



FCC RF Test Report

APPLICANT : Motorola Solutions, Inc.
EQUIPMENT : WLAN/BT module
BRAND NAME : MOTOROLA
MODEL NAME : 21-148603-0B
FCC ID : UZ7211486030B
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

This is a partial report which is included the RF conducted power, radiated spurious emission, and AC conducted emission test items. The product was received on Nov. 06, 2013 and testing was completed on Dec. 25, 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.

Louis Wu

Reviewed by: Louis Wu / Manager

Jones Tsai

Approved by: Jones Tsai / Manager



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Page Number : 1 of 53

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.407(b)	RSS-210 A9.3	Unwanted Emissions	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 1.53 dB at 5350.000 MHz
3.2	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 19.60 dB at 0.190 MHz
3.3	15.203 & 15.407(a)	RSS-210 A9.2	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Motorola Solutions, Inc.

One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.2 Manufacturer

Motorola Solutions, Inc.

One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	WLAN/BT module
Brand Name	MOTOROLA
Model Name	21-148603-0B
FCC ID	UZ7211486030B
Installed into host	Equipment Name: WORKABOUT PRO 4 Brand Name: MOTOROLA Model Name: 7528X
EUT supports Radios application	WLAN 11a/b/g/n HT20 Bluetooth v2.1 + EDR
Host HW Version	MV
Host SW Version	0.1.36119.1
Host FW Version	X_2.01.0.0.062R
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										
Tx/Rx Channel Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5700 MHz									
Maximum Output Power	<p><Ant. 1> <5180 MHz ~ 5240 MHz> 802.11a : 14.99 dBm / 0.0316 W 802.11n HT20 : 15.00 dBm / 0.0316 W <5260 MHz ~ 5320 MHz> 802.11a : 15.31 dBm / 0.0340 W 802.11n HT20 : 15.28 dBm / 0.0337 W <5500 MHz ~ 5700 MHz> 802.11a : 15.42 dBm / 0.0348 W 802.11n HT20 : 14.96 dBm / 0.0313 W</p> <p><Ant. 2> <5180 MHz ~ 5240 MHz> 802.11a : 14.96 dBm / 0.0313 W 802.11n HT20 : 14.92 dBm / 0.0310 W <5260 MHz ~ 5320 MHz> 802.11a : 15.28 dBm / 0.0337 W 802.11n HT20 : 15.22 dBm / 0.0333 W <5500 MHz ~ 5700 MHz> 802.11a : 15.39 dBm / 0.0346 W 802.11n HT20 : 14.84 dBm / 0.0305 W</p>									
Antenna Type	<p><5180 MHz ~ 5240 MHz> Ant. 1 : PIFA Antenna with gain 4.19 dBi Ant. 2 : PIFA Antenna with gain 4.19 dBi <5260 MHz ~ 5320 MHz> Ant. 1 : PIFA Antenna with gain 4.55 dBi Ant. 2 : PIFA Antenna with gain 4.55 dBi <5500 MHz ~ 5700 MHz> Ant. 1 : PIFA Antenna with gain 4.69 dBi Ant. 2 : PIFA Antenna with gain 4.69 dBi</p>									
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)									
Antenna Function Description	<table border="1"> <thead> <tr> <th></th> <th>Ant. 1 (Main Antenna)</th> <th>Ant. 2 (Aux. Antenna)</th> </tr> </thead> <tbody> <tr> <td>802.11 a</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11 n</td> <td>V</td> <td>V</td> </tr> </tbody> </table>		Ant. 1 (Main Antenna)	Ant. 2 (Aux. Antenna)	802.11 a	V	V	802.11 n	V	V
	Ant. 1 (Main Antenna)	Ant. 2 (Aux. Antenna)								
802.11 a	V	V								
802.11 n	V	V								

List of Accessory for Host (WORKABOUT PRO 4):

Specification of Accessory		
AC Adapter	Brand Name	PHIHONG
	Model Name	PSA15R-050P
Battery	Brand Name	Psion
	Model Name	WA3010
Docking	Brand Name	Psion
	Model Name	WA4003-G2
USB to RS232 Adapter	Brand Name	PSION
	Model Name	WA4015-G1
Pouch Holster	Model Name	WA6084
Pistol Holster	Model Name	WA6083
Carry Case	Model Name	WA6080
USB Cable	Brand Name	N/A
	Model Name	N/A
	Power Cord	1.4 meter shielded cable without ferrite core

1.5 Modification of EUT

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

1.6 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.



1.7 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: All test items were verified and recorded according to the standards and without any deviation during the test.



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 and Channel

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

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

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

2.2 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. Final Output Power equals to Measured Output Power adds the duty factor.

<Ant. 1>

Channel	Frequency	5GHz 802.11a mode							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 36	5180 MHz	14.99	14.86	14.83	14.79	14.72	14.67	14.69	14.65
CH 44	5220 MHz	14.76	14.71	14.67	14.68	14.60	14.51	14.47	14.42
CH 48	5240 MHz	14.97	14.83	14.70	14.60	14.46	14.40	14.34	14.29
CH 52	5260 MHz	15.31	15.21	15.16	14.99	14.91	14.81	14.72	14.68
CH 60	5300 MHz	15.20	14.87	14.78	14.61	14.54	14.49	14.41	14.39
CH 64	5320 MHz	15.12	14.88	14.81	14.72	14.70	14.58	14.54	14.52
CH 100	5500 MHz	14.58	14.51	14.16	14.03	13.92	13.90	13.86	13.84
CH 116	5580 MHz	14.60	14.55	14.50	14.40	14.37	14.29	14.24	13.93
CH 140	5700 MHz	15.42	15.26	15.17	15.11	15.05	15.01	14.96	14.92

Channel	Frequency	5GHz 802.11n HT20 mode							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 36	5180 MHz	14.98	14.95	14.91	14.88	14.86	14.83	14.82	14.78
CH 44	5220 MHz	15.00	14.98	14.96	14.92	14.89	14.91	14.85	14.83
CH 48	5240 MHz	14.95	14.92	14.90	14.87	14.88	14.85	14.86	14.81
CH 52	5260 MHz	15.28	15.26	15.23	15.19	15.21	15.23	15.20	15.22
CH 60	5300 MHz	14.66	14.61	14.56	14.58	14.54	14.51	14.52	14.57
CH 64	5320 MHz	14.54	14.48	14.42	14.46	14.43	14.39	14.35	14.34
CH 100	5500 MHz	13.99	13.92	13.88	13.85	13.89	13.91	13.94	13.91
CH 116	5580 MHz	14.12	14.10	14.05	13.99	14.06	14.06	14.02	14.08
CH 140	5700 MHz	14.96	14.93	14.87	14.83	14.89	14.88	14.86	14.87

<Ant. 2>

Channel	Frequency	5GHz 802.11a mode							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 36	5180 MHz	14.94	14.87	14.83	14.72	14.65	14.56	14.52	14.51
CH 44	5220 MHz	14.75	14.72	14.52	14.40	14.34	14.29	14.30	14.29
CH 48	5240 MHz	14.96	14.93	14.90	14.79	14.71	14.70	14.66	14.68
CH 52	5260 MHz	15.28	15.24	15.19	14.98	14.90	14.93	14.91	14.87
CH 60	5300 MHz	15.07	15.03	14.93	14.80	14.77	14.78	14.79	14.82
CH 64	5320 MHz	15.00	14.90	14.78	14.77	14.72	14.75	14.77	14.76
CH 100	5500 MHz	14.54	14.49	14.39	14.31	14.28	14.32	14.30	14.35
CH 116	5580 MHz	14.58	14.56	14.48	14.42	14.39	14.37	14.41	14.34
CH 140	5700 MHz	15.39	15.35	15.31	15.24	15.20	15.14	15.18	15.21

Channel	Frequency	5GHz 802.11n HT20 mode							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 36	5180 MHz	14.92	14.88	14.81	14.80	14.78	14.76	14.76	14.79
CH 44	5220 MHz	14.90	14.84	14.78	14.79	14.80	14.77	14.75	14.70
CH 48	5240 MHz	14.91	14.87	14.82	14.77	14.69	14.70	14.72	14.72
CH 52	5260 MHz	15.22	15.20	15.18	15.14	15.15	15.09	15.08	15.13
CH 60	5300 MHz	14.56	14.52	14.46	14.37	14.41	14.38	14.36	14.37
CH 64	5320 MHz	14.47	14.41	14.34	14.31	14.22	14.25	14.23	14.26
CH 100	5500 MHz	13.84	13.78	13.73	13.75	13.74	13.72	13.70	13.71
CH 116	5580 MHz	13.99	13.93	13.88	13.89	13.86	13.83	13.81	13.82
CH 140	5700 MHz	14.84	14.80	14.77	14.79	14.75	14.74	14.75	14.74

2.3 Test Mode

Preliminary test for Radiated Spurious Emissions:

Test Cases					
	Test Items	Mode	Data rate	Test Channel	Antenna
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	Band I : L	Main/Aux.
				Band II & III : L/H	
		802.11n HT20	MCS0	Band I : L	Main/Aux.
				Band II & III : L/H	

The preliminary test purpose is to find out the worst antenna, and choose the worst antenna (Aux. Antenna) to perform final test demonstrated in compliance with FCC standard.

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

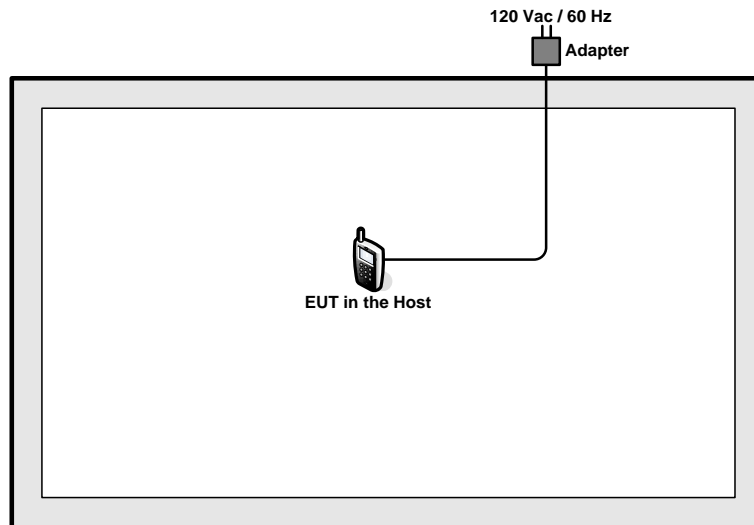
Test Cases				
	Test Items	Mode	Data rate	Test Channel
Conducted TCs	Output Power	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	L/H
		802.11n HT20	MCS0	L/H
	Radiated Spurious Emission	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
AC Conducted Emission	Mode 1 : WLAN (5GHz) Link + Bluetooth Link + GPS Rx + MP3 + Adapter			

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

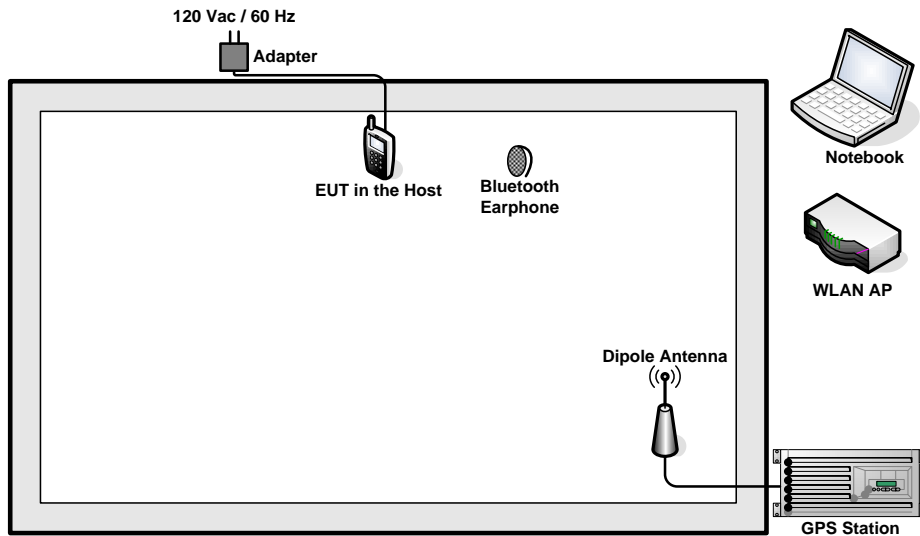
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

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.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY70DA2029	N/A	N/A
5.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.6 EUT Operation Test Setup

The programmed RF utility “XW2DMT tools” is installed in WORKABOUT PRO 4 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 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.

3.1.1 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 5470-5725MHz band: all emissions outside of the 5470-5725MHz 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 (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.

3.1.2 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 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 ≥ 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 ≥ 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.

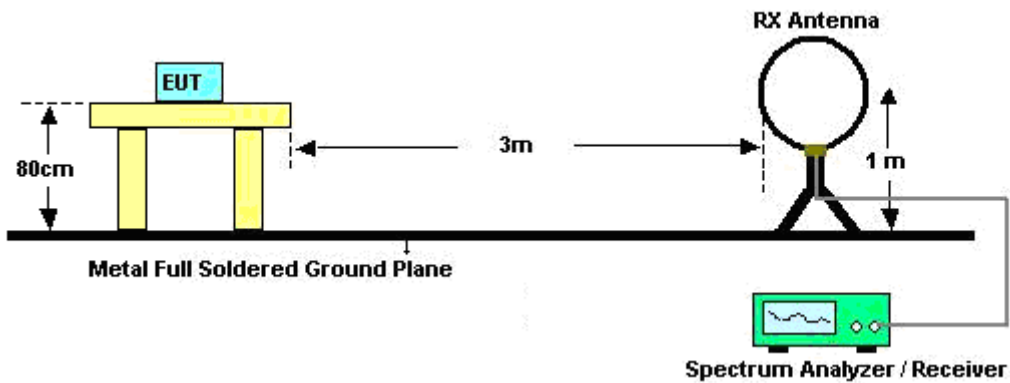
Table with 6 columns: Antenna, Band, Duty Cycle(%), T(us), 1/T(kHz), VBW Setting. It contains 4 rows of test data for antennas 1 and 2 across different bands and duty cycles.

- 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.

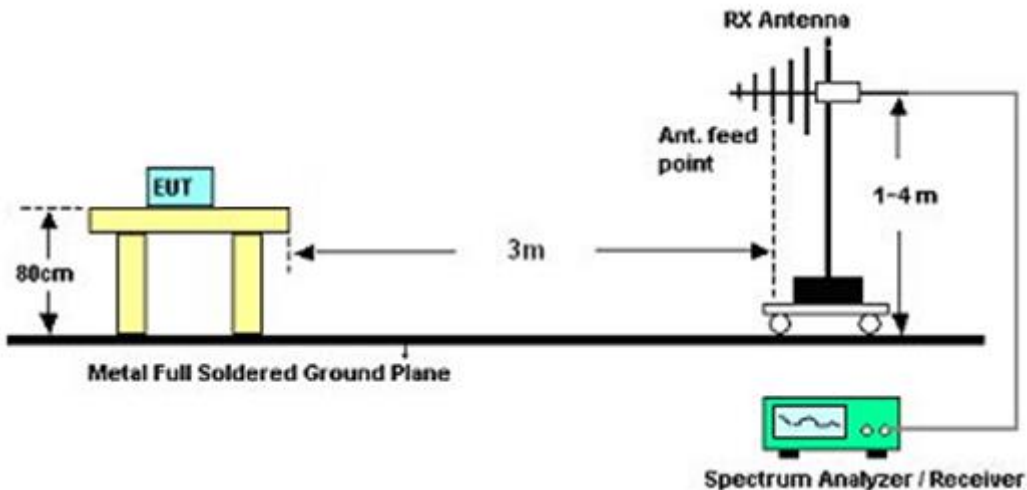
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level 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.

3.1.4 Test Setup

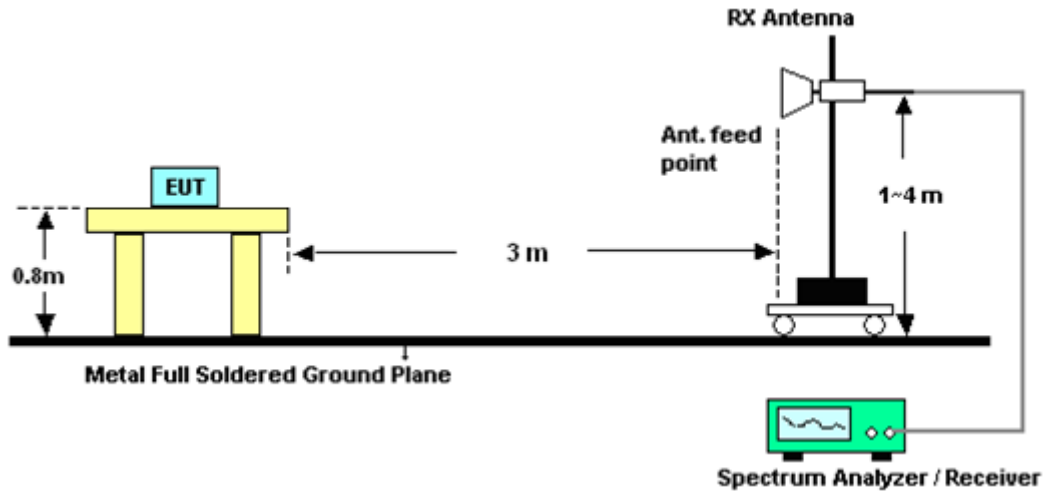
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.1.5 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.



3.1.6 Test Result of Radiated Band Edges

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	36	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5147.75	58.36	-15.64	74	47.34	34.29	9.22	32.49	100	338	Peak
5149.4	46.08	-7.92	54	35.06	34.29	9.22	32.49	100	338	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
5135.9	53.17	-20.83	74	42.19	34.25	9.18	32.45	136	296	Peak
5150	42.71	-11.29	54	31.69	34.29	9.22	32.49	136	296	Average

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	48	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5134.1	54.09	-19.91	74	43.11	34.25	9.18	32.45	110	335	Peak
5148.5	40.62	-13.38	54	29.6	34.29	9.22	32.49	110	335	Average
5364.74	54.91	-19.09	74	43.63	34.85	9.61	33.18	110	335	Peak
5358.69	41.34	-12.66	54	30.1	34.81	9.61	33.18	110	335	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
5129	55.04	-18.96	74	44.06	34.25	9.18	32.45	102	4	Peak
5149.25	40.09	-13.91	54	29.07	34.29	9.22	32.49	102	4	Average
5382.12	54.42	-19.58	74	43.15	34.9	9.65	33.28	102	4	Peak
5420.95	40.93	-13.07	54	29.65	34.98	9.69	33.39	102	4	Average



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	52	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5142.2	53.36	-20.64	74	42.3	34.29	9.22	32.45	111	339	Peak
5143.1	41.22	-12.78	54	30.16	34.29	9.22	32.45	111	339	Average
5353.08	53.5	-20.5	74	42.31	34.81	9.56	33.18	111	339	Peak
5353.96	41.81	-12.19	54	30.62	34.81	9.56	33.18	111	339	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
5140.4	52.89	-21.11	74	41.83	34.29	9.22	32.45	179	332	Peak
5148.05	40.35	-13.65	54	29.33	34.29	9.22	32.49	179	332	Average
5411.82	53.78	-20.22	74	42.5	34.98	9.69	33.39	179	332	Peak
5448.78	41.13	-12.87	54	29.81	35.07	9.73	33.48	179	332	Average

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	64	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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	66.72	-7.28	74	55.53	34.81	9.56	33.18	108	137	Peak
5350	52.47	-1.53	54	41.28	34.81	9.56	33.18	108	137	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	62.86	-11.14	74	51.67	34.81	9.56	33.18	103	50	Peak
5350	47.07	-6.93	54	35.88	34.81	9.56	33.18	103	50	Average



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	100	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5468.56	61.45	-12.55	74	50.13	35.11	9.78	33.57	103	331	Peak
5470	48.92	-5.08	54	37.6	35.11	9.78	33.57	103	331	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
5469.04	61.74	-12.26	74	50.42	35.11	9.78	33.57	101	131	Peak
5470	45.4	-8.6	54	34.08	35.11	9.78	33.57	101	131	Average

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	140	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5725.24	71.35	-2.65	74	60.13	35.33	10.04	34.15	101	36	Peak
5725.08	51.86	-2.14	54	40.64	35.33	10.04	34.15	101	36	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	69.14	-4.86	74	57.92	35.33	10.04	34.15	136	277	Peak
5725	49.73	-4.27	54	38.51	35.33	10.04	34.15	136	277	Average



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	36	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5150	68.77	-5.23	74	57.75	34.29	9.22	32.49	100	142	Peak
5150	48.13	-5.87	54	37.11	34.29	9.22	32.49	100	142	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
5149.55	59.41	-14.59	74	48.39	34.29	9.22	32.49	154	290	Peak
5150	44.91	-9.09	54	33.89	34.29	9.22	32.49	154	290	Average

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	48	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5127.95	54.75	-19.25	74	43.77	34.25	9.18	32.45	110	335	Peak
5148.35	40.84	-13.16	54	29.82	34.29	9.22	32.49	110	335	Average
5401.81	55.12	-18.88	74	43.92	34.94	9.65	33.39	110	335	Peak
5358.36	41.52	-12.48	54	30.28	34.81	9.61	33.18	110	335	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
5134.25	53.86	-20.14	74	42.88	34.25	9.18	32.45	100	359	Peak
5149.55	40.26	-13.74	54	29.24	34.29	9.22	32.49	100	359	Average
5398.73	55.17	-18.83	74	43.86	34.94	9.65	33.28	100	359	Peak
5412.37	41.08	-12.92	54	29.8	34.98	9.69	33.39	100	359	Average



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	52	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5073.95	52.26	-21.74	74	41.43	34.12	9.1	32.39	109	139	Peak
5149.85	40.51	-13.49	54	29.49	34.29	9.22	32.49	109	139	Average
5377.5	54.35	-19.65	74	43.12	34.9	9.61	33.28	109	139	Peak
5354.62	42.47	-11.53	54	31.28	34.81	9.56	33.18	109	139	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
5012.45	52.44	-21.56	74	41.82	33.94	8.97	32.29	105	51	Peak
5141.3	40.47	-13.53	54	29.41	34.29	9.22	32.45	105	51	Average
5441.85	53.35	-20.65	74	42.07	35.03	9.73	33.48	105	51	Peak
5389.38	41.17	-12.83	54	29.9	34.9	9.65	33.28	105	51	Average

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	64	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5350.55	62.45	-11.55	74	51.26	34.81	9.56	33.18	108	38	Peak
5350	47.56	-6.44	54	36.37	34.81	9.56	33.18	108	38	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
5352.53	56.23	-17.77	74	45.04	34.81	9.56	33.18	161	251	Peak
5350	43.69	-10.31	54	32.5	34.81	9.56	33.18	161	251	Average



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	100	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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
5470	62	-12	74	50.68	35.11	9.78	33.57	105	138	Peak
5470	48.89	-5.11	54	37.57	35.11	9.78	33.57	105	138	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
5468.24	56.97	-17.03	74	45.65	35.11	9.78	33.57	100	41	Peak
5469.68	44.05	-9.95	54	32.73	35.11	9.78	33.57	100	41	Average

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	140	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh		

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	68	-6	74	56.78	35.33	10.04	34.15	100	135	Peak
5725	50.89	-3.11	54	39.67	35.33	10.04	34.15	100	135	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
5725.08	55.15	-18.85	74	43.93	35.33	10.04	34.15	100	40	Peak
5725	43.16	-10.84	54	31.94	35.33	10.04	34.15	100	40	Average

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

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	36	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5180 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 (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	100.65	-	-	89.52	34.38	9.27	32.52	100	338	Average
5180	110.3	-	-	99.17	34.38	9.27	32.52	100	338	Peak
10359	44.52	-29.48	74	52.39	37.29	13.71	58.87	100	0	Peak
15540	47.31	-26.69	74	48.91	40.33	15.56	57.49	100	0	Peak

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	36	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	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 (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
5178	96.24	-	-	85.11	34.38	9.27	32.52	136	296	Average
5178	106.54	-	-	95.41	34.38	9.27	32.52	136	296	Peak
10359	44.77	-29.23	74	52.64	37.29	13.71	58.87	100	0	Peak
15540	47.82	-26.18	74	49.42	40.33	15.56	57.49	100	0	Peak



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	44	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
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
1016	40.45	-13.55	54	41.98	29.34	4.3	35.17	100	124	Average
1016	52.79	-21.21	74	54.32	29.34	4.3	35.17	100	124	Peak
5220	99.29	-	-	88.03	34.46	9.35	32.55	110	343	Average
5220	110.55	-	-	99.29	34.46	9.35	32.55	110	343	Peak
10440	45.07	-28.93	74	52.89	37.35	13.71	58.88	100	0	Peak
15660	46.9	-27.1	74	48.14	40.46	15.65	57.35	100	0	Peak

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	44	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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
5220	92.82	-	-	81.56	34.46	9.35	32.55	128	5	Average
5220	102.96	-	-	91.7	34.46	9.35	32.55	128	5	Peak
10440	44.82	-29.18	74	52.64	37.35	13.71	58.88	100	0	Peak
15660	47	-27	74	48.24	40.46	15.65	57.35	100	0	Peak



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	48	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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 (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
1034	50.23	-23.77	74	51.82	29.28	4.3	35.17	100	0	Peak
5240	100.37	-	-	89.12	34.51	9.39	32.65	110	335	Average
5240	110.42	-	-	99.17	34.51	9.39	32.65	110	335	Peak
10479	44.02	-29.98	74	51.8	37.39	13.72	58.89	100	0	Peak
15720	47.02	-26.98	74	48.08	40.52	15.69	57.27	100	0	Peak

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	48	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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 (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
5240	89.51	-	-	78.26	34.51	9.39	32.65	102	4	Average
5240	101.1	-	-	89.85	34.51	9.39	32.65	102	4	Peak
10479	44.28	-29.72	74	52.06	37.39	13.72	58.89	100	0	Peak
15720	48.5	-25.5	74	49.56	40.52	15.69	57.27	100	0	Peak



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	52	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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 (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
1054	42.35	-11.65	54	43.88	29.21	4.35	35.09	100	166	Average
1054	55.42	-18.58	74	56.95	29.21	4.35	35.09	100	166	Peak
5260	103.45	-	-	92.18	34.59	9.44	32.76	111	339	Average
5260	112.99	-	-	101.72	34.59	9.44	32.76	111	339	Peak
10521	44.54	-29.46	74	52.24	37.42	13.72	58.84	100	0	Peak
15780	47.1	-26.9	74	47.99	40.58	15.75	57.22	100	0	Peak

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	52	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5258 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 (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	95.73	-	-	84.55	34.55	9.39	32.76	179	332	Average
5258	106.18	-	-	95	34.55	9.39	32.76	179	332	Peak
10521	44.27	-29.73	74	51.97	37.42	13.72	58.84	100	0	Peak
15780	47.78	-26.22	74	48.67	40.58	15.75	57.22	100	0	Peak



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	60	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5300 MHz is fundamental signal which can be ignored. 2. 10599 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
1098	41.49	-12.51	54	42.95	29.03	4.45	34.94	100	88	Average
1098	53.07	-20.93	74	54.53	29.03	4.45	34.94	100	88	Peak
5300	102.62	-	-	91.43	34.68	9.48	32.97	108	337	Average
5300	112.33	-	-	101.14	34.68	9.48	32.97	108	337	Peak
10599	44.55	-29.45	74	51.93	37.5	13.73	58.61	100	0	Peak
15900	47.82	-26.18	74	48.36	40.7	15.84	57.08	100	0	Peak

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	60	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5300 MHz is fundamental signal which can be ignored. 2. 10599 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
1094	45.41	-28.59	74	46.87	29.03	4.45	34.94	100	0	Peak
5300	96.5	-	-	85.31	34.68	9.48	32.97	133	318	Average
5300	106.22	-	-	95.03	34.68	9.48	32.97	133	318	Peak
10599	44.85	-29.15	74	52.23	37.5	13.73	58.61	100	0	Peak
15900	47.07	-26.93	74	47.61	40.7	15.84	57.08	100	0	Peak



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	64	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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 (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
33.51	19.29	-20.71	40	33.34	16.72	0.57	31.34	-	-	Peak
123.42	20.19	-23.31	43.5	38.65	11.52	1.12	31.1	-	-	Peak
167.97	21.53	-21.97	43.5	41.68	9.74	1.23	31.12	-	-	Peak
676.6	22.94	-23.06	46	30.03	20.47	2.89	30.45	-	-	Peak
855.8	26.14	-19.86	46	30	23.25	3.28	30.39	112	88	Peak
961.5	27.65	-26.35	54	29.82	24.71	3.47	30.35	-	-	Peak
1114	45.1	-8.9	54	46.57	28.97	4.5	34.94	100	40	Average
1114	56.59	-17.41	74	58.06	28.97	4.5	34.94	100	40	Peak
5320	104.87	-	-	93.6	34.72	9.52	32.97	108	137	Average
5320	114.9	-	-	103.63	34.72	9.52	32.97	108	137	Peak
10641	44.6	-29.4	74	51.85	37.54	13.73	58.52	100	0	Peak
15960	48.38	-25.62	74	48.73	40.77	15.88	57	100	0	Peak



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	64	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	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
42.96	24.19	-15.81	40	42.85	11.9	0.64	31.2	123	69	Peak
67.53	19.99	-20.01	40	44.19	6.24	0.82	31.26	-	-	Peak
122.07	19.99	-23.51	43.5	38.5	11.48	1.11	31.1	-	-	Peak
753.6	24.59	-21.41	46	29.81	22.1	3.07	30.39	-	-	Peak
904.1	26.6	-19.4	46	30.24	23.32	3.35	30.31	-	-	Peak
967.1	27.42	-26.58	54	29.5	24.77	3.48	30.33	-	-	Peak
1112	46.23	-27.77	74	47.7	28.97	4.5	34.94	100	0	Peak
5322	98.83	-	-	87.56	34.72	9.52	32.97	103	50	Average
5322	109.22	-	-	97.95	34.72	9.52	32.97	103	50	Peak
10641	44.21	-29.79	74	51.46	37.54	13.73	58.52	100	0	Peak
15960	47.25	-26.75	74	47.6	40.77	15.88	57	100	0	Peak



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	100	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5502 MHz is fundamental signal which can be ignored. 2. 1294 MHz and 16500 MHz 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 (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
1294	46.51	-27.49	74	47.78	28.34	4.84	34.45	100	0	Peak
5502	102.91	-	-	91.59	35.2	9.86	33.74	103	331	Average
5502	112.63	-	-	101.31	35.2	9.86	33.74	103	331	Peak
11001	46.13	-27.87	74	52.03	37.9	13.76	57.56	100	0	Peak
16500	48.7	-25.3	74	47.04	41.5	16.13	55.97	100	0	Peak

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	100	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. 1296 MHz and 16500 MHz 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 (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
1296	48.77	-25.23	74	50.04	28.34	4.84	34.45	100	0	Peak
5500	97.94	-	-	86.54	35.2	9.86	33.66	101	131	Average
5500	108.14	-	-	96.74	35.2	9.86	33.66	101	131	Peak
11001	45.77	-28.23	74	51.67	37.9	13.76	57.56	100	0	Peak
16500	48.49	-25.51	74	46.83	41.5	16.13	55.97	100	0	Peak



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	116	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	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
1376	49.03	-24.97	74	50.28	28.03	5.03	34.31	100	0	Peak
5580	102.74	-	-	91.59	35.24	9.92	34.01	102	336	Average
5580	112.77	-	-	101.62	35.24	9.92	34.01	102	336	Peak
11160	45.93	-28.07	74	51.29	38.07	13.93	57.36	100	0	Peak
16740	49.34	-24.66	74	47.42	41.74	16.23	56.05	100	0	Peak

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	116	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	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
1378	44.64	-29.36	74	45.89	28.03	5.03	34.31	100	0	Peak
5580	92.48	-	-	81.33	35.24	9.92	34.01	106	360	Average
5580	102.8	-	-	91.65	35.24	9.92	34.01	106	360	Peak
11160	46.36	-27.64	74	51.72	38.07	13.93	57.36	100	0	Peak
16740	47.98	-26.02	74	46.06	41.74	16.23	56.05	100	0	Peak



Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	140	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5702 MHz is fundamental signal which can be ignored. 17100 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
1494	45.54	-8.46	54	46.97	27.6	5.28	34.31	100	332	Average
1494	56.22	-17.78	74	57.65	27.6	5.28	34.31	100	332	Peak
5702	101.18	-	-	89.96	35.32	10.02	34.12	101	36	Average
5702	111.17	-	-	99.95	35.32	10.02	34.12	101	36	Peak
11400	46.59	-27.41	74	51.15	38.3	14.21	57.07	100	0	Peak
17100	49.39	-24.61	74	47.15	41.94	16.46	56.16	100	0	Peak

Test Mode :	802.11a	Temperature :	21~24°C
Test Channel :	140	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5698 MHz is fundamental signal which can be ignored. 17100 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
1492	43.87	-30.13	74	45.35	27.6	5.23	34.31	100	0	Peak
5698	97.6	-	-	86.39	35.31	10.02	34.12	136	277	Average
5698	107.65	-	-	96.44	35.31	10.02	34.12	136	277	Peak
11400	46.76	-27.24	74	51.32	38.3	14.21	57.07	100	0	Peak
17100	50.02	-23.98	74	47.78	41.94	16.46	56.16	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	36	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5178 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 (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	101.8	-	-	90.67	34.38	9.27	32.52	100	142	Average
5178	112.77	-	-	101.64	34.38	9.27	32.52	100	142	Peak
10359	44.35	-29.65	74	52.22	37.29	13.71	58.87	100	0	Peak
15540	48.02	-25.98	74	49.62	40.33	15.56	57.49	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	36	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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 (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	97.07	-	-	85.94	34.38	9.27	32.52	154	290	Average
5180	107.79	-	-	96.66	34.38	9.27	32.52	154	290	Peak
10359	44.52	-29.48	74	52.39	37.29	13.71	58.87	100	0	Peak
15540	47.41	-26.59	74	49.01	40.33	15.56	57.49	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	44	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
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
1014	44.16	-9.84	54	45.69	29.34	4.3	35.17	100	41	Average
1014	57.89	-16.11	74	59.42	29.34	4.3	35.17	100	41	Peak
5220	102.62	-	-	91.36	34.46	9.35	32.55	110	335	Average
5220	112.47	-	-	101.21	34.46	9.35	32.55	110	335	Peak
10440	44.93	-29.07	74	52.75	37.35	13.71	58.88	100	0	Peak
15660	46.25	-27.75	74	47.49	40.46	15.65	57.35	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	44	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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
5220	95.82	-	-	84.56	34.46	9.35	32.55	144	6	Average
5220	105.6	-	-	94.34	34.46	9.35	32.55	144	6	Peak
10440	44.87	-29.13	74	52.69	37.35	13.71	58.88	100	0	Peak
15660	46.27	-27.73	74	47.51	40.46	15.65	57.35	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	48	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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 (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
1034	45.3	-8.7	54	46.89	29.28	4.3	35.17	100	40	Average
1034	61.65	-12.35	74	63.24	29.28	4.3	35.17	100	40	Peak
5240	103.1	-	-	91.85	34.51	9.39	32.65	110	335	Average
5240	113.22	-	-	101.97	34.51	9.39	32.65	110	335	Peak
10479	44.26	-29.74	74	52.04	37.39	13.72	58.89	100	0	Peak
15720	47.44	-26.56	74	48.5	40.52	15.69	57.27	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	48	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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 (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
5240	93.87	-	-	82.62	34.51	9.39	32.65	100	359	Average
5240	103.63	-	-	92.38	34.51	9.39	32.65	100	359	Peak
10479	43.53	-30.47	74	51.31	37.39	13.72	58.89	100	0	Peak
15720	48.09	-25.91	74	49.15	40.52	15.69	57.27	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	52	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5260 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
1052	47.43	-6.57	54	48.96	29.21	4.35	35.09	100	40	Average
1052	61.73	-12.27	74	63.26	29.21	4.35	35.09	100	40	Peak
5260	103.65	-	-	92.38	34.59	9.44	32.76	109	139	Average
5260	113.53	-	-	102.26	34.59	9.44	32.76	109	139	Peak
10521	44.78	-29.22	74	52.48	37.42	13.72	58.84	100	0	Peak
15780	47.59	-26.41	74	48.48	40.58	15.75	57.22	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	52	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5260 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
1054	43.82	-30.18	74	45.35	29.21	4.35	35.09	100	0	Peak
5260	100.38	-	-	89.11	34.59	9.44	32.76	105	51	Average
5260	110.37	-	-	99.1	34.59	9.44	32.76	105	51	Peak
10521	45.4	-28.6	74	53.1	37.42	13.72	58.84	100	0	Peak
15780	48.47	-25.53	74	49.36	40.58	15.75	57.22	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	60	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5300 MHz is fundamental signal which can be ignored. 2. 10599 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
1094	46.41	-7.59	54	47.87	29.03	4.45	34.94	100	43	Average
1094	60.43	-13.57	74	61.89	29.03	4.45	34.94	100	43	Peak
5300	104.71	-	-	93.52	34.68	9.48	32.97	108	337	Average
5300	114.51	-	-	103.32	34.68	9.48	32.97	108	337	Peak
10599	43.63	-30.37	74	51.01	37.5	13.73	58.61	100	0	Peak
15900	47.18	-26.82	74	47.72	40.7	15.84	57.08	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	60	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5302 MHz is fundamental signal which can be ignored. 2. 10599 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
1096	45.21	-28.79	74	46.67	29.03	4.45	34.94	100	0	Peak
5302	95.88	-	-	84.69	34.68	9.48	32.97	169	9	Average
5302	105.36	-	-	94.17	34.68	9.48	32.97	169	9	Peak
10599	43.97	-30.03	74	51.35	37.5	13.73	58.61	100	0	Peak
15900	47.03	-26.97	74	47.57	40.7	15.84	57.08	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	64	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
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 (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
1116	45.16	-8.84	54	46.56	28.97	4.5	34.87	100	48	Average
1116	58.19	-15.81	74	59.59	28.97	4.5	34.87	100	48	Peak
5318	102.1	-	-	90.83	34.72	9.52	32.97	108	38	Average
5318	112.34	-	-	101.07	34.72	9.52	32.97	108	38	Peak
10641	45.02	-28.98	74	52.27	37.54	13.73	58.52	100	0	Peak
15960	48.17	-25.83	74	48.52	40.77	15.88	57	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	64	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	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
1116	43.97	-30.03	74	45.37	28.97	4.5	34.87	100	0	Peak
5322	96.06	-	-	84.79	34.72	9.52	32.97	161	251	Average
5322	106.42	-	-	95.15	34.72	9.52	32.97	161	251	Peak
10641	45.39	-28.61	74	52.64	37.54	13.73	58.52	100	0	Peak
15960	47.97	-26.03	74	48.32	40.77	15.88	57	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	100	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5498 MHz is fundamental signal which can be ignored. 2. 1294 MHz and 16500 MHz 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 (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
1294	47.29	-26.71	74	48.56	28.34	4.84	34.45	100	0	Peak
5498	102.67	-	-	91.31	35.2	9.82	33.66	105	138	Average
5498	113.27	-	-	101.91	35.2	9.82	33.66	105	138	Peak
11001	46.32	-27.68	74	52.22	37.9	13.76	57.56	100	0	Peak
16500	48.78	-25.22	74	47.12	41.5	16.13	55.97	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	100	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5498 MHz is fundamental signal which can be ignored. 2. 1294 MHz and 16500 MHz 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 (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
1294	46.57	-27.43	74	47.84	28.34	4.84	34.45	100	0	Peak
5498	95.54	-	-	84.18	35.2	9.82	33.66	100	41	Average
5498	106.26	-	-	94.9	35.2	9.82	33.66	100	41	Peak
11001	46.33	-27.67	74	52.23	37.9	13.76	57.56	100	0	Peak
16500	48.36	-25.64	74	46.7	41.5	16.13	55.97	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	116	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	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 (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
1374	39.02	-14.98	54	40.27	28.03	5.03	34.31	100	62	Average
1374	51.35	-22.65	74	52.6	28.03	5.03	34.31	100	62	Peak
5580	103.03	-	-	91.88	35.24	9.92	34.01	102	337	Average
5580	112.35	-	-	101.2	35.24	9.92	34.01	102	337	Peak
11160	45.6	-28.4	74	50.96	38.07	13.93	57.36	100	0	Peak
16740	48.87	-25.13	74	46.95	41.74	16.23	56.05	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	116	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
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 (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
1374	45.9	-28.1	74	47.15	28.03	5.03	34.31	100	0	Peak
5580	92.87	-	-	81.72	35.24	9.92	34.01	106	360	Average
5580	103.07	-	-	91.92	35.24	9.92	34.01	106	360	Peak
11160	46.08	-27.92	74	51.44	38.07	13.93	57.36	100	0	Peak
16740	48.2	-25.8	74	46.28	41.74	16.23	56.05	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	140	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	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
1492	40.12	-13.88	54	41.6	27.6	5.23	34.31	100	58	Average
1492	52.86	-21.14	74	54.34	27.6	5.23	34.31	100	58	Peak
5698	101.93	-	-	90.72	35.31	10.02	34.12	100	135	Average
5698	112.03	-	-	100.82	35.31	10.02	34.12	100	135	Peak
11400	45.99	-28.01	74	50.55	38.3	14.21	57.07	100	0	Peak
17100	50.29	-23.71	74	48.05	41.94	16.46	56.16	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~24°C
Test Channel :	140	Relative Humidity :	51~56%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	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
1496	44.68	-29.32	74	46.11	27.6	5.28	34.31	100	0	Peak
5698	92.85	-	-	81.64	35.31	10.02	34.12	100	40	Average
5698	102.68	-	-	91.47	35.31	10.02	34.12	100	40	Peak
11400	47.15	-26.85	74	51.71	38.3	14.21	57.07	100	0	Peak
17100	49.99	-24.01	74	47.75	41.94	16.46	56.16	100	0	Peak

3.2 AC Conducted Emission Measurement

3.2.1 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.

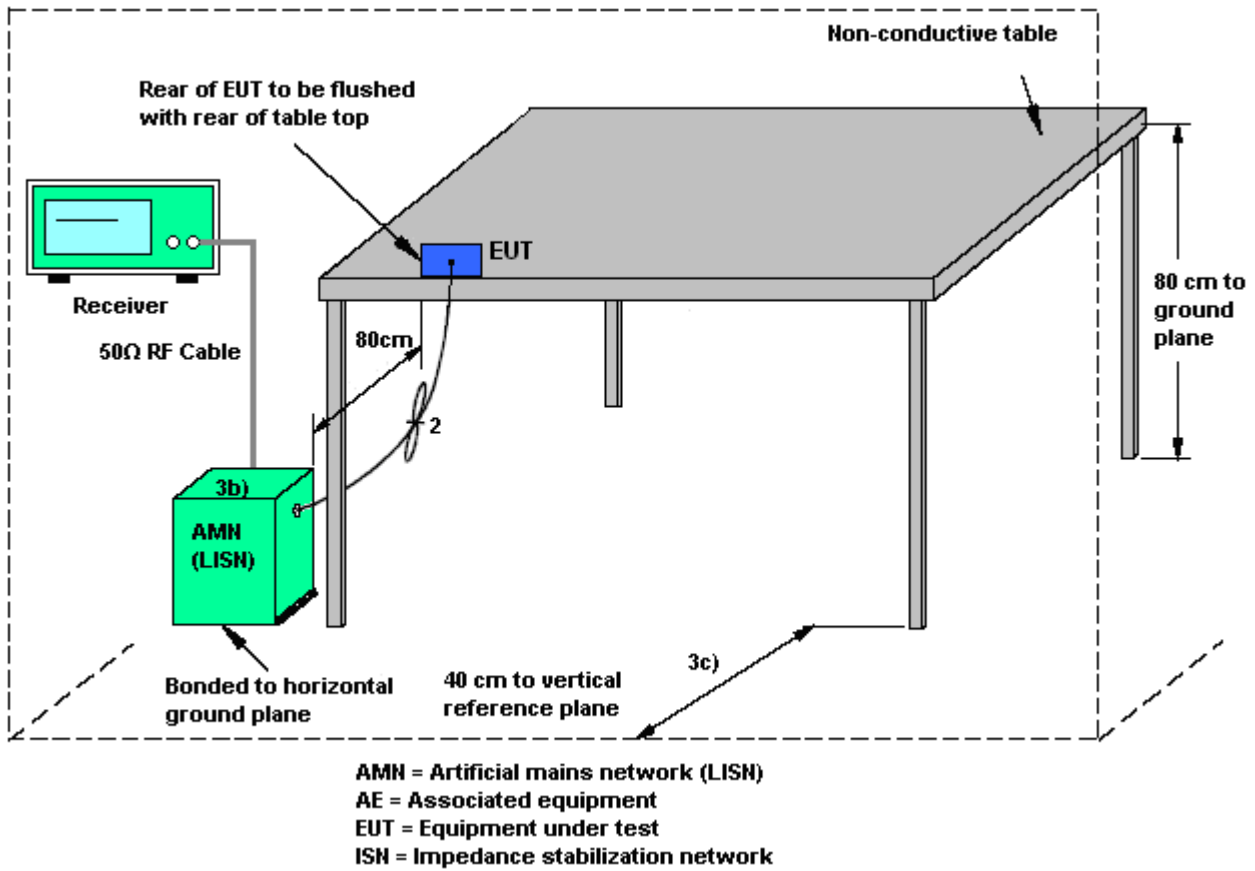
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

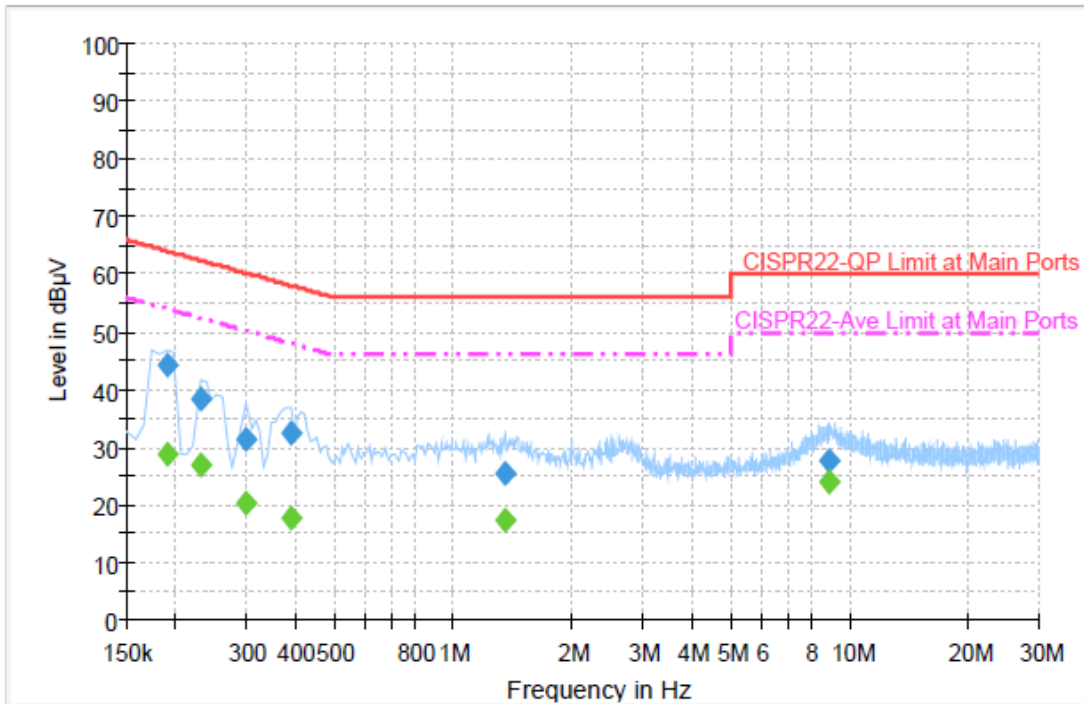
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

3.2.4 Test Setup



3.2.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	46~48%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (5GHz) Link + Bluetooth Link + GPS Rx + MP3 + Adapter		



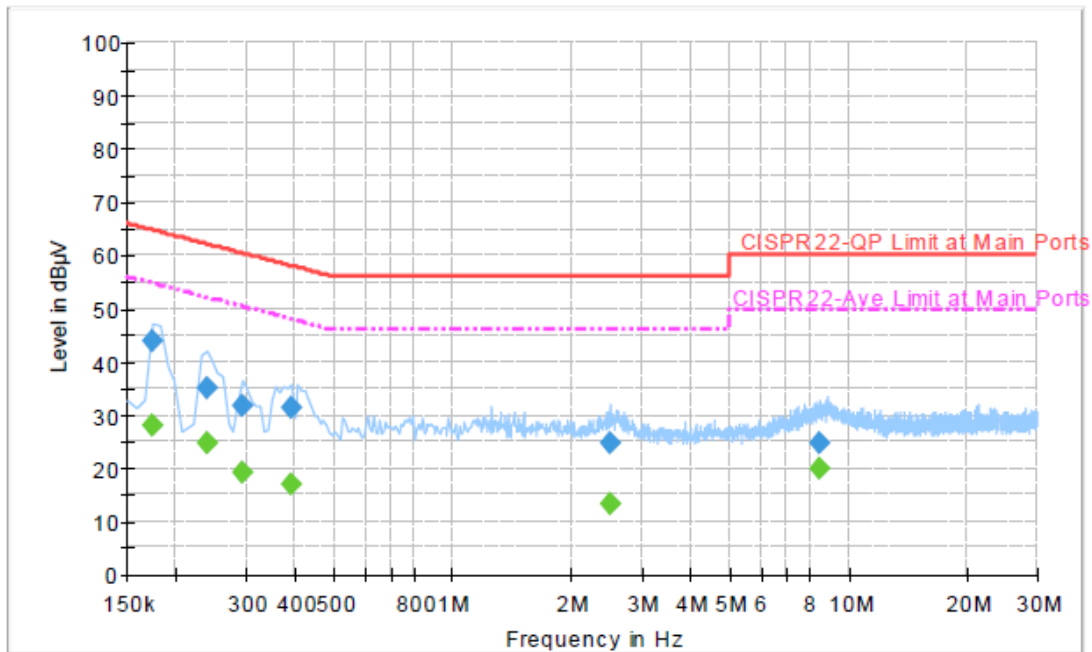
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	44.4	Off	L1	19.4	19.6	64.0
0.230000	38.4	Off	L1	19.4	24.0	62.4
0.302000	31.2	Off	L1	19.3	29.0	60.2
0.390000	32.3	Off	L1	19.4	25.8	58.1
1.358000	25.3	Off	L1	19.5	30.7	56.0
8.886000	27.8	Off	L1	19.8	32.2	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	28.9	Off	L1	19.4	25.1	54.0
0.230000	26.8	Off	L1	19.4	25.6	52.4
0.302000	20.2	Off	L1	19.3	30.0	50.2
0.390000	17.7	Off	L1	19.4	30.4	48.1
1.358000	17.5	Off	L1	19.5	28.5	46.0
8.886000	24.1	Off	L1	19.8	25.9	50.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	46~48%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (5GHz) Link + Bluetooth Link + GPS Rx + MP3 + Adapter		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	43.9	Off	N	19.4	20.9	64.8
0.238000	35.1	Off	N	19.5	27.1	62.2
0.294000	31.8	Off	N	19.4	28.6	60.4
0.390000	31.5	Off	N	19.4	26.6	58.1
2.494000	24.7	Off	N	19.6	31.3	56.0
8.422000	24.8	Off	N	19.8	35.2	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	27.9	Off	N	19.4	26.9	54.8
0.238000	24.8	Off	N	19.5	27.4	52.2
0.294000	19.3	Off	N	19.4	31.1	50.4
0.390000	17.1	Off	N	19.4	31.0	48.1
2.494000	13.3	Off	N	19.6	32.7	46.0
8.422000	20.1	Off	N	19.8	29.9	50.0



3.3 Antenna Requirements

3.3.1 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.

3.3.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.3.3 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 Equipment

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	Nov. 14, 2013~ Dec. 24, 2013	Jun. 06, 2014	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 17, 2013	Nov. 14, 2013~ Dec. 24, 2013	Aug. 16, 2014	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 17, 2013	Nov. 14, 2013~ Dec. 24, 2013	Aug. 16, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9 kHz~7 GHz	Sep. 06, 2013	Nov. 22, 2013 ~ Dec. 25, 2013	Sep. 05, 2014	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9 kHz ~ 30 GHz	Nov. 20, 2013	Nov. 22, 2013 ~ Dec. 25, 2013	Nov. 19, 2014	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/00 01	9 kHz~30 Mhz	Jul. 03, 2012	Nov. 22, 2013 ~ Dec. 25, 2013	Jul. 03, 2014	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30 MHz ~ 1 GHz	Oct. 10, 2013	Nov. 22, 2013 ~ Dec. 25, 2013	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1 GHz~18 GHz	Aug. 22, 2013	Nov. 22, 2013 ~ Dec. 25, 2013	Aug. 21, 2014	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 251	15 GHz- 40 GHz	Oct. 03, 2013	Nov. 22, 2013 ~ Dec. 25, 2013	Oct. 02, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	30 MHz~1 GHz	Feb. 26, 2013	Nov. 22, 2013 ~ Dec. 25, 2013	Feb. 25, 2014	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A019 17	1 GHz~26.5 GHz	Aug. 12, 2013	Nov. 22, 2013 ~ Dec. 25, 2013	Aug. 11, 2014	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	DC~18 G High Gain	Feb. 27, 2013	Nov. 22, 2013 ~ Dec. 25, 2013	Feb. 26, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Nov. 22, 2013 ~ Dec. 25, 2013	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	ChainTek 3000	N/A	N/A	N/A	Nov. 22, 2013 ~ Dec. 25, 2013	N/A	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 15, 2013	Dec. 18, 2013	Nov. 14, 2014	Conduction (CO05-HY)
Two-LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2013	Dec. 18, 2013	Dec. 11, 2014	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 04, 2013	Dec. 18, 2013	Dec. 03, 2014	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Dec. 18, 2013	N/A	Conduction (CO05-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 (30 MHz ~ 1000 MHz)

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