FCC RF Test Report

APPLICANT	**:**	**Motorola Mobility LLC**
EQUIPMENT	**:**	**Mobile Cellular Phone**
BRAND NAME	**:**	**Motorola**
MODEL NAME	**:**	**XT1952-3;XT1952-4;XT1952DL**
FCC ID	**:**	**IHDT56XR1**
STANDARD	**:**	**FCC Part 15 Subpart E §15.407**
CLASSIFICATION	**:**	**(NII) Unlicensed National Information Infrastructure**

The product was received on Sep. 21, 2018 and testing was completed on Oct. 28, 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

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TESTING
NVLAP LAB CODE 600155-0

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR892103E	Rev. 01	Initial issue of report	Dec. 20, 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 13.35 dB at 5966.000 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 10.54 dB at 0.535 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

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

1.2 Manufacturer

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

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT1952-3;XT1952-4;XT1952DL
FCC ID	IHDT56XR1
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/FM/GNSS WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 Bluetooth BR/EDR/LE
IMEI Code	Conducted : 359515090007257 Radiation : 359515090007653 Conduction : 359515090007620
HW Version	DVT 2
SW Version	PPY29.17
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 : 18.12 dBm / 0.0649 W 802.11n HT20 : 17.97 dBm / 0.0627 W 802.11n HT40 : 16.06 dBm / 0.0404 W
99% Occupied Bandwidth	802.11a : 18.98 MHz 802.11n HT20 : 19.33 MHz 802.11n HT40 : 36.76 MHz
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
Antenna Type / Gain	Fixed Internal Monopole Antenna with gain -1.0 dBi

1.5 Modification of EUT

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

1.6 Specification of Accessory

Specification of Accessory				
AC Adapter 1	**Brand Name**	Motorola(Salom)	**Model Name**	SC-41
	Power Rating	I/P: 100 - 240 Vac, 0.13A, O/P: 5Vdc 2000mA		
AC Adapter 2	**Brand Name**	Motorola(Acbel)	**Model Name**	SC-41
	Power Rating	I/P: 100 - 240 Vac, 0.13A, O/P: 5Vdc 2000mA		
Battery	**Brand Name**	Motorola(SCUD)	**Model Name**	JE40
	Power Rating	3.8Vdc, 3000mAh	**Type**	Li-ion
USB Cable 1	**Brand Name**	LiQi	**Model Name**	L32B-053000100/ L32B-053000100L
	Signal Line	1.0 meter, shielded cable, without ferrite core		
USB Cable 2	**Brand Name**	SaiBao	**Model Name**	S32B-053000100/ S32B-053000100L
	Signal Line	1.0 meter, shielded cable, without ferrite core		

1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0).

Test Site	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone, Jiangsu Province 215335, China TEL : 86-512-57900158 FAX : 86-512-57900958		
Test Site No.	**Sporton Site No.**	**FCC designation No.**	**FCC Test Firm Registration No.**
	TH01-KS CO01-KS 03CH05-KS	CN5013	630927

1.8 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 (Z plane) were recorded in this report.

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

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 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

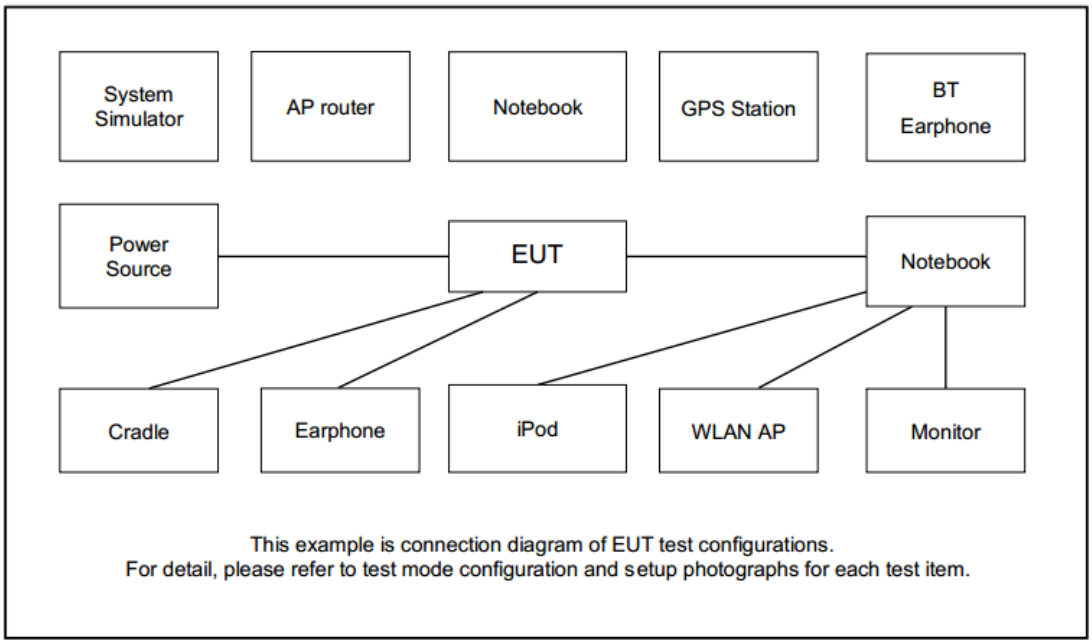
Final test modes are considering the modulation and worse data rates as below table.

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

AC Conducted Emission	Mode 1 : GSM850 Idle + WLAN (5GHz) Link + Bluetooth Link + USB Cable 2 (Charging from Adapter 2) + Earphone
Remark: For Radiated Test Cases, The tests were performance with Adapter 1 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.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
4.	Notebook	Lenovo	G480	PRC4	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	SD Card	Kingston	8GB	N/A	N/A	N/A
6.	Earphone	Lianyun	LYM500-036-002	N/A	Unshielded, 1.2 m	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “Putty” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (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.

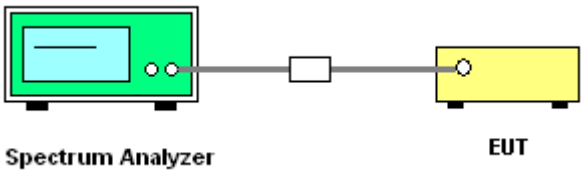
3.1.2 Measuring Instruments

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.

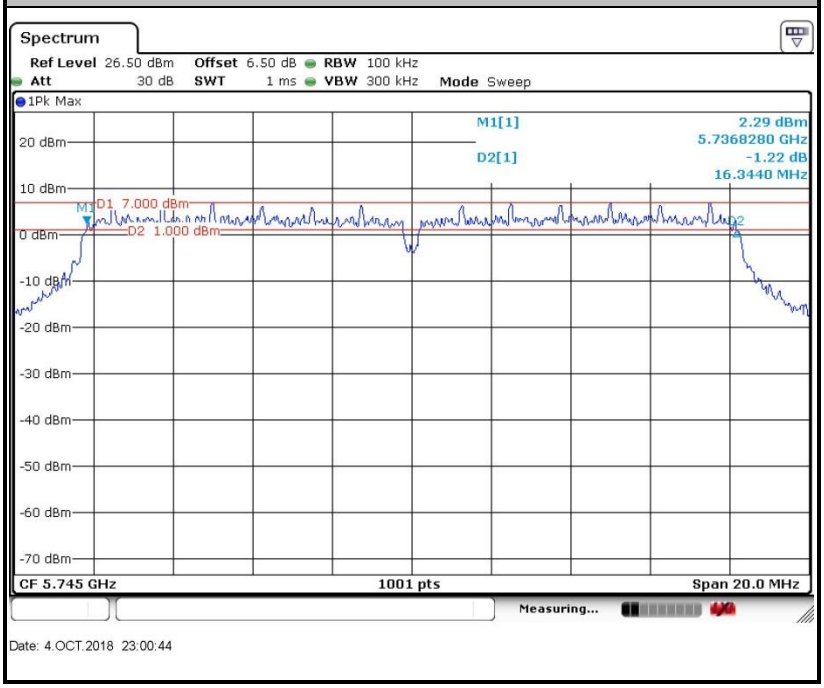
3.1.4 Test Setup



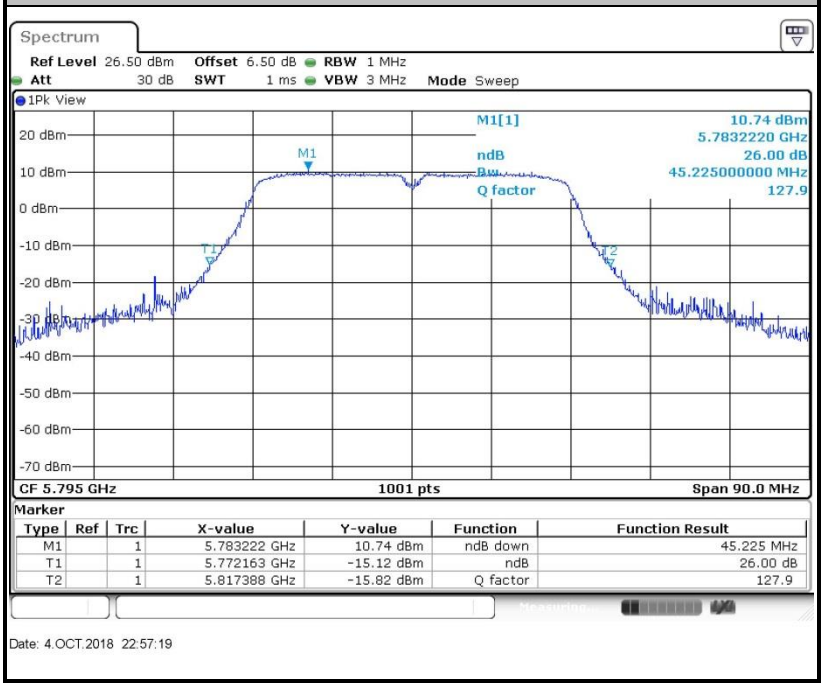
3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

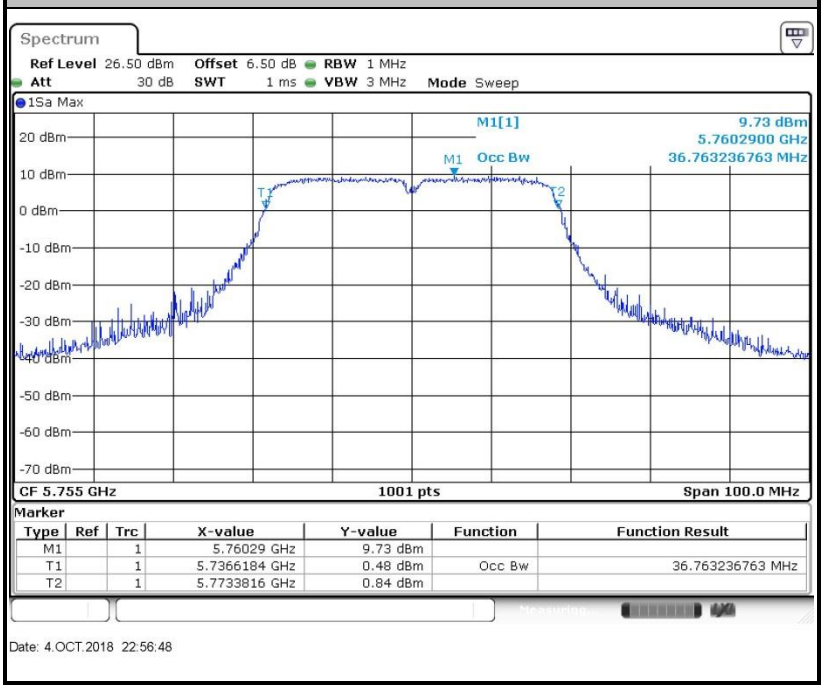
Minimum 6dB Bandwidth



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.

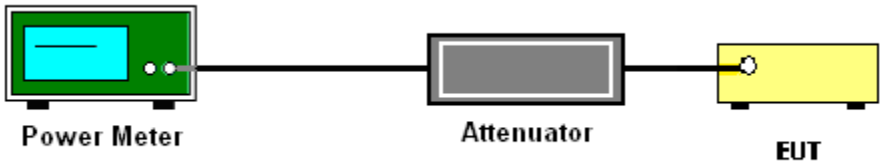
3.2.3 Test Procedures

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.

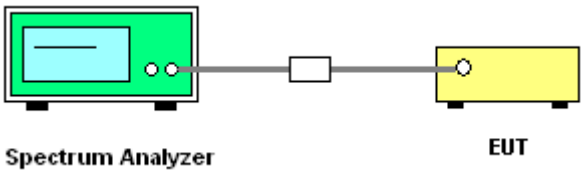
 # Method SA-2 #

(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.

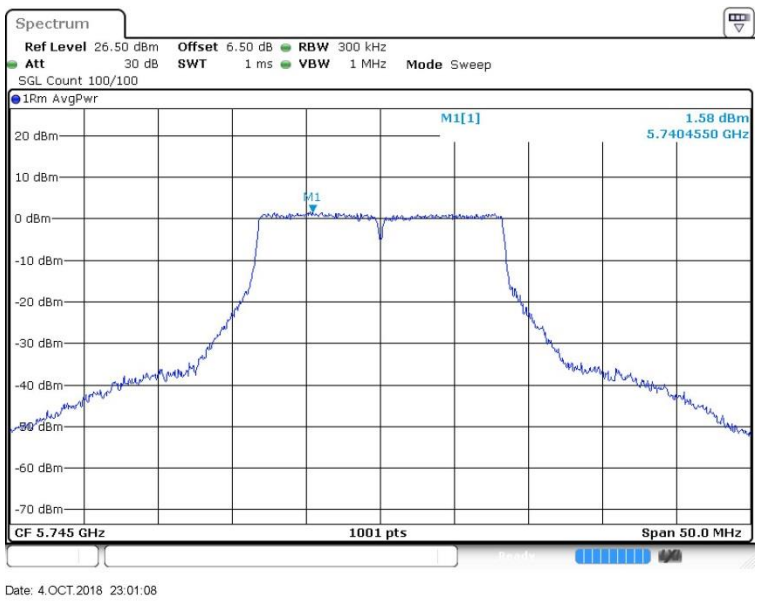
3.3.4 Test Setup



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	68.3

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

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

where

EIRP is the equivalent isotropically radiated power, in dBm

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

d_{Meas} is the measurement distance, in m

3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

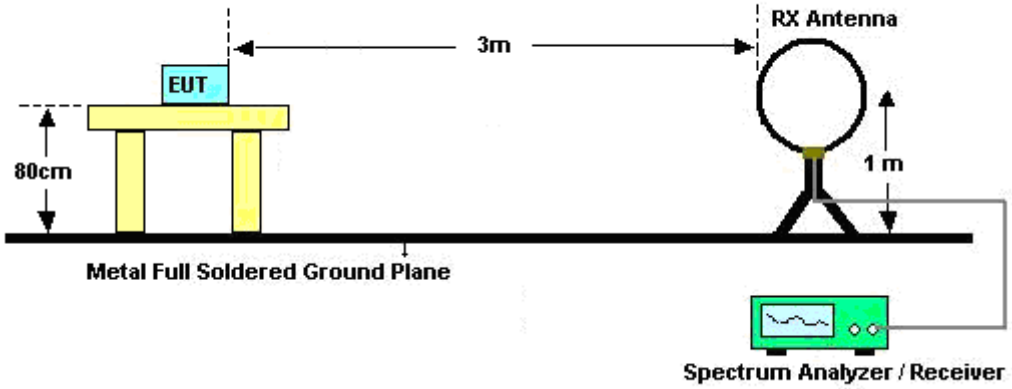
   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

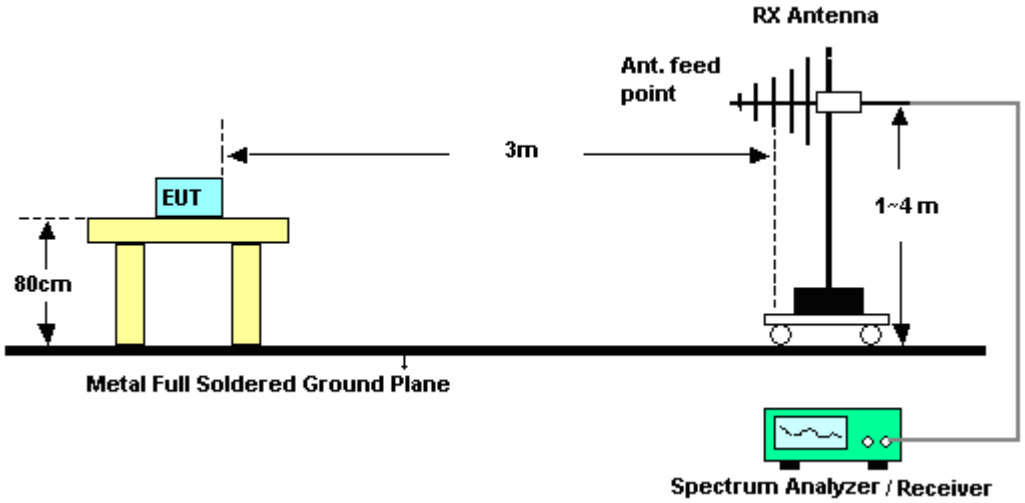
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting 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

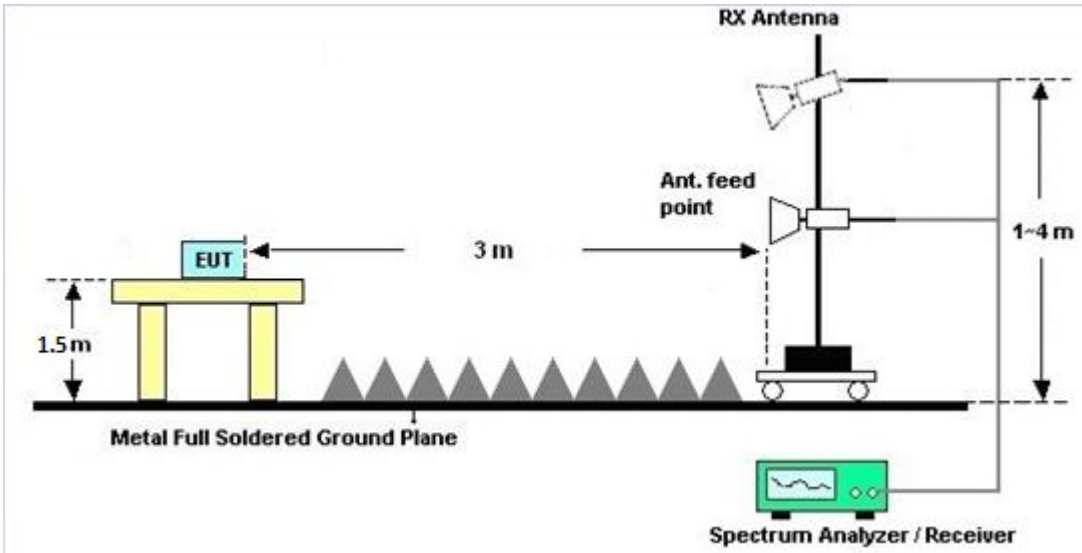
For radiated emissions below 30MHz



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.

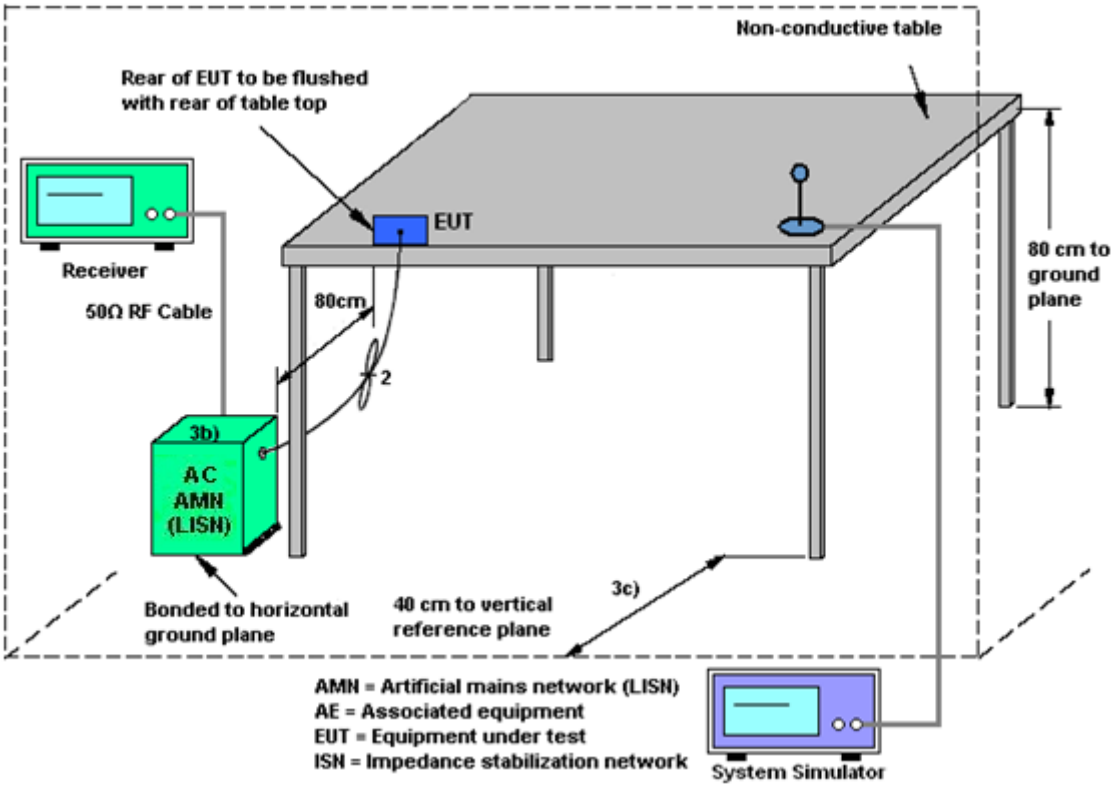
3.5.2 Measuring Instruments

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	FSP40	100319	9kHz~40GHz	Oct. 12, 2017	Sep. 30, 2018~ Oct. 05, 2018	Oct. 11, 2018	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV30	101338	10Hz~30GHz	Apr. 19, 2018	Sep. 29, 2018~ Oct. 04, 2018	Apr. 18, 2019	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 07, 2018	Sep. 29, 2018~ Oct. 04, 2018	Aug. 06, 2019	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~ 40GHz	Jan. 18, 2018	Sep. 29, 2018~ Oct. 04, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 18, 2018	Sep. 29, 2018~ Oct. 04, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	1339163	300MHz~ 40GHz	Jan. 18, 2018	Sep. 29, 2018~ Oct. 04, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1435004	50MHz Bandwidth	Jan. 18, 2018	Sep. 29, 2018~ Oct. 04, 2018	Jan. 17, 2019	Conducted (TH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 19, 2018	Oct. 20, 2018	Apr. 18, 2019	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 12, 2018	Oct. 20, 2018	Oct. 11, 2019	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Nov. 23, 2017	Oct. 20, 2018	Nov. 22, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2018	Oct. 20, 2018	Oct. 11, 2019	Conduction (CO01-KS)
RF Cable	WOKEN	Y5T	00100N1Q 3N1	150kHz~30MHz	Aug. 24 2018	Oct. 20, 2018	Aug. 23, 2019	Conduction (CO01-KS)
Transient limiter	COM-POWER	LIT-153	531040	150kHz~30MHz	Aug. 24, 2018	Oct. 20, 2018	Aug. 23, 2019	Conduction (CO01-KS)
Power bar	SP101EA	CN02	-	150kHz~30MHz	Apr. 16, 2018	Oct. 20, 2018	Apr. 15, 2019	Conduction (CO01-KS)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A	MY57290151	3Hz~8.5GHz;Max 30dBm	Jun. 25, 2018	Oct. 28, 2018	Jun. 24, 2019	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44GHz	Apr. 17, 2018	Oct. 28, 2018	Apr. 16, 2019	Radiation (03CH05-KS)
Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 19, 2018	Oct. 28, 2018	Oct. 18, 2019	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jun. 12, 2018	Oct. 28, 2018	Jun. 11, 2019	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 21, 2018	Oct. 28, 2018	Jan. 20, 2019	Radiation (03CH05-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 07, 2018	Oct. 28, 2018	Feb. 06, 2019	Radiation (03CH05-KS)
Amplifier	com-power	PA-103A	161069	1MHz ~1000MHz / 32 dB	Apr. 17, 2018	Oct. 28, 2018	Apr. 16, 2019	Radiation (03CH05-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz-18Ghz	Apr. 17, 2018	Oct. 28, 2018	Apr. 16, 2019	Radiation (03CH05-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Apr. 18, 2018	Oct. 28, 2018	Apr. 17, 2019	Radiation (03CH05-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18~40GHz	Feb. 08, 2018	Oct. 28, 2018	Feb. 07, 2019	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Oct. 28, 2018	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Oct. 28, 2018	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Oct. 28, 2018	NCR	Radiation (03CH05-KS)
RF Cable	HUBER+SUHNER	SUCOFLEX104	03CH05KS001	30Mhz-18Ghz	Sep. 12, 2018	Oct. 28, 2018	Sep. 11, 2019	Radiation (03CH05-KS)
RF Cable	HUBER+SUHNER	SUCOFLEX104	03CH05KS002	30Mhz-18Ghz	Sep. 12, 2018	Oct. 28, 2018	Sep. 11, 2019	Radiation (03CH05-KS)
High Pass Filter	Wainwright Instruments Gmbh	WHKX10-5850-6500-18000-40ST	1	6.5G High Pass	Jun. 19, 2018	Oct. 28, 2018	Jun. 18, 2019	Radiation (03CH05-KS)
High Pass Filter	Wainwright Instruments Gmbh	WHKX12-2805-3000-18000-40ST	2	3G High Pass	Jun. 19, 2018	Oct. 28, 2018	Jun. 18, 2019	Radiation (03CH05-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))	2.9

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

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

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

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

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

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

Appendix A. Conducted Test Results

Report Number : FR892103E

Test Engineer:	Start Xu	Temperature:	21~25	°C
Test Date:	2018/09/29 ~ 2018/10/04	Relative Humidity:	51~54	%

Report Number : FR892103E

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	18.73	23.926	16.344	0.5	Pass
11a	6Mbps	1	157	5785	18.98	23.526	16.344	0.5	Pass
11a	6Mbps	1	165	5825	18.48	23.427	16.344	0.5	Pass
HT20	MCS 0	1	149	5745	19.28	23.976	17.562	0.5	Pass
HT20	MCS 0	1	157	5785	19.33	23.576	17.562	0.5	Pass
HT20	MCS 0	1	165	5825	19.28	23.526	17.582	0.5	Pass
HT40	MCS 0	1	151	5755	36.76	44.955	35.445	0.5	Pass
HT40	MCS 0	1	159	5795	36.76	45.225	35.325	0.5	Pass

Report Number : FR892103E

TEST RESULTS DATA
Average Power Table

Band IV										
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6M bps	1	149	5745	0.60	18.09	30.00	-1.00		Pass
11a	6Mbps	1	157	5785	0.60	18.12	30.00	-1.00		Pass
11a	6Mbps	1	165	5825	0.60	18.01	30.00	-1.00		Pass
HT20	MCS 0	1	149	5745	0.62	17.94	30.00	-1.00		Pass
HT20	MCS 0	1	157	5785	0.62	17.96	30.00	-1.00		Pass
HT20	MCS 0	1	165	5825	0.62	17.97	30.00	-1.00		Pass
HT40	MCS 0	1	151	5755	0.67	15.93	30.00	-1.00		Pass
HT40	MCS 0	1	159	5795	0.67	16.06	30.00	-1.00		Pass

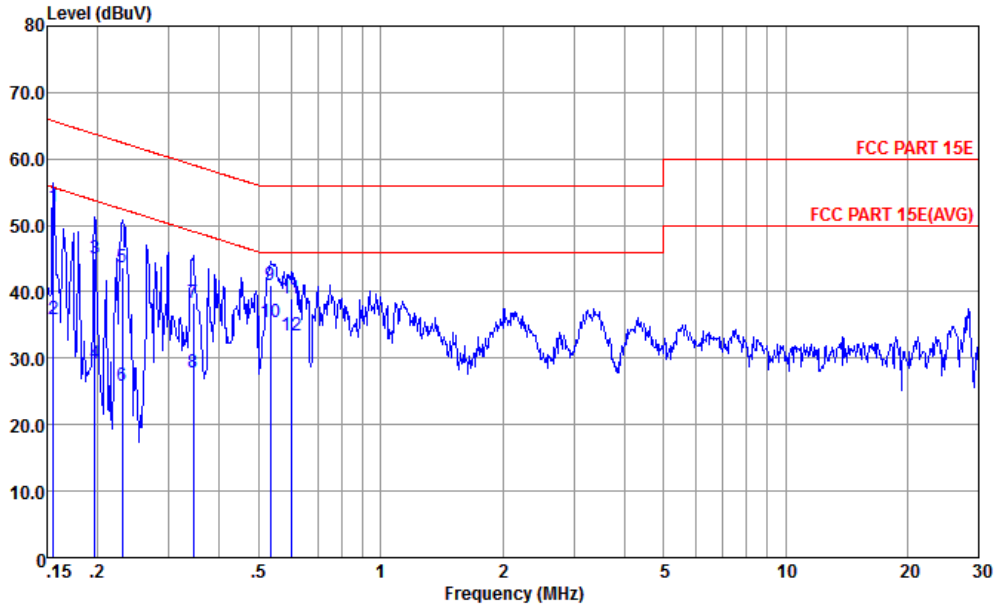
Report Number : FR892103E

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	0.60	2.22	4.40	30.00	-1.00	Pass
11a	6Mbps	1	157	5785	0.60	2.22	4.28	30.00	-1.00	Pass
11a	6Mbps	1	165	5825	0.60	2.22	4.13	30.00	-1.00	Pass
HT20	MCS 0	1	149	5745	0.62	2.22	3.98	30.00	-1.00	Pass
HT20	MCS 0	1	157	5785	0.62	2.22	4.14	30.00	-1.00	Pass
HT20	MCS 0	1	165	5825	0.62	2.22	3.70	30.00	-1.00	Pass
HT40	MCS 0	1	151	5755	0.67	2.22	-1.48	30.00	-1.00	Pass
HT40	MCS 0	1	159	5795	0.67	2.22	-1.33	30.00	-1.00	Pass

Appendix B. AC Conducted Emission Test Results

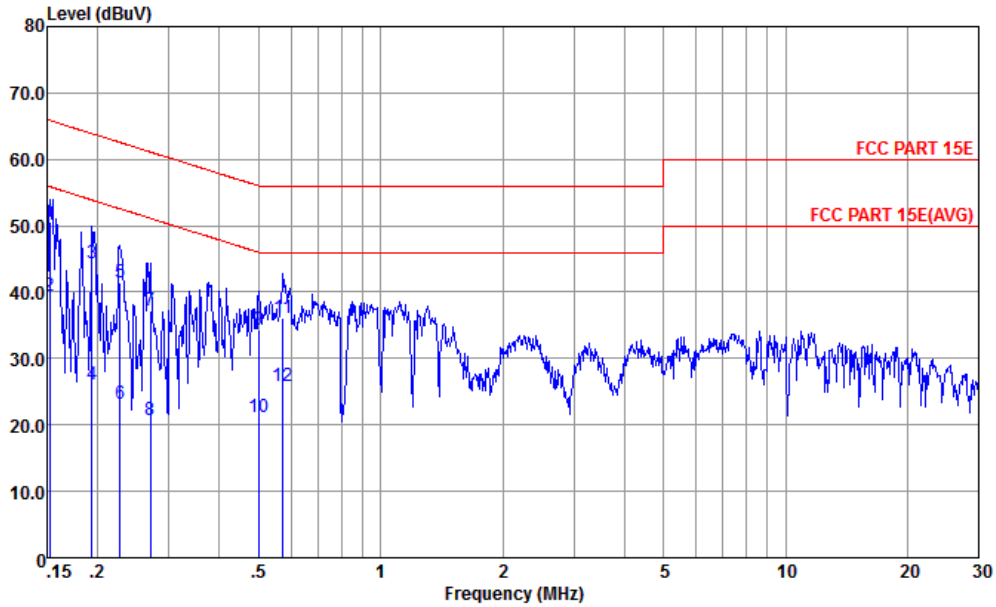
Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line



Site : CO01-KS
Condition : FCC PART 15E LISN-L-171013-060103 LINE
Project : (FR) 892103
mode : Mode 1
: 359515090007620 #3

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.156	52.83	-12.86	65.69	42.20	0.16	10.47	QP
2	0.156	35.93	-19.76	55.69	25.30	0.16	10.47	Average
3	0.197	45.07	-18.69	63.76	34.50	0.20	10.37	QP
4	0.197	29.17	-24.59	53.76	18.60	0.20	10.37	Average
5	0.230	43.75	-18.69	62.44	33.20	0.21	10.34	QP
6	0.230	25.85	-26.59	52.44	15.30	0.21	10.34	Average
7	0.345	38.32	-20.77	59.09	27.79	0.24	10.29	QP
8	0.345	27.82	-21.27	49.09	17.29	0.24	10.29	Average
9	0.535	41.10	-14.90	56.00	30.60	0.26	10.24	QP
10 *	0.535	35.46	-10.54	46.00	24.96	0.26	10.24	Average
11	0.601	39.00	-17.00	56.00	28.50	0.26	10.24	QP
12	0.601	33.40	-12.60	46.00	22.90	0.26	10.24	Average

Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral



Site : CO01-KS
Condition : FCC PART 15E LISN-N-171013-060103 NEUTRAL
Project : (FR) 892103
mode : Mode 1
: 359515090007620 #3

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	*	0.152	50.65	-15.22	65.87	39.90	0.28	10.47	QP
2		0.152	39.35	-16.52	55.87	28.60	0.28	10.47	Average
3		0.193	44.26	-19.63	63.89	33.60	0.28	10.38	QP
4		0.193	26.16	-27.73	53.89	15.50	0.28	10.38	Average
5		0.227	41.43	-21.14	62.57	30.80	0.28	10.35	QP
6		0.227	23.13	-29.44	52.57	12.50	0.28	10.35	Average
7		0.270	37.21	-23.91	61.12	26.61	0.28	10.32	QP
8		0.270	20.81	-30.31	51.12	10.21	0.28	10.32	Average
9		0.499	34.33	-21.68	56.01	23.81	0.29	10.23	QP
10		0.499	21.12	-24.89	46.01	10.60	0.29	10.23	Average
11		0.573	36.13	-19.87	56.00	25.60	0.29	10.24	QP
12		0.573	25.83	-20.17	46.00	15.30	0.29	10.24	Average

Appendix C. Radiated Spurious Emission

Test Engineer :	Peter Peng	Temperature :	27~30℃
		Relative Humidity :	41~45%

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		5642.8	52.28	-16.02	68.3	40.16	34.67	8.55	31.1	100	191	P	H
		5692.4	54.62	-45.08	99.7	42.42	34.7	8.58	31.08	100	191	P	H
		5719.2	61.03	-49.65	110.68	48.71	34.77	8.61	31.06	100	191	P	H
		5724	72.66	-47.36	120.02	60.34	34.77	8.61	31.06	100	191	P	H
		5748	106.1	------	------	93.71	34.8	8.64	31.05	100	191	P	H
		5748	99	------	------	86.61	34.8	8.64	31.05	100	191	A	H
													H
													H
		5624.8	52.65	-15.65	68.3	40.57	34.63	8.55	31.1	276	184	P	V
		5692.8	56.04	-43.95	99.99	43.84	34.7	8.58	31.08	276	184	P	V
		5718	65.15	-45.19	110.34	52.83	34.77	8.61	31.06	276	184	P	V
		5724.8	76.93	-44.91	121.84	64.61	34.77	8.61	31.06	276	184	P	V
		5750	109.9	------	------	97.51	34.8	8.64	31.05	276	184	P	V
		5750	103.01	------	------	90.62	34.8	8.64	31.05	276	184	A	V
													V
													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		5828	109.46	------	------	96.78	34.97	8.72	31.01	285	186	P	H
		5828	102.26	------	------	89.58	34.97	8.72	31.01	285	186	A	H
		5850.8	68.4	-52.08	120.48	55.68	35	8.72	31	285	186	P	H
		5858	60.47	-49.59	110.06	47.67	35.03	8.77	31	285	186	P	H
		5898	61.09	-27.15	88.24	48.24	35.1	8.82	31.07	285	186	P	H
		5972.8	54.42	-13.88	68.3	41.36	35.27	8.93	31.14	285	186	P	H
													H
													H
		5820	105.43	------	------	92.75	34.97	8.72	31.01	112	207	P	V
		5820	98.56	------	------	85.88	34.97	8.72	31.01	112	207	A	V
		5850	59.71	-62.59	122.3	46.99	35	8.72	31	112	207	P	V
		5859.6	56.69	-52.92	109.61	43.89	35.03	8.77	31	112	207	P	V
		5918	54.86	-18.6	73.46	41.98	35.13	8.82	31.07	112	207	P	V
		5927.6	54.15	-14.15	68.3	41.26	35.17	8.82	31.1	112	207	P	V
													V
													V
													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	44.6	-29.4	74	59.19	38.08	12.74	65.41	100	360	P	H
													H
													H
													H
		11490	44.33	-29.67	74	58.92	38.08	12.74	65.41	100	356	P	V
													V
													V
													V
802.11a CH 157 5785MHz		11570	44.34	-29.66	74	58.77	38.17	12.79	65.39	100	2	P	H
													H
													H
													H
		11570	44.67	-29.33	74	59.1	38.17	12.79	65.39	100	42	P	V
													V
													V
													V
802.11a CH 165 5825MHz		11650	46.08	-27.92	74	60.35	38.24	12.85	65.36	100	360	P	H
													H
													H
													H
		11650	44.27	-29.73	74	58.54	38.24	12.85	65.36	100	201	P	V
													V
													V
													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)
		5619.6	52.72	-15.58	68.3	40.67	34.63	8.52	31.1	277	147	P	H
		5693.2	56.67	-43.62	100.29	44.47	34.7	8.58	31.08	277	147	P	H
		5718.8	68.91	-41.65	110.56	56.59	34.77	8.61	31.06	277	147	P	H
		5723.6	75.99	-43.12	119.11	63.67	34.77	8.61	31.06	277	147	P	H
		5750	108.23	------	------	95.84	34.8	8.64	31.05	277	147	P	H
		5750	101.87	------	------	89.48	34.8	8.64	31.05	277	147	A	H
802.11n													H
HT20													H
CH 149		5635.2	52.49	-15.81	68.3	40.37	34.67	8.55	31.1	108	192	P	V
5745MHz		5693.6	54.21	-46.37	100.58	42.01	34.7	8.58	31.08	108	192	P	V
		5720	65.92	-44.98	110.9	53.6	34.77	8.61	31.06	108	192	P	V
		5724.8	76.27	-45.57	121.84	63.95	34.77	8.61	31.06	108	192	P	V
		5750	105.86	------	------	93.47	34.8	8.64	31.05	108	192	P	V
		5750	99.15	------	------	86.76	34.8	8.64	31.05	108	192	A	V
													V
													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)
		5851.2	71.67	-47.89	119.56	58.95	35	8.72	31	268	148	P	H
		5858.4	62.96	-46.99	109.95	50.16	35.03	8.77	31	268	148	P	H
		5878	59.39	-43.68	103.07	46.58	35.07	8.77	31.03	268	148	P	H
		5960.8	53.8	-14.5	68.3	40.83	35.23	8.88	31.14	268	148	P	H
		5832	109.79	------	------	97.11	34.97	8.72	31.01	268	148	P	H
		5832	101.98	------	------	89.3	34.97	8.72	31.01	268	148	A	H
802.11n													H
HT20													H
CH 165		5853.6	65.42	-48.67	114.09	52.67	35.03	8.72	31	124	207	P	V
5825MHz		5854.8	58.52	-52.84	111.36	45.77	35.03	8.72	31	124	207	P	V
		5910.4	53.64	-25.43	79.07	40.76	35.13	8.82	31.07	124	207	P	V
		5954.4	54.35	-13.95	68.3	41.41	35.2	8.88	31.14	124	207	P	V
		5818	105.17	------	------	92.53	34.93	8.72	31.01	124	207	P	V
		5818	98.01	------	------	85.37	34.93	8.72	31.01	124	207	A	V
													V
													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 HT20 CH 149 5745MHz		11490	44.47	-29.53	74	59.06	38.08	12.74	65.41	100	0	P	H
													H
													H
													H
		11490	44.8	-29.2	74	59.39	38.08	12.74	65.41	100	0	P	V
													V
													V
													V
802.11n HT20 CH 157 5785MHz		11570	44.53	-29.47	74	58.96	38.17	12.79	65.39	100	0	P	H
													H
													H
													H
		11570	44.98	-29.02	74	59.41	38.17	12.79	65.39	100	0	P	V
													V
													V
													V
802.11n HT20 CH 165 5825MHz		11650	45.7	-28.3	74	59.97	38.24	12.85	65.36	100	360	P	H
													H
													H
													H
		11650	45.21	-28.79	74	59.48	38.24	12.85	65.36	100	0	P	V
													V
													V
													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)
		5637.6	53.22	-15.08	68.3	41.1	34.67	8.55	31.1	271	153	P	H
		5700	59.66	-45.64	105.3	47.43	34.7	8.61	31.08	271	153	P	H
		5718	71.64	-38.7	110.34	59.32	34.77	8.61	31.06	271	153	P	H
		5720.8	74.51	-38.21	112.72	62.19	34.77	8.61	31.06	271	153	P	H
		5766	105.25	------	------	92.82	34.83	8.64	31.04	271	153	P	H
		5766	96.5	------	------	84.07	34.83	8.64	31.04	271	153	A	H
		5852.4	53.6	-63.23	116.83	40.88	35	8.72	31	271	153	P	H
		5860.8	54.07	-55.2	109.27	41.27	35.03	8.77	31	271	153	P	H
		5906.4	54	-28.03	82.03	41.12	35.13	8.82	31.07	271	153	P	H
		5929.6	54.42	-13.88	68.3	41.53	35.17	8.82	31.1	271	153	P	H
802.11n													H
HT40													H
CH 151		5646.8	52.69	-15.61	68.3	40.57	34.67	8.55	31.1	100	210	P	V
5755MHz		5696	55.69	-46.66	102.35	43.49	34.7	8.58	31.08	100	210	P	V
		5719.6	69.54	-41.25	110.79	57.22	34.77	8.61	31.06	100	210	P	V
		5721.6	75.43	-39.12	114.55	63.11	34.77	8.61	31.06	100	210	P	V
		5766	102.09	------	------	89.66	34.83	8.64	31.04	100	210	P	V
		5766	93.91	------	------	81.48	34.83	8.64	31.04	100	210	A	V
		5854	52.53	-60.65	113.18	39.78	35.03	8.72	31	100	210	P	V
		5862.4	53.2	-55.63	108.83	40.4	35.03	8.77	31	100	210	P	V
		5885.2	53.3	-44.43	97.73	40.49	35.07	8.77	31.03	100	210	P	V
		5941.2	53.85	-14.45	68.3	40.87	35.2	8.88	31.1	100	210	P	V
													V
													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)
		5640	52.27	-16.03	68.3	40.15	34.67	8.55	31.1	285	158	P	H
		5680.4	53.97	-36.86	90.83	41.78	34.7	8.58	31.09	285	158	P	H
		5714.4	54.25	-55.08	109.33	41.97	34.73	8.61	31.06	285	158	P	H
		5724	52.69	-67.33	120.02	40.37	34.77	8.61	31.06	285	158	P	H
		5806	104.42	------	------	91.84	34.93	8.67	31.02	285	158	P	H
		5806	96.8	------	------	84.22	34.93	8.67	31.02	285	158	A	H
		5850.4	56.19	-65.2	121.39	43.47	35	8.72	31	285	158	P	H
		5866	55.51	-52.31	107.82	42.71	35.03	8.77	31	285	158	P	H
		5900	54.14	-32.62	86.76	41.29	35.1	8.82	31.07	285	158	P	H
		5928.8	53.72	-14.58	68.3	40.83	35.17	8.82	31.1	285	158	P	H
802.11n													H
HT40													H
CH 159		5631.2	52.1	-16.2	68.3	40.02	34.63	8.55	31.1	100	209	P	V
5795MHz		5689.2	53.83	-43.51	97.34	41.63	34.7	8.58	31.08	100	209	P	V
		5716.4	55.44	-54.45	109.89	43.16	34.73	8.61	31.06	100	209	P	V
		5721.6	54.18	-60.37	114.55	41.86	34.77	8.61	31.06	100	209	P	V
		5788	101.38	------	------	88.85	34.9	8.67	31.04	100	209	P	V
		5788	93.89	------	------	81.36	34.9	8.67	31.04	100	209	A	V
		5851.6	54.06	-64.59	118.65	41.34	35	8.72	31	100	209	P	V
		5867.2	53.62	-53.86	107.48	40.82	35.03	8.77	31	100	209	P	V
		5884.8	54.56	-43.46	98.02	41.75	35.07	8.77	31.03	100	209	P	V
		5966	54.95	-13.35	68.3	41.98	35.23	8.88	31.14	100	209	P	V
													V
													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 HT40 CH 151 5755MHz		11510	43.58	-30.42	74	58.16	38.1	12.74	65.42	100	360	P	H
													H
													H
													H
		11510	44.2	-29.8	74	58.78	38.1	12.74	65.42	100	343	P	V
													V
													V
													V
802.11n HT40 CH 159 5795MHz		11590	44.15	-29.85	74	58.53	38.18	12.82	65.38	100	0	P	H
													H
													H
													H
		11590	44.91	-29.09	74	59.29	38.18	12.82	65.38	100	360	P	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

5GHz WIFI 802.1n HT40 (LF @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT40 LF		30.00	19.8	-20.20	40	26.67	24.5	0.61	31.98	-	-	P	H
		150.28	17.58	-25.92	43.5	31.80	16.47	1.25	31.94	-	-	P	H
		259.89	18.27	-27.73	46	29.20	19.3	1.75	31.98	-	-	P	H
		271.53	19.57	-26.43	46	30.85	18.96	1.77	32.01	-	-	P	H
		473.25	21.18	-24.82	46	28.43	22.77	2.22	32.24	-	-	P	H
		929.19	26.00	-20.00	46	27.4	26.72	3.07	31.19	150	213	P	H
													H
													H
													H
													H
													H
													H
		30.00	19.97	-20.03	40	26.84	24.5	0.61	31.98	100	281	P	V
		67.83	15.64	-24.36	40	34.16	12.56	0.85	31.93	-	-	P	V
		224.00	16.96	-29.04	46	31.76	15.54	1.59	31.93	-	-	P	V
		273.47	18.96	-27.04	46	30.30	18.90	1.78	32.02	-	-	P	V
		381.14	19.58	-26.42	46	28.58	21.12	1.98	32.10	-	-	P	V
		781.75	24.67	-21.33	46	28.43	25.58	2.83	32.17	-	-	P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

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

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

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

1. 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)

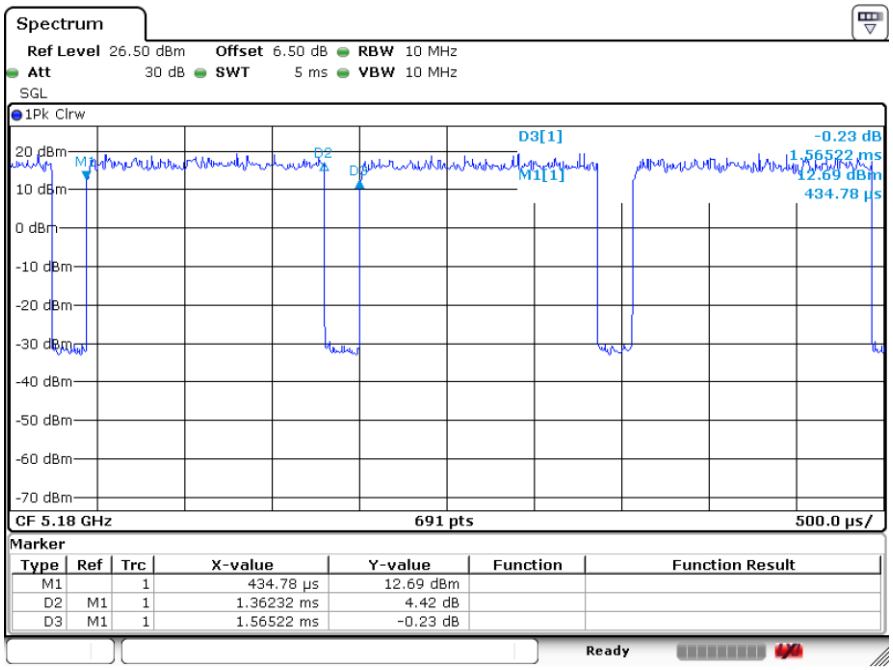
= -10.46(dB)

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	87.04	1.36232	0.734	0.75KHz
5GHz 802.11n HT20	86.70	1.27536	0.784	0.82KHz
5GHz 802.11n HT40	85.79	1.22464	0.817	0.82KHz

802.11a



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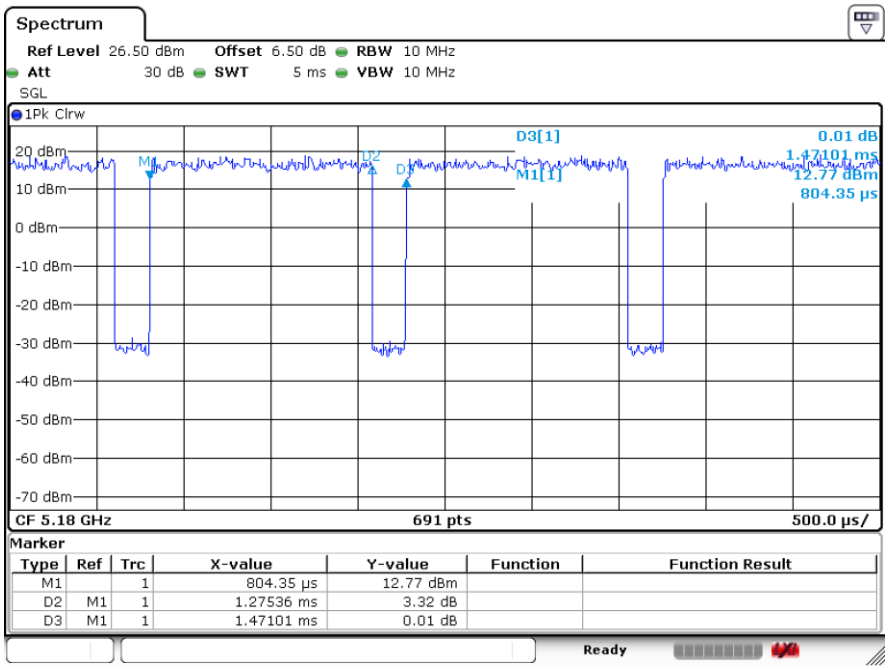
802.11n HT20



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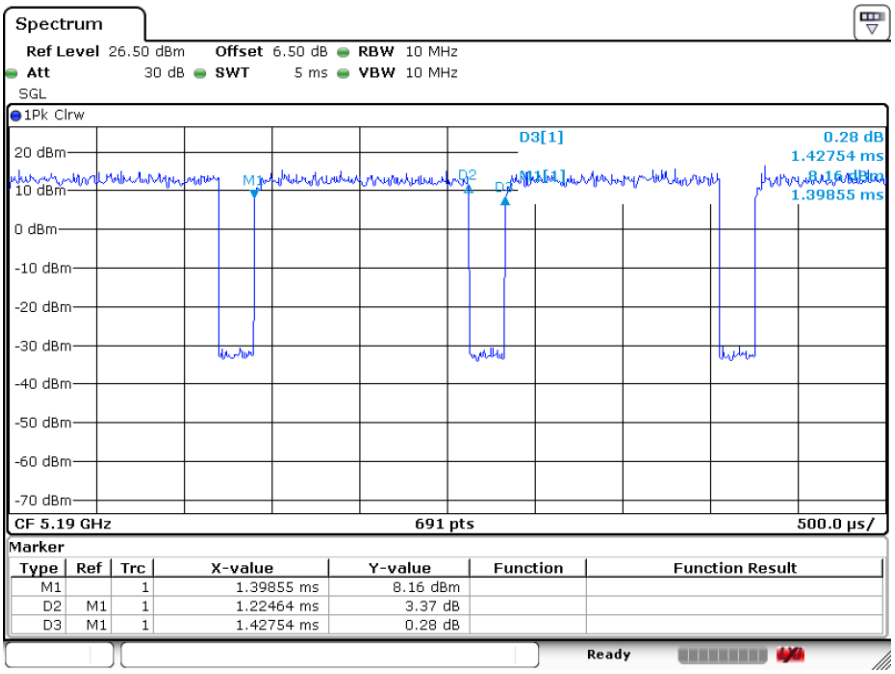
802.11n HT40



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