

# FCC RF Test Report

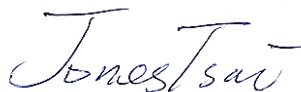
**APPLICANT** : Quanta Computer Inc.  
**EQUIPMENT** : Clover Station 1.0  
**BRAND NAME** : Clover  
**MODEL NUMBER** : P100/C100  
**FCC ID** : HFS-CS100  
**STANDARD** : FCC Part 15 Subpart E §15.407  
**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

The product was received on Oct. 05, 2013 and testing was completed on Nov. 15, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



## **SPORTON INTERNATIONAL INC.**

**No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.**

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : HFS-CS100

Page Number : 1 of 113

Report Issued Date : Nov. 26, 2013

Report Version : Rev. 01



# TABLE OF CONTENTS

**REVISION HISTORY ..... 3**

**SUMMARY OF TEST RESULT ..... 4**

**1 GENERAL DESCRIPTION ..... 5**

    1.1 Applicant ..... 5

    1.2 Manufacturer ..... 5

    1.3 Feature of Equipment Under Test ..... 5

    1.4 Product Specification of Equipment Under Test ..... 6

    1.5 Modification of EUT ..... 7

    1.6 Testing Site ..... 8

    1.7 Applied Standards ..... 8

**2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST ..... 9**

    2.1 Carrier Frequency and Channel ..... 10

    2.2 Pre-Scanned RF Power ..... 11

    2.3 Test Mode ..... 14

    2.4 Connection Diagram of Test System ..... 17

    2.5 Support Unit used in test configuration and system ..... 18

    2.6 EUT Operation Test Setup ..... 18

    2.7 Measurement Results Explanation Example ..... 19

**3 TEST RESULT ..... 20**

    3.1 26dB & 99% Bandwidth Measurement ..... 20

    3.2 Maximum Conducted Output Power Measurement ..... 25

    3.3 Power Spectral Density Measurement ..... 33

    3.4 Peak Excursion Ratio Measurement ..... 40

    3.5 Unwanted Emissions Measurement ..... 42

    3.6 AC Conducted Emission Measurement ..... 97

    3.7 Frequency Stability Measurement ..... 107

    3.8 Automatically Discontinue Transmission ..... 109

    3.9 Antenna Requirements ..... 110

**4 LIST OF MEASURING EQUIPMENT ..... 112**

**5 UNCERTAINTY OF EVALUATION ..... 113**

**APPENDIX A. SETUP PHOTOGRAPHS**





### SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	RSS-210 A9.2	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	RSS-210 A9.2	Maximum Conducted Output Power	≤ 17, 24, 30 dBm (depend on band)	Pass	-
3.3	15.407(a)	RSS-210 A9.2	Power Spectral Density	≤ 4, 11, 17 dBm (depend on band)	Pass	-
3.4	15.407(a)(6)	RSS-210 A9.3	Peak Excursion Ratio	≤ 13dB	Pass	-
3.5	15.407(b)	RSS-210 A9.3	Unwanted Emissions	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	Under limit 0.19 dB at 5350.440 MHz
0	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 3.80 dB at 0.150 MHz
3.7	15.407(g)	-	Frequency Stability	Within Operation Band	Pass	-
3.8	15.407(c)	RSS-210 A9.4	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.9	15.203 & 15.407(a)	RSS-210 A9.2	Antenna Requirement	N/A	Pass	-



# 1 General Description

## 1.1 Applicant

**Quanta Computer Inc.**

211, Wen Hwa 2nd Rd., Kuei Shan, Tao Yuan 33377, Taiwan

## 1.2 Manufacturer

**Quanta Computer Inc.**

211, Wen Hwa 2nd Rd., Kuei Shan, Tao Yuan 33377, Taiwan

## 1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Clover Station 1.0
Brand Name	Clover
Model Number	P100/C100
FCC ID	HFS-CS100
EUT supports Radios application	WLAN 11a/n HT20/HT40 Bluetooth v3.0 + EDR
HW Version	D
SW Version	S/W: shipping image: 148, factory image: 20E09.
EUT Stage	Identical Prototype

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



### 1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
<b>Tx/Rx Channel Frequency Range</b>	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5580 MHz 5660 MHz ~ 5700 MHz
<b>Maximum Output Power</b>	<p><b>&lt;Ant. 1&gt;</b>  <b>&lt;5180 MHz ~ 5240 MHz&gt;</b>                      802.11a : 14.02 dBm / 0.0252 W                      802.11n HT20 : 11.99 dBm / 0.0158 W                      802.11n HT40 : 11.89 dBm / 0.0155 W  <b>&lt;5260 MHz ~ 5320 MHz&gt;</b>                      802.11a : 14.07 dBm / 0.0255 W                      802.11n HT20 : 12.17 dBm / 0.0165 W                      802.11n HT40 : 12.05 dBm / 0.0160 W  <b>&lt;5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz &gt;</b>                      802.11a : 14.55 dBm / 0.0285 W                      802.11n HT20 : 12.21 dBm / 0.0166 W                      802.11n HT40 : 12.04 dBm / 0.0160 W</p> <p><b>&lt;Ant. 2&gt;</b>  <b>&lt;5180 MHz ~ 5240 MHz&gt;</b>                      802.11a : 13.65 dBm / 0.0232 W                      802.11n HT20 : 12.60 dBm / 0.0182 W                      802.11n HT40 : 12.48 dBm / 0.0177 W  <b>&lt;5260 MHz ~ 5320 MHz&gt;</b>                      802.11a : 13.61 dBm / 0.0230 W                      802.11n HT20 : 12.55 dBm / 0.0180 W                      802.11n HT40 : 12.45 dBm / 0.0176 W  <b>&lt;5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz &gt;</b>                      802.11a : 14.54 dBm / 0.0284 W                      802.11n HT20 : 12.42 dBm / 0.0175 W                      802.11n HT40 : 12.31 dBm / 0.0170 W</p> <p><b>MIMO &lt;Ant. 1+2&gt;</b>  <b>&lt;5180 MHz ~ 5240 MHz&gt;</b>                      802.11n HT20 : 14.53 dBm / 0.0284 W                      802.11n HT40 : 15.14 dBm / 0.0327 W  <b>&lt;5260 MHz ~ 5320 MHz&gt;</b>                      802.11n HT20 : 15.39 dBm / 0.0346 W                      802.11n HT40 : 15.20 dBm / 0.0331 W  <b>&lt;5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz &gt;</b>                      802.11n HT20 : 14.95 dBm / 0.0313 W                      802.11n HT40 : 14.82 dBm / 0.0303 W</p>



Product Specification subjective to this standard			
Antenna Type	<5180 MHz ~ 5240 MHz> Ant. 1: PCB Antenna with gain 0.75 dBi Ant. 2: PIFA Antenna with gain 2.29 dBi		
	<5260 MHz ~ 5320 MHz> Ant. 1: PCB Antenna with gain 0.57 dBi Ant. 2: PIFA Antenna with gain 1.79 dBi		
Type of Modulation	<5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz > Ant. 1: PCB Antenna with gain 3.34 dBi Ant. 2: PIFA Antenna with gain 3.86 dBi		
	OFDM (BPSK / QPSK / 16QAM / 64QAM)		
Antenna Function Description		Ant. 1	Ant. 2
	802.11 a	V	V
	802.11 n SISO	V	V
	802.11 n MIMO	V	V

### 1.5 Modification of EUT

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

## 1.6 Testing Site

<b>Test Site</b>	SPORTON INTERNATIONAL INC.			
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
<b>Test Site No.</b>	<b>Sporton Site No.</b>			<b>FCC/IC Registration No.</b>
	TH02-HY	CO05-HY	03CH07-HY	722060/4086B-1

The test site complies with ANSI C63.4 2003 requirement.

## 1.7 Applied 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 D01 General UNII Test Procedures v01r03
- ♦ ANSI C63.4-2003

**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**

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: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane for 11a Ant.2 and Y plane for others) were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.



## 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
	<b>38</b>	<b>5190</b>	<b>46</b>	<b>5230</b>
	40	5200	48	5240

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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5600 MHz and 5650-5725 MHz Band 3 (U-NII-2C)	100	5500	116	5580
	<b>102</b>	<b>5510</b>	132	5660
	104	5520	<b>134</b>	<b>5670</b>
	108	5540	136	5680
	<b>110</b>	<b>5550</b>	140	5700
	112	5560		

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



## 2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and data rate associated with the highest power were chosen for full test in the following tables.

<Ant. 1>

5GHz 802.11a mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Avg. Power (dBm) <5180 MHz ~ 5240MHz>	14.02	13.96	14.00	13.98	14.01	13.98	14.01	13.96
Avg. Power(dBm) <5260 MHz ~ 5320MHz>	14.07	14.02	14.01	13.97	14.06	13.96	13.94	14.03
Avg. Power(dBm) <5500 MHz ~ 5580MHz>& <5660 MHz ~ 5700MHz>	14.55	14.42	14.38	14.39	14.41	14.41	14.39	14.33

5GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power (dBm) <5180 MHz ~ 5240MHz>	11.99	11.96	11.96	11.97	11.96	11.97	11.93	11.91
Avg. Power(dBm) <5260 MHz ~ 5320MHz>	12.17	12.05	12.12	12.03	12.13	12.14	12.12	12.14
Avg. Power(dBm) <5500 MHz ~ 5580MHz>& <5660 MHz ~ 5700MHz>	12.21	12.16	12.17	12.16	12.17	12.20	12.18	12.20

5GHz 802.11n HT40mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power (dBm) <5180 MHz ~ 5240MHz>	11.89	11.77	11.82	11.83	11.86	11.88	11.84	11.86
Avg. Power(dBm) <5260 MHz ~ 5320MHz>	12.05	12.00	12.02	12.03	12.04	12.04	12.00	12.03
Avg. Power(dBm) <5500 MHz ~ 5580MHz>& <5660 MHz ~ 5700MHz>	12.04	12.02	11.99	12.01	12.00	12.03	11.99	12.02



<Ant. 2>

5GHz 802.11a mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Avg. Power (dBm) <5180 MHz ~ 5240MHz>	13.65	13.60	13.61	13.61	13.60	13.64	13.63	13.63
Avg. Power(dBm) <5260 MHz ~ 5320MHz>	13.61	13.52	13.57	13.52	13.47	13.59	13.58	13.56
Avg. Power(dBm) <5500 MHz ~ 5580MHz>& <5660 MHz ~ 5700MHz>	14.54	14.53	14.50	14.43	14.52	14.48	14.50	14.49

5GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power (dBm) <5180 MHz ~ 5240MHz>	12.60	12.55	12.58	12.58	12.52	12.57	12.57	12.59
Avg. Power(dBm) <5260 MHz ~ 5320MHz>	12.55	12.50	12.53	12.54	12.53	12.51	12.53	12.54
Avg. Power(dBm) <5500 MHz ~ 5580MHz>& <5660 MHz ~ 5700MHz>	12.42	12.39	12.32	12.39	12.38	12.40	12.41	12.41

5GHz 802.11n HT40 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power (dBm) <5180 MHz ~ 5240MHz>	12.48	12.41	12.44	12.47	12.46	12.37	12.45	12.34
Avg. Power(dBm) <5260 MHz ~ 5320MHz>	12.45	12.43	12.42	12.41	12.44	12.41	12.42	12.42
Avg. Power(dBm) <5500 MHz ~ 5580MHz>& <5660 MHz ~ 5700MHz>	12.31	12.28	12.29	12.28	12.26	12.28	12.27	12.27



MIMO <Ant. 1+2>

5GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS 8	MCS 9	MCS 10	MCS 11	MCS 12	MCS 13	MCS 14	MCS 15
Avg. Power (dBm) <5180 MHz ~ 5240MHz>	14.53	14.38	14.40	14.53	14.49	14.48	14.44	14.48
Avg. Power(dBm) <5260 MHz ~ 5320MHz>	15.39	15.33	15.34	15.32	15.37	15.35	15.38	15.37
Avg. Power(dBm) <5500 MHz ~ 5580MHz>& <5660 MHz ~ 5700MHz>	14.95	14.84	14.87	14.87	14.88	14.88	14.90	14.93

5GHz 802.11n HT40 mode								
Data Rate (MHz)	MCS 8	MCS 9	MCS 10	MCS 11	MCS 12	MCS 13	MCS 14	MCS 15
Avg. Power (dBm) <5180 MHz ~ 5240MHz>	15.14	15.08	15.06	15.09	15.08	15.08	15.10	15.06
Avg. Power(dBm) <5260 MHz ~ 5320MHz>	15.20	15.17	15.10	15.17	15.13	15.19	15.17	15.18
Avg. Power(dBm) <5500 MHz ~ 5580MHz>& <5660 MHz ~ 5700MHz>	14.82	14.66	14.79	14.78	14.77	14.80	14.81	14.76

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

### 2.3 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

Test Cases				
	Test Items	Mode	Data rate	Test Channel
	Conducted TCs	26dB and 99% BW Power Spectral Density	802.11a	6 Mbps
802.11n HT20 SISO			MCS0	L/M/H
802.11n HT20 MIMO			MCS8	L/M/H
802.11n HT40 SISO			MCS0	L/M/H
802.11n HT40 MIMO			MCS8	L/M/H
802.11a			6 Mbps	L/M/H
802.11n HT20 SISO			MCS0	L/M/H
802.11n HT20 MIMO			MCS8	L/M/H
802.11n HT40 SISO			MCS0	L/M/H
802.11n HT40 MIMO			MCS8	L/M/H
Output Power		802.11a	6 Mbps	L/M/H
		802.11n HT20 SISO	MCS0	L/M/H
		802.11n HT20 MIMO	MCS8	L/M/H
		802.11n HT40 SISO	MCS0	L/M/H
		802.11n HT40 MIMO	MCS8	L/M/H
Peak Excursion		802.11a	6 Mbps	L/M/H
		802.11n HT20 SISO	MCS0	L/M/H
		802.11n HT20 MIMO	MCS8	L/M/H
		802.11n HT40 SISO	MCS0	L/M/H
		802.11n HT40 MIMO	MCS8	L/M/H
Frequency Stability	802.11a	6 Mbps	L/H	



Test Cases					
Radiated TCs	Test Items	Mode	Data rate	Test Channel	
	Radiated Band Edge	802.11a		6 Mbps	L/H
		802.11n HT20 MIMO		MCS8	L/H
		802.11n HT40 MIMO		MCS8	L/H
		802.11n HT40 SISO		MCS0	62
	Radiated Spurious Emission	802.11a		6 Mbps	L/M/H
		802.11n HT20 MIMO		MCS8	L/H
		802.11n HT40 MIMO		MCS8	L/H
		802.11n HT40 SISO		MCS0	62

Test Cases	
AC Conducted Emission	Mode 1 : WLAN (5GHz) Link + Bluetooth Link + MPEG4 + TC + Print + Adapter 1
<p><b>Remark:</b> TC stands for Test Configuration, and consists of Mouse, USB HD(Load), iPod Earphone, RJ-45 Link, and RJ-11(Load with cash register)</p>	



Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5600 MHz and 5650-5725MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

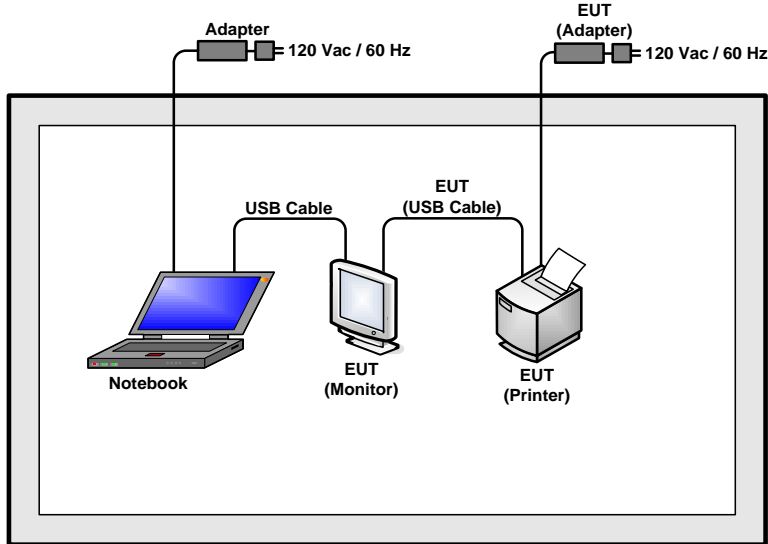
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5600 MHz and 5650-5725MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5600 MHz and 5650-5725MHz
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

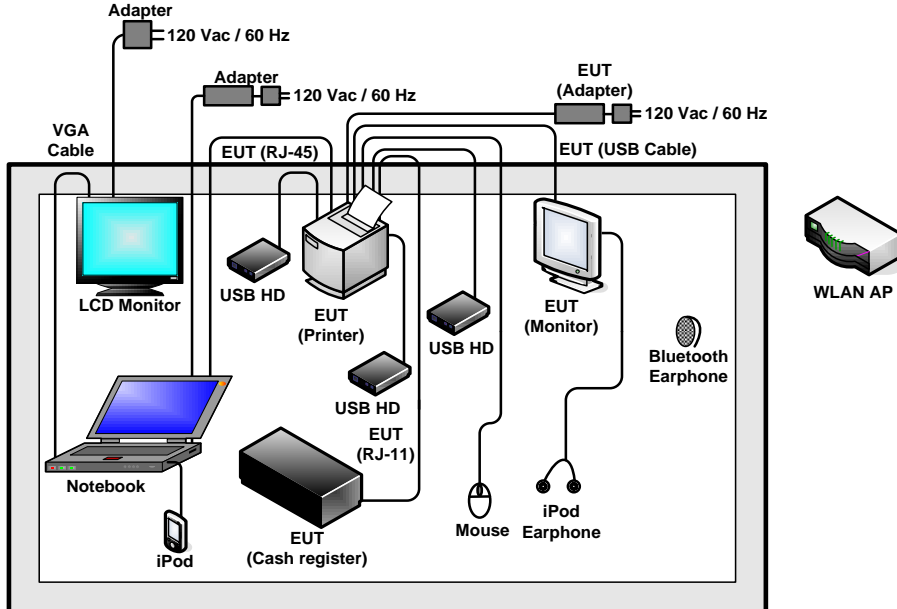


## 2.4 Connection Diagram of Test System

### < Radiated Emissions Mode >



### < AC Conducted Emission Mode >



## 2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	USB HD	WD	WDBAAR3200ABK-PESN	FCC DoC	Unshielded, 0.5 m	N/A
4.	(USB) Mouse	Genius	Traveier 515 Laser	FCC DoC	Shielded, 1.3 m	N/A
5.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.2 m	N/A
6.	Notebook	DELL	Latitude E6320	FCC DoC	Unshielded, 3.0 m	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
7.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
8.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
9.	iPod	Apple	A1285	FCC DoC	Unshielded, 1.0 m	N/A
10.	LCD Monitor	DELL	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m

## 2.6 EUT Operation Test Setup

The programmed RF utility “command”, is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.



## **2.7 Measurement Results Explanation Example**

**For all conducted test items:**

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

Example :

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

*Offset = RF cable loss + attenuator factor.*

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

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$

### 3 Test Result

#### 3.1 26dB & 99% Bandwidth Measurement

##### 3.1.1 Description of 26dB & 99% Occupied Bandwidth

There is no restriction limits for bandwidth. The maximum conducted output power can be limited by measured emission bandwidth (B).

For the band 5150-5250 MHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B.

For the bands 5250-5350 MHz and 5470-5600 MHz and 5650-5725MHz, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B.

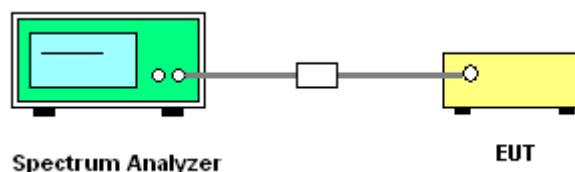
##### 3.1.2 Measuring Instruments

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 D01 General UNII Test Procedures v01r03.  
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)  $\geq 3 * RBW$ .
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

Test Band :	5GHz band 1,2,3	Temperature :	22~25°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

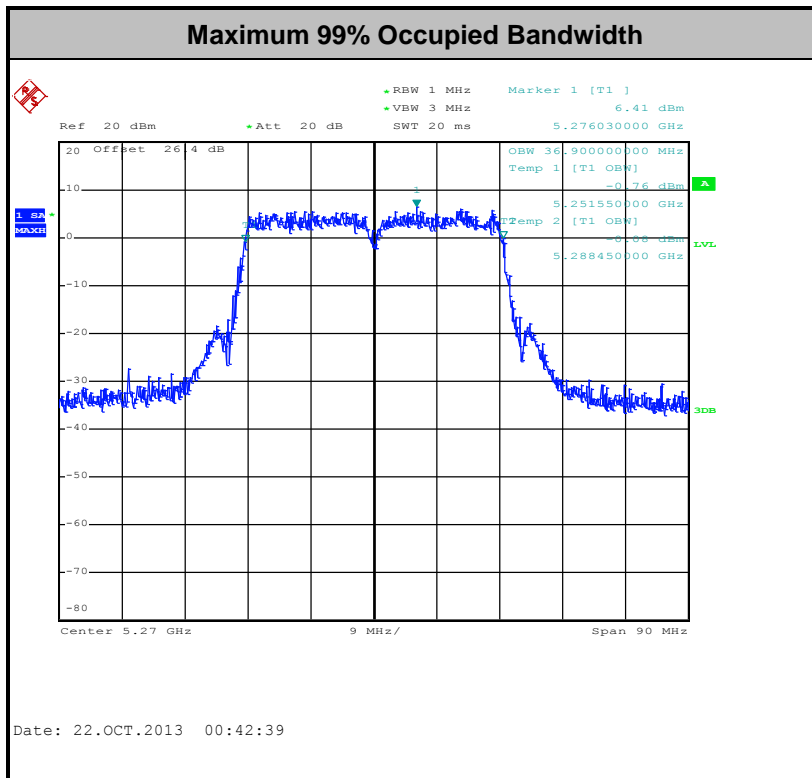
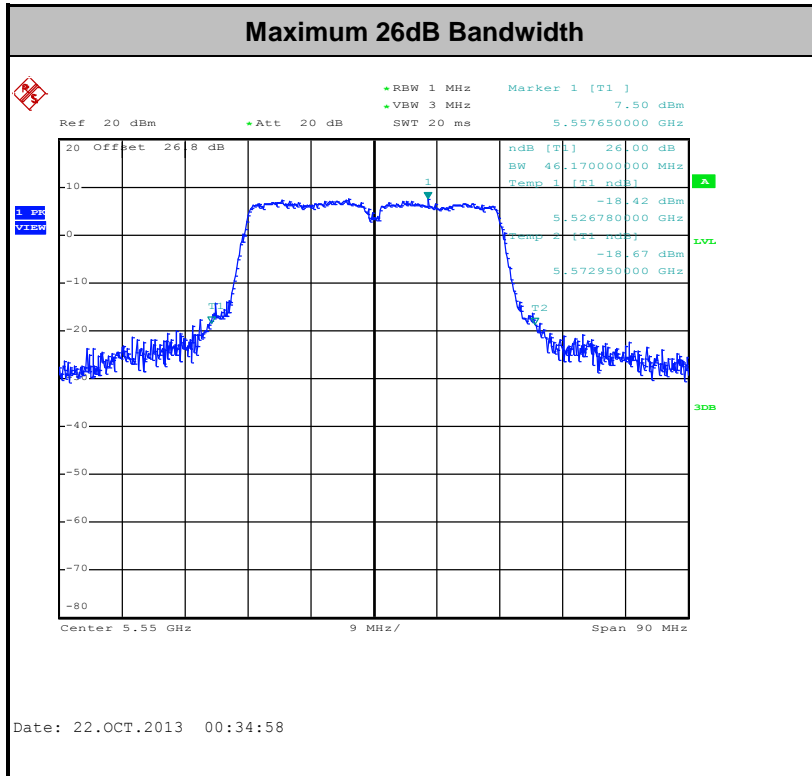
Mod.	Data Rate	N <sub>TX</sub>	Channel	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)	
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2
11a	6Mbps	1	36	5180	17.05	-	19.85	-	22.32	-	16.98	-
11a	6Mbps	1	44	5220	17.10	-	19.65	-	22.33	-	16.93	-
11a	6Mbps	1	48	5240	17.05	-	19.70	-	22.32	-	16.94	-
HT20	MCS0	1	36	5180	-	17.85	-	20.35	-	22.52	-	16.99
HT20	MCS0	1	44	5220	-	17.95	-	20.45	-	22.54	-	16.99
HT20	MCS0	1	48	5240	-	18.00	-	20.30	-	22.55	-	16.99
HT40	MCS0	1	38	5190	-	36.63	-	44.46	-	23.01	-	16.99
HT40	MCS0	1	46	5230	-	36.72	-	42.30	-	23.01	-	16.99
HT20	MCS8	2	36	5180	17.90	17.90	20.30	20.10	22.53		23.01	
HT20	MCS8	2	44	5220	18.00	17.90	20.40	20.20	22.53		23.01	
HT20	MCS8	2	48	5240	18.00	18.00	20.15	20.15	22.55		23.01	
HT40	MCS8	2	38	5190	36.81	36.81	44.46	42.57	23.01		23.01	
HT40	MCS8	2	46	5230	36.63	36.72	43.02	43.20	23.01		23.01	



Mod.	Data Rate	N <sub>TX</sub>	Channel	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)	
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2
11a	6Mbps	1	52	5260	17.10	-	19.70	-	29.33	-	23.94	-
11a	6Mbps	1	60	5300	17.10	-	19.60	-	29.33	-	23.92	-
11a	6Mbps	1	64	5320	17.15	-	19.85	-	29.34	-	23.98	-
HT20	MCS0	1	52	5260	-	18.00	-	20.50	-	29.55	-	23.98
HT20	MCS0	1	60	5300	-	17.95	-	20.30	-	29.54	-	23.98
HT20	MCS0	1	64	5320	-	18.05	-	20.40	-	29.56	-	23.98
HT40	MCS0	1	54	5270	-	36.72	-	44.91	-	30.00	-	23.98
HT40	MCS0	1	62	5310	-	36.72	-	42.12	-	30.00	-	23.98
HT20	MCS8	2	52	5260	17.95	17.95	20.30	20.15	29.54		23.98	
HT20	MCS8	2	60	5300	17.95	18.05	20.45	20.15	29.54		23.98	
HT20	MCS8	2	64	5320	17.95	18.10	20.40	20.10	29.54		23.98	
HT40	MCS8	2	54	5270	36.90	36.63	44.91	44.37	30.00		23.98	
HT40	MCS8	2	62	5310	36.63	36.63	44.28	44.28	30.00		23.98	



Mod.	Data Rate	N <sub>TX</sub>	Channel	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)	
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2
11a	6Mbps	1	100	5500	17.10	-	19.70	-	29.33	-	23.94	-
11a	6Mbps	1	116	5580	17.10	-	19.80	-	29.33	-	23.97	-
11a	6Mbps	1	140	5700	17.25	-	19.90	-	29.37	-	23.98	-
HT20	MCS0	1	100	5500	-	17.95	-	20.45	-	29.54	-	23.98
HT20	MCS0	1	116	5580	-	18.00	-	20.45	-	29.55	-	23.98
HT20	MCS0	1	140	5700	-	18.00	-	20.35	-	29.55	-	23.98
HT40	MCS0	1	102	5510	-	36.72	-	45.99	-	30.00	-	23.98
HT40	MCS0	1	110	5550	-	36.72	-	46.17	-	30.00	-	23.98
HT40	MCS0	1	134	5670	-	36.81	-	44.37	-	30.00	-	23.98
HT20	MCS8	2	100	5500	18.00	18.00	20.35	20.10	29.55		23.98	
HT20	MCS8	2	116	5580	18.00	17.90	20.45	20.10	29.53		23.98	
HT20	MCS8	2	140	5700	18.00	18.00	20.20	20.05	29.55		23.98	
HT40	MCS8	2	102	5510	36.72	36.81	42.93	44.19	30.00		23.98	
HT40	MCS8	2	110	5550	36.72	36.81	44.46	44.37	30.00		23.98	
HT40	MCS8	2	134	5670	36.72	36.72	44.82	44.01	30.00		23.98	







## **3.2 Maximum Conducted Output Power Measurement**

### **3.2.1 Limit of Maximum Conducted Output Power**

For the band 5150-5250 MHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or  $4 \text{ dBm} + 10\log B$ , where B is the 26 dB emissions bandwidth in 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the bands 5250-5350 MHz and 5470-5600 MHz and 5650-5725 MHz, bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or  $11 \text{ dBm} + 10\log B$ , where B is the 26 dB emissions bandwidth in 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

### **3.2.2 Measuring Instruments**

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

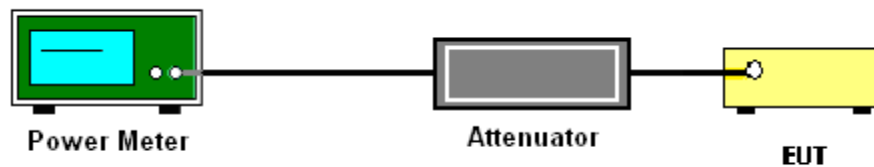
### 3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D01 General UNII Test Procedures v01r03.

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

Test Band :	5GHz band 1	Temperature :	22~25°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Power Limit (dBm)		DG (dBi)		-	Pass /Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power	Ant. 1	Ant. 2	Ant. 1	Ant. 2		
11a	6Mbps	1	36	5180	0.20	0.21	14.02	13.65	-	16.98	-	0.75	2.29	-	Pass
11a	6Mbps	1	44	5220	0.20	0.21	13.85	13.59	-	16.93	-	0.75	2.29	-	Pass
11a	6Mbps	1	48	5240	0.20	0.21	13.93	13.47	-	16.94	-	0.75	2.29	-	Pass
HT20	MCS0	1	36	5180	0.22	0.22	11.99	12.60	-	-	16.99	0.75	2.29	-	Pass
HT20	MCS0	1	44	5220	0.22	0.22	11.86	12.41	-	-	16.99	0.75	2.29	-	Pass
HT20	MCS0	1	48	5240	0.22	0.22	11.98	12.45	-	-	16.99	0.75	2.29	-	Pass
HT40	MCS0	1	38	5190	0.44	0.43	11.89	12.48	-	-	16.99	0.75	2.29	-	Pass
HT40	MCS0	1	46	5230	0.44	0.43	11.88	12.47	-	-	16.99	0.75	2.29	-	Pass
HT20	MCS8	2	36	5180	0.42	0.42	11.18	11.83	14.53	23.01		4.56		-	Pass
HT20	MCS8	2	44	5220	0.42	0.42	10.97	11.68	14.35	23.01		4.56		-	Pass
HT20	MCS8	2	48	5240	0.42	0.42	11.04	11.65	14.36	23.01		4.56		-	Pass
HT40	MCS8	2	38	5190	0.79	0.79	8.25	9.24	11.79	23.01		4.56		-	Pass
HT40	MCS8	2	46	5230	0.79	0.79	11.94	12.30	15.14	23.01		4.56		-	Pass

Note:

- Final Output Power equals to Measured Output Power adds the duty factor.
- Sum Power is a calculated result from sum of the Ant 1 and Ant 2.
- For the band 5150-5250 MHz, the maximum average conducted output power shall not exceed lesser of 50 mW (17dBm) or 4 dBm + 10log (B), where B is 26dB BW for FCC.



Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			IC Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)		Pass /Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power	Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
11a	6Mbps	1	36	5180	0.20	0.21	14.02	13.65	-	21.57	-	0.75	-	22.32	-	Pass
11a	6Mbps	1	44	5220	0.20	0.21	13.85	13.59	-	21.58	-	0.75	-	22.33	-	Pass
11a	6Mbps	1	48	5240	0.20	0.21	13.93	13.47	-	21.57	-	0.75	-	22.32	-	Pass
HT20	MCS0	1	36	5180	0.22	0.22	11.99	12.60	-	-	20.23	-	2.29	-	22.52	Pass
HT20	MCS0	1	44	5220	0.22	0.22	11.86	12.41	-	-	20.25	-	2.29	-	22.54	Pass
HT20	MCS0	1	48	5240	0.22	0.22	11.98	12.45	-	-	20.26	-	2.29	-	22.55	Pass
HT40	MCS0	1	38	5190	0.44	0.43	11.89	12.48	-	-	20.72	-	2.29	-	23.01	Pass
HT40	MCS0	1	46	5230	0.44	0.43	11.88	12.47	-	-	20.72	-	2.29	-	23.01	Pass
HT20	MCS0	2	36	5180	0.42	0.42	11.18	11.83	14.53	17.96		4.56		22.53		Pass
HT20	MCS0	2	44	5220	0.42	0.42	10.97	11.68	14.35	17.96		4.56		22.53		Pass
HT20	MCS0	2	48	5240	0.42	0.42	11.04	11.65	14.36	17.99		4.56		22.55		Pass
HT40	MCS0	2	38	5190	0.79	0.79	8.25	9.24	11.79	18.45		4.56		23.01		Pass
HT40	MCS0	2	46	5230	0.79	0.79	11.94	12.30	15.14	18.45		4.56		23.01		Pass

**Note:**

- Final Output Power equals to Measured Output Power adds the duty factor.
- Sum Power is a calculated result from sum of the power Ant 1 and Ant 2.
- For the band 5150-5250 MHz, the maximum average EIRP output power shall not exceed lesser of 200 mW (23dBm) or 10 dBm + 10log (B), where B is 99%OBW for IC.



Test Band :	5GHz band 2	Temperature :	22~25°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Power Limit (dBm)		DG (dBi)		Pass /Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
11a	6Mbps	1	52	5260	0.20	0.21	14.07	13.61	-	23.94	-	0.57	1.79	Pass
11a	6Mbps	1	60	5300	0.20	0.21	13.93	13.44	-	23.92	-	0.57	1.79	Pass
11a	6Mbps	1	64	5320	0.20	0.21	14.01	13.60	-	23.98	-	0.57	1.79	Pass
HT20	MCS0	1	52	5260	0.22	0.22	12.17	12.55	-	-	23.98	0.57	1.79	Pass
HT20	MCS0	1	60	5300	0.22	0.22	12.04	12.42	-	-	23.98	0.57	1.79	Pass
HT20	MCS0	1	64	5320	0.22	0.22	11.97	12.47	-	-	23.98	0.57	1.79	Pass
HT40	MCS0	1	54	5270	0.44	0.43	12.05	12.45	-	-	23.98	0.57	1.79	Pass
HT40	MCS0	1	62	5310	0.44	0.43	11.85	12.28	-	-	23.98	0.57	1.79	Pass
HT20	MCS0	2	52	5260	0.42	0.42	12.02	12.72	15.39	23.98	-	4.21	-	Pass
HT20	MCS0	2	60	5300	0.42	0.42	11.96	12.70	15.35	23.98	-	4.21	-	Pass
HT20	MCS0	2	64	5320	0.42	0.42	12.18	12.52	15.36	23.98	-	4.21	-	Pass
HT40	MCS0	2	54	5270	0.79	0.79	11.88	12.47	15.20	23.98	-	4.21	-	Pass
HT40	MCS0	2	62	5310	0.79	0.79	11.97	12.37	15.19	23.98	-	4.21	-	Pass

**Note:**

- Final Output Power equals to Measured Output Power adds the duty factor.
- Sum Power is a calculated result from sum of the power Ant 1 and Ant 2.
- For the 5250-5350 MHz and 5470-5600MHz and 5650-5725MHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log (B), where B is 26dB BW for FCC and 99% OBW for IC.



Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			IC Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)		Pass /Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power	Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
11a	6Mbps	1	52	5260	0.20	0.21	14.07	13.61	-	23.33	-	0.57	1.79	29.33	-	Pass
11a	6Mbps	1	60	5300	0.20	0.21	13.93	13.44	-	23.33	-	0.57	1.79	29.33	-	Pass
11a	6Mbps	1	64	5320	0.20	0.21	14.01	13.60	-	23.34	-	0.57	1.79	29.34	-	Pass
HT20	MCS0	1	52	5260	0.22	0.22	12.17	12.55	-	-	27.76	0.57	1.79	-	29.55	Pass
HT20	MCS0	1	60	5300	0.22	0.22	12.04	12.42	-	-	27.75	0.57	1.79	-	29.54	Pass
HT20	MCS0	1	64	5320	0.22	0.22	11.97	12.47	-	-	27.77	0.57	1.79	-	29.56	Pass
HT40	MCS0	1	54	5270	0.44	0.43	12.05	12.45	-	-	28.21	0.57	1.79	-	30.00	Pass
HT40	MCS0	1	62	5310	0.44	0.43	11.85	12.28	-	-	28.21	0.57	1.79	-	30.00	Pass
HT20	MCS8	2	52	5260	0.42	0.42	12.02	12.72	15.39	23.54		4.21		29.54		Pass
HT20	MCS8	2	60	5300	0.42	0.42	11.96	12.70	15.35	23.54		4.21		29.54		Pass
HT20	MCS8	2	64	5320	0.42	0.42	12.18	12.52	15.36	23.54		4.21		29.54		Pass
HT40	MCS8	2	54	5270	0.79	0.79	11.88	12.47	15.20	23.98		4.21		30.00		Pass
HT40	MCS8	2	62	5310	0.79	0.79	11.97	12.37	15.19	23.98		4.21		30.00		Pass

**Note:**

- Final Output Power equals to Measured Output Power adds the duty factor.
- Sum Power is a calculated result from sum of the power Ant 1 and Ant 2.
- 
- For the 5250-5350 MHz and 5470-5600MHz and 5650-5725MHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log (B), where B is 26dB BW for FCC and 99% OBW for IC.



Test Band :	5GHz band 3	Temperature :	22~25°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Mod.	Data Rate	N <sub>Tx</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Power Limit (dBm)		DG (dBi)		-	Pass /Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power	Ant. 1	Ant. 2	Ant. 1	Ant. 2		
11a	6Mbps	1	100	5500	0.20	0.21	14.55	14.54	-	23.94	-	3.34	3.86	-	Pass
11a	6Mbps	1	116	5580	0.20	0.21	14.26	14.47	-	23.97	-	3.34	3.86	-	Pass
11a	6Mbps	1	140	5700	0.20	0.21	13.74	9.18	-	23.98	-	3.34	3.86	-	Pass
HT20	MCS0	1	100	5500	0.22	0.22	12.21	12.42	-	-	23.98	3.34	3.86	-	Pass
HT20	MCS0	1	116	5580	0.22	0.22	12.20	11.41	-	-	23.98	3.34	3.86	-	Pass
HT20	MCS0	1	140	5700	0.22	0.22	11.35	11.62	-	-	23.98	3.34	3.86	-	Pass
HT40	MCS0	1	102	5510	0.44	0.43	12.04	12.31	-	-	23.98	3.34	3.86	-	Pass
HT40	MCS0	1	110	5550	0.44	0.43	11.97	11.85	-	-	23.98	3.34	3.86	-	Pass
HT40	MCS0	1	134	5670	0.44	0.43	11.53	11.54	-	-	23.98	3.34	3.86	-	Pass
HT20	MCS8	2	100	5500	0.42	0.42	12.12	11.75	14.95	-	23.37	-	6.61	-	Pass
HT20	MCS8	2	116	5580	0.42	0.42	12.27	10.75	14.58	-	23.37	-	6.61	-	Pass
HT20	MCS8	2	140	5700	0.42	0.42	12.57	11.07	14.89	-	23.37	-	6.61	-	Pass
HT40	MCS8	2	102	5510	0.79	0.79	12.06	11.53	14.82	-	23.37	-	6.61	-	Pass
HT40	MCS8	2	110	5550	0.79	0.79	11.93	11.07	14.53	-	23.37	-	6.61	-	Pass
HT40	MCS8	2	134	5670	0.79	0.79	12.69	10.64	14.80	-	23.37	-	6.61	-	Pass

**Note:**

- Final Output Power equals to Measured Output Power adds the duty factor.
- Sum Power is a calculated result from sum of the power Ant 1 and Ant 2.
- For the 5250-5350 MHz and 5470-5600MHz and 5650-5725MHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log (B), where B is 26dB BW for FCC and 99% OBW for IC.



Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			IC Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)		Pass /Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power	Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
11a	6Mbps	1	100	5500	0.20	0.21	14.55	14.54	-	23.33	-	3.34	3.86	29.33	-	Pass
11a	6Mbps	1	116	5580	0.20	0.21	14.26	14.47	-	23.33	-	3.34	3.86	29.33	-	Pass
11a	6Mbps	1	140	5700	0.20	0.21	13.74	9.18	-	23.37	-	3.34	3.86	29.37	-	Pass
HT20	MCS0	1	100	5500	0.22	0.22	12.21	12.42	-	-	25.68	3.34	3.86	-	29.54	Pass
HT20	MCS0	1	116	5580	0.22	0.22	12.20	11.41	-	-	25.69	3.34	3.86	-	29.55	Pass
HT20	MCS0	1	140	5700	0.22	0.22	11.35	11.62	-	-	25.69	3.34	3.86	-	29.55	Pass
HT40	MCS0	1	102	5510	0.44	0.43	12.04	12.31	-	-	26.14	3.34	3.86	-	30.00	Pass
HT40	MCS0	1	110	5550	0.44	0.43	11.97	11.85	-	-	26.14	3.34	3.86	-	30.00	Pass
HT40	MCS0	1	134	5670	0.44	0.43	11.53	11.54	-	-	26.14	3.34	3.86	-	30.00	Pass
HT20	MCS8	2	100	5500	0.42	0.42	12.12	11.75	14.95	22.94		6.61		29.55		Pass
HT20	MCS8	2	116	5580	0.42	0.42	12.27	10.75	14.58	22.91		6.61		29.53		Pass
HT20	MCS8	2	140	5700	0.42	0.42	12.57	11.07	14.89	22.94		6.61		29.55		Pass
HT40	MCS8	2	102	5510	0.79	0.79	12.06	11.53	14.82	23.39		6.61		30.00		Pass
HT40	MCS8	2	110	5550	0.79	0.79	11.93	11.07	14.53	23.39		6.61		30.00		Pass
HT40	MCS8	2	134	5670	0.79	0.79	12.69	10.64	14.80	23.39		6.61		30.00		Pass

**Note:**

1. Final Output Power equals to Measured Output Power adds the duty factor.
2. Sum Power is a calculated result from sum of the power Ant 1 and Ant 2.
3. For the 5250-5350 MHz and 5470-5600MHz and 5650-5725MHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log (B), where B is 26dB BW for FCC and 99% OBW for IC.





### **3.3 Power Spectral Density Measurement**

#### **3.3.1 Limit of Power Spectral Density**

For the band 5150-5250 MHz, peak power spectral density shall not exceed 4 dBm in any 1-MHz.

For the bands 5250-5350 MHz and 5470-5600 MHz and 5650-5725 MHz, peak power spectral density shall not exceed 11 dBm in any 1-MHz.

#### **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 D01 General UNII Test Procedures v01r03.

Section F) Peak power spectral density (PPSD).

Note: Though the rule refers to “peak power spectral density”, the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

#### # Method SA-2 #

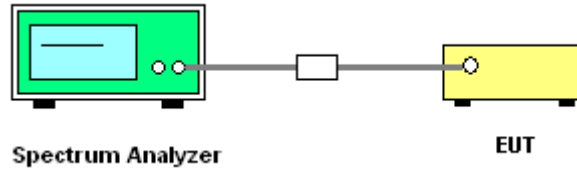
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r03.
  - 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.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
4. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (1): Measure and sum the spectra across the outputs.

The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

### 3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Test Band :	5GHz band 1	Temperature :	22~25°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm)		DG (dBi)		EIRP PSD Limit (dBm)		Pass /Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power	Ant. 1	Ant. 2	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
11a	6Mbps	1	36	5180	0.20	0.21	3.66	-	-	4.00	4.00	0.75	2.29	10	10	Pass
11a	6Mbps	1	44	5220	0.20	0.21	3.74	-	-	4.00	4.00	0.75	2.29	10	10	Pass
11a	6Mbps	1	48	5240	0.20	0.21	3.67	-	-	4.00	4.00	0.75	2.29	10	10	Pass
HT20	MCS0	1	36	5180	0.22	0.22	-	2.29	-	4.00	4.00	0.75	2.29	10	10	Pass
HT20	MCS0	1	44	5220	0.22	0.22	-	2.50	-	4.00	4.00	0.75	2.29	10	10	Pass
HT20	MCS0	1	48	5240	0.22	0.22	-	2.30	-	4.00	4.00	0.75	2.29	10	10	Pass
HT40	MCS0	1	38	5190	0.44	0.43	-	-1.23	-	4.00	4.00	0.75	2.29	10	10	Pass
HT40	MCS0	1	46	5230	0.44	0.43	-	-1.20	-	4.00	4.00	0.75	2.29	10	10	Pass
HT20	MCS8	2	36	5180	0.42	0.42	-	-	3.70	4.00	4.56	10	10	Pass		
HT20	MCS8	2	44	5220	0.42	0.42	-	-	3.92	4.00	4.56	10	10	Pass		
HT20	MCS8	2	48	5240	0.42	0.42	-	-	3.91	4.00	4.56	10	10	Pass		
HT40	MCS8	2	38	5190	0.79	0.79	-	-	0.77	4.00	4.56	10	10	Pass		
HT40	MCS8	2	46	5230	0.79	0.79	-	-	0.80	4.00	4.56	10	10	Pass		

Note: Sum PSD is a bin-by-bin combined result of Ant. 1 and Ant. 2.



Test Band :	5GHz band 2	Temperature :	22~25°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm)		DG (dBi)		-	Pass /Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power	Ant. 1	Ant. 2	Ant. 1	Ant. 2		
11a	6Mbps	1	52	5260	0.20	0.21	3.90	-	-	11.00	11.00	0.57	1.79	-	Pass
11a	6Mbps	1	60	5300	0.20	0.21	3.71	-	-	11.00	11.00	0.57	1.79	-	Pass
11a	6Mbps	1	64	5320	0.20	0.21	3.87	-	-	11.00	11.00	0.57	1.79	-	Pass
HT20	MCS0	1	52	5260	0.22	0.22	-	2.23	-	11.00	11.00	0.57	1.79	-	Pass
HT20	MCS0	1	60	5300	0.22	0.22	-	2.26	-	11.00	11.00	0.57	1.79	-	Pass
HT20	MCS0	1	64	5320	0.22	0.22	-	2.18	-	11.00	11.00	0.57	1.79	-	Pass
HT40	MCS0	1	54	5270	0.44	0.43	-	-1.20	-	11.00	11.00	0.57	1.79	-	Pass
HT40	MCS0	1	62	5310	0.44	0.43	-	-1.18	-	11.00	11.00	0.57	1.79	-	Pass
HT20	MCS8	2	52	5260	0.42	0.42	-	-	4.69	11.00	-	4.21	-	Pass	
HT20	MCS8	2	60	5300	0.42	0.42	-	-	4.69	11.00	-	4.21	-	Pass	
HT20	MCS8	2	64	5320	0.42	0.42	-	-	4.76	11.00	-	4.21	-	Pass	
HT40	MCS8	2	54	5270	0.79	0.79	-	-	0.74	11.00	-	4.21	-	Pass	
HT40	MCS8	2	62	5310	0.79	0.79	-	-	0.59	11.00	-	4.21	-	Pass	

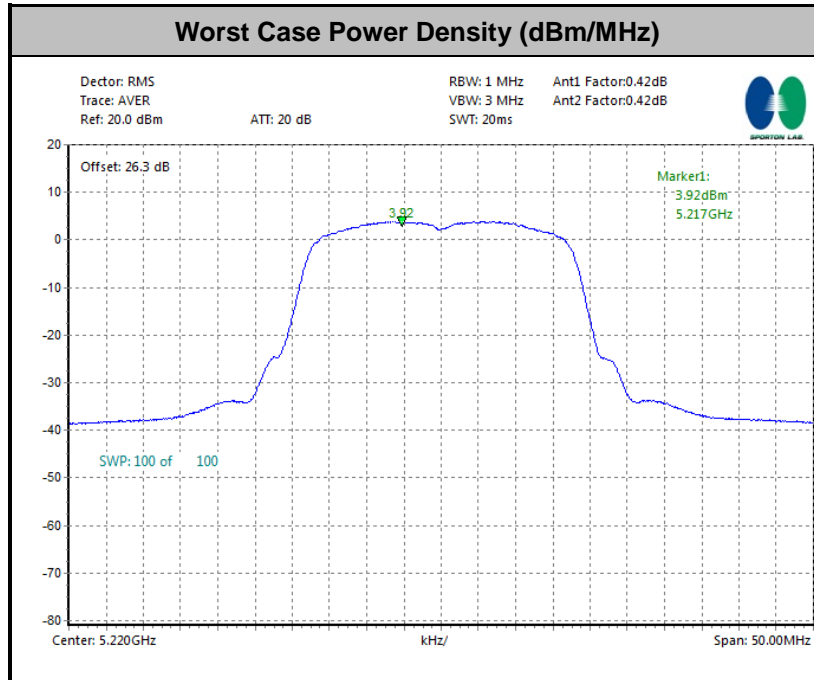
Note: Sum PSD is a bin-by-bin combined result of Ant. 1 and Ant. 2.



Test Band :	5GHz band 3	Temperature :	22~25°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm)		DG (dBi)		-	Pass /Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power	Ant. 1	Ant. 2	Ant. 1	Ant. 2		
11a	6Mbps	1	100	5500	0.20	0.21	4.46	-	-	11.00	11.00	3.34	3.86	-	Pass
11a	6Mbps	1	116	5580	0.20	0.21	4.35	-	-	11.00	11.00	3.34	3.86	-	Pass
11a	6Mbps	1	140	5700	0.20	0.21	3.89	-	-	11.00	11.00	3.34	3.86	-	Pass
HT20	MCS0	1	100	5500	0.22	0.22	-	2.38	-	11.00	11.00	3.34	3.86	-	Pass
HT20	MCS0	1	116	5580	0.22	0.22	-	1.54	-	11.00	11.00	3.34	3.86	-	Pass
HT20	MCS0	1	140	5700	0.22	0.22	-	1.95	-	11.00	11.00	3.34	3.86	-	Pass
HT40	MCS0	1	102	5510	0.44	0.43	-	-1.07	-	11.00	11.00	3.34	3.86	-	Pass
HT40	MCS0	1	110	5550	0.44	0.43	-	-1.39	-	11.00	11.00	3.34	3.86	-	Pass
HT40	MCS0	1	134	5670	0.44	0.43	-	-1.90	-	11.00	11.00	3.34	3.86	-	Pass
HT20	MCS8	2	100	5500	0.42	0.42	-	-	4.33	10.39	6.61	-	-	Pass	
HT20	MCS8	2	116	5580	0.42	0.42	-	-	4.06	10.39	6.61	-	-	Pass	
HT20	MCS8	2	140	5700	0.42	0.42	-	-	4.57	10.39	6.61	-	-	Pass	
HT40	MCS8	2	102	5510	0.79	0.79	-	-	0.51	10.39	6.61	-	-	Pass	
HT40	MCS8	2	110	5550	0.79	0.79	-	-	0.36	10.39	6.61	-	-	Pass	
HT40	MCS8	2	134	5670	0.79	0.79	-	-	0.10	10.39	6.61	-	-	Pass	

Note: Sum PSD is a bin-by-bin combined result of Ant. 1 and Ant. 2.



### 3.4 Peak Excursion Ratio Measurement

#### 3.4.1 Limit of Peak Excursion Ratio

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

#### 3.4.2 Measuring Instruments

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

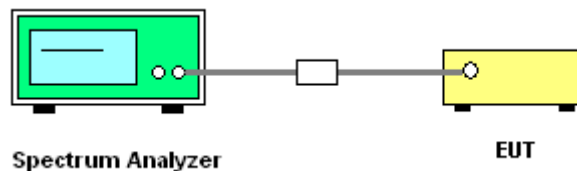
#### 3.4.3 Test Procedures

The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r03.

Section G) Peak excursion measurement

1. The transmitter output is connected to the spectrum analyzer.
2. Set the spectrum analyzer span to view the entire emission bandwidth.
3. Find the maximum of the peak-max-hold spectrum.
  - \*Set RBW = 1MHz.
  - \*Set VBW  $\geq$  3MHz.
  - \*Detector = peak.
  - \*Trace mode = max-hold.
  - \*Allow the sweeps to continue until the trace stabilizes.
  - \*Use the peak search function to find the peak of the spectrum.
4. Use the procedure found under section 3.3 to measure the PPSD.
5. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

#### 3.4.4 Test Setup





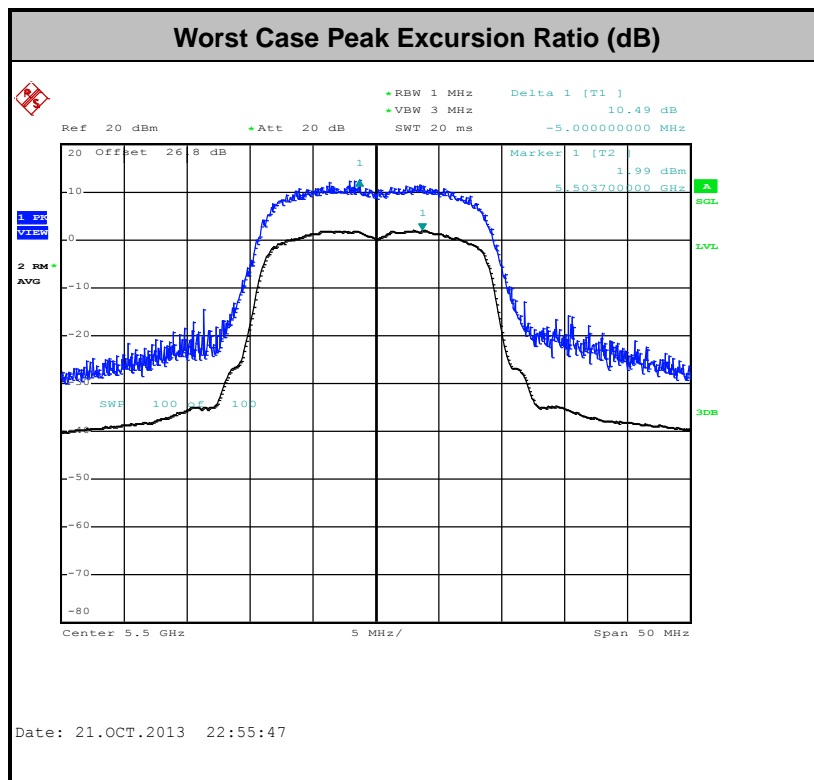


3.4.5 Test Result of Peak Excursion Ratio

Test Band :	5GHz band 1,2,3	Temperature :	22~25°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Mod.	N <sub>TX</sub>	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	100	5500	9.44	9.97	9.29	9.43	-	13	Pass
HT20	1	100	5500	9.15	10.07	9.62	9.56	-	13	Pass
HT40	1	102	5510	9.82	9.70	9.16	9.82	-	13	Pass

Note: All modulation measured based on the minimum data rate setting.



Note: Peak Excursion Ratio (dB) = Peak – (Average + Duty Cycle Offset)

### 3.5 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

#### 3.5.1 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 per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 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

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

$$E = \frac{1000000\sqrt{30P}}{3} \mu V/m, \text{ where } P \text{ is the eirp (Watts)}$$



EIRP (dBm)	Field Strength at 3m (dBμV/m)
-17	78.3
- 27	68.3

(3) KDB789033 v01r03 H)2)c(i) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

### 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 testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r03.  
Section H) 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
    - The setting follows the H) 5) of FCC KDB 789033.
    - 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
    - The setting follows H) 6) of FCC KDB 789033.
    - 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.

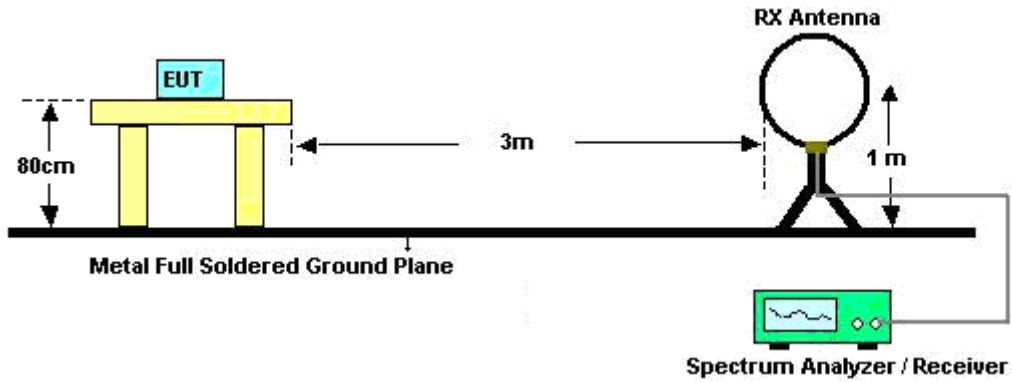


Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1	802.11a for Ant. 1	95.41	2080	0.480	1kHz
2	802.11a for Ant. 2	95.37	2060	0.490	1kHz
1	802.11n HT20 for Ant. 1	95.05	1920	0.529	1kHz
2	802.11n HT20 for Ant. 2	95.07	1930	0.520	1kHz
1+2	802.11n HT20 for Ant. 1	90.83	990	1.010	3kHz
1+2	802.11n HT20 for Ant. 2	90.82	990	1.010	3kHz
1	802.11n HT40 for Ant. 1	90.38	940	1.060	3kHz
2	802.11n HT20 for Ant. 2	90.48	950	1.050	
1+2	802.11n HT40 for Ant. 1	83.33	500	2.000	3kHz
1+2	802.11n HT40 for Ant. 2	83.33	500	2.000	

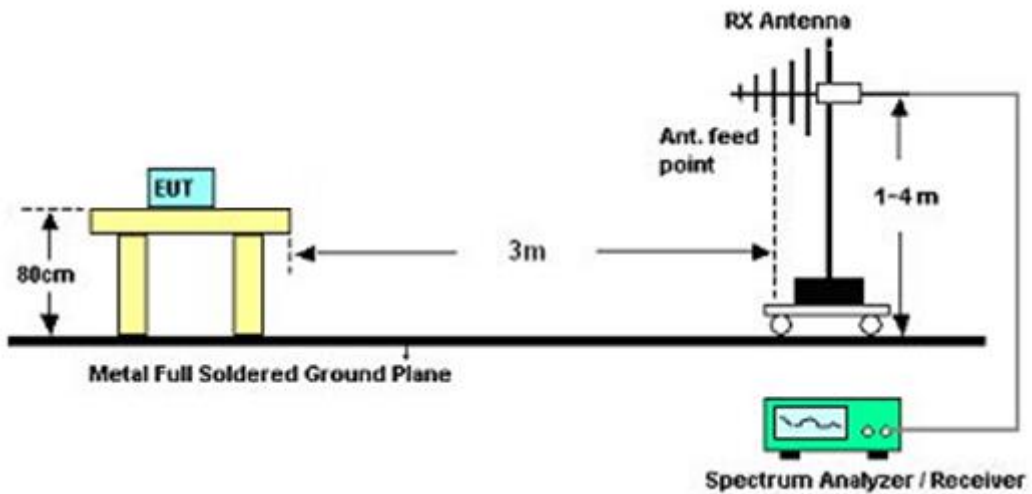
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters 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.

### 3.5.4 Test Setup

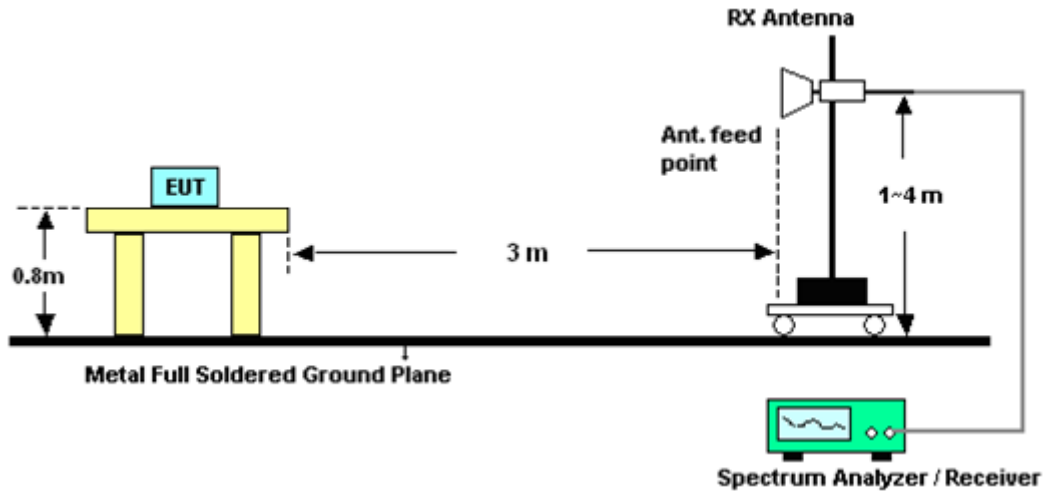
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



### 3.5.5 Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.



3.5.6 Test Result of Radiated Band Edges

<Ant. 1>

Test Mode :	802.11a	Temperature :	22~25°C
Test Channel :	36	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5148.2	72.53	-1.47	74	61.51	34.29	9.22	32.49	110	158	Peak
5149.7	51.62	-2.38	54	40.6	34.29	9.22	32.49	110	158	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5143.7	64.39	-9.61	74	53.33	34.29	9.22	32.45	126	265	Peak
5148.95	45.18	-8.82	54	34.16	34.29	9.22	32.49	126	265	Average





Test Mode :	802.11a	Temperature :	22~25°C
Test Channel :	48	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5096.75	55.17	-18.83	74	44.29	34.16	9.14	32.42	111	219	Peak
5149.85	43.1	-10.9	54	32.08	34.29	9.22	32.49	111	219	Average
5363.2	55.14	-18.86	74	43.86	34.85	9.61	33.18	111	219	Peak
5351.54	42.85	-11.15	54	31.66	34.81	9.56	33.18	111	219	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5131.25	54.22	-19.78	74	43.24	34.25	9.18	32.45	110	264	Peak
5013.35	41.74	-12.26	54	31.12	33.94	8.97	32.29	110	264	Average
5353.3	54.33	-19.67	74	43.14	34.81	9.56	33.18	110	264	Peak
5353.41	41.94	-12.06	54	30.75	34.81	9.56	33.18	110	264	Average



Test Mode :	802.11a	Temperature :	22~25°C
Test Channel :	52	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5113.85	54.84	-19.16	74	43.92	34.2	9.14	32.42	122	218	Peak
5148.8	42.16	-11.84	54	31.14	34.29	9.22	32.49	122	218	Average
5354.18	55.47	-18.53	74	44.28	34.81	9.56	33.18	122	218	Peak
5351.21	43.69	-10.31	54	32.5	34.81	9.56	33.18	122	218	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5021.45	54.24	-19.76	74	43.56	33.99	9.01	32.32	110	261	Peak
5040.8	41.27	-12.73	54	30.55	34.03	9.01	32.32	110	261	Average
5438.66	55.16	-18.84	74	43.88	35.03	9.73	33.48	110	261	Peak
5355.39	42.13	-11.87	54	30.94	34.81	9.56	33.18	110	261	Average

Test Mode :	802.11a	Temperature :	22~25°C
Test Channel :	64	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5350.99	66.65	-7.35	74	55.46	34.81	9.56	33.18	133	216	Peak
5350	49.8	-4.2	54	38.61	34.81	9.56	33.18	133	216	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5350.11	61.76	-12.24	74	50.57	34.81	9.56	33.18	100	109	Peak
5350	43.94	-10.06	54	32.75	34.81	9.56	33.18	100	109	Average



Test Mode :	802.11a	Temperature :	22~25°C
Test Channel :	100	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5466.96	72.11	-1.89	74	60.79	35.11	9.78	33.57	102	175	Peak
5470	51.18	-2.82	54	39.86	35.11	9.78	33.57	102	175	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5470	64.93	-9.07	74	53.61	35.11	9.78	33.57	100	70	Peak
5470	44.2	-9.8	54	32.88	35.11	9.78	33.57	100	70	Average

Test Mode :	802.11a	Temperature :	22~25°C
Test Channel :	140	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5727.96	70.73	-3.27	74	59.51	35.33	10.04	34.15	100	170	Peak
5725	52.84	-1.16	54	41.62	35.33	10.04	34.15	100	170	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5730.6	55.97	-18.03	74	44.77	35.33	10.04	34.17	100	44	Peak
5725.08	42.64	-11.36	54	31.42	35.33	10.04	34.15	100	44	Average



<Ant. 2>

Test Mode :	802.11a	Temperature :	22~25°C
Test Channel :	140	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725.4	56.95	-17.05	74	45.73	35.33	10.04	34.15	100	149	Peak
5725.48	42.02	-11.98	54	30.8	35.33	10.04	34.15	100	149	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725.24	55.18	-18.82	74	43.96	35.33	10.04	34.15	100	97	Peak
5726.12	41.77	-12.23	54	30.55	35.33	10.04	34.15	100	97	Average



MIMO <Ant. 1+2>

Test Mode :	802.11n HT20	Temperature :	22~25°C
Test Channel :	36	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5142.35	66.1	-7.9	74	55.04	34.29	9.22	32.45	111	159	Peak
5150	49.54	-4.46	54	38.52	34.29	9.22	32.49	111	159	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5149.25	65.64	-8.36	74	54.62	34.29	9.22	32.49	111	264	Peak
5149.25	44.4	-9.6	54	33.38	34.29	9.22	32.49	111	264	Average

Test Mode :	802.11n HT20	Temperature :	22~25°C
Test Channel :	48	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5139.5	55.73	-18.27	74	44.71	34.29	9.18	32.45	111	219	Peak
5137.1	43.37	-10.63	54	32.39	34.25	9.18	32.45	111	219	Average
5355.61	55.61	-18.39	74	44.42	34.81	9.56	33.18	111	219	Peak
5352.09	43.57	-10.43	54	32.38	34.81	9.56	33.18	111	219	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5006.45	54.55	-19.45	74	43.93	33.94	8.97	32.29	125	264	Peak
5136.5	42.16	-11.84	54	31.18	34.25	9.18	32.45	125	264	Average
5352.42	54.94	-19.06	74	43.75	34.81	9.56	33.18	125	264	Peak
5351.76	42.78	-11.22	54	31.59	34.81	9.56	33.18	125	264	Average



Test Mode :	802.11n HT20	Temperature :	22~25°C
Test Channel :	52	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5116.4	54.53	-19.47	74	43.57	34.2	9.18	32.42	123	213	Peak
5135.6	43.12	-10.88	54	32.14	34.25	9.18	32.45	123	213	Average
5364.63	55.47	-18.53	74	44.19	34.85	9.61	33.18	123	213	Peak
5350.22	43.73	-10.27	54	32.54	34.81	9.56	33.18	123	213	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5117.3	54.19	-19.81	74	43.23	34.2	9.18	32.42	109	265	Peak
5052.35	42.18	-11.82	54	31.45	34.03	9.05	32.35	109	265	Average
5372	54.78	-19.22	74	43.5	34.85	9.61	33.18	109	265	Peak
5368.59	42.71	-11.29	54	31.43	34.85	9.61	33.18	109	265	Average

Test Mode :	802.11n HT20	Temperature :	22~25°C
Test Channel :	64	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5350.77	65.49	-8.51	74	54.3	34.81	9.56	33.18	133	215	Peak
5350.44	48.61	-5.39	54	37.42	34.81	9.56	33.18	133	215	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5350.11	57.97	-16.03	74	46.78	34.81	9.56	33.18	100	110	Peak
5350.11	44.03	-9.97	54	32.84	34.81	9.56	33.18	100	110	Average



Test Mode :	802.11n HT20	Temperature :	22~25°C
Test Channel :	100	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5463.6	63.37	-10.63	74	52.05	35.11	9.78	33.57	102	176	Peak
5469.84	47.15	-6.85	54	35.83	35.11	9.78	33.57	102	176	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5470	55.65	-18.35	74	44.33	35.11	9.78	33.57	100	69	Peak
5451.6	42.75	-11.25	54	31.52	35.07	9.73	33.57	100	69	Average

Test Mode :	802.11n HT20	Temperature :	22~25°C
Test Channel :	140	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5726.52	70.95	-3.05	74	59.73	35.33	10.04	34.15	100	170	Peak
5725	52.1	-1.9	54	40.88	35.33	10.04	34.15	100	170	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5726.76	57.61	-16.39	74	46.39	35.33	10.04	34.15	100	44	Peak
5725.08	42.85	-11.15	54	31.63	35.33	10.04	34.15	100	44	Average



MIMO <Ant. 1+2>

Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	38	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5148.2	70.17	-3.83	74	59.15	34.29	9.22	32.49	109	158	Peak
5150	52.67	-1.33	54	41.65	34.29	9.22	32.49	109	158	Average
5359.79	54.72	-19.28	74	43.48	34.81	9.61	33.18	109	158	Peak
5350.66	43.54	-10.46	54	32.35	34.81	9.56	33.18	109	158	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5148.95	63.38	-10.62	74	52.36	34.29	9.22	32.49	100	263	Peak
5147.15	46.22	-7.78	54	35.2	34.29	9.22	32.49	100	263	Average
5402.03	54.35	-19.65	74	43.15	34.94	9.65	33.39	100	263	Peak
5353.52	42.49	-11.51	54	31.3	34.81	9.56	33.18	100	263	Average





Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	46	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5130.5	61.84	-12.16	74	50.86	34.25	9.18	32.45	100	219	Peak
5149.7	46.25	-7.75	54	35.23	34.29	9.22	32.49	100	219	Average
5351.32	55.53	-18.47	74	44.34	34.81	9.56	33.18	100	219	Peak
5357.15	43.58	-10.42	54	32.34	34.81	9.61	33.18	100	219	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5148.65	56.54	-17.46	74	45.52	34.29	9.22	32.49	124	263	Peak
5148.05	43.11	-10.89	54	32.09	34.29	9.22	32.49	124	263	Average
5416.66	54.81	-19.19	74	43.53	34.98	9.69	33.39	124	263	Peak
5350.77	42.99	-11.01	54	31.8	34.81	9.56	33.18	124	263	Average



Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	54	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5146.55	55.34	-18.66	74	44.32	34.29	9.22	32.49	110	215	Peak
5149.7	43.58	-10.42	54	32.56	34.29	9.22	32.49	110	215	Average
5354.62	63.37	-10.63	74	52.18	34.81	9.56	33.18	110	215	Peak
5353.63	46.09	-7.91	54	34.9	34.81	9.56	33.18	110	215	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5018	53.74	-20.26	74	43.15	33.94	8.97	32.32	101	111	Peak
5003.45	42.08	-11.92	54	31.5	33.9	8.97	32.29	101	111	Average
5354.73	56.33	-17.67	74	45.14	34.81	9.56	33.18	101	111	Peak
5353.85	43.08	-10.92	54	31.89	34.81	9.56	33.18	101	111	Average



Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	62	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5145.05	54.55	-19.45	74	43.53	34.29	9.22	32.49	110	217	Peak
5130.2	42.88	-11.12	54	31.9	34.25	9.18	32.45	110	217	Average
5350.66	71.4	-2.6	74	60.21	34.81	9.56	33.18	110	217	Peak
5350	53.46	-0.54	54	42.27	34.81	9.56	33.18	110	217	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5003.9	54.65	-19.35	74	44.03	33.94	8.97	32.29	134	262	Peak
5017.55	42.04	-11.96	54	31.45	33.94	8.97	32.32	134	262	Average
5356.82	66.73	-7.27	74	55.49	34.81	9.61	33.18	134	262	Peak
5352.2	47.38	-6.62	54	36.19	34.81	9.56	33.18	134	262	Average



Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	102	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5469.84	68.32	-5.68	74	57	35.11	9.78	33.57	102	172	Peak
5469.2	51.94	-2.06	54	40.62	35.11	9.78	33.57	102	172	Average
5746.92	55.21	-18.79	74	43.98	35.34	10.06	34.17	102	172	Peak
5725	42.15	-11.85	54	30.93	35.33	10.04	34.15	102	172	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5468.88	60.16	-13.84	74	48.84	35.11	9.78	33.57	100	70	Peak
5469.68	45.28	-8.72	54	33.96	35.11	9.78	33.57	100	70	Average
5757.88	53.89	-20.11	74	42.67	35.36	10.06	34.2	100	70	Peak
5730.52	41.94	-12.06	54	30.74	35.33	10.04	34.17	100	70	Average



Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	134	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5403.28	54.24	-19.76	74	43.04	34.94	9.65	33.39	101	169	Peak
5353.04	42.52	-11.48	54	31.33	34.81	9.56	33.18	101	169	Average
5727.24	62.5	-11.5	74	51.28	35.33	10.04	34.15	101	169	Peak
5725.08	48.23	-5.77	54	37.01	35.33	10.04	34.15	101	169	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5359.44	54.1	-19.9	74	42.86	34.81	9.61	33.18	175	89	Peak
5375.28	42.46	-11.54	54	31.28	34.85	9.61	33.28	175	89	Average
5725.56	55.7	-18.3	74	44.48	35.33	10.04	34.15	175	89	Peak
5725.16	43.01	-10.99	54	31.79	35.33	10.04	34.15	175	89	Average



<Ant. 1>

Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	62	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5024.9	54.56	-19.44	74	43.88	33.99	9.01	32.32	101	33	Peak
5015.15	41.94	-12.06	54	31.32	33.94	8.97	32.29	101	33	Average
5376.73	54.37	-19.63	74	43.19	34.85	9.61	33.28	101	33	Peak
5353.96	42.54	-11.46	54	31.35	34.81	9.56	33.18	101	33	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5033.3	53.9	-20.1	74	43.22	33.99	9.01	32.32	106	349	Peak
5050.25	42.07	-11.93	54	31.34	34.03	9.05	32.35	106	349	Average
5352.2	55.04	-18.96	74	43.85	34.81	9.56	33.18	106	349	Peak
5361.77	42.66	-11.34	54	31.38	34.85	9.61	33.18	106	349	Average



<Ant. 2>

Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	62	Relative Humidity :	51~54%
Test Engineer :	Eric Shih		

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5043.5	54.63	-19.37	74	43.94	34.03	9.01	32.35	122	217	Peak
5137.85	42.72	-11.28	54	31.74	34.25	9.18	32.45	122	217	Average
5352.53	73.39	-0.61	74	62.2	34.81	9.56	33.18	122	217	Peak
5350.44	53.81	-0.19	54	42.62	34.81	9.56	33.18	122	217	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5034.8	54.54	-19.46	74	43.86	33.99	9.01	32.32	100	110	Peak
5040.2	42	-12	54	31.28	34.03	9.01	32.32	100	110	Average
5350.88	64.96	-9.04	74	53.77	34.81	9.56	33.18	100	110	Peak
5350.44	48.36	-5.64	54	37.17	34.81	9.56	33.18	100	110	Average

3.5.7 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic)

<Ant. 1>

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	36	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5182 MHz is fundamental signal which can be ignored.. 2. 10360 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5182	102.42	-	-	91.29	34.38	9.27	32.52	110	158	Average
5182	113.23	-	-	102.1	34.38	9.27	32.52	110	158	Peak
10359	45.99	-28.01	74	53.86	37.29	13.71	58.87	100	0	Peak
15543	41.05	-12.95	54	42.65	40.33	15.56	57.49	114	214	Average
15543	54.52	-19.48	74	56.12	40.33	15.56	57.49	114	214	Peak

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	36	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5182 MHz is fundamental signal which can be ignored.. 2. 10359 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5182	94.25	-	-	83.12	34.38	9.27	32.52	126	265	Average
5182	104.72	-	-	93.59	34.38	9.27	32.52	126	265	Peak
10359	45.49	-28.51	74	53.36	37.29	13.71	58.87	100	0	Peak
15545	46.65	-7.35	54	48.21	40.35	15.56	57.47	148	124	Average
15545	55.61	-18.39	74	57.17	40.35	15.56	57.47	100	0	Peak





<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	44	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5218 MHz is fundamental signal which can be ignored.. 2. 10440 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5218	101.58	-	-	90.32	34.46	9.35	32.55	120	159	Average
5218	112.45	-	-	101.19	34.46	9.35	32.55	120	159	Peak
10440	45.45	-28.55	74	53.01	37.35	13.71	58.62	100	0	Peak
15660	46.69	-7.31	54	48.11	40.46	15.65	57.53	102	123	Average
15660	57.44	-16.56	74	58.86	40.46	15.65	57.53	102	123	Peak

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	44	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5218 MHz is fundamental signal which can be ignored.. 2. 10437 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5218	93.72	-	-	82.46	34.46	9.35	32.55	124	264	Average
5218	103.98	-	-	92.72	34.46	9.35	32.55	124	264	Peak
10437	44.51	-29.49	74	52.07	37.35	13.71	58.62	100	0	Peak
15657	43.91	-10.09	54	45.33	40.46	15.65	57.53	124	314	Average
15657	56.06	-17.94	74	57.48	40.46	15.65	57.53	124	314	Peak



<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	48	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5238 MHz is fundamental signal which can be ignored.. 2. 10479 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5238	100.46	-	-	89.21	34.51	9.39	32.65	111	219	Average
5238	110.58	-	-	99.33	34.51	9.39	32.65	111	219	Peak
10479	43.4	-30.6	74	50.95	37.39	13.72	58.66	100	0	Peak
15717	48.05	-5.95	54	49.34	40.52	15.69	57.5	100	158	Average
15717	57.45	-16.55	74	58.74	40.52	15.69	57.5	100	158	Peak

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	48	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5242 MHz is fundamental signal which can be ignored.. 2. 10479 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5242	93.93	-	-	82.64	34.55	9.39	32.65	110	264	Average
5242	104.29	-	-	93	34.55	9.39	32.65	110	264	Peak
10479	43.48	-30.52	74	51.03	37.39	13.72	58.66	100	0	Peak
15720	47.38	-6.62	54	48.67	40.52	15.69	57.5	107	112	Average
15720	58	-16	74	59.29	40.52	15.69	57.5	107	112	Peak



<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	52	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5262 MHz is fundamental signal which can be ignored.. 2. 10521 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5262	100.42	-	-	89.15	34.59	9.44	32.76	122	218	Average
5262	110.72	-	-	99.45	34.59	9.44	32.76	122	218	Peak
10521	44.5	-29.5	74	52.03	37.42	13.72	58.67	100	0	Peak
15777	44.09	-9.91	54	45.24	40.58	15.75	57.48	148	255	Average
15777	56.14	-17.86	74	57.29	40.58	15.75	57.48	148	255	Peak

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	52	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5262 MHz is fundamental signal which can be ignored.. 2. 10521 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5262	92.9	-	-	81.63	34.59	9.44	32.76	110	261	Average
5262	103.14	-	-	91.87	34.59	9.44	32.76	110	261	Peak
10521	44.67	-29.33	74	52.2	37.42	13.72	58.67	100	0	Peak
15786	46.05	-7.95	54	47.18	40.59	15.75	57.47	147	118	Average
15786	56.21	-17.79	74	57.34	40.59	15.75	57.47	147	118	Peak



<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	60	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5302 MHz is fundamental signal which can be ignored..</li> <li>10599 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5302	100.38	-	-	89.19	34.68	9.48	32.97	120	218	Average
5302	110.7	-	-	99.51	34.68	9.48	32.97	120	218	Peak
10599	44.07	-29.93	74	51.48	37.5	13.73	58.64	100	0	Peak
15903	41.14	-12.86	54	42.01	40.71	15.84	57.42	127	258	Average
15903	51.04	-22.96	74	51.91	40.71	15.84	57.42	127	258	Peak

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	60	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5300 MHz is fundamental signal which can be ignored..</li> <li>10599 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5300	91.93	-	-	80.74	34.68	9.48	32.97	114	114	Average
5300	102.2	-	-	91.01	34.68	9.48	32.97	114	114	Peak
10599	45.69	-28.31	74	53.1	37.5	13.73	58.64	100	0	Peak
15903	40.68	-13.32	54	41.55	40.71	15.84	57.42	180	145	Average
15903	51.44	-22.56	74	52.31	40.71	15.84	57.42	180	145	Peak



<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	64	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5322 MHz is fundamental signal which can be ignored.. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5322	99.35	-	-	88.08	34.72	9.52	32.97	133	216	Average
5322	109.67	-	-	98.4	34.72	9.52	32.97	133	216	Peak
10644	45.47	-28.53	74	52.83	37.54	13.73	58.63	100	0	Peak
15963	41.36	-12.64	54	42.11	40.77	15.88	57.4	100	144	Average
15963	52.12	-21.88	74	52.87	40.77	15.88	57.4	100	144	Peak

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	64	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5318 MHz is fundamental signal which can be ignored.. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5318	91.57	-	-	80.3	34.72	9.52	32.97	100	109	Average
5318	101.85	-	-	90.58	34.72	9.52	32.97	100	109	Peak
10641	45.66	-28.34	74	53.02	37.54	13.73	58.63	100	0	Peak
15964	40.79	-13.21	54	41.52	40.77	15.9	57.4	100	233	Average
15964	51.76	-22.24	74	52.49	40.77	15.9	57.4	100	233	Peak



<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	100	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5502 MHz is fundamental signal which can be ignored.. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5502	99.12	-	-	87.8	35.2	9.86	33.74	102	175	Average
5502	109.92	-	-	98.6	35.2	9.86	33.74	102	175	Peak
11001	45.57	-28.43	74	52.45	37.9	13.76	58.54	100	0	Peak
16497	42.94	-11.06	54	42.1	41.5	16.13	56.79	114	258	Average
16497	52.06	-21.94	74	51.22	41.5	16.13	56.79	114	258	Peak

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	100	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5502 MHz is fundamental signal which can be ignored.. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5502	91.5	-	-	80.18	35.2	9.86	33.74	100	70	Average
5502	101.64	-	-	90.32	35.2	9.86	33.74	100	70	Peak
11001	46.2	-27.8	74	53.08	37.9	13.76	58.54	100	0	Peak
16500	41.53	-12.47	54	40.69	41.5	16.13	56.79	126	239	Average
16500	51.12	-22.88	74	50.28	41.5	16.13	56.79	126	239	Peak



<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	116	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5582 MHz is fundamental signal which can be ignored.. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5582	100.55	-	-	89.39	35.25	9.92	34.01	102	172	Average
5582	110.93	-	-	99.77	35.25	9.92	34.01	102	172	Peak
11160	46.31	-27.69	74	52.85	38.07	13.93	58.54	100	0	Peak
16740	50.47	-23.53	74	50.14	41.74	16.23	57.64	100	0	Peak

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	116	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5578 MHz is fundamental signal which can be ignored.. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5578	91.86	-	-	80.71	35.24	9.92	34.01	164	78	Average
5578	102.3	-	-	91.15	35.24	9.92	34.01	164	78	Peak
11160	46.47	-27.53	74	53.01	38.07	13.93	58.54	100	0	Peak
16740	49.93	-24.07	74	49.6	41.74	16.23	57.64	100	0	Peak



<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5698 MHz is fundamental signal which can be ignored. 2. 17100 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
44.58	29.05	-10.95	40	49.1	10.5	0.65	31.2	156	39	Peak
192.54	30.26	-13.24	43.5	51.18	8.89	1.29	31.1	-	-	Peak
256.8	33.82	-12.18	46	49.73	13.52	1.57	31	-	-	Peak
479.9	31.35	-14.65	46	42.17	17.6	2.38	30.8	-	-	Peak
651.4	30.84	-15.16	46	38.12	20.38	2.84	30.5	-	-	Peak
934.2	34.29	-11.71	46	36.94	24.3	3.42	30.37	-	-	Peak
5698	100.55	-	-	89.34	35.31	10.02	34.12	100	170	Average
5698	110.83	-	-	99.62	35.31	10.02	34.12	100	170	Peak
11400	45.59	-28.41	74	51.62	38.3	14.21	58.54	100	0	Peak
17100	47.36	-26.64	74	47.4	41.94	16.46	58.44	100	0	Peak





<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5702 MHz is fundamental signal which can be ignored. 2. 17100 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
55.92	29.86	-10.14	40	54.02	6.32	0.74	31.22	133	56	Peak
192.54	32.37	-11.13	43.5	53.29	8.89	1.29	31.1	-	-	Peak
231.15	25.32	-20.68	46	44.61	10.22	1.49	31	-	-	Peak
310.5	22.99	-23.01	46	38.9	13.3	1.79	31	-	-	Peak
479.9	26.81	-19.19	46	37.63	17.6	2.38	30.8	-	-	Peak
909.7	29.35	-16.65	46	32.81	23.5	3.36	30.32	-	-	Peak
5702	88.98	-	-	77.76	35.32	10.02	34.12	100	44	Average
5702	99.12	-	-	87.9	35.32	10.02	34.12	100	44	Peak
11400	46.14	-27.86	74	52.17	38.3	14.21	58.54	100	0	Peak
17100	48.78	-25.22	74	48.82	41.94	16.46	58.44	100	0	Peak



<Ant. 2>

<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5702 MHz is fundamental signal which can be ignored.. 2. 17100 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
45.39	30.4	-9.6	40	50.79	10.15	0.66	31.2	118	37	Peak
192.54	29.44	-14.06	43.5	50.36	8.89	1.29	31.1	-	-	Peak
269.76	33.63	-12.37	46	50.09	12.9	1.64	31	-	-	Peak
346.2	30.67	-15.33	46	45.48	14.28	1.94	31.03	-	-	Peak
479.9	31.42	-14.58	46	42.24	17.6	2.38	30.8	-	-	Peak
720	30.14	-15.86	46	36.15	21.4	2.99	30.4	-	-	Peak
5702	77.65	-	-	66.43	35.32	10.02	34.12	100	149	Average
5702	87.92	-	-	76.7	35.32	10.02	34.12	100	149	Peak
11400	41.55	-12.45	54	46.11	38.3	14.21	57.07	100	151	Average
11400	51.31	-22.69	74	55.87	38.3	14.21	57.07	100	151	Peak
17100	45.05	-8.95	54	42.81	41.94	16.46	56.16	105	203	Average
17100	57.42	-16.58	74	55.18	41.94	16.46	56.16	105	203	Peak



<b>Test Mode :</b>	802.11a	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5698 MHz is fundamental signal which can be ignored.. 2. 17100 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
52.14	28.72	-11.28	40	51.61	7.6	0.71	31.2	-	-	Peak
99.12	21.13	-22.37	43.5	41.08	10.16	0.99	31.1	-	-	Peak
192.54	34.1	-9.4	43.5	55.02	8.89	1.29	31.1	102	94	Peak
384.7	23.31	-22.69	46	36.88	15.3	2.11	30.98	-	-	Peak
597.5	24.01	-21.99	46	32.37	19.57	2.68	30.61	-	-	Peak
909.7	29.99	-16.01	46	33.45	23.5	3.36	30.32	-	-	Peak
5698	78.03	-	-	66.82	35.31	10.02	34.12	100	97	Average
5698	87.71	-	-	76.5	35.31	10.02	34.12	100	97	Peak
11400	47.57	-6.43	54	52.13	38.3	14.21	57.07	107	192	Average
11400	60.24	-13.76	74	64.8	38.3	14.21	57.07	107	192	Peak
17100	45.94	-8.06	54	43.7	41.94	16.46	56.16	102	221	Average
17100	57.1	-16.9	74	54.86	41.94	16.46	56.16	102	221	Peak



MIMO <Ant. 1+2>

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	36	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5182 MHz is fundamental signal which can be ignored.. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5182	100.85	-	-	89.72	34.38	9.27	32.52	111	159	Average
5182	111.86	-	-	100.73	34.38	9.27	32.52	111	159	Peak
10364	48.03	-25.97	74	55.59	37.29	13.71	58.56	100	0	Peak
15536	44.15	-9.85	54	45.84	40.33	15.56	57.58	141	214	Average
15536	53.49	-20.51	74	55.18	40.33	15.56	57.58	141	214	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	36	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5178 MHz is fundamental signal which can be ignored.. 2. 10359 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5178	92.49	-	-	81.36	34.38	9.27	32.52	111	264	Average
5178	103.49	-	-	92.36	34.38	9.27	32.52	111	264	Peak
10359	48.61	-25.39	74	56.17	37.29	13.71	58.56	100	0	Peak
15544	43.55	-10.45	54	45.21	40.35	15.56	57.57	125	189	Average
15544	54.77	-19.23	74	56.43	40.35	15.56	57.57	125	189	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	44	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5218 MHz is fundamental signal which can be ignored.. 2. 10437 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5218	99.48	-	-	88.22	34.46	9.35	32.55	100	214	Average
5218	109.27	-	-	98.01	34.46	9.35	32.55	100	214	Peak
10437	46.49	-27.51	74	54.05	37.35	13.71	58.62	100	0	Peak
15664	43.57	-10.43	54	44.97	40.47	15.65	57.52	114	106	Average
15664	53.75	-20.25	74	55.15	40.47	15.65	57.52	114	106	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	44	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5222 MHz is fundamental signal which can be ignored.. 2. 10440 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5222	92.5	-	-	81.34	34.46	9.35	32.65	112	263	Average
5222	103.25	-	-	92.09	34.46	9.35	32.65	112	263	Peak
10440	47.77	-26.23	74	55.33	37.35	13.71	58.62	100	0	Peak
15657	43.3	-10.7	54	44.72	40.46	15.65	57.53	122	109	Average
15657	55.19	-18.81	74	56.61	40.46	15.65	57.53	122	109	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	48	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5242 MHz is fundamental signal which can be ignored.. 2. 10482 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5242	99.52	-	-	88.23	34.55	9.39	32.65	111	219	Average
5242	109.93	-	-	98.64	34.55	9.39	32.65	111	219	Peak
10482	47.39	-26.61	74	55.17	37.39	13.72	58.89	100	0	Peak
15720	43.51	-10.49	54	44.57	40.52	15.69	57.27	100	105	Average
15720	54.7	-19.3	74	55.76	40.52	15.69	57.27	100	105	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	48	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5242 MHz is fundamental signal which can be ignored.. 2. 10480 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5242	92.44	-	-	81.15	34.55	9.39	32.65	125	264	Average
5242	103.43	-	-	92.14	34.55	9.39	32.65	125	264	Peak
10480	47.4	-26.6	74	55.18	37.39	13.72	58.89	100	0	Peak
15720	44.44	-9.56	54	45.5	40.52	15.69	57.27	100	112	Average
15720	54.49	-19.51	74	55.55	40.52	15.69	57.27	100	112	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	52	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5262 MHz is fundamental signal which can be ignored..</li> <li>10520 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5262	99.57	-	-	88.3	34.59	9.44	32.76	123	213	Average
5262	109.97	-	-	98.7	34.59	9.44	32.76	123	213	Peak
10520	47.23	-26.77	74	54.93	37.42	13.72	58.84	100	0	Peak
15780	44.4	-9.6	54	45.29	40.58	15.75	57.22	100	98	Average
15780	54.61	-19.39	74	55.5	40.58	15.75	57.22	100	98	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	52	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5258 MHz is fundamental signal which can be ignored..</li> <li>10521 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5258	93.07	-	-	81.89	34.55	9.39	32.76	109	265	Average
5258	103.36	-	-	92.18	34.55	9.39	32.76	109	265	Peak
10521	48.22	-25.78	74	55.92	37.42	13.72	58.84	-	-	Peak
15780	45.31	-8.69	54	46.2	40.58	15.75	57.22	100	111	Average
15780	55.42	-18.58	74	56.31	40.58	15.75	57.22	100	111	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	60	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5300 MHz is fundamental signal which can be ignored..</li> <li>10590 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5300	100.02	-	-	88.83	34.68	9.48	32.97	109	220	Average
5300	110.14	-	-	98.95	34.68	9.48	32.97	109	220	Peak
10600	47.95	-26.05	74	55.33	37.5	13.73	58.61	100	0	Peak
15900	50.12	-23.88	74	50.66	40.7	15.84	57.08	100	0	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	60	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5300 MHz is fundamental signal which can be ignored..</li> <li>10599 MHz and 10590 MHz are not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5300	91.53	-	-	80.34	34.68	9.48	32.97	114	110	Average
5300	101.8	-	-	90.61	34.68	9.48	32.97	114	110	Peak
10599	48.41	-25.59	74	55.79	37.5	13.73	58.61	100	0	Peak
15900	50.04	-23.96	74	50.58	40.7	15.84	57.08	100	0	Peak





<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	64	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5320 MHz is fundamental signal which can be ignored..</li> <li>15960 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5320	98.92	-	-	87.65	34.72	9.52	32.97	133	215	Average
5320	109.6	-	-	98.33	34.72	9.52	32.97	133	215	Peak
10635	48.5	-25.5	74	55.75	37.54	13.73	58.52	100	0	Peak
15960	50.26	-23.74	74	50.61	40.77	15.88	57	100	0	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	64	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5318 MHz is fundamental signal which can be ignored..</li> <li>15960 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5318	90.7	-	-	79.43	34.72	9.52	32.97	100	110	Average
5318	101.84	-	-	90.57	34.72	9.52	32.97	100	110	Peak
10640	49.15	-24.85	74	56.4	37.54	13.73	58.52	100	0	Peak
15960	50.03	-23.97	74	50.38	40.77	15.88	57	100	0	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	100	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5500 MHz is fundamental signal which can be ignored.. 2. 16500 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5500	97.16	-	-	85.76	35.2	9.86	33.66	102	176	Average
5500	108.05	-	-	96.65	35.2	9.86	33.66	102	176	Peak
11000	48.6	-25.4	74	54.5	37.9	13.76	57.56	100	0	Peak
16500	50.84	-23.16	74	49.18	41.5	16.13	55.97	100	0	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	100	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5500 MHz is fundamental signal which can be ignored.. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5500	89.8	-	-	78.4	35.2	9.86	33.66	100	69	Average
5500	100.28	-	-	88.88	35.2	9.86	33.66	100	69	Peak
11000	48.34	-25.66	74	54.24	37.9	13.76	57.56	100	0	Peak
16500	41.67	-12.33	54	40.01	41.5	16.13	55.97	105	168	Average
16500	51.41	-22.59	74	49.75	41.5	16.13	55.97	105	168	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	116	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5580 MHz is fundamental signal which can be ignored. 2. 16740 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5580	97.5	-	-	86.35	35.24	9.92	34.01	100	170	Average
5580	108.09	-	-	96.94	35.24	9.92	34.01	100	170	Peak
11160	48.96	-25.04	74	54.32	38.07	13.93	57.36	100	0	Peak
16740	49.31	-24.69	74	47.39	41.74	16.23	56.05	100	0	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	116	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5580 MHz is fundamental signal which can be ignored. 2. 16740 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5580	88.58	-	-	77.43	35.24	9.92	34.01	111	68	Average
5580	99.76	-	-	88.61	35.24	9.92	34.01	111	68	Peak
11160	49.75	-24.25	74	55.11	38.07	13.93	57.36	100	0	Peak
16740	49.6	-24.4	74	47.68	41.74	16.23	56.05	100	0	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5700 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5700	100.09	-	-	88.88	35.31	10.02	34.12	100	170	Average
5700	110.18	-	-	98.97	35.31	10.02	34.12	100	170	Peak
11400	44.45	-9.55	54	49.01	38.3	14.21	57.07	100	348	Average
11400	53.87	-20.13	74	58.43	38.3	14.21	57.07	100	348	Peak
17100	44.92	-9.08	54	42.68	41.94	16.46	56.16	100	89	Average
17100	54.01	-19.99	74	51.77	41.94	16.46	56.16	100	89	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5700 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5700	88.72	-	-	77.51	35.31	10.02	34.12	100	44	Average
5700	99.14	-	-	87.93	35.31	10.02	34.12	100	44	Peak
11400	47.33	-6.67	54	51.89	38.3	14.21	57.07	107	45	Average
11400	60.56	-13.44	74	65.12	38.3	14.21	57.07	107	45	Peak
17100	44.38	-9.62	54	42.14	41.94	16.46	56.16	100	114	Average
17100	54.77	-19.23	74	52.53	41.94	16.46	56.16	100	114	Peak

**MIMO <Ant. 1+2>**

<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	38	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5190 MHz is fundamental signal which can be ignored..</li> <li>10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5190	95.79	-	-	84.62	34.38	9.31	32.52	109	158	Average
5190	106.95	-	-	95.78	34.38	9.31	32.52	109	158	Peak
10380	44.82	-29.18	74	52.67	37.31	13.71	58.87	100	0	Peak
15591	48.32	-25.68	74	49.76	40.39	15.6	57.43	100	0	Peak

<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	38	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5190 MHz is fundamental signal which can be ignored..</li> <li>10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5190	87.61	-	-	76.44	34.38	9.31	32.52	100	263	Average
5190	98.1	-	-	86.93	34.38	9.31	32.52	100	263	Peak
10380	44.65	-29.35	74	52.5	37.31	13.71	58.87	100	0	Peak
15591	48.9	-25.1	74	50.34	40.39	15.6	57.43	100	0	Peak



<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	46	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5230 MHz is fundamental signal which can be ignored.. 2. 10460 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5230	96.51	-	-	85.3	34.51	9.35	32.65	100	219	Average
5230	107.27	-	-	96.06	34.51	9.35	32.65	100	219	Peak
10460	45.35	-28.65	74	53.15	37.36	13.72	58.88	100	0	Peak
15690	42.1	-11.9	54	43.25	40.49	15.67	57.31	100	165	Average
15690	52.05	-21.95	74	53.2	40.49	15.67	57.31	100	165	Peak

<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	46	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5230 MHz is fundamental signal which can be ignored.. 2. 10460 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5230	89.92	-	-	78.71	34.51	9.35	32.65	124	263	Average
5230	101.13	-	-	89.92	34.51	9.35	32.65	124	263	Peak
10460	45.59	-28.41	74	53.39	37.36	13.72	58.88	100	0	Peak
15690	45.51	-8.49	54	46.66	40.49	15.67	57.31	100	324	Average
15690	54.15	-19.85	74	55.3	40.49	15.67	57.31	100	324	Peak



<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	54	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5270 MHz is fundamental signal which can be ignored.. 2. 10540 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5270	96.47	-	-	85.2	34.59	9.44	32.76	110	215	Average
5270	106.74	-	-	95.47	34.59	9.44	32.76	110	215	Peak
10540	45.47	-28.53	74	53.12	37.43	13.72	58.8	100	0	Peak
15810	49.94	-24.06	74	50.74	40.61	15.77	57.18	100	0	Peak

<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	54	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5270 MHz is fundamental signal which can be ignored.. 2. 10540 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5270	87.69	-	-	76.42	34.59	9.44	32.76	101	111	Average
5270	98.09	-	-	86.82	34.59	9.44	32.76	101	111	Peak
10540	47.96	-26.04	74	55.61	37.43	13.72	58.8	100	0	Peak
15810	49.19	-24.81	74	49.99	40.61	15.77	57.18	100	0	Peak



<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	62	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5310 MHz is fundamental signal which can be ignored..		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
49.44	28.41	-11.59	40	50.17	8.75	0.69	31.2	105	91	Peak
192.54	30.46	-13.04	43.5	51.38	8.89	1.29	31.1	-	-	Peak
269.49	33.14	-12.86	46	49.6	12.9	1.64	31	-	-	Peak
500.2	32.87	-13.13	46	43.02	18	2.45	30.6	-	-	Peak
663.3	30.45	-15.55	46	37.71	20.34	2.87	30.47	-	-	Peak
909.7	32.65	-13.35	46	36.11	23.5	3.36	30.32	-	-	Peak
5310	95.95	-	-	84.68	34.72	9.52	32.97	110	217	Average
5310	105.91	-	-	94.64	34.72	9.52	32.97	110	217	Peak
10620	45.41	-28.59	74	52.73	37.52	13.73	58.57	100	0	Peak
15930	48.11	-25.89	74	48.56	40.73	15.86	57.04	100	0	Peak





<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	62	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5310 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
54.57	28.75	-11.25	40	52.43	6.8	0.72	31.2	-	-	Peak
192.54	33.53	-9.97	43.5	54.45	8.89	1.29	31.1	153	74	Peak
231.15	25.08	-20.92	46	44.37	10.22	1.49	31	-	-	Peak
315.4	24.19	-21.81	46	40.04	13.35	1.8	31	-	-	Peak
479.9	28.28	-17.72	46	39.1	17.6	2.38	30.8	-	-	Peak
909.7	31.22	-14.78	46	34.68	23.5	3.36	30.32	-	-	Peak
5310	89.86	-	-	78.59	34.72	9.52	32.97	134	262	Average
5310	99.83	-	-	88.56	34.72	9.52	32.97	134	262	Peak
10620	47.29	-26.71	74	54.61	37.52	13.73	58.57	100	0	Peak
15930	48.26	-25.74	74	48.71	40.73	15.86	57.04	100	0	Peak



<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	102	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5511 MHz is fundamental signal which can be ignored.. 2. 16530 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5511	93.2	-	-	81.88	35.2	9.86	33.74	102	172	Average
5511	103.88	-	-	92.56	35.2	9.86	33.74	102	172	Peak
11019	46.79	-27.21	74	52.65	37.92	13.76	57.54	100	0	Peak
16530	48.57	-25.43	74	46.88	41.53	16.14	55.98	100	0	Peak

<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	102	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5510 MHz is fundamental signal which can be ignored.. 2. 16530 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5510	87.02	-	-	75.7	35.2	9.86	33.74	100	70	Average
5510	96.61	-	-	85.29	35.2	9.86	33.74	100	70	Peak
11019	46.43	-27.57	74	52.29	37.92	13.76	57.54	100	0	Peak
16530	48.47	-25.53	74	46.78	41.53	16.14	55.98	100	0	Peak



<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	110	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5550 MHz is fundamental signal which can be ignored..</li> <li>16650 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5550	93.33	-	-	82.03	35.23	9.9	33.83	123	173	Average
5550	103.94	-	-	92.64	35.23	9.9	33.83	123	173	Peak
11100	47.22	-26.78	74	52.79	38	13.87	57.44	100	0	Peak
16650	49.37	-24.63	74	47.54	41.66	16.19	56.02	100	0	Peak

<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	110	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5552 MHz is fundamental signal which can be ignored..</li> <li>16650 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5552	85.62	-	-	74.41	35.23	9.9	33.92	100	95	Average
5552	95.94	-	-	84.73	35.23	9.9	33.92	100	95	Peak
11100	47.16	-26.84	74	52.73	38	13.87	57.44	100	0	Peak
16650	48.65	-25.35	74	46.82	41.66	16.19	56.02	100	0	Peak



<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	134	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5674 MHz is fundamental signal which can be ignored..</li> <li>17010 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5674	96.65	-	-	85.44	35.3	10	34.09	101	169	Average
5674	107.09	-	-	95.88	35.3	10	34.09	101	169	Peak
11340	50.27	-23.73	74	55.03	38.23	14.16	57.15	100	0	Peak
17010	50.06	-23.94	74	47.86	41.99	16.34	56.13	100	0	Peak

<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	134	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>5670 MHz is fundamental signal which can be ignored..</li> <li>17010 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5670	88.34	-	-	77.13	35.3	10	34.09	175	89	Average
5670	98.78	-	-	87.57	35.3	10	34.09	175	89	Peak
11337	43.06	-10.94	54	47.82	38.23	14.16	57.15	100	135	Average
11337	52.26	-21.74	74	57.02	38.23	14.16	57.15	100	135	Peak
17010	49.69	-24.31	74	47.49	41.99	16.34	56.13	100	0	Peak



<Ant. 1>

Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	62	Relative Humidity :	51~54%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	5316 MHz is fundamental signal which can be ignored..		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
45.39	30.42	-9.58	40	50.81	10.15	0.66	31.2	162	69	Peak
192.54	30.48	-13.02	43.5	51.4	8.89	1.29	31.1	-	-	Peak
269.49	34.04	-11.96	46	50.5	12.9	1.64	31	-	-	Peak
479.9	30.86	-15.14	46	41.68	17.6	2.38	30.8	-	-	Peak
720	30.47	-15.53	46	36.48	21.4	2.99	30.4	-	-	Peak
924.4	28.97	-17.03	46	31.8	24.12	3.4	30.35	-	-	Peak
5316	76.26	-	-	64.99	34.72	9.52	32.97	101	33	Average
5316	85.78	-	-	74.51	34.72	9.52	32.97	101	33	Peak
10620	44.1	-29.9	74	51.42	37.52	13.73	58.57	100	0	Peak
15930	47.86	-26.14	74	48.31	40.73	15.86	57.04	100	0	Peak



<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	62	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5315 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
47.28	30.57	-9.43	40	51.65	9.45	0.67	31.2	123	142	Peak
55.38	29.52	-10.48	40	53.59	6.4	0.73	31.2	-	-	Peak
192.54	32.95	-10.55	43.5	53.87	8.89	1.29	31.1	-	-	Peak
384.7	23.94	-22.06	46	37.51	15.3	2.11	30.98	-	-	Peak
479.9	24.49	-21.51	46	35.31	17.6	2.38	30.8	-	-	Peak
909.7	28.54	-17.46	46	32	23.5	3.36	30.32	-	-	Peak
5315	77.22	-	-	65.95	34.72	9.52	32.97	106	349	Average
5315	87.13	-	-	75.86	34.72	9.52	32.97	106	349	Peak
10620	45.91	-28.09	74	53.23	37.52	13.73	58.57	100	0	Peak
15930	47.84	-26.16	74	48.29	40.73	15.86	57.04	100	0	Peak



<Ant. 2>

Test Mode :	802.11n HT40	Temperature :	22~25°C
Test Channel :	62	Relative Humidity :	51~54%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	5306 MHz is fundamental signal which can be ignored..		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
49.17	25.9	-14.1	40	47.66	8.75	0.69	31.2	-	-	Peak
192.54	30.14	-13.36	43.5	51.06	8.89	1.29	31.1	-	-	Peak
256.8	33.68	-12.32	46	49.59	13.52	1.57	31	196	88	Peak
479.9	31.29	-14.71	46	42.11	17.6	2.38	30.8	-	-	Peak
720	30.56	-15.44	46	36.57	21.4	2.99	30.4	-	-	Peak
924.4	30.49	-15.51	46	33.32	24.12	3.4	30.35	-	-	Peak
5306	95.8	-	-	84.61	34.68	9.48	32.97	122	217	Average
5306	105.46	-	-	94.27	34.68	9.48	32.97	122	217	Peak
10620	45.82	-28.18	74	53.14	37.52	13.73	58.57	100	0	Peak
15930	48.4	-25.6	74	48.85	40.73	15.86	57.04	100	0	Peak



<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	22~25°C
<b>Test Channel :</b>	62	<b>Relative Humidity :</b>	51~54%
<b>Test Engineer :</b>	Eric Shih	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5314 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
47.28	31.61	-8.39	40	52.69	9.45	0.67	31.2	117	65	Peak
182.55	33.77	-9.73	43.5	54.61	8.86	1.26	30.96	-	-	Peak
192.54	34.45	-9.05	43.5	55.37	8.89	1.29	31.1	-	-	Peak
316.1	23.81	-22.19	46	39.65	13.36	1.8	31	-	-	Peak
479.9	28.72	-17.28	46	39.54	17.6	2.38	30.8	-	-	Peak
934.2	28.24	-17.76	46	30.89	24.3	3.42	30.37	-	-	Peak
5314	88.12	-	-	76.85	34.72	9.52	32.97	100	110	Average
5314	97.8	-	-	86.53	34.72	9.52	32.97	100	110	Peak
10620	44.56	-29.44	74	51.88	37.52	13.73	58.57	100	0	Peak
15930	48.13	-25.87	74	48.58	40.73	15.86	57.04	100	0	Peak



## 3.6 AC Conducted Emission Measurement

### 3.6.1 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.

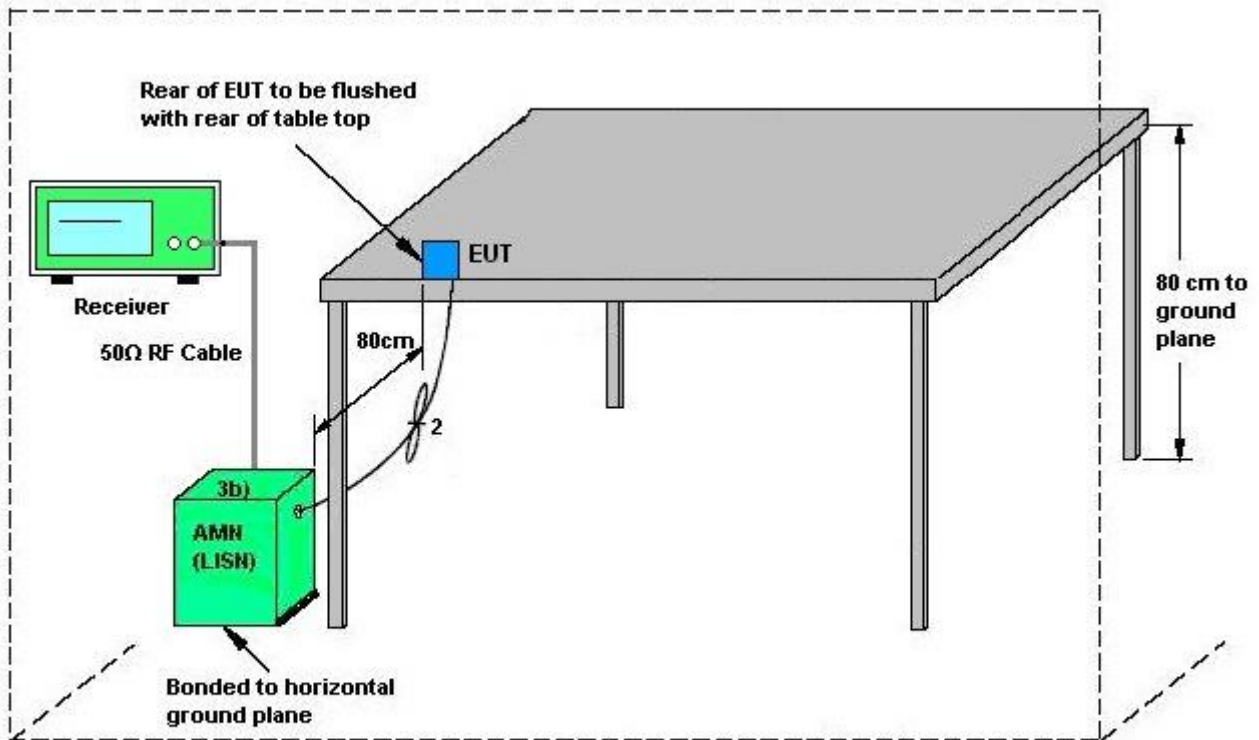
### 3.6.2 Measuring Instruments

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

### 3.6.3 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.

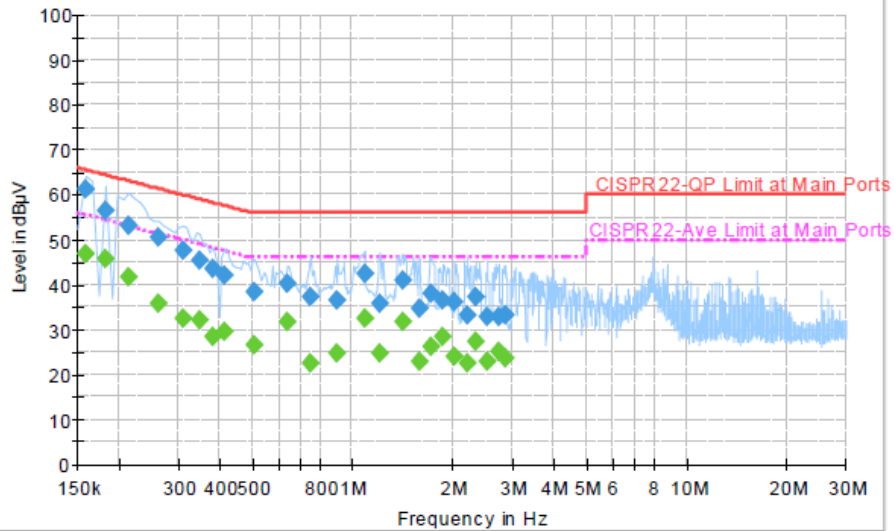
### 3.6.4 Test Setup



AMN = Artificial mains network (LISN)  
 AE = Associated equipment  
 EUT = Equipment under test  
 ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~25°C
Test Engineer :	Eric Shih	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MPEG4 + TC + Print + Adapter 1		

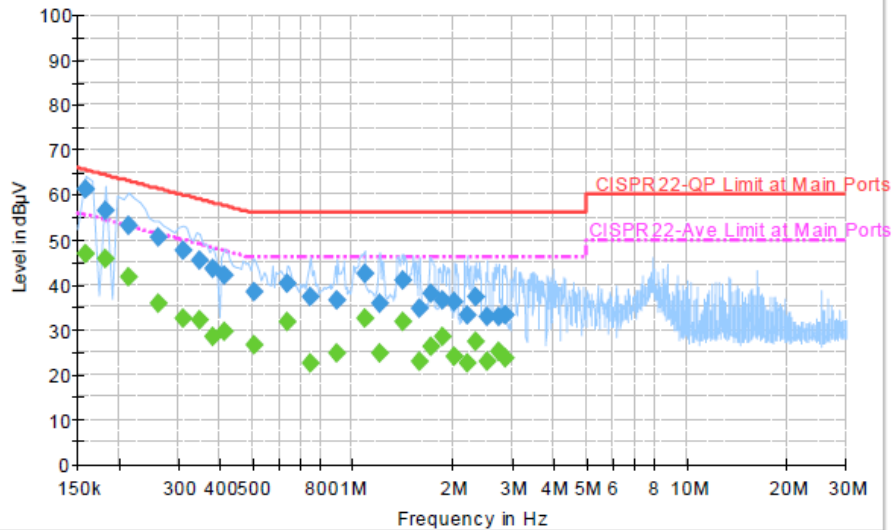


Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	61.3	Off	L1	19.3	4.3	65.6
0.182000	56.5	Off	L1	19.4	7.9	64.4
0.214000	53.3	Off	L1	19.4	9.7	63.0
0.262000	50.6	Off	L1	19.4	10.8	61.4
0.310000	47.5	Off	L1	19.4	12.5	60.0
0.350000	45.3	Off	L1	19.4	13.7	59.0
0.382000	43.4	Off	L1	19.4	14.8	58.2
0.414000	41.9	Off	L1	19.4	15.7	57.6
0.510000	38.5	Off	L1	19.4	17.5	56.0
0.638000	40.3	Off	L1	19.4	15.7	56.0
0.750000	37.3	Off	L1	19.4	18.7	56.0
0.902000	36.6	Off	L1	19.4	19.4	56.0
1.086000	42.5	Off	L1	19.4	13.5	56.0
1.206000	35.7	Off	L1	19.5	20.3	56.0
1.414000	41.1	Off	L1	19.4	14.9	56.0



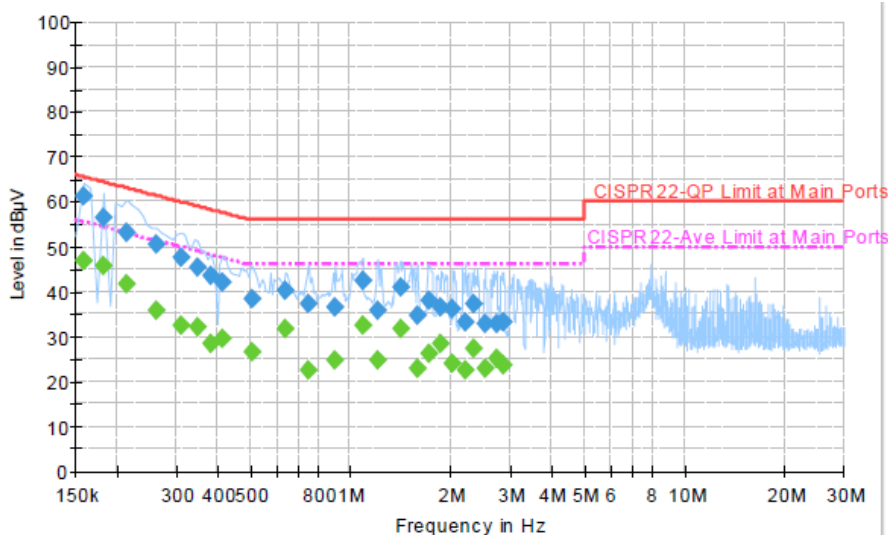
Test Mode :	Mode 1	Temperature :	22~25°C
Test Engineer :	Eric Shih	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MPEG4 + TC + Print + Adapter 1		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.582000	34.8	Off	L1	19.4	21.2	56.0
1.710000	38.0	Off	L1	19.5	18.0	56.0
1.862000	36.6	Off	L1	19.5	19.4	56.0
2.014000	36.3	Off	L1	19.5	19.7	56.0
2.206000	33.2	Off	L1	19.6	22.8	56.0
2.334000	37.3	Off	L1	19.6	18.7	56.0
2.526000	32.8	Off	L1	19.6	23.2	56.0
2.726000	32.8	Off	L1	19.6	23.2	56.0
2.854000	33.3	Off	L1	19.6	22.7	56.0

Test Mode :	Mode 1	Temperature :	22~25°C
Test Engineer :	Eric Shih	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MPEG4 + TC + Print + Adapter 1		

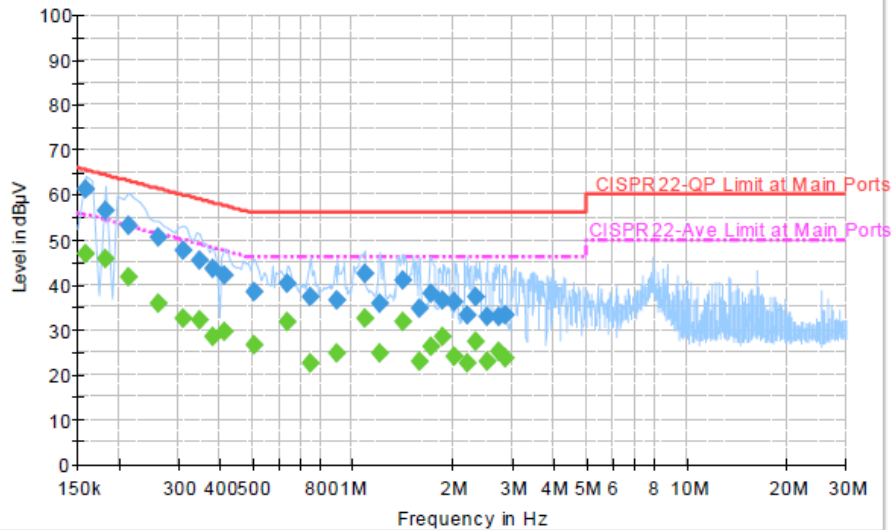


Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	46.7	Off	L1	19.3	8.9	55.6
0.182000	45.6	Off	L1	19.4	8.8	54.4
0.214000	41.7	Off	L1	19.4	11.3	53.0
0.262000	35.7	Off	L1	19.4	15.7	51.4
0.310000	32.4	Off	L1	19.4	17.6	50.0
0.350000	32.1	Off	L1	19.4	16.9	49.0
0.382000	28.6	Off	L1	19.4	19.6	48.2
0.414000	29.6	Off	L1	19.4	18.0	47.6
0.510000	26.7	Off	L1	19.4	19.3	46.0
0.638000	31.9	Off	L1	19.4	14.1	46.0
0.750000	22.4	Off	L1	19.4	23.6	46.0



Test Mode :	Mode 1	Temperature :	22~25°C
Test Engineer :	Eric Shih	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MPEG4 + TC + Print + Adapter 1		

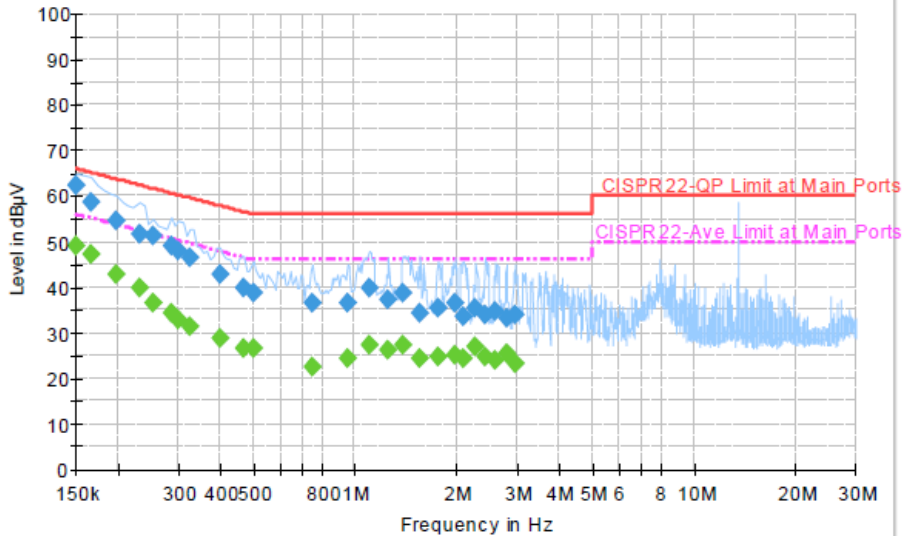


Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.902000	24.8	Off	L1	19.4	21.2	46.0
1.086000	32.6	Off	L1	19.4	13.4	46.0
1.206000	24.7	Off	L1	19.5	21.3	46.0
1.414000	31.6	Off	L1	19.4	14.4	46.0
1.582000	23.0	Off	L1	19.4	23.0	46.0
1.710000	26.3	Off	L1	19.5	19.7	46.0
1.862000	28.5	Off	L1	19.5	17.5	46.0
2.014000	24.1	Off	L1	19.5	21.9	46.0
2.206000	22.5	Off	L1	19.6	23.5	46.0
2.334000	27.3	Off	L1	19.6	18.7	46.0
2.526000	22.9	Off	L1	19.6	23.1	46.0
2.726000	25.2	Off	L1	19.6	20.8	46.0
2.854000	23.6	Off	L1	19.6	22.4	46.0



Test Mode :	Mode 1	Temperature :	22~25°C
Test Engineer :	Eric Shih	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MPEG4 + TC + Print + Adapter 1		

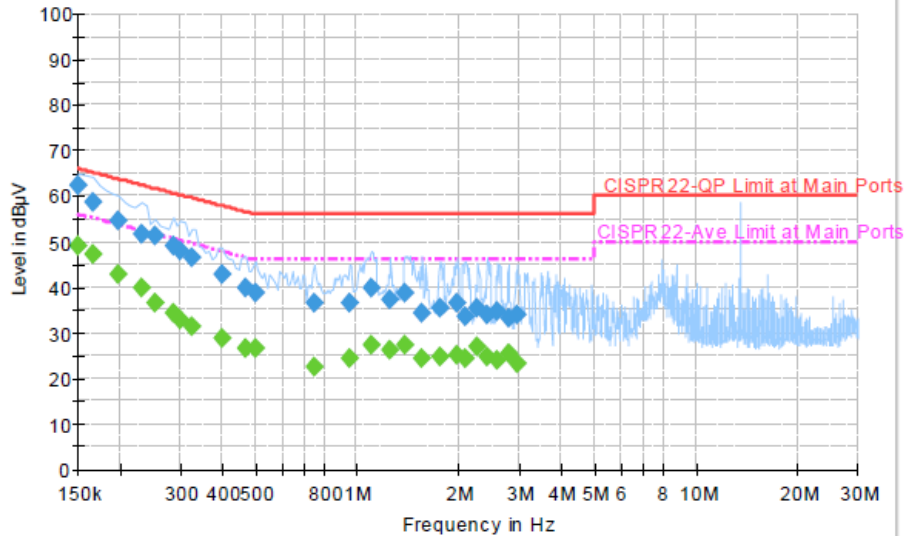


Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	62.2	Off	N	19.4	3.8	66.0
0.166000	58.5	Off	N	19.4	6.7	65.2
0.198000	54.7	Off	N	19.3	9.0	63.7
0.230000	51.8	Off	N	19.4	10.6	62.4
0.254000	51.3	Off	N	19.5	10.3	61.6
0.286000	49.0	Off	N	19.4	11.6	60.6
0.302000	48.0	Off	N	19.4	12.2	60.2
0.326000	46.5	Off	N	19.4	13.1	59.6
0.398000	43.0	Off	N	19.5	14.9	57.9
0.470000	39.7	Off	N	19.4	16.8	56.5
0.502000	38.7	Off	N	19.4	17.3	56.0
0.750000	36.7	Off	N	19.4	19.3	56.0
0.950000	36.6	Off	N	19.4	19.4	56.0
1.102000	39.9	Off	N	19.5	16.1	56.0



Test Mode :	Mode 1	Temperature :	22~25°C
Test Engineer :	Eric Shih	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MPEG4 + TC + Print + Adapter 1		



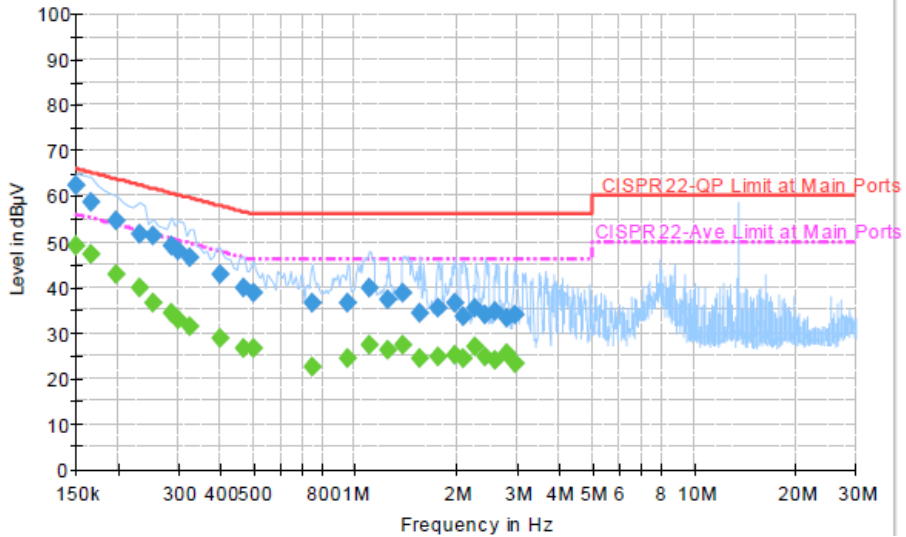
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.254000	37.1	Off	N	19.5	18.9	56.0
1.390000	38.6	Off	N	19.5	17.4	56.0
1.558000	34.3	Off	N	19.4	21.7	56.0
1.766000	35.4	Off	N	19.5	20.6	56.0
1.974000	36.7	Off	N	19.5	19.3	56.0
2.094000	33.7	Off	N	19.6	22.3	56.0
2.270000	35.3	Off	N	19.6	20.7	56.0
2.406000	33.8	Off	N	19.6	22.2	56.0
2.590000	34.7	Off	N	19.6	21.3	56.0
2.790000	33.3	Off	N	19.7	22.7	56.0
2.974000	33.8	Off	N	19.6	22.2	56.0





Test Mode :	Mode 1	Temperature :	22~25°C
Test Engineer :	Eric Shih	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MPEG4 + TC + Print + Adapter 1		

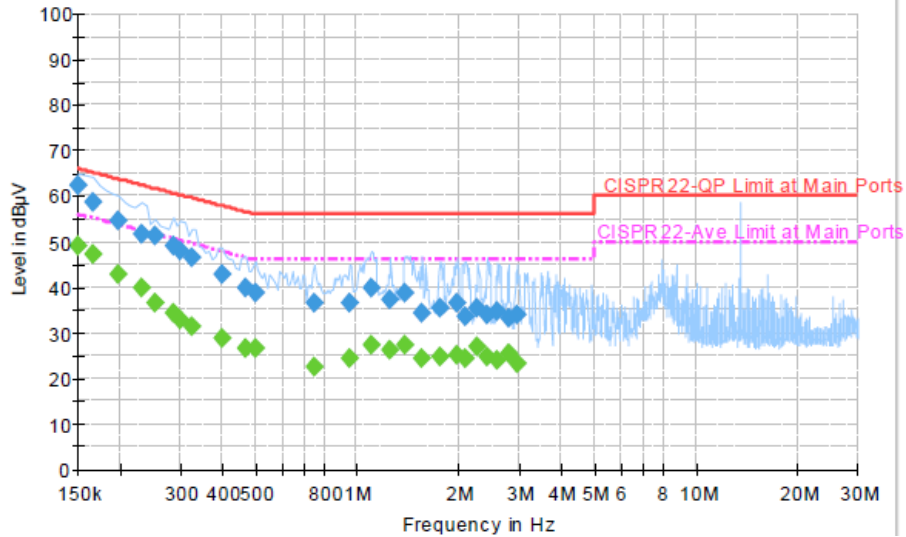


Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.1	Off	N	19.4	6.9	56.0
0.166000	47.2	Off	N	19.4	8.0	55.2
0.198000	43.0	Off	N	19.3	10.7	53.7
0.230000	39.9	Off	N	19.4	12.5	52.4
0.254000	36.5	Off	N	19.5	15.1	51.6
0.286000	34.4	Off	N	19.4	16.2	50.6
0.302000	32.7	Off	N	19.4	17.5	50.2
0.326000	31.5	Off	N	19.4	18.1	49.6
0.398000	28.7	Off	N	19.5	19.2	47.9
0.470000	26.6	Off	N	19.4	19.9	46.5
0.502000	26.6	Off	N	19.4	19.4	46.0
0.750000	22.6	Off	N	19.4	23.4	46.0
0.950000	24.5	Off	N	19.4	21.5	46.0



Test Mode :	Mode 1	Temperature :	22~25°C
Test Engineer :	Eric Shih	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MPEG4 + TC + Print + Adapter 1		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.102000	27.3	Off	N	19.5	18.7	46.0
1.254000	26.2	Off	N	19.5	19.8	46.0
1.390000	27.3	Off	N	19.5	18.7	46.0
1.558000	24.4	Off	N	19.4	21.6	46.0
1.766000	24.5	Off	N	19.5	21.5	46.0
1.974000	25.1	Off	N	19.5	20.9	46.0
2.094000	24.2	Off	N	19.6	21.8	46.0
2.270000	26.9	Off	N	19.6	19.1	46.0
2.406000	24.9	Off	N	19.6	21.1	46.0
2.590000	23.8	Off	N	19.6	22.2	46.0
2.790000	25.5	Off	N	19.7	20.5	46.0
2.974000	23.4	Off	N	19.6	22.6	46.0

## 3.7 Frequency Stability Measurement

### 3.7.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

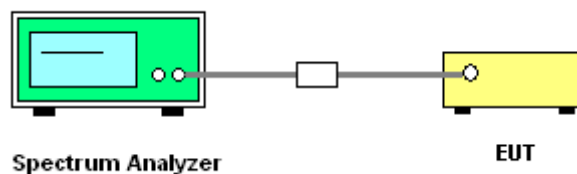
### 3.7.2 Measuring Instruments

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

### 3.7.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

### 3.7.4 Test Setup





3.7.5 Test Result of Frequency Stability

Test Band :	5GHz band 1,2,3	Temperature :	22~25°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Mod.	Data Rate	N <sub>TX</sub>	Channel	Frequency (MHz)	Center Frequency (Hz)	Frequency Deviation (Hz)	Frequency Stability (ppm)
11a	6Mbps	1	36	5180	5180050000.00	50000.00	9.65
11a	6Mbps	1	48	5240	5240050000.00	50000.00	9.54

Mod.	Data Rate	N <sub>TX</sub>	Channel	Freq. (MHz)	Center Frequency (Hz)	Frequency Deviation (Hz)	Frequency Stability (ppm)
11a	6Mbps	1	52	5260	5260050000.00	50000.00	9.51
11a	6Mbps	1	64	5320	5320025000.00	25000.00	4.70

Mod.	Data Rate	N <sub>TX</sub>	Channel	Freq. (MHz)	Center Frequency (Hz)	Frequency Deviation (Hz)	Frequency Stability (ppm)
11a	6Mbps	1	100	5500	5500050000.00	50000.00	9.09
11a	6Mbps	1	140	5700	5700000000.00	0.00	0.00

Note: Center Frequency = (Low Frequency + High Frequency) / 2.



### **3.8 Automatically Discontinue Transmission**

#### **3.8.1 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.

#### **3.8.2 Measuring Instruments**

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

#### **3.8.3 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.

### 3.9 Antenna Requirements

#### 3.9.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,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.

#### 3.9.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

#### 3.9.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

$N_{SS}$  = the number of independent spatial streams of data;

$N_{ANT}$  = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$  if the  $k$ th antenna is being fed by spatial stream  $j$ , or zero if it is not;  
 $G_k$  is the gain in dBi of the  $k$ th antenna.



The EUT supports CDD mode.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

			DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
	Ant. 1 (dBi)	Ant. 2 (dBi)				
Band I	0.75	2.29	4.56	4.56	0.00	0.00
Band II	0.57	1.79	4.21	4.21	0.00	0.00
Band III	3.34	3.86	6.61	6.61	0.61	0.61

$$\text{Power Limit Reduction} = DG(\text{Power}) - 6\text{dBi}, (\text{min} = 0)$$

$$\text{PSD Limit Reduction} = DG(\text{PSD}) - 6\text{dBi}, (\text{min} = 0)$$



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 17, 2013	Oct. 15, 2013~ Oct. 21, 2013	Aug. 16, 2014	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 17, 2013	Oct. 15, 2013~ Oct. 21, 2013	Aug. 16, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9KHz – 2.75GHz	Nov. 15, 2013	Oct. 22, 2013	Nov. 14, 2014	Conduction (CO05-HY)
Two-LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2012	Oct. 22, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 06, 2012	Oct. 22, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Oct. 22, 2013	N/A	Conduction (CO05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9KHz~30GHz	Nov. 30, 2012	Nov. 13, 2013~ Nov. 15, 2013	Nov. 29, 2013	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9KHz~7GHz	Sep. 06, 2013	Nov. 13, 2013~ Nov. 15, 2013	Sep. 05, 2014	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/0001	9 kHz~30 MhZ	Jul. 03, 2012	Nov. 13, 2013~ Nov. 15, 2013	Jul. 03, 2014	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Nov. 13, 2013~ Nov. 15, 2013	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 22, 2013	Nov. 13, 2013~ Nov. 15, 2013	Aug. 21, 2014	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	Nov. 13, 2013~ Nov. 15, 2013	Oct. 02, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	30MHz~1GHz	Feb. 26, 2013	Nov. 13, 2013~ Nov. 15, 2013	Feb. 25, 2014	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Dec. 01, 2012	Nov. 13, 2013~ Nov. 15, 2013	Nov. 30, 2013	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	DC~18G High Gain	Feb. 27, 2013	Nov. 13, 2013~ Nov. 15, 2013	Feb. 26, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Nov. 13, 2013~ Nov. 15, 2013	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	ChainTek 3000	N/A	N/A	N/A	Nov. 13, 2013~ Nov. 15, 2013	N/A	Radiation (03CH07-HY)





## 5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.26
---	------

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.50
---	------

