FCC RF Test Report

APPLICANT	:	**Xiaomi Communications Co., Ltd.**
EQUIPMENT	:	**Mobile Phone**
BRAND NAME	:	**MI**
MODEL NAME	:	**M1805D1SG**
FCC ID	:	**2AFZZ-RMSD1SG**
STANDARD	:	**FCC Part 15 Subpart E §15.407**
CLASSIFICATION	:	**(NII) Unlicensed National Information Infrastructure**

The product was received on Apr. 04, 2018 and testing was completed on Apr. 20, 2018. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

James Huang

Approved by: James Huang / Manager

NVLAP TESTING
NVLAP LAB CODE 600155-0

Sporton International (Kunshan) Inc.
No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR840407E	Rev. 01	Initial issue of report	May 16, 2018

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 9.77 dB at 30.000 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 6.76 dB at 0.484 MHz
3.6	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.7	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Xiaomi Communications Co., Ltd.
The Rainbow City of China Resources, NO.68, Qinghe Middle Street, Haidian District, Beijing, China

1.2 Manufacturer

Xiaomi Communications Co., Ltd.
The Rainbow City of China Resources, NO.68, Qinghe Middle Street, Haidian District, Beijing, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	MI
Model Name	M1805D1SG
FCC ID	2AFZZ-RMSD1SG
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+(16QAM uplink is not supported)/LTE/ WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 Bluetooth v3.0 + EDR/Bluetooth v4.0 LE/Bluetooth v4.2 LE
IMEI Code	Conducted: 868137030013172/868137030013180 Conduction: 868137030013610/868137030013628 Radiation: 868137030012935/868137030012943
HW Version	P2
SW Version	OPM1.171019.019 V9
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 : 18.41 dBm / 0.0693 W 802.11n HT20 : 18.03 dBm / 0.0635 W 802.11n HT40 : 15.88 dBm / 0.0387 W
99% Occupied Bandwidth	802.11a : 18.68 MHz 802.11n HT20 : 19.38 MHz 802.11n HT40 : 36.86 MHz
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
Antenna Type / Gain	PIFA Antenna with gain -5.90 dBi

1.5 Modification of EUT

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

1.6 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No. is CN5013.

Test Site	Sporton International (Kunshan) Inc.		
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**		**FCC Test Firm Registration No.**
	TH01-KS	CO01-KS	630927

Sporton International (Shenzhen) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0) and the FCC designation No. is CN5019.

Test Site	Sporton International (Shenzhen) Inc.	
Test Site Location	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan District Shenzhen City Guangdong Province 518055 China TEL: +86-755-3320-2398	
Test Site No.	**Sporton Site No.**	**FCC Test Firm Registration No.**
	03CH02-SZ	577730

Note: The test site complies with ANSI C63.4 2014 requirement.

1.7 Applicable Standards

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

- FCC 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.

2 Test Configuration of Equipment Under Test

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

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5745-5825 MHz Band 4 (U-NII-3)	149	5745	159*	5795
	151*	5755	161	5805
	153	5765	165	5825
	157	5785		

Note: The above Frequency and Channel in "*" were 802.11n HT40.

2.2 Test Mode

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

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

AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link(5GHz) + USB Cable 1 (Charging from Adapter 1) + Earphone Mode 2 : GSM850 Idle + Bluetooth Link + WLAN Link(5GHz) + USB Cable 2 (Charging from Adapter 2) + Earphone

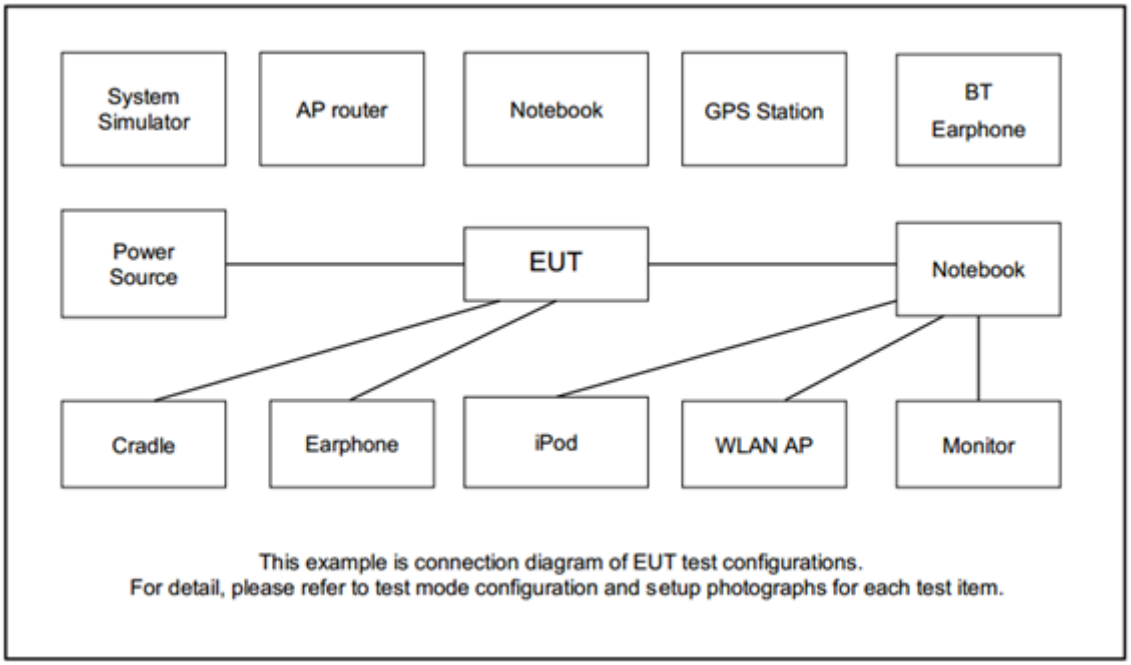
Remark:

1. The worst case of conducted emission is mode 1; only the test data of it was reported.

2. For Radiated Test Cases, The tests were performed with Adapter 1, Earphone and USB Cable 1.

Ch. #		Band IV：5725-5850 MHz		
		802.11a	802.11n HT20	802.11n HT40
L	Low	149	149	151
M	Middle	157	157	-
H	High	165	165	159

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
3.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Xiaomi	LYEJ02LM	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 continuous transmit/receive.

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

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example:

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss

Following shows an offset computation example with cable loss 6.5 dB.

Offset(dB) = RF cable loss(dB).

= 6.5 (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.

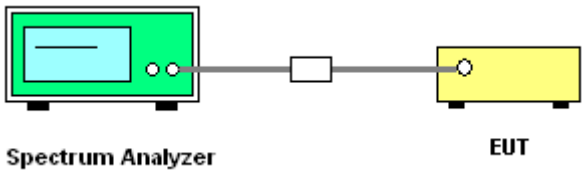
3.1.2 Measuring Instruments

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. Set RBW = 100kHz.
3. 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.

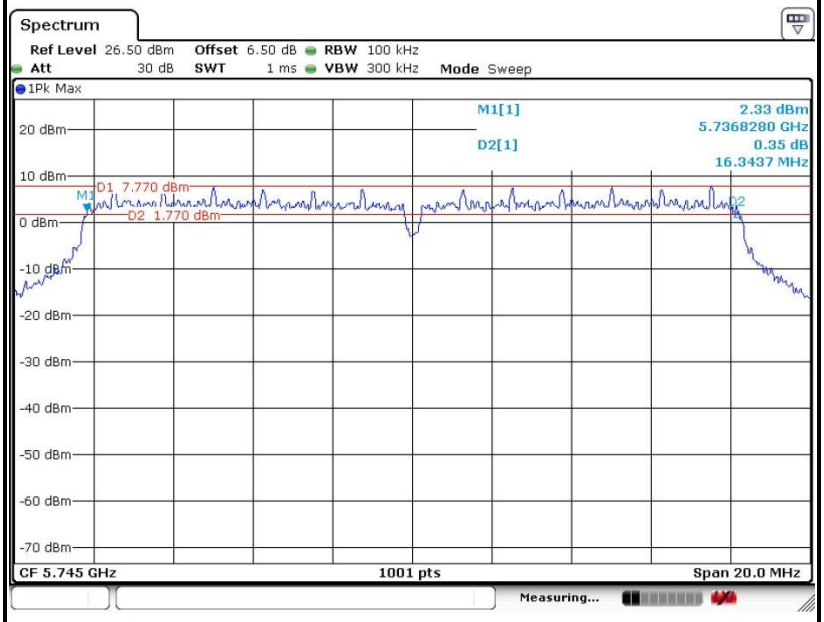
3.1.4 Test Setup



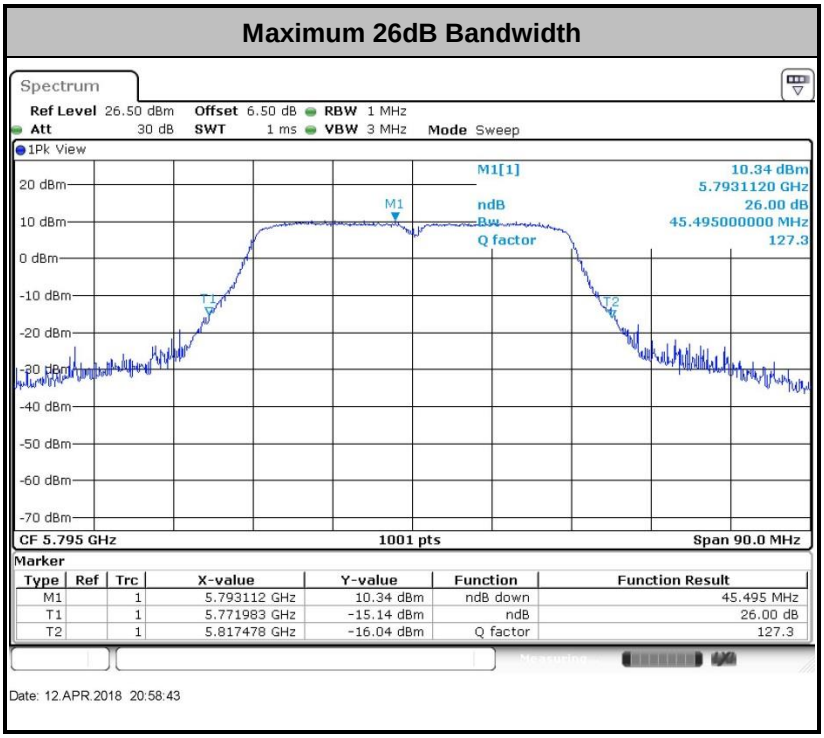
3.1.5 Test Result of 6dB and 26dB and 99% Occupied Bandwidth

Please refer to Appendix A.

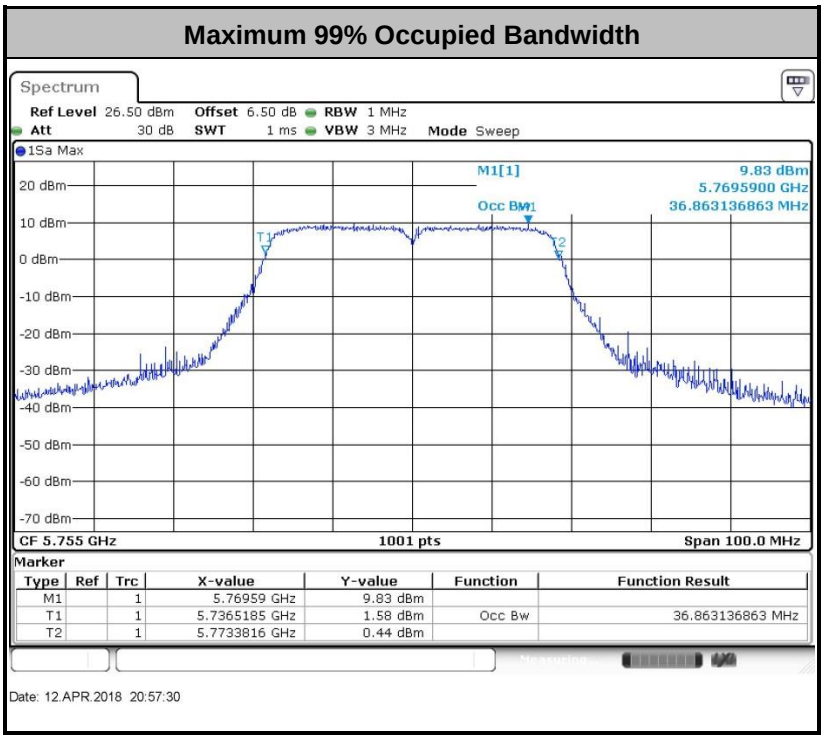
Minimum 6dB Bandwidth



Maximum 26dB Bandwidth



Maximum 99% Occupied Bandwidth



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.

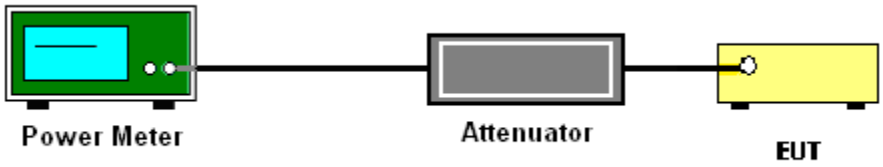
3.2.3 Test Procedures

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.

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.

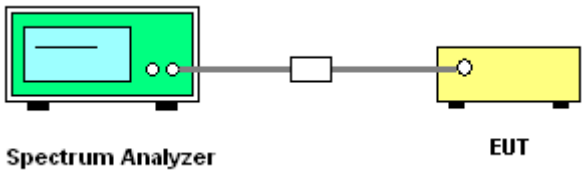
 # Method SA-2 #

(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 = 300 kHz.
- Set VBW ≥ 1 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(500kHz/RBW) to the test result.
- 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.

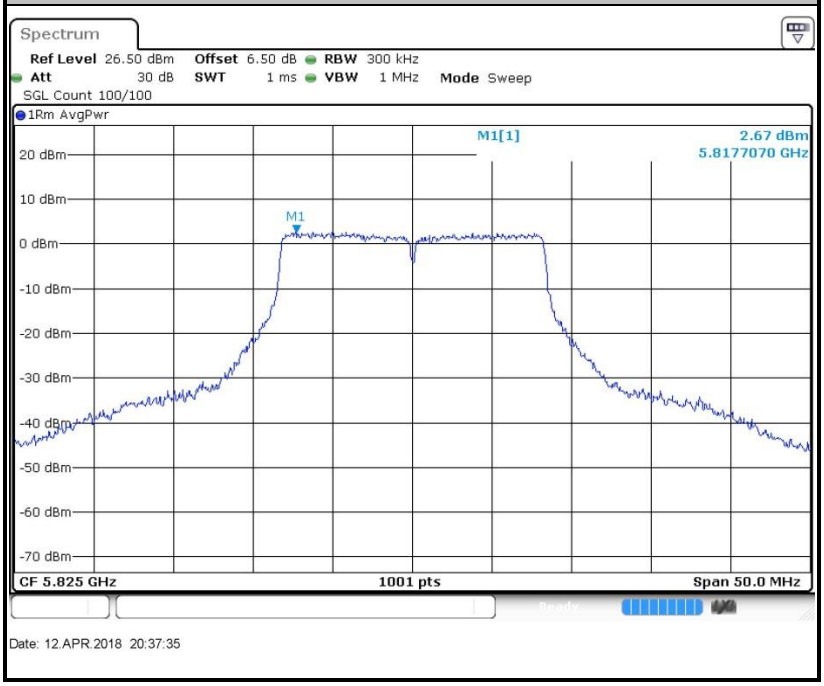
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/MHz)



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 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	68.2

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

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

where

EIRP is the equivalent isotropically radiated power, in dBm

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

d_{Meas} is the measurement distance, in m

3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz

   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

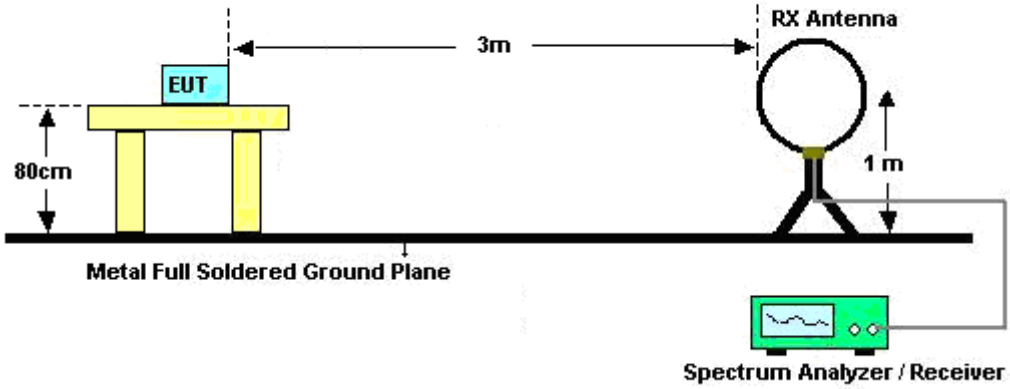
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - 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.

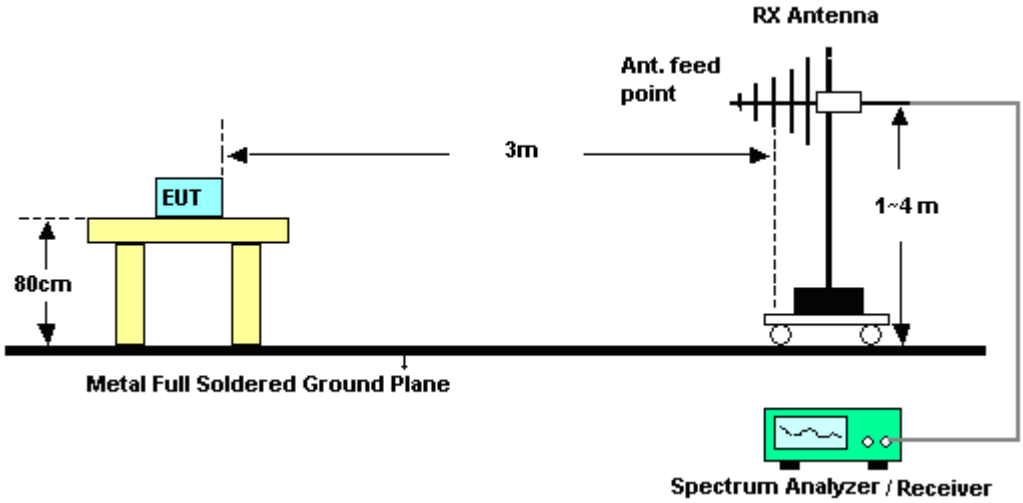
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband 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 average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

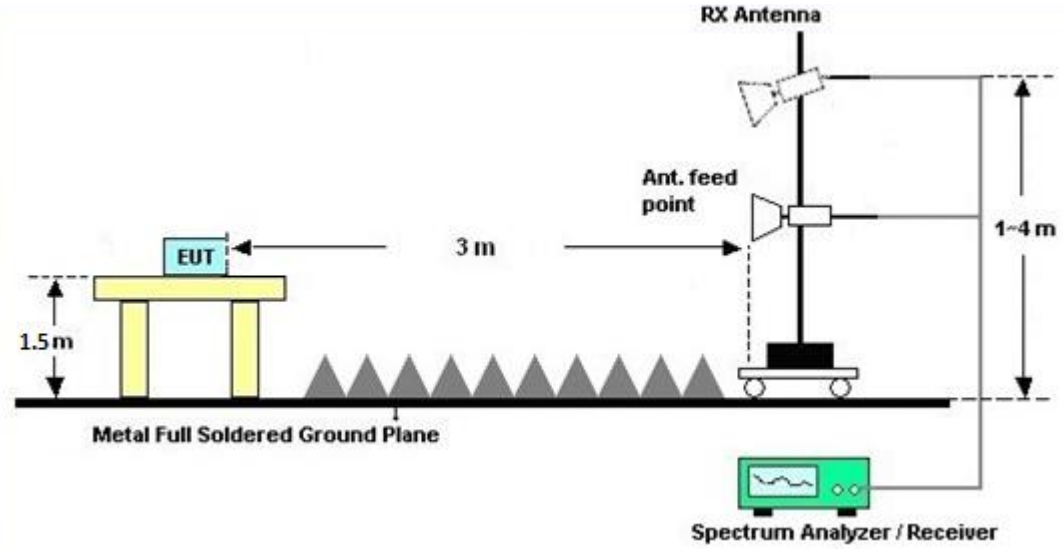
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated 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)

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.

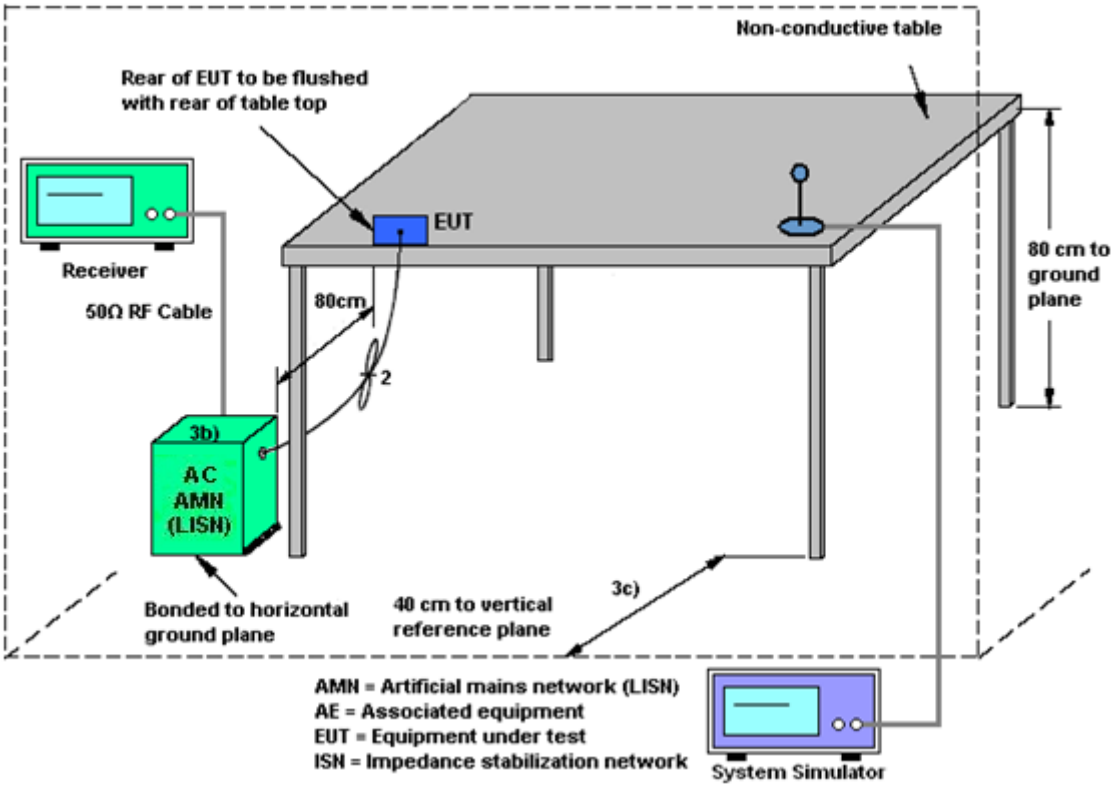
3.5.2 Measuring Instruments

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 Automatically Discontinue Transmission

3.6.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

3.6.2 Measuring Instruments

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

3.6.3 Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

3.7 Antenna Requirements

3.7.1 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.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 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	Aug. 08, 2017	Apr. 10, 2018~ Apr. 12, 2018	Aug. 07, 2018	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 18, 2018	Apr. 10, 2018~ Apr. 12, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 18, 2018	Apr. 10, 2018~ Apr. 12, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV40	101041	10kHz~40GHz; Max 30dBm	Oct. 19, 2017	Apr. 10, 2018~ Apr. 20, 2018	Oct. 18, 2018	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 14, 2017	Apr. 10, 2018~ Apr. 20, 2018	May 13, 2018	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	May 10, 2017	Apr. 10, 2018~ Apr. 20, 2018	May 09, 2018	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1285	1GHz~18GHz	Dec. 13, 2017	Apr. 10, 2018~ Apr. 20, 2018	Dec. 12, 2018	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Jun. 16, 2017	Apr. 10, 2018~ Apr. 20, 2018	Jun. 15, 2018	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 19, 2017	Apr. 10, 2018~ Apr. 20, 2018	Oct. 18, 2018	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1707137	1GHz~18GHz	Oct. 19, 2017	Apr. 10, 2018~ Apr. 20, 2018	Oct. 18, 2018	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 21, 2017	Apr. 10, 2018~ Apr. 20, 2018	Jul. 20, 2018	Radiation (03CH02-SZ
AC Power Source	Chroma	61601	616010002470	N/A	NCR	Apr. 10, 2018~ Apr. 20, 2018	NCR	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Apr. 10, 2018~ Apr. 20, 2018	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Apr. 10, 2018~ Apr. 20, 2018	NCR	Radiation (03CH02-SZ)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Apr. 20, 2017	Apr. 16, 2018	Apr. 19, 2018	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2017	Apr. 16, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2017	Apr. 16, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2017	Apr. 16, 2018	Oct. 11, 2018	Conduction (CO01-KS)

NCR: No Calibration Required

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.3dB**

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

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

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))	**4.4dB**

Report Number : FR840407E

Test Engineer:	Ocean Pei	Temperature:	21~25	°C
Test Date:	2018/4/10 ~ 2018/4/12	Relative Humidity:	51~54	%

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

Band IV									
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	18.63	23.83	16.34	0.5	Pass
11a	6Mbps	1	157	5785	18.68	24.18	16.34	0.5	Pass
11a	6Mbps	1	165	5825	18.48	23.68	16.36	0.5	Pass
HT20	MCS 0	1	149	5745	19.38	23.88	17.58	0.5	Pass
HT20	MCS 0	1	157	5785	19.23	23.93	17.58	0.5	Pass
HT20	MCS 0	1	165	5825	19.18	23.73	17.58	0.5	Pass
HT40	MCS 0	1	151	5755	36.86	44.96	35.60	0.5	Pass
HT40	MCS 0	1	159	5795	36.66	45.50	35.44	0.5	Pass

TEST RESULTS DATA
Average Power Table

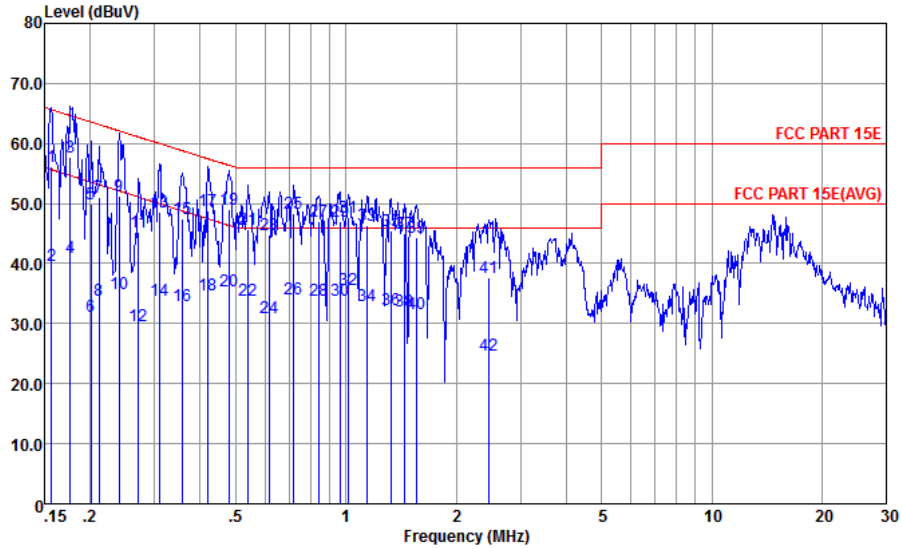
Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6M bps	1	149	5745	0.58	17.99	30.00	-5.90		Pass
11a	6Mbps	1	157	5785	0.58	18.41	30.00	-5.90		Pass
11a	6Mbps	1	165	5825	0.58	18.23	30.00	-5.90		Pass
HT20	MCS 0	1	149	5745	0.64	17.23	30.00	-5.90		Pass
HT20	MCS 0	1	157	5785	0.64	17.82	30.00	-5.90		Pass
HT20	MCS 0	1	165	5825	0.64	18.03	30.00	-5.90		Pass
HT40	MCS 0	1	151	5755	0.67	15.32	30.00	-5.90		Pass
HT40	MCS 0	1	159	5795	0.67	15.88	30.00	-5.90		Pass

TEST RESULTS DATA
Power Spectral Density

Band IV										
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	0.58	2.22	5.25	30.00	-5.90	Pass
11a	6Mbps	1	157	5785	0.58	2.22	5.18	30.00	-5.90	Pass
11a	6Mbps	1	165	5825	0.58	2.22	5.47	30.00	-5.90	Pass
HT20	MCS 0	1	149	5745	0.64	2.22	3.43	30.00	-5.90	Pass
HT20	MCS 0	1	157	5785	0.64	2.22	3.56	30.00	-5.90	Pass
HT20	MCS 0	1	165	5825	0.64	2.22	3.74	30.00	-5.90	Pass
HT40	MCS 0	1	151	5755	0.67	2.22	-1.34	30.00	-5.90	Pass
HT40	MCS 0	1	159	5795	0.67	2.22	-1.12	30.00	-5.90	Pass

Appendix B. AC Conducted Emission Test Results

Test Engineer :	Amos Zhang	Temperature :	22~23℃
		Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line

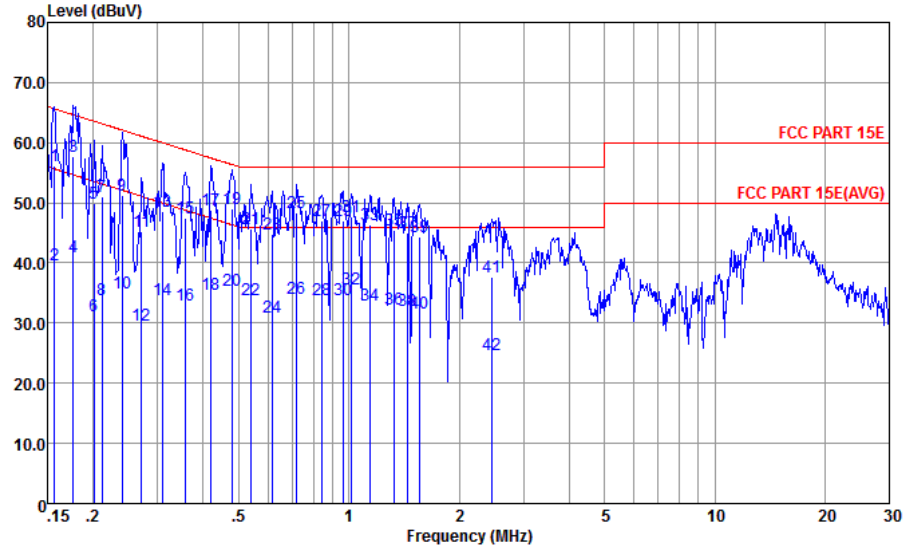


Site : CO01-KS
Condition : FCC PART 15E LISN-L-171013-060103 LINE

mode : Mode 1
: 868137030013610/868137030013628 #10

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.156	56.06	-9.59	65.65	45.30	0.17	10.59	QP
2		0.156	39.66	-15.99	55.65	28.90	0.17	10.59	Average
3	*	0.177	57.61	-7.03	64.64	46.90	0.18	10.53	QP
4		0.177	41.01	-13.63	54.64	30.30	0.18	10.53	Average
5		0.201	49.86	-13.72	63.58	39.21	0.20	10.45	QP
6		0.201	31.26	-22.32	53.58	20.61	0.20	10.45	Average
7		0.212	50.96	-12.18	63.14	40.31	0.20	10.45	QP
8		0.212	33.96	-19.18	53.14	23.31	0.20	10.45	Average
9		0.240	51.25	-10.83	62.08	40.60	0.21	10.44	QP
10		0.240	34.95	-17.13	52.08	24.30	0.21	10.44	Average
11		0.272	45.25	-15.82	61.07	34.60	0.22	10.43	QP
12		0.272	29.55	-21.52	51.07	18.90	0.22	10.43	Average
13		0.308	48.55	-11.47	60.02	37.89	0.23	10.43	QP
14		0.308	33.95	-16.07	50.02	23.29	0.23	10.43	Average
15		0.358	47.55	-11.23	58.78	36.90	0.24	10.41	QP
16		0.358	32.95	-15.83	48.78	22.30	0.24	10.41	Average
17		0.419	48.84	-8.62	57.46	38.20	0.25	10.39	QP

Test Engineer :	Amos Zhang	Temperature :	22~23℃
		Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line

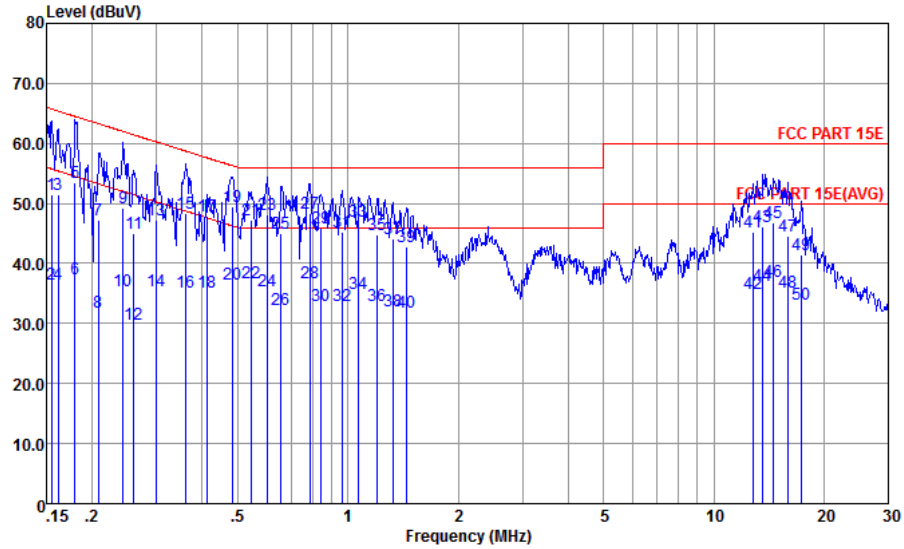


Site : CO01-KS
Condition : FCC PART 15E LISN-L-171013-060103 LINE

mode : Mode 1
: 868137030013610/868137030013628 #10

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
18	0.419	34.84	-12.62	47.46	24.20	0.25	10.39	Average
19	0.479	49.08	-7.28	56.36	38.50	0.26	10.32	QP
20	0.479	35.48	-10.88	46.36	24.90	0.26	10.32	Average
21	0.538	45.73	-10.27	56.00	35.20	0.26	10.27	QP
22	0.538	33.83	-12.17	46.00	23.30	0.26	10.27	Average
23	0.617	44.78	-11.22	56.00	34.30	0.26	10.22	QP
24	0.617	31.08	-14.92	46.00	20.60	0.26	10.22	Average
25	0.720	48.31	-7.69	56.00	37.90	0.26	10.15	QP
26	0.720	34.01	-11.99	46.00	23.60	0.26	10.15	Average
27	0.844	46.96	-9.04	56.00	36.60	0.26	10.10	QP
28	0.844	33.96	-12.04	46.00	23.60	0.26	10.10	Average
29	0.963	46.97	-9.03	56.00	36.60	0.26	10.11	QP
30	0.963	33.97	-12.03	46.00	23.60	0.26	10.11	Average
31	1.016	47.67	-8.33	56.00	37.30	0.26	10.11	QP
32	1.016	35.57	-10.43	46.00	25.20	0.26	10.11	Average
33	1.141	46.29	-9.71	56.00	35.90	0.26	10.13	QP
34	1.141	32.99	-13.01	46.00	22.60	0.26	10.13	Average
35	1.324	45.52	-10.48	56.00	35.10	0.27	10.15	QP
36	1.324	32.32	-13.68	46.00	21.90	0.27	10.15	Average
37	1.449	45.04	-10.96	56.00	34.61	0.27	10.16	QP
38	1.449	32.04	-13.96	46.00	21.61	0.27	10.16	Average
39	1.560	44.35	-11.65	56.00	33.90	0.27	10.18	QP
40	1.560	31.65	-14.35	46.00	21.20	0.27	10.18	Average
41	2.461	37.70	-18.30	56.00	27.20	0.30	10.20	QP
42	2.461	24.80	-21.20	46.00	14.30	0.30	10.20	Average

Test Engineer :	Amos Zhang	Temperature :	22~23℃
		Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral

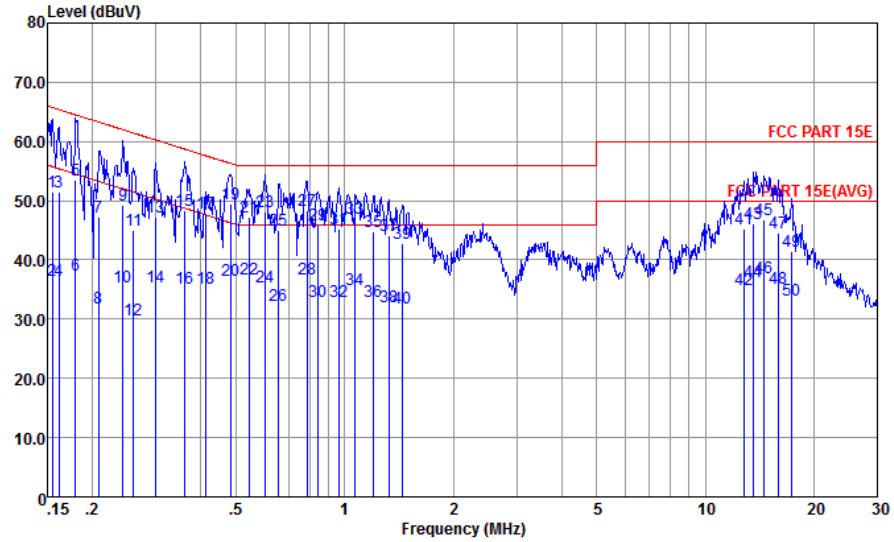


Site : CO01-KS
Condition : FCC PART 15E LISN-N-171013-060103 NEUTRAL

mode : Mode 1
: 868137030013610/868137030013628 #10

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.155	51.48	-14.26	65.74	40.60	0.28	10.60	QP
2	0.155	36.48	-19.26	55.74	25.60	0.28	10.60	Average
3	0.162	51.46	-13.92	65.38	40.60	0.28	10.58	QP
4	0.162	36.66	-18.72	55.38	25.80	0.28	10.58	Average
5	0.180	53.40	-11.10	64.50	42.60	0.28	10.52	QP
6	0.180	37.40	-17.10	54.50	26.60	0.28	10.52	Average
7	0.208	47.33	-15.94	63.27	36.60	0.28	10.45	QP
8	0.208	31.93	-21.34	53.27	21.20	0.28	10.45	Average
9	0.243	49.32	-12.68	62.00	38.60	0.28	10.44	QP
10	0.243	35.32	-16.68	52.00	24.60	0.28	10.44	Average
11	0.260	44.92	-16.50	61.42	34.20	0.28	10.44	QP
12	0.260	29.92	-21.50	51.42	19.20	0.28	10.44	Average
13	0.299	47.31	-12.97	60.28	36.60	0.28	10.43	QP
14	0.299	35.51	-14.77	50.28	24.80	0.28	10.43	Average
15	0.361	48.30	-10.39	58.69	37.60	0.29	10.41	QP
16	0.361	35.30	-13.39	48.69	24.60	0.29	10.41	Average
17	0.410	47.88	-9.76	57.64	37.20	0.29	10.39	QP

Test Engineer :	Amos Zhang	Temperature :	22~23℃
		Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



Site : CO01-KS
Condition : FCC PART 15E LISN-N-171013-060103 NEUTRAL

mode : Mode 1
: 868137030013610/868137030013628 #10

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
18	0.410	35.28	-12.36	47.64	24.60	0.29	10.39	Average
19 *	0.484	49.51	-6.76	56.27	38.90	0.29	10.32	QP
20	0.484	36.51	-9.76	46.27	25.90	0.29	10.32	Average
21	0.544	47.16	-8.84	56.00	36.60	0.29	10.27	QP
22	0.544	36.86	-9.14	46.00	26.30	0.29	10.27	Average
23	0.601	48.02	-7.98	56.00	37.49	0.30	10.23	QP
24	0.601	35.42	-10.58	46.00	24.89	0.30	10.23	Average
25	0.658	44.99	-11.01	56.00	34.50	0.30	10.19	QP
26	0.658	32.39	-13.61	46.00	21.90	0.30	10.19	Average
27	0.788	48.31	-7.69	56.00	37.90	0.30	10.11	QP
28	0.788	36.71	-9.29	46.00	26.30	0.30	10.11	Average
29	0.844	46.01	-9.99	56.00	35.60	0.31	10.10	QP
30	0.844	33.01	-12.99	46.00	22.60	0.31	10.10	Average
31	0.963	45.32	-10.68	56.00	34.90	0.31	10.11	QP
32	0.963	33.02	-12.98	46.00	22.60	0.31	10.11	Average
33	1.071	47.03	-8.97	56.00	36.60	0.31	10.12	QP
34	1.071	35.03	-10.97	46.00	24.60	0.31	10.12	Average
35	1.203	44.75	-11.25	56.00	34.30	0.31	10.14	QP
36	1.203	33.05	-12.95	46.00	22.60	0.31	10.14	Average
37	1.324	44.06	-11.94	56.00	33.60	0.31	10.15	QP
38	1.324	32.06	-13.94	46.00	21.60	0.31	10.15	Average
39	1.449	42.68	-13.32	56.00	32.20	0.32	10.16	QP
40	1.449	31.78	-14.22	46.00	21.30	0.32	10.16	Average
41	12.852	45.13	-14.87	60.00	34.50	0.25	10.38	QP
42	12.852	34.93	-15.07	50.00	24.30	0.25	10.38	Average
43	13.623	46.22	-13.78	60.00	35.60	0.23	10.39	QP
44	13.623	36.22	-13.78	50.00	25.60	0.23	10.39	Average
45	14.517	46.82	-13.18	60.00	36.19	0.22	10.41	QP
46	14.517	36.92	-13.08	50.00	26.29	0.22	10.41	Average
47	15.885	44.52	-15.48	60.00	33.90	0.19	10.43	QP
48	15.885	35.22	-14.78	50.00	24.60	0.19	10.43	Average
49	17.291	41.51	-18.49	60.00	30.91	0.16	10.44	QP
50	17.291	33.21	-16.79	50.00	22.61	0.16	10.44	Average

Appendix C. Radiated Spurious Emission

Test Engineer :	Maker Qi	**Temperature :**	24~25°C
		Relative Humidity :	48~49%

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		5648.6	47.71	-20.49	68.2	36.76	32.25	10.3	31.6	100	84	P	H
		5692	49.9	-49.4	99.3	38.83	32.34	10.33	31.6	100	84	P	H
		5712.4	55.9	-52.77	108.67	44.79	32.37	10.34	31.6	100	84	P	H
		5723.8	59.79	-59.67	119.46	48.64	32.4	10.35	31.6	100	84	P	H
	*	5745	104.02	-	-	92.83	32.43	10.36	31.6	100	84	P	H
	*	5745	96.97	-	-	85.78	32.43	10.36	31.6	100	84	A	H
		5625.4	48.42	-19.78	68.2	37.53	32.22	10.27	31.6	100	104	P	V
		5692.2	49.06	-50.39	99.45	37.99	32.34	10.33	31.6	100	104	P	V
		5717	52.78	-57.18	109.96	41.67	32.37	10.34	31.6	100	104	P	V
		5723	57.77	-59.87	117.64	46.62	32.4	10.35	31.6	100	104	P	V
	*	5745	100.31	-	-	89.12	32.43	10.36	31.6	100	104	P	V
	*	5745	91.63	-	-	80.44	32.43	10.36	31.6	100	104	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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 157 5785MHz		5629	48.48	-19.72	68.2	37.58	32.22	10.28	31.6	100	84	P	H
		5662.2	48.21	-29.05	77.26	37.23	32.28	10.3	31.6	100	84	P	H
		5707.4	48.94	-58.33	107.27	37.83	32.37	10.34	31.6	100	84	P	H
		5721.6	47.35	-67.1	114.45	36.2	32.4	10.35	31.6	100	84	P	H
	*	5785	104.1	-	-	92.82	32.5	10.38	31.6	100	84	P	H
	*	5785	95.57	-	-	84.29	32.5	10.38	31.6	100	84	A	H
		5853.6	48.44	-65.55	113.99	36.98	32.65	10.41	31.6	100	84	P	H
		5861.2	48.48	-60.58	109.06	37.02	32.65	10.41	31.6	100	84	P	H
		5906.8	48.75	-32.88	81.63	37.15	32.74	10.46	31.6	100	84	P	H
		5944.8	48.38	-19.82	68.2	36.66	32.81	10.51	31.6	100	84	P	H
		5605.4	47.94	-20.26	68.2	37.1	32.19	10.25	31.6	100	106	P	V
		5676.6	47.68	-40.24	87.92	36.66	32.31	10.31	31.6	100	106	P	V
		5708.6	47.49	-60.12	107.61	36.38	32.37	10.34	31.6	100	106	P	V
		5721	47.62	-65.46	113.08	36.47	32.4	10.35	31.6	100	106	P	V
	*	5785	98.42	-	-	87.14	32.5	10.38	31.6	100	106	P	V
	*	5785	89.78	-	-	78.5	32.5	10.38	31.6	100	106	A	V
		5850.6	47.52	-73.31	120.83	36.09	32.62	10.41	31.6	100	106	P	V
		5872.4	48.69	-57.24	105.93	37.19	32.68	10.42	31.6	100	106	P	V
		5918.8	48.31	-24.46	72.77	36.68	32.74	10.49	31.6	100	106	P	V
		5937	48.83	-19.37	68.2	37.14	32.78	10.51	31.6	100	106	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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 165 5825MHz	*	5825	103.77	-	-	92.38	32.59	10.4	31.6	100	84	P	H
	*	5825	95.64	-	-	84.25	32.59	10.4	31.6	100	84	A	H
		5850.6	55.77	-65.06	120.83	44.34	32.62	10.41	31.6	100	84	P	H
		5855	54.39	-56.41	110.8	42.93	32.65	10.41	31.6	100	84	P	H
		5877.6	49.93	-53.34	103.27	38.43	32.68	10.42	31.6	100	84	P	H
		5946.6	48.44	-19.76	68.2	36.72	32.81	10.51	31.6	100	84	P	H
	*	5825	97.62	-	-	86.23	32.59	10.4	31.6	102	108	P	V
	*	5825	89.2	-	-	77.81	32.59	10.4	31.6	102	108	A	V
		5852.2	50.32	-66.86	117.18	38.89	32.62	10.41	31.6	102	108	P	V
		5863	49.36	-59.2	108.56	37.89	32.65	10.42	31.6	102	108	P	V
		5907.8	49.17	-31.72	80.89	37.57	32.74	10.46	31.6	102	108	P	V
		5943.2	48.88	-19.32	68.2	37.16	32.81	10.51	31.6	102	108	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11a (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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		11490	50.56	-23.44	74	50.93	40.1	14.89	55.36	160	360	P	H
		17235	50.29	-17.91	68.2	36.03	41.58	29.17	56.49	170	360	A	H
		11490	50.55	-23.45	74	50.92	40.1	14.89	55.36	160	360	P	V
		17235	50.04	-18.16	68.2	35.78	41.58	29.17	56.49	170	360	A	V
802.11a CH 157 5785MHz		11570	50.87	-23.13	74	51.1	40.04	14.97	55.24	175	198	P	H
		17355	50.85	-17.35	68.2	38.44	42.07	26.92	56.58	189	185	A	H
		11570	50.33	-23.67	74	50.56	40.04	14.97	55.24	175	198	P	V
		17355	50.73	-17.47	68.2	38.32	42.07	26.92	56.58	189	185	A	V
802.11a CH 165 5825MHz		11650	50.54	-23.46	74	50.51	39.99	15.17	55.13	156	347	P	H
		17475	50.07	-18.13	68.2	38.92	42.56	25.27	56.68	150	360	A	H
		11650	50.51	-23.49	74	50.48	39.99	15.17	55.13	156	347	P	V
		17475	50.24	-17.96	68.2	39.09	42.56	25.27	56.68	150	360	A	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 (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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5603.8	48.21	-19.99	68.2	37.37	32.19	10.25	31.6	100	84	P	H
		5693.4	48.07	-52.26	100.33	37	32.34	10.33	31.6	100	84	P	H
		5720	55.47	-55.33	110.8	44.32	32.4	10.35	31.6	100	84	P	H
		5723.4	59.56	-58.99	118.55	48.41	32.4	10.35	31.6	100	84	P	H
802.11n	*	5745	102.7	-	-	91.51	32.43	10.36	31.6	100	84	P	H
HT20	*	5745	95.45	-	-	84.26	32.43	10.36	31.6	100	84	A	H
CH 149		5613.4	48.05	-20.15	68.2	37.19	32.19	10.27	31.6	102	107	P	V
5745MHz		5666.4	48.06	-32.31	80.37	37.07	32.28	10.31	31.6	102	107	P	V
		5719.2	54.95	-55.63	110.58	43.8	32.4	10.35	31.6	102	107	P	V
		5724.6	54.43	-66.86	121.29	43.28	32.4	10.35	31.6	102	107	P	V
	*	5745	97.65	-	-	86.46	32.43	10.36	31.6	102	107	P	V
	*	5745	91.83	-	-	80.64	32.43	10.36	31.6	102	107	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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5627.8	48.34	-19.86	68.2	37.44	32.22	10.28	31.6	106	84	P	H
		5672	48.3	-36.22	84.52	37.28	32.31	10.31	31.6	106	84	P	H
		5703.4	48.38	-57.77	106.15	37.27	32.37	10.34	31.6	106	84	P	H
		5722.6	46.86	-69.87	116.73	35.71	32.4	10.35	31.6	106	84	P	H
	*	5785	102.4	-	-	91.12	32.5	10.38	31.6	106	84	P	H
	*	5785	93.56	-	-	82.28	32.5	10.38	31.6	106	84	A	H
		5853	47.8	-67.56	115.36	36.37	32.62	10.41	31.6	106	84	P	H
		5864.8	48.36	-59.69	108.05	36.89	32.65	10.42	31.6	106	84	P	H
802.11n		5919.2	48.88	-23.6	72.48	37.25	32.74	10.49	31.6	106	84	P	H
HT20		5935.8	50.6	-17.6	68.2	38.91	32.78	10.51	31.6	106	84	P	H
CH 157		5604.4	48.13	-20.07	68.2	37.29	32.19	10.25	31.6	102	110	P	V
5785MHz		5684	47.44	-45.96	93.4	36.37	32.34	10.33	31.6	102	110	P	V
		5704.6	47.43	-59.06	106.49	36.32	32.37	10.34	31.6	102	110	P	V
		5723.8	46.14	-73.32	119.46	34.99	32.4	10.35	31.6	102	110	P	V
	*	5785	96.64	-	-	85.36	32.5	10.38	31.6	102	110	P	V
	*	5785	88.59	-	-	77.31	32.5	10.38	31.6	102	110	A	V
		5852.6	49.26	-67.01	116.27	37.83	32.62	10.41	31.6	102	110	P	V
		5865.2	49.8	-58.14	107.94	38.33	32.65	10.42	31.6	102	110	P	V
		5925	48.75	-19.45	68.2	37.08	32.78	10.49	31.6	102	110	P	V
		5925	48.75	-19.45	68.2	37.08	32.78	10.49	31.6	102	110	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)	Cable 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	101.93	-	-	90.54	32.59	10.4	31.6	106	84	P	H
	*	5825	93.34	-	-	81.95	32.59	10.4	31.6	106	84	A	H
		5851	53.68	-66.24	119.92	42.25	32.62	10.41	31.6	106	84	P	H
		5855.6	51.09	-59.54	110.63	39.63	32.65	10.41	31.6	106	84	P	H
		5902.4	48.99	-35.9	84.89	37.42	32.71	10.46	31.6	106	84	P	H
		5931	48.77	-19.43	68.2	37.1	32.78	10.49	31.6	106	84	P	H
	*	5825	96.09	-	-	84.7	32.59	10.4	31.6	102	111	P	V
	*	5825	87.96	-	-	76.57	32.59	10.4	31.6	102	111	A	V
		5850	51.25	-70.95	122.2	39.82	32.62	10.41	31.6	102	111	P	V
		5862.2	48.69	-60.09	108.78	37.22	32.65	10.42	31.6	102	111	P	V
		5879.2	48.95	-53.13	102.08	37.45	32.68	10.42	31.6	102	111	P	V
		5934	48.61	-19.59	68.2	36.92	32.78	10.51	31.6	102	111	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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n		11490	50.64	-23.36	74	51.01	40.1	14.89	55.36	160	360	P	H
HT20		17235	50.34	-17.86	68.2	36.08	41.58	29.17	56.49	170	360	A	H
CH 149		11490	50.21	-23.79	74	50.58	40.1	14.89	55.36	160	360	P	V
5745MHz		17235	50.76	-17.44	68.2	36.5	41.58	29.17	56.49	170	360	A	V
802.11n		11570	50.17	-23.83	74	50.4	40.04	14.97	55.24	175	198	P	H
HT20		17355	50.08	-18.12	68.2	37.67	42.07	26.92	56.58	189	185	A	H
CH 157		11570	50.66	-23.34	74	50.89	40.04	14.97	55.24	175	198	P	V
5785MHz		17355	50.89	-17.31	68.2	38.48	42.07	26.92	56.58	189	185	A	V
802.11n		11650	49.75	-24.25	74	49.72	39.99	15.17	55.13	156	347	P	H
HT20		17475	50.59	-17.61	68.2	39.44	42.56	25.27	56.68	150	360	A	H
CH 165		11650	50.56	-23.44	74	50.53	39.99	15.17	55.13	156	347	P	V
5825MHz		17475	50.09	-18.11	68.2	38.94	42.56	25.27	56.68	150	360	A	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 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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5619.2	48.43	-19.77	68.2	37.54	32.22	10.27	31.6	106	82	P	H
		5678	48.9	-40.06	88.96	37.88	32.31	10.31	31.6	106	82	P	H
		5717	54.87	-55.09	109.96	43.76	32.37	10.34	31.6	106	82	P	H
		5721.2	55.68	-57.86	113.54	44.53	32.4	10.35	31.6	106	82	P	H
	*	5755	97.57	-	-	86.33	32.47	10.37	31.6	106	82	P	H
	*	5755	89.18	-	-	77.94	32.47	10.37	31.6	106	82	A	H
		5854.2	47.63	-64.99	112.62	36.17	32.65	10.41	31.6	106	82	P	H
		5874.2	48.55	-56.87	105.42	37.05	32.68	10.42	31.6	106	82	P	H
802.11n		5895.8	48.67	-41.1	89.77	37.12	32.71	10.44	31.6	106	82	P	H
HT40		5942.2	48.86	-19.34	68.2	37.14	32.81	10.51	31.6	106	82	P	H
CH 151		5605.4	47.6	-20.6	68.2	36.76	32.19	10.25	31.6	102	110	P	V
5755MHz		5668.8	48.01	-34.14	82.15	36.99	32.31	10.31	31.6	102	110	P	V
		5716.4	50.12	-59.67	109.79	39.01	32.37	10.34	31.6	102	110	P	V
		5724.8	52.37	-69.37	121.74	41.22	32.4	10.35	31.6	102	110	P	V
	*	5755	92.31	-	-	81.07	32.47	10.37	31.6	102	110	P	V
	*	5755	83.73	-	-	72.49	32.47	10.37	31.6	102	110	A	V
		5850.8	47.39	-72.99	120.38	35.96	32.62	10.41	31.6	102	110	P	V
		5862	47.91	-60.93	108.84	36.44	32.65	10.42	31.6	102	110	P	V
		5879.8	49.19	-52.44	101.63	37.67	32.68	10.44	31.6	102	110	P	V
		5948.8	48.9	-19.3	68.2	37.18	32.81	10.51	31.6	102	110	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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5629.6	47.81	-20.39	68.2	36.91	32.22	10.28	31.6	106	82	P	H
		5662.4	48.05	-29.36	77.41	37.07	32.28	10.3	31.6	106	82	P	H
		5719.8	48.57	-62.17	110.74	37.42	32.4	10.35	31.6	106	82	P	H
		5721	48.03	-65.05	113.08	36.88	32.4	10.35	31.6	106	82	P	H
	*	5795	96.67	-	-	85.35	32.53	10.39	31.6	106	82	P	H
	*	5795	89.03	-	-	77.71	32.53	10.39	31.6	106	82	A	H
		5853.8	48.83	-64.71	113.54	37.37	32.65	10.41	31.6	106	82	P	H
		5858.8	49.59	-60.14	109.73	38.13	32.65	10.41	31.6	106	82	P	H
802.11n		5917.8	49.94	-23.57	73.51	38.31	32.74	10.49	31.6	106	82	P	H
HT40		5933	49.28	-18.92	68.2	37.61	32.78	10.49	31.6	106	82	P	H
CH 159		5645.6	48.76	-19.44	68.2	37.83	32.25	10.28	31.6	100	111	P	V
5795MHz		5694.2	47.16	-53.76	100.92	36.09	32.34	10.33	31.6	100	111	P	V
		5701	47.91	-57.57	105.48	36.8	32.37	10.34	31.6	100	111	P	V
		5724.2	47.85	-72.53	120.38	36.7	32.4	10.35	31.6	100	111	P	V
	*	5795	90.43	-	-	79.11	32.53	10.39	31.6	100	111	P	V
	*	5795	84.19	-	-	72.87	32.53	10.39	31.6	100	111	A	V
		5852	47.72	-69.92	117.64	36.29	32.62	10.41	31.6	100	111	P	V
		5864	48.71	-59.57	108.28	37.24	32.65	10.42	31.6	100	111	P	V
		5891.4	48.67	-44.36	93.03	37.12	32.71	10.44	31.6	100	111	P	V
		5934.6	48.94	-19.26	68.2	37.25	32.78	10.51	31.6	100	111	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 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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n		11510	50.93	-23.07	74	51.27	40.1	14.9	55.34	160	360	P	H
HT40		17265	50.68	-17.52	68.2	37.17	41.72	28.31	56.52	170	360	A	H
CH 151		11510	50.7	-23.3	74	51.04	40.1	14.9	55.34	160	360	P	V
5755MHz		17265	50.83	-17.37	68.2	37.32	41.72	28.31	56.52	170	360	A	V
802.11n		11590	50.63	-23.37	74	50.83	40.03	14.98	55.21	170	300	P	H
HT40		17385	50.17	-18.03	68.2	38.2	42.21	26.37	56.61	150	200	A	H
CH 159		11590	50.16	-23.84	74	50.36	40.03	14.98	55.21	170	300	P	V
5795MHz		17385	50.63	-17.57	68.2	38.66	42.21	26.37	56.61	150	200	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

Emission below 1GHz

5GHz WIFI 802.11an HT20 (LF @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
5GHz 802.11an HT20 LF		30	25.74	-14.26	40	32.56	24.9	0.25	31.97	-	-	P	H
		121.18	22.34	-21.16	43.5	35.35	17.5	1.14	31.65	-	-	P	H
		261.83	24.45	-21.55	46	33.68	20.27	1.74	31.24	-	-	P	H
		483.96	28.42	-17.58	46	33.62	23.66	2.39	31.25	-	-	P	H
		717.73	31.78	-14.22	46	33.04	27.01	2.97	31.24	-	-	P	H
		825.4	33.76	-12.24	46	33.03	28.7	3.21	31.18	100	0	P	H
		30	30.23	-9.77	40	37.05	24.9	0.25	31.97	100	0	P	V
		37.76	28.32	-11.68	40	38.78	21.14	0.38	31.98	-	-	P	V
		267.65	25.58	-20.42	46	35.18	19.87	1.76	31.23	-	-	P	V
		517.91	30.04	-15.96	46	34.49	24.31	2.48	31.24	-	-	P	V
		778.84	33.53	-12.47	46	33.48	28.12	3.11	31.18	-	-	P	V
		840.92	34.74	-11.26	46	33.86	28.83	3.23	31.18	-	-	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 Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b 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. Level(dBμV/m) =

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m)– 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m)– 54(dBμV/m)

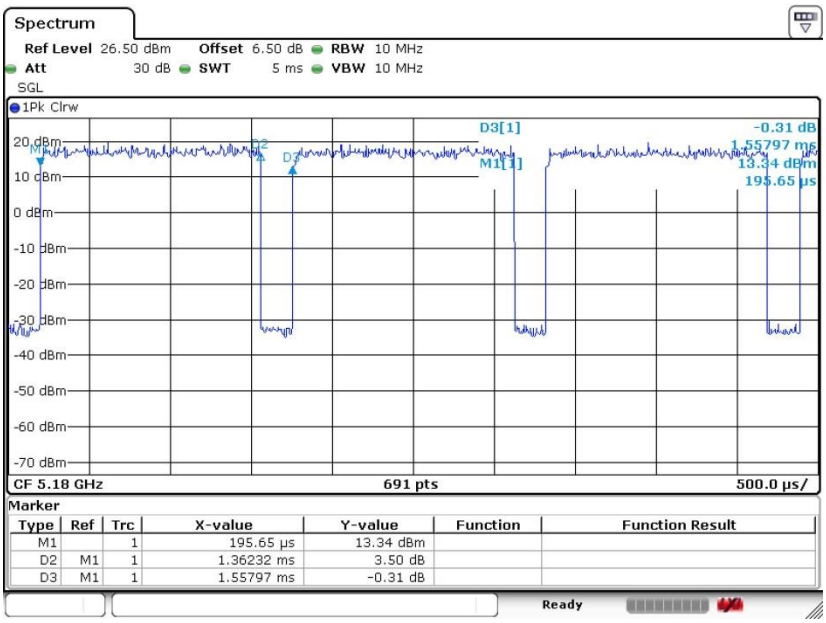
= -10.46(dB)

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

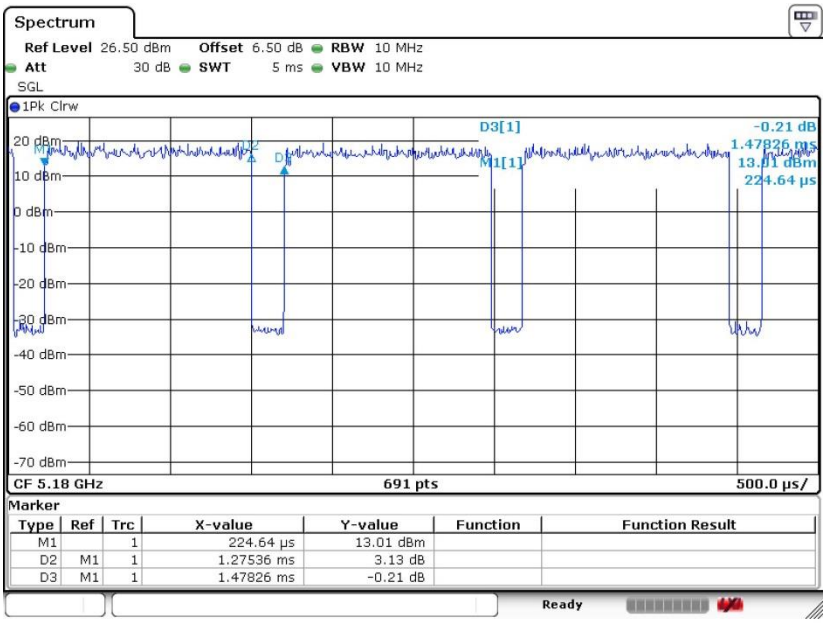
Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	87.44	1.362	0.734	1kHz
802.11 HT20	86.27	1.275	0.784	1kHz
802.11HT40	85.70	1.225	0.817	1kHz

802.11a



802.11HT20



802.11HT40