



FCC RF Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2229-2
FCC ID : IHDT56AC6
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure
TEST DATE(S) : Feb. 17, 2022 ~ Feb. 26, 2022

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

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

Reviewed by: Derreck Chen / Supervisor

Approved by: Eric Shih / Manager



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People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR1N1011-03E	Rev. 01	Initial issue of report	Mar. 15, 2022

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
4.1	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
4.2	15.407(b)	Unwanted Emissions	15.407(b)(4)(i) & 15.209(a)	Pass	Under limit 8.68 dB at 44.550 MHz
4.3	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 Cellular Phone
Brand Name	Motorola
Model Name	XT2229-2
FCC ID	IHDT56AC6
IMEI Code	Conducted : N/A Radiation: 352303500031051/352303500032208 for Sample 1 352303500035193/352303500037645 for Sample 2
HW Version	PVT2
SW Version	STA32.48
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are two types of EUT, the difference could be referred to the XT2229-2_Operational Description of Product Equality Declaration which is exhibit separately. According to the difference, we evaluate the sample 1 to perform full test and the sample 2 verified worse cases for RSE testing.



1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	5745 MHz ~ 5825 MHz
Maximum Output Power	<5745 MHz ~ 5825 MHz> 802.11a : 17.70 dBm / 0.0589 W 802.11n HT20 : 17.30 dBm / 0.0537 W 802.11n HT40 : 16.30 dBm / 0.0427 W 802.11ac VHT20: 16.40 dBm / 0.0437 W 802.11ac VHT40: 16.20 dBm / 0.0417 W 802.11ac VHT80: 16.40 dBm / 0.0437 W
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Antenna Type / Gain	PIFA Antenna with gain -5.1 dBi

Note: For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing have assessed only 802.11n HT20/HT40 by referring to their maximum conducted power.

1.5 Modification of EUT

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

1.6 Testing Location

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

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

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH01-SZ	CN1256	421272



1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH01-SZ	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.
- ♦ 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 (Chenyang)	Model Name	MC-201
AC Adapter 1(EU)	Brand Name	Motorola (Chenyang)	Model Name	MC-202
AC Adapter 1(AR)	Brand Name	Motorola (Chenyang)	Model Name	MC-206
AC Adapter 2(US)	Brand Name	Motorola (Acbel)	Model Name	MC-201
AC Adapter 2(EU)	Brand Name	Motorola (Acbel)	Model Name	MC-202
AC Adapter 2(AR)	Brand Name	Motorola (Acbel)	Model Name	MC-206
AC Adapter 2(CHILE)	Brand Name	Motorola (Acbel)	Model Name	MC-209
AC Adapter 3(IN)	Brand Name	Motorola (Chenyang)	Model Name	MC-204
AC Adapter 4(IN)	Brand Name	Motorola (Aohai)	Model Name	MC-204
AC Adapter 5(BR)	Brand Name	Motorola (Flex)	Model Name	MC-207
AC Adapter 6(BR)	Brand Name	Motorola (Salcomp)	Model Name	MC-207
AC Adapter 7(US)	Brand Name	Motorola (Chenyang)	Model Name	MC-101
AC Adapter 7(EU)	Brand Name	Motorola (Chenyang)	Model Name	MC-102
AC Adapter 7(UK)	Brand Name	Motorola (Chenyang)	Model Name	MC-103
AC Adapter 7(AU)	Brand Name	Motorola (Chenyang)	Model Name	MC-105
AC Adapter 8(US)	Brand Name	Motorola (Salcomp)	Model Name	MC-101
AC Adapter 8(EU)	Brand Name	Motorola (Salcomp)	Model Name	MC-102
AC Adapter 8(UK)	Brand Name	Motorola (Salcomp)	Model Name	MC-103
AC Adapter 8(AU)	Brand Name	Motorola (Salcomp)	Model Name	MC-105
AC Adapter 9(US)	Brand Name	Motorola (Aohai)	Model Name	MC-101
AC Adapter 9(EU)	Brand Name	Motorola (Aohai)	Model Name	MC-102
AC Adapter 9(UK)	Brand Name	Motorola (Aohai)	Model Name	MC-103
AC Adapter 10(IN)	Brand Name	Motorola (Chenyang)	Model Name	MC-104
AC Adapter 11(IN)	Brand Name	Motorola (Aohai)	Model Name	MC-104
AC Adapter 12(AU)	Brand Name	Motorola (Aohai)	Model Name	MC-105
AC Adapter 13(EU)	Brand Name	Motorola (Salom)	Model Name	SC-42
AC Adapter 14(UK)	Brand Name	Motorola (Chenyang)	Model Name	SC-43
Earphone 1	Brand Name	Motorola (Iyand)	Model Name	LYM239-76C-003
Earphone 2	Brand Name	Motorola (LCHSE)	Model Name	MEND1432B875000
Earphone 3	Brand Name	Motorola (New Leader)	Model Name	MH202
USB Cable 1	Brand Name	Motorola(Yihuaxing)	Model Name	T365-011B
USB Cable 2	Brand Name	Motorola(SUNTOPS)	Model Name	336258
USB Cable 3	Brand Name	Motorola(SUNTOPS)	Model Name	336281
USB Cable 4	Brand Name	Motorola(I SHENG)	Model Name	SC18D33506
USB Cable 5	Brand Name	Motorola(Yihuaxing)	Model Name	T365-012B
Battery 1	Brand Name	Motorola(Sunwoda)	Model Name	NH50
Battery 2	Brand Name	Motorola(SCUD)	Model Name	NH50



2 Re-use of Measured Data

2.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: XT2229-2, FCC ID: IHDT56AC6) is electrically identical to the reference device (Model: XT2231-2, FCC ID: IHDT56AC3) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part 15E, U-NII-3 reuse the original model's result do spot-check, following the FCC KDB 484596 D01 v01.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID: IHDT56AC6 .

2.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AC3 and FCC ID: IHDT56AC6 is as below:

- Remove NFC.

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2229-2_Operational Description of Product Equality Declaration).

The re-used RF data includes the following bands provided in Appendix D (Sporton RF Report No. 1N1011-01 for the reference device Model: XT2231-2, FCC ID: IHDT56AC3).

2.3 Reference detail Section:

Rule Part	Equipment Class	Frequency Band (MHz)	Reference FCC ID(Parent)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)	Report Title/Section
15E	U-NII-3	5745~5825	IHDT56AC2	Original Grant	1N1011-01	IHDT56AC6	All sections applicable except for RSE and Conducted Power
			IHDT56AC3	Data reuse			



2.4 Spot Check Verification Data Section

Conducted power test and radiated spurious emission for re-testing against the variant model based on the original model was performed in this filing.

Summary for power spot check for rule entry and technology is listed as below:

Test Item	Mode	IHDT56AC3 Parent Worst Result	IHDT56AC6 Variant Check Result	Difference (dB)
Conducted Power (dBm)	11a CH149	16.81	17.70	0.90
	11aN20 CH149	15.82	17.3	1.48
	11aN40 CH151	15.15	16.3	1.15
	11ac20 CH149	15.16	16.4	1.24
	11ac40 CH151	15.11	16.2	1.09
	11ac80 CH155 S	14.58	16.4	1.82

Conclusion:

We confirm that the test data reuse policy of FCC KDB 484596 D01 Referencing Test Data v01 has been followed and the test data for AC Conduction and Conducted test items except Conducted Power as referenced from the parent model report represents compliance with new FCC ID.

3 Test Configuration of Equipment Under Test

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: 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.

3.1 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.

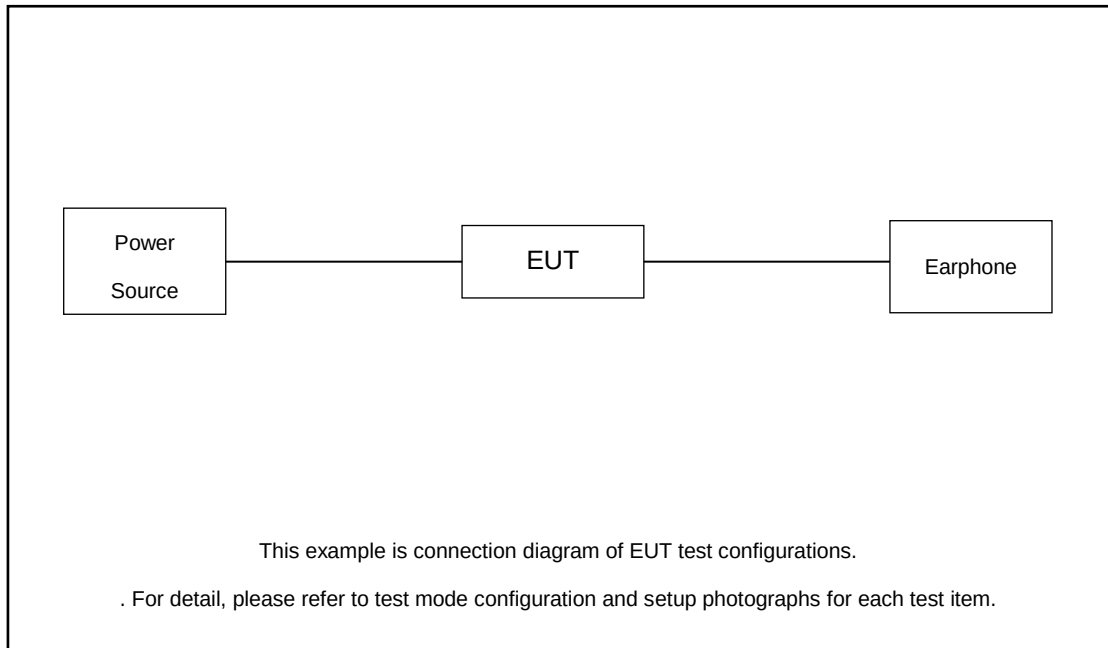
3.2 Test Mode

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

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

Ch. #		U-NII-3 : 5745-5825 MHz			
		802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
L	Low	149	149	151	-
M	Middle	157	157	-	155
H	High	165	165	159	-

3.3 Connection Diagram of Test System



3.4 EUT Operation Test Setup

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

4 Test Result

4.1 Maximum Conducted Output Power Measurement

4.1.1 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.

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.

4.1.2 Measuring Instruments

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

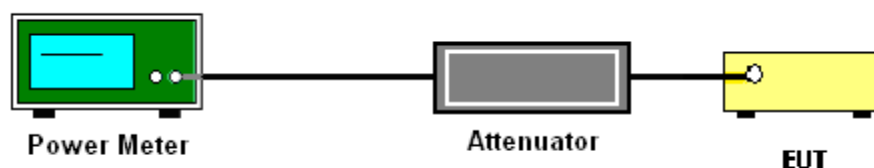
4.1.3 Test Procedures

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.

4.1.4 Test Setup



**4.1.5 Test Result of Maximum Conducted Output Power**

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	17.70	30.00	-5.10	Pass
11a	6Mbps	1	157	5785	0.13	17.60	30.00	-5.10	Pass
11a	6Mbps	1	165	5825	0.13	17.70	30.00	-5.10	Pass
HT20	MCS 0	1	149	5745	0.14	17.30	30.00	-5.10	Pass
HT20	MCS 0	1	157	5785	0.14	17.10	30.00	-5.10	Pass
HT20	MCS 0	1	165	5825	0.14	17.20	30.00	-5.10	Pass
HT40	MCS 0	1	151	5755	0.30	16.10	30.00	-5.10	Pass
HT40	MCS 0	1	159	5795	0.30	16.30	30.00	-5.10	Pass
VHT20	MCS 0	1	149	5745	0.12	16.30	30.00	-5.10	Pass
VHT20	MCS 0	1	157	5785	0.12	16.20	30.00	-5.10	Pass
VHT20	MCS 0	1	165	5825	0.12	16.40	30.00	-5.10	Pass
VHT40	MCS 0	1	151	5755	0.28	16.00	30.00	-5.10	Pass
VHT40	MCS 0	1	159	5795	0.28	16.20	30.00	-5.10	Pass
VHT80	MCS 0	1	155	5775	0.57	16.40	30.00	-5.10	Pass

4.2 Unwanted Emissions Measurement

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

4.2.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.725-5.85 GHz band:

15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

- (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.

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

where

EIRP is the equivalent isotropically radiated power, in dBm

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

d_{Meas} is the measurement distance, in m

4.2.2 Measuring Instruments

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

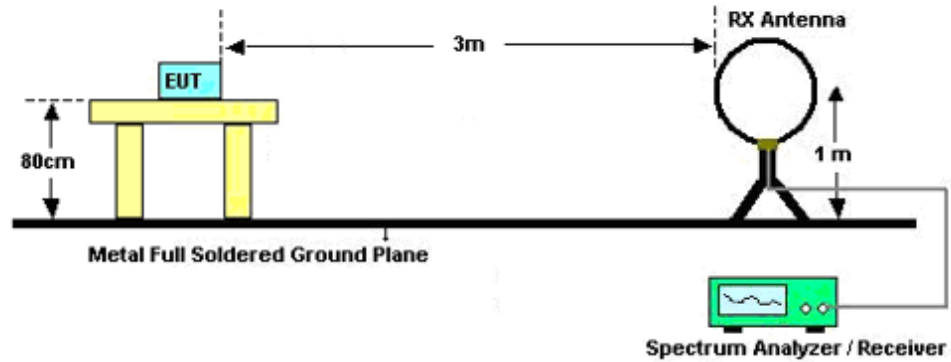


4.2.3 Test Procedures

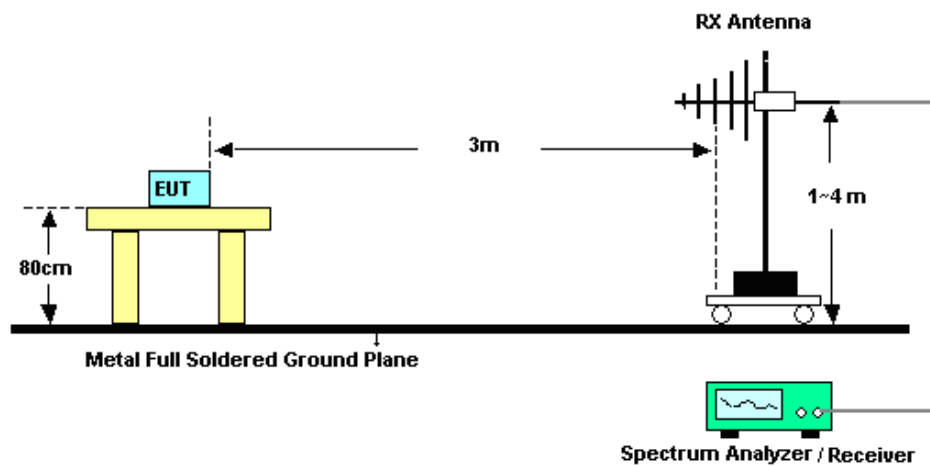
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak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

4.2.4 Test Setup

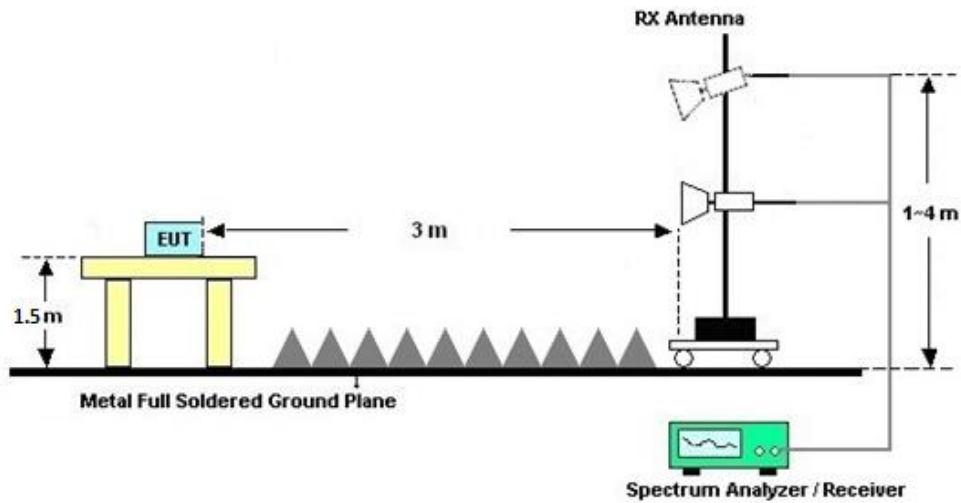
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



4.2.5 Test 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.

4.2.6 Test Result of Radiated Band Edges

Please refer to Appendix A.

4.2.7 Duty Cycle

Please refer to Appendix B.

4.2.8 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix A.



4.3 Antenna Requirements

4.3.1 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.

4.3.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

4.3.3 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.



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 08, 2021	Feb. 17, 2022	Apr. 07, 2022	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1339473	30MHz~40GHz	Dec. 28, 2021	Feb. 17, 2022	Dec. 27, 2022	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1542004	50MHz Bandwidth	Dec. 28, 2021	Feb. 17, 2022	Dec. 27, 2022	Conducted (TH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 21, 2021	Feb. 26, 2022	Jul. 20, 2022	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 22, 2021	Feb. 26, 2022	Jun. 21, 2022	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz~2GHz	Jul. 15, 2021	Feb. 26, 2022	Jul. 14, 2022	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 25, 2021	Feb. 26, 2022	Jul. 24, 2022	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Apr. 11, 2021	Feb. 26, 2022	Apr. 10, 2022	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 07, 2021	Feb. 26, 2022	Apr. 06, 2022	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P-R	1943528	1GHz~18GHz	Oct. 16, 2021	Feb. 26, 2022	Oct. 15, 2022	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Ghz	Oct. 16, 2021	Feb. 26, 2022	Oct. 15, 2022	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 21, 2021	Feb. 26, 2022	Jul. 20, 2022	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Feb. 26, 2022	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Feb. 26, 2022	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Feb. 26, 2022	NCR	Radiation (03CH01-SZ)

NCR: No Calibration Required



6 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 Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.48dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.53dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.02dB
---	--------

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



Appendix A. Radiated Spurious Emission

For Sample 1:

5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5612	52.28	-16.02	68.3	38.31	34.3	12.27	32.6	339	332	P	H
		5698.8	55.99	-48.33	104.32	41.9	34.4	12.29	32.6	339	332	P	H
		5717	65.24	-44.72	109.96	51.12	34.43	12.29	32.6	339	332	P	H
		5725	71.47	-50.73	122.2	57.3	34.47	12.3	32.6	339	332	P	H
		5745	104.1	-	-	89.9	34.5	12.3	32.6	339	332	P	H
		5745	98.09	-	-	83.89	34.5	12.3	32.6	339	332	A	H
		5625	52.56	-15.74	68.3	38.56	34.33	12.27	32.6	343	208	P	V
		5697	55.22	-47.78	103	41.13	34.4	12.29	32.6	343	208	P	V
		5720	67.1	-43.7	110.8	52.94	34.47	12.29	32.6	343	208	P	V
		5724.6	72.47	-48.82	121.29	58.31	34.47	12.29	32.6	343	208	P	V
		5745	103.09	-	-	88.89	34.5	12.3	32.6	343	208	P	V
		5745	96.79	-	-	82.59	34.5	12.3	32.6	343	208	A	V



WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 157 5785MHz		5643.4	52.25	-16.05	68.3	38.2	34.37	12.28	32.6	304	334	P	H
		5672.6	52.12	-32.9	85.02	38.04	34.4	12.28	32.6	304	334	P	H
		5713.4	52.17	-56.78	108.95	38.05	34.43	12.29	32.6	304	334	P	H
		5723.8	53.1	-66.36	119.46	38.94	34.47	12.29	32.6	304	334	P	H
		5785	104.97	-	-	90.63	34.63	12.31	32.6	304	334	P	H
		5785	98.4	-	-	84.06	34.63	12.31	32.6	304	334	A	H
		5852.8	52.22	-63.6	115.82	37.7	34.8	12.32	32.6	304	334	P	H
		5871.4	52.17	-54.04	106.21	37.52	34.93	12.32	32.6	304	334	P	H
		5891.6	52.76	-40.15	92.91	38.03	35	12.33	32.6	304	334	P	H
		5948.4	52.91	-15.39	68.3	38.07	35.1	12.34	32.6	304	334	P	H
		5606.6	52.33	-15.97	68.3	38.36	34.3	12.27	32.6	321	212	P	V
		5657.8	52.71	-21.37	74.08	38.63	34.4	12.28	32.6	321	212	P	V
		5706.6	52.82	-54.23	107.05	38.7	34.43	12.29	32.6	321	212	P	V
		5722.2	53.16	-62.66	115.82	39	34.47	12.29	32.6	321	212	P	V
		5785	103.31	-	-	88.97	34.63	12.31	32.6	321	212	P	V
		5785	97.28	-	-	82.94	34.63	12.31	32.6	321	212	A	V
		5855	52.5	-58.3	110.8	37.91	34.87	12.32	32.6	321	212	P	V
		5855	52.5	-58.3	110.8	37.91	34.87	12.32	32.6	321	212	P	V
		5917.2	53.02	-21.02	74.04	38.26	35.03	12.33	32.6	321	212	P	V
		5944.6	53.35	-14.95	68.3	38.51	35.1	12.34	32.6	321	212	P	V



WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 165 5825MHz		5825	103.87	-	-	89.38	34.77	12.32	32.6	330	349	P	H
		5825	97.87	-	-	83.38	34.77	12.32	32.6	330	349	A	H
		5851.2	68.85	-50.61	119.46	54.33	34.8	12.32	32.6	330	349	P	H
		5856	65.79	-44.73	110.52	51.2	34.87	12.32	32.6	330	349	P	H
		5876.6	55.01	-49	104.01	40.35	34.93	12.33	32.6	330	349	P	H
		5925.6	52.79	-15.51	68.3	37.98	35.07	12.34	32.6	330	349	P	H
		5825	103.19	-	-	88.7	34.77	12.32	32.6	319	215	P	V
		5825	97.23	-	-	82.74	34.77	12.32	32.6	319	215	A	V
		5851	65.75	-54.17	119.92	51.23	34.8	12.32	32.6	319	215	P	V
		5855.2	64.11	-46.63	110.74	49.52	34.87	12.32	32.6	319	215	P	V
		5875.8	55.74	-48.87	104.61	41.08	34.93	12.33	32.6	319	215	P	V
		5928.8	52.91	-15.39	68.3	38.1	35.07	12.34	32.6	319	215	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		11490	49.56	-24.44	74	45.85	38.19	16.53	51.01	-	-	P	H
		17235	51.15	-17.15	68.3	44.24	41.86	18.46	53.41	-	-	P	H
		11490	50.01	-23.99	74	46.3	38.19	16.53	51.01	-	-	P	V
		17235	50.89	-17.41	68.3	43.98	41.86	18.46	53.41	-	-	P	V
802.11a CH 157 5785MHz		11570	49.03	-24.97	74	45.21	38.26	16.55	50.99	-	-	P	H
		17355	50.29	-18.01	68.3	43.37	41.74	18.5	53.32	-	-	P	H
		11570	50.47	-23.53	74	46.65	38.26	16.55	50.99	-	-	P	V
		17355	51.45	-16.85	68.3	44.53	41.74	18.5	53.32	-	-	P	V
802.11a CH 165 5825MHz		11650	50.67	-23.33	74	46.75	38.32	16.57	50.97	-	-	P	H
		17475	51.79	-16.51	68.3	44.84	41.63	18.55	53.23	-	-	P	H
		11650	50.02	-23.98	74	46.1	38.32	16.57	50.97	-	-	P	V
		17475	50.98	-17.32	68.3	44.03	41.63	18.55	53.23	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 149 5745MHz		5633.8	53.27	-15.03	68.3	39.22	34.37	12.28	32.6	327	345	P	H
		5699	57.27	-47.2	104.47	43.18	34.4	12.29	32.6	327	345	P	H
		5719.8	69.22	-41.52	110.74	55.06	34.47	12.29	32.6	327	345	P	H
		5724.8	73.4	-48.34	121.74	59.24	34.47	12.29	32.6	327	345	P	H
		5745	103.8	-	-	89.6	34.5	12.3	32.6	327	345	P	H
		5745	96.8	-	-	82.6	34.5	12.3	32.6	327	345	A	H
		5626.8	52.3	-16	68.3	38.29	34.33	12.28	32.6	343	211	P	V
		5698.4	56.47	-47.55	104.02	42.38	34.4	12.29	32.6	343	211	P	V
		5719.6	68.86	-41.83	110.69	54.7	34.47	12.29	32.6	343	211	P	V
		5724.2	75.83	-44.55	120.38	61.67	34.47	12.29	32.6	343	211	P	V
		5745	103.37	-	-	89.17	34.5	12.3	32.6	343	211	P	V
		5745	96.37	-	-	82.17	34.5	12.3	32.6	343	211	A	V



WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 157 5785MHz		5602.4	52.41	-15.89	68.3	38.44	34.3	12.27	32.6	350	355	P	H
		5670	52.13	-30.97	83.1	38.05	34.4	12.28	32.6	350	355	P	H
		5713	55.21	-53.63	108.84	41.09	34.43	12.29	32.6	350	355	P	H
		5721.4	53.48	-60.51	113.99	39.32	34.47	12.29	32.6	350	355	P	H
		5785	104.41	-	-	90.07	34.63	12.31	32.6	350	355	P	H
		5785	97.96	-	-	83.62	34.63	12.31	32.6	350	355	A	H
		5850.8	54.08	-66.3	120.38	39.56	34.8	12.32	32.6	350	355	P	H
		5857	53.08	-57.16	110.24	38.49	34.87	12.32	32.6	350	355	P	H
		5899.2	52.39	-34.91	87.3	37.66	35	12.33	32.6	350	355	P	H
		5948.2	52.98	-15.32	68.3	38.14	35.1	12.34	32.6	350	355	P	H
		5624.4	51.98	-16.32	68.3	37.98	34.33	12.27	32.6	336	214	P	V
		5698	52.85	-50.88	103.73	38.76	34.4	12.29	32.6	336	214	P	V
		5716.6	52.69	-57.16	109.85	38.57	34.43	12.29	32.6	336	214	P	V
		5724.4	53.68	-67.15	120.83	39.52	34.47	12.29	32.6	336	214	P	V
		5785	102.3	-	-	87.96	34.63	12.31	32.6	336	214	P	V
		5785	95.3	-	-	80.96	34.63	12.31	32.6	336	214	A	V
		5851	52.62	-67.3	119.92	38.1	34.8	12.32	32.6	336	214	P	V
		5864.6	52.51	-55.6	108.11	37.92	34.87	12.32	32.6	336	214	P	V
		5899.2	52.24	-35.06	87.3	37.51	35	12.33	32.6	336	214	P	V
		5940.2	52.3	-16	68.3	37.46	35.1	12.34	32.6	336	214	P	V



WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 165 5825MHz		5825	104.63	-	-	90.14	34.77	12.32	32.6	348	351	P	H
		5825	98.2	-	-	83.71	34.77	12.32	32.6	348	351	A	H
		5850.6	69.19	-51.64	120.83	54.67	34.8	12.32	32.6	348	351	P	H
		5855	67.05	-43.75	110.8	52.46	34.87	12.32	32.6	348	351	P	H
		5879.6	58.7	-43.09	101.79	44.04	34.93	12.33	32.6	348	351	P	H
		5935.4	53.24	-15.06	68.3	38.43	35.07	12.34	32.6	348	351	P	H
		5825	102.08	-	-	87.59	34.77	12.32	32.6	346	223	P	V
		5825	95.08	-	-	80.59	34.77	12.32	32.6	346	223	A	V
		5850.4	67.14	-54.15	121.29	52.62	34.8	12.32	32.6	346	223	P	V
		5856.2	63.78	-46.68	110.46	49.19	34.87	12.32	32.6	346	223	P	V
		5876.2	54.59	-49.72	104.31	39.93	34.93	12.33	32.6	346	223	P	V
		5928.4	52.51	-15.79	68.3	37.7	35.07	12.34	32.6	346	223	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 149 5745MHz		11490	50.95	-23.05	74	47.24	38.19	16.53	51.01	-	-	P	H
		17235	51.09	-17.21	68.3	44.18	41.86	18.46	53.41	-	-	P	H
		11490	49.28	-24.72	74	45.57	38.19	16.53	51.01	-	-	P	V
		17235	49.77	-18.53	68.3	42.86	41.86	18.46	53.41	-	-	P	V
802.11n HT20 CH 157 5785MHz		11570	50.51	-23.49	74	46.69	38.26	16.55	50.99	-	-	P	H
		17355	50.52	-17.78	68.3	43.6	41.74	18.5	53.32	-	-	P	H
		11570	50.04	-23.96	74	46.22	38.26	16.55	50.99	-	-	P	V
		17355	50.67	-17.63	68.3	43.75	41.74	18.5	53.32	-	-	P	V
802.11n HT20 CH 165 5825MHz		11650	50.81	-23.19	74	46.89	38.32	16.57	50.97	-	-	P	H
		17475	49.87	-18.43	68.3	42.92	41.63	18.55	53.23	-	-	P	H
		11650	50.66	-23.34	74	46.74	38.32	16.57	50.97	-	-	P	V
		17475	51	-17.3	68.3	44.05	41.63	18.55	53.23	-	-	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 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		5629.8	52.74	-15.56	68.3	38.73	34.33	12.28	32.6	294	343	P	H
		5698.8	62.38	-41.94	104.32	48.29	34.4	12.29	32.6	294	343	P	H
		5720	74.09	-36.71	110.8	59.93	34.47	12.29	32.6	294	343	P	H
		5722.8	76.91	-40.27	117.18	62.75	34.47	12.29	32.6	294	343	P	H
		5755	101.3	-	-	87.03	34.57	12.3	32.6	294	343	P	H
		5755	95.13	-	-	80.86	34.57	12.3	32.6	294	343	A	H
		5851.4	54.3	-64.71	119.01	39.78	34.8	12.32	32.6	294	343	P	H
		5863	54	-54.56	108.56	39.41	34.87	12.32	32.6	294	343	P	H
		5892.4	52.67	-39.65	92.32	37.94	35	12.33	32.6	294	343	P	H
		5927.8	53.11	-15.19	68.3	38.3	35.07	12.34	32.6	294	343	P	H
		5635.4	52.66	-15.64	68.3	38.61	34.37	12.28	32.6	298	205	P	V
		5699.2	61.77	-42.84	104.61	47.68	34.4	12.29	32.6	298	205	P	V
		5719.6	73.36	-37.33	110.69	59.2	34.47	12.29	32.6	298	205	P	V
		5722.6	75.36	-41.37	116.73	61.2	34.47	12.29	32.6	298	205	P	V
		5755	100.64	-	-	86.37	34.57	12.3	32.6	298	205	P	V
		5755	94.56	-	-	80.29	34.57	12.3	32.6	298	205	A	V
		5850.6	54.32	-66.51	120.83	39.8	34.8	12.32	32.6	298	205	P	V
		5865.2	52.81	-55.13	107.94	38.22	34.87	12.32	32.6	298	205	P	V
		5882	51.52	-48.5	100.02	36.86	34.93	12.33	32.6	298	205	P	V
		5941.4	51.72	-16.58	68.3	36.88	35.1	12.34	32.6	298	205	P	V



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 159 5795MHz		5630.4	52.21	-16.09	68.3	38.2	34.33	12.28	32.6	289	346	P	H
		5689.2	54.12	-43.14	97.26	40.03	34.4	12.29	32.6	289	346	P	H
		5711.2	56.5	-51.84	108.34	42.38	34.43	12.29	32.6	289	346	P	H
		5724	57.91	-62.01	119.92	43.75	34.47	12.29	32.6	289	346	P	H
		5795	102.66	-	-	88.25	34.7	12.31	32.6	289	346	P	H
		5795	96.37	-	-	81.96	34.7	12.31	32.6	289	346	A	H
		5852	63.79	-53.85	117.64	49.27	34.8	12.32	32.6	289	346	P	H
		5857.8	61.97	-48.04	110.01	47.38	34.87	12.32	32.6	289	346	P	H
		5878.6	56.74	-45.79	102.53	42.08	34.93	12.33	32.6	289	346	P	H
		5930.4	52.97	-15.33	68.3	38.16	35.07	12.34	32.6	289	346	P	H
		5633.6	52.76	-15.54	68.3	38.71	34.37	12.28	32.6	294	204	P	V
		5665	53.45	-25.95	79.4	39.37	34.4	12.28	32.6	294	204	P	V
		5718.4	55.69	-54.66	110.35	41.53	34.47	12.29	32.6	294	204	P	V
		5723.6	58.39	-60.62	119.01	44.23	34.47	12.29	32.6	294	204	P	V
		5795	100.13	-	-	85.72	34.7	12.31	32.6	294	204	P	V
		5795	95.3	-	-	80.89	34.7	12.31	32.6	294	204	A	V
		5850.6	60.15	-60.68	120.83	45.63	34.8	12.32	32.6	294	204	P	V
		5859	59.21	-50.47	109.68	44.62	34.87	12.32	32.6	294	204	P	V
		5903	54.02	-30.48	84.5	39.29	35	12.33	32.6	294	204	P	V
		5933.4	53.05	-15.25	68.3	38.24	35.07	12.34	32.6	294	204	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		11510	50.31	-23.69	74	46.57	38.21	16.53	51	-	-	P	H
HT40		17265	50	-18.3	68.3	43.09	41.83	18.47	53.39	-	-	P	H
CH 151		11510	50.29	-23.71	74	46.55	38.21	16.53	51	-	-	P	V
5755MHz		17265	51.04	-17.26	68.3	44.13	41.83	18.47	53.39	-	-	P	V
802.11n		11590	50.4	-23.6	74	46.55	38.27	16.56	50.98	-	-	P	H
HT40		17385	50.32	-17.98	68.3	43.39	41.71	18.51	53.29	-	-	P	H
CH 159		11590	50.32	-23.68	74	46.47	38.27	16.56	50.98	-	-	P	V
5795MHz		17385	49.89	-18.41	68.3	42.96	41.71	18.51	53.29	-	-	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)
802.11ac VHT80 CH 155 5775MHz		5627.2	57.47	-10.83	68.3	43.46	34.33	12.28	32.6	308	188	P	H
		5697	69.3	-33.7	103	55.21	34.4	12.29	32.6	308	188	P	H
		5716	72.71	-36.97	109.68	58.59	34.43	12.29	32.6	308	188	P	H
		5724.4	73.2	-47.63	120.83	59.04	34.47	12.29	32.6	308	188	P	H
		5775	99.52	-	-	85.18	34.63	12.31	32.6	308	188	P	H
		5775	91.69	-	-	77.35	34.63	12.31	32.6	308	188	A	H
		5850.6	67.57	-53.26	120.83	53.05	34.8	12.32	32.6	308	188	P	H
		5869.2	65.95	-40.87	106.82	51.36	34.87	12.32	32.6	308	188	P	H
		5876.6	63.78	-40.23	104.01	49.12	34.93	12.33	32.6	308	188	P	H
		5925.4	56.2	-12.1	68.3	41.39	35.07	12.34	32.6	308	188	P	H
		5633.2	56.56	-11.74	68.3	42.51	34.37	12.28	32.6	333	95	P	V
		5697.6	64.68	-38.76	103.44	50.59	34.4	12.29	32.6	333	95	P	V
		5720	68.47	-42.33	110.8	54.31	34.47	12.29	32.6	333	95	P	V
		5722.2	69.71	-46.11	115.82	55.55	34.47	12.29	32.6	333	95	P	V
		5775	97.17	-	-	82.83	34.63	12.31	32.6	333	95	P	V
		5775	91.19	-	-	76.85	34.63	12.31	32.6	333	95	A	V
		5852.2	62.63	-54.55	117.18	48.11	34.8	12.32	32.6	333	95	P	V
		5861.6	63.24	-45.71	108.95	48.65	34.87	12.32	32.6	333	95	P	V
		5884.6	59.48	-38.61	98.09	44.82	34.93	12.33	32.6	333	95	P	V
		5934.4	53.52	-14.78	68.3	38.71	35.07	12.34	32.6	333	95	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 (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		11550	50.66	-23.34	74	46.86	38.25	16.54	50.99	-	-	P	H
VHT80		17325	50.47	-17.83	68.3	43.55	41.78	18.49	53.35	-	-	P	H
CH 155		11550	50.04	-23.96	74	46.24	38.25	16.54	50.99	-	-	P	V
5775MHz		17325	50.05	-18.25	68.3	43.13	41.78	18.49	53.35	-	-	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		97.9	29.96	-13.54	43.5	48.24	14.45	2.47	35.2	-	-	P	H
		143.49	28.68	-14.82	43.5	41.96	19.29	2.54	35.11	-	-	P	H
		201.69	24.84	-18.66	43.5	40.74	16.45	2.75	35.1	-	-	P	H
		332.64	20.78	-25.22	46	31.83	20.63	3.22	34.9	-	-	P	H
		423.82	24.73	-21.27	46	33.62	22.55	3.31	34.75	-	-	P	H
		568.35	24.97	-21.03	46	30.63	25.16	3.74	34.56	-	-	P	H
		44.55	31.32	-8.68	40	44.08	20.19	2.1	35.05	-	-	P	V
		101.78	24.57	-18.93	43.5	42.22	15.09	2.46	35.2	-	-	P	V
		146.4	25.34	-18.16	43.5	38.55	19.36	2.54	35.11	-	-	P	V
		173.56	23.74	-19.76	43.5	37.42	18.78	2.64	35.1	-	-	P	V
		392.78	21.43	-24.57	46	30.96	21.98	3.3	34.81	-	-	P	V
		502.39	23.26	-22.74	46	30.6	23.88	3.48	34.7	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



For Sample 2

5725~5850 MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ac VHT80 CH 155 5775MHz		5649.2	58.96	-9.34	68.3	44.91	34.37	12.28	32.6	354	353	P	H
		5680.4	66.65	-24.12	90.77	52.56	34.4	12.29	32.6	354	353	P	H
		5719.6	69.88	-40.81	110.69	55.72	34.47	12.29	32.6	354	353	P	H
		5723.8	71.29	-48.17	119.46	57.13	34.47	12.29	32.6	354	353	P	H
		5775	98.8	-	-	84.46	34.63	12.31	32.6	354	353	P	H
		5775	91.8	-	-	77.46	34.63	12.31	32.6	354	353	A	H
		5854.6	66.99	-44.72	111.71	52.4	34.87	12.32	32.6	354	353	P	H
		5856	67.31	-43.21	110.52	52.72	34.87	12.32	32.6	354	353	P	H
		5875	65.06	-40.14	105.2	50.4	34.93	12.33	32.6	354	353	P	H
		5931.6	59.09	-9.21	68.3	44.28	35.07	12.34	32.6	354	353	P	H
		5623.2	55.78	-12.52	68.3	41.78	34.33	12.27	32.6	340	212	P	V
		5693.6	63.34	-37.15	100.49	49.25	34.4	12.29	32.6	340	212	P	V
		5709.8	66.81	-41.14	107.95	52.69	34.43	12.29	32.6	340	212	P	V
		5724.8	69.68	-52.06	121.74	55.52	34.47	12.29	32.6	340	212	P	V
		5775	97.94	-	-	83.6	34.63	12.31	32.6	340	212	P	V
		5775	89.94	-	-	75.6	34.63	12.31	32.6	340	212	A	V
		5851.6	64.27	-54.28	118.55	49.75	34.8	12.32	32.6	340	212	P	V
		5865.6	65.01	-42.82	107.83	50.42	34.87	12.32	32.6	340	212	P	V
		5876.2	62.39	-41.92	104.31	47.73	34.93	12.33	32.6	340	212	P	V
		5925.8	54.45	-13.85	68.3	39.64	35.07	12.34	32.6	340	212	P	V
Remark	3. No other spurious found. 4. 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		11550	50.54	-23.46	74	46.74	38.25	16.54	50.99	-	-	P	H
VHT80		17325	50.83	-17.47	68.3	43.91	41.78	18.49	53.35	-	-	P	H
CH 155		11550	49.84	-24.16	74	46.04	38.25	16.54	50.99	-	-	P	V
5775MHz		17325	49.64	-18.66	68.3	42.72	41.78	18.49	53.35	-	-	P	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



Note symbol

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



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

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
 = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
 = 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
 = 55.45 (dBμV/m)
2. Over Limit(dB)
 = Level(dBμV/m) – Limit Line(dBμV/m)
 = 55.45(dBμV/m) – 74(dBμV/m)
 = -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)
 = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
 = 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
 = 43.54 (dBμV/m)
2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)
 = 43.54(dBμV/m) – 54(dBμV/m)
 = -10.46(dB)

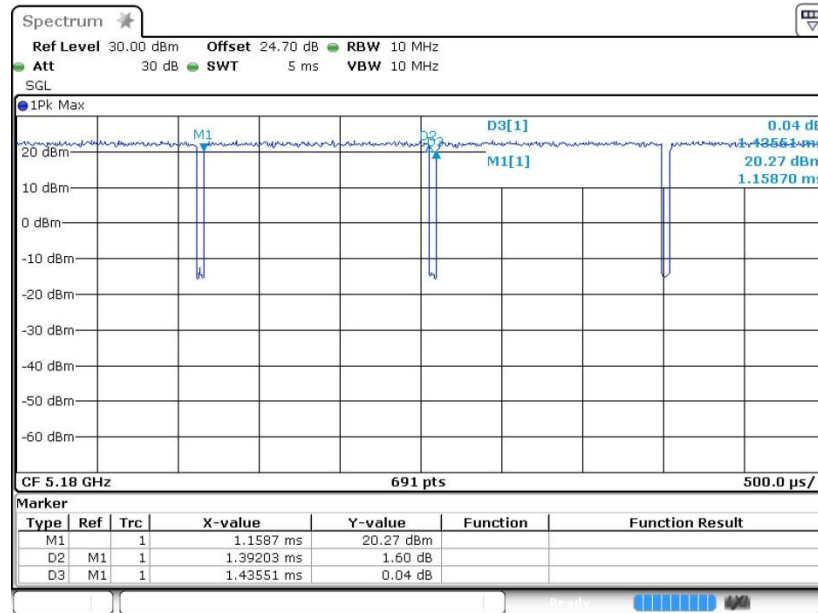
Both peak and average measured complies with the limit line, so test result is “PASS”.

Appendix B. Duty Cycle Plots

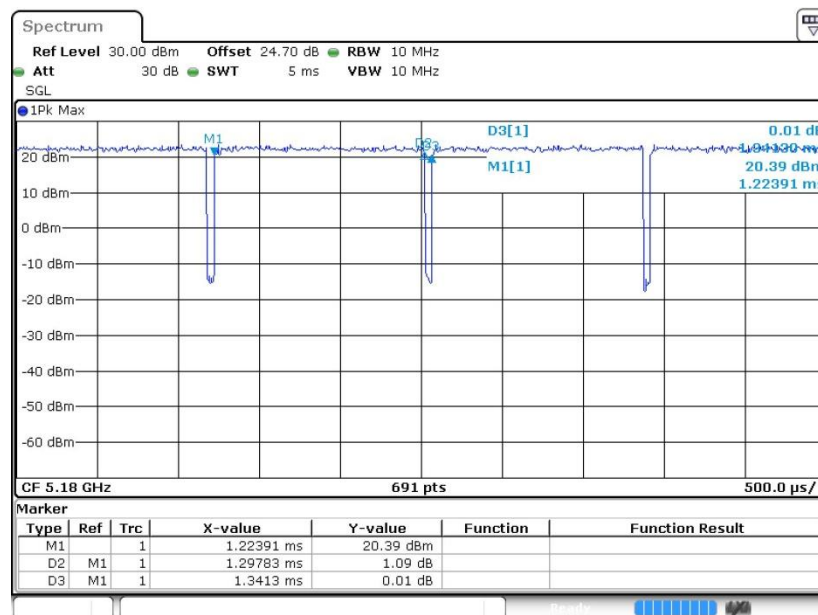
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	96.97	1.392	0.718	1KHz
802.11n HT20	96.76	1.298	0.771	1KHz
802.11n HT40	93.30	0.646	1.549	3KHz
802.11ac VHT80	87.77	0.323	3.101	10KHZ



802.11a

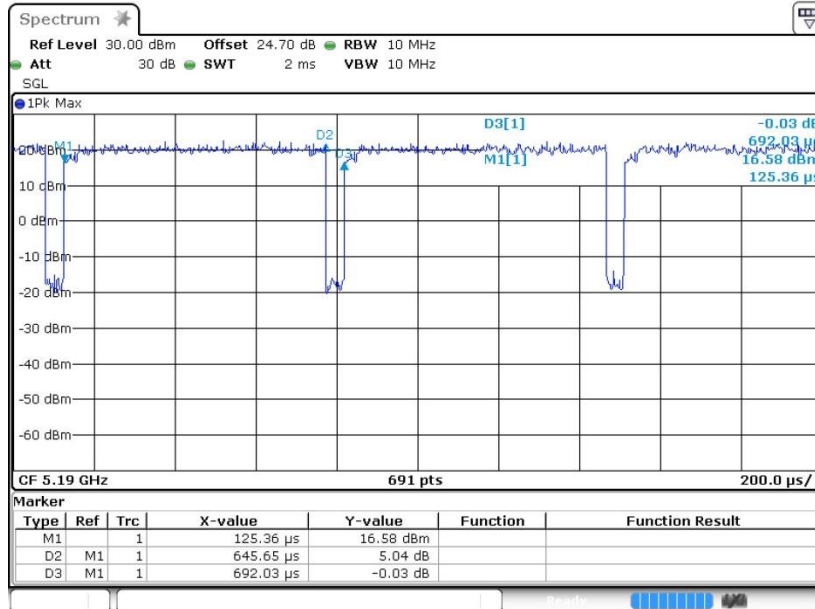


802.11n HT20

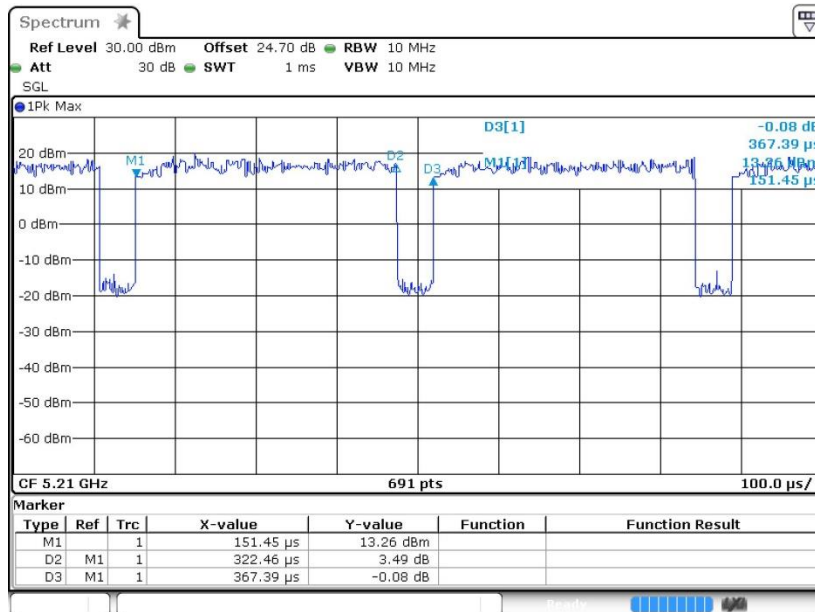




802.11n HT40



802.11ac VHT80





Appendix D. Reference Report

Please refer to Sporton report number 1N1011-01 which is issued separately.