FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2239-9, XT2239-17
FCC ID	:	IHDT56AG4
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure
TEST DATE(S)	:	May. 30, 2022 ~ Jul. 11, 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.

Jason Jia

Approved by: Jason Jia

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR252413E	Rev. 01	Initial issue of report	Jul. 15, 2022

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	6dB, 26dB and 99% Occupied Bandwidth	> 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b)(4)(i) &15.209(a)	Pass	Under limit 5.37 dB at 31.94 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 16.74 dB at 1.178 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,IL60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza,Chicago,IL60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Motorola
Model Name	XT2239-9, XT2239-17
FCC ID	IHDT56AG4
IMEI Code	Conducted: 350161630007983 Conduction: 350161630008726/350161630047724 Radiation: 354540700006965/350161630008346
HW Version	DVT2
SW Version	SOV 32.51
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 Channel Frequency Range	5745 MHz ~ 5825 MHz
Maximum Output Power	802.11a : 17.52 dBm / 0.0565 W 802.11n HT20 : 17.01 dBm / 0.0502 W 802.11n HT40 : 16.93 dBm / 0.0493 W 802.11ac VHT20 : 17.07 dBm / 0.0509 W 802.11ac VHT40 : 16.39 dBm / 0.0436 W 802.11ac VHT80 : 16.02 dBm / 0.0400 W
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Antenna Type / Gain	Loop Antenna with gain -2.51 dBi

Note:

For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing have assessed only 802.11ac VHT20 & 11n 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

Accessories Information				
AC Adapter 1(US)	**Brand Name**	Motorola(Aohai)	**Model Name**	MC-101
AC Adapter 1(EU)	**Brand Name**	Motorola(Aohai)	**Model Name**	MC-102
AC Adapter 1(UK)	**Brand Name**	Motorola(Aohai)	**Model Name**	MC-103
AC Adapter 1(AU)	**Brand Name**	Motorola(Aohai)	**Model Name**	MC-105
AC Adapter 1(AR)	**Brand Name**	Motorola(Aohai)	**Model Name**	MC -106
AC Adapter 1(IN)	**Brand Name**	Motorola(Aohai)	**Model Name**	MC -104
AC Adapter 2(US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-101
AC Adapter 2(EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-102
AC Adapter 2(UK)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-103
AC Adapter 2(IN)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-104
AC Adapter 2(AU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-105
AC Adapter 2(AR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-106
AC Adapter 2(PRC)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-108
AC Adapter 3(US)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-101
AC Adapter 3(EU)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-102
AC Adapter 3(UK)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-103
AC Adapter 3(AU)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-105
AC Adapter 3(AR)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-106
AC Adapter 3(PRC)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-108
AC Adapter 3(Chile)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-109
AC Adapter 4(EU)	**Brand Name**	Lenovo(Salcomp)	**Model Name**	MC-102
AC Adapter 5(UK)	**Brand Name**	Lenovo(Salcomp)	**Model Name**	MC-103
Battery 1	**Brand Name**	Motorola(ATL)	**Model Name**	NH40
Battery 2	**Brand Name**	Motorola(CosMX+SCUD)	**Model Name**	NH40
Earphone 1	**Brand Name**	Motorola(NEW LEADER)	**Model Name**	NLD-EM313A-23SF
Earphone 2	**Brand Name**	Motorola(Ju wei)	**Model Name**	JWEP1185-ZN01H
USB Cable 1	**Brand Name**	Motorola(Washin)	**Model Name**	HX-ZN-13
USB Cable 2	**Brand Name**	Motorola(Ju wei)	**Model Name**	JWUB1498-ZN01H

1.7 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

1.8 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

1.9 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.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z 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)
5745-5825 MHz U-NII-3	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155#	5775	165	5825

Note:

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

2.2 Test Mode

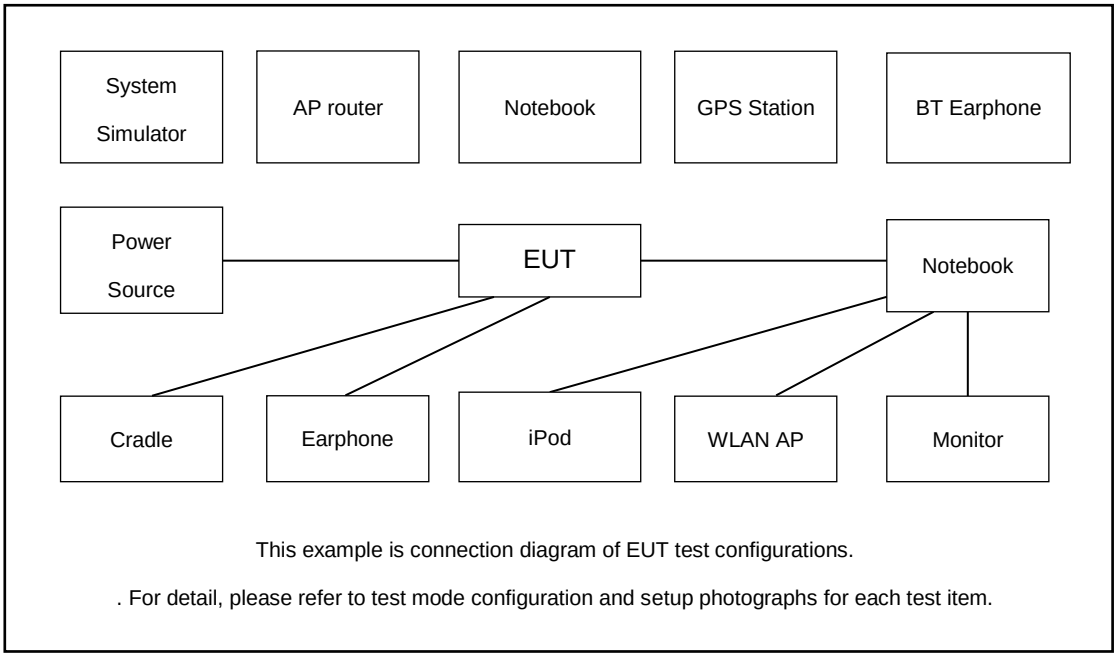
Final test modes are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11a	6 Mbps
802.11ac VHT20	MCS0
802.11n HT40	MCS0
802.11ac VHT80	MCS0

AC Conducted Emission	Mode 1 : GSM850 Idle+ Bluetooth Link+ WLAN Link(5G)+ USB Cable 1(Charging from Adapter 1) + Earphone 1
Remark: For Radiated Test Cases, The tests were performance with Adapter 1, Earphone1 and USB Cable 1	

Ch. #		U-NII-3：5745-5825 MHz			
		802.11a	802.11ac VHT20	802.11n HT40	802.11ac VHT80
L	Low	149	149	151	-
M	Middle	157	157	-	155
H	High	165	165	159	-

2.3 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
2.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
4.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
5.	SD Card	Kingston	8GB	N/A	N/A	N/A

2.5 EUT Operation Test Setup

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

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 6.70 dB

Offset(dB) = RF cable loss(dB)

= 6.70 (dB)

3 Test Result

3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

26dB and 99% Occupied bandwidth are reporting only.

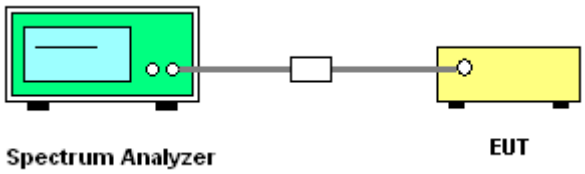
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

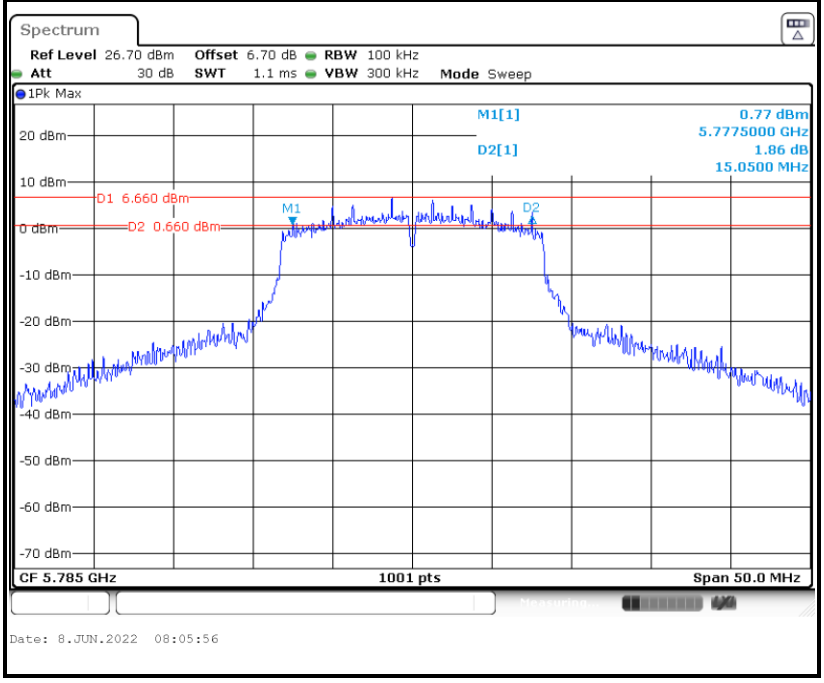
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth for the band 5.725-5.85GHz
2. For 6dB BW, Set RBW = 100kHz.
   For 26dB BW, Set RBW = approximately 1% of the emission bandwidth.
   For 99% OBW, Set RBW = 1% to 5% of the OBW.
3. For 26dB BW, Set the VBW > RBW.
   For 6dB BW & 99% OBW, Set the VBW ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

3.1.4 Test Setup

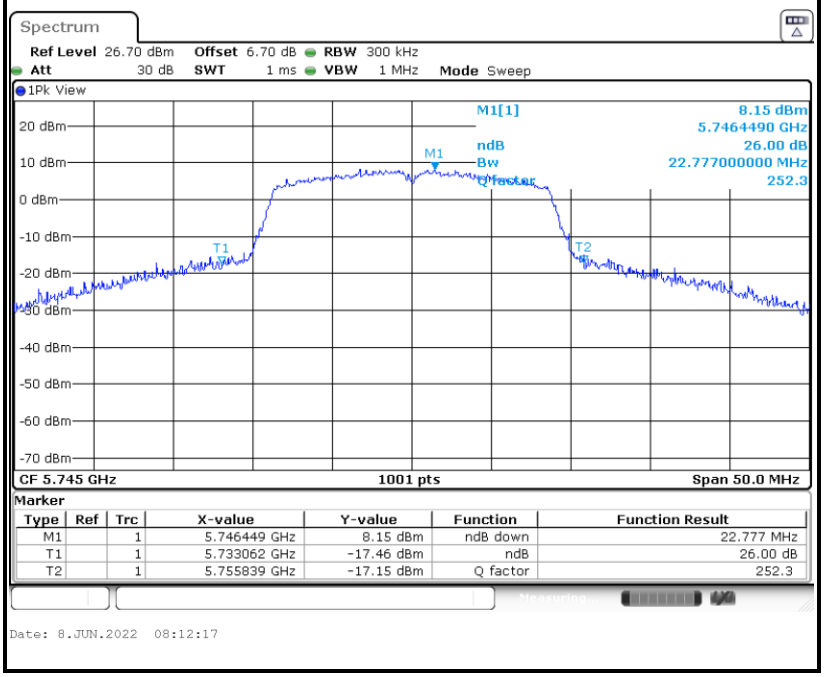


3.1.5 Test Result of 6dB Bandwidth

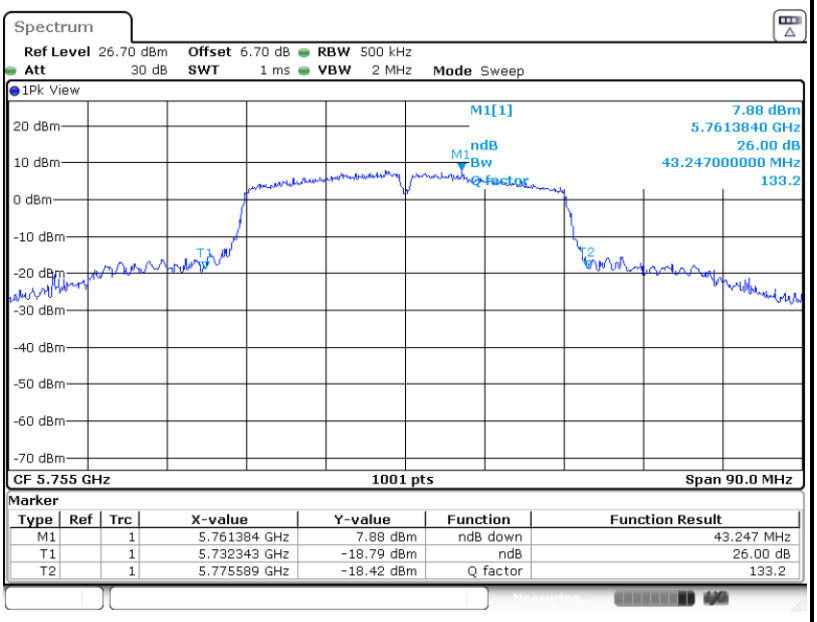
Minimum 6dB Bandwidth



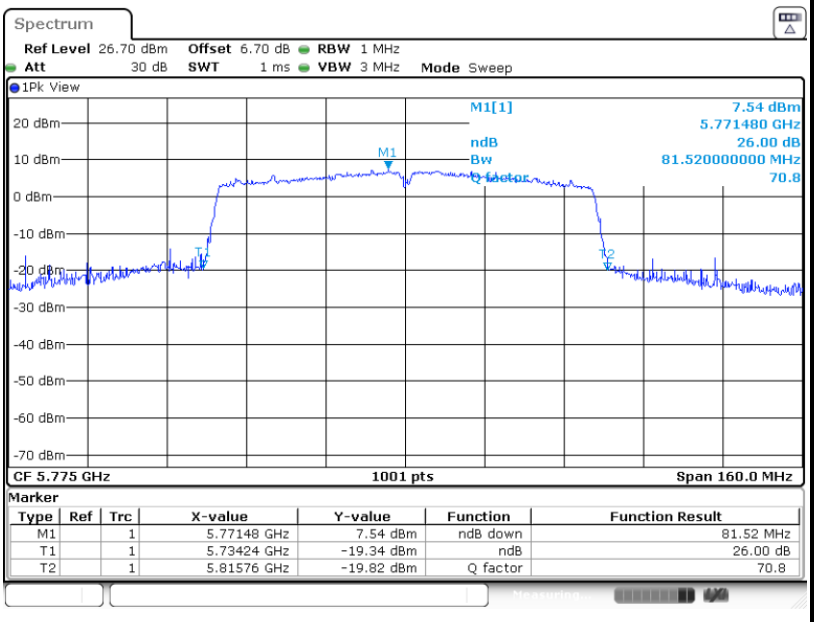
Maximum 26dB Bandwidth for 20M BW



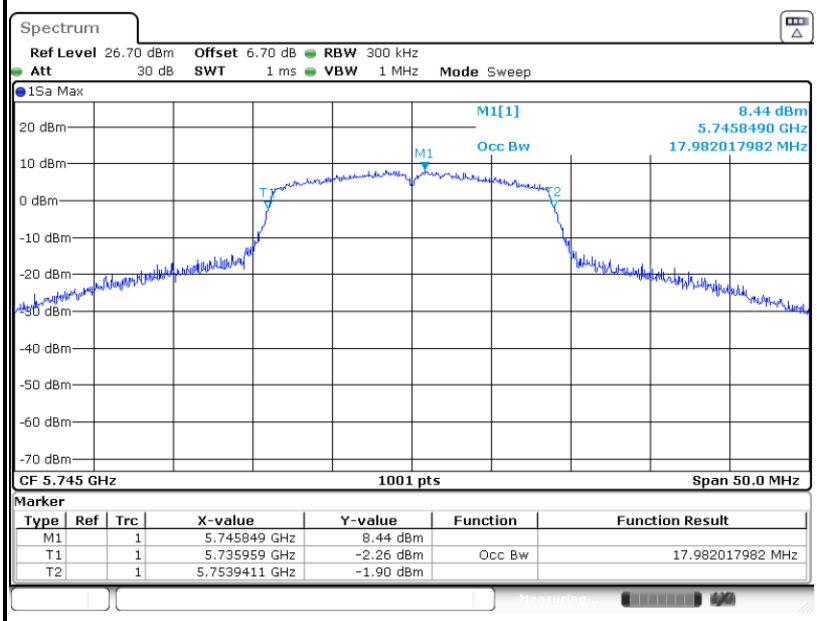
Maximum 26dB Bandwidth for 40M BW



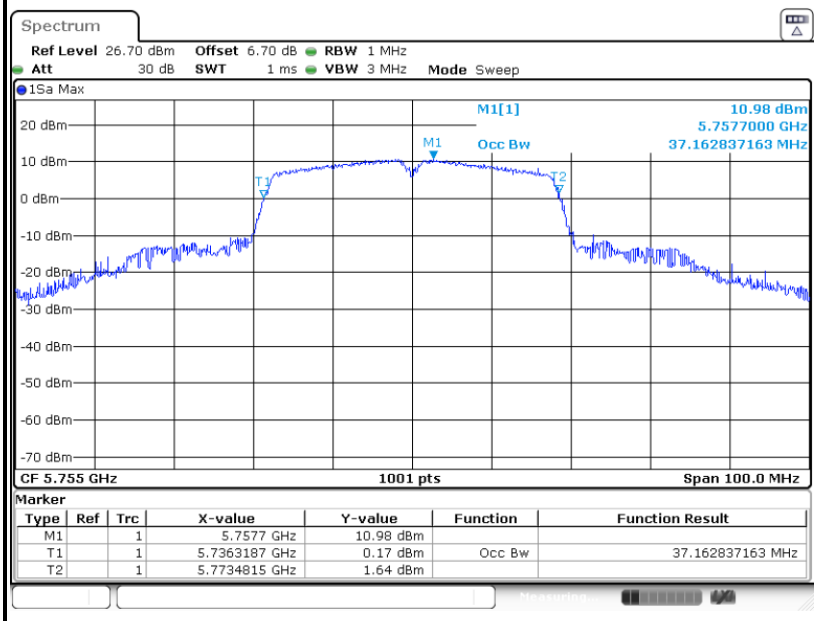
Maximum 26dB Bandwidth for 80M BW



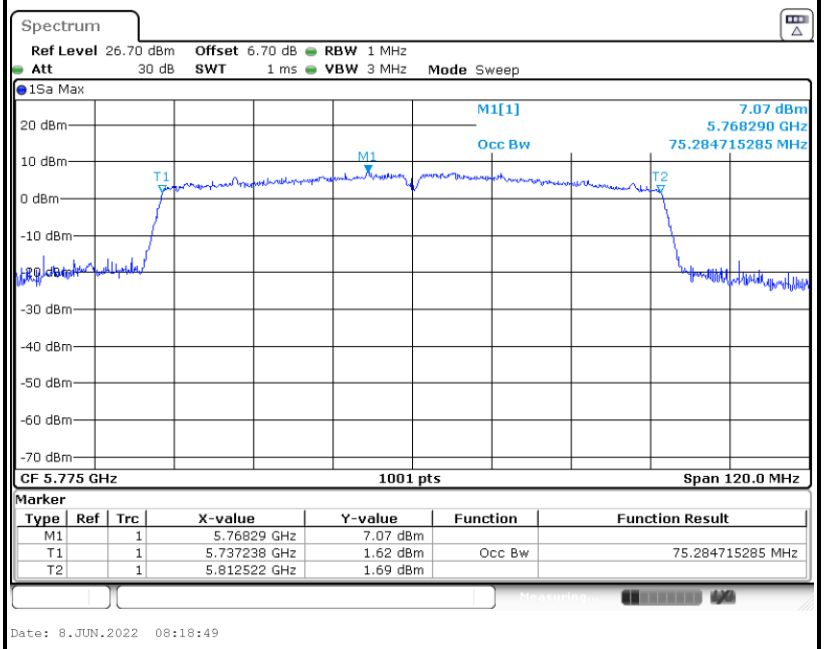
Maximum 99% Occupied Bandwidth for 20M BW



Maximum 99% Occupied Bandwidth for 40M BW



Maximum 99% Occupied Bandwidth for11ac80 BW



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

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

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.

3.2.2 Measuring Instruments

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

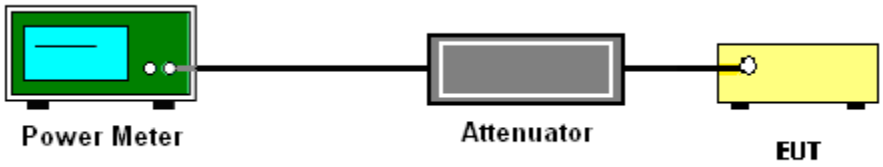
3.2.3 Test Procedures

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

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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

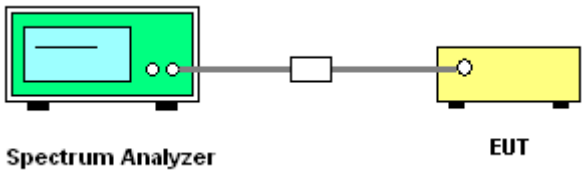
The measuring equipment is listed in the section 4 of this test report.

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.

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

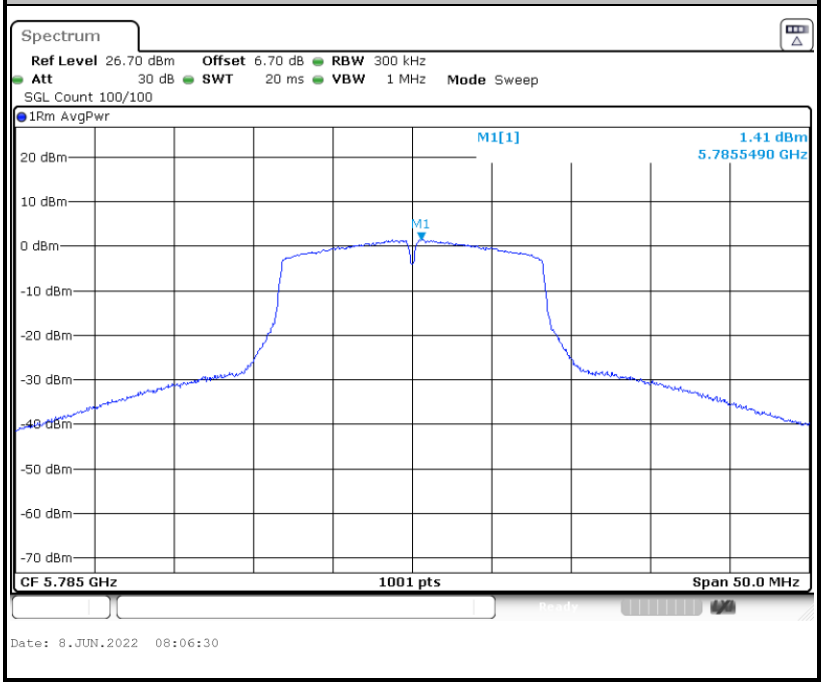
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density



Note: Worst Average Power Density (3.76dBm/500KHz) = Measured value(1.41dBm/300KHz) + Duty Factor(0.13dB) + RBW offset (2.22dB)

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) 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

(2) ANSI C63.10-2013 clause 12.7.3 note 97

As specified by regulatory requirements, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit. However, an out-of-band emission that complies with both the average and peak general regulatory limits is not required to satisfy the peak emission limit.

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 ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

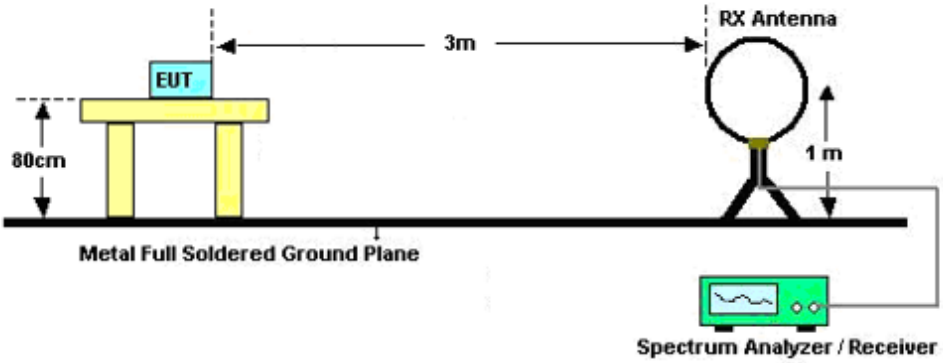
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 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.

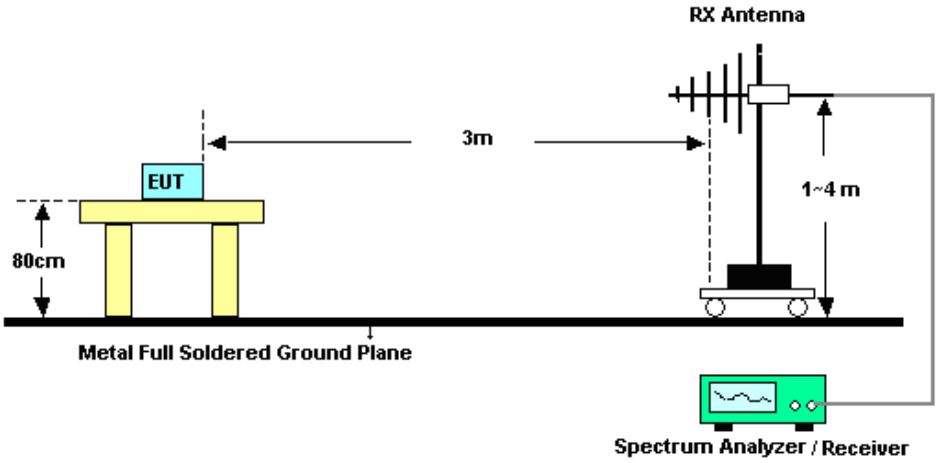
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband 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

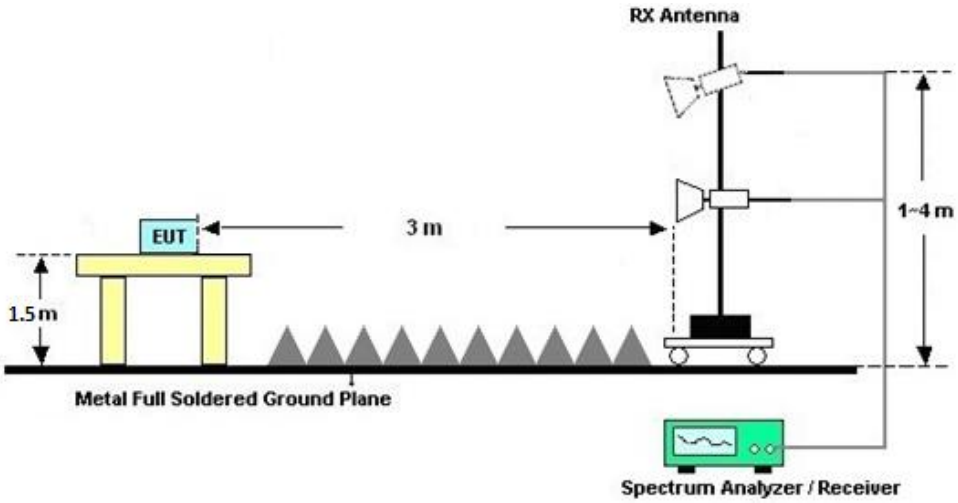
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 est Results of Radiated 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 Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

3.4.8 Test Result of Unwanted Radiated Emission (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.

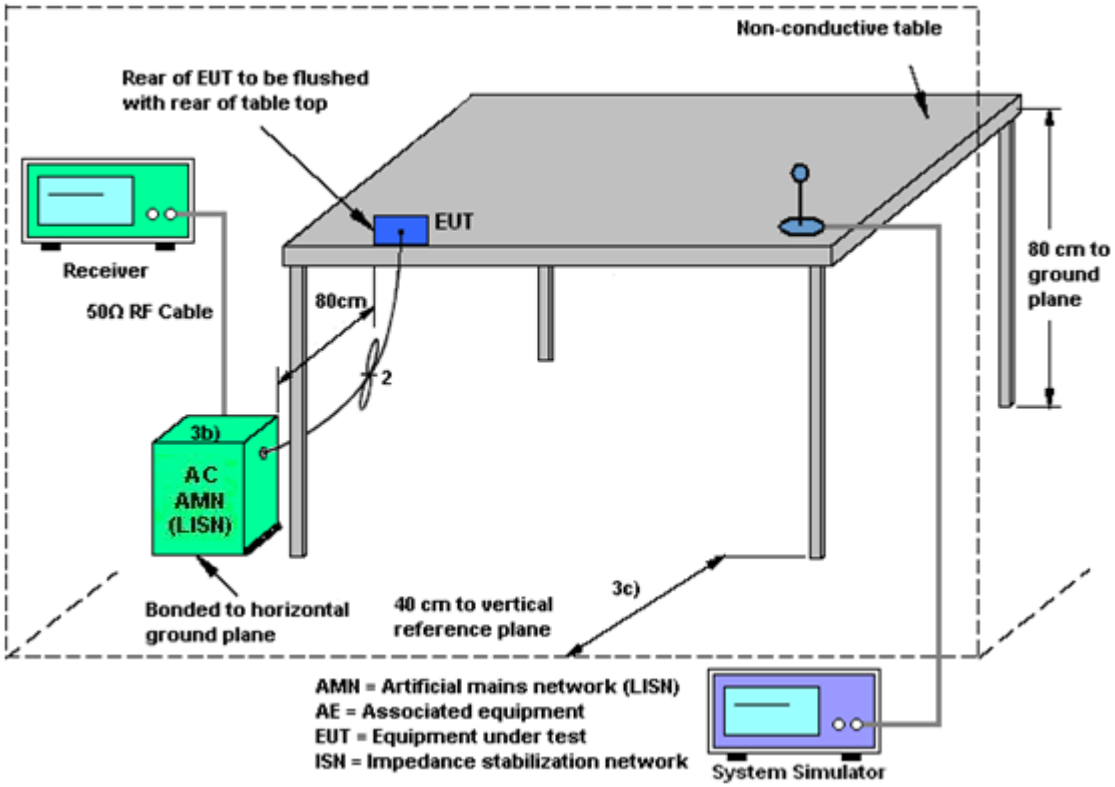
3.5.2 Measuring Instruments

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	101040	10Hz~40GHz	Oct. 14, 2021	Jun. 07, 2022~ Jun. 08, 2022	Oct. 13, 2022	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 05, 2022	Jun. 07, 2022~ Jun. 08, 2022	Jan. 04, 2023	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 05, 2022	Jun. 07, 2022~ Jun. 08, 2022	Jan. 04, 2023	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 16, 2021	May 30, 2022 ~Jul. 11, 2022	Oct. 15, 2022	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471084	10Hz-44G,MAX 30dB	Jul. 12, 2021	May 30, 2022 ~Jul. 11, 2022	Jul. 11, 2022	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	May 30, 2022 ~Jul. 11, 2022	Oct. 29, 2022	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jun. 03, 2022	May 30, 2022 ~Jul. 11, 2022	Jun. 02, 2023	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 08, 2021	May 30, 2022 ~Jul. 11, 2022	Nov. 07, 2022	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	May 30, 2022 ~Jul. 11, 2022	Jan. 04, 2023	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	380826	9KHz-1GHz	Jul. 30, 2021	May 30, 2022 ~Jul. 11, 2022	Jul. 29, 2022	Radiation (03CH05-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2022	May 30, 2022 ~Jul. 11, 2022	Jan. 04, 2023	Radiation (03CH05-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2012228	1Ghz-18Ghz	Oct. 16, 2021	May 30, 2022 ~Jul. 11, 2022	Oct. 15, 2022	Radiation (03CH05-KS)
Amplifier	Keysight	83017A	MY53270316	500MHz~26.5GHz	Oct. 16, 2021	May 30, 2022 ~Jul. 11, 2022	Oct. 15, 2022	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	May 30, 2022 ~Jul. 11, 2022	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	May 30, 2022 ~Jul. 11, 2022	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	May 30, 2022 ~Jul. 11, 2022	NCR	Radiation (03CH05-KS)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Sep. 01, 2021	Jun. 23, 2022	Aug. 31, 2022	Conduction (CO01-SZ)
AC LISN	R&S	ENV216	100063	9kHz~30MHz	Sep. 01, 2021	Jun. 23, 2022	Aug. 31, 2022	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 29, 2021	Jun. 23, 2022	Oct. 28, 2022	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 14, 2021	Jun. 23, 2022	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.

Test Item	Uncertainty
Conducted Power	±0.56 dB
Conducted Emissions	±0.92 dB
Occupied Channel Bandwidth	±0.03 %
Conducted Power Spectral Density	±0.54 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.94dB

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))	5.0dB

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

Report Number : FR252413E

Test Engineer:	Kib Shi	Temperature:	21~25	°C
Test Date:	2022/6/7~2022/6/8	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 26dB EBW and 99% OBW

U-NII-3									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	6 dB Bandwidth (MHz)	6dB Bandwidth min. Limit (MHz)	Pass/Fail
11a	6M bps	1	149	5745	17.13	22.28	15.1	0.5	Pass
11a	6Mbps	1	157	5785	17.08	22.13	15.05	0.5	Pass
11a	6Mbps	1	165	5825	16.98	21.68	15.1	0.5	Pass
HT40	MCS 0	1	151	5755	37.16	43.25	35.1	0.5	Pass
HT40	MCS 0	1	159	5795	36.96	41.81	35.1	0.5	Pass
VHT20	MCS 0	1	149	5745	17.98	22.78	15.1	0.5	Pass
VHT20	MCS 0	1	157	5785	17.98	21.03	15.1	0.5	Pass
VHT20	MCS 0	1	165	5825	17.83	20.88	15.1	0.5	Pass
VHT80	MCS 0	1	155	5775	75.28	81.52	75.2	0.5	Pass

Report Number : FR252413E

TEST RESULTS DATA
Average Power Table

U-NII-3										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6M bps	1	149	5745	0.13	17.24	30.00	-2.51		Pass
11a	6Mbps	1	157	5785	0.13	17.52	30.00	-2.51		Pass
11a	6Mbps	1	165	5825	0.13	17.35	30.00	-2.51		Pass
HT20	MCS 0	1	149	5745	0.14	16.80	30.00	-2.51		Pass
HT20	MCS 0	1	157	5785	0.14	17.01	30.00	-2.51		Pass
HT20	MCS 0	1	165	5825	0.14	16.76	30.00	-2.51		Pass
HT40	MCS 0	1	151	5755	0.28	16.93	30.00	-2.51		Pass
HT40	MCS 0	1	159	5795	0.28	16.85	30.00	-2.51		Pass
VHT20	MCS 0	1	149	5745	0.14	16.82	30.00	-2.51		Pass
VHT20	MCS 0	1	157	5785	0.14	17.07	30.00	-2.51		Pass
VHT20	MCS 0	1	165	5825	0.14	16.86	30.00	-2.51		Pass
VHT40	MCS 0	1	151	5755	0.32	16.30	30.00	-2.51		Pass
VHT40	MCS 0	1	159	5795	0.32	16.39	30.00	-2.51		Pass
VHT80	MCS 0	1	155	5775	0.60	16.02	30.00	-2.51		Pass

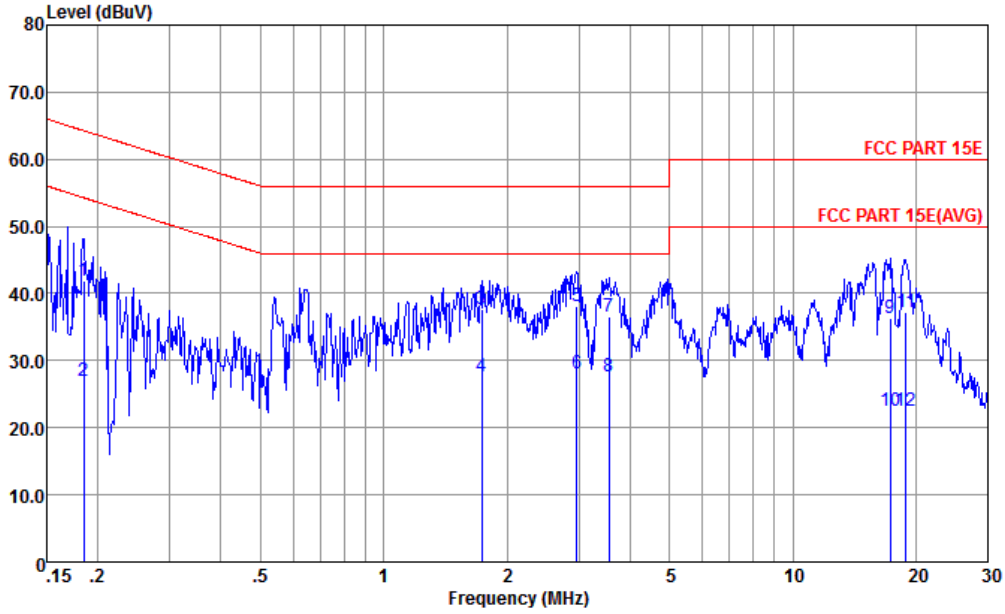
Report Number : FR252413E

TEST RESULTS DATA
Power Spectral Density

U-NII-3										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	10log (500kHz /RBW) Factor (dB)	Average Power Density (dBm/500kHz)	Average PSD Limit (dBm/500kHz)	DG (dBi)	Pass/Fail
11a	6M bps	1	149	5745	0.13	2.22	3.59	30.00	-2.51	Pass
11a	6Mbps	1	157	5785	0.13	2.22	3.76	30.00	-2.51	Pass
11a	6Mbps	1	165	5825	0.13	2.22	3.66	30.00	-2.51	Pass
HT40	MCS 0	1	151	5755	0.28	2.22	-0.17	30.00	-2.51	Pass
HT40	MCS 0	1	159	5795	0.28	2.22	0.03	30.00	-2.51	Pass
VHT20	MCS 0	1	149	5745	0.14	2.22	2.93	30.00	-2.51	Pass
VHT20	MCS 0	1	157	5785	0.14	2.22	2.96	30.00	-2.51	Pass
VHT20	MCS 0	1	165	5825	0.14	2.22	2.91	30.00	-2.51	Pass
VHT80	MCS 0	1	155	5775	0.60	2.22	-3.89	30.00	-2.51	Pass

Appendix B. AC Conducted Emission Test Results

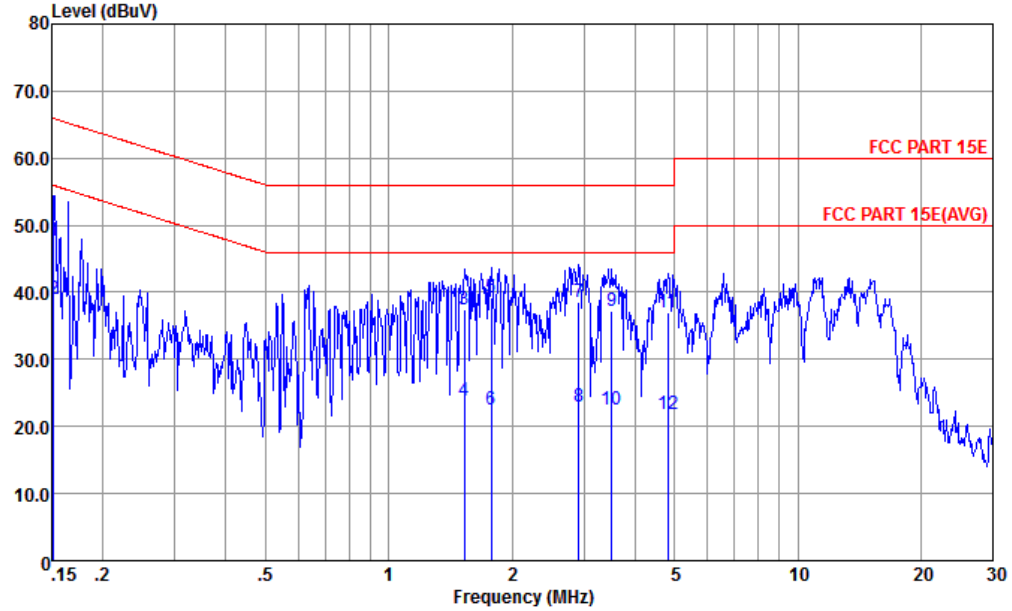
Test Engineer :	Amos Zhao	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



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

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.184	41.93	-22.35	64.28	31.50	0.03	10.40	QP
2		0.184	27.03	-27.25	54.28	16.60	0.03	10.40	Average
3		1.734	37.57	-18.43	56.00	27.20	0.14	10.23	QP
4		1.734	27.67	-18.33	46.00	17.30	0.14	10.23	Average
5	*	2.962	38.19	-17.81	56.00	27.80	0.15	10.24	QP
6		2.962	27.99	-18.01	46.00	17.60	0.15	10.24	Average
7		3.547	36.61	-19.39	56.00	26.20	0.16	10.25	QP
8		3.547	27.71	-18.29	46.00	17.30	0.16	10.25	Average
9		17.291	36.34	-23.66	60.00	25.51	0.39	10.44	QP
10		17.291	22.44	-27.56	50.00	11.61	0.39	10.44	Average
11		18.920	37.23	-22.77	60.00	26.31	0.45	10.47	QP
12		18.920	22.43	-27.57	50.00	11.51	0.45	10.47	Average

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



Site : CO01-KS
Condition : FCC PART 15E LISN-060105-N NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.152	47.79	-18.12	65.91	37.20	0.11	10.48	QP
2		0.152	39.09	-16.82	55.91	28.50	0.11	10.48	Average
3		1.527	37.46	-18.54	56.00	27.10	0.13	10.23	QP
4		1.527	23.86	-22.14	46.00	13.50	0.13	10.23	Average
5	*	1.781	39.26	-16.74	56.00	28.89	0.14	10.23	QP
6		1.781	22.56	-23.44	46.00	12.19	0.14	10.23	Average
7		2.915	38.59	-17.41	56.00	28.20	0.15	10.24	QP
8		2.915	22.99	-23.01	46.00	12.60	0.15	10.24	Average
9		3.509	37.21	-18.79	56.00	26.80	0.16	10.25	QP
10		3.509	22.61	-23.39	46.00	12.20	0.16	10.25	Average
11		4.822	37.05	-18.95	56.00	26.60	0.18	10.27	QP
12		4.822	21.95	-24.05	46.00	11.50	0.18	10.27	Average

Note:

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

Appendix C. Radiated Spurious Emission

Test Engineer :	Carry Xu	Temperature :	22~23°C
		Relative Humidity :	44~42%

Only the worst mode RSE results for each bandwidth are shown in the report.

5725~5850MHz

WIFI 802.11ac VHT20 (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)
802.11ac VHT20 CH 165 5825MHz		5824	105.75	-	-	96.05	35.09	11.31	36.7	102	57	P	H
		5824	98.78	-	-	89.08	35.09	11.31	36.7	102	57	A	H
		5850.6	68.11	-52.82	120.93	58.39	35.11	11.33	36.72	102	57	P	H
		5859.6	64.78	-44.83	109.61	55.05	35.13	11.34	36.74	102	57	P	H
		5878	55.56	-47.51	103.07	45.8	35.16	11.36	36.76	102	57	P	H
		5977.6	51.42	-16.88	68.3	41.55	35.28	11.45	36.86	102	57	P	H
		5824	107.52	-	-	97.82	35.09	11.31	36.7	272	35	P	V
		5824	100.12	-	-	90.42	35.09	11.31	36.7	272	35	A	V
		5850.5	70.03	-51.13	121.16	60.31	35.11	11.33	36.72	272	35	P	V
		5855.6	66.07	-44.66	110.73	56.34	35.13	11.34	36.74	272	35	P	V
		5875.8	55.68	-49.03	104.71	45.92	35.16	11.36	36.76	272	35	P	V
		5946.8	52.34	-15.96	68.3	42.51	35.24	11.42	36.83	272	35	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

5725~5850MHz

WIFI 802.11ac VHT20 (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 VHT20 CH 165 5825MHz		11653	45.7	-28.3	74	57.29	38.29	16.46	66.34	300	0	P	H
		11653	45.8	-28.2	74	57.39	38.29	16.46	66.34	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		5622	50.19	-18.11	68.3	40.81	34.84	11.03	36.49	302	264	P	H
		5696.4	62.03	-40.62	102.65	52.53	34.93	11.13	36.56	302	264	P	H
		5718.8	69.57	-40.99	110.56	60.04	34.97	11.16	36.6	302	264	P	H
		5722.4	77.34	-39.03	116.37	67.79	34.97	11.18	36.6	302	264	P	H
		5752	101.72	-	-	92.13	35.01	11.21	36.63	302	264	P	H
		5752	94.4	-	-	84.81	35.01	11.21	36.63	302	264	A	H
		5850.8	51.68	-68.8	120.48	41.96	35.11	11.33	36.72	302	264	P	H
		5855.6	51.98	-58.75	110.73	42.25	35.13	11.34	36.74	302	264	P	H
802.11n		5888	51.67	-43.98	95.65	41.9	35.18	11.36	36.77	302	264	P	H
HT40		5992	51.22	-17.08	68.3	41.33	35.3	11.47	36.88	302	264	P	H
CH 151		5634.8	54.16	-14.14	68.3	44.75	34.87	11.05	36.51	301	53	P	V
5755MHz		5693.6	58.88	-41.7	100.58	49.38	34.93	11.13	36.56	301	53	P	V
		5719.6	71.62	-39.17	110.79	62.09	34.97	11.16	36.6	301	53	P	V
		5724.4	78.4	-42.53	120.93	68.85	34.97	11.18	36.6	301	53	P	V
		5758	103.61	-	-	94.02	35.01	11.21	36.63	301	53	P	V
		5758	95.98	-	-	86.39	35.01	11.21	36.63	301	53	A	V
		5850.9	57.65	-62.6	120.25	47.93	35.11	11.33	36.72	301	53	P	V
		5863.6	57.59	-50.9	108.49	47.86	35.13	11.34	36.74	301	53	P	V
		5887.6	54.95	-41	95.95	45.18	35.18	11.36	36.77	301	53	P	V
		5939.6	51	-17.3	68.3	41.17	35.24	11.42	36.83	301	53	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

5725~5850MHz

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 151 5755MHz		11510	45.34	-28.66	74	57.25	38.2	16.37	66.48	300	0	P	H
		11510	45.46	-28.54	74	57.37	38.2	16.37	66.48	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

5725~5850MHz

WIFI 802.11ac VHT80 (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)
		5642.8	56.37	-11.93	68.3	46.96	34.87	11.05	36.51	100	59	P	H
		5686.4	66.45	-28.82	95.27	56.95	34.93	11.13	36.56	100	59	P	H
		5701.2	68.17	-37.47	105.64	58.67	34.95	11.13	36.58	100	59	P	H
		5724.4	70.77	-50.16	120.93	61.22	34.97	11.18	36.6	100	59	P	H
		5850.5	70.56	-50.6	121.16	60.84	35.11	11.33	36.72	100	59	P	H
		5860.4	67.46	-41.93	109.39	57.73	35.13	11.34	36.74	100	59	P	H
		5876.8	63.55	-40.41	103.96	53.79	35.16	11.36	36.76	100	59	P	H
		5934.8	55.11	-13.19	68.3	45.28	35.22	11.42	36.81	100	59	P	H
802.11ac		5776	98.76	-	-	89.14	35.03	11.24	36.65	100	59	P	H
VHT80		5776	91.62	-	-	82	35.03	11.24	36.65	100	59	A	H
CH 155		5623.2	57.39	-10.91	68.3	48.01	34.84	11.03	36.49	301	53	P	V
5775MHz		5688.8	65.41	-31.63	97.04	55.91	34.93	11.13	36.56	301	53	P	V
		5719.6	70.04	-40.75	110.79	60.51	34.97	11.16	36.6	301	53	P	V
		5723.2	71.01	-47.19	118.2	61.46	34.97	11.18	36.6	301	53	P	V
		5850.5	70.58	-50.58	121.16	60.86	35.11	11.33	36.72	301	53	P	V
		5860.4	69.16	-40.23	109.39	59.43	35.13	11.34	36.74	301	53	P	V
		5876	63.19	-41.37	104.56	53.43	35.16	11.36	36.76	301	53	P	V
		5934.8	54.49	-13.81	68.3	44.66	35.22	11.42	36.81	301	53	P	V
		5776	99.49	-	-	89.87	35.03	11.24	36.65	301	53	P	V
		5776	92.4	-	-	82.78	35.03	11.24	36.65	301	53	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

5725~5850MHz

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 VHT80 CH 155 5775MHz		11554	44.9	-29.1	74	56.71	38.23	16.39	66.43	300	0	P	H
		11554	44.77	-29.23	74	56.58	38.23	16.39	66.43	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11ac VHT80 LF		41.64	25.21	-14.79	40	38.66	18.42	1.04	32.91	-	-	P	H
		151.25	26.31	-17.19	43.5	40.29	16.96	1.96	32.9	-	-	P	H
		240.49	29.73	-16.27	46	42.46	17.79	2.49	33.01	-	-	P	H
		268.62	30.5	-15.5	46	42.11	18.76	2.64	33.01	-	-	P	H
		623.64	33.48	-12.52	46	36.84	25.94	3.99	33.29	-	-	P	H
		736.16	32.69	-13.31	46	34.02	27.56	4.33	33.22	-	-	P	H
		31.94	34.63	-5.37	40	42.7	23.84	0.91	32.82	-	-	P	H
		42.61	24.32	-15.68	40	38.3	17.88	1.04	32.9	-	-	P	H
		88.2	22.46	-21.04	43.5	39.55	14.32	1.49	32.9	-	-	P	H
		158.04	24.75	-18.75	43.5	39.01	16.65	2	32.91	-	-	P	H
		337.49	30.16	-15.84	46	40.19	19.95	2.95	32.93	-	-	P	V
		648.86	33.51	-12.49	46	36.55	26.19	4.07	33.3	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

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

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	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 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)

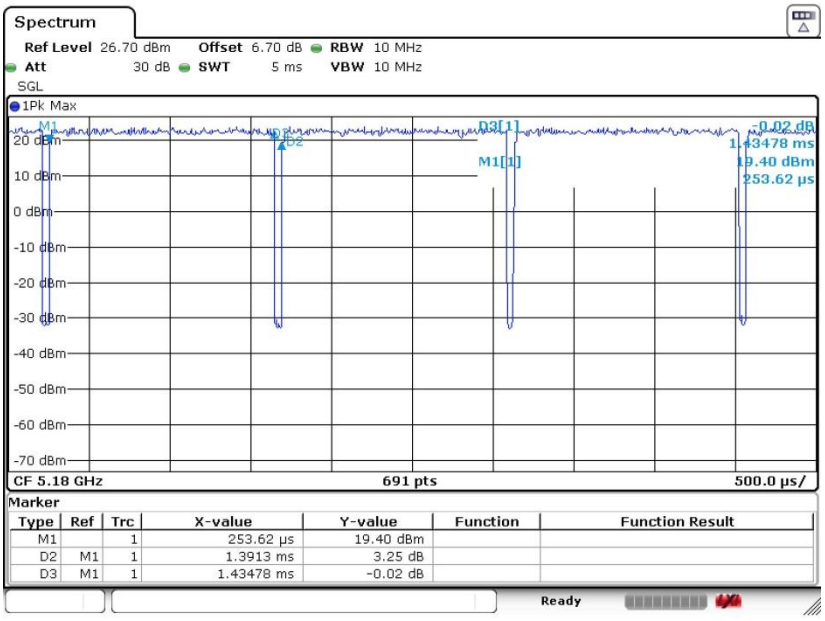
= -10.46(dB)

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

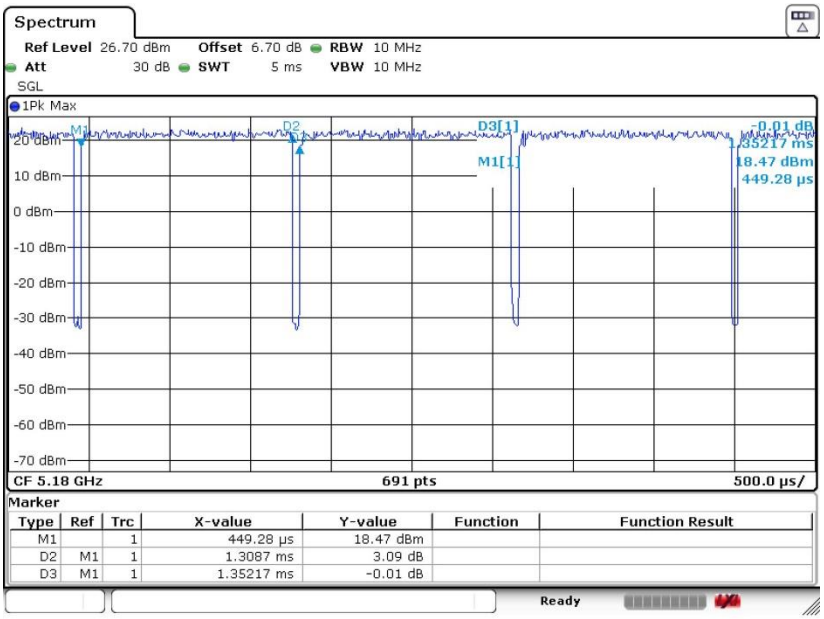
Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	96.97	1.391	0.719	0.75KHz
802.11ac VHT20	96.79	1.309	0.764	0.82KHz
802.11n HT40	93.73	0.649	1.540	1.6KHz
802.11ac VHT80	87.16	0.325	3.080	3.3KHz

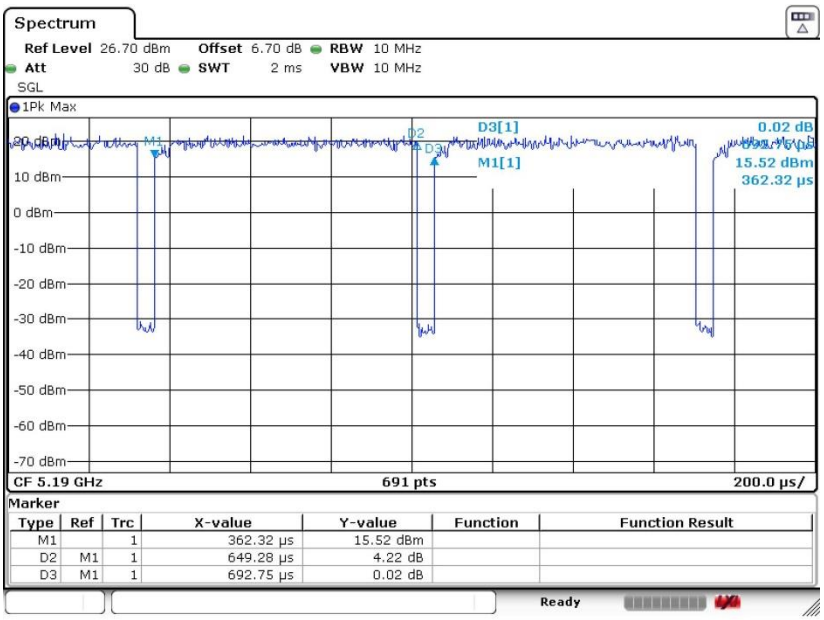
802.11a



802.11ac VHT20



802.11n HT40



802.11ac VHT80