-	-	-	-	-	-	-	-	-		
HE80	MCS0	2	58	5290	Full	76.84	76.96	82.48	81.04	23.98	23.98	30.00	30.00	23.98		
HE80	MCS0	2	58	5290	484/66	-	-	-	-	-	-	-	-	-		
HE160	MCS0	2	50	5250	996/S67	-	-	-	-	-	-	-	-	-		

TEST RESULTS DATA
Average Power Table

FCC U-NII-2A MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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		
HE20	MCS0	2	52	5260	Full	17.76	18.34	21.07	23.98		-6.50	30	Pass	
HE20	MCS0	2	52	5260	26/0	10.58	9.99	13.30	23.98		-6.50	30	Pass	
HE20	MCS0	2	52	5260	52/37	13.68	13.40	16.55	23.98		-6.50	30	Pass	
HE20	MCS0	2	52	5260	106/53	16.02	16.37	19.21	23.98		-6.50	30	Pass	
HE20	MCS0	2	60	5300	Full	17.73	18.28	21.02	23.98		-6.50	30	Pass	
HE20	MCS0	2	60	5300	26/4	11.27	11.04	14.16	23.98		-6.50	30	Pass	
HE20	MCS0	2	60	5300	52/38	13.39	13.69	16.55	23.98		-6.50	30	Pass	
HE20	MCS0	2	60	5300	106/53	16.50	16.38	19.45	23.98		-6.50	30	Pass	
HE20	MCS0	2	64	5320	Full	16.85	17.04	19.95	23.98		-6.50	30	Pass	
HE20	MCS0	2	64	5320	26/8	9.44	9.27	12.36	23.98		-6.50	30	Pass	
HE20	MCS0	2	64	5320	52/40	11.84	12.22	15.04	23.98		-6.50	30	Pass	
HE20	MCS0	2	64	5320	106/54	14.44	14.55	17.50	23.98		-6.50	30	Pass	
HE40	MCS0	2	54	5270	Full	16.19	16.64	19.43	23.98		-6.50	30	Pass	
HE40	MCS0	2	54	5270	242/61	14.76	14.84	17.81	23.98		-6.50	30	Pass	
HE40	MCS0	2	62	5310	Full	15.75	16.02	18.90	23.98		-6.50	30	Pass	
HE40	MCS0	2	62	5310	242/62	14.17	14.30	17.25	23.98		-6.50	30	Pass	
HE80	MCS0	2	58	5290	Full	9.91	10.26	13.10	23.98		-6.50	30	Pass	
HE80	MCS0	2	58	5290	484/66	9.41	9.60	12.52	23.98		-6.50	30	Pass	
HE160	MCS0	2	50	5250	996/S67	9.65	10.36	13.03	23.98		-6.50	30	Pass	

TEST RESULTS DATA
Power Spectral Density

U-NII-2A MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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	
HE20	MCS0	2	52	5260	Full			9.97	11.00		-3.74		Pass
HE20	MCS0	2	52	5260	26/0			9.83	11.00		-3.74		Pass
HE20	MCS0	2	52	5260	52/37			9.74	11.00		-3.74		Pass
HE20	MCS0	2	52	5260	106/53			9.72	11.00		-3.74		Pass
HE20	MCS0	2	60	5300	Full			9.78	11.00		-3.74		Pass
HE20	MCS0	2	60	5300	26/4			9.76	11.00		-3.74		Pass
HE20	MCS0	2	60	5300	52/38			9.66	11.00		-3.74		Pass
HE20	MCS0	2	60	5300	106/53			9.73	11.00		-3.74		Pass
HE20	MCS0	2	64	5320	Full			9.08	11.00		-3.74		Pass
HE20	MCS0	2	64	5320	26/8			9.03	11.00		-3.74		Pass
HE20	MCS0	2	64	5320	52/40			8.64	11.00		-3.74		Pass
8 HE20	MCS0	2	64	5320	106/54			8.48	11.00		-3.74		Pass
HE40	MCS0	2	54	5270	Full			4.61	11.00		-3.74		Pass
HE40	MCS0	2	54	5270	242/61			4.19	11.00		-3.74		Pass
HE40	MCS0	2	62	5310	Full			5.17	11.00		-3.74		Pass
HE40	MCS0	2	62	5310	242/62			4.71	11.00		-3.74		Pass
HE80	MCS0	2	58	5290	Full			-2.48	11.00		-3.74		Pass
HE80	MCS0	2	58	5290	484/66			-2.68	11.00		-3.74		Pass

TEST RESULTS DATA
26dB and 99% OBW

U-NII-2C MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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
HE20	MCS0	2	100	5500	Full	18.83	18.83	20.73	20.38	23.75	29.75	23.98	----	----			
HE20	MCS0	2	100	5500	26/0					-	-	-	----	----			
HE20	MCS0	2	100	5500	52/37					-	-	-	----	----			
HE20	MCS0	2	100	5500	106/53					-	-	-	----	----			
HE20	MCS0	2	116	5580	Full	18.88	18.83	21.03	20.58	23.75	29.75	23.98	----	----			
HE20	MCS0	2	116	5580	26/4					-	-	-	----	----			
HE20	MCS0	2	116	5580	52/38					-	-	-	----	----			
HE20	MCS0	2	116	5580	106/53					-	-	-	----	----			
HE20	MCS0	2	140	5700	Full	18.88	18.83	21.03	20.63	23.75	29.75	23.98	----	----			
HE20	MCS0	2	140	5700	26/8					-	-	-	----	----			
HE20	MCS0	2	140	5700	52/40					-	-	-	----	----			
HE20	MCS0	2	140	5700	106/54					-	-	-	----	----			
HE40	MCS0	2	102	5510	Full	37.76	37.76	40.01	40.37	23.98	30.00	23.98	----	----			
HE40	MCS0	2	102	5510	242/61	-	-			-	-	-	----	----			
HE40	MCS0	2	110	5550	Full	37.66	37.86	40.28	40.64	23.98	30.00	23.98	----	----			
HE40	MCS0	2	110	5550	242/61	-	-			-	-	-	----	----			
HE40	MCS0	2	134	5670	Full	37.76	37.86	40.19	40.73	23.98	30.00	23.98	----	----			
HE40	MCS0	2	134	5670	242/62	-	-	-	-	-	-	-	----	----			
HE80	MCS0	2	106	5530	Full	76.96	76.96	82.00	81.52	23.98	30.00	23.98	----	----			
HE80	MCS0	2	106	5530	484/65	-	-	-	-	-	-	-	----	----			
HE80	MCS0	2	122	5610	Full	76.96	77.08	81.52	82.16	23.98	30.00	23.98	----	----			
HE80	MCS0	2	122	5610	484/66	-	-	-	-	-	-	-	----	----			
HE160	MCS0	2	114	5570	Full	155.60	155.60	163.36	164.64	23.98	30.00	23.98	----	----			
HE160	MCS0	2	114	5570	996/67	-	-	-	-	-	-	-	----	----			
HE160	MCS0	2	114	5570	996/S67	-	-	-	-	-	-	-	----	----			

U-NII-2C straddle channel MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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
HE20	MCS0	2	144	5720	Full	18.98	18.83	21.18	20.63	23.75	29.75	23.98	-	-			
HE20	MCS0	2	144	5720	26/8	-	-	-	-	-	-	-	-	-			
HE20	MCS0	2	144	5720	52/40	-	-	-	-	-	-	-	-	-			
HE20	MCS0	2	144	5720	106/54	-	-	-	-	-	-	-	-	-			
HE40	MCS0	2	142	5710	Full	37.86	37.76	40.46	40.28	23.98	30.00	23.98	-	-			
HE40	MCS0	2	142	5710	242/62	-	-	-	-	-	-	-	-	-			
HE80	MCS0	2	138	5690	Full	76.96	77.08	81.84	82.64	23.98	30.00	23.98	-	-			
HE80	MCS0	2	138	5690	484/66	-	-	-	-	-	-	-	-	-			

TEST RESULTS DATA
Average Power Table

FCC U-NII-2C MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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		
HE20	MCS0	2	100	5500	Full	17.78	17.61	20.70	23.98		-6.50	30	Pass	
HE20	MCS0	2	100	5500	26/0	10.67	10.02	13.37	23.98		-6.50	30	Pass	
HE20	MCS0	2	100	5500	52/37	13.61	13.22	16.43	23.98		-6.50	30	Pass	
HE20	MCS0	2	100	5500	106/53	15.55	14.82	18.21	23.98		-6.50	30	Pass	
HE20	MCS0	2	116	5580	Full	17.80	17.78	20.80	23.98		-6.50	30	Pass	
HE20	MCS0	2	116	5580	26/4	11.11	10.75	13.94	23.98		-6.50	30	Pass	
HE20	MCS0	2	116	5580	52/38	13.47	13.44	16.46	23.98		-6.50	30	Pass	
HE20	MCS0	2	116	5580	106/53	16.05	15.90	18.98	23.98		-6.50	30	Pass	
HE20	MCS0	2	140	5700	Full	14.59	14.71	17.66	23.98		-6.50	30	Pass	
HE20	MCS0	2	140	5700	26/8	6.81	7.31	10.08	23.98		-6.50	30	Pass	
HE20	MCS0	2	140	5700	52/40	9.57	9.80	12.69	23.98		-6.50	30	Pass	
HE20	MCS0	2	140	5700	106/54	12.34	12.53	15.44	23.98		-6.50	30	Pass	
HE40	MCS0	2	102	5510	Full	16.13	15.79	18.97	23.98		-6.50	30	Pass	
HE40	MCS0	2	102	5510	242/61	14.86	14.59	17.74	23.98		-6.50	30	Pass	
HE40	MCS0	2	110	5550	Full	16.30	15.87	19.10	23.98		-6.50	30	Pass	
HE40	MCS0	2	110	5550	242/61	14.71	14.37	17.55	23.98		-6.50	30	Pass	
HE40	MCS0	2	134	5670	Full	16.18	15.86	19.03	23.98		-6.50	30	Pass	
HE40	MCS0	2	134	5670	242/62	14.96	14.63	17.81	23.98		-6.50	30	Pass	
HE80	MCS0	2	106	5530	Full	11.23	11.09	14.17	23.98		-6.50	30	Pass	
HE80	MCS0	2	106	5530	484/65	10.52	10.10	13.33	23.98		-6.50	30	Pass	
HE80	MCS0	2	122	5610	Full	16.20	15.92	19.07	23.98		-6.50	30	Pass	
HE80	MCS0	2	122	5610	484/66	14.91	14.65	17.79	23.98		-6.50	30	Pass	
HE160	MCS0	2	114	5570	Full	10.40	10.54	13.48	23.98		-6.50	30	Pass	
HE160	MCS0	2	114	5570	996/67	9.01	9.48	12.26	23.98		-6.50	30	Pass	
HE160	MCS0	2	114	5570	996/S67	9.71	9.65	12.69	23.98		-6.50	30	Pass	

FCC U-NII-2C straddle channel MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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		
HE20	MCS0	2	144	5720	Full	17.79	17.82	20.81	23.98		-6.50	30	Pass	
HE20	MCS0	2	144	5720	26/8	9.75	10.07	12.92	23.98		-6.50	30	Pass	
HE20	MCS0	2	144	5720	52/40	12.93	13.12	16.03	23.98		-6.50	30	Pass	
HE20	MCS0	2	144	5720	106/54	16.07	16.19	19.14	23.98		-6.50	30	Pass	
HE40	MCS0	2	142	5710	Full	16.08	15.71	18.91	23.98		-6.50	30	Pass	
HE40	MCS0	2	142	5710	242/62	15.06	14.68	17.89	23.98		-6.50	30	Pass	
HE80	MCS0	2	138	5690	Full	16.00	15.83	18.92	23.98		-6.50	30	Pass	
HE80	MCS0	2	138	5690	484/66	14.76	14.61	17.70	23.98		-6.50	30	Pass	

TEST RESULTS DATA
Power Spectral Density

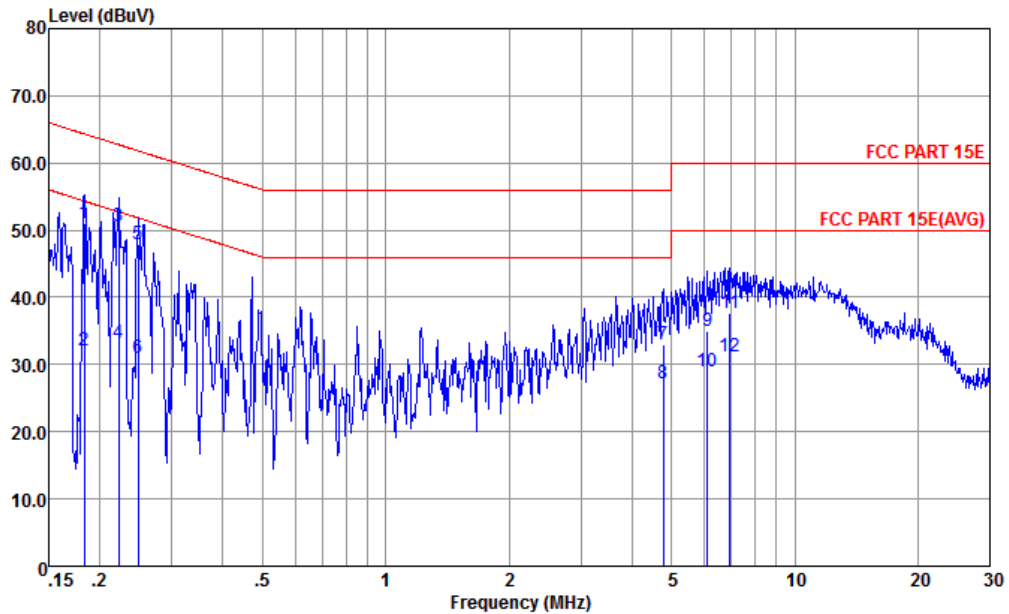
U-NII-2C MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HE20	MCS0	2	100	5500	Full			9.94	11.00		-4.21		Pass
HE20	MCS0	2	100	5500	26/0			9.66	11.00		-4.21		Pass
HE20	MCS0	2	100	5500	52/37			9.68	11.00		-4.21		Pass
HE20	MCS0	2	100	5500	106/53			9.27	11.00		-4.21		Pass
HE20	MCS0	2	116	5580	Full			9.64	11.00		-4.21		Pass
HE20	MCS0	2	116	5580	26/4			9.42	11.00		-4.21		Pass
HE20	MCS0	2	116	5580	52/38			9.41	11.00		-4.21		Pass
HE20	MCS0	2	116	5580	106/53			9.24	11.00		-4.21		Pass
HE20	MCS0	2	140	5700	Full			6.65	11.00		-4.21		Pass
HE20	MCS0	2	140	5700	26/8			6.41	11.00		-4.21		Pass
HE20	MCS0	2	140	5700	52/40			6.13	11.00		-4.21		Pass
HE20	MCS0	2	140	5700	106/54			6.53	11.00		-4.21		Pass
HE40	MCS0	2	102	5510	Full			4.36	11.00		-4.21		Pass
HE40	MCS0	2	102	5510	242/61			3.97	11.00		-4.21		Pass
HE40	MCS0	2	110	5550	Full			3.89	11.00		-4.21		Pass
HE40	MCS0	2	110	5550	242/61			3.69	11.00		-4.21		Pass
HE40	MCS0	2	134	5670	Full			3.71	11.00		-4.21		Pass
HE40	MCS0	2	134	5670	242/62			3.64	11.00		-4.21		Pass
HE80	MCS0	2	106	5530	Full			-1.36	11.00		-4.21		Pass
HE80	MCS0	2	106	5530	484/65			-1.99	11.00		-4.21		Pass
HE80	MCS0	2	122	5610	Full			1.48	11.00		-4.21		Pass
HE80	MCS0	2	122	5610	484/66			1.30	11.00		-4.21		Pass
HE160	MCS0	2	114	5570	Full			-5.54	11.00		-4.21		Pass
HE160	MCS0	2	114	5570	996/67			-6.04	11.00		-4.21		Pass
HE160	MCS0	2	114	5570	996/S67			-5.79	11.00		-4.21		Pass

U-NII-2C straddle channel MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	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	
HE20	MCS0	2	144	5720	Full			9.65	11.00		-4.21		Pass
HE20	MCS0	2	144	5720	26/8			9.51	11.00		-4.21		Pass
HE20	MCS0	2	144	5720	52/40			9.20	11.00		-4.21		Pass
HE20	MCS0	2	144	5720	106/54			9.16	11.00		-4.21		Pass
HE40	MCS0	2	142	5710	Full			3.95	11.00		-4.21		Pass
HE40	MCS0	2	142	5710	242/62			3.88	11.00		-4.21		Pass
HE80	MCS0	2	138	5690	Full			1.64	11.00		-4.21		Pass
HE80	MCS0	2	138	5690	484/66			1.17	11.00		-4.21		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.		

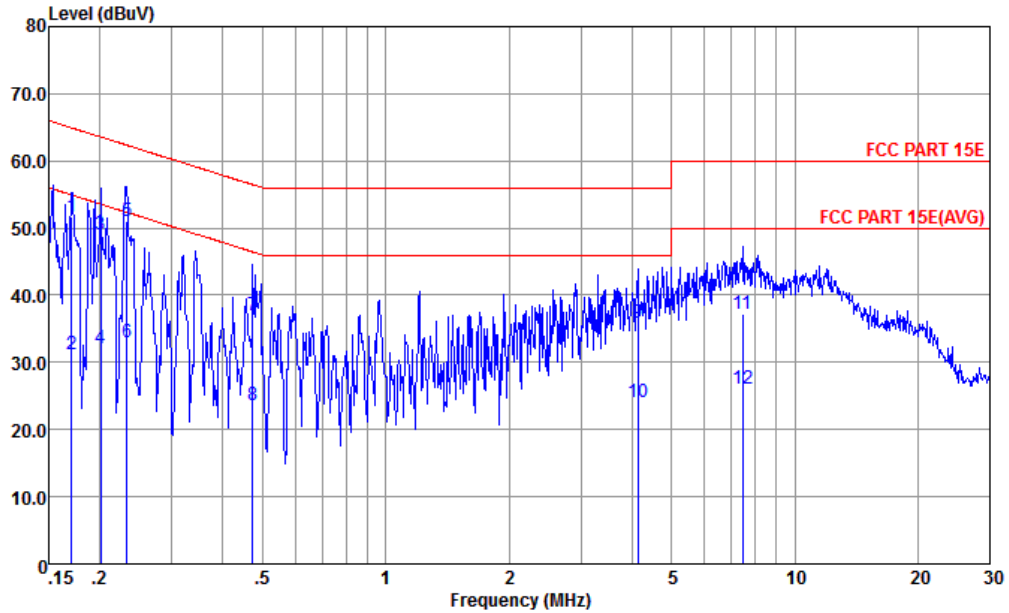


Site : CO01-KS
Condition : FCC PART 15E LISN-060105-L LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.183	50.93	-13.40	64.33	40.50	0.03	10.40	QP
2	0.183	32.03	-22.30	54.33	21.60	0.03	10.40	Average
3 *	0.222	50.60	-12.14	62.74	40.20	0.05	10.35	QP
4	0.222	33.30	-19.44	52.74	22.90	0.05	10.35	Average
5	0.248	47.89	-13.93	61.82	37.50	0.06	10.33	QP
6	0.248	30.99	-20.83	51.82	20.60	0.06	10.33	Average
7	4.772	33.04	-22.96	56.00	22.59	0.18	10.27	QP
8	4.772	27.24	-18.76	46.00	16.79	0.18	10.27	Average
9	6.121	34.97	-25.03	60.00	24.49	0.19	10.29	QP
10	6.121	29.07	-20.93	50.00	18.59	0.19	10.29	Average
11	6.951	37.69	-22.31	60.00	27.20	0.19	10.30	QP
12	6.951	31.09	-18.91	50.00	20.60	0.19	10.30	Average



Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		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 LISN-060105-N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.170	51.73	-13.21	64.94	41.19	0.11	10.43	QP
2	0.170	31.13	-23.81	54.94	20.59	0.11	10.43	Average
3	0.201	49.06	-14.52	63.58	38.60	0.10	10.36	QP
4	0.201	32.06	-21.52	53.58	21.60	0.10	10.36	Average
5 *	0.233	50.94	-11.41	62.35	40.50	0.10	10.34	QP
6	0.233	33.04	-19.31	52.35	22.60	0.10	10.34	Average
7	0.474	36.95	-19.50	56.45	26.60	0.11	10.24	QP
8	0.474	23.55	-22.90	46.45	13.20	0.11	10.24	Average
9	4.136	35.92	-20.08	56.00	25.50	0.17	10.25	QP
10	4.136	24.02	-21.98	46.00	13.60	0.17	10.25	Average
11	7.446	37.11	-22.89	60.00	26.60	0.20	10.31	QP
12	7.446	26.01	-23.99	50.00	15.50	0.20	10.31	Average

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 802.11ax HE20 Partial 106 (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)
802.11ax HE20 Partial 106/53 CH 36 5180MHz		5147.84	68.55	-5.45	74	60.26	34.42	10.6	36.73	100	58	P	H
		5150	50.88	-3.12	54	42.59	34.42	10.6	36.73	100	58	A	H
		5170	106.72	-	-	98.38	34.43	10.62	36.71	100	58	P	H
		5170	99.04	-	-	90.7	34.43	10.62	36.71	100	58	A	H
		5147.68	65.96	-8.04	74	57.67	34.42	10.6	36.73	392	315	P	V
		5149.76	46.46	-7.54	54	38.17	34.42	10.6	36.73	392	315	A	V
		5176	107.92	-	-	99.52	34.45	10.64	36.69	392	315	P	V
		5176	100.68	-	-	92.28	34.45	10.64	36.69	392	315	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-1 5150~5250MHz
WIFI 802.11ax HE80 Full (Band Edge @ 3m)

Table with 14 columns: 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). Rows include test data for 802.11ax HE80 Full CH 42 5210MHz and a Remark section.



UNII-1 5150~5250MHz
WIFI 802.11ax HE80 Full (Harmonic @ 3m)

Table with 14 columns: 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). Contains two data rows for 802.11ax HE80 Full CH 42 5210MHz and a Remark section.



UNII-1 5150~5250MHz
WIFI 802.11ax HE160 Full (Band Edge @ 3m)

Table with 14 columns: 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). Rows include test data for 802.11ax HE160 Full CH 50 5250MHz and a Remark section.



UNII-1 5150~5250MHz
WIFI 802.11ax HE160 Full (Harmonic @ 3m)

Table with 14 columns: 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). Contains two data rows for 10498 MHz and a Remark section.



UNII-1 5150~5250MHz
WIFI 802.11ax HE160 Partial 996 (Band Edge @ 3m)

Table with 14 columns: 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). Rows include test data for frequencies like 5112.96, 5148.48, 5188, 5399.1, etc., and a Remark section at the bottom.



UNII-2A - 5250~5350MHz

WIFI 802.11ax HE40 Full (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)
802.11ax HE40 Full CH 62 5310MHz		5118.72	51.11	-22.89	74	42.29	35	10.58	36.76	100	61	P	H
		5104.96	41.38	-12.62	54	32.62	34.98	10.56	36.78	100	61	A	H
		5308	103.71	-	-	94.37	35.18	10.73	36.57	100	61	P	H
		5308	96.66	-	-	87.32	35.18	10.73	36.57	100	61	A	H
		5351.4	59.76	-14.24	74	50.31	35.22	10.75	36.52	100	61	P	H
		5350.3	50.61	-3.39	54	41.16	35.22	10.75	36.52	100	61	A	H
		5110.24	51.59	-22.41	74	42.79	35	10.56	36.76	370	318	P	V
		5105.76	41.29	-12.71	54	32.49	35	10.56	36.76	370	318	A	V
		5308	106.72	-	-	97.38	35.18	10.73	36.57	370	318	P	V
		5308	100.85	-	-	91.51	35.18	10.73	36.57	370	318	A	V
		5353.3	57.06	-16.94	74	47.61	35.22	10.75	36.52	370	318	P	V
		5354.4	47.7	-6.3	54	38.25	35.22	10.75	36.52	370	318	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-2A 5250~5350MHz

WIFI 802.11ax HE40 Full (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)
802.11ax HE40 Full CH 62 5310MHz		10619	45.64	-28.36	74	58.66	38.13	15.69	66.84	300	0	P	H
		10619	46.04	-27.96	74	59.06	38.13	15.69	66.84	100	0	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. 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)
802.11a CH 140 5700MHz		5725.32	64.86	-3.44	68.3	54.63	35.65	11.18	36.6	113	59	P	H
		5698	110.05	-	-	99.89	35.59	11.13	36.56	113	59	P	H
		5704	104.06	-	-	93.86	35.62	11.16	36.58	113	59	A	H
		5726.28	64.83	-3.47	68.3	54.6	35.65	11.18	36.6	321	7	P	V
		5698	109.23	-	-	99.07	35.59	11.13	36.56	321	7	P	V
		5698	103.31	-	-	93.15	35.59	11.13	36.56	321	7	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. 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)
802.11a CH 140 5700MHz		11400	45.78	-28.22	74	57.3	38.67	16.29	66.48	300	0	P	H
		11400	45.93	-28.07	74	57.45	38.67	16.29	66.48	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-2C - 5470~5725MHz

WIFI 802.11ax HE40 Partial 242 (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)
802.11ax HE40 Partial 242/61 CH 102 5510MHz		5442.32	58.87	-15.13	74	49.84	34.65	10.82	36.44	100	59	P	H
		5470	56.05	-12.25	68.3	46.93	34.67	10.85	36.4	100	59	P	H
		5460	45.07	-8.93	54	35.98	34.66	10.85	36.42	100	59	A	H
		5500	103.92	-	-	94.7	34.7	10.89	36.37	100	59	P	H
		5500	95.47	-	-	86.25	34.7	10.89	36.37	100	59	A	H
		5755.32	49.1	-19.2	68.3	39.51	35.01	11.21	36.63	100	59	P	H
		5456.88	65.48	-8.52	74	56.39	34.66	10.85	36.42	300	353	P	V
		5470	64.93	-3.37	68.3	55.81	34.67	10.85	36.4	300	353	P	V
		5460	47.15	-6.85	54	38.06	34.66	10.85	36.42	300	353	A	V
		5494	104.12	-	-	94.93	34.69	10.89	36.39	300	353	P	V
		5494	95.9	-	-	86.71	34.69	10.89	36.39	300	353	A	V
		5760.12	50.09	-18.21	68.3	40.47	35.01	11.24	36.63	300	353	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



UNII-2AC 5470~5725MHz

WIFI 802.11ax HE80 Partial 484 (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)
802.11ax HE80 Partial 484/65 CH 106 5530MHz		5457.04	59.44	-14.56	74	50.35	34.66	10.85	36.42	104	66	P	H
		5466.16	59	-9.3	68.3	49.88	34.67	10.85	36.4	104	66	P	H
		5459.76	43.17	-10.83	54	34.08	34.66	10.85	36.42	104	66	A	H
		5506	100.59	-	-	91.37	34.7	10.89	36.37	104	66	P	H
		5506	92.34	-	-	83.12	34.7	10.89	36.37	104	66	A	H
		5740.28	50.14	-18.16	68.3	40.59	34.99	11.18	36.62	104	66	P	H
		5459.44	62.43	-11.57	74	53.34	34.66	10.85	36.42	300	13	P	V
		5463.28	64.87	-3.43	68.3	55.75	34.67	10.85	36.4	300	13	P	V
		5459.76	44.26	-9.74	54	35.17	34.66	10.85	36.42	300	13	A	V
		5500	102.19	-	-	92.97	34.7	10.89	36.37	300	13	P	V
		5500	93.44	-	-	84.22	34.7	10.89	36.37	300	13	A	V
		5740.2	49.72	-18.58	68.3	40.17	34.99	11.18	36.62	300	13	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

WIFI 802.11ax HE160 Full (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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE160 Full LF		71.71	25.29	-14.71	40	44.12	12.5	1.07	32.4	---	---	P	H
		187.14	29.99	-13.51	43.5	45.8	14.6	1.99	32.4	---	---	P	H
		209.45	28.85	-14.65	43.5	44.06	15.08	2.11	32.4	---	---	P	H
		302.57	28.52	-17.48	46	39.17	19.2	2.55	32.4	---	---	P	H
		408.3	30.92	-15.08	46	38.31	22.06	2.95	32.4	---	---	P	H
		533.43	35.93	-10.07	46	41.07	23.9	3.36	32.4	---	---	P	H
		56.19	23.3	-16.7	40	42.74	12.1	0.86	32.4	---	---	P	V
		74.62	25.4	-14.6	40	43.99	12.7	1.11	32.4	---	---	P	V
		187.14	28.28	-15.22	43.5	44.09	14.6	1.99	32.4	---	---	P	V
		240.49	25.76	-20.24	46	38.6	17.3	2.26	32.4	---	---	P	V
		359.8	25.16	-20.84	46	34.29	20.5	2.77	32.4	---	---	P	V
	719.67	40.97	-5.03	46	42.41	27	3.92	32.36	---	---	P	V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Co-location:

2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE160 Full<E_B13_BW=5M& BLE_CH39 (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 39 2480MHz	*	2483.5	51.14	-22.86	74	47.73	32.98	7.25	36.82	387	31	P	H
	*	2483.5	48.85	-5.15	54	45.44	32.98	7.25	36.82	387	31	A	H
		2480	102.48	---	---	99.07	32.98	7.25	36.82	387	31	P	H
		2480	100.81	---	---	97.4	32.98	7.25	36.82	387	31	A	H
	*	2496.28	51.31	-22.69	74	47.84	33	7.28	36.81	308	80	P	V
	*	2483.5	47.65	-6.35	54	44.24	32.98	7.25	36.82	308	80	A	V
		2480	101.04	---	---	97.63	32.98	7.25	36.82	308	80	P	V
		2480	99.52	---	---	96.11	32.98	7.25	36.82	308	80	A	V

WIFI	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
Ant.		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE160 Full CH 50 5250MHz		5144.16	58.31	-15.69	74	50.02	34.42	10.6	36.73	272	42	P	H
		5146.72	47.54	-6.46	54	39.25	34.42	10.6	36.73	272	42	A	H
	*	5248	94.84	---	---	86.27	34.5	10.69	36.62	272	42	P	H
		5248	86.46	---	---	77.89	34.5	10.69	36.62	272	42	A	H
		5364.8	57.75	-16.25	74	48.91	34.59	10.76	36.51	272	42	P	H
		5354.9	47.77	-6.23	54	38.96	34.58	10.75	36.52	272	42	A	H
		5135.2	58.63	-15.37	74	50.36	34.41	10.6	36.74	346	319	P	V
		5148.96	48.64	-5.36	54	40.35	34.42	10.6	36.73	346	319	A	V
	*	5236	94.28	---	---	85.75	34.49	10.68	36.64	346	319	P	V
		5236	85.56	---	---	77.03	34.49	10.68	36.64	346	319	A	V
		5374.8	54.75	-19.25	74	45.91	34.59	10.76	36.51	346	319	P	V
		5356.7	45.78	-8.22	54	36.97	34.58	10.75	36.52	346	319	A	V

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



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE160 Full<E_B13_BW=5M& BLE_CH39 (Harmonic @ 3m)

BLE	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)
BLE CH 39 2480MHz		4965	41.41	-32.59	74	62.19	34.28	10.41	65.47	300	0	P	H
		7440	43.55	-30.45	74	61.18	35.89	12.79	66.31	300	0	P	H
		4965	41	-33	74	61.78	34.28	10.41	65.47	100	0	P	V
		7440	43.15	-30.85	74	60.78	35.89	12.79	66.31	100	0	P	V

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)
802.11ax HE160 Full CH 50 5250MHz		10498	45.45	-22.85	68.3	59.32	37.5	15.58	66.95	300	0	P	H
		10498	44.48	-23.82	68.3	58.35	37.5	15.58	66.95	100	0	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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		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)

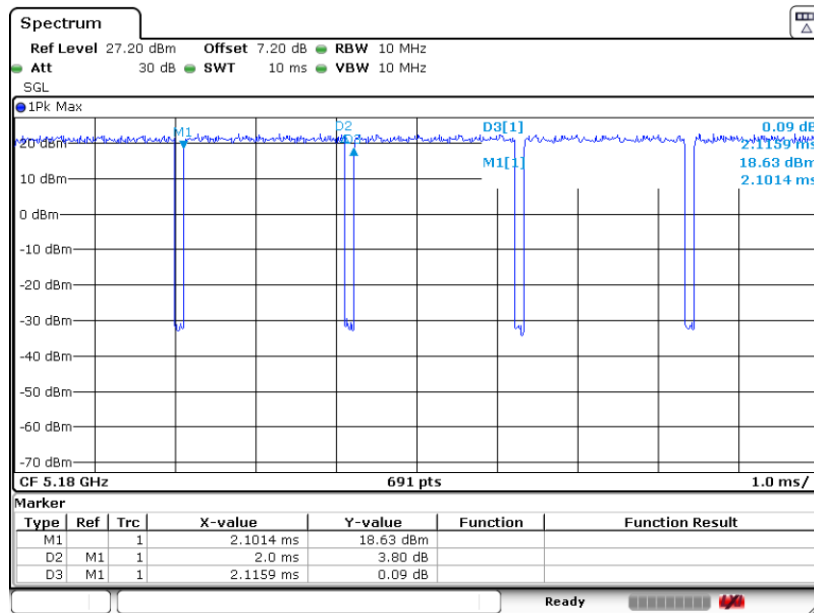
Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix D. Duty Cycle Plots

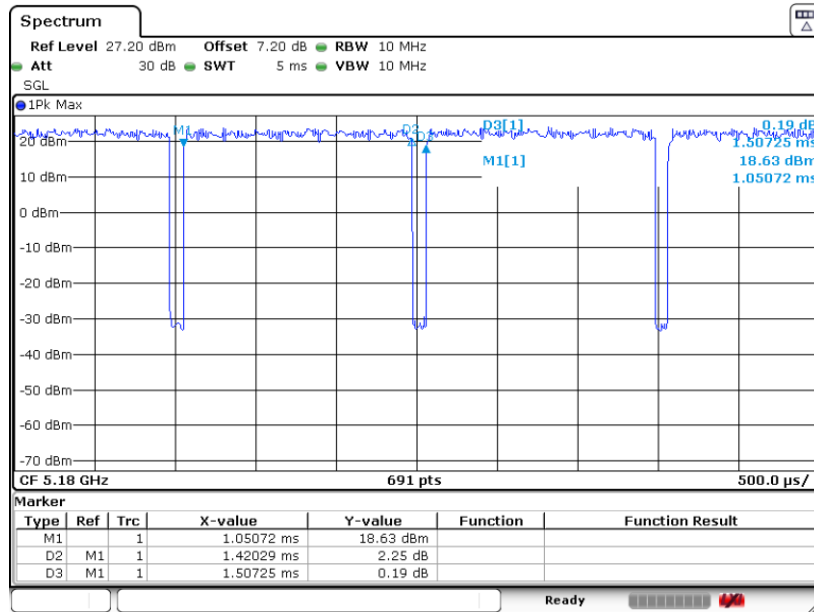
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	94.52	2	0.5	0.51KHz
802.11ax HE20	94.23	1.420	0.704	0.75KHz
802.11ax HE40	93.74	0.738	1.356	1.5KHz
802.11ax HE80	93.61	0.552	1.811	2KHz
802.11ax HE160	93.63	0.554	1.806	2KHz
802.11ax HE20-26-RU	100	-	-	10Hz
802.11ax HE40-242-RU	98.78	-	-	10Hz
802.11ax HE80-484-RU	98.14	-	-	10Hz
802.11ax HE160-996-RU	98.44	-	-	10Hz

802.11a

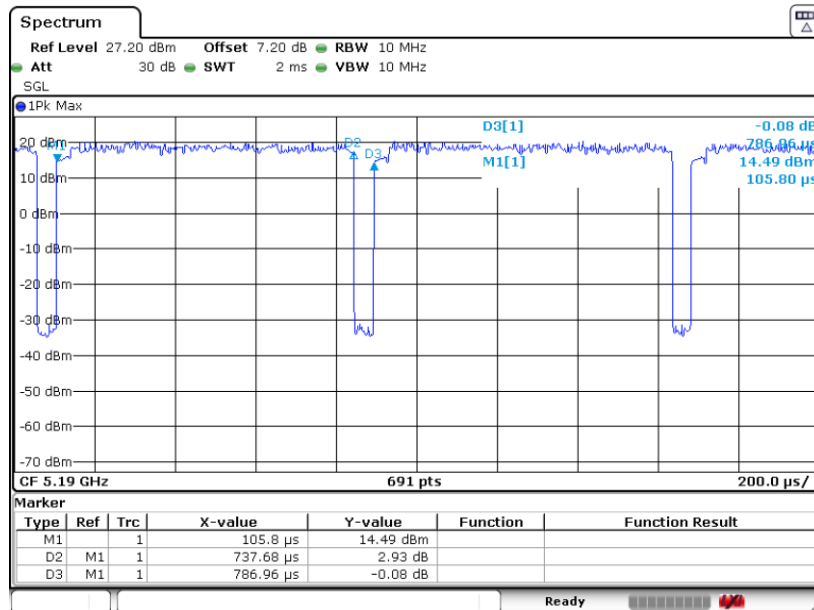




802.11ax HE20

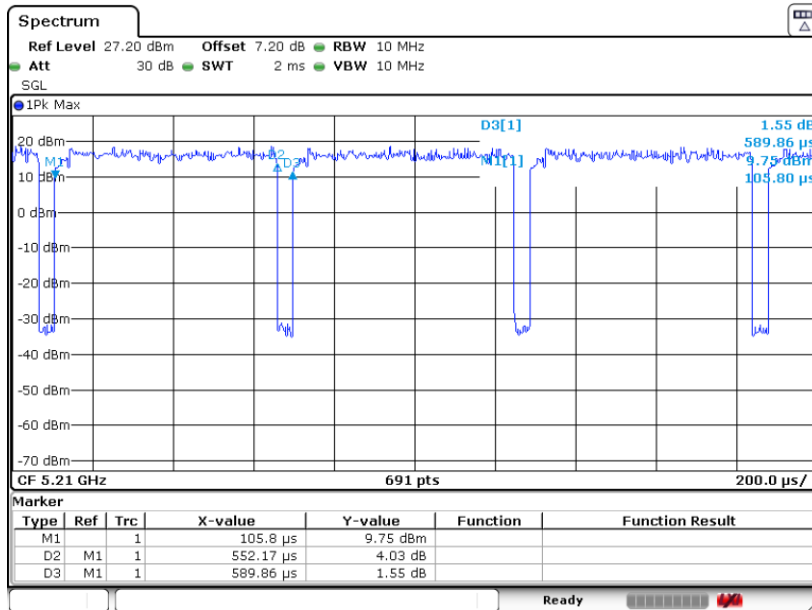


802.11ax HE40

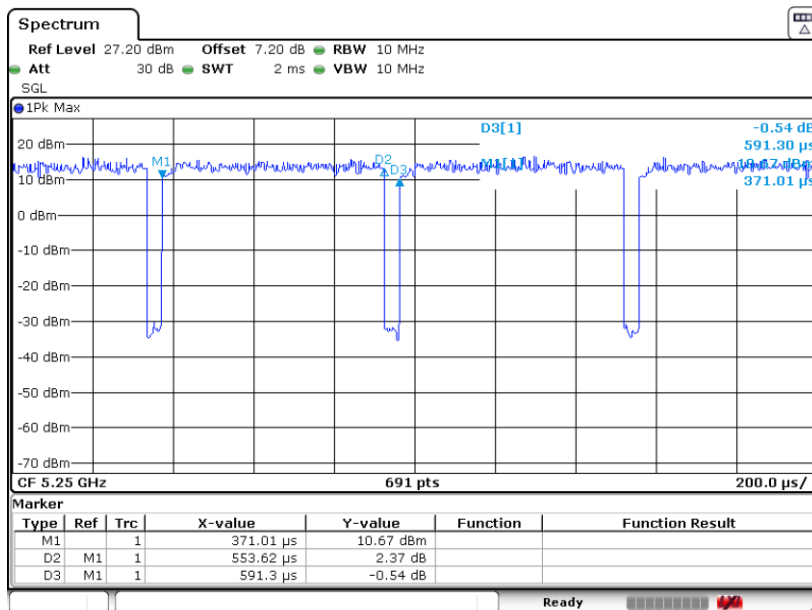




802.11ax HE80

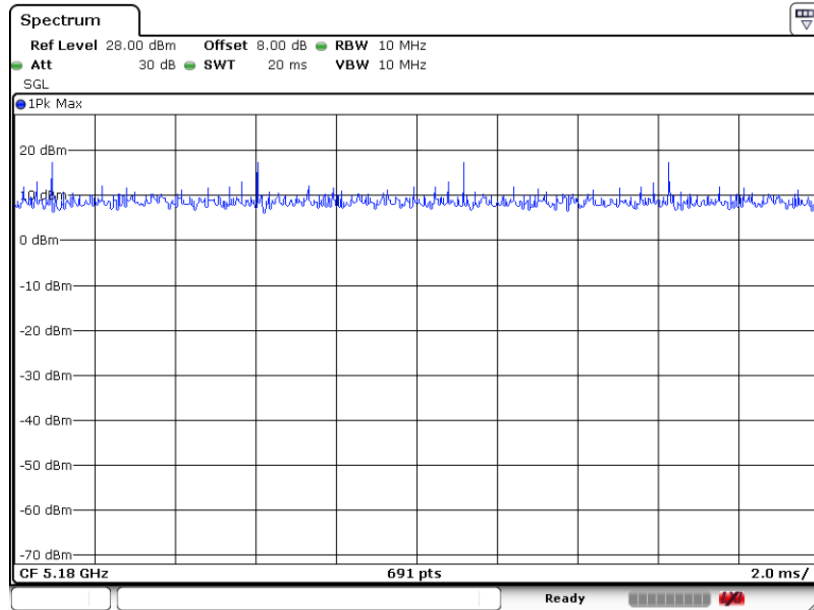


802.11ax HE160

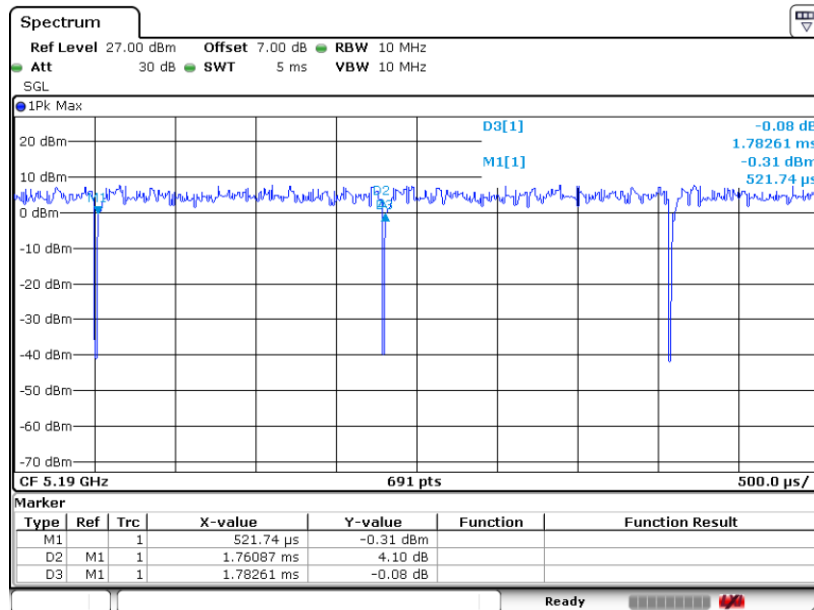




802.11ax HE20-26-RU

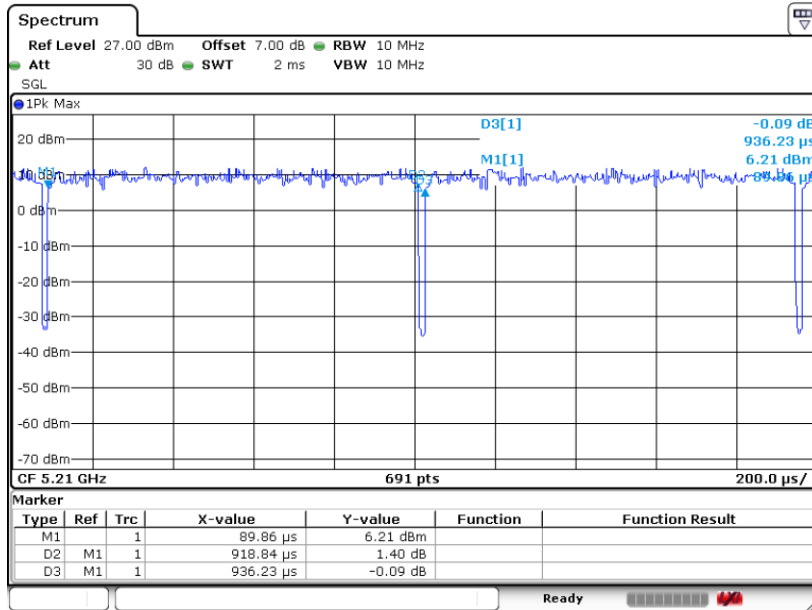


802.11ax HE40-242-RU





802.11ax HE80-484-RU



802.11ax HE160-996-RU

