

FCC RF Test Report

APPLICANT : Noto LLC
EQUIPMENT : Tablet PC
MODEL NAME : P48WVB4
FCC ID : S55-1210
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was completely tested on Jul. 11, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL 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 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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Page Number : 1 of 71

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	26dB Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	$\leq 17, 24, 30$ dBm (depend on band)	Pass	-
3.3	15.407(a)	Power Spectral Density	$\leq 4, 11, 17$ dBm (depend on band)	Pass	-
3.4	15.407(a)(6)	Peak Excursion Ratio	≤ 13 dB	Pass	-
3.5	15.407(b)	Unwanted Emissions	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 0.55 dB at 5472.000 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 10.90 dB at 0.158 MHz
3.7	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.8	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.9	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Noto LLC
201 Penn Center Boulevard
Suite 400
Pittsburgh, PA 15235

1.2 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Tablet PC
Model Name	P48WVB4
FCC ID	S55-1210
EUT supports Radios application	WLAN 11abgn / Bluetooth v2.1 + EDR

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

1.3 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5580 MHz 5660 MHz ~ 5700 MHz
Maximum Output Power to Antenna	<5180 MHz ~ 5240 MHz> 802.11a : 12.91 dBm / 0.0195 W 802.11n HT20 : 12.40 dBm / 0.0174 W <5260 MHz ~ 5320 MHz> 802.11a : 11.42 dBm / 0.0139 W 802.11n HT20 : 11.16 dBm / 0.0131 W <5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz > 802.11a : 10.86 dBm / 0.0122 W 802.11n HT20 : 10.56 dBm / 0.0114 W
Antenna Type	Fixed Internal Antenna type with gain 4.70 dBi
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.4 Testing Site

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

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

1.5 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 (X plane) 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 Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1	36	5180	44	5220
	40	5200	48	5240

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2	52	5260	60	5300
	56	5280	64	5320

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5600 MHz and 5650-5725 MHz Band 3	100	5500	116	5580
	104	5520	132	5660
	108	5540	136	5680
	112	5560	140	5700

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and the highest data rates of average power were chosen for full test shown in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

5GHz 802.11a mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Power (dBm) <5180-5240>	12.91	12.68	12.67	12.59	12.56	12.70	12.63	12.62
Power (dBm) <5260-5320>	11.42	11.40	11.37	11.35	11.31	11.39	11.34	11.27
Power (dBm) <5500-5700>	10.86	10.85	10.80	10.80	10.81	10.84	10.85	10.82

5GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Power (dBm) <5180-5240>	12.40	12.36	12.28	12.27	12.30	12.31	12.28	12.30
Power (dBm) <5260-5320>	11.16	11.06	11.02	11.02	11.02	11.00	11.03	11.05
Power (dBm) <5500-5700>	10.56	10.53	10.52	10.53	10.54	10.51	10.53	10.50

2.3 Test Mode

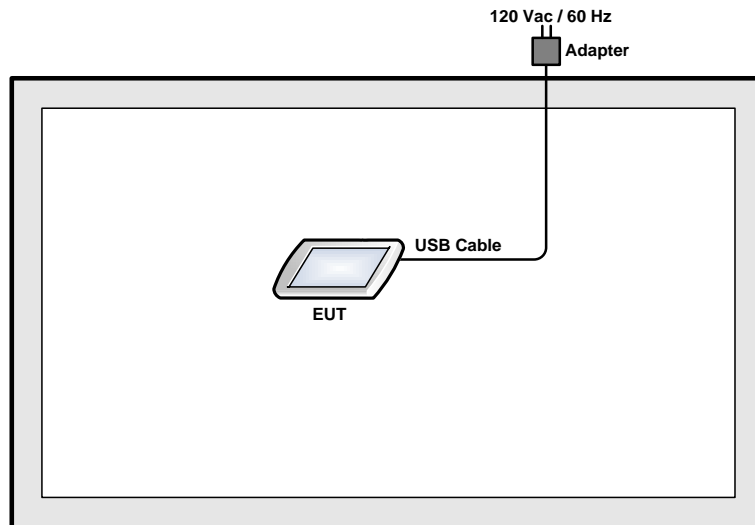
Final results of test modes, data rates and test channels are shown as following table.

Test Cases				
	Test Items	Mode	Data rate	Test Channel
Conducted TCs	26dB BW Power Spectral Density	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
	Output Power	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
	Peak Excursion	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
	Frequency Stability	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	L/H
		802.11n HT20	MCS0	L/H
	Radiated Spurious Emission	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
AC Conducted Emission	Mode 1 : WLAN (5G) Link + Bluetooth Link + Earphone + MPEG4 + USB Cable (Data Link with Notebook)			
Remark: All the Radiated TCs were performed with Adapter 1.				

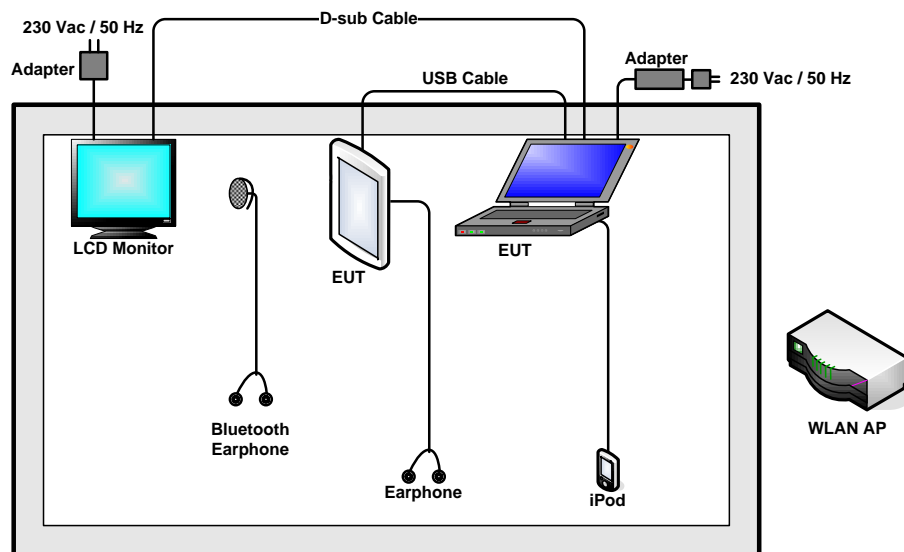
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5600 MHz and 5650-5725MHz
		802.11a 802.11n HT20	802.11a 802.11n HT20	802.11a 802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

2.4 Connection Diagram of Test System

<WLAN Tx 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.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	LCD Monitor	DELL	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
5.	MicroSD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
6.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
7.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.0 m	N/A
8.	Adapter 1	N/A	N/A	N/A	N/A	N/A
9.	USB Cable	N/A	N/A	N/A	Unshielded, 1.6 m	N/A

2.6 Description of RF Function Operation Test Setup

The programmed RF utility "ComplianceWifiBT" 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 Bandwidth Measurement

3.1.1 Description of Bandwidth Measurement

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.

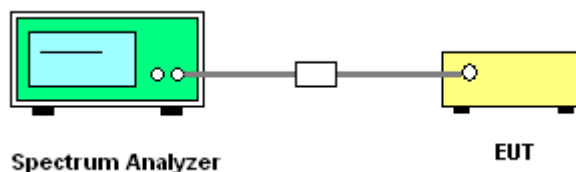
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r03.
Section D) 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. Measure and record the results in the test report.

3.1.4 Test Setup



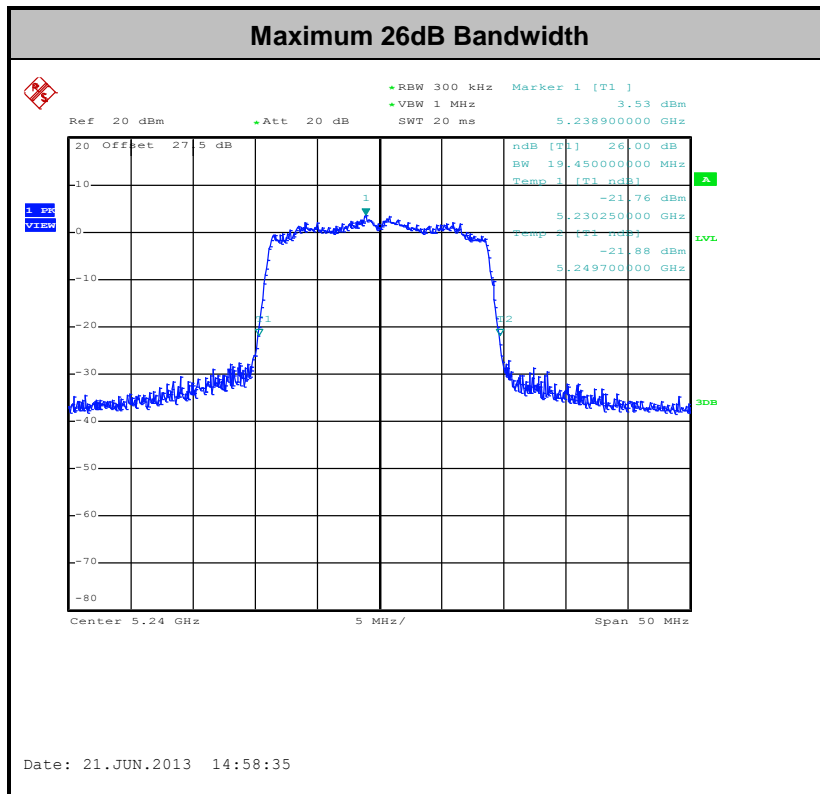
3.1.5 Test Result of 26dB Bandwidth Plots

Test Band :	5GHz band 1,2,3	Temperature :	24~26°C
Test Engineer :	Coyote Lin	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	26dB Bandwidth (MHz)	FCC 26dB Bandwidth Power Limit (dBm)
11a	6Mbps	1	36	5180	19.05	16.80
11a	6Mbps	1	44	5220	19.15	16.82
11a	6Mbps	1	48	5240	19.00	16.79
HT20	MCS0	1	36	5180	19.35	16.87
HT20	MCS0	1	44	5220	19.40	16.88
HT20	MCS0	1	48	5240	19.45	16.89

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	26dB Bandwidth (MHz)	FCC 26dB Bandwidth Power Limit (dBm)
11a	6Mbps	1	52	5260	19.00	23.79
11a	6Mbps	1	60	5300	19.05	23.80
11a	6Mbps	1	64	5320	19.00	23.79
HT20	MCS0	1	52	5260	19.45	23.89
HT20	MCS0	1	60	5300	19.40	23.88
HT20	MCS0	1	64	5320	19.40	23.88

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	26dB Bandwidth (MHz)	FCC 26dB Bandwidth Power Limit (dBm)
11a	6Mbps	1	100	5500	18.95	23.78
11a	6Mbps	1	116	5580	18.95	23.78
11a	6Mbps	1	140	5700	19.05	23.80
HT20	MCS0	1	100	5500	19.40	23.88
HT20	MCS0	1	116	5580	19.40	23.88
HT20	MCS0	1	140	5700	19.35	23.87



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, 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.

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

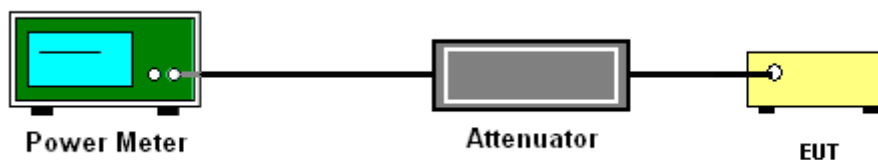
3.2.3 Test Procedures

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 1,2,3	Temperature :	24~26°C
Test Engineer :	Coyote Lin	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	36	5180	0.04	12.91	16.80	4.70	Pass
11a	6Mbps	1	44	5220	0.04	11.97	16.82	4.70	Pass
11a	6Mbps	1	48	5240	0.04	11.89	16.79	4.70	Pass
HT20	MCS0	1	36	5180	0.05	12.40	16.87	4.70	Pass
HT20	MCS0	1	44	5220	0.05	11.87	16.88	4.70	Pass
HT20	MCS0	1	48	5240	0.05	11.79	16.89	4.70	Pass

Note:

1. Final Output Power equals to Measured Output Power adds the duty factor.
2. For the band 5150-5250 MHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW).

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	52	5260	0.04	11.07	23.79	4.70	Pass
11a	6Mbps	1	60	5300	0.04	11.42	23.80	4.70	Pass
11a	6Mbps	1	64	5320	0.04	11.17	23.79	4.70	Pass
HT20	MCS0	1	52	5260	0.05	10.89	23.89	4.70	Pass
HT20	MCS0	1	60	5300	0.05	10.86	23.88	4.70	Pass
HT20	MCS0	1	64	5320	0.05	11.16	23.88	4.70	Pass

Note:

1. Final Output Power equals to Measured Output Power adds the duty factor.
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 (26dB BW).

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	100	5500	0.04	10.86	23.78	4.70	Pass
11a	6Mbps	1	116	5580	0.04	10.68	23.78	4.70	Pass
11a	6Mbps	1	140	5700	0.04	10.56	23.80	4.70	Pass
HT20	MCS0	1	100	5500	0.05	10.56	23.88	4.70	Pass
HT20	MCS0	1	116	5580	0.05	10.41	23.88	4.70	Pass
HT20	MCS0	1	140	5700	0.05	10.50	23.87	4.70	Pass

Note:

1. Final Output Power equals to Measured Output Power adds the duty factor.
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 (26dB BW).

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

For the band 5150-5250 MHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. For the bands 5250-5350 MHz and 5470-5600 and 5650-5725 MHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output 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.

3.3.2 Measuring Instruments

See list of measuring instruments 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).

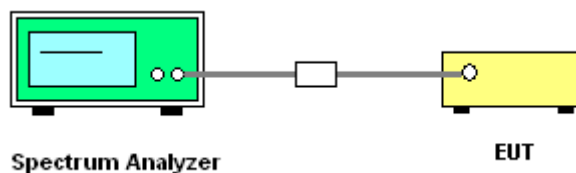
Note: Though the rule refers to “peak power spectral density”, the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

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 = sample
 - 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.

3.3.4 Test Setup



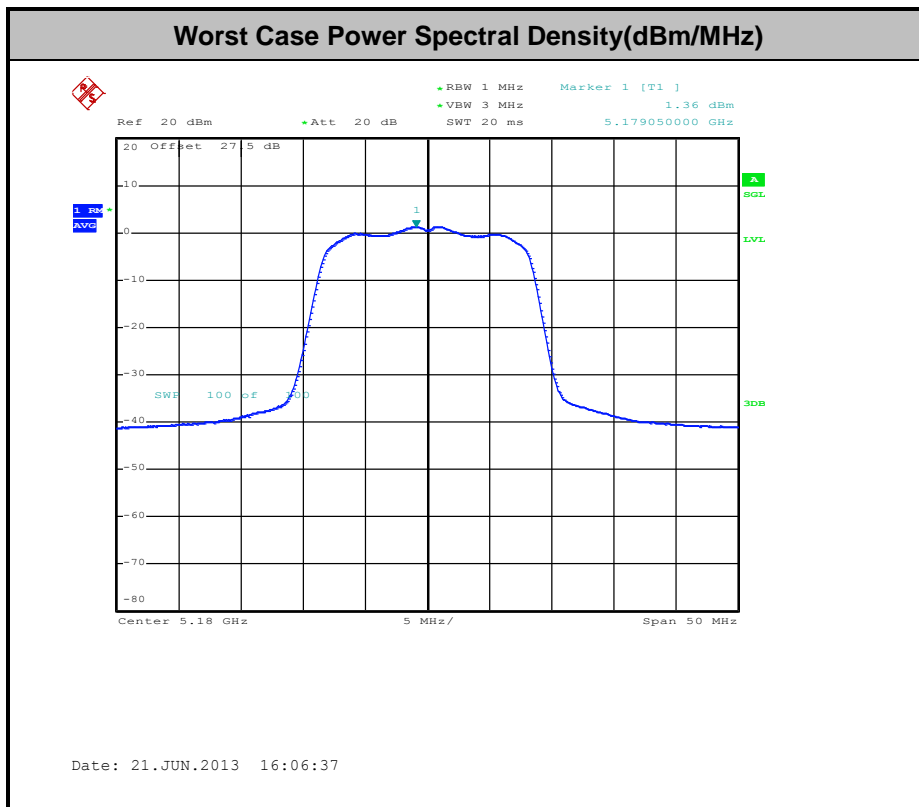
3.3.5 Test Result of Power Spectral Density

Test Band :	5GHz band 1,2,3	Temperature :	24~26°C
Test Engineer :	Coyote Lin	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Max. Limits (dBm/MHz)	DG (dBi)	Pass/Fail
11a	6Mbps	1	36	5180	0.04	1.40	4	4.70	Pass
11a	6Mbps	1	44	5220	0.04	0.97	4	4.70	Pass
11a	6Mbps	1	48	5240	0.04	0.59	4	4.70	Pass
HT20	MCS0	1	36	5180	0.05	1.26	4	4.70	Pass
HT20	MCS0	1	44	5220	0.05	0.38	4	4.70	Pass
HT20	MCS0	1	48	5240	0.05	0.27	4	4.70	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Max. Limits (dBm/MHz)	DG (dBi)	Pass/Fail
11a	6Mbps	1	52	5260	0.04	-0.24	11	4.70	Pass
11a	6Mbps	1	60	5300	0.04	-0.20	11	4.70	Pass
11a	6Mbps	1	64	5320	0.04	0.11	11	4.70	Pass
HT20	MCS0	1	52	5260	0.05	-0.41	11	4.70	Pass
HT20	MCS0	1	60	5300	0.05	-0.46	11	4.70	Pass
HT20	MCS0	1	64	5320	0.05	-0.06	11	4.70	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Max. Limits (dBm/MHz)	DG (dBi)	Pass/Fail
11a	6Mbps	1	100	5500	0.04	0.14	11	4.70	Pass
11a	6Mbps	1	116	5580	0.04	-0.37	11	4.70	Pass
11a	6Mbps	1	140	5700	0.04	0.01	11	4.70	Pass
HT20	MCS0	1	100	5500	0.05	-1.22	11	4.70	Pass
HT20	MCS0	1	116	5580	0.05	-0.75	11	4.70	Pass
HT20	MCS0	1	140	5700	0.05	-0.22	11	4.70	Pass



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

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

See list of measuring instruments of this test report.

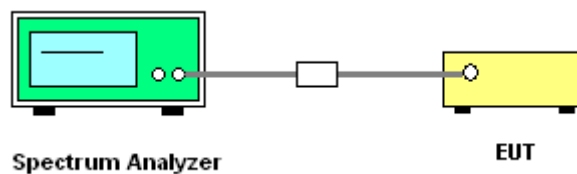
3.4.3 Test Procedures

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

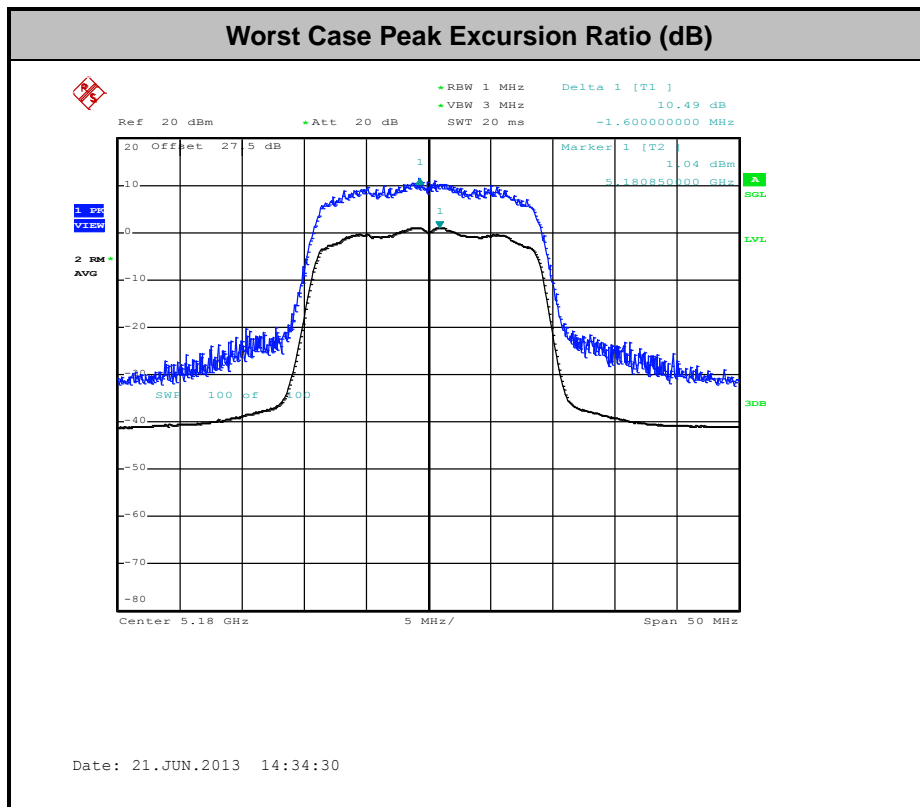
Test Band :	5GHz band 1,2,3	Temperature :	24~26°C
Test Engineer :	Coyote Lin	Relative Humidity :	55~58%

Mod.	N _{TX}	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	36	5180	9.12	9.61	9.35	10.09	-	13	Pass
HT20	1	36	5180	8.86	8.81	10.30	9.57	-	13	Pass

Mod.	N _{TX}	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	52	5260	8.75	9.63	9.48	9.68	-	13	Pass
HT20	1	52	5260	9.38	9.63	10.02	9.18	-	13	Pass

Mod.	N _{TX}	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	100	5500	9.75	9.33	9.27	9.86	-	13	Pass
HT20	1	100	5500	8.68	9.92	10.08	9.23	-	13	Pass

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



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

Duty Cycle Offset: 0.19 dB

3.5 Unwanted Radiated Emission 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.

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

EIRP (dBm)	Field Strength at 3m (dB μ V/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

See list of measuring instruments 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

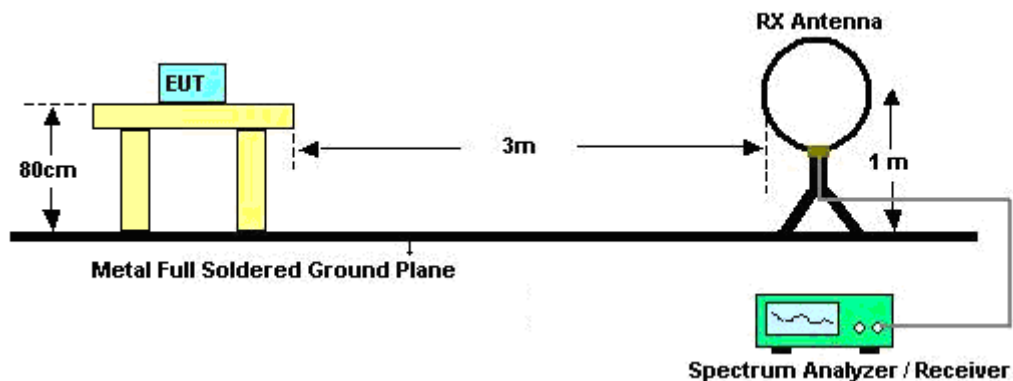
- The setting follows H) 6) of FCC KDB 789033.
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(μ s)	1/T(kHz)	VBW Setting
802.11a	99.01	-	-	10Hz
802.11n HT20	98.94	-	-	10Hz

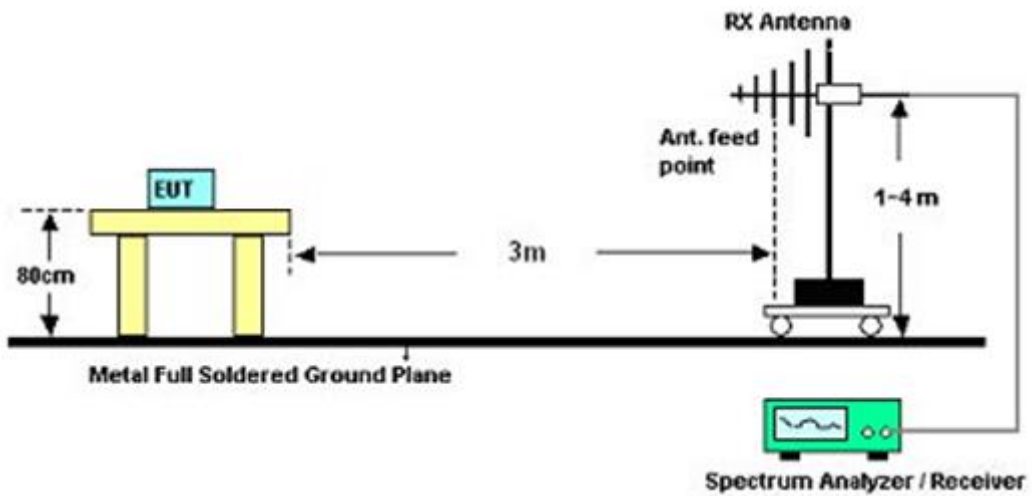
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters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

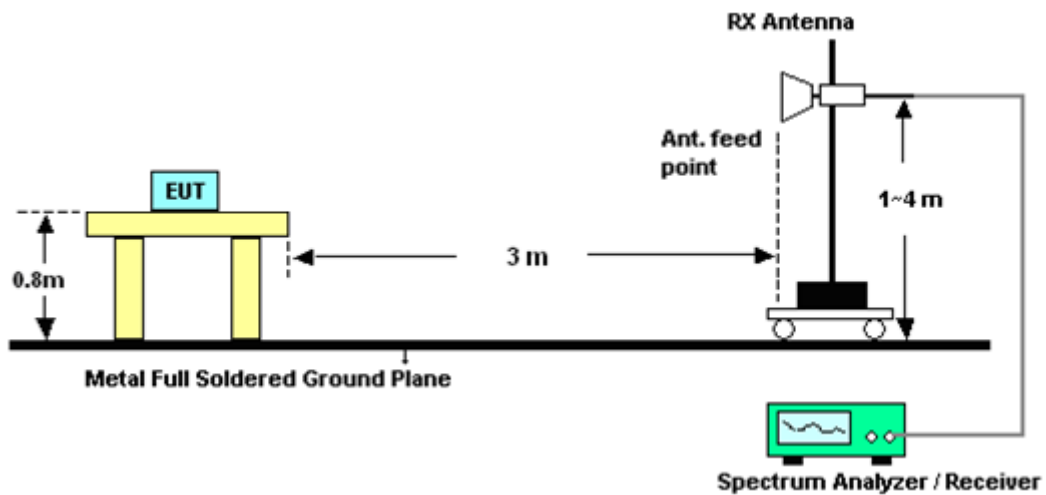
For radiated emissions below 30MHz



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

3.5.6.1 Test Result of Radiated Band Edges

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

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
5148.8	70.73	-3.27	74	59.71	34.29	9.22	32.49	100	8	Peak
5150	53.44	-0.56	54	42.42	34.29	9.22	32.49	100	8	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
5148.2	63.16	-10.84	74	52.14	34.29	9.22	32.49	182	245	Peak
5150	46.5	-7.5	54	35.48	34.29	9.22	32.49	182	245	Average

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

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
5085.65	62.94	-11.06	74	52.11	34.12	9.1	32.39	100	9	Peak
5086.4	51.29	-2.71	54	40.46	34.12	9.1	32.39	100	9	Average
5392.46	63.95	-10.05	74	52.68	34.9	9.65	33.28	100	9	Peak
5393.23	52.07	-1.93	54	40.8	34.9	9.65	33.28	100	9	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
5090	54.51	-19.49	74	43.64	34.16	9.1	32.39	108	279	Peak
5016.2	41.12	-12.88	54	30.5	33.94	8.97	32.29	108	279	Average
5393.23	58.13	-15.87	74	46.86	34.9	9.65	33.28	108	279	Peak
5393.12	46.21	-7.79	54	34.94	34.9	9.65	33.28	108	279	Average

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5107.4	62.43	-11.57	74	51.51	34.2	9.14	32.42	100	8	Peak
5107.25	50.69	-3.31	54	39.77	34.2	9.14	32.42	100	8	Average
5412.59	62.7	-11.3	74	51.42	34.98	9.69	33.39	100	8	Peak
5413.25	51.28	-2.72	54	40	34.98	9.69	33.39	100	8	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5043.8	54.35	-19.65	74	43.66	34.03	9.01	32.35	108	89	Peak
5107.55	41.3	-12.7	54	30.38	34.2	9.14	32.42	108	89	Average
5413.36	60.3	-13.7	74	49.02	34.98	9.69	33.39	108	89	Peak
5413.03	48.17	-5.83	54	36.89	34.98	9.69	33.39	108	89	Average

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350.11	70.9	-3.1	74	59.71	34.81	9.56	33.18	107	9	Peak
5350	52.62	-1.38	54	41.43	34.81	9.56	33.18	107	9	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350.77	64.94	-9.06	74	53.75	34.81	9.56	33.18	194	247	Peak
5357.26	46.6	-7.4	54	35.36	34.81	9.61	33.18	194	247	Average

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5465.52	67.69	-6.31	74	56.37	35.11	9.78	33.57	104	11	Peak
5470	51.7	-2.3	54	40.38	35.11	9.78	33.57	104	11	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	59.1	-14.9	74	47.78	35.11	9.78	33.57	199	279	Peak
5470	43.84	-10.16	54	32.52	35.11	9.78	33.57	199	279	Average

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725.56	70.36	-3.64	74	59.14	35.33	10.04	34.15	101	12	Peak
5725	50.98	-3.02	54	39.76	35.33	10.04	34.15	101	12	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5727.64	62.95	-11.05	74	51.73	35.33	10.04	34.15	191	263	Peak
5725	45.44	-8.56	54	34.22	35.33	10.04	34.15	191	263	Average

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

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
5143.55	68.14	-5.86	74	57.08	34.29	9.22	32.45	102	6	Peak
5028.05	50.65	-3.35	54	39.97	33.99	9.01	32.32	102	6	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
5149.7	60.34	-13.66	74	49.32	34.29	9.22	32.49	140	267	Peak
5150	44.19	-9.81	54	33.17	34.29	9.22	32.49	140	267	Average

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

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
5088.35	60.47	-13.53	74	49.64	34.12	9.1	32.39	100	11	Peak
5088.2	48.92	-5.08	54	38.09	34.12	9.1	32.39	100	11	Average
5391.91	64.71	-9.29	74	53.44	34.9	9.65	33.28	100	11	Peak
5391.8	52.01	-1.99	54	40.74	34.9	9.65	33.28	100	11	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	54.87	-19.13	74	43.85	34.29	9.22	32.49	138	252	Peak
5150	41.86	-12.14	54	30.84	34.29	9.22	32.49	138	252	Average
5392.13	59.31	-14.69	74	48.04	34.9	9.65	33.28	138	252	Peak
5391.69	47.49	-6.51	54	36.22	34.9	9.65	33.28	138	252	Average

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

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
5108.3	55.7	-18.3	74	44.78	34.2	9.14	32.42	110	11	Peak
5108.3	44.59	-9.41	54	33.67	34.2	9.14	32.42	110	11	Average
5411.82	64.25	-9.75	74	52.97	34.98	9.69	33.39	110	11	Peak
5411.82	52.71	-1.29	54	41.43	34.98	9.69	33.39	110	11	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
5039.3	54.79	-19.21	74	44.07	34.03	9.01	32.32	126	86	Peak
5108.3	41.74	-12.26	54	30.82	34.2	9.14	32.42	126	86	Average
5413.47	57.32	-16.68	74	46.04	34.98	9.69	33.39	126	86	Peak
5411.71	45.13	-8.87	54	33.85	34.98	9.69	33.39	126	86	Average

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

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
5351.21	68.27	-5.73	74	57.08	34.81	9.56	33.18	107	31	Peak
5350	49.83	-4.17	54	38.64	34.81	9.56	33.18	107	31	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	63.14	-10.86	74	51.95	34.81	9.56	33.18	177	252	Peak
5350	46.54	-7.46	54	35.35	34.81	9.56	33.18	177	252	Average

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5468.72	62.22	-11.78	74	50.9	35.11	9.78	33.57	103	300	Peak
5469.84	48.32	-5.68	54	37	35.11	9.78	33.57	103	300	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5466.64	57.63	-16.37	74	46.31	35.11	9.78	33.57	200	279	Peak
5469.84	43.42	-10.58	54	32.1	35.11	9.78	33.57	200	279	Average

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725.24	68.13	-5.87	74	56.91	35.33	10.04	34.15	101	11	Peak
5725	51.56	-2.44	54	40.34	35.33	10.04	34.15	101	11	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725.08	62.1	-11.9	74	50.88	35.33	10.04	34.15	191	252	Peak
5726.44	44.84	-9.16	54	33.62	35.33	10.04	34.15	191	252	Average

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

Note: Pre-scanned all test modes and only choose the worst case mode recorded in the test report for radiated spurious emission below 1GHz.

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5180 MHz is fundamental signal which can be ignored. 5332 MHz and 10359 MHz are not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5180	104.53	-	-	93.4	34.38	9.27	32.52	100	8	Average
5180	115.49	-	-	104.36	34.38	9.27	32.52	100	8	Peak
5332	51.82	-2.18	54	40.61	34.77	9.52	33.08	100	8	Average
5332	61.36	-12.64	74	50.15	34.77	9.52	33.08	100	8	Peak
10359	43.78	-30.22	74	51.65	37.29	13.71	58.87	100	0	Peak
15543	50.52	-23.48	74	52.12	40.33	15.56	57.49	100	0	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5180 MHz is fundamental signal which can be ignored. 10360 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. 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
5180	97.66	-	-	86.53	34.38	9.27	32.52	182	245	Average
5180	108.74	-	-	97.61	34.38	9.27	32.52	182	245	Peak
10360	43.93	-30.07	74	51.8	37.29	13.71	58.87	100	0	Peak
15537	42.93	-11.07	54	44.53	40.33	15.56	57.49	100	319	Average
15537	54.81	-19.19	74	56.41	40.33	15.56	57.49	100	319	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	44	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 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 (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
38.37	32.03	-7.97	40	48.56	14.08	0.61	31.22	-	-	Peak
183.9	35.63	-7.87	43.5	56.41	8.94	1.26	30.98	157	96	Peak
229.26	37.96	-8.04	46	56.37	11.12	1.47	31	-	-	Peak
400.8	30.97	-15.03	46	43.71	16.02	2.14	30.9	-	-	Peak
472.2	30.75	-15.25	46	41.68	17.51	2.36	30.8	-	-	Peak
523.3	29.79	-16.21	46	39.48	18.5	2.5	30.69	-	-	Peak
5218	105.88	-	-	94.62	34.46	9.35	32.55	111	8	Average
5218	116.76	-	-	105.5	34.46	9.35	32.55	111	8	Peak
10440	44.36	-29.64	74	52.18	37.35	13.71	58.88	100	0	Peak
15663	46.35	-7.65	54	47.56	40.47	15.65	57.33	137	335	Average
15663	53.7	-20.3	74	54.91	40.47	15.65	57.33	137	335	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	44	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	1. 5220 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
63.75	30.62	-9.38	40	54.87	6.18	0.79	31.22	132	236	Peak
93.45	30.71	-12.79	43.5	51.89	8.96	0.96	31.1	-	-	Peak
220.62	28.45	-17.55	46	47.44	10.58	1.43	31	-	-	Peak
407.1	28.37	-17.63	46	40.9	16.16	2.17	30.86	-	-	Peak
524	23.49	-22.51	46	33.19	18.5	2.5	30.7	-	-	Peak
915.3	26.26	-19.74	46	29.88	23.33	3.38	30.33	-	-	Peak
5220	98.75	-	-	87.49	34.46	9.35	32.55	187	246	Average
5220	109.2	-	-	97.94	34.46	9.35	32.55	187	246	Peak
10440	44.9	-29.1	74	52.72	37.35	13.71	58.88	100	0	Peak
15657	44.57	-9.43	54	45.81	40.46	15.65	57.35	151	153	Average
15657	58.14	-15.86	74	59.38	40.46	15.65	57.35	151	153	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5240 MHz is fundamental signal which can be ignored. 10479 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	104.7	-	-	93.45	34.51	9.39	32.65	100	9	Average
5240	116.03	-	-	104.78	34.51	9.39	32.65	100	9	Peak
10479	45.4	-28.6	74	53.18	37.39	13.72	58.89	100	0	Peak
15717	44.83	-9.17	54	45.89	40.52	15.69	57.27	124	340	Average
15717	52.58	-21.42	74	53.64	40.52	15.69	57.27	124	340	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5240 MHz is fundamental signal which can be ignored. 10479 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	93.94	-	-	82.69	34.51	9.39	32.65	108	279	Average
5240	105.17	-	-	93.92	34.51	9.39	32.65	108	279	Peak
10479	45.51	-28.49	74	53.29	37.39	13.72	58.89	100	0	Peak
15729	44.79	-9.21	54	45.83	40.52	15.71	57.27	141	157	Average
15729	56.71	-17.29	74	57.75	40.52	15.71	57.27	141	157	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5260 MHz is fundamental signal which can be ignored. 10521 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5260	104.42	-	-	93.15	34.59	9.44	32.76	100	8	Average
5260	115.45	-	-	104.18	34.59	9.44	32.76	100	8	Peak
10521	43.86	-30.14	74	51.56	37.42	13.72	58.84	100	0	Peak
15774	43.98	-10.02	54	44.87	40.58	15.75	57.22	118	344	Average
15774	52.04	-21.96	74	52.93	40.58	15.75	57.22	118	344	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5260 MHz is fundamental signal which can be ignored. 10521 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5260	94.96	-	-	83.69	34.59	9.44	32.76	108	89	Average
5260	105.64	-	-	94.37	34.59	9.44	32.76	108	89	Peak
10521	44.24	-29.76	74	51.94	37.42	13.72	58.84	100	0	Peak
15783	45.25	-8.75	54	46.11	40.59	15.75	57.2	101	38	Average
15783	57.32	-16.68	74	58.18	40.59	15.75	57.2	101	38	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	60	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5300 MHz is fundamental signal which can be ignored. 5524 MHz and 10599 MHz are not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5300	102.57	-	-	91.38	34.68	9.48	32.97	109	11	Average
5300	113.54	-	-	102.35	34.68	9.48	32.97	109	11	Peak
5524	48.07	-5.93	54	36.74	35.21	9.86	33.74	109	11	Average
5524	59.53	-14.47	74	48.2	35.21	9.86	33.74	109	11	Peak
10599	45.66	-28.34	74	53.04	37.5	13.73	58.61	100	0	Peak
15897	46.69	-7.31	54	47.23	40.7	15.84	57.08	145	334	Average
15897	55.49	-18.51	74	56.03	40.7	15.84	57.08	145	334	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	60	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5300 MHz is fundamental signal which can be ignored. 10599 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5300	96.97	-	-	85.78	34.68	9.48	32.97	151	251	Average
5300	107.91	-	-	96.72	34.68	9.48	32.97	151	251	Peak
10599	44.53	-29.47	74	51.91	37.5	13.73	58.61	100	0	Peak
15900	45.54	-8.46	54	46.08	40.7	15.84	57.08	100	38	Average
15900	58.73	-15.27	74	59.27	40.7	15.84	57.08	100	38	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5320 MHz is fundamental signal which can be ignored. 5168 MHz and 5472 MHz are not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5168	52.32	-1.68	54	41.21	34.33	9.27	32.49	100	9	Average
5168	59.43	-14.57	74	48.32	34.33	9.27	32.49	100	9	Peak
5320	105.84	-	-	94.57	34.72	9.52	32.97	107	9	Average
5320	116.34	-	-	105.07	34.72	9.52	32.97	107	9	Peak
5472	53.45	-0.55	54	42.13	35.11	9.78	33.57	107	9	Average
5472	63.2	-10.8	74	51.88	35.11	9.78	33.57	107	9	Peak
10641	45.06	-28.94	74	52.31	37.54	13.73	58.52	100	0	Peak
15951	47.92	-6.08	54	48.31	40.75	15.88	57.02	127	338	Average
15951	54.89	-19.11	74	55.28	40.75	15.88	57.02	127	338	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	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 (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5318	99.17	-	-	87.9	34.72	9.52	32.97	194	247	Average
5318	110.16	-	-	98.89	34.72	9.52	32.97	194	247	Peak
10641	44.31	-29.69	74	51.56	37.54	13.73	58.52	100	0	Peak
15960	44.85	-9.15	54	45.2	40.77	15.88	57	104	37	Average
15960	58.49	-15.51	74	58.84	40.77	15.88	57	104	37	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 1. 5500 MHz is fundamental signal which can be ignored. 2. 5346 MHz, 5652MHz and 16500MHz are 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 (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5346	49.43	-4.57	54	38.14	34.81	9.56	33.08	104	11	Average
5346	59.51	-14.49	74	48.22	34.81	9.56	33.08	104	11	Peak
5500	104.49	-	-	93.09	35.2	9.86	33.66	104	11	Average
5500	116.19	-	-	104.79	35.2	9.86	33.66	104	11	Peak
5652	52.6	-1.4	54	41.39	35.29	9.98	34.06	104	11	Average
5652	63.5	-10.5	74	52.29	35.29	9.98	34.06	104	11	Peak
11001	45.29	-28.71	74	51.19	37.9	13.76	57.56	100	0	Peak
16500	49.59	-24.41	74	47.93	41.5	16.13	55.97	100	0	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5500 MHz is fundamental signal which can be ignored. 16500MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. 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	96.2	-	-	84.8	35.2	9.86	33.66	199	279	Average
5500	107.22	-	-	95.82	35.2	9.86	33.66	199	279	Peak
11001	44.93	-29.07	74	50.83	37.9	13.76	57.56	100	0	Peak
16500	39.44	-14.56	54	37.78	41.5	16.13	55.97	100	12	Average
16500	52.98	-21.02	74	51.32	41.5	16.13	55.97	100	12	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	116	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5580 MHz is fundamental signal which can be ignored. 16740 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5580	102.03	-	-	90.88	35.24	9.92	34.01	100	306	Average
5580	112.83	-	-	101.68	35.24	9.92	34.01	100	306	Peak
11160	45.76	-28.24	74	51.12	38.07	13.93	57.36	100	0	Peak
16740	50.2	-23.8	74	48.28	41.74	16.23	56.05	100	0	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	116	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5578 MHz is fundamental signal which can be ignored. 16734 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5578	94.72	-	-	83.57	35.24	9.92	34.01	199	284	Average
5578	105.22	-	-	94.07	35.24	9.92	34.01	199	284	Peak
11160	45.44	-28.56	74	50.8	38.07	13.93	57.36	100	0	Peak
16734	42.59	-11.41	54	40.67	41.74	16.23	56.05	100	339	Average
16734	55.08	-18.92	74	53.16	41.74	16.23	56.05	100	339	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 1. 5702 MHz is fundamental signal which can be ignored. 2. 5546 MHz, 5852MHz and 17100MHz are 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 (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5546	50.66	-3.34	54	39.39	35.22	9.88	33.83	101	12	Average
5546	62.57	-11.43	74	51.3	35.22	9.88	33.83	101	12	Peak
5702	103.36	-	-	92.14	35.32	10.02	34.12	101	12	Average
5702	114.15	-	-	102.93	35.32	10.02	34.12	101	12	Peak
5852	48.84	-5.16	54	37.61	35.41	10.13	34.31	101	12	Average
5852	59.83	-14.17	74	48.6	35.41	10.13	34.31	101	12	Peak
11400	45.8	-28.2	74	50.36	38.3	14.21	57.07	100	0	Peak
17100	49.29	-24.71	74	47.05	41.94	16.46	56.16	100	0	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5700 MHz is fundamental signal which can be ignored. 17100MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5700	95.91	-	-	84.7	35.31	10.02	34.12	191	263	Average
5700	107.88	-	-	96.67	35.31	10.02	34.12	191	263	Peak
11400	45.13	-28.87	74	49.69	38.3	14.21	57.07	100	0	Peak
17100	39.91	-14.09	54	37.67	41.94	16.46	56.16	154	202	Average
17100	53.41	-20.59	74	51.17	41.94	16.46	56.16	154	202	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5180 MHz is fundamental signal which can be ignored. 5332 MHz and 10359 MHz are not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
66.99	22.65	-17.35	40	46.83	6.24	0.82	31.24	-	-	Peak
91.02	26.33	-17.17	43.5	47.76	8.72	0.95	31.1	-	-	Peak
213.6	33.79	-9.71	43.5	53.44	10.04	1.38	31.07	150	63	Peak
533.8	23.05	-22.95	46	32.61	18.66	2.52	30.74	-	-	Peak
826.4	24.79	-21.21	46	29.57	22.36	3.21	30.35	-	-	Peak
974.8	27	-27	54	29.59	24.22	3.49	30.3	-	-	Peak
5180	100.24	-	-	89.11	34.38	9.27	32.52	100	8	Average
5180	111.49	-	-	100.36	34.38	9.27	32.52	100	8	Peak
5332	53.18	-0.82	54	41.97	34.77	9.52	33.08	110	9	Average
5332	63.29	-10.71	74	52.08	34.77	9.52	33.08	110	9	Peak
10359	43.35	-30.65	74	51.22	37.29	13.71	58.87	100	0	Peak
15543	50.02	-23.98	74	51.62	40.33	15.56	57.49	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5180 MHz is fundamental signal which can be ignored. 10359 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	35.69	-4.31	40	46.66	20	0.53	31.5	-	-	Peak
62.94	35.81	-4.19	40	60.11	6.16	0.78	31.24	115	235	Peak
213.6	26.8	-16.7	43.5	46.45	10.04	1.38	31.07	-	-	Peak
533.8	20.96	-25.04	46	30.52	18.66	2.52	30.74	-	-	Peak
805.4	25.34	-20.66	46	30.35	22.15	3.15	30.31	-	-	Peak
964.3	26.58	-27.42	54	29.4	24.06	3.47	30.35	-	-	Peak
5180	93.36	-	-	82.23	34.38	9.27	32.52	140	267	Average
5180	105.81	-	-	94.68	34.38	9.27	32.52	140	267	Peak
10359	45.07	-28.93	74	52.94	37.29	13.71	58.87	100	0	Peak
15543	41.85	-12.15	54	43.45	40.33	15.56	57.49	100	323	Average
15543	54.65	-19.35	74	56.25	40.33	15.56	57.49	100	323	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	44	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5222 MHz is fundamental signal which can be ignored. 10440 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5222	104.63	-	-	93.47	34.46	9.35	32.65	100	8	Average
5222	115.62	-	-	104.46	34.46	9.35	32.65	100	8	Peak
10440	45.26	-28.74	74	53.08	37.35	13.71	58.88	100	0	Peak
15660	45.1	-8.9	54	46.34	40.46	15.65	57.35	154	334	Average
15660	52.75	-21.25	74	53.99	40.46	15.65	57.35	154	334	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	44	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5218 MHz is fundamental signal which can be ignored. 10440 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5218	98.82	-	-	87.56	34.46	9.35	32.55	169	250	Average
5218	109.31	-	-	98.05	34.46	9.35	32.55	169	250	Peak
10440	46.15	-27.85	74	53.97	37.35	13.71	58.88	100	0	Peak
15657	49.3	-24.7	74	50.54	40.46	15.65	57.35	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5240 MHz is fundamental signal which can be ignored. 10479 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	104.51	-	-	93.26	34.51	9.39	32.65	100	11	Average
5240	115.79	-	-	104.54	34.51	9.39	32.65	100	11	Peak
10479	44.72	-29.28	74	52.5	37.39	13.72	58.89	100	0	Peak
15723	50.55	-23.45	74	51.61	40.52	15.69	57.27	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5240 MHz is fundamental signal which can be ignored. 10479 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	97.87	-	-	86.62	34.51	9.39	32.65	138	252	Average
5240	109	-	-	97.75	34.51	9.39	32.65	138	252	Peak
10479	44.59	-29.41	74	52.37	37.39	13.72	58.89	100	0	Peak
15726	44.7	-9.3	54	45.74	40.52	15.71	57.27	101	38	Average
15726	56.69	-17.31	74	57.73	40.52	15.71	57.27	101	38	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5262 MHz is fundamental signal which can be ignored. 10521 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5262	100.65	-	-	89.38	34.59	9.44	32.76	110	11	Average
5262	111.31	-	-	100.04	34.59	9.44	32.76	110	11	Peak
10521	44.62	-29.38	74	52.32	37.42	13.72	58.84	100	0	Peak
15774	42.75	-11.25	54	43.64	40.58	15.75	57.22	128	344	Average
15774	55.59	-18.41	74	56.48	40.58	15.75	57.22	128	344	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5260 MHz is fundamental signal which can be ignored. 10521 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5260	95.2	-	-	83.93	34.59	9.44	32.76	126	86	Average
5260	105.74	-	-	94.47	34.59	9.44	32.76	126	86	Peak
10521	44.6	-29.4	74	52.3	37.42	13.72	58.84	100	0	Peak
15777	44.2	-9.8	54	45.09	40.58	15.75	57.22	100	39	Average
15777	55.85	-18.15	74	56.74	40.58	15.75	57.22	100	39	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	60	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5300 MHz is fundamental signal which can be ignored. 10599 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5300	104.11	-	-	92.92	34.68	9.48	32.97	123	13	Average
5300	114.72	-	-	103.53	34.68	9.48	32.97	123	13	Peak
10599	44.84	-29.16	74	52.22	37.5	13.73	58.61	100	0	Peak
15906	46.57	-7.43	54	47.08	40.71	15.84	57.06	129	338	Average
15906	54.33	-19.67	74	54.84	40.71	15.84	57.06	129	338	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	60	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5298 MHz is fundamental signal which can be ignored. 10599 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5298	98.29	-	-	87.1	34.68	9.48	32.97	181	247	Average
5298	109.63	-	-	98.44	34.68	9.48	32.97	181	247	Peak
10599	44.67	-29.33	74	52.05	37.5	13.73	58.61	100	0	Peak
15903	46.59	-7.41	54	47.1	40.71	15.84	57.06	100	39	Average
15903	59.16	-14.84	74	59.67	40.71	15.84	57.06	100	39	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	1. 5320 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 (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5320	102.09	-	-	90.82	34.72	9.52	32.97	107	31	Average
5320	113.36	-	-	102.09	34.72	9.52	32.97	107	31	Peak
10641	43.93	-30.07	74	51.18	37.54	13.73	58.52	100	0	Peak
15963	47.97	-6.03	54	48.32	40.77	15.88	57	129	339	Average
15963	55.35	-18.65	74	55.7	40.77	15.88	57	129	339	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	1. 5320 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 (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5320	98.53	-	-	87.26	34.72	9.52	32.97	177	252	Average
5320	109.61	-	-	98.34	34.72	9.52	32.97	177	252	Peak
10641	44.65	-29.35	74	51.9	37.54	13.73	58.52	100	0	Peak
15957	45.15	-8.85	54	45.5	40.77	15.88	57	104	37	Average
15957	58.51	-15.49	74	58.86	40.77	15.88	57	104	37	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5500 MHz is fundamental signal which can be ignored. 5652 MHz and 16500 MHz are not within a restricted band and satisfies both the average and peak limits of 15.209. 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	101.46	-	-	90.06	35.2	9.86	33.66	103	300	Average
5500	112.7	-	-	101.3	35.2	9.86	33.66	103	300	Peak
5652	52.83	-1.17	54	41.62	35.29	9.98	34.06	103	300	Average
5652	59.48	-14.52	74	48.27	35.29	9.98	34.06	103	300	Peak
11001	44.2	-29.8	74	50.1	37.9	13.76	57.56	100	0	Peak
16500	50.7	-23.3	74	49.04	41.5	16.13	55.97	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5502 MHz is fundamental signal which can be ignored. 16497 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. 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	94.93	-	-	83.61	35.2	9.86	33.74	200	279	Average
5502	106.37	-	-	95.05	35.2	9.86	33.74	200	279	Peak
11001	45.6	-28.4	74	51.5	37.9	13.76	57.56	100	0	Peak
16497	39.46	-14.54	54	37.8	41.5	16.13	55.97	100	12	Average
16497	53.59	-20.41	74	51.93	41.5	16.13	55.97	100	12	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	116	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5578 MHz is fundamental signal which can be ignored. 16740 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5578	101.62	-	-	90.47	35.24	9.92	34.01	100	306	Average
5578	112.94	-	-	101.79	35.24	9.92	34.01	100	306	Peak
11160	45.54	-28.46	74	50.9	38.07	13.93	57.36	100	0	Peak
16740	50.27	-23.73	74	48.35	41.74	16.23	56.05	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	116	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5578 MHz is fundamental signal which can be ignored. 16734 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5578	94.2	-	-	83.05	35.24	9.92	34.01	199	284	Average
5578	104.68	-	-	93.53	35.24	9.92	34.01	199	284	Peak
11160	46.73	-27.27	74	52.09	38.07	13.93	57.36	100	0	Peak
16734	44.72	-9.28	54	42.8	41.74	16.23	56.05	101	341	Average
16734	56.79	-17.21	74	54.87	41.74	16.23	56.05	101	341	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5698 MHz is fundamental signal which can be ignored. 5548 MHz, 5852 MHz and 17100MHz are not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5548	50.86	-3.14	54	39.56	35.23	9.9	33.83	101	11	Average
5548	61.54	-12.46	74	50.24	35.23	9.9	33.83	101	11	Peak
5698	102.89	-	-	91.68	35.31	10.02	34.12	101	11	Average
5698	114.37	-	-	103.16	35.31	10.02	34.12	101	11	Peak
5852	48.86	-5.14	54	37.63	35.41	10.13	34.31	101	11	Average
5852	59.06	-14.94	74	47.83	35.41	10.13	34.31	101	11	Peak
11400	45.8	-28.2	74	50.36	38.3	14.21	57.07	100	0	Peak
17100	48.74	-25.26	74	46.5	41.94	16.46	56.16	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Eric Shih, Beer Chang, and Ken Wu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5698 MHz is fundamental signal which can be ignored. 17100MHz is not within a restricted band and satisfies both the average and peak limits of 15.209. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5698	94.37	-	-	83.16	35.31	10.02	34.12	191	252	Average
5698	105.39	-	-	94.18	35.31	10.02	34.12	191	252	Peak
11400	45.48	-28.52	74	50.04	38.3	14.21	57.07	100	0	Peak
17100	50.55	-23.45	74	48.31	41.94	16.46	56.16	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 μ 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.

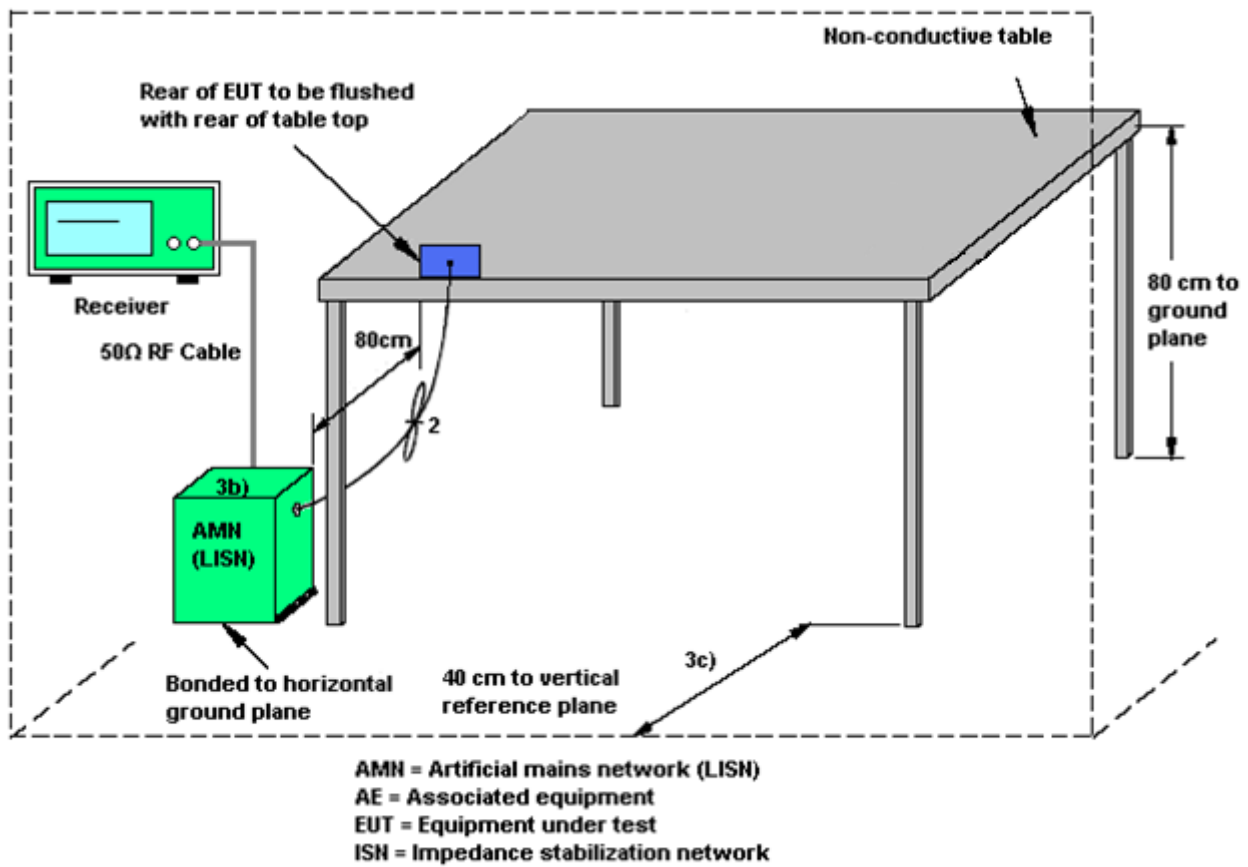
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

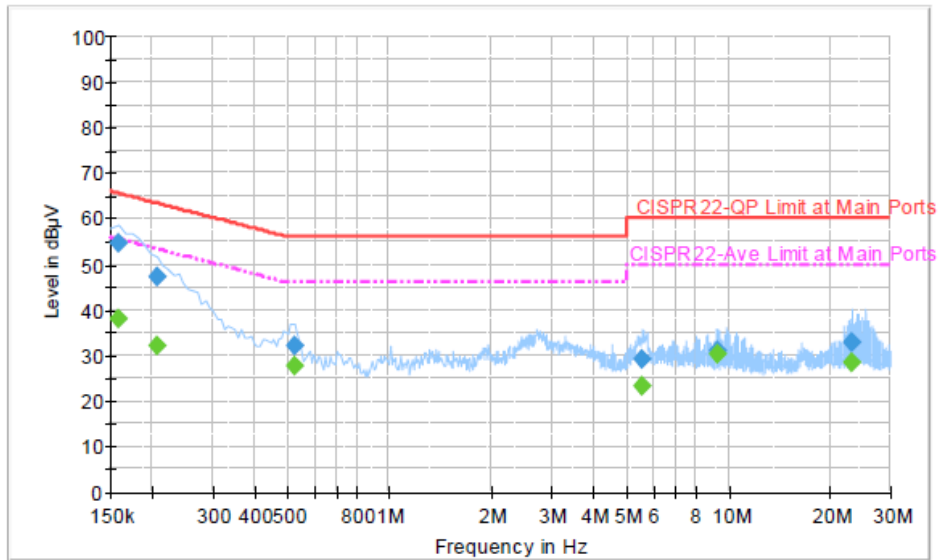
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (5G) Link + Bluetooth Link + Earphone + MPEG4 + USB Cable (Data Link with Notebook)		



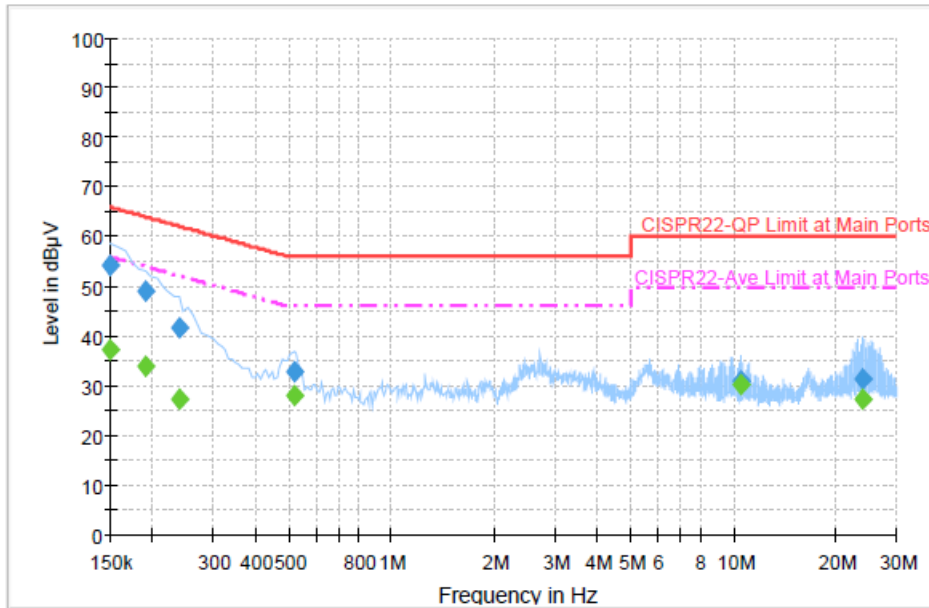
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	54.7	Off	L1	19.3	10.9	65.6
0.206000	47.3	Off	L1	19.4	16.1	63.4
0.526000	32.2	Off	L1	19.4	23.8	56.0
5.582000	29.3	Off	L1	19.6	30.7	60.0
9.302000	31.1	Off	L1	19.7	28.9	60.0
23.046000	32.9	Off	L1	20.0	27.1	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	37.9	Off	L1	19.3	17.7	55.6
0.206000	32.0	Off	L1	19.4	21.4	53.4
0.526000	27.6	Off	L1	19.4	18.4	46.0
5.582000	23.1	Off	L1	19.6	26.9	50.0
9.302000	30.2	Off	L1	19.7	19.8	50.0
23.046000	28.3	Off	L1	20.0	21.7	50.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (5G) Link + Bluetooth Link + Earphone + MPEG4 + USB Cable (Data Link with Notebook)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	54.2	Off	N	19.4	11.8	66.0
0.190000	49.3	Off	N	19.4	14.7	64.0
0.238000	41.5	Off	N	19.5	20.7	62.2
0.518000	32.9	Off	N	19.4	23.1	56.0
10.494000	31.1	Off	N	19.7	28.9	60.0
23.806000	31.4	Off	N	20.0	28.6	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	37.2	Off	N	19.4	18.8	56.0
0.190000	34.0	Off	N	19.4	20.0	54.0
0.238000	27.2	Off	N	19.5	25.0	52.2
0.518000	28.0	Off	N	19.4	18.0	46.0
10.494000	30.4	Off	N	19.7	19.6	50.0
23.806000	27.2	Off	N	20.0	22.8	50.0

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.

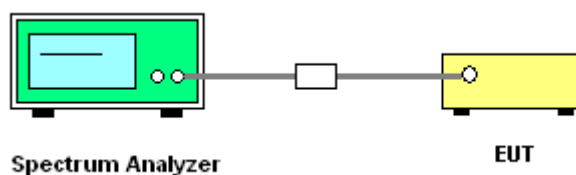
3.7.2 Measuring Instruments

See list of measuring instruments 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 :	24~26°C
Test Engineer :	Coyote Lin	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Frequency (MHz)	Low Frequency (MHz)	High Frequency (MHz)	Mid Frequency (MHz)	Frequency Stability (ppm)
11a	6Mbps	1	36	5180	5171.70	5188.20	5179.95	-9.65
11a	6Mbps	1	44	5220	5211.70	5228.20	5219.95	-9.58
11a	6Mbps	1	48	5240	5231.70	5248.20	5239.95	-9.54
HT20	MCS0	1	36	5180	5171.15	5188.70	5179.93	-14.48
HT20	MCS0	1	44	5220	5211.15	5228.70	5219.93	-14.37
HT20	MCS0	1	48	5240	5231.10	5248.80	5239.95	-9.54

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Low Frequency (MHz)	High Frequency (MHz)	Mid Frequency (MHz)	Frequency Stability (ppm)
11a	6Mbps	1	52	5260	5251.70	5268.20	5259.95	-9.51
11a	6Mbps	1	60	5300	5291.70	5308.15	5299.93	-14.15
11a	6Mbps	1	64	5320	5311.70	5328.20	5319.95	-9.40
HT20	MCS0	1	52	5260	5251.15	5268.70	5259.93	-14.26
HT20	MCS0	1	60	5300	5291.15	5308.70	5299.93	-14.15
HT20	MCS0	1	64	5320	5311.10	5328.75	5319.93	-14.10

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Low Frequency (MHz)	High Frequency (MHz)	Mid Frequency (MHz)	Frequency Stability (ppm)
11a	6Mbps	1	100	5500	5491.70	5508.15	5499.93	-13.64
11a	6Mbps	1	116	5580	5571.70	5588.20	5579.95	-8.96
11a	6Mbps	1	140	5700	5691.80	5708.20	5700.00	0.00
HT20	MCS0	1	100	5500	5491.10	5508.70	5499.90	-18.18
HT20	MCS0	1	116	5580	5571.15	5588.70	5579.93	-13.44
HT20	MCS0	1	140	5700	5691.10	5708.70	5699.90	-17.54

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

See list of measuring instruments of this test report.

3.8.3 Test Result of Automatically Discontinue Transmission

During no any information transmission, 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 Connected Construction

Non-standard connector used.

3.9.3 Antenna Gain

The antenna gain is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 07, 2013	May 30, 2013 ~ Jun. 21, 2013	Jun. 06, 2014	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	May 30, 2013 ~ Jun. 21, 2013	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	May 30, 2013 ~ Jun. 21, 2013	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 13, 2012	Jun. 19, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2012	Jun. 19, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 06, 2012	Jun. 19, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Jun. 19, 2013	N/A	Conduction (CO05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9K~30G	Nov. 30, 2012	May 29, 2013 ~ Jul. 11, 2013	Nov. 29, 2013	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9K~7G	Sep. 03, 2012	May 29, 2013 ~ Jul. 11, 2013	Sep. 02, 2013	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30M~1G	Oct. 06, 2012	May 29, 2013 ~ Jul. 11, 2013	Oct. 05, 2013	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1G~18G	Aug. 22, 2012	May 29, 2013 ~ Jul. 11, 2013	Aug. 21, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18G~40G	Sep. 28, 2012	May 29, 2013 ~ Jul. 11, 2013	Sep. 27, 2013	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	30M~1G	Feb. 26, 2013	May 29, 2013 ~ Jul. 11, 2013	Feb. 25, 2014	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1G~26.5G	Dec. 01, 2012	May 29, 2013 ~ Jul. 11, 2013	Nov. 30, 2013	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-00101 800-30-10P	159088	DC~18G High Gain	Feb. 27, 2013	May 29, 2013 ~ Jul. 11, 2013	Feb. 26, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	May 29, 2013 ~ Jul. 11, 2013	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	ChainTek 3000	N/A	N/A	N/A	May 29, 2013 ~ Jul. 11, 2013	N/A	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9kHz ~ 30MHz	Jul. 03, 2012	May 29, 2013 ~ Jul. 11, 2013	Jul. 02, 2014	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
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Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.54
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Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.72
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