FCC RF Test Report

APPLICANT	:	Hewlett-Packard Co., Ltd.
EQUIPMENT	:	Tablet PC
BRAND NAME	:	HP
MODEL NAME	:	HSTNH-B16C
MARKETING NAME	:	HP SLATE 7 HD
FCC ID	:	B94HHB16C
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure

The product was received on Jun. 27, 2013 and testing was completed on Oct. 10, 2013. We, SPORTON INTERNATIONAL (KUNSHAN) 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
2627

SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.

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APPENDIX A. SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR362703C	Rev. 01	Initial issue of report	Oct. 23, 2013
FR362703C	Rev. 02	Update report for revising SW version.	Nov. 22, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	RSS-210 A9.2	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	RSS-210 A9.2	Maximum Conducted Output Power	≤ 17, 24, 30 dBm (depend on band)	Pass	-
3.3	15.407(a)	RSS-210 A9.2	Power Spectral Density	≤ 4, 11, 17 dBm (depend on band)	Pass	-
3.4	15.407(a)(6)	RSS-210 A9.3	Peak Excursion Ratio	≤ 13dB	Pass	-
3.5	15.407(b)	RSS-210 A9.3	Unwanted Emissions	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	Under limit 6.41 dB at 5470.000 MHz
3.6	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 5.84 dB at 0.520 MHz
3.7	15.407(g)	-	Frequency Stability	Within Operation Band	Pass	-
3.8	15.407(c)	RSS-210 A9.4	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.9	15.203 & 15.407(a)	RSS-210 A9.2	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Hewlett-Packard Co., Ltd.
1501 Page Mill Road Palo Alto, CA 94304 United States

1.2 Manufacturer

BYD Precision Manufacture Co., Ltd.
No.3001, Baohe Road, Baolong Industrial, Longgang, Shenzhen, 518116, P.R.China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Tablet PC
Brand Name	HP
Model Name	HSTNH-B16C
Marketing Name	HP SLATE 7 HD
FCC ID	B94HHB16C
EUT supports Radios application	GPRS/EGPRS/WCDMA/HSPA/HSPA+(Downlink Only)/WLAN 802.11abgn/Bluetooth v3.0 + EDR
HW Version	DVT
SW Version	V1.00.09_20131114.155
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. 5600 MHz ~ 5650 MHz is notched.

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Frequency Range	WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5580 MHz, 5660 MHz ~ 5700 MHz
Maximum Output Power to Antenna	**<5180 MHz ~ 5240 MHz>** 802.11a : 10.05 dBm / 0.0101 W 802.11n HT20 : 10.06 dBm / 0.0101 W 802.11n HT40 : 9.67 dBm / 0.0093 W **<5260 MHz ~ 5320 MHz>** 802.11a : 10.12 dBm / 0.0103 W 802.11n HT20 : 10.18 dBm / 0.0104 W 802.11n HT40 : 10.26 dBm / 0.0106 W **<5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz >** 802.11a : 10.26 dBm / 0.0106 W 802.11n HT20 : 10.11 dBm / 0.0103 W 802.11n HT40 : 10.25 dBm / 0.0106 W
99% Occupied Bandwidth	**<5180 MHz ~ 5240 MHz>** 802.11a : 17.50 MHz 802.11n HT20 : 18.40 MHz 802.11n HT40 : 36.72 MHz **<5260 MHz ~ 5320 MHz>** 802.11a : 17.50 MHz 802.11n HT20 : 18.35 MHz 802.11n HT40 : 36.81 MHz **<5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz>** 802.11a : 17.50 MHz 802.11n HT20 : 18.40 MHz 802.11n HT40 : 36.81 MHz
Antenna Type	Fixed Internal Antenna with gain 1.80 dBi
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

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

1.6 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.			
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	Sporton Site No.			FCC/IC Registration No.
	TH01-KS	03CH01-KS	CO01-KS	149928/4086E-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
- IC RSS-210 Issued 8
- IC RSS-Gen Issue 3
- NOTICE 2012-DRS0126

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 (Y 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 (U-NII-1)	36	5180	44	5220
	38	**5190**	**46**	**5230**
	40	5200	48	5240

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

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

2.2 Pre-Scanned RF Power

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

Channel	Frequency	5GHz 802.11a Average Output Power (dBm)							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 36	5180 MHz	10.03	9.71	9.23	9.28	9.72	9.15	9.75	9.69
CH 44	5220 MHz	9.83	9.72	9.58	9.97	9.57	9.32	9.68	9.69
CH 48	5240 MHz	**10.05**	9.81	9.41	9.12	9.63	9.35	9.57	9.95
CH 052	5260 MHz	**10.12**	10.11	9.66	10.06	9.67	10.04	9.57	10.08
CH 060	5300 MHz	9.73	9.79	9.13	9.81	9.31	9.68	9.33	9.64
CH 064	5320 MHz	9.68	9.27	9.25	9.69	9.27	9.73	9.41	9.72
CH 100	5500 MHz	**10.26**	9.58	9.39	9.87	10.01	9.75	10.10	9.12
CH 116	5580MHz	10.11	9.74	9.58	10.01	10.08	9.89	9.91	10.30
CH 140	5700 MHz	9.59	9.68	9.72	9.76	9.53	9.42	9.46	9.28

Channel	Frequency	5GHz 802. 11n HT20 Average Output Power (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 36	5180 MHz	9.98	9.48	9.91	9.51	9.95	9.47	9.45	9.96
CH 44	5220 MHz	9.83	9.43	9.84	9.46	9.83	9.57	9.53	9.86
CH 48	5240 MHz	**10.06**	9.45	9.97	9.51	9.97	9.52	9.55	10.04
CH 052	5260 MHz	**10.18**	9.65	10.15	9.72	10.17	10.13	9.69	10.14
CH 060	5300 MHz	9.81	9.45	9.92	9.58	9.89	9.65	9.68	9.76
CH 064	5320 MHz	9.40	9.23	9.85	9.26	9.75	9.67	9.63	9.84
CH 100	5500 MHz	9.92	9.35	9.68	9.32	9.34	9.27	9.58	9.90
CH 116	5580MHz	9.80	9.18	9.63	9.58	9.71	9.48	9.75	9.78
CH 140	5700 MHz	**10.11**	9.38	10.07	9.93	9.52	9.31	9.28	9.45

Channel	Frequency	5GHz 802. 11n HT40 Average Output Power (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 38	5190 MHz	**9.67**	9.48	9.56	9.58	9.45	8.93	9.54	9.49
CH 46	5230 MHz	9.46	9.44	9.65	9.34	9.53	9.47	9.46	9.47
CH 054	5270 MHz	10.02	9.68	9.72	9.74	9.91	9.68	9.81	9.37
CH 062	5310 MHz	**10.26**	9.79	9.78	9.75	9.83	9.79	9.84	9.28
CH 102	5510 MHz	10.02	9.32	9.37	9.35	9.43	9.91	9.92	9.97
CH 110	5550 MHz	**10.25**	9.53	9.56	9.52	9.59	10.18	10.23	10.15
CH 134	5670 MHz	10.18	9.18	9.45	9.48	9.39	9.94	9.89	9.96

2.3 Test Mode

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

Test Cases				
	Test Items	Mode	Data rate	Test Channel
Conducted TCs	26dB and 99% BW Power Spectral Density	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
		802.11n HT40	MCS0	L/M/H
	Output Power	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
		802.11n HT40	MCS0	L/M/H
	Peak Excursion	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
		802.11n HT40	MCS0	L/M/H
	Frequency Stability	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
		802.11n HT40	MCS0	L/M/H
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	L/H
		802.11n HT20	MCS0	L/H
		802.11n HT40	MCS0	L/H
	Radiated Spurious Emission	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0	L/M/H
		802.11n HT40	MCS0	L/M/H
AC Conducted Emission	Mode 1 : GPRS850 Idle + Bluetooth Link + WLAN 5GHz Link + USB Cable (Charging from Adapter 1) + Earphone Mode 2 : GPRS850 Idle + Bluetooth Link + WLAN 5GHz Link + USB Cable (Charging from Adapter 2) + Earphone			

Remark:

1. For Radiated TCs, all the test modes are performed with Adapter 1, only the worst mode (802.11n HT40 CH102) based on Adapter 1 need to verify Adapter 2.
2. The worst case of conducted emission is mode 1; only the test data of it was reported.

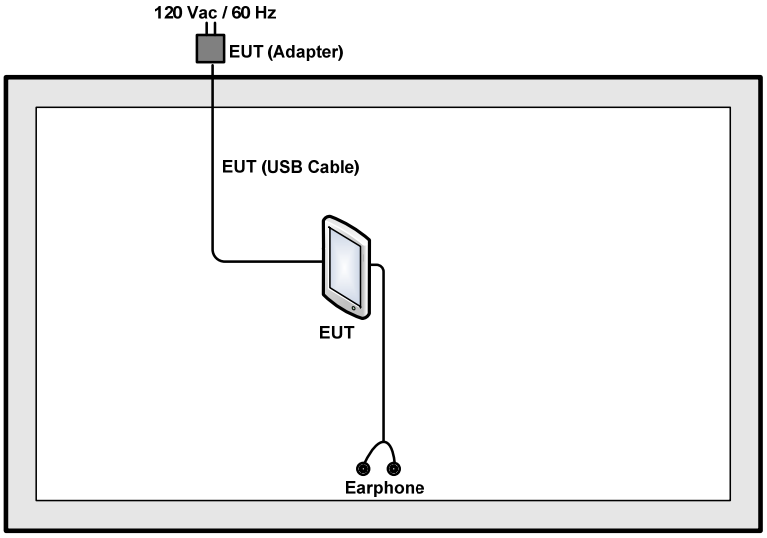
Ch. #		5.2GHz Band	5.3GHz Band	5.5GHz Band
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		5.2GHz Band	5.3GHz Band	5.5GHz Band
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

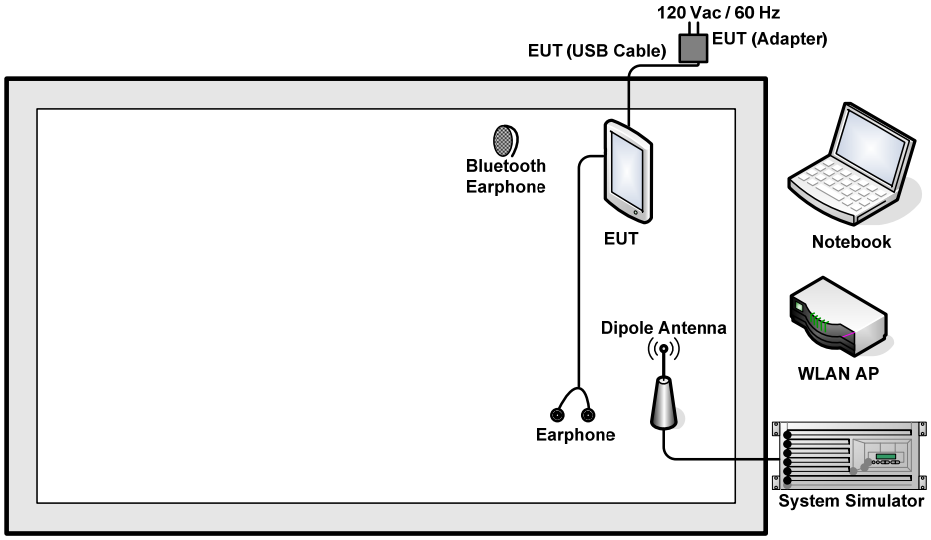
Ch. #		5.2GHz Band	5.3GHz Band	5.5GHz Band
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

2.4 Connection Diagram of Test System

<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.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
4.	Notebook	Lenovo	G480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Bluetooth Earphone	Lenovo	LBH301	N/A	N/A	N/A
6.	Earphone	Lenovo	SH100	N/A	N/A	Unshielded, 1.2 m

2.6 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

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 5 dB and 10dB attenuator.

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

= 5 + 10 = 15 (dB)

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

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

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

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

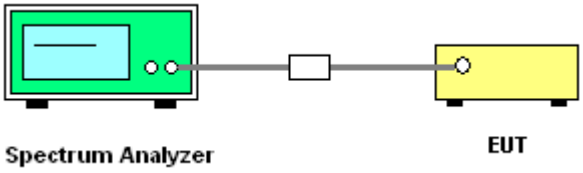
3.1.2 Measuring Instruments

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. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1MHz and set the Video bandwidth (VBW) ≥ 3 * RBW.
8. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 26dB & 99% Occupied Bandwidth Plots

Test Band :	5.2GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)
11a	6Mbps	1	36	5180	17.50	20.15	22.43	17.00
11a	6Mbps	1	44	5220	17.40	20.05	22.41	17.00
11a	6Mbps	1	48	5240	17.40	20.10	22.41	17.00
HT20	MCS0	1	36	5180	18.35	20.45	22.64	17.00
HT20	MCS0	1	44	5220	18.40	20.45	22.65	17.00
HT20	MCS0	1	48	5240	18.35	20.45	22.64	17.00
HT40	MCS0	1	38	5190	36.63	42.12	23.00	17.00
HT40	MCS0	1	46	5230	36.72	41.85	23.00	17.00

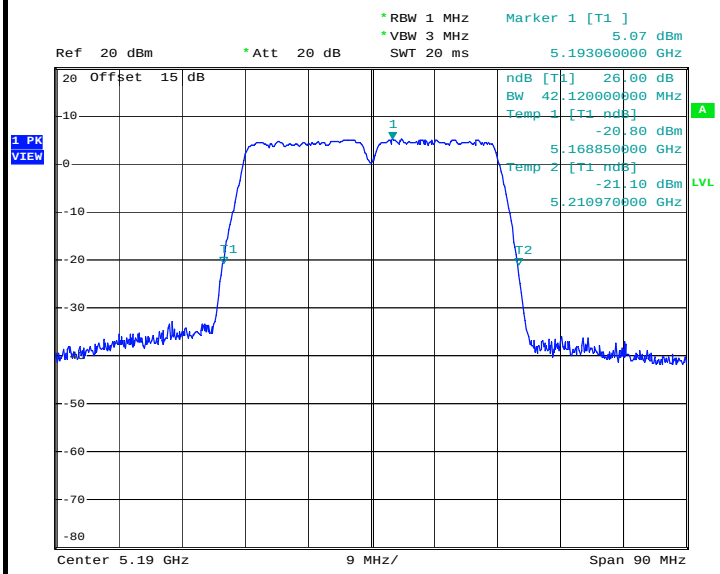
Test Band :	5.3GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)
11a	6Mbps	1	52	5260	17.45	20.10	29.42	24.00
11a	6Mbps	1	60	5300	17.40	20.05	29.41	24.00
11a	6Mbps	1	64	5320	17.50	20.10	29.43	24.00
HT20	MCS0	1	52	5260	18.35	20.50	29.64	24.00
HT20	MCS0	1	60	5300	18.30	20.50	29.62	24.00
HT20	MCS0	1	64	5320	18.35	20.50	29.64	24.00
HT40	MCS0	1	54	5270	36.81	41.94	30.00	24.00
HT40	MCS0	1	62	5310	36.72	42.12	30.00	24.00

Test Band :	5.5GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)
11a	6Mbps	1	100	5500	17.45	20.05	29.42	24.00
11a	6Mbps	1	116	5580	17.35	20.10	29.39	24.00
11a	6Mbps	1	140	5700	17.50	20.15	29.43	24.00
HT20	MCS0	1	100	5500	18.40	20.45	29.65	24.00
HT20	MCS0	1	116	5580	18.35	20.45	29.64	24.00
HT20	MCS0	1	140	5700	18.35	20.45	29.64	24.00
HT40	MCS0	1	102	5510	36.72	42.03	30.00	24.00
HT40	MCS0	1	110	5550	36.54	42.12	30.00	24.00
HT40	MCS0	1	134	5670	36.81	42.12	30.00	24.00

Maximum 26dB Bandwidth



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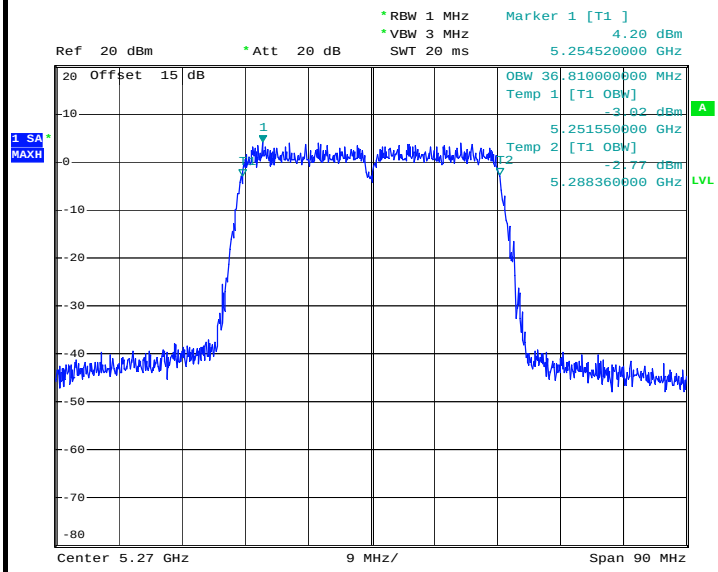
Maximum 99% Occupied Bandwidth



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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 dBm + 10log B, where B is the 26 dB emissions bandwidth in 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

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

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

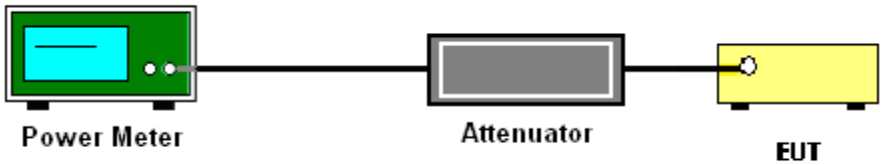
3.2.3 Test Procedures

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 :	5.2GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	36	5180	0.00	10.03	17	1.80	Pass
11a	6Mbps	1	44	5220	0.00	9.83	17	1.80	Pass
11a	6Mbps	1	48	5240	0.00	10.05	17	1.80	Pass
HT20	MCS0	1	36	5180	0.00	9.98	17	1.80	Pass
HT20	MCS0	1	44	5220	0.00	9.83	17	1.80	Pass
HT20	MCS0	1	48	5240	0.00	10.06	17	1.80	Pass
HT40	MCS0	1	38	5190	0.00	9.67	17	1.80	Pass
HT40	MCS0	1	46	5230	0.00	9.46	17	1.80	Pass

Note:

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

Test Band :	5.3GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	52	5260	0.00	10.12	24	1.80	Pass
11a	6Mbps	1	60	5300	0.00	9.73	24	1.80	Pass
11a	6Mbps	1	64	5320	0.00	9.68	24	1.80	Pass
HT20	MCS0	1	52	5260	0.00	10.18	24	1.80	Pass
HT20	MCS0	1	60	5300	0.00	9.81	24	1.80	Pass
HT20	MCS0	1	64	5320	0.00	9.40	24	1.80	Pass
HT40	MCS0	1	54	5270	0.00	10.02	24	1.80	Pass
HT40	MCS0	1	62	5310	0.00	10.26	24	1.80	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 (B), where B is 26dB BW for FCC.

Test Band :	5.5GHz Band	**Temperature :**	23~24℃
Test Engineer :	Adonis Li	**Relative Humidity :**	47~48%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	100	5500	0.00	10.26	24	1.80	Pass
11a	6Mbps	1	116	5580	0.00	10.11	24	1.80	Pass
11a	6Mbps	1	140	5700	0.00	9.59	24	1.80	Pass
HT20	MCS0	1	100	5500	0.00	9.92	24	1.80	Pass
HT20	MCS0	1	116	5580	0.00	9.80	24	1.80	Pass
HT20	MCS0	1	140	5700	0.00	10.11	24	1.80	Pass
HT40	MCS0	1	102	5510	0.00	10.02	24	1.80	Pass
HT40	MCS0	1	110	5550	0.00	10.25	24	1.80	Pass
HT40	MCS0	1	134	5670	0.00	10.18	24	1.80	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 (B), where B is 26dB BW for FCC.

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).

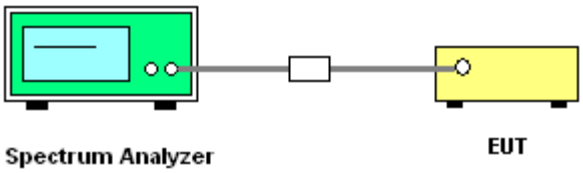
Note: Though the rule refers to “peak power spectral density”, the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

 # 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 ≥ 3 MHz.
   - Number of points in sweep ≥ 2 Span / RBW.
   - Sweep time = auto.
   - Detector = RMS
   - Trace average at least 100 traces in power averaging mode.
   - Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.
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 :	5.2GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	CH	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	36	5180	0.00	-3.58	4.00	1.80	Pass
11a	6Mbps	1	44	5220	0.00	-1.54	4.00	1.80	Pass
11a	6Mbps	1	48	5240	0.00	-1.44	4.00	1.80	Pass
HT20	MCS0	1	36	5180	0.00	-0.78	4.00	1.80	Pass
HT20	MCS0	1	44	5220	0.00	-1.28	4.00	1.80	Pass
HT20	MCS0	1	48	5240	0.00	-1.20	4.00	1.80	Pass
HT40	MCS0	1	38	5190	0.00	-3.54	4.00	1.80	Pass
HT40	MCS0	1	46	5230	0.00	-4.17	4.00	1.80	Pass

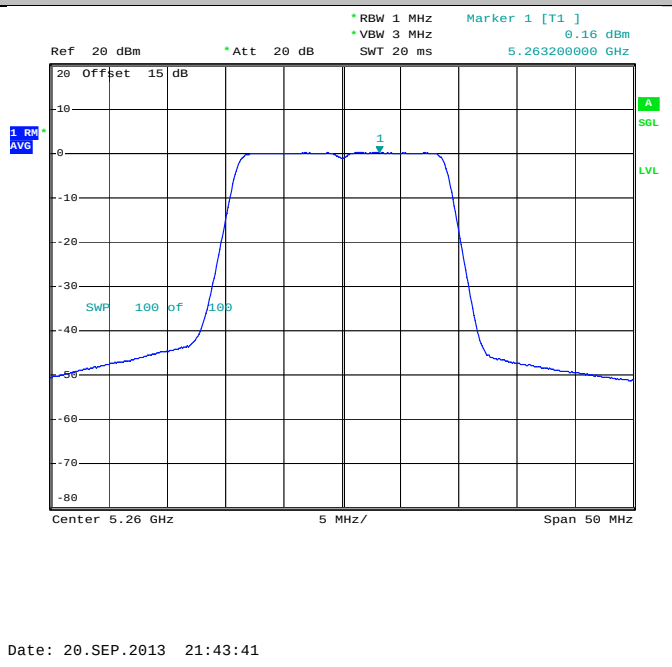
Test Band :	5.3GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	52	5260	0.00	-0.09	11.00	1.80	Pass
11a	6Mbps	1	60	5300	0.00	-0.29	11.00	1.80	Pass
11a	6Mbps	1	64	5320	0.00	-0.81	11.00	1.80	Pass
HT20	MCS0	1	52	5260	0.00	0.16	11.00	1.80	Pass
HT20	MCS0	1	60	5300	0.00	-1.10	11.00	1.80	Pass
HT20	MCS0	1	64	5320	0.00	-0.99	11.00	1.80	Pass
HT40	MCS0	1	54	5270	0.00	-3.69	11.00	1.80	Pass
HT40	MCS0	1	62	5310	0.00	-3.58	11.00	1.80	Pass

Test Band :	5.5GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	100	5500	0.00	-0.74	11.00	1.80	Pass
11a	6Mbps	1	116	5580	0.00	0.18	11.00	1.80	Pass
11a	6Mbps	1	140	5700	0.00	-0.13	11.00	1.80	Pass
HT20	MCS0	1	100	5500	0.00	-0.18	11.00	1.80	Pass
HT20	MCS0	1	116	5580	0.00	-0.09	11.00	1.80	Pass
HT20	MCS0	1	140	5700	0.00	-0.44	11.00	1.80	Pass
HT40	MCS0	1	102	5510	0.00	-4.55	11.00	1.80	Pass
HT40	MCS0	1	110	5550	0.00	-3.86	11.00	1.80	Pass
HT40	MCS0	1	134	5670	0.00	-3.60	11.00	1.80	Pass

Worst Case Power Spectral Density(dBm/MHz)



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 ≥ 3MHz.

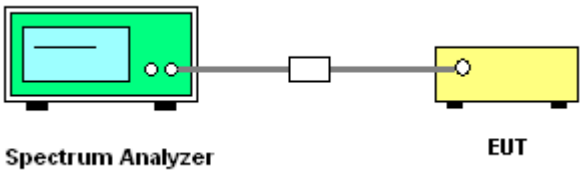
   *Detector = peak.

   *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 :	5.2GHz band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	N_{TX}	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	36	5180	8.65	8.50	9.60	9.23	-	13	Pass
HT20	1	36	5180	8.85	8.85	8.87	8.88	-	13	Pass
HT40	1	38	5230	8.56	9.51	9.21	10.10	-	13	Pass

Test Band :	5.3GHz band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

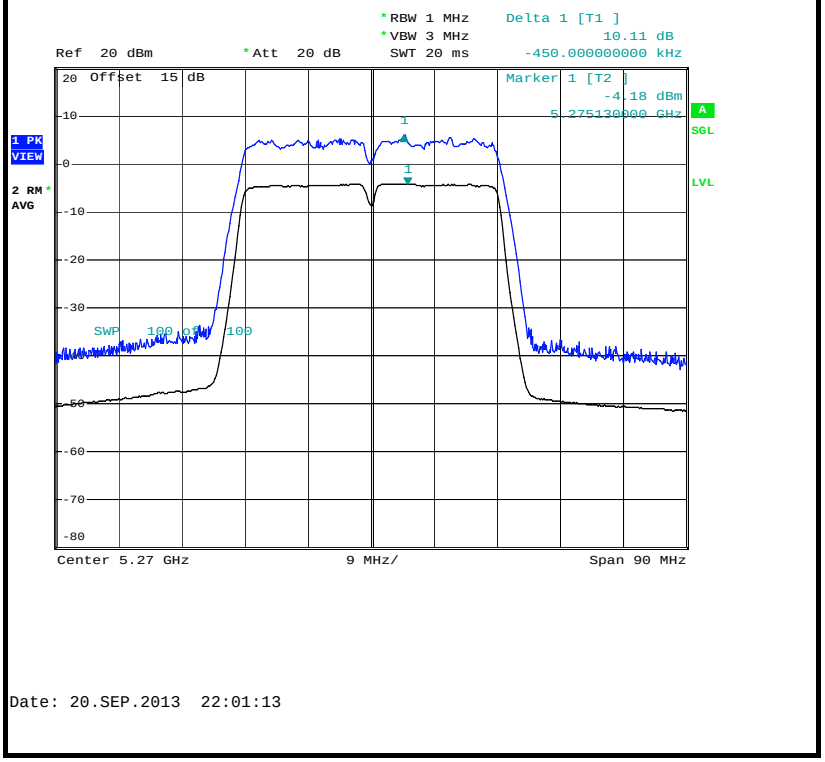
Mod.	N_{TX}	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	52	5260	8.62	8.58	9.44	9.15	-	13	Pass
HT20	1	52	5260	8.78	8.79	8.86	8.83	-	13	Pass
HT40	1	54	5270	8.62	9.41	9.32	10.11	-	13	Pass

Test Band :	5.5GHz band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	N_{TX}	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	100	5500	8.62	8.75	9.43	9.08	-	13	Pass
HT20	1	100	5500	8.83	8.84	8.88	8.76	-	13	Pass
HT40	1	102	5510	8.58	9.36	9.25	9.92	-	13	Pass

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

Worst Case Peak Excursion Ratio (dB)



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

Duty Cycle Offset: 0 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.

$$E=\frac{1000000\sqrt{30P}}{3}$$ μV/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.

3.5.2 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 ≥ 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.

Band	Duty Cycle(%)	T(μs)	1/T(kHz)	VBW Setting
802.11a	100	-	-	10 Hz
802.11n HT20	100	-	-	10 Hz
802.11n HT40	100	-	-	10 Hz

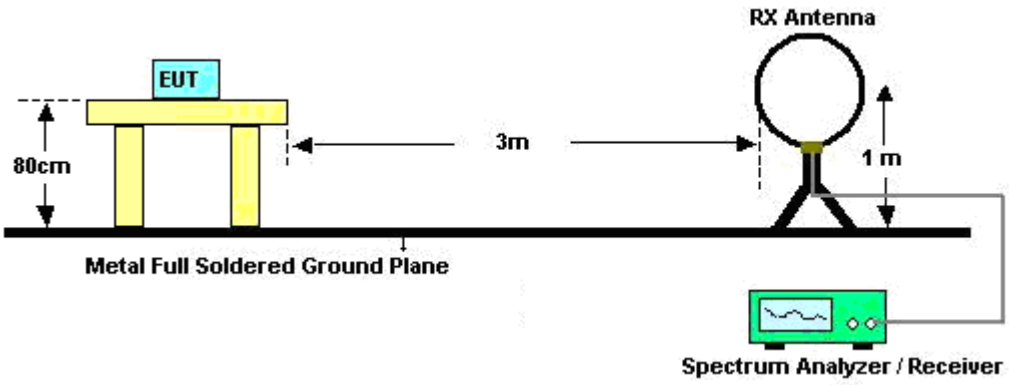
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters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

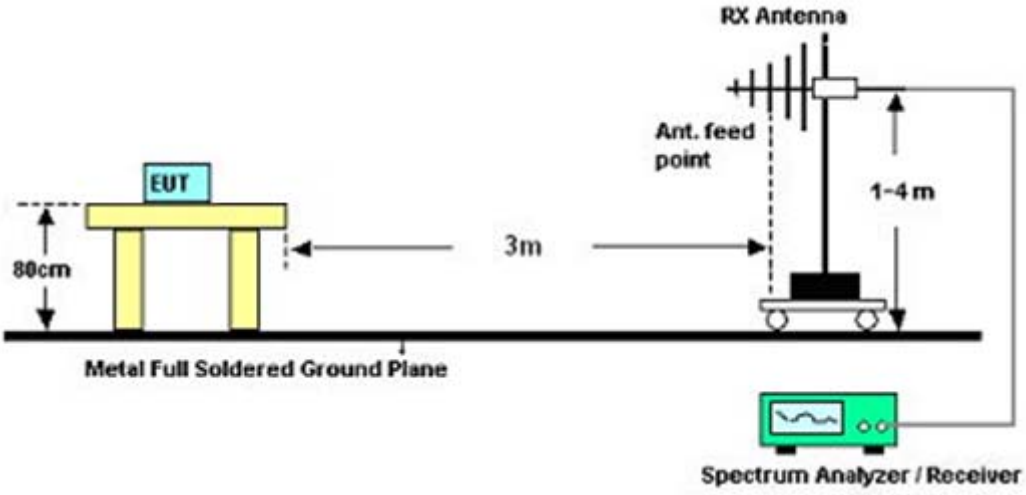
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level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

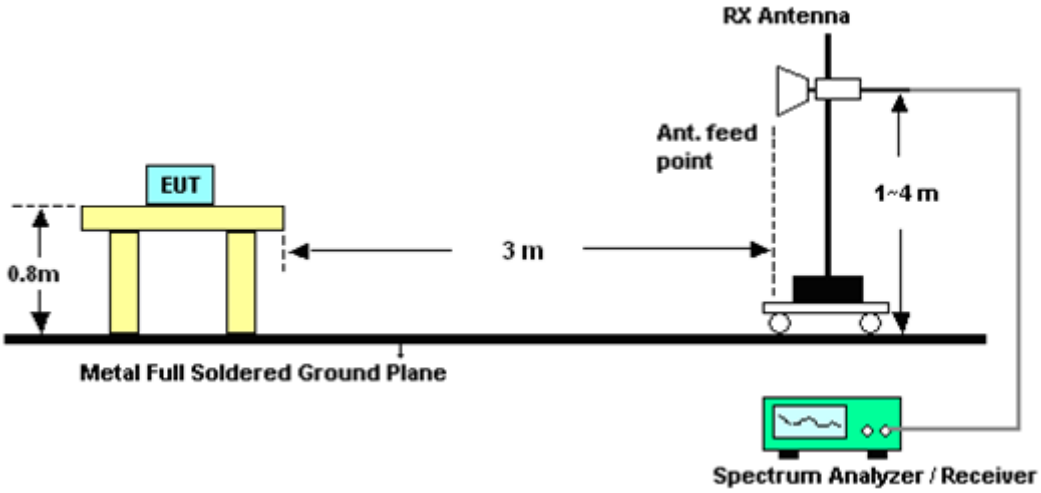
For radiated emissions below 30MHz



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

<Adapter 1>

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	36	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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
5147.9	57.64	-16.36	74	46.98	35.25	4.69	29.28	102	54	Peak
5150	43.07	-10.93	54	32.41	35.25	4.69	29.28	102	55	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
5149.95	57.58	-16.42	74	46.92	35.25	4.69	29.28	105	249	Peak
5149.95	43.31	-10.69	54	32.65	35.25	4.69	29.28	105	249	Average

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	64	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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
5356.8	57.44	-16.56	74	46.56	35.32	4.78	29.22	136	56	Peak
5350.1	43.18	-10.82	54	32.3	35.32	4.78	29.22	136	56	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
5351.35	57.92	-16.08	74	47.04	35.32	4.78	29.22	100	243	Peak
5350.05	43.46	-10.54	54	32.58	35.32	4.78	29.22	100	243	Average

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	100	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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	55.47	-12.83	68.3	44.45	35.39	4.83	29.2	119	57	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	58.58	-9.72	68.3	47.56	35.39	4.83	29.2	145	298	Peak

Remark: 5470 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	140	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5726.44	61.19	-7.11	68.3	49.89	35.52	4.98	29.2	120	305	Peak

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
5725.96	61.41	-6.89	68.3	50.11	35.52	4.98	29.2	100	230	Peak

Remark: 5726.44/5725.96 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	36	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5146.15	56.69	-17.31	74	46.03	35.25	4.69	29.28	100	123	Peak
5150	42.86	-11.14	54	32.2	35.25	4.69	29.28	100	123	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
5145.5	58.38	-15.62	74	47.72	35.25	4.69	29.28	183	215	Peak
5150	43.07	-10.93	54	32.41	35.25	4.69	29.28	183	215	Average

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	64	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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
5350.15	59.03	-14.97	74	48.15	35.32	4.78	29.22	122	56	Peak
5350.1	43.34	-10.66	54	32.46	35.32	4.78	29.22	122	54	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
5350.3	59.74	-14.26	74	48.86	35.32	4.78	29.22	174	275	Peak
5350	43.68	-10.32	54	32.8	35.32	4.78	29.22	174	275	Average

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	100	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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
5468.4	57.02	-11.28	68.3	46	35.39	4.83	29.2	125	231	Peak

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
5467.92	58.8	-9.5	68.3	47.78	35.39	4.83	29.2	125	41	Peak

Remark: 5468.4/5467.92 MHz is not within a restricted band, and satisfies 68.3 dBμV /m peak emission limit.

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	140	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5726.12	60.72	-8.03	68.3	49.42	35.52	4.98	29.2	125	305	Peak

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
5725.4	61.45	-6.85	68.3	50.15	35.52	4.98	29.2	100	242	Peak

Remark: 5726.12/5725.4 MHz is not within a restricted band, and satisfies 68.3 dBμV /m peak emission limit.

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	38	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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
5147.45	57.62	-16.38	74	46.96	35.25	4.69	29.28	100	120	Peak
5150	42.63	-11.37	54	31.97	35.25	4.69	29.28	100	120	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
5147.9	58.4	-15.6	74	47.74	35.25	4.69	29.28	182	168	Peak
5150	43.23	-10.77	54	32.57	35.25	4.69	29.28	182	186	Average

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	54	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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
5134.05	56.8	-17.2	74	46.16	35.24	4.68	29.28	149	292	Peak
5111	42.44	-11.56	54	31.83	35.23	4.67	29.29	149	292	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
5101.9	57.6	-16.4	74	46.99	35.23	4.67	29.29	151	121	Peak
5139.5	42.44	-11.56	54	31.78	35.25	4.69	29.28	151	121	Average

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	62	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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
5351.55	58.28	-15.72	74	47.4	35.32	4.78	29.22	134	113	Peak
5350.1	43.6	-10.4	54	32.72	35.32	4.78	29.22	135	114	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
5351.1	60.86	-13.14	74	49.98	35.32	4.78	29.22	139	246	Peak
5351.3	44.08	-9.92	54	33.2	35.32	4.78	29.22	138	246	Average

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	102	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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	61.89	-6.41	68.3	50.87	35.39	4.83	29.2	102	123	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	61.67	-6.63	68.3	50.65	35.39	4.83	29.2	100	310	Peak

Remark: 5470 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	134	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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	59.7	-8.6	68.3	48.4	35.52	4.98	29.2	125	360	Peak

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
5725.16	61.55	-6.75	68.3	50.25	35.52	4.98	29.2	125	259	Peak

Remark: 5725/5725.16 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

<Adapter 2>

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	102	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu		

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
5470.08	59.07	-9.23	68.3	48.05	35.39	4.83	29.2	102	53	Peak

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
5469.84	61.21	-7.09	68.3	50.19	35.39	4.83	29.2	100	316	Peak

Remark: 5470.08/5469.84 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

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.

<Adapter 1>

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	36	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10360 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission 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	101.54	-	-	90.85	35.26	4.7	29.27	102	54	Peak
5180	90.4	-	-	79.71	35.26	4.7	29.27	102	54	Average
10360	49.07	-19.23	68.3	56.81	15.2	7.05	29.99	127	319	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	36	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10360 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission 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	103.61	-	-	92.92	35.26	4.7	29.27	105	249	Peak
5180	92.39	-	-	81.7	35.26	4.7	29.27	105	249	Average
10360	48.23	-20.07	68.3	55.97	15.2	7.05	29.99	165	25	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	52	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**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.		

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
5260	102.28	-	-	91.49	35.29	4.74	29.24	123	129	Peak
5260	91.17	-	-	80.38	35.29	4.74	29.24	123	129	Average
10521	50.18	-23.82	74	57.64	15.51	7.14	30.11	145	120	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	52	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**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.		

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
5260	104.71	-	-	93.92	35.29	4.74	29.24	125	263	Peak
5260	93.63	-	-	82.84	35.29	4.74	29.24	125	263	Average
10521	49.86	-24.14	74	57.32	15.51	7.14	30.11	100	250	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	64	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**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
5320	102.13	-	-	91.28	35.31	4.77	29.23	136	56	Peak
5320	90.83	-	-	79.98	35.31	4.77	29.23	136	56	Average
10641	48.76	-25.24	74	56.55	15.23	7.18	30.2	100	245	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	64	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**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 (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5320	104.43	-	-	93.58	35.31	4.77	29.23	100	243	Peak
5320	92.74	-	-	81.89	35.31	4.77	29.23	100	243	Average
10641	47.57	-26.43	74	55.36	15.23	7.18	30.2	120	150	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	100	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5500	101.96	-	-	90.9	35.41	4.84	29.19	119	56	Peak
5500	91.22	-	-	80.16	35.41	4.84	29.19	119	56	Average
11001	45.24	-28.76	74	54.22	14.2	7.33	30.51	145	200	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	100	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5500	104.85	-	-	93.79	35.41	4.84	29.19	131	266	Peak
5500	94.05	-	-	82.99	35.41	4.84	29.19	131	266	Average
11001	45.82	-28.18	74	54.8	14.2	7.33	30.51	100	0	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	116	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5580 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
5580	102.52	-	-	91.38	35.45	4.88	29.19	102	360	Peak
5580	90.03	-	-	78.89	35.45	4.88	29.19	102	360	Average
11160	45.79	-28.21	74	54.34	14.49	7.49	30.53	145	200	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	116	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5580 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
5580	104.29	-	-	93.15	35.45	4.88	29.19	110	324	Peak
5580	92.82	-	-	81.68	35.45	4.88	29.19	110	324	Average
11160	45.77	-28.23	74	54.32	14.49	7.49	30.53	100	203	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	140	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5700 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
5700	101.14	-	-	89.89	35.5	4.95	29.2	100	309	Peak
5700	90.63	-	-	79.38	35.5	4.95	29.2	100	309	Average
11400	48.66	-25.34	74	56.46	15	7.77	30.57	145	220	Peak

Test Mode :	802.11a	**Temperature :**	23~24°C
Test Channel :	140	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5700 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
5700	104.32	-	-	93.07	35.5	4.95	29.2	126	282	Peak
5700	93.65	-	-	82.4	35.5	4.95	29.2	126	282	Average
11400	47.7	-26.3	74	55.5	15	7.77	30.57	145	200	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	36	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10359 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission 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	101.52	-	-	90.83	35.26	4.7	29.27	100	123	Peak
5180	90.37	-	-	79.68	35.26	4.7	29.27	100	123	Average
10359	48.62	-19.68	68.3	56.36	15.2	7.05	29.99	123	360	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	36	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10359 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission 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	104.12	-	-	93.43	35.26	4.7	29.27	183	215	Peak
5180	92.69	-	-	82	35.26	4.7	29.27	183	215	Average
10359	47.56	-20.74	68.3	55.3	15.2	7.05	29.99	145	200	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	52	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 10521 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission 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
5260	102.41	-	-	91.62	35.29	4.74	29.24	102	52	Peak
5260	90.04	-	-	79.25	35.29	4.74	29.24	102	52	Average
10521	48.19	-20.11	68.3	55.65	15.51	7.14	30.11	100	225	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	52	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 10521 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission 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
5260	104.49	-	-	93.7	35.29	4.74	29.24	138	263	Peak
5260	93.26	-	-	82.47	35.29	4.74	29.24	138	263	Average
10521	48.13	-20.17	68.3	55.59	15.51	7.14	30.11	120	20	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	64	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**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
5320	101.86	-	-	91.01	35.31	4.77	29.23	122	54	Peak
5320	90.56	-	-	79.71	35.31	4.77	29.23	122	54	Average
10641	47.09	-26.91	74	54.88	15.23	7.18	30.2	120	224	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	64	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**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 (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5320	104.49	-	-	93.64	35.31	4.77	29.23	174	275	Peak
5320	93.11	-	-	82.26	35.31	4.77	29.23	174	275	Average
10641	47.5	-26.5	74	55.29	15.23	7.18	30.2	142	56	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	100	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5500	101.39	-	-	90.33	35.41	4.84	29.19	133	17	Peak
5500	90.13	-	-	79.07	35.41	4.84	29.19	133	17	Average
11001	45.85	-28.15	74	54.83	14.2	7.33	30.51	120	140	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	100	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5500	104.76	-	-	93.7	35.41	4.84	29.19	122	318	Peak
5500	93.03	-	-	81.97	35.41	4.84	29.19	122	318	Average
11001	45.66	-28.34	74	54.64	14.2	7.33	30.51	125	93	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	116	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5580 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
5580	100.16	-	-	89.02	35.45	4.88	29.19	100	303	Peak
5580	88.35	-	-	77.21	35.45	4.88	29.19	100	303	Average
11160	46.73	-27.27	74	55.28	14.49	7.49	30.53	145	125	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	116	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5580 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
5580	104.92	-	-	93.78	35.45	4.88	29.19	108	189	Peak
5580	93.05	-	-	81.91	35.45	4.88	29.19	108	189	Average
11160	45.64	-28.36	74	54.19	14.49	7.49	30.53	111	251	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	140	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5700 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
5700	103.27	-	-	92.02	35.5	4.95	29.2	100	320	Peak
5700	91.73	-	-	80.48	35.5	4.95	29.2	100	320	Average
11400	48.88	-25.12	74	56.68	15	7.77	30.57	152	144	Peak

Test Mode :	802.11n HT20	**Temperature :**	23~24°C
Test Channel :	140	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5700 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
5700	105.8	-	-	94.55	35.5	4.95	29.2	126	245	Peak
5700	94.91	-	-	83.66	35.5	4.95	29.2	126	245	Average
11400	47.48	-26.52	74	55.28	15	7.77	30.57	100	256	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	38	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission 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
5190	97.67	-	-	86.98	35.26	4.7	29.27	100	128	Peak
5190	86.46	-	-	75.77	35.26	4.7	29.27	100	128	Average
10380	47.48	-20.82	68.3	55.17	15.25	7.06	30	100	123	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	38	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission 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
5190	99.36	-	-	88.67	35.26	4.7	29.27	182	186	Peak
5190	88.36	-	-	77.67	35.26	4.7	29.27	182	186	Average
10380	49.55	-18.75	68.3	57.24	15.25	7.06	30	100	152	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	54	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5270 MHz is fundamental signal which can be ignored. 2. 10539 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5270	98.89	-	-	88.1	35.29	4.74	29.24	100	118	Peak
5270	87.98	-	-	77.19	35.29	4.74	29.24	100	118	Average
10539	47.8	-20.5	68.3	55.31	15.47	7.14	30.12	120	114	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	54	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5270 MHz is fundamental signal which can be ignored. 2. 10539 MHz is not within a restricted band and satisfies 68.3 dBμV /m peak emission limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5270	102.13	-	-	91.34	35.29	4.74	29.24	140	257	Peak
5270	91.99	-	-	81.2	35.29	4.74	29.24	140	257	Average
10539	47.15	-21.15	68.3	54.66	15.47	7.14	30.12	120	111	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	62	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5310 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
5310	99.03	-	-	88.18	35.31	4.77	29.23	134	122	Peak
5310	87.72	-	-	76.87	35.31	4.77	29.23	134	122	Average
10620	48.84	-25.16	74	56.58	15.27	7.17	30.18	125	122	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	62	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5310 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
5310	102.65	-	-	91.8	35.31	4.77	29.23	138	246	Peak
5310	90.78	-	-	79.93	35.31	4.77	29.23	138	246	Average
10620	48.8	-25.2	74	56.54	15.27	7.17	30.18	121	102	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	102	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5510 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
94.99	31.26	-12.24	43.5	54.18	9.8	0.9	33.62	-	-	Peak
127.97	31.92	-11.58	43.5	52.75	11.72	1.04	33.59	-	-	Peak
158.04	35.97	-7.53	43.5	58.73	9.67	1.15	33.58	145	125	Peak
188.11	33.89	-9.61	43.5	57.72	8.48	1.25	33.56	-	-	Peak
269.59	29.84	-16.16	46	49.37	12.36	1.53	33.42	-	-	Peak
329.73	22.04	-23.96	46	39.8	13.95	1.66	33.37	-	-	Peak
5510	98.64	-	-	87.58	35.41	4.84	29.19	120	53	Peak
5510	88.87	-	-	77.81	35.41	4.84	29.19	120	53	Average
11019	45.37	-28.63	74	54.32	14.22	7.34	30.51	102	234	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	102	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5510 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
71.71	31.47	-8.53	40	58.81	5.46	0.79	33.59	120	147	Peak
113.42	29.8	-13.7	43.5	50.62	11.8	0.99	33.61	-	-	Peak
128.94	30.89	-12.61	43.5	51.73	11.71	1.04	33.59	-	-	Peak
172.59	31.92	-11.58	43.5	55.27	9.01	1.21	33.57	-	-	Peak
210.42	27.58	-15.92	43.5	50.28	9.49	1.35	33.54	-	-	Peak
270.56	24.37	-21.63	46	43.86	12.39	1.53	33.41	-	-	Peak
5510	100.95	-	-	89.89	35.41	4.84	29.19	119	225	Peak
5510	90.48	-	-	79.42	35.41	4.84	29.19	119	225	Average
11019	45.8	-28.2	74	54.75	14.22	7.34	30.51	100	236	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	110	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5550 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
5550	99.95	-	-	88.83	35.44	4.87	29.19	129	51	Peak
5550	88.93	-	-	77.81	35.44	4.87	29.19	129	51	Average
11100	46.48	-27.52	74	55.22	14.36	7.42	30.52	102	102	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	110	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5550 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
5550	100.94	-	-	89.82	35.44	4.87	29.19	135	320	Peak
5550	89.76	-	-	78.64	35.44	4.87	29.19	135	320	Average
11100	46.59	-27.41	74	55.33	14.36	7.42	30.52	145	10	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	134	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5670 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
5670	98.15	-	-	86.91	35.5	4.94	29.2	100	302	Peak
5670	88	-	-	76.76	35.5	4.94	29.2	100	302	Average
11340	46.82	-27.18	74	54.81	14.87	7.7	30.56	104	245	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	134	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5670 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
5670	100.53	-	-	89.29	35.5	4.94	29.2	106	0	Peak
5670	89.88	-	-	78.64	35.5	4.94	29.2	106	0	Average
11340	46.82	-27.18	74	54.81	14.87	7.7	30.56	120	114	Peak

<Adapter 2>

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	102	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 5510 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
5510	97.11	-	-	86.05	35.41	4.84	29.19	106	50	Peak
5510	85.28	-	-	74.22	35.41	4.84	29.19	106	50	Average
11019	44.71	-29.29	74	53.66	14.22	7.34	30.51	114	121	Peak

Test Mode :	802.11n HT40	**Temperature :**	23~24°C
Test Channel :	102	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 5510 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
5510	100.3	-	-	89.24	35.41	4.84	29.19	100	322	Peak
5510	88.44	-	-	77.38	35.41	4.84	29.19	100	322	Average
11019	44.18	-29.82	74	53.13	14.22	7.34	30.51	100	23	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 (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

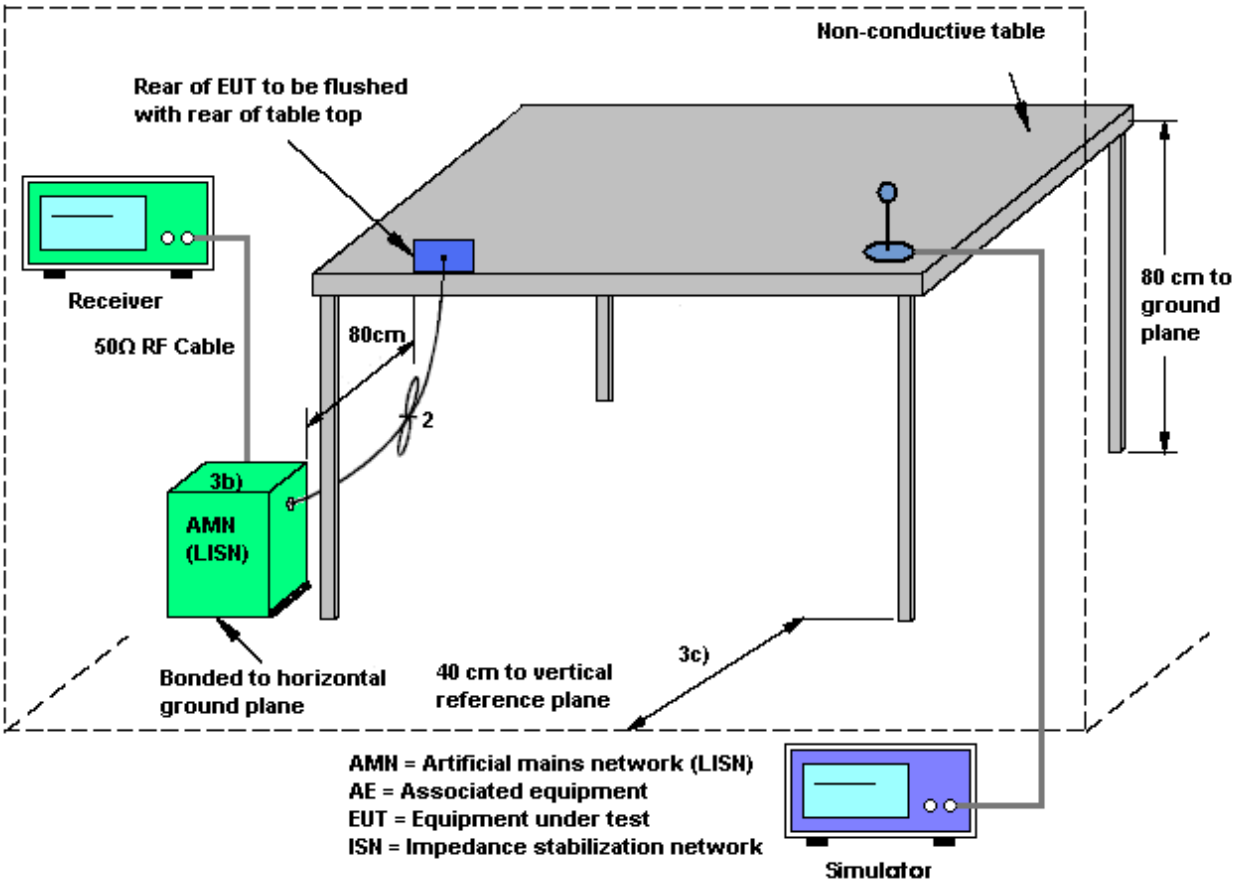
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

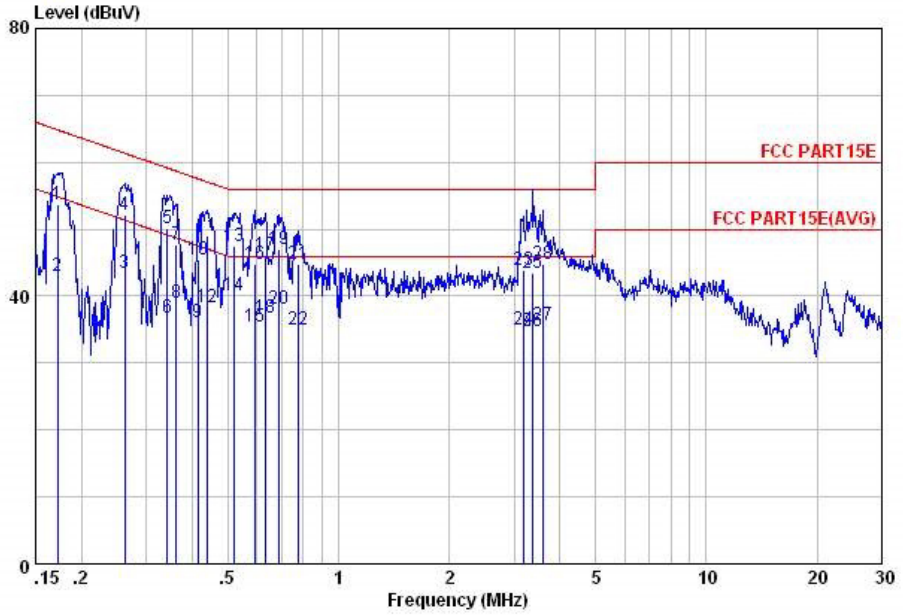
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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 :**	21~23℃
Test Engineer :	Harvey Tang	**Relative Humidity :**	51~53%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GPRS850 Idle + Bluetooth Link + WLAN 5GHz Link + USB Cable (Charging from Adapter 1) + Earphone		

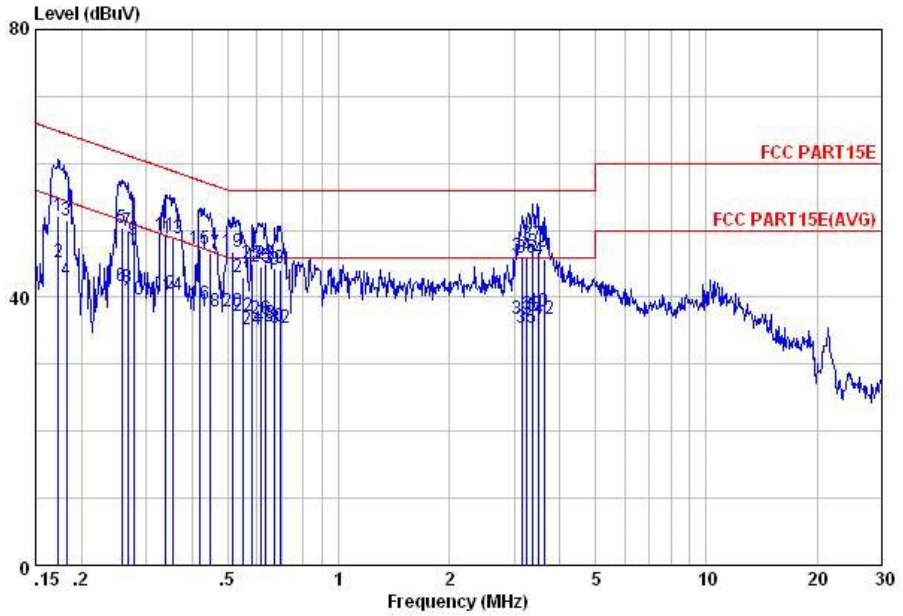


Site : C001-KS
Condition: FCC PART15E LISN-L20130306 LINE

mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17	53.64	-11.22	64.86	41.50	1.50	10.64	QP
2	0.17	43.04	-11.82	54.86	30.90	1.50	10.64	Average
3	0.26	43.43	-7.95	51.38	32.11	0.84	10.48	Average
4	0.26	52.23	-9.15	61.38	40.91	0.84	10.48	QP
5	0.34	50.09	-9.04	59.13	39.30	0.46	10.33	QP
6	0.34	36.79	-12.34	49.13	26.00	0.46	10.33	Average
7	0.36	47.61	-11.08	58.69	36.90	0.40	10.31	QP
8	0.36	38.91	-9.78	48.69	28.20	0.40	10.31	Average
9	0.41	36.17	-11.38	47.55	25.60	0.29	10.28	Average
10	0.41	45.47	-12.08	57.55	34.90	0.29	10.28	QP
11	0.44	48.94	-8.17	57.11	38.41	0.26	10.27	QP
12	0.44	38.24	-8.87	47.11	27.71	0.26	10.27	Average
13	0.52	47.46	-8.54	56.00	37.00	0.20	10.26	QP
14	0.52	40.16	-5.84	46.00	29.70	0.20	10.26	Average
15	0.59	35.44	-10.56	46.00	25.00	0.20	10.24	Average
16	0.59	44.74	-11.26	56.00	34.30	0.20	10.24	QP
17	0.63	46.23	-9.77	56.00	35.80	0.20	10.23	QP
18	0.63	36.73	-9.27	46.00	26.30	0.20	10.23	Average
19	0.69	46.91	-9.09	56.00	36.50	0.20	10.21	QP
20	0.69	38.01	-7.99	46.00	27.60	0.20	10.21	Average
21	0.78	44.78	-11.22	56.00	34.40	0.18	10.20	QP
22	0.78	35.08	-10.92	46.00	24.70	0.18	10.20	Average
23	3.17	43.98	-12.02	56.00	33.60	0.15	10.23	QP
24	3.17	34.98	-11.02	46.00	24.60	0.15	10.23	Average
25	3.38	43.40	-12.60	56.00	33.01	0.16	10.23	QP
26	3.38	34.80	-11.20	46.00	24.41	0.16	10.23	Average
27	3.58	35.61	-10.39	46.00	25.21	0.17	10.23	Average
28	3.58	44.81	-11.19	56.00	34.41	0.17	10.23	QP

Test Mode :	Mode 1	**Temperature :**	21~23℃
Test Engineer :	Harvey Tang	**Relative Humidity :**	51~53%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GPRS850 Idle + Bluetooth Link + WLAN 5GHz Link + USB Cable (Charging from Adapter 1) + Earphone		

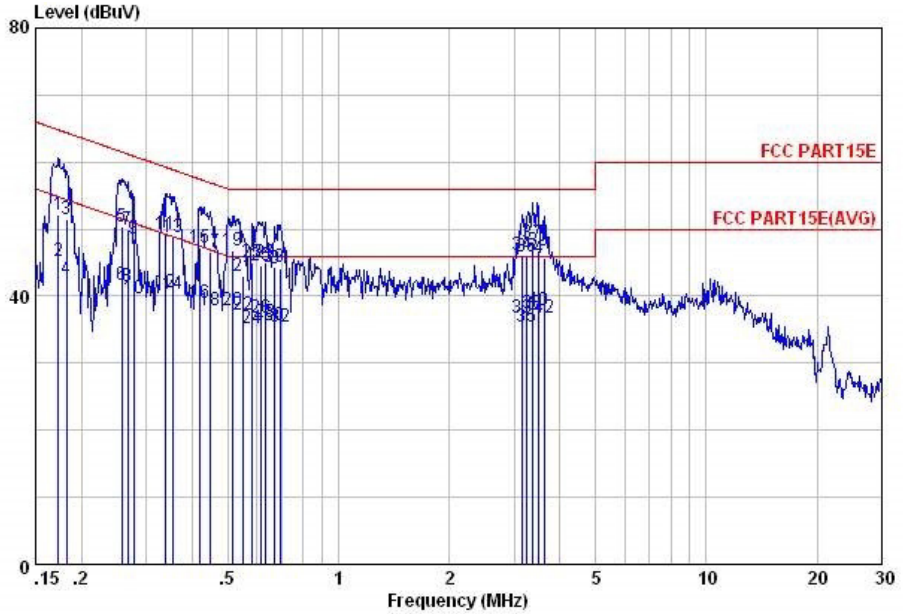


Site : C001-KS
Condition: FCC PART15E LISN-N20130306 NEUTRAL

mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17	52.19	-12.62	64.81	40.10	1.45	10.64	QP
2	0.17	45.29	-9.52	54.81	33.20	1.45	10.64	Average
3	0.18	51.45	-12.92	64.37	39.60	1.24	10.61	QP
4	0.18	42.65	-11.72	54.37	30.80	1.24	10.61	Average
5	0.26	50.46	-11.05	61.51	39.10	0.87	10.49	QP
6	0.26	41.66	-9.85	51.51	30.30	0.87	10.49	Average
7	0.27	49.92	-11.28	61.20	38.60	0.85	10.47	QP
8	0.27	41.42	-9.78	51.20	30.10	0.85	10.47	Average
9	0.28	48.66	-12.24	60.90	37.40	0.82	10.44	QP
10	0.28	39.66	-11.24	50.90	28.40	0.82	10.44	Average
11	0.34	49.27	-9.95	59.22	38.40	0.54	10.33	QP
12	0.34	40.47	-8.75	49.22	29.60	0.54	10.33	Average
13	0.36	48.91	-9.92	58.83	38.10	0.49	10.32	QP
14	0.36	40.41	-8.42	48.83	29.60	0.49	10.32	Average
15	0.42	47.25	-10.21	57.46	36.59	0.38	10.28	QP
16	0.42	39.05	-8.41	47.46	28.39	0.38	10.28	Average
17	0.45	46.62	-10.27	56.89	36.01	0.34	10.27	QP
18	0.45	37.82	-9.07	46.89	27.21	0.34	10.27	Average
19	0.51	46.76	-9.24	56.00	36.21	0.29	10.26	QP
20	0.51	37.86	-8.14	46.00	27.31	0.29	10.26	Average
21	0.55	43.03	-12.97	56.00	32.50	0.28	10.25	QP
22	0.55	37.13	-8.87	46.00	26.60	0.28	10.25	Average
23	0.58	45.11	-10.89	56.00	34.60	0.26	10.25	QP
24	0.58	35.31	-10.69	46.00	24.80	0.26	10.25	Average
25	0.62	44.67	-11.33	56.00	34.20	0.23	10.24	QP
26	0.62	36.77	-9.23	46.00	26.30	0.23	10.24	Average
27	0.63	44.95	-11.05	56.00	34.50	0.22	10.23	QP
28	0.63	36.05	-9.95	46.00	25.60	0.22	10.23	Average

Test Mode :	Mode 1	**Temperature :**	21~23℃
Test Engineer :	Harvey Tang	**Relative Humidity :**	51~53%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GPRS850 Idle + Bluetooth Link + WLAN 5GHz Link + USB Cable (Charging from Adapter 1) + Earphone		



Site : C001-KS
Condition: FCC PART15E LISN-N20130306 NEUTRAL

mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
29	0.67	44.33	-11.67	56.00	33.90	0.21	10.22	QP
30	0.67	35.63	-10.37	46.00	25.20	0.21	10.22	Average
31	0.70	44.01	-11.99	56.00	33.60	0.20	10.21	QP
32	0.70	35.51	-10.49	46.00	25.10	0.20	10.21	Average
33	3.16	36.77	-9.23	46.00	26.39	0.15	10.23	Average
34	3.16	46.17	-9.83	56.00	35.79	0.15	10.23	QP
35	3.26	35.51	-10.49	46.00	25.12	0.16	10.23	Average
36	3.26	45.99	-10.01	56.00	35.60	0.16	10.23	QP
37	3.38	47.90	-8.10	56.00	37.51	0.16	10.23	QP
38	3.38	37.50	-8.50	46.00	27.11	0.16	10.23	Average
39	3.49	46.80	-9.20	56.00	36.40	0.17	10.23	QP
40	3.49	37.80	-8.20	46.00	27.40	0.17	10.23	Average
41	3.62	45.61	-10.39	56.00	35.21	0.17	10.23	QP
42	3.62	36.71	-9.29	46.00	26.31	0.17	10.23	Average

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.

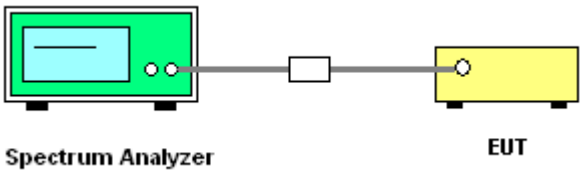
3.7.2 Measuring Instruments

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 :	5.2GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

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	5171.65	5188.25	5179.95	-9.652509653
11a	6Mbps	1	44	5220	5211.65	5228.25	5219.95	-9.578544061
11a	6Mbps	1	48	5240	5231.65	5248.25	5239.95	-9.541984733
HT20	MCS0	1	36	5180	5171.00	5188.90	5179.95	-9.652509653
HT20	MCS0	1	44	5220	5211.00	5228.90	5219.95	-9.578544061
HT20	MCS0	1	48	5240	5231.00	5248.90	5239.95	-9.541984733
HT40	MCS0	1	38	5190	5171.73	5208.27	5190.00	0
HT40	MCS0	1	46	5230	5211.73	5248.27	5230.00	0

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

Test Band :	5.3GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	Channel	Frequency (MHz)	Low Frequency (MHz)	High Frequency (MHz)	Mid Frequency (MHz)	Frequency Stability (ppm)
11a	6Mbps	1	52	5260	5251.65	5268.25	5259.95	-9.505703422
11a	6Mbps	1	60	5300	5291.65	5308.30	5299.98	-4.716981132
11a	6Mbps	1	64	5320	5311.60	5328.30	5319.95	-9.39849624
HT20	MCS0	1	52	5260	5251.00	5268.90	5259.95	-9.505703422
HT20	MCS0	1	60	5300	5291.00	5308.85	5299.93	-14.1509434
HT20	MCS0	1	64	5320	5311.00	5328.85	5319.93	-14.09774436
HT40	MCS0	1	54	5270	5251.64	5288.27	5269.96	-8.538899431
HT40	MCS0	1	62	5310	5291.73	5328.27	5310.00	0

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

Test Band :	5.5GHz Band	Temperature :	23~24℃
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N_{TX}	Channel	Frequency (MHz)	Low Frequency (MHz)	High Frequency (MHz)	Mid Frequency (MHz)	Frequency Stability (ppm)
11a	6Mbps	1	100	5500	5491.65	5508.30	5499.98	-4.545454545
11a	6Mbps	1	116	5580	5571.70	5588.30	5580.00	0
11a	6Mbps	1	140	5700	5691.70	5708.30	5700.00	0
HT20	MCS0	1	100	5500	5491.05	5508.90	5499.98	-4.545454545
HT20	MCS0	1	116	5580	5571.05	5588.90	5579.98	-4.480286738
HT20	MCS0	1	140	5700	5691.00	5708.90	5699.95	-8.771929825
HT40	MCS0	1	102	5510	5491.73	5528.27	5510.00	0
HT40	MCS0	1	110	5550	5531.73	5568.27	5550.00	0
HT40	MCS0	1	134	5670	5651.64	5688.36	5670.00	0

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

3.8 Automatically Discontinue Transmission

3.8.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

3.9 Antenna Requirements

3.9.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.9.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.9.3 Antenna Gain

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	R&S	FSP40	100319	9kHz~40GHz	Dec. 29, 2012	Sep. 20, 2013	Dec. 28, 2013	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	N/A	Feb. 28, 2013	Sep. 20, 2013	Feb. 27, 2014	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	N/A	Feb. 28, 2013	Sep. 20, 2013	Feb. 27, 2014	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 08, 2012	Oct. 10, 2013	Nov. 07, 2013	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 23, 2013	Oct. 10, 2013	May 22, 2014	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2012	Oct. 10, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 22, 2012	Oct. 10, 2013	Oct. 21, 2013	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2013	Oct. 10, 2013	Jan. 05, 2014	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	May 23, 2013	Oct. 10, 2013	May 22, 2014	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 29, 2012	Oct. 10, 2013	Dec. 28, 2013	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2012	Oct. 10, 2013	Nov. 06, 2013	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	9170249	15GHz~40GHz	Nov. 23, 2012	Oct. 10, 2013	Nov. 22, 2013	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	N/A	Oct. 10, 2013	N/A	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	N/A	Oct. 10, 2013	N/A	Radiation (03CH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	May 23, 2013	Sep. 17, 2013	May 22, 2014	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 29, 2012	Sep. 17, 2013	Dec. 28, 2013	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	60105	9kHz~30MHz	Dec. 29, 2012	Sep. 17, 2013	Dec. 28, 2013	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 15, 2012	Sep. 17, 2013	Nov. 14, 2013	Conduction (CO01-KS)

5 Uncertainty of Evaluation

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.54

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

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