FCC RF Test Report

APPLICANT	:	**PAX Technology Limited**
EQUIPMENT	:	**Smart Mobile Payment Terminal**
BRAND NAME	:	**PAX**
MODEL NAME	:	**A920**
FCC ID	:	**V5PA920-2019**
STANDARD	:	**FCC Part 15 Subpart E §15.407**
CLASSIFICATION	:	**(NII) Unlicensed National Information Infrastructure**

The product was received on Dec. 18, 2018 and testing was completed on Jan. 07, 2019. We, Sporton International (Shenzhen) 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 (Shenzhen) Inc. the test report shall not be reproduced except in full.

Eric Shih

Approved by: Eric Shih / Manager

NVLAP TESTING
NVLAP LAB CODE 600156-0

Sporton International (Shenzhen) Inc.
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TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR8D1822E	Rev. 01	Initial issue of report	Feb. 27, 2019

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 4.39 dB at 5149.76 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 3.00 dB at 14.06 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

PAX Technology Limited
Room 2416, 24/F., Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong

1.2 Manufacturer

PAX Computer Technology (Shenzhen) Co., Ltd.
4/F, No.3 Building, Software Park, Second Central Science-Tech Road, High-Tech industrial Park, Shenzhen, Guangdong, P.R.C.

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Smart Mobile Payment Terminal
Brand Name	PAX
Model Name	A920
FCC ID	V5PA920-2019
EUT supports Radios application	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 BR / EDR / LE NFC/GNSS
IMEI Code	Conducted: 352110098999965/352110098999973 Conduction: 352110098996946/352110098996953 Radiation: 352110098996946/3521198996953
HW Version	N/A
SW Version	N/A
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz
Maximum Output Power to Antenna	**<5180 MHz ~ 5240 MHz>** 802.11a : 15.03 dBm / 0.0318 W 802.11n HT20 : 11.90 dBm / 0.0155 W 802.11n HT40 : 11.91 dBm / 0.0155 W
99% Occupied Bandwidth	802.11a : 26.57 MHz 802.11n HT20 : 20.03 MHz 802.11n HT40 : 37.16 MHz
Antenna Gain / Gain	**<5150 MHz ~ 5250 MHz>** FPC Antenna with gain 1.50 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

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

1.6 Testing Location

Sporton International (Shenzhen) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0).

Test Site	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen City, Guangdong Province 518055, China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595		
Test Site No.	**Sporton Site No.**	**FCC designation No.**	**FCC Test Firm Registration No.**
	TH01-SZ CO01-SZ	CN5018	337463

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 designation No.**	**FCC Test Firm Registration No.**
	03CH01-SZ	CN5019	577730

1.7 Applicable Standards

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

- 47 CFR Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

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

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

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240

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

2.2 Test Mode

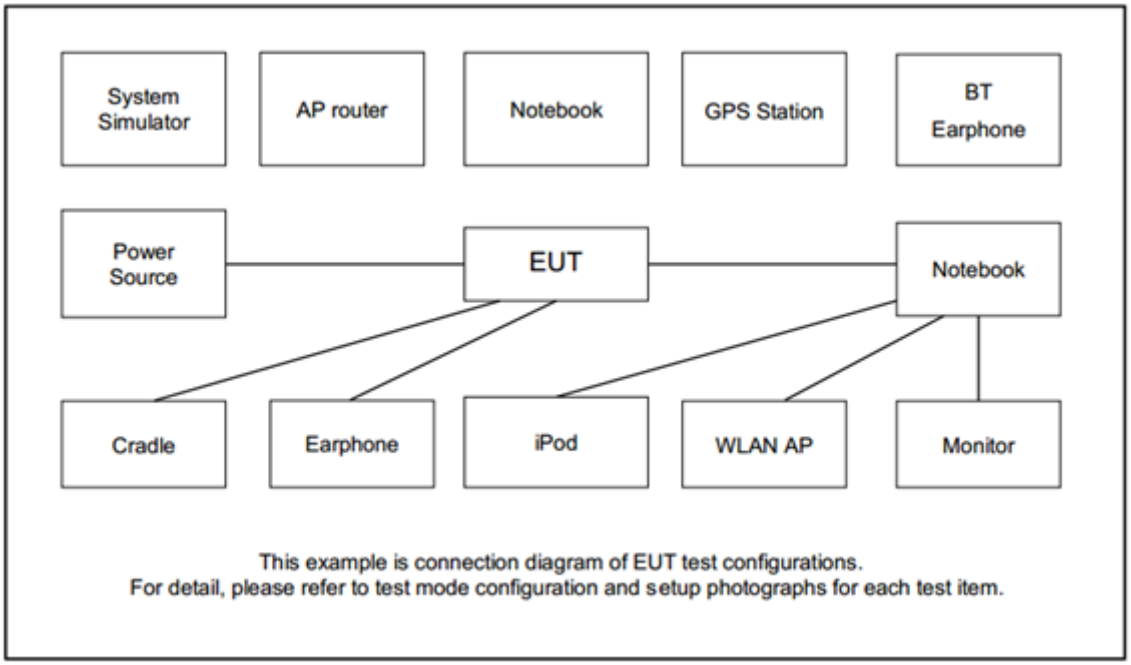
Final test modes are considering the modulation and worse data rates as below table.

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

Test Cases	
AC Conducted Emission	Mode 1 : WCDMA Band IV Idle + Bluetooth Link + WLAN Link(5G) + Battery1 + USB Cable (Charging from Adapter)
Remark: For Radiated Test Cases, The tests were performance with Adapter, Battery 1 and USB Cable.	

Ch. #		Band I：5150-5250 MHz		
		802.11a	802.11n HT20	802.11n HT40
L	Low	36	36	38
M	Middle	44	44	-
H	High	48	48	46

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.	Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Samsung	EO-MG900	N/A	N/A	N/A
5.	SD Card	N/A	MicroSD HC	FCC DoC	N/A	N/A

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously transmit/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 and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

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

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 6.6 dB and 10dB attenuator.

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

= 6.6 + 10 = 16.6 (dB)

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

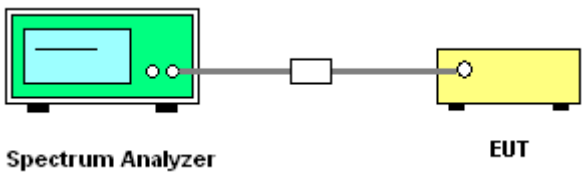
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1MHz and set the Video bandwidth (VBW) ≥ 3 * RBW.
8. Measure and record the results in the test report.

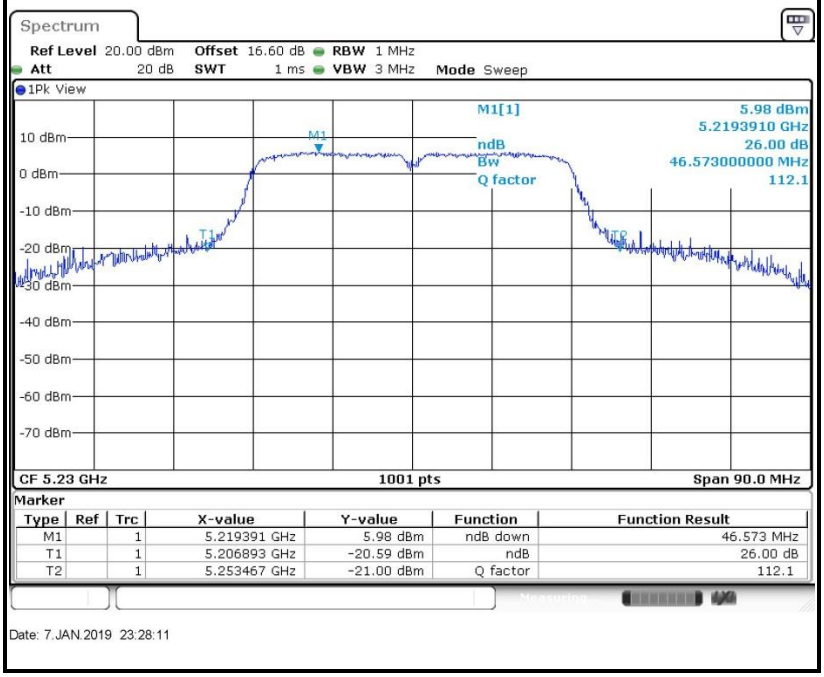
3.1.4 Test Setup



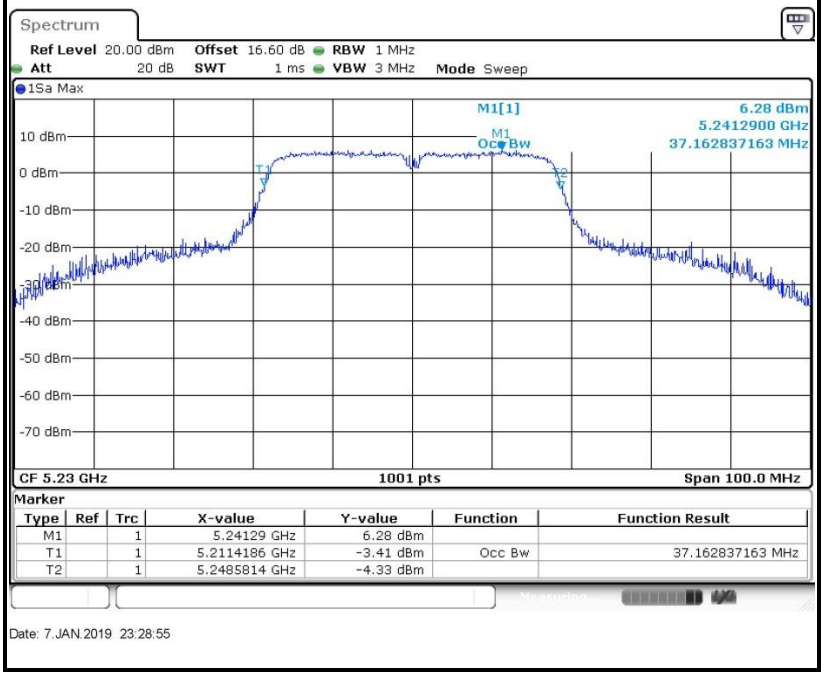
3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.

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

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

3.2.2 Measuring Instruments

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

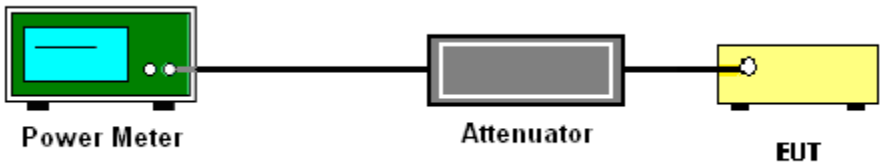
3.2.3 Test Procedures

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

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

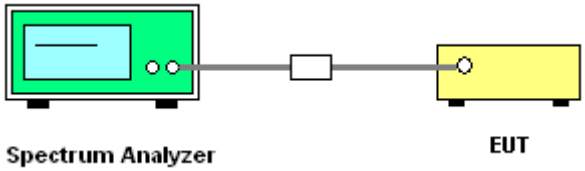
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section F) Maximum power spectral density.

 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 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(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.

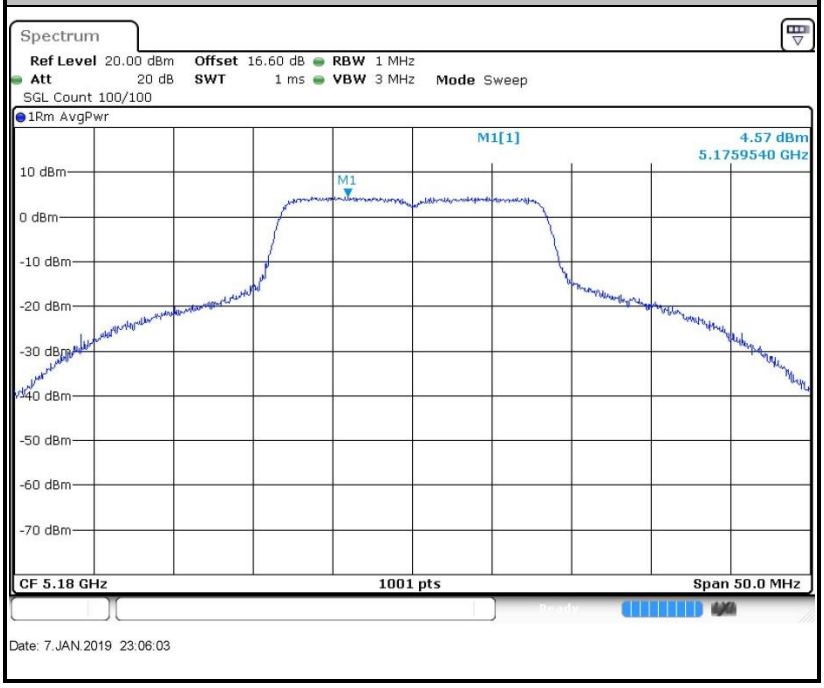
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/MHz)



Note: Average Power Density (dB) = Measured value+ Duty Factor

3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of –27dBm/MHz.

(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.

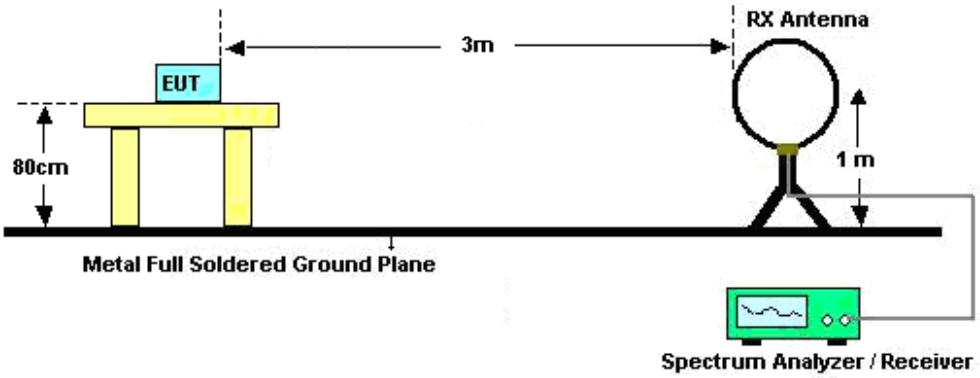
   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

   (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

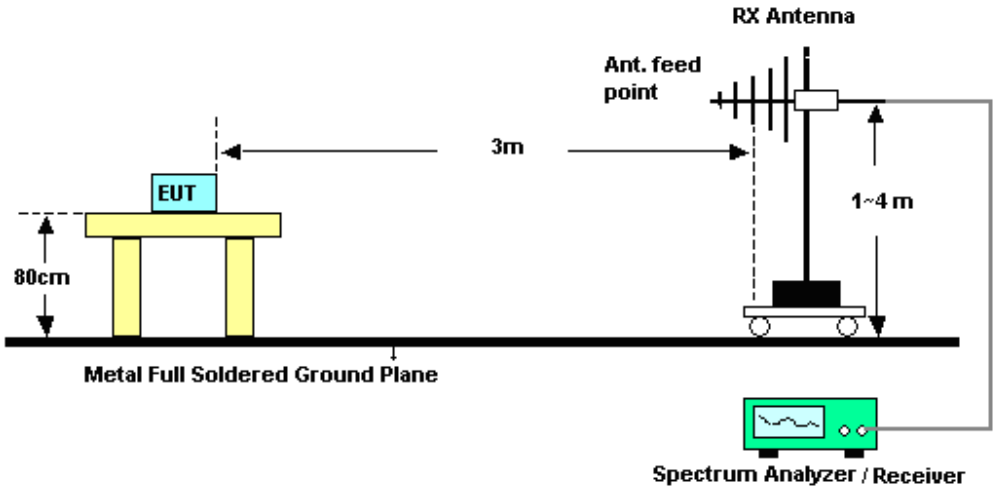
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting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

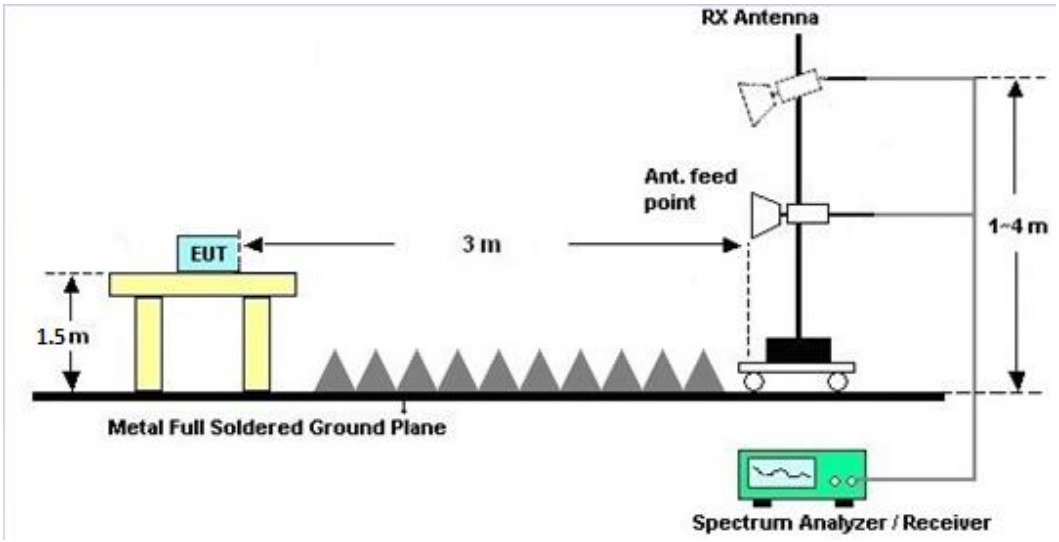
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

3.4.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

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.

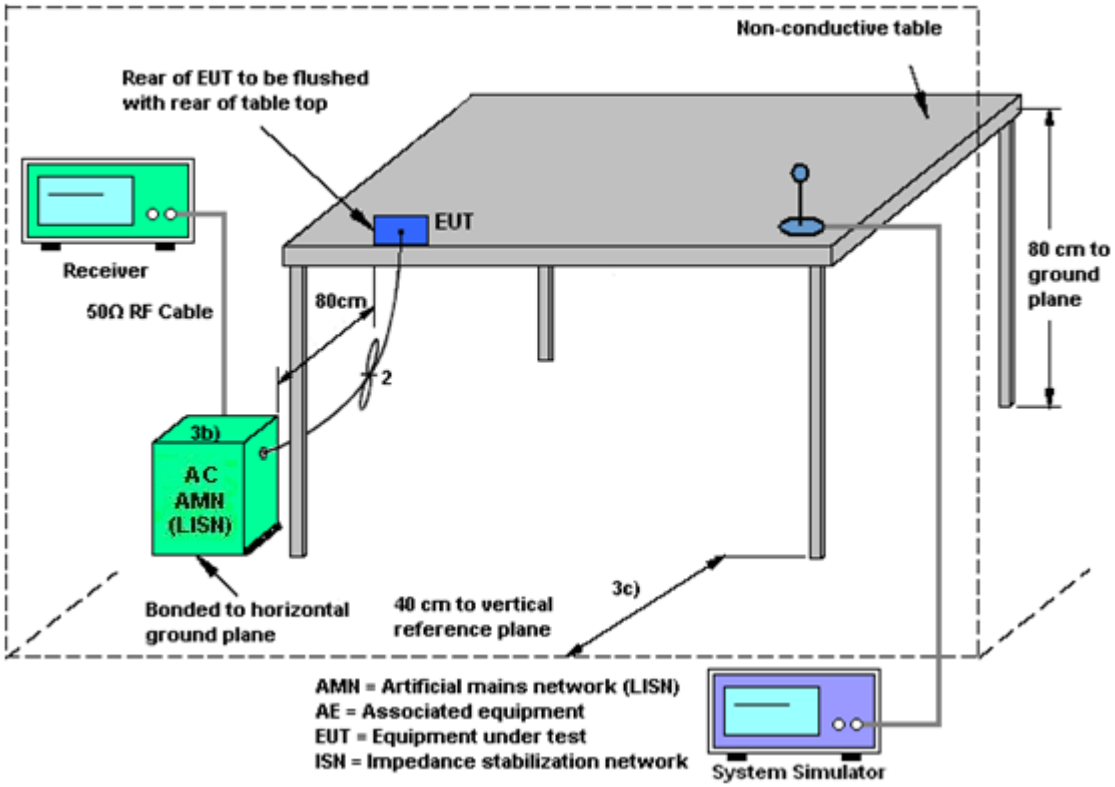
3.5.2 Measuring Instruments

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	101078	10Hz~40GHz	Apr. 19, 2018	Jan. 07, 2019	Apr. 18, 2019	Conducted (TH01-SZ)
Pulse Power Senor	Anritsu	MA2411B	1207253	30MHz~40GHz	Dec. 22, 2018	Jan. 07, 2019	Dec. 21, 2019	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Dec. 22, 2018	Jan. 07, 2019	Dec. 21, 2019	Conducted (TH01-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 23, 2018	Jan. 03, 2019	Dec. 22, 2019	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Oct. 18, 2018	Jan. 03, 2019	Oct. 17, 2019	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Dec. 23, 2018	Jan. 03, 2019	Dec. 22, 2019	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 18, 2018	Jan. 03, 2019	Jul. 17, 2019	Conduction (CO01-SZ)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Aug. 30, 2018	Jan. 05, 2019	Aug. 29, 2019	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 29, 2018	Jan. 05, 2019	May 28, 2019	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Jun. 05, 2018	Jan. 05, 2019	Jun. 04, 2019	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	119436	1GHz~18GHz	Jun. 28, 2018	Jan. 05, 2019	Jun. 27, 2019	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Mar. 30, 2018	Jan. 05, 2019	Mar. 29, 2019	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 20, 2018	Jan. 05, 2019	Apr. 19, 2019	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1707137	1GHz~18GHz	Oct. 19, 2018	Jan. 05, 2019	Oct. 18, 2019	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 17, 2018	Jan. 05, 2019	Jul. 16, 2019	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jan. 05, 2019	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jan. 05, 2019	NCR	Radiation (03CH01-SZ)

NCR: No Calibration Required

5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.6 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.8 dB**

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.3 dB**

Appendix A. Conducted Test Results

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Jensen Wu	Temperature:	24~26	°C
Test Date:	2019/1/7	Relative Humidity:	50~53	%

Report Number : FR8D1822E

TEST RESULTS DATA
26dB and 99% OBW

Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)		
11a	6Mbps	1	36	5180	24.63	36.31	-	23.01		
11a	6Mbps	1	44	5220	26.32	42.61	-	23.01		
11a	6Mbps	1	48	5240	26.57	42.31	-	23.01		
HT20	MCS0	1	36	5180	19.73	24.48	-	22.95		
HT20	MCS0	1	44	5220	19.83	27.72	-	22.97		
HT20	MCS0	1	48	5240	20.03	26.97	-	23.01		
HT40	MCS0	1	38	5190	36.96	45.85	-	23.01		
HT40	MCS0	1	46	5230	37.16	46.57	-	23.01		

Report Number : FR8D1822E

TEST RESULTS DATA
Average Power Table

FCC Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6Mbps	1	36	5180	0.58	15.03	24.00	1.50		Pass
11a	6Mbps	1	44	5220	0.58	14.92	24.00	1.50		Pass
11a	6Mbps	1	48	5240	0.58	14.79	24.00	1.50		Pass
HT20	MCS0	1	36	5180	0.62	11.90	24.00	1.50		Pass
HT20	MCS0	1	44	5220	0.62	11.89	24.00	1.50		Pass
HT20	MCS0	1	48	5240	0.62	11.83	24.00	1.50		Pass
HT40	MCS0	1	38	5190	1.17	11.91	24.00	1.50		Pass
HT40	MCS0	1	46	5230	1.17	11.89	24.00	1.50		Pass

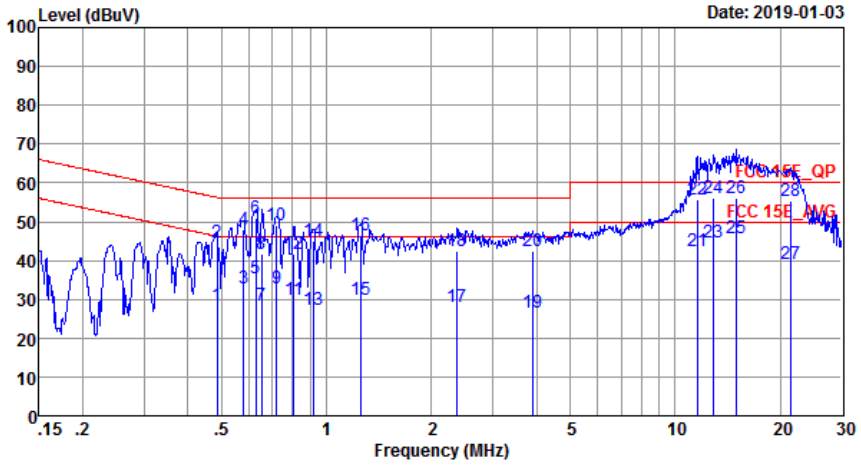
Report Number : FR8D1822E

TEST RESULTS DATA
Power Spectral Density

FCC Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)	-	Pass/Fail
11a	6Mbps	1	36	5180	0.58	5.15	11.00	1.50		Pass
11a	6Mbps	1	44	5220	0.58	4.92	11.00	1.50		Pass
11a	6Mbps	1	48	5240	0.58	4.67	11.00	1.50		Pass
HT20	MCS0	1	36	5180	0.62	0.86	11.00	1.50		Pass
HT20	MCS0	1	44	5220	0.62	1.23	11.00	1.50		Pass
HT20	MCS0	1	48	5240	0.62	1.07	11.00	1.50		Pass
HT40	MCS0	1	38	5190	1.17	-1.88	11.00	1.50		Pass
HT40	MCS0	1	46	5230	1.17	-1.86	11.00	1.50		Pass

Appendix B. AC Conducted Emission Test Results

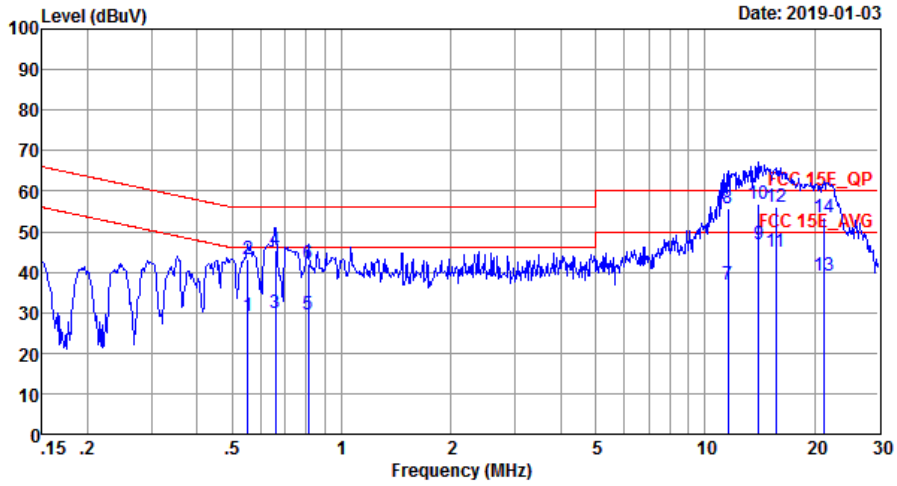
Test Engineer :	ZhangXu	**Temperature :**	22~25℃
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
Condition: FCC 15E_QP LISN_20180719_L LINE
Project : 8D1822
Mode : Mode 1
IMEI : 352110098996946/352110098996953

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.49	28.40	-17.83	46.23	18.30	0.02	10.08	Average
2		0.49	44.80	-11.43	56.23	34.70	0.02	10.08	QP
3		0.58	32.70	-13.30	46.00	22.60	0.02	10.08	Average
4		0.58	48.10	-7.90	56.00	38.00	0.02	10.08	QP
5		0.63	35.60	-10.40	46.00	25.50	0.02	10.08	Average
6		0.63	51.10	-4.90	56.00	41.00	0.02	10.08	QP
7		0.65	28.40	-17.60	46.00	18.30	0.02	10.08	Average
8		0.65	41.60	-14.40	56.00	31.50	0.02	10.08	QP
9		0.72	32.90	-13.10	46.00	22.80	0.02	10.08	Average
10		0.72	49.20	-6.80	56.00	39.10	0.02	10.08	QP
11		0.80	29.72	-16.28	46.00	19.60	0.04	10.08	Average
12		0.80	41.72	-14.28	56.00	31.60	0.04	10.08	QP
13		0.92	27.35	-18.65	46.00	17.20	0.06	10.09	Average
14		0.92	45.05	-10.95	56.00	34.90	0.06	10.09	QP
15		1.26	29.98	-16.02	46.00	19.80	0.08	10.10	Average
16		1.26	46.58	-9.42	56.00	36.40	0.08	10.10	QP
17		2.37	28.05	-17.95	46.00	17.80	0.13	10.12	Average
18		2.37	42.25	-13.75	56.00	32.00	0.13	10.12	QP
19		3.90	26.74	-19.26	46.00	16.40	0.18	10.16	Average
20		3.90	42.34	-13.66	56.00	32.00	0.18	10.16	QP
21		11.56	42.47	-7.53	50.00	31.70	0.41	10.36	Average
22		11.56	55.87	-4.13	60.00	45.10	0.41	10.36	QP
23		12.92	44.73	-5.27	50.00	33.90	0.45	10.38	Average
24	*	12.92	56.03	-3.97	60.00	45.20	0.45	10.38	QP
25		14.91	45.92	-4.08	50.00	35.00	0.51	10.41	Average
26		14.91	56.02	-3.98	60.00	45.10	0.51	10.41	QP
27		21.37	39.09	-10.91	50.00	27.39	1.33	10.37	Average
28		21.37	55.19	-4.81	60.00	43.49	1.33	10.37	QP

Test Engineer :	ZhangXu	**Temperature :**	22~25℃
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
Condition: FCC 15E_QP LISN_20180719_N NEUTRAL
Project : 8D1822
Mode : Mode 1
IMEI : 352110098996946/352110098996953

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.55	29.30	-16.70	46.00	19.20	0.02	10.08	Average
2		0.55	43.20	-12.80	56.00	33.10	0.02	10.08	QP
3		0.66	30.00	-16.00	46.00	19.90	0.02	10.08	Average
4		0.66	45.30	-10.70	56.00	35.20	0.02	10.08	QP
5		0.81	29.62	-16.38	46.00	19.51	0.03	10.08	Average
6		0.81	42.12	-13.88	56.00	32.01	0.03	10.08	QP
7		11.56	37.08	-12.92	50.00	26.50	0.22	10.36	Average
8		11.56	55.58	-4.42	60.00	45.00	0.22	10.36	QP
9		14.06	46.80	-3.20	50.00	36.10	0.30	10.40	Average
10	*	14.06	57.00	-3.00	60.00	46.30	0.30	10.40	QP
11		15.63	44.87	-5.13	50.00	34.10	0.37	10.40	Average
12		15.63	56.07	-3.93	60.00	45.30	0.37	10.40	QP
13		21.26	39.07	-10.93	50.00	28.00	0.70	10.37	Average
14		21.26	53.47	-6.53	60.00	42.40	0.70	10.37	QP

Appendix C. Radiated Spurious Emission

Test Engineer :	Reid Huang	**Temperature :**	24~25°C
		Relative Humidity :	48~49%

Band 1 - 5150~5250MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5141.44	50.21	-23.79	74	38.07	33.87	11.37	33.1	322	323	P	H
		5149.5	42.35	-11.65	54	30.21	33.87	11.37	33.1	322	323	A	H
	*	5180	93.57	-	-	81.28	33.92	11.47	33.1	322	323	P	H
	*	5180	87.95	-	-	75.66	33.92	11.47	33.1	322	323	A	H
		5148.98	57.36	-16.64	74	45.22	33.87	11.37	33.1	389	23	P	V
		5150	45.92	-8.08	54	33.78	33.87	11.37	33.1	389	23	A	V
	*	5180	99.27	-	-	86.98	33.92	11.47	33.1	389	23	P	V
	*	5180	93.58	-	-	81.29	33.92	11.47	33.1	389	23	A	V
802.11a CH 44 5220MHz		5128.44	49.86	-24.14	74	37.74	33.85	11.37	33.1	321	323	P	H
		5113.62	40.6	-13.4	54	28.61	33.83	11.26	33.1	321	323	A	H
	*	5220	93.71	-	-	81.27	33.96	11.58	33.1	321	323	P	H
	*	5220	86.73	-	-	74.29	33.96	11.58	33.1	321	323	A	H
		5352.24	49.95	-24.05	74	37.18	34.13	11.74	33.1	321	323	P	H
		5413.92	40.75	-13.25	54	27.85	34.22	11.78	33.1	321	323	A	H
		5047.58	50.08	-23.92	74	38.28	33.74	11.16	33.1	386	25	P	V
		5126.1	40.71	-13.29	54	28.59	33.85	11.37	33.1	386	25	A	V
	*	5220	99.79	-	-	87.35	33.96	11.58	33.1	386	25	P	V
	*	5220	92.61	-	-	80.17	33.96	11.58	33.1	386	25	A	V
		5425.44	49.75	-24.25	74	36.85	34.22	11.78	33.1	386	25	P	V
		5408.88	41.19	-12.81	54	28.31	34.2	11.78	33.1	386	25	A	V

802.11a CH 48 5240MHz		5131.82	50.36	-23.64	74	38.24	33.85	11.37	33.1	368	54	P	H
		5144.04	40.59	-13.41	54	28.45	33.87	11.37	33.1	368	54	A	H
	*	5240	94.44	-	-	81.94	33.98	11.62	33.1	368	54	P	H
	*	5240	88.28	-	-	75.78	33.98	11.62	33.1	368	54	A	H
		5367.6	50.15	-23.85	74	37.36	34.15	11.74	33.1	368	54	P	H
		5428.56	40.9	-13.1	54	27.92	34.24	11.84	33.1	368	54	A	H
		5130	49.71	-24.29	74	37.59	33.85	11.37	33.1	387	25	P	V
		5150	40.98	-13.02	54	28.84	33.87	11.37	33.1	387	25	A	V
	*	5240	99.01	-	-	86.51	33.98	11.62	33.1	387	25	P	V
	*	5240	93.06	-	-	80.56	33.98	11.62	33.1	387	25	A	V
		5386.08	50.04	-23.96	74	37.22	34.18	11.74	33.1	387	25	P	V
		5437.92	41.12	-12.88	54	28.14	34.24	11.84	33.1	387	25	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

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 36 5180MHz		10360	49.94	-24.06	74	57.3	37.02	14.61	58.99	152	260	P	H
		15540	49.79	-24.21	74	51.6	40.78	16.34	58.93	189	238	P	H
		10360	50.49	-23.51	74	57.85	37.02	14.61	58.99	152	260	P	V
		15540	49.93	-24.07	74	51.74	40.78	16.34	58.93	189	238	P	V
802.11a CH 44 5220MHz		10440	49.59	-24.41	74	56.82	37.06	14.63	58.92	152	178	P	H
		15660	49.76	-24.24	74	51.32	41.07	16.43	59.06	160	225	P	H
		10440	49.17	-24.83	74	56.4	37.06	14.63	58.92	150	230	P	V
		15660	49.9	-24.1	74	51.46	41.07	16.43	59.06	160	225	P	V
802.11a CH 48 5240MHz		10480	49.79	-24.21	74	56.92	37.09	14.64	58.86	189	245	P	H
		15720	50.51	-23.49	74	51.94	41.24	16.45	59.12	150	291	P	H
		10480	49.17	-24.83	74	56.3	37.09	14.64	58.86	150	289	P	V
		15720	50.76	-23.24	74	52.19	41.24	16.45	59.12	150	291	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

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)
		5148.2	49.44	-24.56	74	37.3	33.87	11.37	33.1	355	55	P	H
		5149.76	41.26	-12.74	54	29.12	33.87	11.37	33.1	355	55	A	H
802.11n	*	5180	91.76	-	-	79.47	33.92	11.47	33.1	355	55	P	H
HT20	*	5180	84.83	-	-	72.54	33.92	11.47	33.1	355	55	A	H
CH 36		5061.88	49.5	-24.5	74	37.68	33.76	11.16	33.1	361	336	P	V
5180MHz		5150	41.07	-12.93	54	28.93	33.87	11.37	33.1	361	336	A	V
	*	5180	94.02	-	-	81.73	33.92	11.47	33.1	361	336	P	V
	*	5180	87.38	-	-	75.09	33.92	11.47	33.1	361	336	A	V
		5061.36	49.67	-24.33	74	37.85	33.76	11.16	33.1	365	325	P	H
		5138.06	40.47	-13.53	54	28.35	33.85	11.37	33.1	365	325	A	H
	*	5220	88.18	-	-	75.74	33.96	11.58	33.1	365	325	P	H
	*	5220	82.53	-	-	70.09	33.96	11.58	33.1	365	325	A	H
802.11n		5453.52	50.05	-23.95	74	37.05	34.26	11.84	33.1	365	325	P	H
HT20		5402.16	40.75	-13.25	54	27.87	34.2	11.78	33.1	365	325	A	H
CH 44		5033.54	49.57	-24.43	74	37.9	33.72	11.05	33.1	369	20	P	V
5220MHz		5148.2	40.5	-13.5	54	28.36	33.87	11.37	33.1	369	20	A	V
	*	5220	94.77	-	-	82.33	33.96	11.58	33.1	369	20	P	V
	*	5220	87.63	-	-	75.19	33.96	11.58	33.1	369	20	A	V
		5456.64	50.37	-23.63	74	37.37	34.26	11.84	33.1	369	20	P	V
		5459.28	40.81	-13.19	54	27.81	34.26	11.84	33.1	369	20	A	V

		5148.98	50.29	-23.71	74	38.15	33.87	11.37	33.1	374	66	P	H
		5097.76	40.57	-13.43	54	28.6	33.81	11.26	33.1	374	66	A	H
	*	5240	91.21	-	-	78.71	33.98	11.62	33.1	374	66	P	H
	*	5240	83.69	-	-	71.19	33.98	11.62	33.1	374	66	A	H
802.11n		5375.28	50.05	-23.95	74	37.26	34.15	11.74	33.1	374	66	P	H
HT20		5455.68	40.77	-13.23	54	27.77	34.26	11.84	33.1	374	66	A	H
CH 48		5105.82	50.26	-23.74	74	38.27	33.83	11.26	33.1	387	22	P	V
5240MHz		5148.46	40.58	-13.42	54	28.44	33.87	11.37	33.1	387	22	A	V
	*	5240	94.59	-	-	82.09	33.98	11.62	33.1	387	22	P	V
	*	5240	88.62	-	-	76.12	33.98	11.62	33.1	387	22	A	V
		5430.48	49.71	-24.29	74	36.73	34.24	11.84	33.1	387	22	P	V
		5458.8	40.81	-13.19	54	27.81	34.26	11.84	33.1	387	22	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

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		10360	49.64	-24.36	74	57	37.02	14.61	58.99	136	147	P	H
HT20		15540	49.32	-24.68	74	51.13	40.78	16.34	58.93	189	238	P	H
CH 36		10360	49.89	-24.11	74	57.25	37.02	14.61	58.99	152	260	P	V
5180MHz		15540	50	-24	74	51.81	40.78	16.34	58.93	189	238	P	V
802.11n		10440	49.74	-24.26	74	56.97	37.06	14.63	58.92	165	129	P	H
HT20		15660	50.24	-23.76	74	51.8	41.07	16.43	59.06	160	225	P	H
CH 44		10440	50.12	-23.88	74	57.35	37.06	14.63	58.92	150	230	P	V
5220MHz		15654	50.32	-23.68	74	51.88	41.07	16.43	59.06	149	0	P	V
802.11n		10480	49.35	-24.65	74	56.48	37.09	14.64	58.86	150	289	P	H
HT20		15720	50.54	-23.46	74	51.97	41.24	16.45	59.12	150	291	P	H
CH 48		10480	49.68	-24.32	74	56.81	37.09	14.64	58.86	168	174	P	V
5240MHz		15720	50.25	-23.75	74	51.68	41.24	16.45	59.12	150	291	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

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)
802.11n HT40 CH 38 5190MHz		5148.98	55.35	-18.65	74	43.21	33.87	11.37	33.1	355	54	P	H
		5149.76	46.98	-7.02	54	34.84	33.87	11.37	33.1	355	54	A	H
	*	5190	88.87	-	-	76.58	33.92	11.47	33.1	355	54	P	H
	*	5190	82.27	-	-	69.98	33.92	11.47	33.1	355	54	A	H
		5452.16	50.16	-23.84	74	37.16	34.26	11.84	33.1	355	54	P	H
		5454.96	41.51	-12.49	54	28.51	34.26	11.84	33.1	355	54	A	H
		5149.5	58.08	-15.92	74	45.94	33.87	11.37	33.1	373	21	P	V
		5149.76	49.61	-4.39	54	37.47	33.87	11.37	33.1	373	21	A	V
	*	5190	93.09	-	-	80.8	33.92	11.47	33.1	373	21	P	V
	*	5190	86.18	-	-	73.89	33.92	11.47	33.1	373	21	A	V
		5382.44	50.33	-23.67	74	37.51	34.18	11.74	33.1	373	21	P	V
		5412.96	41.49	-12.51	54	28.59	34.22	11.78	33.1	373	21	A	V
802.11n HT40 CH 46 5230MHz		5122.72	50.08	-23.92	74	37.96	33.85	11.37	33.1	352	55	P	H
		5147.68	41.52	-12.48	54	29.38	33.87	11.37	33.1	352	55	A	H
	*	5230	88.82	-	-	76.36	33.98	11.58	33.1	352	55	P	H
	*	5230	82.64	-	-	70.18	33.98	11.58	33.1	352	55	A	H
		5452.16	49.97	-24.03	74	36.97	34.26	11.84	33.1	352	55	P	H
		5436.2	41.39	-12.61	54	28.41	34.24	11.84	33.1	352	55	A	H
		5140.4	50.35	-23.65	74	38.21	33.87	11.37	33.1	383	22	P	V
		5143.78	41.49	-12.51	54	29.35	33.87	11.37	33.1	383	22	A	V
	*	5230	93.43	-	-	80.97	33.98	11.58	33.1	383	22	P	V
	*	5230	85.64	-	-	73.18	33.98	11.58	33.1	383	22	A	V
		5411.56	49.78	-24.22	74	36.88	34.22	11.78	33.1	383	22	P	V
		5410.72	41.53	-12.47	54	28.65	34.2	11.78	33.1	383	22	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

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		10380	49.24	-24.76	74	56.56	37.03	14.62	58.97	150	360	P	H
HT40		15570	49.74	-24.26	74	51.47	40.87	16.37	58.97	155	360	P	H
CH 38		10380	49.52	-24.48	74	56.84	37.03	14.62	58.97	184	162	P	V
5190MHz		15570	50.04	-23.96	74	51.77	40.87	16.37	58.97	155	360	P	V
802.11n		10460	49.64	-24.36	74	56.83	37.07	14.64	58.9	150	360	P	H
HT40		15690	50.17	-23.83	74	51.65	41.16	16.45	59.09	150	225	P	H
CH 46		10460	49.26	-24.74	74	56.45	37.07	14.64	58.9	150	360	P	V
5230MHz		15690	49.99	-24.01	74	51.47	41.16	16.45	59.09	150	225	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

WIFI 802.11n HT40 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 LF		30	23.11	-16.89	40	29.78	24.4	0.23	31.3			P	H
		201.69	24.71	-18.79	43.5	38.83	15.57	1.63	31.32			P	H
		311.3	27.44	-18.56	46	37.26	19.48	2.08	31.38			P	H
		426.73	24.39	-21.61	46	31.28	22.08	2.49	31.46			P	H
		748.77	27.99	-18.01	46	30.1	25.53	3.46	31.1			P	H
		853.53	29.46	-16.54	46	30.81	26.36	3.7	31.41	156	185	P	H
		35.82	34.06	-5.94	40	44.31	20.92	0.33	31.5	100	185	P	V
		65.89	26.75	-13.25	40	44.86	12.74	0.55	31.4			P	V
		171.62	23.22	-20.28	43.5	37.59	15.54	1.44	31.35			P	V
		201.69	24.09	-19.41	43.5	38.21	15.57	1.63	31.32			P	V
		640.13	30.77	-15.23	46	34.44	24.66	3.12	31.45			P	V
		803.09	28.62	-17.38	46	30.11	26.21	3.61	31.31			P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

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

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

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

1. 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)

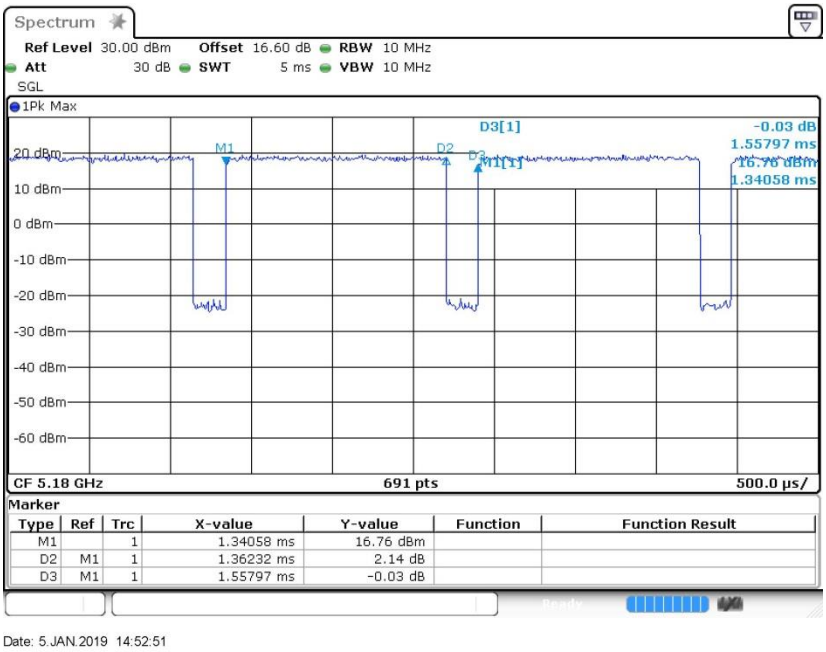
= -10.46(dB)

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

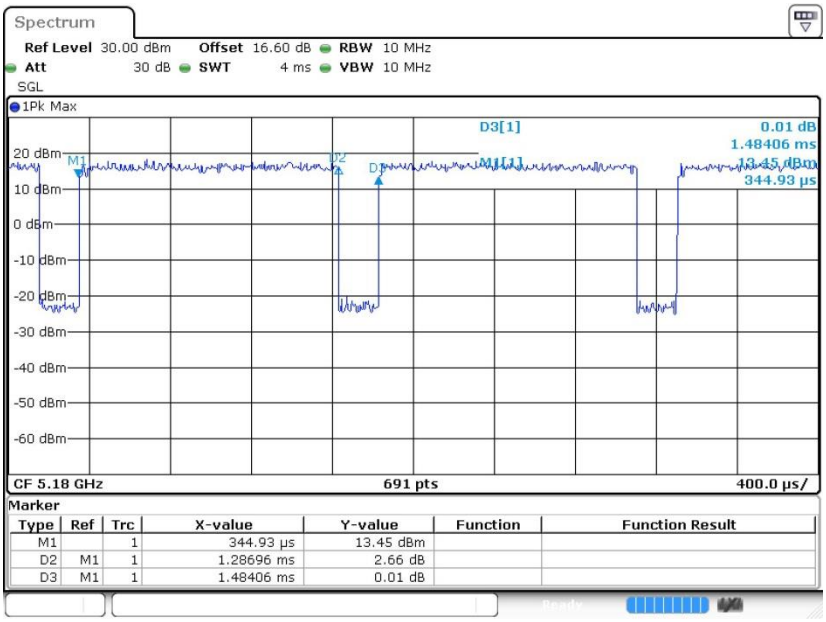
Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	87.44	1.362	0.734	1KHz
802.11n HT20	86.72	1.287	0.777	1KHz
802.11n HT40	76.39	0.638	1.568	3KHz

802.11a



802.11n HT20



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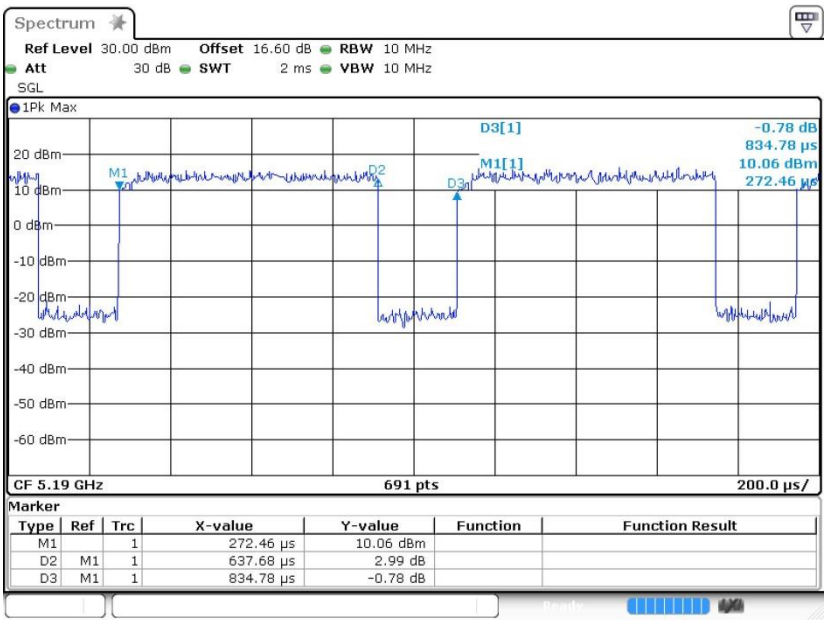
802.11n HT40



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