



# FCC RF Test Report

**APPLICANT** : PAX Technology Limited  
**EQUIPMENT** : Smart Mobile Payment Terminal  
**BRAND NAME** : PAX  
**MODEL NAME** : A930  
**MARKETING NAME** : A930  
**FCC ID** : V5PA930  
**STANDARD** : FCC Part 15 Subpart E §15.407  
**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

The product was received on Jun. 26, 2018 and testing was completed on Aug. 13, 2018. 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.



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Approved by: Eric Shih / Manager

***Sporton International (Shenzhen) Inc.***

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Guangdong Province 518055 China***



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## REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR862615E	Rev. 01	Initial issue of report	Aug. 17, 2018

## 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	$\leq 24$ dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	$\leq 11$ dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 9.55 dB at 39.70 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 5.80 dB at 0.56 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	A930
Marketing Name	A930
FCC ID	V5PA930
EUT supports Radios application	WCDMA/HSPA/HSPA+(16QAM uplink is not supported)/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 Bluetooth BR/EDR/LE
IMEI Code	Conducted: 354449090064990 Radiation: 354449090064958 Conduction: 354449090064958
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	
<b>Tx/Rx Frequency Range</b>	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz
<b>Maximum Output Power to Antenna</b>	<b>&lt;5180 MHz ~ 5240 MHz&gt;</b> 802.11a : 10.96 dBm / 0.0125 W 802.11n HT20 : 10.99 dBm / 0.0126 W 802.11n HT40 : 8.30 dBm / 0.0068 W <b>&lt;5260 MHz ~ 5320 MHz&gt;</b> 802.11a : 9.59 dBm / 0.0091 W 802.11n HT20 : 9.42 dBm / 0.0087 W 802.11n HT40 : 9.57 dBm / 0.0091 W <b>&lt;5500 MHz ~ 5720 MHz &gt;</b> 802.11a : 10.43 dBm / 0.0110 W 802.11n HT20 : 10.33 dBm / 0.0108 W 802.11n HT40 : 9.67 dBm / 0.0093 W
<b>99% Occupied Bandwidth</b>	<b>&lt;5180 MHz ~ 5240 MHz&gt;</b> 802.11a : 18.68 MHz 802.11n HT20 : 19.43 MHz 802.11n HT40 : 36.56 MHz <b>&lt;5260 MHz ~ 5320 MHz&gt;</b> 802.11a : 18.88 MHz 802.11n HT20 : 19.43 MHz 802.11n HT40 : 36.56 MHz <b>&lt;5500 MHz ~ 5720 MHz &gt;</b> 802.11a : 18.98 MHz 802.11n HT20 : 19.28 MHz 802.11n HT40 : 37.16 MHz
<b>Antenna Gain / Gain</b>	<b>&lt;5150 MHz ~ 5250 MHz&gt;</b> External Antenna with gain -2.00 dBi <b>&lt;5250 MHz ~ 5350 MHz&gt;</b> External Antenna with gain -2.00 dBi <b>&lt;5470 MHz ~ 5725 MHz&gt;</b> External Antenna with gain -2.00 dBi
<b>Type of Modulation</b>	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 Lab is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0) and the FCC designation No are CN5018 and CN5019.

<b>Test Site</b>	Sporton International (Shenzhen) Inc.		
<b>Test Site Location</b>	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		
<b>Test Site No.</b>	<b>Sporton Site No.</b>		<b>FCC Test Firm Registration No.</b>
	TH01-SZ	CO01-SZ	251365

<b>Test Site</b>	Sporton International (Shenzhen) Inc.		
<b>Test Site Location</b>	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		
<b>Test Site No.</b>	<b>Sporton Site No.</b>		<b>FCC Test Firm Registration No.</b>
	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)
5150-5250 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2 (U-NII-2A)	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3 (U-NII-2C)	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	-	-	134*	5670
	108	5540	136	5680
	110*	5550	140	5700

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	142*	5710	144	5720

**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 V Idle + Bluetooth Link + WLAN Link (5G) + USB Cable (Charging from adapter 1) + Earphone
<b>Remark:</b> For Radiated Test Cases, The tests were performance with Adapter 1, Battery, Earphone, and USB Cable.	

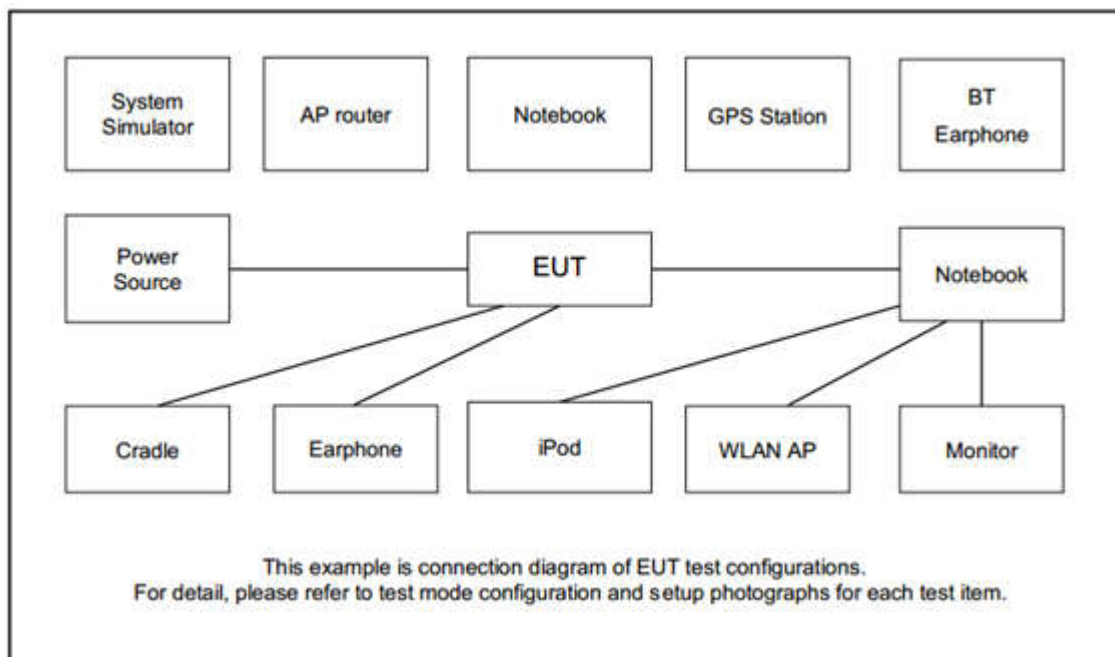


Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134
Straddle		-	-	142

## 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-820L	KA2IR820LA1	N/A	Unshielded, 1.8 m
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	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
6.	Earphone	Apple	MC690ZP/A	N/A	Shielded, 1.8 m	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 Notebook 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.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 6.6 + 10 = 16.6 \text{ (dB)}\end{aligned}$$

### 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.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

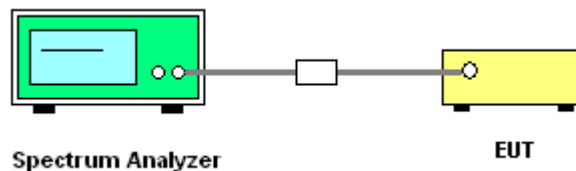
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

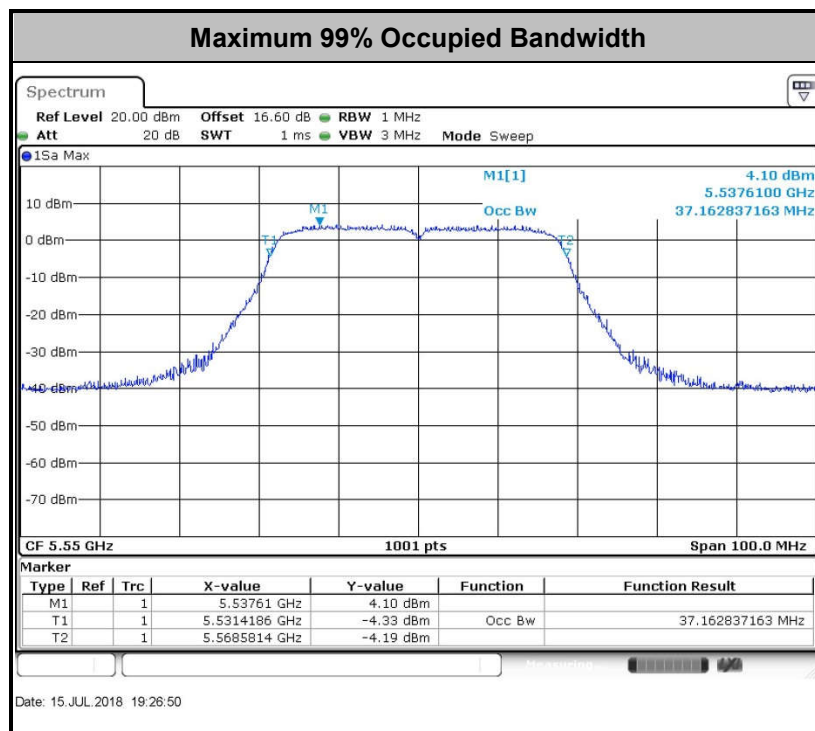
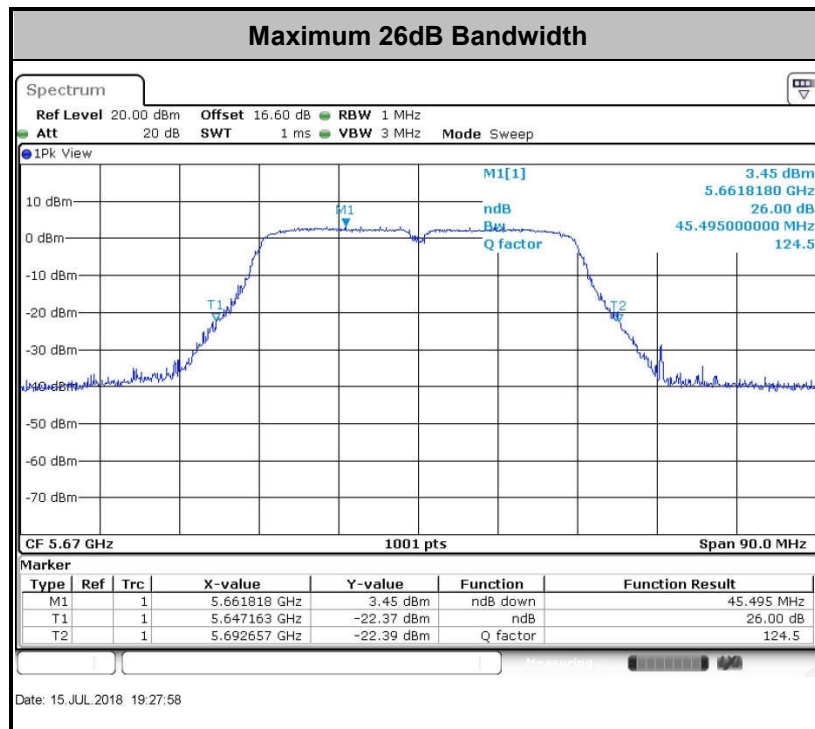
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB 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)  $\geq 3 * \text{RBW}$ .
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.



**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.

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm  $10 \log B$ , where B is the 26 dB emission bandwidth in megahertz.

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.

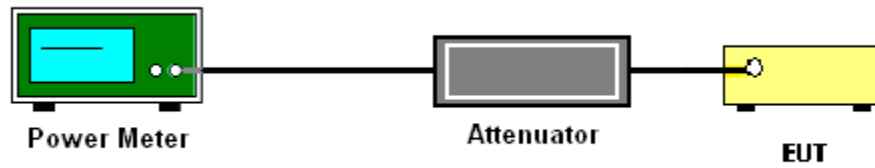
### 3.2.3 Test Procedures

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.

For the 5.25–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm 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.

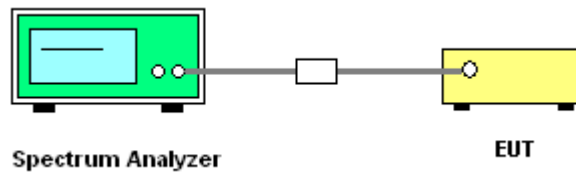
Section F) Maximum power spectral density.

#### # Method SA-2 #

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

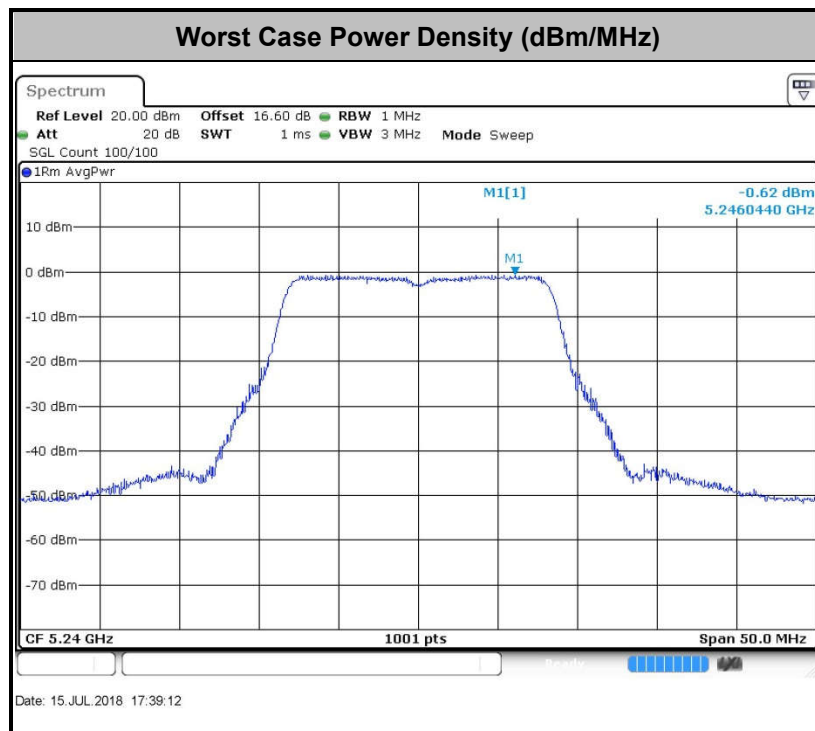
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW  $\geq$  3 MHz.
- Number of points in sweep  $\geq$  2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add  $10 \log(1/x)$ , 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.



**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.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRP of -27 dBm/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.

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

where

EIRP is the equivalent isotropically radiated power, in dBm

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

$d_{\text{Meas}}$  is the measurement distance, in m

### 3.4.2 Measuring Instruments

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

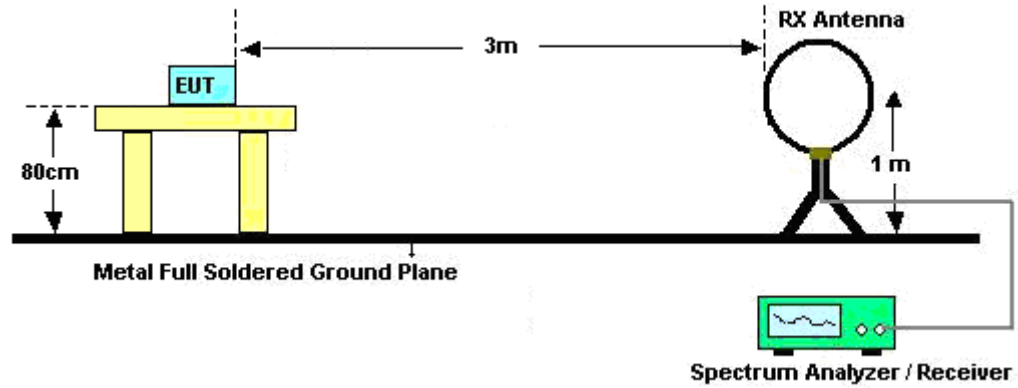


### 3.4.3 Test Procedures

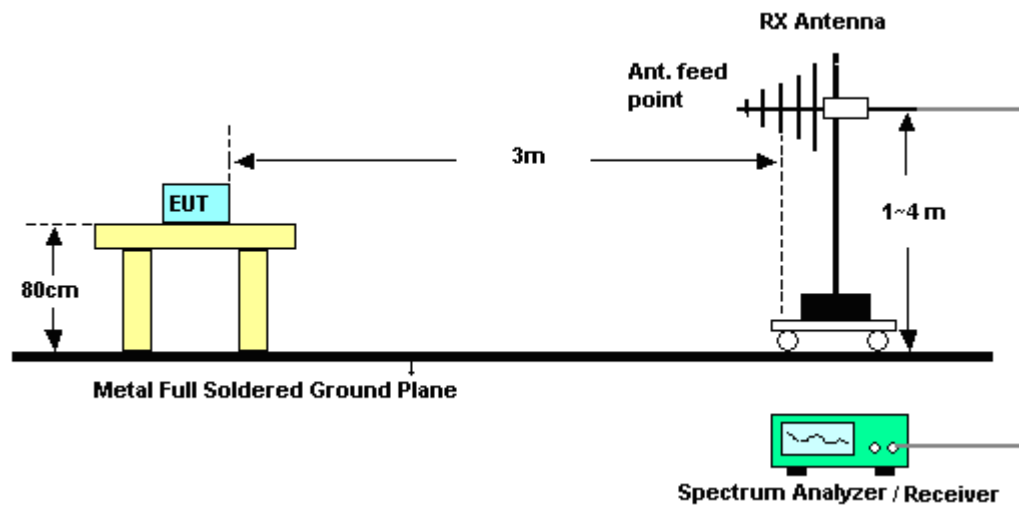
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
  - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
    - RBW = 120 kHz
    - VBW = 300 kHz
    - Detector = Peak
    - Trace mode = max hold
  - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
    - RBW = 1 MHz
    - VBW  $\geq$  3 MHz
    - Detector = Peak
    - Sweep time = auto
    - Trace mode = max hold
  - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
    - RBW = 1 MHz
    - VBW = 10 Hz, when duty cycle is no less than 98 percent.
    - VBW  $\geq$  1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than 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

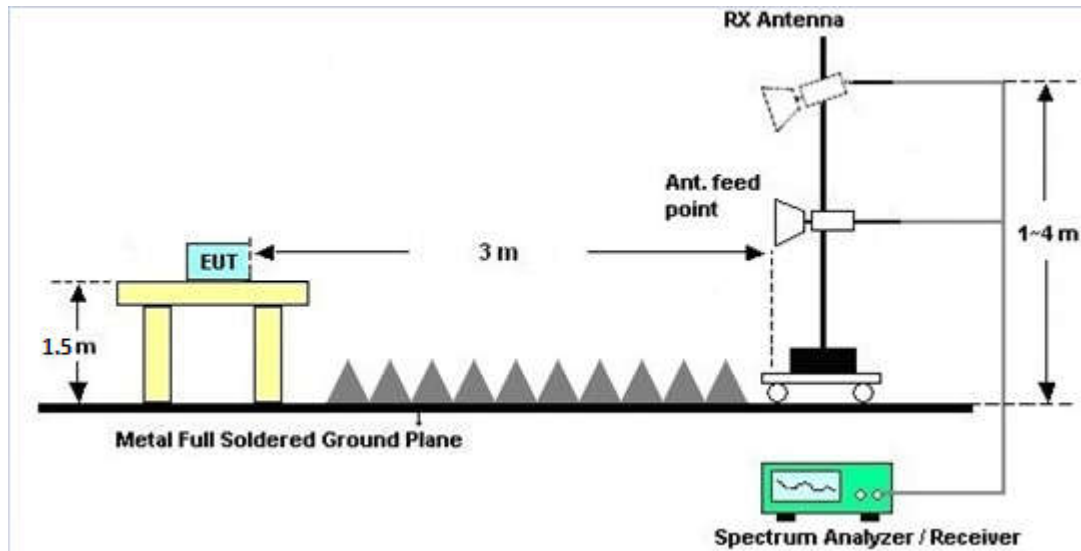
For radiated emissions below 30MHz



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 (dB $\mu$ V)	
	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.

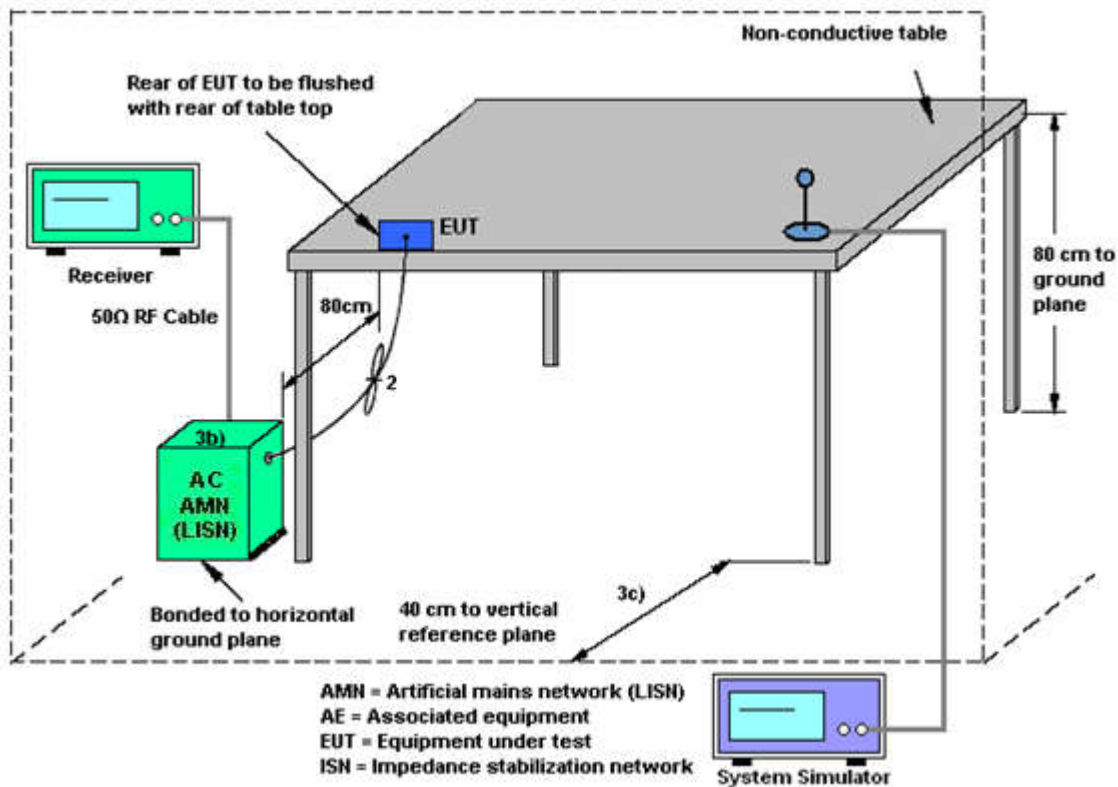
### 3.5.2 Measuring Instruments

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	Jul. 15, 2018	Apr. 18, 2019	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Dec. 26, 2017	Jul. 15, 2018	Dec. 25, 2018	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Dec. 26, 2017	Jul. 15, 2018	Dec. 25, 2018	Conducted (TH01-SZ)
DC Power Supply	GWINSTEK	AnritsuGPS-3030D	EM882636	Max 30V	Apr. 19, 2018	Jul. 15, 2018	Apr. 18, 2019	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhonggroup	LP-150U	H2014081803	-40~+150°C	Jul. 20, 2017	Jul. 15, 2018	Jul. 19, 2018	Conducted (TH01-SZ)
Spectrum Analyzer	R&S	FSV40	101041	10kHz~40GHz; Max 30dBm	Oct. 19, 2017	Jul. 18, 2018	Oct. 18, 2018	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 14, 2018	Jul. 18, 2018	May 13, 2019	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz~2GHz	May 10, 2018	Jul. 18, 2018	May 09, 2019	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1285	1GHz~18GHz	Dec. 13, 2017	Jul. 18, 2018	Dec. 12, 2018	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Mar. 30, 2018	Jul. 18, 2018	Mar. 29, 2019	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 19, 2017	Jul. 18, 2018	Oct. 18, 2018	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1707137	1GHz~18GHz	Oct. 19, 2017	Jul. 18, 2018	Oct. 18, 2018	Radiation (03CH02-SZ)
Amplifier	Agilent	8449B	3008A01023	1GHz~26.5GHz	Oct. 19, 2017	Jul. 18, 2018	Oct. 18, 2018	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 21, 2017	Jul. 18, 2018	Jul. 20, 2018	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010002470	N/A	NCR	Jul. 18, 2018	NCR	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Jul. 18, 2018	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Jul. 18, 2018	NCR	Radiation (03CH02-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 26, 2017	Aug. 13, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Dec. 26, 2017	Aug. 13, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Nov. 01, 2017	Aug. 13, 2018	Oct. 31, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 18, 2018	Aug. 13, 2018	Jul. 17, 2019	Conduction (CO01-SZ)

NCR: No Calibration Required

## 5 Uncertainty of Evaluation

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.1 dB
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### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.0 dB
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.4 dB
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## Appendix A. Test Result of Conducted Test Items

Test Engineer:	Sam Zheng	Temperature:	21~25	°C
Test Date:	2018/7/15	Relative Humidity:	51~54	%



**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	18.23	23.48	-	22.61		
11a	6Mbps	1	44	5220	18.58	23.33	-	22.69		
11a	6Mbps	1	48	5240	18.68	23.78	-	22.71		
HT20	MCS0	1	36	5180	19.43	23.48	-	22.88		
HT20	MCS0	1	44	5220	19.23	23.78	-	22.84		
HT20	MCS0	1	48	5240	19.13	23.83	-	22.82		
HT40	MCS0	1	38	5190	36.46	44.51	-	23.01		
HT40	MCS0	1	46	5230	36.56	44.87	-	23.01		

**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	0.62	10.12	24.00	-2.00		Pass
11a	6Mbps	1	44	5220	0.62	10.18	24.00	-2.00		Pass
11a	6Mbps	1	48	5240	0.62	10.96	24.00	-2.00		Pass
HT20	MCS0	1	36	5180	0.64	10.26	24.00	-2.00		Pass
HT20	MCS0	1	44	5220	0.64	10.32	24.00	-2.00		Pass
HT20	MCS0	1	48	5240	0.64	10.99	24.00	-2.00		Pass
HT40	MCS0	1	38	5190	1.17	8.20	24.00	-2.00		Pass
HT40	MCS0	1	46	5230	1.17	8.30	24.00	-2.00		Pass

**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	0.62	-0.34	11.00	-2.00		Pass
11a	6Mbps	1	44	5220	0.62	-0.37	11.00	-2.00		Pass
11a	6Mbps	1	48	5240	0.62	0.00	11.00	-2.00		Pass
HT20	MCS0	1	36	5180	0.64	-0.91	11.00	-2.00		Pass
HT20	MCS0	1	44	5220	0.64	-1.00	11.00	-2.00		Pass
HT20	MCS0	1	48	5240	0.64	-0.27	11.00	-2.00		Pass
HT40	MCS0	1	38	5190	1.17	-5.67	11.00	-2.00		Pass
HT40	MCS0	1	46	5230	1.17	-5.31	11.00	-2.00		Pass

**TEST RESULTS DATA**  
**26dB and 99% OBW**

Band II										
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)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	52	5260	18.43	23.53	23.66	29.66	23.98	
11a	6M bps	1	60	5300	18.88	23.48	23.76	29.76	23.98	
11a	6M bps	1	64	5320	18.38	23.78	23.64	29.64	23.98	
HT20	MCS 0	1	52	5260	19.18	23.83	23.83	29.83	23.98	
HT20	MCS 0	1	60	5300	19.13	23.68	23.82	29.82	23.98	
HT20	MCS 0	1	64	5320	19.43	23.83	23.88	29.88	23.98	
HT40	MCS 0	1	54	5270	36.56	44.24	23.98	30.00	23.98	
HT40	MCS 0	1	62	5310	36.46	45.05	23.98	30.00	23.98	

**TEST RESULTS DATA**  
**Average Power Table**

FCC Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	52	5260	0.62	9.22	23.98	-2.00	26.99	Pass
11a	6M bps	1	60	5300	0.62	9.55	23.98	-2.00	26.99	Pass
11a	6M bps	1	64	5320	0.62	9.59	23.98	-2.00	26.99	Pass
HT20	MCS 0	1	52	5260	0.64	9.20	23.98	-2.00	26.99	Pass
HT20	MCS 0	1	60	5300	0.64	9.20	23.98	-2.00	26.99	Pass
HT20	MCS 0	1	64	5320	0.64	9.42	23.98	-2.00	26.99	Pass
HT40	MCS 0	1	54	5270	1.17	9.28	23.98	-2.00	26.99	Pass
HT40	MCS 0	1	62	5310	1.17	9.57	23.98	-2.00	26.99	Pass

**TEST RESULTS DATA**  
**Power Spectral Density**

Band II										
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	6M bps	1	52	5260	0.62	-1.89	11.00	-2.00		Pass
11a	6M bps	1	60	5300	0.62	-1.47	11.00	-2.00		Pass
11a	6M bps	1	64	5320	0.62	-1.23	11.00	-2.00		Pass
HT20	MCS 0	1	52	5260	0.64	-2.24	11.00	-2.00		Pass
HT20	MCS 0	1	60	5300	0.64	-1.73	11.00	-2.00		Pass
HT20	MCS 0	1	64	5320	0.64	-1.64	11.00	-2.00		Pass
HT40	MCS 0	1	54	5270	1.17	-4.59	11.00	-2.00		Pass
HT40	MCS 0	1	62	5310	1.17	-4.48	11.00	-2.00		Pass

**TEST RESULTS DATA**  
**26dB and 99% OBW**

Band III										
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	100	5500	18.38	23.58	23.64	29.64	23.98	
11a	6M bps	1	116	5580	18.23	23.68	23.61	29.61	23.98	
11a	6M bps	1	140	5700	18.98	23.68	23.78	29.78	23.98	
11a	6Mbps	1	144	5720	18.53	23.68	23.68	29.68	23.98	
HT20	MCS 0	1	100	5500	19.28	23.78	23.85	29.85	23.98	
HT20	MCS 0	1	116	5580	19.13	23.63	23.82	29.82	23.98	
HT20	MCS 0	1	140	5700	19.18	23.78	23.83	29.83	23.98	
HT20	MCS0	1	144	5720	19.18	23.93	23.83	29.83	23.98	
HT40	MCS 0	1	102	5510	36.86	44.60	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	37.16	44.69	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	36.66	45.50	23.98	30.00	23.98	
HT40	MCS0	1	142	5710	36.66	44.60	23.98	30.00	23.98	

**TEST RESULTS DATA**  
**Average Power Table**

FCC Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	100	5500	0.62	9.57	23.98	-2.00	26.99	Pass
11a	6M bps	1	116	5580	0.62	9.99	23.98	-2.00	26.99	Pass
11a	6M bps	1	140	5700	0.62	10.43	23.98	-2.00	26.99	Pass
11a	6M bps	1	144	5720	0.62	9.39	23.98	-2.00	26.99	Pass
HT20	MCS 0	1	100	5500	0.64	9.54	23.98	-2.00	26.99	Pass
HT20	MCS 0	1	116	5580	0.64	9.84	23.98	-2.00	26.99	Pass
HT20	MCS 0	1	140	5700	0.64	10.33	23.98	-2.00	26.99	Pass
HT20	MCS 0	1	144	5720	0.64	9.16	23.98	-2.00	26.99	Pass
HT40	MCS 0	1	102	5510	1.17	9.67	23.98	-2.00	26.99	Pass
HT40	MCS 0	1	110	5550	1.17	9.50	23.98	-2.00	26.99	Pass
HT40	MCS 0	1	134	5670	1.17	9.00	23.98	-2.00	26.99	Pass
HT40	MCS 0	1	142	5710	1.17	8.59	23.98	-2.00	26.99	Pass

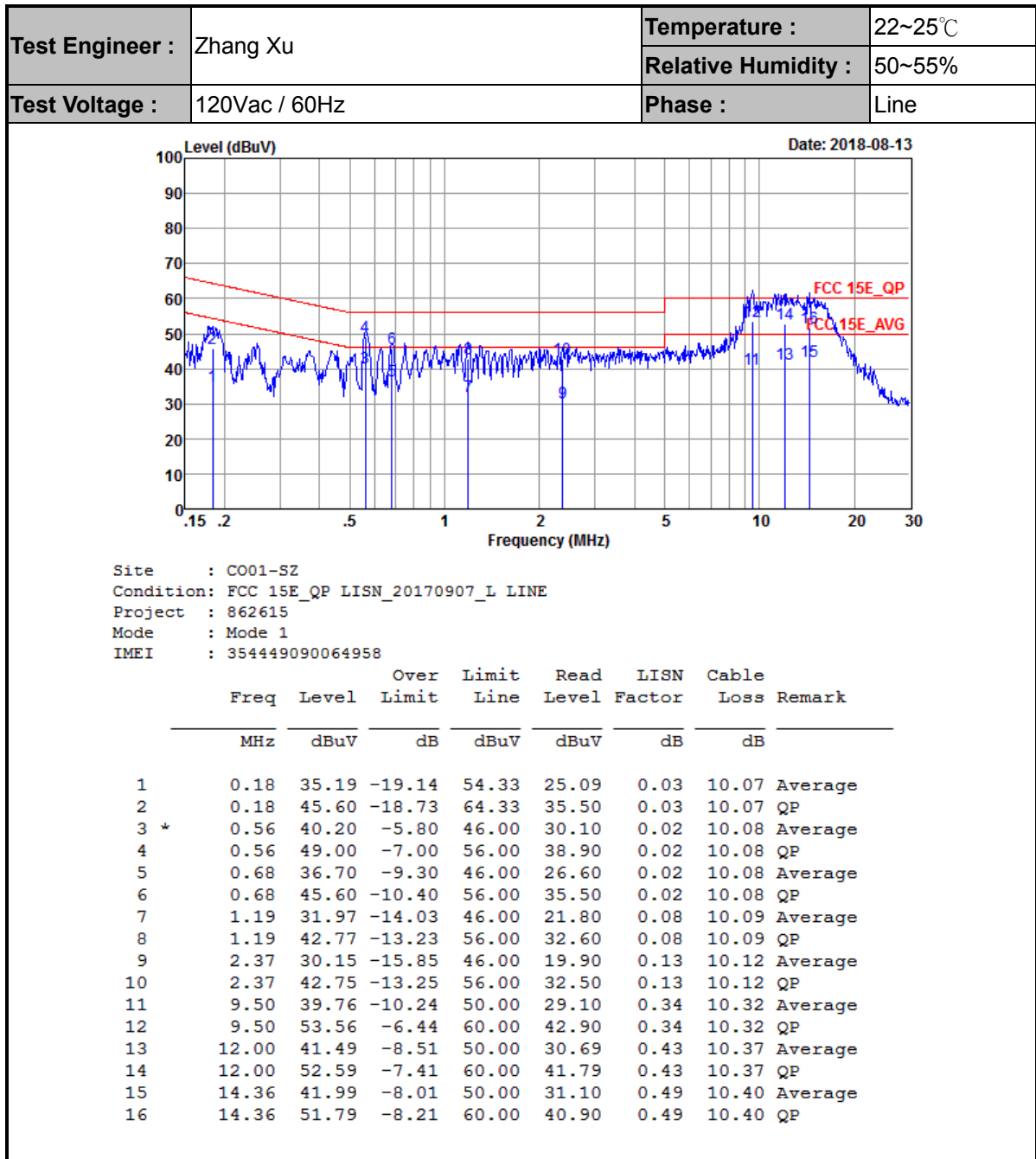


**TEST RESULTS DATA**  
**Power Spectral Density**

Band III										
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	6M bps	1	100	5500	0.62	-1.11	11.00	-2.00		Pass
11a	6M bps	1	116	5580	0.62	-0.82	11.00	-2.00		Pass
11a	6M bps	1	140	5700	0.62	-0.26	11.00	-2.00		Pass
11a	6Mbps	1	144	5720	0.62	-1.61	11.00	-2.00		Pass
HT20	MCS 0	1	100	5500	0.64	-1.59	11.00	-2.00		Pass
HT20	MCS 0	1	116	5580	0.64	-1.12	11.00	-2.00		Pass
HT20	MCS 0	1	140	5700	0.64	-0.67	11.00	-2.00		Pass
HT20	MCS0	1	144	5720	0.64	-1.47	11.00	-2.00		Pass
HT40	MCS 0	1	102	5510	1.17	-4.43	11.00	-2.00		Pass
HT40	MCS 0	1	110	5550	1.17	-4.66	11.00	-2.00		Pass
HT40	MCS 0	1	134	5670	1.17	-4.83	11.00	-2.00		Pass
HT40	MCS0	1	142	5710	1.17	-5.41	11.00	-2.00		Pass

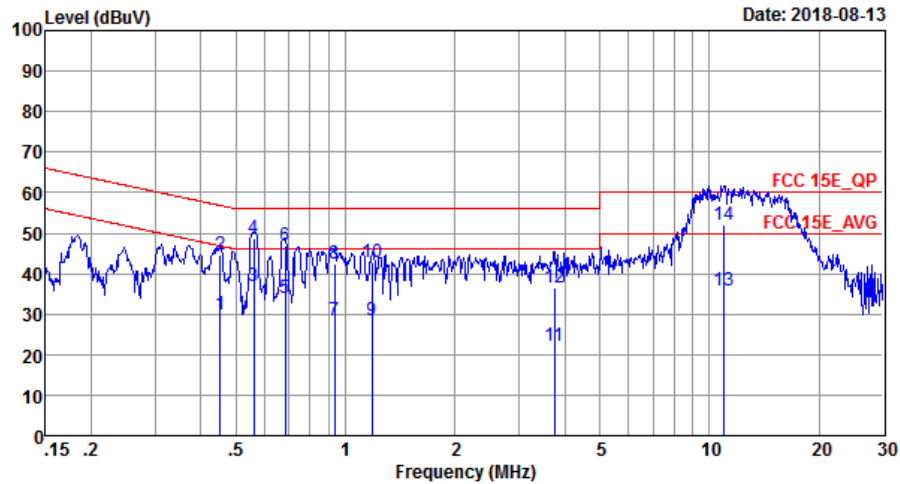


## Appendix B. AC Conducted Emission Test Results





Test Engineer :	Zhang Xu	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



Site : C001-SZ  
Condition: FCC 15E\_QP LISN\_20170907\_N NEUTRAL  
Project : 862615  
Mode : Mode 1  
IMEI : 354449090064958

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.45	29.80	-17.05	46.85	19.70	0.02	10.08	Average
2	0.45	44.70	-12.15	56.85	34.60	0.02	10.08	QP
3	0.56	36.80	-9.20	46.00	26.70	0.02	10.08	Average
4 *	0.56	48.80	-7.20	56.00	38.70	0.02	10.08	QP
5	0.68	33.80	-12.20	46.00	23.70	0.02	10.08	Average
6	0.68	47.00	-9.00	56.00	36.90	0.02	10.08	QP
7	0.93	28.33	-17.67	46.00	18.20	0.04	10.09	Average
8	0.93	42.43	-13.57	56.00	32.30	0.04	10.09	QP
9	1.18	28.24	-17.76	46.00	18.10	0.05	10.09	Average
10	1.18	42.74	-13.26	56.00	32.60	0.05	10.09	QP
11	3.76	22.21	-23.79	46.00	12.00	0.05	10.16	Average
12	3.76	36.51	-19.49	56.00	26.30	0.05	10.16	QP
13	10.96	35.85	-14.15	50.00	25.30	0.20	10.35	Average
14	10.96	51.95	-8.05	60.00	41.40	0.20	10.35	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		5049.92	49.86	-24.14	74	39.91	31.73	9.91	31.69	100	40	P	H
		5051.48	38.31	-15.69	54	28.36	31.73	9.91	31.69	100	40	A	H
	*	5180	95.85	-	-	85.67	31.81	10.03	31.66	100	40	P	H
	*	5180	88.68	-	-	78.5	31.81	10.03	31.66	100	40	A	H
		5125.84	47.25	-26.75	74	37.16	31.78	9.98	31.67	110	30	P	V
		5127.66	39.08	-14.92	54	28.99	31.78	9.98	31.67	110	30	A	V
	*	5180	95.97	-	-	85.79	31.81	10.03	31.66	110	30	P	V
	*	5180	89.16	-	-	78.98	31.81	10.03	31.66	110	30	A	V
802.11a CH 44 5220MHz		5140.92	47.55	-26.45	74	37.42	31.79	10.01	31.67	127	42	P	H
		5122.98	38.05	-15.95	54	27.96	31.78	9.98	31.67	127	42	A	H
	*	5220	95.96	-	-	85.71	31.83	10.07	31.65	127	42	P	H
	*	5220	89.99	-	-	79.74	31.83	10.07	31.65	127	42	A	H
		5414.64	47.27	-26.73	74	36.69	31.95	10.25	31.62	127	42	P	H
		5414.4	38.3	-15.7	54	27.72	31.95	10.25	31.62	127	42	A	H
		5142.48	46.95	-27.05	74	36.82	31.79	10.01	31.67	100	35	P	V
		5054.34	37.81	-16.19	54	27.86	31.73	9.91	31.69	100	35	A	V
	*	5220	95.33	-	-	85.08	31.83	10.07	31.65	100	35	P	V
	*	5220	89.63	-	-	79.38	31.83	10.07	31.65	100	35	A	V
		5358.24	47.48	-26.52	74	37.01	31.91	10.19	31.63	100	35	P	V
		5409.6	38.24	-15.76	54	27.69	31.94	10.23	31.62	100	35	A	V



<b>802.11a</b> <b>CH 48</b> <b>5240MHz</b>		5102.18	47.06	-26.94	74	37.02	31.76	9.96	31.68	130	41	P	H
		5045.24	37.82	-16.18	54	27.87	31.73	9.91	31.69	130	41	A	H
	*	5240	95.96	-	-	85.67	31.84	10.1	31.65	130	41	P	H
	*	5240	89.75	-	-	79.46	31.84	10.1	31.65	130	41	A	H
		5454.48	47.61	-26.39	74	36.97	31.97	10.28	31.61	130	41	P	H
		5435.52	38.27	-15.73	54	27.67	31.96	10.25	31.61	130	41	A	H
		5102.18	46.52	-27.48	74	36.48	31.76	9.96	31.68	110	36	P	V
		5049.92	37.81	-16.19	54	27.86	31.73	9.91	31.69	110	36	A	V
	*	5240	96.81	-	-	86.52	31.84	10.1	31.65	110	36	P	V
	*	5240	90.35	-	-	80.06	31.84	10.1	31.65	110	36	A	V
		5427.36	47.37	-26.63	74	36.78	31.95	10.25	31.61	110	36	P	V
		5437.68	38.34	-15.66	54	27.71	31.96	10.28	31.61	110	36	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	49.56	-24.44	74	51.56	39.27	14.58	55.85	150	360	P	H
		15540	49.81	-24.19	74	50.09	39.02	17.43	56.73	189	238	P	H
		10360	49.71	-24.29	74	51.71	39.27	14.58	55.85	152	260	P	V
		15540	50.11	-23.89	74	50.39	39.02	17.43	56.73	189	238	P	V
802.11a CH 44 5220MHz		10440	50.46	-23.54	74	52.36	39.33	14.65	55.88	150	230	P	H
		15660	49.68	-24.32	74	49.94	38.73	17.5	56.49	160	225	P	H
		10440	50.76	-23.24	74	52.66	39.33	14.65	55.88	150	230	P	V
		15660	49.24	-24.76	74	49.5	38.73	17.5	56.49	160	225	P	V
802.11a CH 48 5240MHz		10480	50.05	-23.95	74	51.9	39.38	14.67	55.9	150	289	P	H
		15720	50.29	-23.71	74	50.53	38.56	17.55	56.35	150	291	P	H
		10480	49.91	-24.09	74	51.76	39.38	14.67	55.9	150	289	P	V
		15720	49.61	-24.39	74	49.85	38.56	17.55	56.35	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 )
802.11n HT20 CH 36 5180MHz		5059.02	46.91	-27.09	74	36.95	31.74	9.91	31.69	115	40	P	H
		5127.92	39.53	-14.47	54	29.44	31.78	9.98	31.67	115	40	A	H
	*	5180	95.81	-	-	85.63	31.81	10.03	31.66	115	40	P	H
	*	5180	89.93	-	-	79.75	31.81	10.03	31.66	115	40	A	H
		5125.06	47.56	-26.44	74	37.47	31.78	9.98	31.67	116	36	P	V
		5127.66	39	-15	54	28.91	31.78	9.98	31.67	116	36	A	V
	*	5180	94.27	-	-	84.09	31.81	10.03	31.66	116	36	P	V
	*	5180	88.76	-	-	78.58	31.81	10.03	31.66	116	36	A	V
802.11n HT20 CH 44 5220MHz		5026.78	47.81	-26.19	74	37.89	31.72	9.89	31.69	141	42	P	H
		5079.82	37.84	-16.16	54	27.83	31.75	9.94	31.68	141	42	A	H
	*	5220	94.94	-	-	84.69	31.83	10.07	31.65	141	42	P	H
	*	5220	89.02	-	-	78.77	31.83	10.07	31.65	141	42	A	H
		5417.76	47.42	-26.58	74	36.84	31.95	10.25	31.62	141	42	P	H
		5458.32	38.14	-15.86	54	27.5	31.97	10.28	31.61	141	42	A	H
		5022.36	46.57	-27.43	74	36.65	31.72	9.89	31.69	100	36	P	V
		5083.2	37.75	-16.25	54	27.74	31.75	9.94	31.68	100	36	A	V
	*	5220	95.35	-	-	85.1	31.83	10.07	31.65	100	36	P	V
	*	5220	89.22	-	-	78.97	31.83	10.07	31.65	100	36	A	V
		5441.04	46.83	-27.17	74	36.2	31.96	10.28	31.61	100	36	P	V
		5450.64	38.08	-15.92	54	27.44	31.97	10.28	31.61	100	36	A	V



<b>802.11n</b>  <b>HT20</b>  <b>CH 48</b>  <b>5240MHz</b>		5063.18	47.56	-26.44	74	37.56	31.74	9.94	31.68	142	42	P	H
		5054.08	37.92	-16.08	54	27.97	31.73	9.91	31.69	142	42	A	H
	*	5240	96.1	-	-	85.81	31.84	10.1	31.65	142	42	P	H
	*	5240	90.15	-	-	79.86	31.84	10.1	31.65	142	42	A	H
		5428.08	47.35	-26.65	74	36.76	31.95	10.25	31.61	142	42	P	H
		5425.68	38.19	-15.81	54	27.61	31.95	10.25	31.62	142	42	A	H
		5031.72	46.96	-27.04	74	37.04	31.72	9.89	31.69	147	43	P	V
		5049.66	37.72	-16.28	54	27.77	31.73	9.91	31.69	147	43	A	V
	*	5240	96.04	-	-	85.75	31.84	10.1	31.65	147	43	P	V
	*	5240	89.92	-	-	79.63	31.84	10.1	31.65	147	43	A	V
		5412.72	47.38	-26.62	74	36.8	31.95	10.25	31.62	147	43	P	V
		5429.04	38.07	-15.93	54	27.47	31.96	10.25	31.61	147	43	A	V
<b>Remark</b>	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 HT20 CH 36 5180MHz		10360	50.6	-23.4	74	52.6	39.27	14.58	55.85	152	260	P	H
		15540	50.2	-23.8	74	50.48	39.02	17.43	56.73	189	238	P	H
		10360	50.18	-23.82	74	52.18	39.27	14.58	55.85	152	260	P	V
		15540	49.57	-24.43	74	49.85	39.02	17.43	56.73	189	238	P	V
802.11n HT20 CH 44 5220MHz		10440	50.45	-23.55	74	52.35	39.33	14.65	55.88	150	230	P	H
		15660	50.22	-23.78	74	50.48	38.73	17.5	56.49	160	225	P	H
		10440	50.75	-23.25	74	52.65	39.33	14.65	55.88	150	230	P	V
		15660	49.9	-24.1	74	50.16	38.73	17.5	56.49	160	225	P	V
802.11n HT20 CH 48 5240MHz		10480	49.73	-24.27	74	51.58	39.38	14.67	55.9	150	289	P	H
		15720	48.99	-25.01	74	49.23	38.56	17.55	56.35	150	291	P	H
		10480	50.51	-23.49	74	52.36	39.38	14.67	55.9	150	289	P	V
		15720	49.43	-24.57	74	49.67	38.56	17.55	56.35	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		5049.14	49.36	-24.64	74	39.41	31.73	9.91	31.69	116	40	P	H
		5069.94	40.91	-13.09	54	30.91	31.74	9.94	31.68	116	40	A	H
	*	5190	93.63	-	-	83.43	31.81	10.05	31.66	116	40	P	H
	*	5190	87.34	-	-	77.14	31.81	10.05	31.66	116	40	A	H
		5388.88	47.45	-26.55	74	36.91	31.93	10.23	31.62	116	40	P	H
		5415.2	39.43	-14.57	54	28.85	31.95	10.25	31.62	116	40	A	H
		5049.4	49.17	-24.83	74	39.22	31.73	9.91	31.69	103	36	P	V
		5086.32	40.78	-13.22	54	30.77	31.75	9.94	31.68	103	36	A	V
	*	5190	94.03	-	-	83.83	31.81	10.05	31.66	103	36	P	V
	*	5190	87.98	-	-	77.78	31.81	10.05	31.66	103	36	A	V
		5446.56	46.87	-27.13	74	36.23	31.97	10.28	31.61	103	36	P	V
		5425.84	39.41	-14.59	54	28.83	31.95	10.25	31.62	103	36	A	V
802.11n HT40 CH 46 5230MHz		5137.28	48.62	-25.38	74	38.53	31.78	9.98	31.67	112	42	P	H
		5050.44	40.71	-13.29	54	30.76	31.73	9.91	31.69	112	42	A	H
	*	5230	93.38	-	-	83.12	31.84	10.07	31.65	112	42	P	H
	*	5230	88.02	-	-	77.76	31.84	10.07	31.65	112	42	A	H
		5440.56	47.4	-26.6	74	36.77	31.96	10.28	31.61	112	42	P	H
		5445.6	39.42	-14.58	54	28.78	31.97	10.28	31.61	112	42	A	H
		5046.28	48.9	-25.1	74	38.95	31.73	9.91	31.69	102	35	P	V
		5048.36	40.83	-13.17	54	30.88	31.73	9.91	31.69	102	35	A	V
	*	5230	94.35	-	-	84.09	31.84	10.07	31.65	102	35	P	V
	*	5230	89.21	-	-	78.95	31.84	10.07	31.65	102	35	A	V
		5411.76	47.18	-26.82	74	36.62	31.95	10.23	31.62	102	35	P	V
		5450.64	39.56	-14.44	54	28.92	31.97	10.28	31.61	102	35	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 HT40 CH 38 5190MHz		10380	50.23	-23.77	74	52.22	39.28	14.59	55.86	150	360	P	H
		15570	50.2	-23.8	74	50.49	38.93	17.44	56.66	155	360	P	H
		10380	50.18	-23.82	74	52.17	39.28	14.59	55.86	150	360	P	V
		15570	50.41	-23.59	74	50.7	38.93	17.44	56.66	155	360	P	V
802.11n HT40 CH 46 5230MHz		10460	50.92	-23.08	74	52.8	39.35	14.65	55.88	150	360	P	H
		15690	49.53	-24.47	74	49.78	38.64	17.53	56.42	150	225	P	H
		10460	50.57	-23.43	74	52.45	39.35	14.65	55.88	150	360	P	V
		15690	50.61	-23.39	74	50.86	38.64	17.53	56.42	150	225	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



## Band 2 - 5250~5350MHz

## 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 52 5260MHz		5135.2	47.6	-26.4	74	37.51	31.78	9.98	31.67	118	42	P	H
		5072.8	37.73	-16.27	54	27.72	31.75	9.94	31.68	118	42	A	H
	*	5260	94.08	-	-	83.77	31.86	10.1	31.65	118	42	P	H
	*	5260	87.97	-	-	77.66	31.86	10.1	31.65	118	42	A	H
		5416.8	47.53	-26.47	74	36.95	31.95	10.25	31.62	118	42	P	H
		5444.16	38.33	-15.67	54	27.7	31.96	10.28	31.61	118	42	A	H
		5103.74	46.87	-27.13	74	36.83	31.76	9.96	31.68	100	33	P	V
		5119.34	37.78	-16.22	54	27.7	31.77	9.98	31.67	100	33	A	V
	*	5260	94.88	-	-	84.57	31.86	10.1	31.65	100	33	P	V
	*	5260	88.07	-	-	77.76	31.86	10.1	31.65	100	33	A	V
		5421.84	46.97	-27.03	74	36.39	31.95	10.25	31.62	100	33	P	V
		5441.04	38.18	-15.82	54	27.55	31.96	10.28	31.61	100	33	A	V
802.11a CH 60 5300MHz		5044.45	46.99	-27.01	74	37.04	31.73	9.91	31.69	134	37	P	H
		5105.7	37.98	-16.02	54	27.93	31.77	9.96	31.68	134	37	A	H
	*	5300	93.49	-	-	83.11	31.88	10.14	31.64	134	37	P	H
	*	5300	86.97	-	-	76.59	31.88	10.14	31.64	134	37	A	H
		5439.6	47.05	-26.95	74	36.42	31.96	10.28	31.61	134	37	P	H
		5352.24	39.3	-14.7	54	28.83	31.91	10.19	31.63	134	37	A	H
		5063.35	47.04	-26.96	74	37.04	31.74	9.94	31.68	133	38	P	V
		5108.85	38.02	-15.98	54	27.97	31.77	9.96	31.68	133	38	A	V
	*	5300	94.03	-	-	83.65	31.88	10.14	31.64	133	38	P	V
	*	5300	86.97	-	-	76.59	31.88	10.14	31.64	133	38	A	V
		5402.88	47.38	-26.62	74	36.83	31.94	10.23	31.62	133	38	P	V
		5352.48	39.25	-14.75	54	28.78	31.91	10.19	31.63	133	38	A	V



<b>802.11a</b> <b>CH 64</b> <b>5320MHz</b>	*	5320	94.71	-	-	84.3	31.89	10.16	31.64	100	34	P	H
	*	5320	88.31	-	-	77.9	31.89	10.16	31.64	100	34	A	H
		5422.56	47.57	-26.43	74	36.99	31.95	10.25	31.62	100	34	P	H
		5372.4	39.52	-14.48	54	29.02	31.92	10.21	31.63	100	34	A	H
	*	5320	95.1	-	-	84.69	31.89	10.16	31.64	100	40	P	V
	*	5320	88.31	-	-	77.9	31.89	10.16	31.64	100	40	A	V
		5452.08	48.48	-25.52	74	37.84	31.97	10.28	31.61	100	40	P	V
		5372.4	39.45	-14.55	54	28.95	31.92	10.21	31.63	100	40	A	V
<b>Remark</b>	<ol style="list-style-type: none"><li>1. No other spurious found.</li><li>2. All results are PASS against Peak and Average limit line.</li></ol>												



## Band 2 5250~5350MHz

## 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 52 5260MHz		10520	50.41	-23.59	74	52.2	39.42	14.7	55.91	150	220	P	H
		15780	49.14	-24.86	74	49.36	38.44	17.59	56.25	159	345	P	H
		10520	49.88	-24.12	74	51.67	39.42	14.7	55.91	150	220	P	V
		15780	48.82	-25.18	74	49.04	38.44	17.59	56.25	159	345	P	V
802.11a CH 60 5300MHz		10600	50.39	-23.61	74	52.05	39.52	14.76	55.94	185	215	P	H
		15900	49	-25	74	49.18	38.15	17.68	56.01	196	190	P	H
		10600	50.26	-23.74	74	51.92	39.52	14.76	55.94	185	215	P	V
		15900	48.79	-25.21	74	48.97	38.15	17.68	56.01	196	190	P	V
802.11a CH 64 5320MHz		10640	50.85	-23.15	74	52.45	39.57	14.79	55.96	152	135	P	H
		15960	48.39	-25.61	74	48.57	37.98	17.71	55.87	173	245	P	H
		10640	50.56	-23.44	74	52.16	39.57	14.79	55.96	152	135	P	V
		15960	48.88	-25.12	74	49.06	37.98	17.71	55.87	173	245	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



## Band 2 5250~5350MHz

## 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 )
802.11n HT20 CH 52 5260MHz		5032.24	48.26	-25.74	74	38.34	31.72	9.89	31.69	118	42	P	H
		5063.18	39.84	-14.16	54	29.84	31.74	9.94	31.68	118	42	A	H
	*	5260	97.03	-	-	86.72	31.86	10.1	31.65	118	42	P	H
	*	5260	90.42	-	-	80.11	31.86	10.1	31.65	118	42	A	H
		5449.92	47.44	-26.56	74	36.8	31.97	10.28	31.61	118	42	P	H
		5453.76	38.86	-15.14	54	28.22	31.97	10.28	31.61	118	42	A	H
		5048.36	48.32	-25.68	74	38.37	31.73	9.91	31.69	100	34	P	V
		5044.46	39.86	-14.14	54	29.91	31.73	9.91	31.69	100	34	A	V
	*	5260	97.45	-	-	87.14	31.86	10.1	31.65	100	34	P	V
	*	5260	90.95	-	-	80.64	31.86	10.1	31.65	100	34	A	V
		5426.64	47.1	-26.9	74	36.52	31.95	10.25	31.62	100	34	P	V
		5444.4	39.02	-14.98	54	28.39	31.96	10.28	31.61	100	34	A	V
802.11n HT20 CH 60 5300MHz		5074.9	48.63	-25.37	74	38.62	31.75	9.94	31.68	104	29	P	H
		5045.85	40.11	-13.89	54	30.16	31.73	9.91	31.69	104	29	A	H
	*	5300	96.26	-	-	85.88	31.88	10.14	31.64	104	29	P	H
	*	5300	89.12	-	-	78.74	31.88	10.14	31.64	104	29	A	H
		5389.92	48.48	-25.52	74	37.94	31.93	10.23	31.62	104	29	P	H
		5351.52	40.1	-13.9	54	29.63	31.91	10.19	31.63	104	29	A	H
		5016.45	48.27	-25.73	74	38.36	31.71	9.89	31.69	100	34	P	V
		5087.15	40.09	-13.91	54	30.08	31.75	9.94	31.68	100	34	A	V
	*	5300	97.7	-	-	87.32	31.88	10.14	31.64	100	34	P	V
	*	5300	90.13	-	-	79.75	31.88	10.14	31.64	100	34	A	V
		5351.76	47.1	-26.9	74	36.63	31.91	10.19	31.63	100	34	P	V
		5351.52	40.25	-13.75	54	29.78	31.91	10.19	31.63	100	34	A	V



<b>802.11n</b> <b>HT20</b> <b>CH 64</b> <b>5320MHz</b>	*	5320	95.93	-	-	85.52	31.89	10.16	31.64	146	35	P	H
	*	5320	89.36	-	-	78.95	31.89	10.16	31.64	146	35	A	H
		5449.12	47.28	-26.72	74	36.64	31.97	10.28	31.61	146	35	P	H
		5371.84	40	-14	54	29.5	31.92	10.21	31.63	146	35	A	H
	*	5320	97.35	-	-	86.94	31.89	10.16	31.64	120	42	P	V
	*	5320	90.84	-	-	80.43	31.89	10.16	31.64	120	42	A	V
		5364.48	47.97	-26.03	74	37.47	31.92	10.21	31.63	120	42	P	V
		5371.68	40.09	-13.91	54	29.59	31.92	10.21	31.63	120	42	A	V
<b>Remark</b>	<ol style="list-style-type: none"><li>1. No other spurious found.</li><li>2. All results are PASS against Peak and Average limit line.</li></ol>												





**Band 2 5250~5350MHz**  
**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 52 5260MHz		10520	50.72	-23.28	74	52.51	39.42	14.7	55.91	150	220	P	H
		15780	49.85	-24.15	74	50.07	38.44	17.59	56.25	159	345	P	H
		10520	50.14	-23.86	74	51.93	39.42	14.7	55.91	150	220	P	V
		15780	48.8	-25.2	74	49.02	38.44	17.59	56.25	159	345	P	V
802.11n HT20 CH 60 5300MHz		10600	50.72	-23.28	74	52.38	39.52	14.76	55.94	185	215	P	H
		15900	48.72	-25.28	74	48.9	38.15	17.68	56.01	196	190	P	H
		10600	50.81	-23.19	74	52.47	39.52	14.76	55.94	185	215	P	V
		15900	49.52	-24.48	74	49.7	38.15	17.68	56.01	196	190	P	V
802.11n HT20 CH 64 5320MHz		10640	50.77	-23.23	74	52.37	39.57	14.79	55.96	152	135	P	H
		15960	48.2	-25.8	74	48.38	37.98	17.71	55.87	173	245	P	H
		10640	50.19	-23.81	74	51.79	39.57	14.79	55.96	152	135	P	V
		15960	48.56	-25.44	74	48.74	37.98	17.71	55.87	173	245	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 5250~5350MHz**  
**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 54 5270MHz		5060.58	48.47	-25.53	74	38.51	31.74	9.91	31.69	128	33	P	H
		5076.96	40.47	-13.53	54	30.46	31.75	9.94	31.68	128	33	A	H
	*	5270	92.14	-	-	81.81	31.86	10.12	31.65	128	33	P	H
	*	5270	86.07	-	-	75.74	31.86	10.12	31.65	128	33	A	H
		5368.32	47.31	-26.69	74	36.81	31.92	10.21	31.63	128	33	P	H
		5447.04	39.37	-14.63	54	28.73	31.97	10.28	31.61	128	33	A	H
		5035.62	49.11	-24.89	74	39.19	31.72	9.89	31.69	106	42	P	V
		5045.76	40.69	-13.31	54	30.74	31.73	9.91	31.69	106	42	A	V
	*	5270	94.34	-	-	84.01	31.86	10.12	31.65	106	42	P	V
	*	5270	88.4	-	-	78.07	31.86	10.12	31.65	106	42	A	V
		5444.16	47.46	-26.54	74	36.83	31.96	10.28	31.61	106	42	P	V
		5373.12	39.42	-14.58	54	28.92	31.92	10.21	31.63	106	42	A	V
802.11n HT40 CH 62 5310MHz		5003.15	49.17	-24.83	74	39.3	31.7	9.87	31.7	146	44	P	H
		5044.45	40.8	-13.2	54	30.85	31.73	9.91	31.69	146	44	A	H
	*	5310	92.33	-	-	81.94	31.89	10.14	31.64	146	44	P	H
	*	5310	86.29	-	-	75.9	31.89	10.14	31.64	146	44	A	H
		5437.92	47.98	-26.02	74	37.35	31.96	10.28	31.61	146	44	P	H
		5415.6	39.58	-14.42	54	29	31.95	10.25	31.62	146	44	A	H
		5080.5	49.25	-24.75	74	39.24	31.75	9.94	31.68	123	41	P	V
		5041.65	40.97	-13.03	54	31.02	31.73	9.91	31.69	123	41	A	V
	*	5310	94.6	-	-	84.21	31.89	10.14	31.64	123	41	P	V
	*	5310	88.73	-	-	78.34	31.89	10.14	31.64	123	41	A	V
		5439.12	47.89	-26.11	74	37.26	31.96	10.28	31.61	123	41	P	V
		5449.92	39.69	-14.31	54	29.05	31.97	10.28	31.61	123	41	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 5250~5350MHz**  
**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 54 5270MHz		10540	50.6	-23.4	74	52.36	39.44	14.72	55.92	150	220	P	H
		15810	49.28	-24.72	74	49.49	38.36	17.61	56.18	168	345	P	H
		10540	50.82	-23.18	74	52.58	39.44	14.72	55.92	150	220	P	V
		15810	49.55	-24.45	74	49.76	38.36	17.61	56.18	168	345	P	V
802.11n HT40 CH 62 5310MHz		10620	50.68	-23.32	74	52.31	39.54	14.78	55.95	150	220	P	H
		15930	49.67	-24.33	74	49.84	38.07	17.7	55.94	160	100	P	H
		10620	50.76	-23.24	74	52.39	39.54	14.78	55.95	150	220	P	V
		15930	49.58	-24.42	74	49.75	38.07	17.7	55.94	160	100	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



## Band 3 - 5470~5725MHz

## 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 100 5500MHz		5446.96	47.58	-26.42	74	36.94	31.97	10.28	31.61	100	30	P	H
		5447.76	39.68	-14.32	54	29.04	31.97	10.28	31.61	100	30	A	H
	*	5500	96.55	-	-	85.83	32	10.32	31.6	100	30	P	H
	*	5500	88.2	-	-	77.48	32	10.32	31.6	100	30	A	H
		5456.4	47.08	-26.92	74	36.44	31.97	10.28	31.61	100	40	P	V
		5447.44	39.26	-14.74	54	28.62	31.97	10.28	31.61	100	40	A	V
	*	5500	94.62	-	-	83.9	32	10.32	31.6	100	40	P	V
	*	5500	87.29	-	-	76.57	32	10.32	31.6	100	40	A	V
802.11a CH 116 5580MHz		5384.8	47.99	-26.01	74	37.47	31.93	10.21	31.62	112	32	P	H
		5451.52	38.72	-15.28	54	28.08	31.97	10.28	31.61	112	32	A	H
	*	5580	97.67	-	-	86.76	32.12	10.39	31.6	112	32	P	H
	*	5580	89.99	-	-	79.08	32.12	10.39	31.6	112	32	A	H
		5725.94	48.46	-25.54	74	37.14	32.4	10.52	31.6	112	32	P	H
		5764.055	40.05	-13.95	54	28.61	32.47	10.57	31.6	112	32	A	H
		5365.36	47.41	-26.59	74	36.91	31.92	10.21	31.63	108	161	P	V
		5465.68	38.79	-15.21	54	28.12	31.98	10.3	31.61	108	161	A	V
	*	5580	94.26	-	-	83.35	32.12	10.39	31.6	108	161	P	V
	*	5580	87.38	-	-	76.47	32.12	10.39	31.6	108	161	A	V
		5746.415	48.53	-25.47	74	37.15	32.43	10.55	31.6	108	161	P	V
		5742.635	40.04	-13.96	54	28.66	32.43	10.55	31.6	108	161	A	V



<b>802.11a</b> <b>CH 140</b> <b>5700MHz</b>	*	5700	99.49	-	-	88.25	32.34	10.5	31.6	100	38	P	H
	*	5700	91.28	-	-	80.04	32.34	10.5	31.6	100	38	A	H
		5753.24	50.11	-23.89	74	38.69	32.47	10.55	31.6	100	38	P	H
		5752.04	41.19	-12.81	54	29.77	32.47	10.55	31.6	100	38	A	H
	*	5700	95.08	-	-	83.84	32.34	10.5	31.6	100	357	P	V
	*	5700	88.09	-	-	76.85	32.34	10.5	31.6	100	357	A	V
		5759.56	48.84	-25.16	74	37.42	32.47	10.55	31.6	100	357	P	V
		5752.36	40.5	-13.5	54	29.08	32.47	10.55	31.6	100	357	A	V
<b>Remark</b>	<ol style="list-style-type: none"><li>1. No other spurious found.</li><li>2. All results are PASS against Peak and Average limit line.</li></ol>												



**Band 3 - 5470~5725MHz**  
**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)
<b>802.11a CH 100 5500MHz</b>		11000	50.74	-23.26	74	51.79	40	15.05	56.1	163	230	P	H
		16500	49.48	-24.52	74	48.72	39	17.81	56.05	178	296	P	H
		11000	49.94	-24.06	74	50.99	40	15.05	56.1	163	230	P	V
		16500	48.38	-25.62	74	47.62	39	17.81	56.05	178	296	P	V
<b>802.11a CH 116 5580MHz</b>		11160	50.81	-23.19	74	51.51	40.03	15.12	55.85	170	200	P	H
		16740	50.49	-23.51	74	49.06	39.77	17.83	56.17	156	350	P	H
		11160	50.99	-23.01	74	51.69	40.03	15.12	55.85	170	200	P	V
		16740	50.31	-23.69	74	48.88	39.77	17.83	56.17	156	350	P	V
<b>802.11a CH 140 5700MHz</b>		11400	50.74	-23.26	74	50.92	40.08	15.23	55.49	157	285	P	H
		17100	50.94	-23.06	74	48.38	41.02	17.92	56.38	165	246	P	H
		11400	50.51	-23.49	74	50.69	40.08	15.23	55.49	157	285	P	V
		17100	50.26	-23.74	74	47.7	41.02	17.92	56.38	165	246	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**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 )
802.11n HT20 CH 100 5500MHz		5448.24	47.63	-26.37	74	36.99	31.97	10.28	31.61	136	33	P	H
		5448.56	40.3	-13.7	54	29.66	31.97	10.28	31.61	136	33	A	H
	*	5500	96.47	-	-	85.75	32	10.32	31.6	136	33	P	H
	*	5500	90.62	-	-	79.9	32	10.32	31.6	136	33	A	H
		5457.36	48.29	-25.71	74	37.65	31.97	10.28	31.61	124	39	P	V
		5448.24	40.09	-13.91	54	29.45	31.97	10.28	31.61	124	39	A	V
	*	5500	95.12	-	-	84.4	32	10.32	31.6	124	39	P	V
	*	5500	87.59	-	-	76.87	32	10.32	31.6	124	39	A	V
802.11n HT20 CH 116 5580MHz		5457.52	47.21	-26.79	74	36.57	31.97	10.28	31.61	151	35	P	H
		5470	38.95	-15.05	54	28.28	31.98	10.3	31.61	151	35	A	H
	*	5580	98.25	-	-	87.34	32.12	10.39	31.6	151	35	P	H
	*	5580	91.46	-	-	80.55	32.12	10.39	31.6	151	35	A	H
		5759.33	47.68	-26.32	74	36.26	32.47	10.55	31.6	151	35	P	H
		5754.92	40.33	-13.67	54	28.91	32.47	10.55	31.6	151	35	A	H
		5433.52	46.88	-27.12	74	36.28	31.96	10.25	31.61	172	38	P	V
		5470	39.01	-14.99	54	28.34	31.98	10.3	31.61	172	38	A	V
	*	5580	95.19	-	-	84.28	32.12	10.39	31.6	172	38	P	V
	*	5580	88.97	-	-	78.06	32.12	10.39	31.6	172	38	A	V
		5733.185	49.04	-24.96	74	37.72	32.4	10.52	31.6	172	38	P	V
		5761.535	40.32	-13.68	54	28.9	32.47	10.55	31.6	172	38	A	V



<b>802.11n HT20 CH 140 5700MHz</b>	*	5700	98.25	-	-	87.01	32.34	10.5	31.6	164	34	P	H
	*	5700	91.45	-	-	80.21	32.34	10.5	31.6	164	34	A	H
		5748.36	48.43	-25.57	74	37.05	32.43	10.55	31.6	164	34	P	H
		5751.96	41.54	-12.46	54	30.12	32.47	10.55	31.6	164	34	A	H
	*	5700	96.3	-	-	85.06	32.34	10.5	31.6	250	76	P	V
	*	5700	89.92	-	-	78.68	32.34	10.5	31.6	250	76	A	V
		5743.32	48.27	-25.73	74	36.89	32.43	10.55	31.6	250	76	P	V
		5751.48	41.19	-12.81	54	29.81	32.43	10.55	31.6	250	76	A	V
<b>Remark</b>	<ol style="list-style-type: none"><li>1. No other spurious found.</li><li>2. All results are PASS against Peak and Average limit line.</li></ol>												





**Band 3 - 5470~5725MHz**  
**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 100 5500MHz		11000	50.4	-23.6	74	51.45	40	15.05	56.1	163	230	P	H
		16500	49.44	-24.56	74	48.68	39	17.81	56.05	178	296	P	H
		11000	50.32	-23.68	74	51.37	40	15.05	56.1	163	230	P	V
		16500	49.47	-24.53	74	48.71	39	17.81	56.05	178	296	P	V
802.11n HT20 CH 116 5580MHz		11160	50.96	-23.04	74	51.66	40.03	15.12	55.85	170	200	P	H
		16740	50.87	-23.13	74	49.44	39.77	17.83	56.17	156	350	P	H
		11160	50.86	-23.14	74	51.56	40.03	15.12	55.85	170	200	P	V
		16740	50.52	-23.48	74	49.09	39.77	17.83	56.17	156	350	P	V
802.11n HT20 CH 140 5700MHz		11400	50.98	-23.02	74	51.16	40.08	15.23	55.49	157	285	P	H
		17100	50.13	-23.87	74	47.57	41.02	17.92	56.38	165	246	P	H
		11400	50.87	-23.13	74	51.05	40.08	15.23	55.49	157	285	P	V
		17100	50.77	-23.23	74	48.21	41.02	17.92	56.38	165	246	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**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 102 5510MHz		5467.36	47.23	-26.77	74	36.56	31.98	10.3	31.61	228	45	P	H
		5464.96	39.91	-14.09	54	29.24	31.98	10.3	31.61	228	45	A	H
	*	5510	93.55	-	-	82.83	32	10.32	31.6	228	45	P	H
	*	5510	85.55	-	-	74.83	32	10.32	31.6	228	45	A	H
		5738.225	48.34	-25.66	74	36.96	32.43	10.55	31.6	228	45	P	H
		5748.305	40.68	-13.32	54	29.3	32.43	10.55	31.6	228	45	A	H
		5446.48	47.38	-26.62	74	36.74	31.97	10.28	31.61	228	130	P	V
		5465.92	39.81	-14.19	54	29.14	31.98	10.3	31.61	228	130	A	V
	*	5510	95.37	-	-	84.65	32	10.32	31.6	228	130	P	V
	*	5510	85.76	-	-	75.04	32	10.32	31.6	228	130	A	V
		5751.77	48.93	-25.07	74	37.51	32.47	10.55	31.6	228	130	P	V
		5759.96	40.74	-13.26	54	29.32	32.47	10.55	31.6	228	130	A	V
802.11n HT40 CH 110 5550MHz		5441.2	47.42	-26.58	74	36.79	31.96	10.28	31.61	114	58	P	H
		5464.24	39.73	-14.27	54	29.06	31.98	10.3	31.61	114	58	A	H
	*	5550	94.56	-	-	83.71	32.09	10.36	31.6	114	58	P	H
	*	5550	86.22	-	-	75.37	32.09	10.36	31.6	114	58	A	H
		5750.825	47.92	-26.08	74	36.54	32.43	10.55	31.6	114	58	P	H
		5764.37	41.27	-12.73	54	29.83	32.47	10.57	31.6	114	58	A	H
		5447.2	47.88	-26.12	74	37.24	31.97	10.28	31.61	237	128	P	V
		5447.44	39.61	-14.39	54	28.97	31.97	10.28	31.61	237	128	A	V
	*	5550	95.79	-	-	84.94	32.09	10.36	31.6	237	128	P	V
	*	5550	87.45	-	-	76.6	32.09	10.36	31.6	237	128	A	V
		5763.425	48.01	-25.99	74	36.57	32.47	10.57	31.6	237	128	P	V
		5726.57	40.67	-13.33	54	29.35	32.4	10.52	31.6	237	128	A	V



<b>802.11n</b>  <b>HT40</b>  <b>CH 134</b>  <b>5670MHz</b>		5435.75	47.41	-26.59	74	36.81	31.96	10.25	31.61	110	55	P	H
		5453.6	39.77	-14.23	54	29.13	31.97	10.28	31.61	110	55	A	H
	*	5670	96.63	-	-	85.44	32.31	10.48	31.6	110	55	P	H
	*	5670	87.54	-	-	76.35	32.31	10.48	31.6	110	55	A	H
		5763.425	48.15	-25.85	74	36.71	32.47	10.57	31.6	110	55	P	H
		5728.075	40.58	-13.42	54	29.26	32.4	10.52	31.6	110	55	A	H
		5438.9	47.57	-26.43	74	36.94	31.96	10.28	31.61	250	128	P	V
		5469.7	39.65	-14.35	54	28.98	31.98	10.3	31.61	250	128	A	V
	*	5670	95.6	-	-	84.41	32.31	10.48	31.6	250	128	P	V
	*	5670	87.05	-	-	75.86	32.31	10.48	31.6	250	128	A	V
		5758	48.79	-25.21	74	37.37	32.47	10.55	31.6	250	128	P	V
		5725.275	40.34	-13.66	54	29.02	32.4	10.52	31.6	250	128	A	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**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		11020	50.35	-23.65	74	51.36	40	15.06	56.07	170	230	P	H
HT40		16530	49.05	-24.95	74	48.2	39.11	17.81	56.07	160	300	P	H
CH 102		11020	50.26	-23.74	74	51.27	40	15.06	56.07	170	230	P	V
5510MHz		16530	49.79	-24.21	74	48.94	39.11	17.81	56.07	160	300	P	V
802.11n		11160	50.54	-23.46	74	51.24	40.03	15.12	55.85	170	200	P	H
HT40		16740	50.54	-23.46	74	49.11	39.77	17.83	56.17	156	350	P	H
CH 110		11160	50.72	-23.28	74	51.42	40.03	15.12	55.85	170	200	P	V
5550MHz		16740	50.65	-23.35	74	49.22	39.77	17.83	56.17	156	350	P	V
802.11n		11340	50.97	-23.03	74	51.28	40.07	15.21	55.59	200	360	P	H
HT40		17010	50.35	-23.65	74	48.13	40.67	17.86	56.31	200	360	P	H
CH 134		11340	50.49	-23.51	74	50.8	40.07	15.21	55.59	200	360	P	V
5670MHz		17010	50.52	-23.48	74	48.3	40.67	17.86	56.31	200	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - Straddle Channel**  
**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)
<b>802.11a CH 144 5720MHz</b>		11440	50.2	-23.8	74	50.3	40.09	15.25	55.44	150	360	P	H
		17160	50	-24	74	47.19	41.3	17.95	56.44	150	0	P	H
		11440	50.35	-23.65	74	50.45	40.09	15.25	55.44	150	360	P	V
		17160	50.2	-23.8	74	47.39	41.3	17.95	56.44	150	0	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - Straddle Channel**  
**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)
<b>802.11n HT20 CH 144 5720MHz</b>		11440	50.67	-23.33	74	50.77	40.09	15.25	55.44	150	360	P	H
		17160	50.31	-23.69	74	47.5	41.3	17.95	56.44	150	0	P	H
		11440	50.68	-23.32	74	50.78	40.09	15.25	55.44	150	360	P	V
		17160	50.41	-23.59	74	47.6	41.3	17.95	56.44	150	0	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - Straddle Channel**  
**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)
<b>802.11n HT40 CH 142 5710MHz</b>		11420	49.84	-24.16	74	49.98	40.08	15.24	55.46	150	360	P	H
		17130	50.85	-23.15	74	48.16	41.16	17.94	56.41	150	0	P	H
		11420	49.28	-24.72	74	49.42	40.08	15.24	55.46	150	360	P	V
		17130	50.38	-23.62	74	47.69	41.16	17.94	56.41	150	0	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



## Emission below 1GHz

## WIFI 802.11n HT20 (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 HT20 LF		30	24.57	-15.43	40	31.64	24.3	0.23	31.6			P	H
		92.08	27.18	-16.32	43.5	42.86	15.04	0.78	31.5			P	H
		159.98	32.02	-11.48	43.5	45.99	16	1.38	31.35			P	H
		189.08	32.66	-10.84	43.5	46.98	15.38	1.54	31.24	100	122	P	H
		266.68	26.72	-19.28	46	36.21	19.63	1.92	31.04			P	H
		581.93	30.66	-15.34	46	34.43	24.48	2.95	31.2			P	H
		39.7	30.45	-9.55	40	43.37	18.4	0.38	31.7	166	20	P	V
		91.11	26.03	-17.47	43.5	41.94	14.82	0.77	31.5			P	V
		155.13	24.86	-18.64	43.5	38.57	16.33	1.34	31.38			P	V
		186.17	27.6	-15.9	43.5	42.01	15.32	1.52	31.25			P	V
		261.83	23.39	-22.61	46	32.61	19.9	1.9	31.02			P	V
		610.06	31.12	-14.88	46	34.54	24.74	3.04	31.2			P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												





**Note symbol**

*	<b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is <b>over limit</b> line.
P/A	<b>P</b> eak or <b>A</b> verage
H/V	<b>H</b> orizontal or <b>V</b> 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		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. 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)

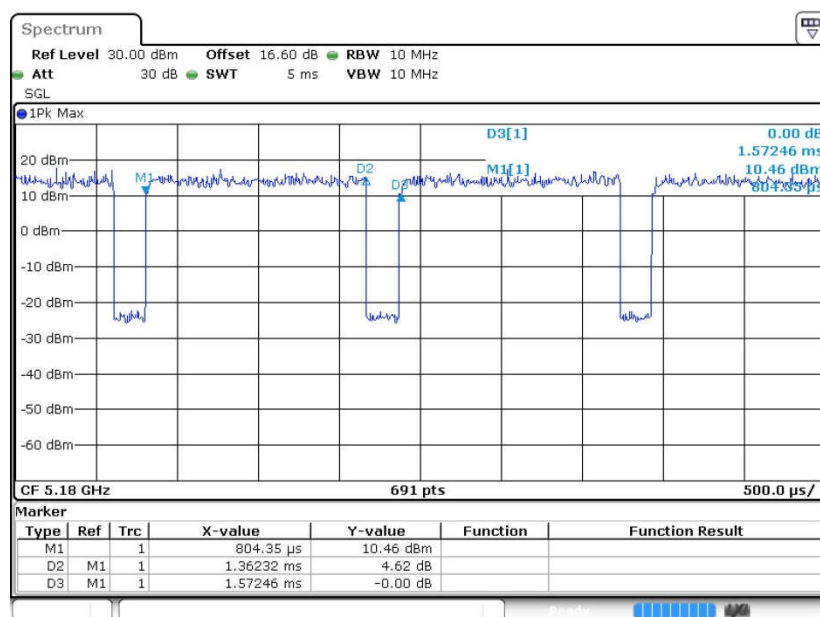
= -10.46(dB)

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

## Appendix D. Duty Cycle Plots

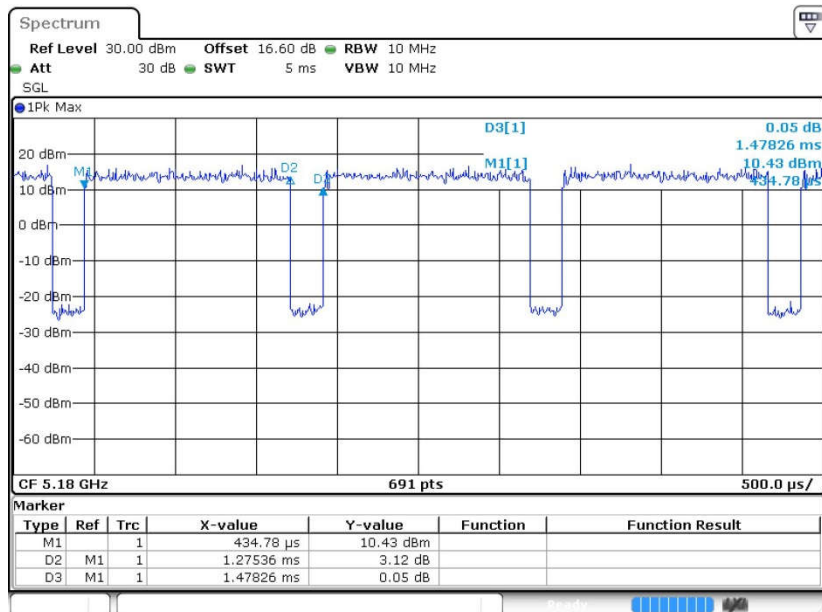
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	86.64	1.362	0.734	1KHz
802.11n HT20	86.27	1.275	0.784	1KHz
802.11n HT40	76.34	0.641	1.561	3KHz

### 802.11a





## 802.11n HT20



## 802.11n HT40

