FCC RF Test Report

APPLICANT	**:**	**Joyous LLC**
EQUIPMENT	**:**	**Mobile Phone**
MODEL NAME	**:**	**SD4930UR**
FCC ID	**:**	**ZWH-1210**
STANDARD	**:**	**FCC Part 15 Subpart C §15.247**
CLASSIFICATION	**:**	**(DTS) Digital Transmission System**

The testing completed on Dec. 26, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR372301-01C	Rev. 01	Initial issue of report	Mar. 18, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.72 dB at 2483.800 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 8.20 dB at 0.150 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Joyous LLC
1090 Vermont Avenue NW Suite 430
Washington, DC 20005

1.2 Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Model Name	SD4930UR
FCC ID	ZWH-1210
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/ WLAN 11b/g/n (HT20) WLAN 11a/n (HT20/HT40) WLAN 11ac (VHT20/VHT40/VHT80) Bluetooth v3.0 + EDR Bluetooth v4.0 + LE NFC

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

1.3 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2462 MHz 802.11a/n/ac : 5745~5825MHz.
Maximum (Peak) Output Power to Antenna	**<2412 MHz ~ 2462 MHz>** 802.11b : 19.93 dBm (0.0984 W) 802.11g : 23.54 dBm (0.2259 W) 802.11n HT20 : 23.59 dBm (0.2286 W) **<5745 MHz ~ 5825 MHz>** 802.11a : 26.48 dBm (0.4446 W) 802.11n HT20 : 26.29 dBm (0.4256 W) 802.11n HT40 : 26.21 dBm (0.4178 W) 802.11ac VHT20 : 26.33 dBm / 0.4295 W 802.11ac VHT40 : 25.96 dBm / 0.3945 W 802.11ac VHT80 : 26.27 dBm / 0.4236 W
Antenna Type	802.11b/g/n : Fixed Internal Antenna type with gain -1.42 dBi 802.11a/n : Fixed Internal Antenna type with gain -0.76 dBi 802.11ac: Fixed Internal Antenna type with gain -0.76 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)

1.4 Modification of EUT

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

1.5 Testing Site

Test Site	SPORTON INTERNATIONAL INC.			
Test Site Location	No. 52, Hwa Ya 1st 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 Registration No.
	TH02-HY	CO05-HY	03CH08-HY	636805

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

1.6 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- ANSI C63.4-2003

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane for 2.4GHz / Z plane for 5GHz) 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)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	-	-

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4	149	5745	157	5785
	151	5755	159	5795
	153	5765	161	5805
	155	5775	165	5825

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 shown in the following tables.

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	19.93	19.81	19.81	19.82

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	23.54	23.43	23.45	23.46	23.43	23.38	23.39	23.35

2.4GHz 802.11n HT20 mode									
Data Rate (MHz)		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	400GI	23.51	23.48	23.43	23.44	23.48	23.50	23.42	23.45
	800GI	23.59	23.56	23.51	23.52	23.56	23.58	23.50	23.53

5GHz 802.11a mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	26.48	26.32	26.29	26.28	26.35	26.41	26.33	26.40

5GHz 802.11n HT20 mode									
Data Rate (MHz)		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	400GI	26.23	26.19	26.14	26.17	26.15	26.11	26.07	26.08
	800GI	26.29	26.25	26.20	26.23	26.21	26.17	26.13	26.14

5GHz 802.11n HT40 mode									
Data Rate (MHz)		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	400GI	26.14	26.04	26.00	26.06	25.98	25.97	25.92	26.04
	800GI	26.21	26.11	26.07	26.13	26.05	26.04	25.99	26.11

5GHz 802.11ac VHT20 mode										
Data Rate (MHz)		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
Average Power (dBm)	400GI	26.26	26.19	26.04	26.14	26.17	26.11	26.09	26.05	26.17
	800GI	**26.33**	26.26	26.11	26.21	26.24	26.18	26.16	26.12	26.24

5GHz 802.11ac VHT40 mode											
Data Rate (MHz)		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
Average Power (dBm)	400GI	25.90	25.89	25.83	25.80	25.88	25.88	25.83	25.81	25.88	25.85
	800GI	**25.96**	25.95	25.89	25.86	25.94	25.94	25.89	25.87	25.94	25.91

5GHz 802.11ac VHT80 mode											
Data Rate (MHz)		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
Average Power (dBm)	400GI	26.20	26.12	26.09	26.11	26.14	26.12	26.15	26.12	26.15	26.11
	800GI	**26.27**	26.19	26.16	26.18	26.21	26.19	26.22	26.19	26.22	26.18

2.3 Test Mode

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

<2.4GHz>

Test Cases				
Conducted TCs	Test Items	Mode	Data Rate	Test Channel
	6dB BW Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11
	Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11
	Conducted Band Edge	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT20	MCS0	1/11
	Conducted Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11
Radiated TCs	Radiated Band Edge	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT20	MCS0	1/11
	Radiated Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11

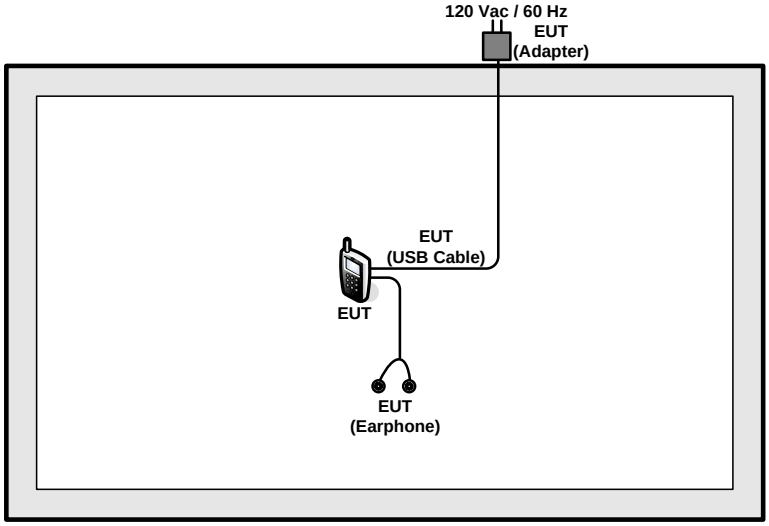
<5GHz>

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB BW Power Spectral Density	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
		802.11ac VHT20	MCS0	149/157/165
		802.11ac VHT40	MCS0	151/159
		802.11ac VHT80	MCS0	155
	Output Power	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
		802.11ac VHT20	MCS0	149/157/165
		802.11ac VHT40	MCS0	151/159
		802.11ac VHT80	MCS0	155
	Conducted Band Edge	802.11a	6 Mbps	149/165
		802.11n HT20	MCS0	149/165
		802.11n HT40	MCS0	151/159
		802.11ac VHT20	MCS0	149/165
		802.11ac VHT40	MCS0	151/159
		802.11ac VHT80	MCS0	155
	Conducted Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
		802.11ac VHT20	MCS0	149/157/165
		802.11ac VHT40	MCS0	151/159
		802.11ac VHT80	MCS0	155
Radiated TCs	Radiated Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
		802.11ac VHT20	MCS0	149/157/165
		802.11ac VHT40	MCS0	151/159
		802.11ac VHT80	MCS0	155

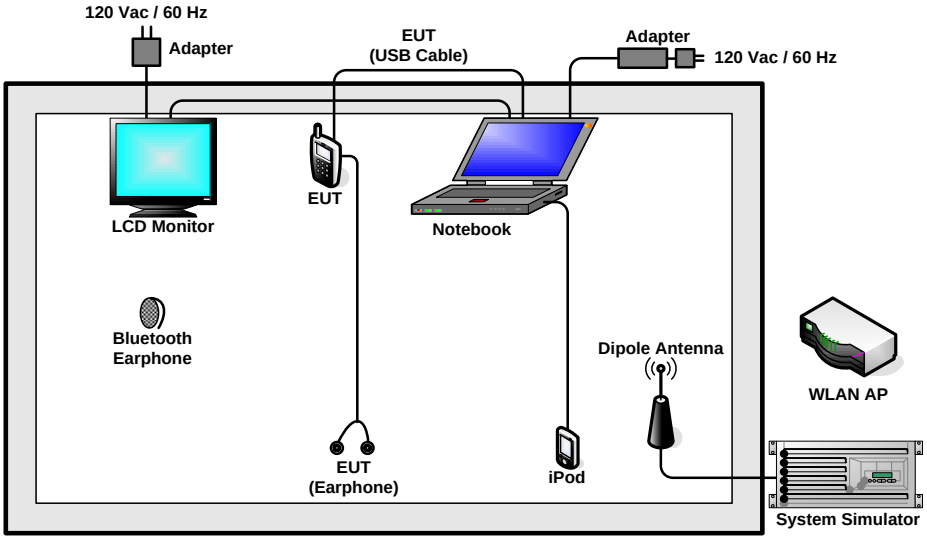
Test Cases	
AC Conducted Emission	Mode 1 : WCDMA Band II Idle + WLAN (2.4GHz) Link + Bluetooth Link + Earphone + USB Cable (Data Link with Notebook) + NFC On Mode 2 : WCDMA Band II Idle + WLAN (5GHz) Link + Bluetooth Link + Earphone + USB Cable (Data Link with Notebook) + NFC On Mode 3 : GSM850 Idle + WLAN (2.4GHz, 802.11n HT20, Ch06, MCS0) SISO Tx + Earphone + USB Cable (Charging from Adapter) + H-Pattern Mode 4 : GSM850 Idle + WLAN (5GHz, 802.11a, Ch165, 6Mbps) SISO Tx + Earphone + USB Cable (Charging from Adapter) + H-Pattern
Remark: The worst case of conducted emission is mode 2; only the test data of it was reported.	

2.4 Connection Diagram of Test System

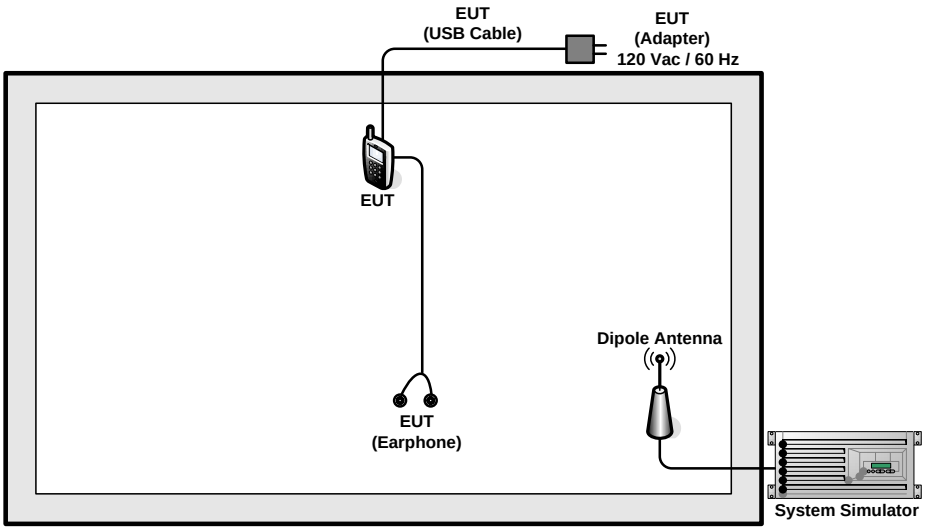
<WLAN Tx Mode>



< EUT with USB Cable (Link with Notebook) for AC Conducted Emission Mode 1 and 2>



<EUT with Adapter Mode for AC Conducted Emission Mode 3 and 4>



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

2.6 EUT Operation Test Setup

For WLAN function, programmed RF utility, “QRCT” installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.

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.

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

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

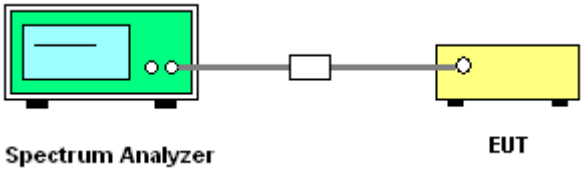
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

3.1.4 Test Setup



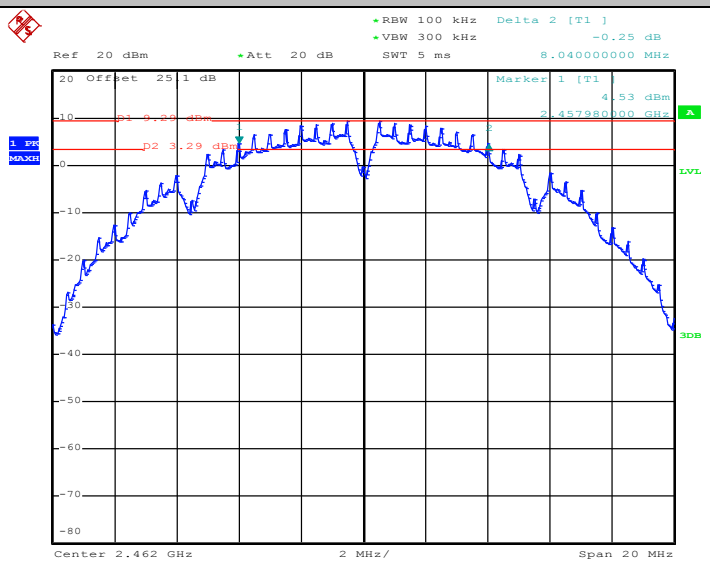
3.1.5 Test Result of 6dB Occupied Bandwidth

Test Band :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	45~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	8.54	0.5	Pass
11b	1Mbps	1	6	2437	8.52	0.5	Pass
11b	1Mbps	1	11	2462	8.04	0.5	Pass
11g	6Mbps	1	1	2412	16.34	0.5	Pass
11g	6Mbps	1	6	2437	16.32	0.5	Pass
11g	6Mbps	1	11	2462	16.32	0.5	Pass
HT20	MCS0	1	1	2412	17.60	0.5	Pass
HT20	MCS0	1	6	2437	17.56	0.5	Pass
HT20	MCS0	1	11	2462	17.56	0.5	Pass

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11a	6Mbps	1	149	5745	16.32	0.5	Pass
11a	6Mbps	1	157	5785	16.34	0.5	Pass
11a	6Mbps	1	165	5825	16.34	0.5	Pass
HT20	MCS0	1	149	5745	17.56	0.5	Pass
HT20	MCS0	1	157	5785	17.58	0.5	Pass
HT20	MCS0	1	165	5825	17.60	0.5	Pass
HT40	MCS0	1	151	5755	35.48	0.5	Pass
HT40	MCS0	1	159	5795	35.12	0.5	Pass
VHT20	MCS0	1	149	5745	17.56	0.5	Pas
VHT20	MCS0	1	157	5785	17.56	0.5	Pas
VHT20	MCS0	1	165	5825	17.56	0.5	Pas
VHT40	MCS0	1	151	5755	35.16	0.5	Pas
VHT40	MCS0	1	159	5795	35.16	0.5	Pas
VHT80	MCS0	1	155	5775	75.22	0.5	Pas

Minimum 6dB Bandwidth



Date: 28.NOV.2013 17:19:48

Note : The occupied channel bandwidth is maintained within the band of operation for all of the modulations

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, the limit for peak output power is 30dBm. If transmitting Antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the Antenna exceeds 6dBi.

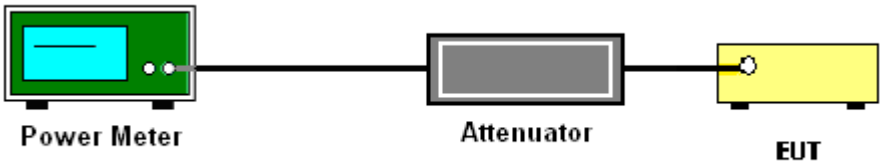
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r01.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	45~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	19.93	30	-1.42	Pass
11b	1Mbps	1	6	2437	19.92	30	-1.42	Pass
11b	1Mbps	1	11	2462	19.65	30	-1.42	Pass
11g	6Mbps	1	1	2412	23.31	30	-1.42	Pass
11g	6Mbps	1	6	2437	23.54	30	-1.42	Pass
11g	6Mbps	1	11	2462	23.09	30	-1.42	Pass
HT20	MCS0	1	1	2412	22.87	30	-1.42	Pass
HT20	MCS0	1	6	2437	23.59	30	-1.42	Pass
HT20	MCS0	1	11	2462	22.61	30	-1.42	Pass

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	26.43	30	-0.76	Pass
11a	6Mbps	1	157	5785	26.29	30	-0.76	Pass
11a	6Mbps	1	165	5825	26.48	30	-0.76	Pass
HT20	MCS0	1	149	5745	26.21	30	-0.76	Pass
HT20	MCS0	1	157	5785	26.25	30	-0.76	Pass
HT20	MCS0	1	165	5825	26.29	30	-0.76	Pass
HT40	MCS0	1	151	5755	26.21	30	-0.76	Pass
HT40	MCS0	1	159	5795	26.18	30	-0.76	Pass
VHT20	MCS0	1	149	5745	26.28	30	-0.76	Pass
VHT20	MCS0	1	157	5785	26.33	30	-0.76	Pass
VHT20	MCS0	1	165	5825	25.28	30	-0.76	Pass
VHT40	MCS0	1	151	5755	25.96	30	-0.76	Pass
VHT40	MCS0	1	159	5795	25.94	30	-0.76	Pass
VHT80	MCS0	1	155	5775	26.27	30	-0.76	Pass

Note: Measured power (dBm) has offset with cable loss.

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	45~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	0.00	17.21	30	-1.42	Pass
11b	1Mbps	1	6	2437	0.00	17.15	30	-1.42	Pass
11b	1Mbps	1	11	2462	0.00	17.00	30	-1.42	Pass
11g	6Mbps	1	1	2412	0.00	15.62	30	-1.42	Pass
11g	6Mbps	1	6	2437	0.00	17.20	30	-1.42	Pass
11g	6Mbps	1	11	2462	0.00	15.34	30	-1.42	Pass
HT20	MCS0	1	1	2412	0.00	15.15	30	-1.42	Pass
HT20	MCS0	1	6	2437	0.00	17.01	30	-1.42	Pass
HT20	MCS0	1	11	2462	0.00	14.02	30	-1.42	Pass

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	0.00	18.90	30	-0.76	Pass
11a	6Mbps	1	157	5785	0.00	18.88	30	-0.76	Pass
11a	6Mbps	1	165	5825	0.00	18.98	30	-0.76	Pass
HT20	MCS0	1	149	5745	0.00	18.83	30	-0.76	Pass
HT20	MCS0	1	157	5785	0.00	18.96	30	-0.76	Pass
HT20	MCS0	1	165	5825	0.00	18.97	30	-0.76	Pass
HT40	MCS0	1	151	5755	0.07	18.95	30	-0.76	Pass
HT40	MCS0	1	159	5795	0.07	18.92	30	-0.76	Pass
VHT20	MCS0	1	149	5745	0.04	18.92	30	-0.76	Pass
VHT20	MCS0	1	157	5785	0.04	18.94	30	-0.76	Pass
VHT20	MCS0	1	165	5825	0.04	18.61	30	-0.76	Pass
VHT40	MCS0	1	151	5755	0.11	18.97	30	-0.76	Pass
VHT40	MCS0	1	159	5795	0.11	18.96	30	-0.76	Pass
VHT80	MCS0	1	155	5775	0.17	18.96	30	-0.76	Pass

Note: Measured power (dBm) has offset with cable loss and duty factor.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

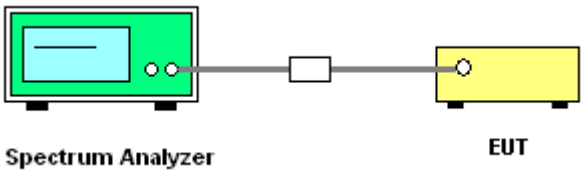
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

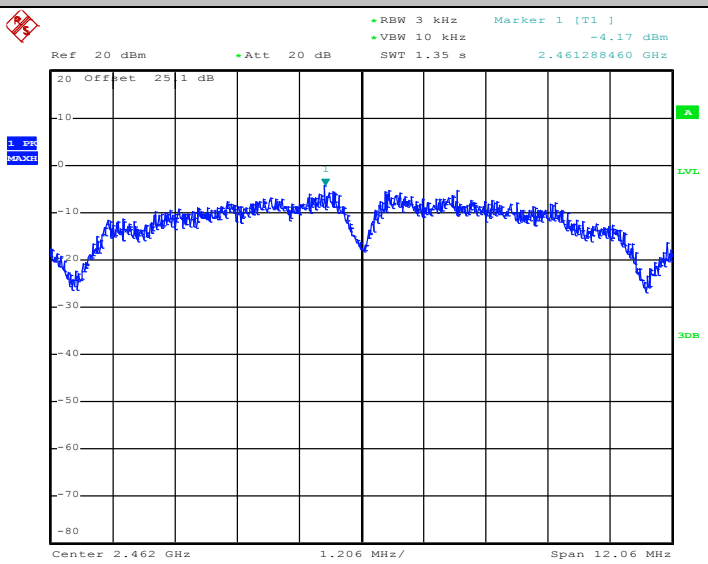
Test Mode :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	45~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	-4.49	8	-1.42	Pass
11b	1Mbps	1	6	2437	-4.63	8	-1.42	Pass
11b	1Mbps	1	11	2462	-4.17	8	-1.42	Pass
11g	6Mbps	1	1	2412	-6.94	8	-1.42	Pass
11g	6Mbps	1	6	2437	-8.17	8	-1.42	Pass
11g	6Mbps	1	11	2462	-7.61	8	-1.42	Pass
HT20	MCS0	1	1	2412	-7.27	8	-1.42	Pass
HT20	MCS0	1	6	2437	-8.27	8	-1.42	Pass
HT20	MCS0	1	11	2462	-8.53	8	-1.42	Pass

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	-6.74	8	-0.76	Pass
11a	6Mbps	1	157	5785	-4.86	8	-0.76	Pass
11a	6Mbps	1	165	5825	-6.48	8	-0.76	Pass
HT20	MCS0	1	149	5745	-5.76	8	-0.76	Pass
HT20	MCS0	1	157	5785	-6.32	8	-0.76	Pass
HT20	MCS0	1	165	5825	-5.99	8	-0.76	Pass
HT40	MCS0	1	151	5755	-9.43	8	-0.76	Pass
HT40	MCS0	1	159	5795	-8.49	8	-0.76	Pass
VHT20	MCS0	1	149	5745	-7.29	8	-0.76	Pass
VHT20	MCS0	1	157	5785	-6.76	8	-0.76	Pass
VHT20	MCS0	1	165	5825	-6.49	8	-0.76	Pass
VHT40	MCS0	1	151	5755	-11.21	8	-0.76	Pass
VHT40	MCS0	1	159	5795	-10.63	8	-0.76	Pass
VHT80	MCS0	1	155	5775	-12.26	8	-0.76	Pass

Note: Measured power density (dBm) has offset with cable loss.

Worst Case Power Density (dBm/3kHz)



Date: 28.NOV.2013 17:20:09

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

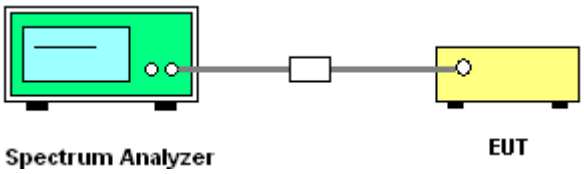
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup

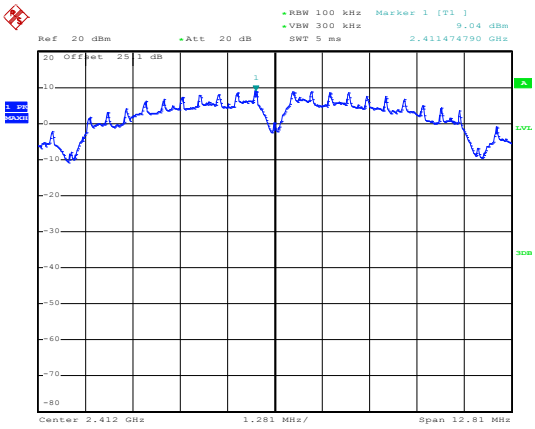


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Mode :	802.11b	**Temperature :**	21~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~54%
Test Channel :	01	**Test Engineer :**	Stuart Lin

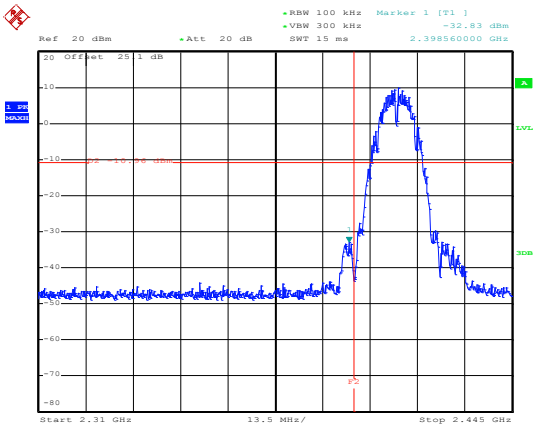
WLAN 802.11b Channel 01

100kHz PSD reference Level



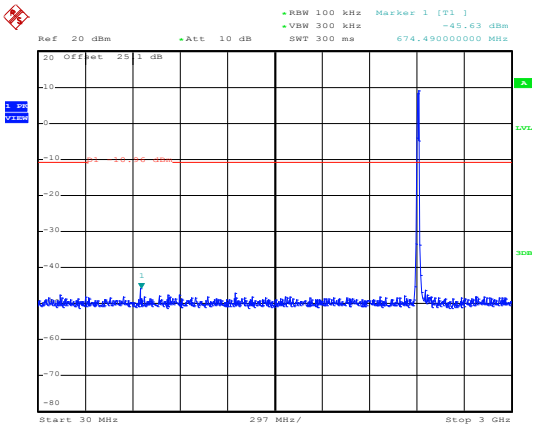
Date: 28.NOV.2013 17:13:12

Low Channel Plot



Date: 28.NOV.2013 17:13:28

Spurious Emission 30MHz~3GHz



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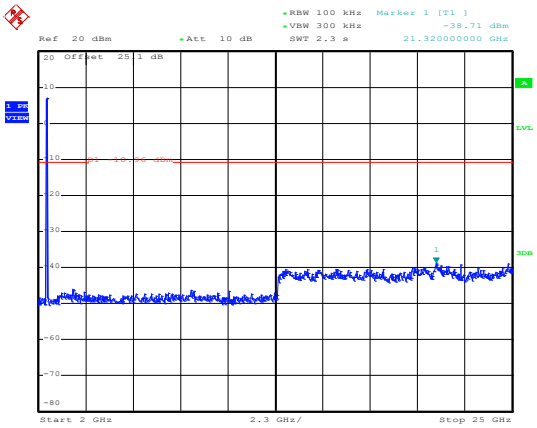
Spurious Emission 2GHz~25GHz

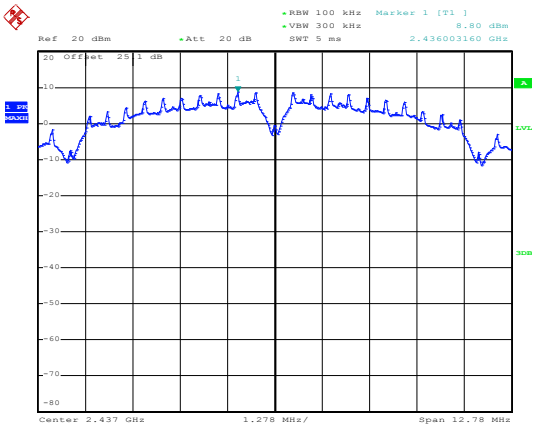


Date: 28.NOV.2013 17:14:21

Test Mode :	802.11b	Temperature :	21~26℃
Test Band :	2.4GHz Mid.	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Stuart Lin

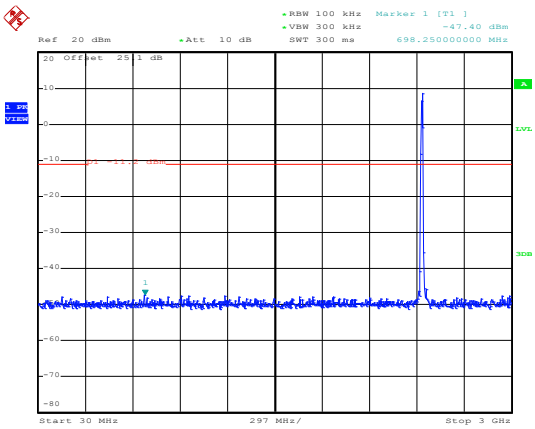
WLAN 802.11b Channel 06

100kHz PSD reference Level



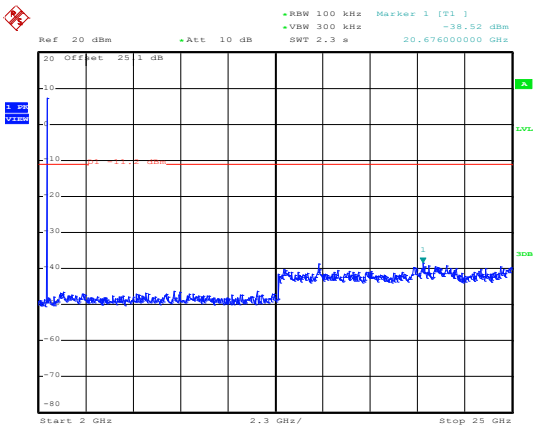
Date: 28.NOV.2013 17:16:51

Spurious Emission 30MHz~3GHz



Date: 28.NOV.2013 17:17:13

Spurious Emission 2GHz~25GHz

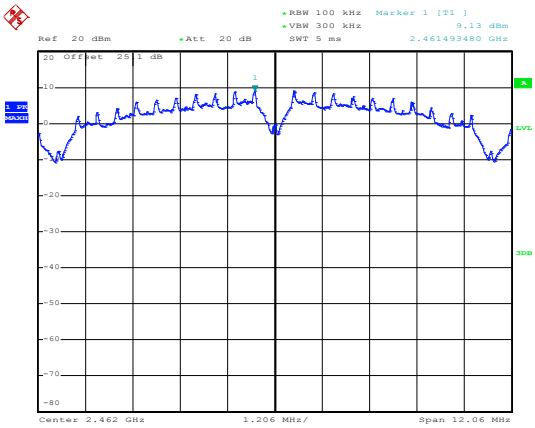


Date: 28.NOV.2013 17:17:32

Test Mode :	802.11b	Temperature :	21~26℃
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Stuart Lin

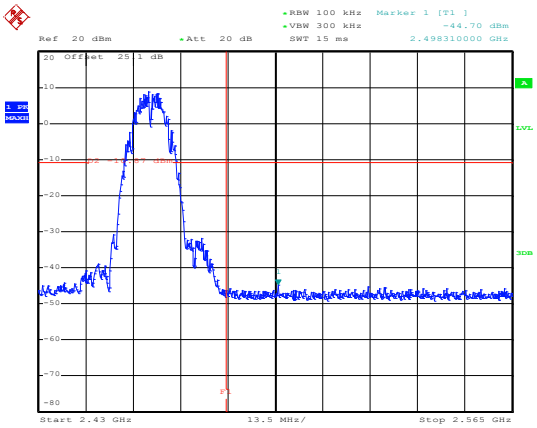
WLAN 802.11b Channel 11

100kHz PSD reference Level



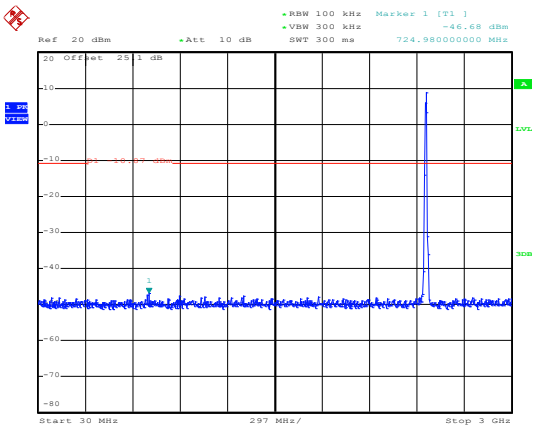
Date: 28.NOV.2013 17:20:19

High Channel Plot



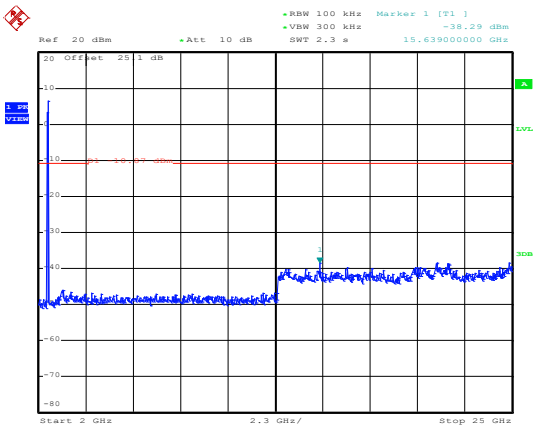
Date: 28.NOV.2013 17:20:37

Spurious Emission 30MHz~3GHz



Date: 28.NOV.2013 17:22:04

Spurious Emission 2GHz~25GHz

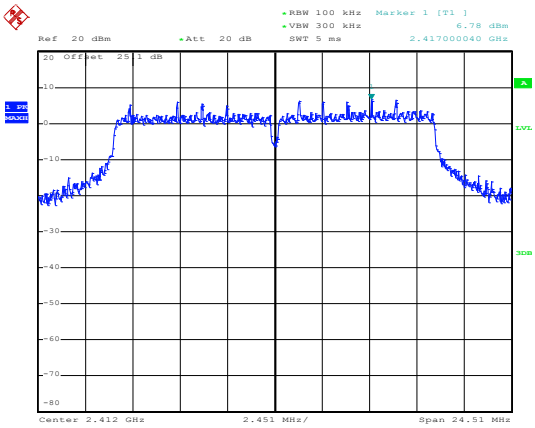


Date: 28.NOV.2013 17:22:23

Test Mode :	802.11g	**Temperature :**	21~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~54%
Test Channel :	01	**Test Engineer :**	Stuart Lin

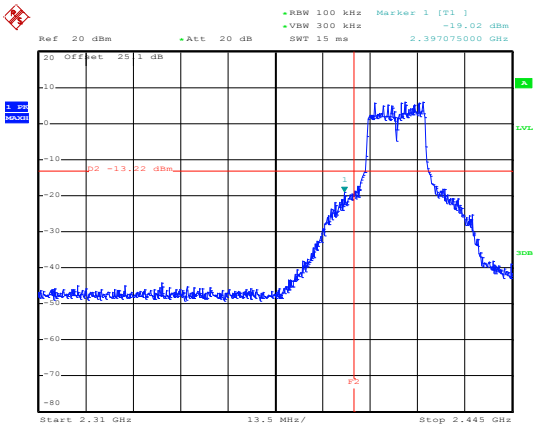
WLAN 802.11g Channel 01

100kHz PSD reference Level



Date: 28.NOV.2013 17:36:10

Low Channel Plot



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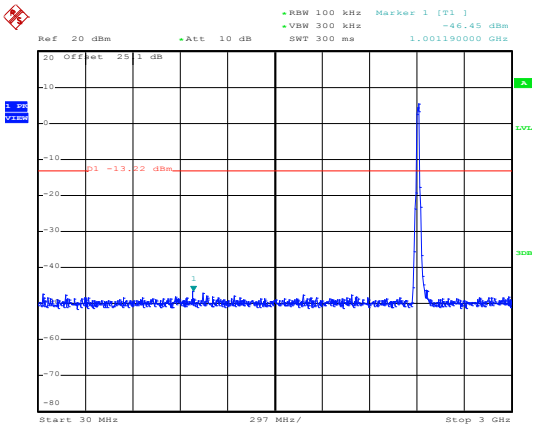
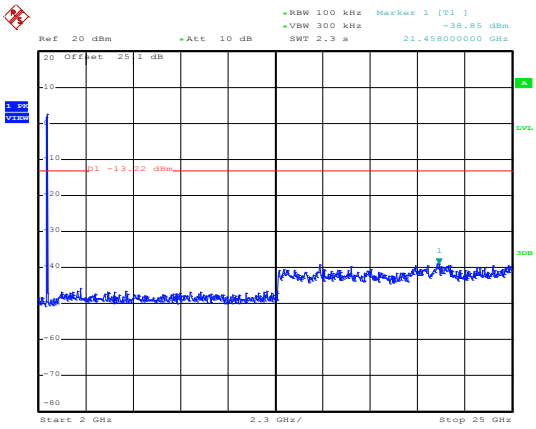
Spurious Emission 30MHz~3GHz



Date: 28.NOV.2013 17:37:42

Spurious Emission 2GHz~25GHz

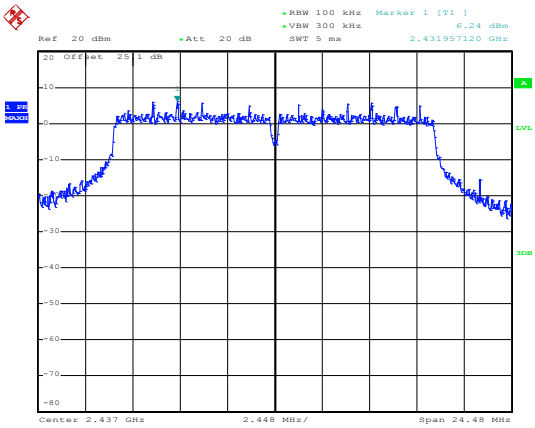


Date: 28.NOV.2013 17:38:01

Test Mode :	802.11g	**Temperature :**	21~26℃
Test Band :	2.4GHz Mid.	**Relative Humidity :**	45~54%
Test Channel :	06	**Test Engineer :**	Stuart Lin

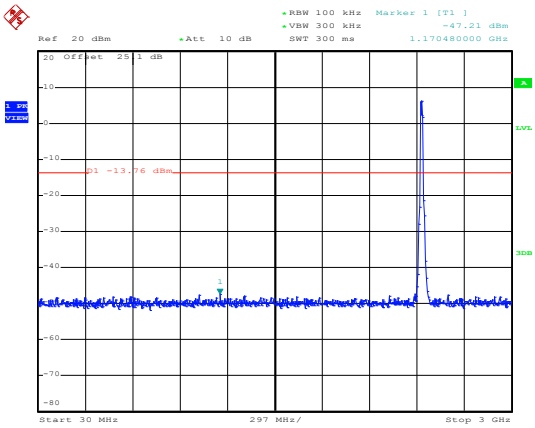
WLAN 802.11g Channel 06

100kHz PSD reference Level



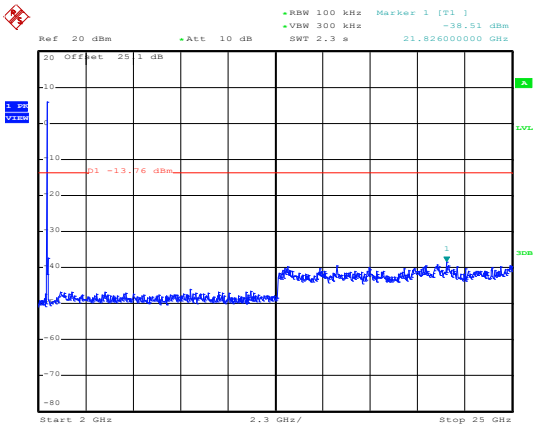
Date: 28.NOV.2013 17:32:46

Spurious Emission 30MHz~3GHz



Date: 28.NOV.2013 17:33:24

Spurious Emission 2GHz~25GHz

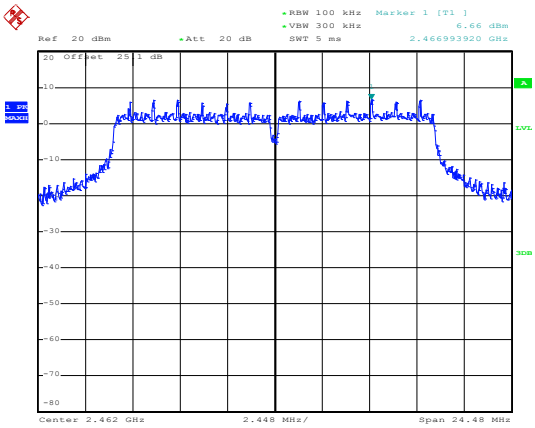


Date: 28.NOV.2013 17:33:42

Test Mode :	802.11g	Temperature :	21~26℃
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Stuart Lin

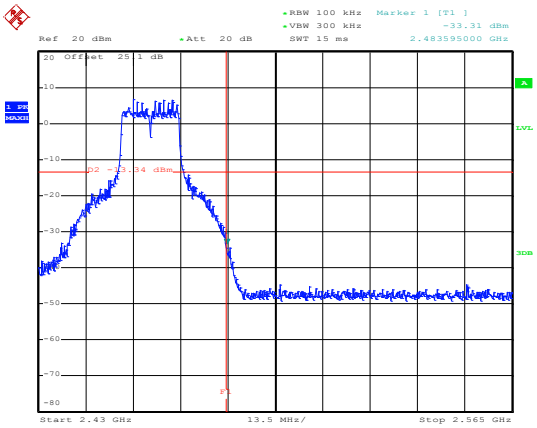
WLAN 802.11g Channel 11

100kHz PSD reference Level



Date: 28.NOV.2013 17:24:27

High Channel Plot



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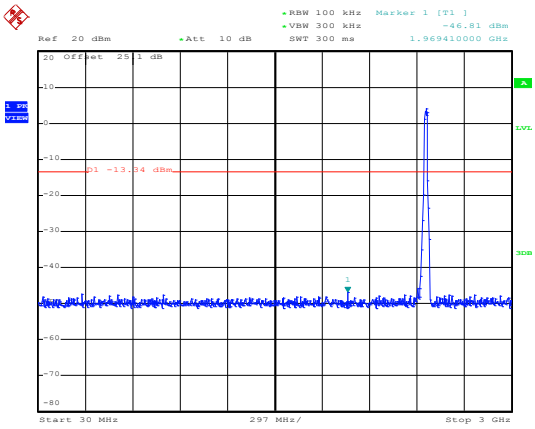
Spurious Emission 30MHz~3GHz



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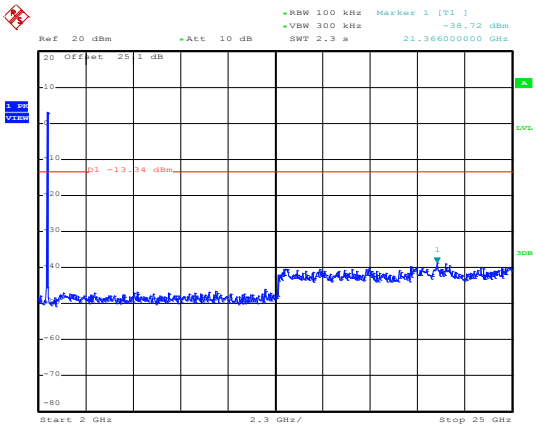
Spurious Emission 2GHz~25GHz

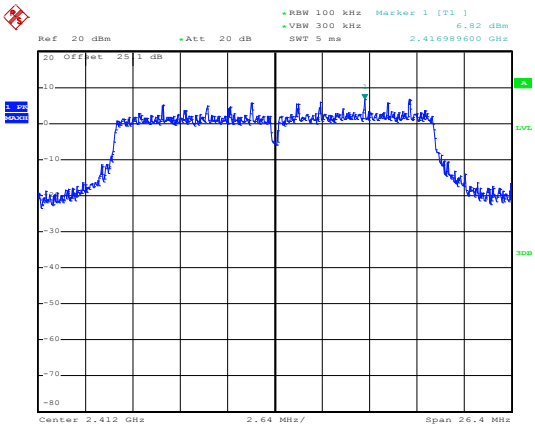


Date: 28.NOV.2013 17:30:12

Test Mode :	802.11n HT20	**Temperature :**	21~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~54%
Test Channel :	01	**Test Engineer :**	Stuart Lin

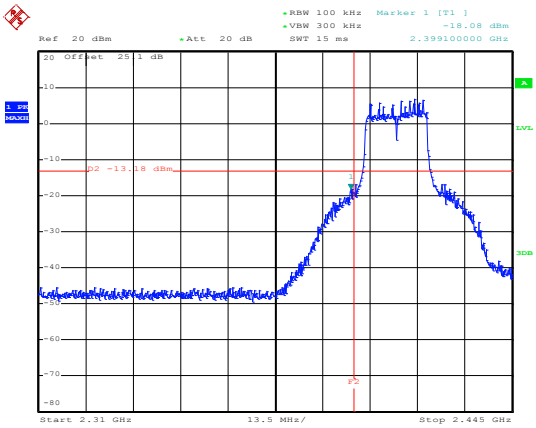
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



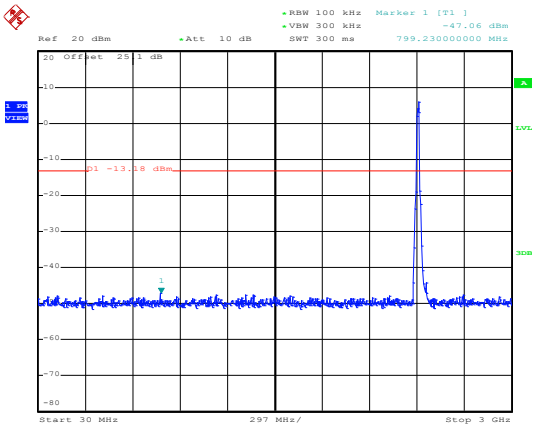
Date: 28.NOV.2013 17:40:41

Low Channel Plot



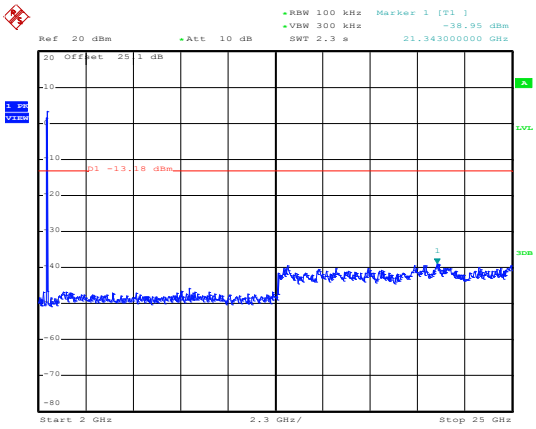
Date: 28.NOV.2013 17:41:14

Spurious Emission 30MHz~3GHz



Date: 28.NOV.2013 17:42:09

Spurious Emission 2GHz~25GHz

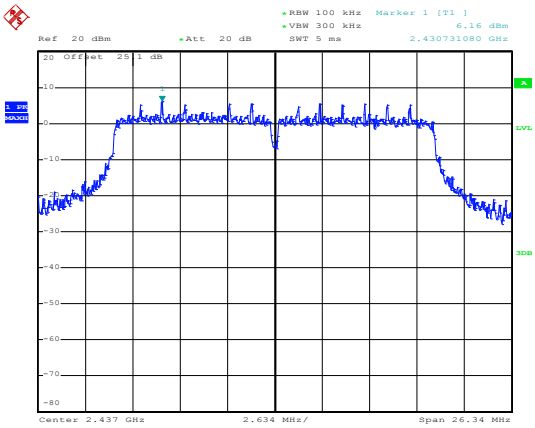


Date: 28.NOV.2013 17:42:27

Test Mode :	802.11n HT20	**Temperature :**	21~26℃
Test Band :	2.4GHz Mid.	**Relative Humidity :**	45~54%
Test Channel :	06	**Test Engineer :**	Stuart Lin

WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



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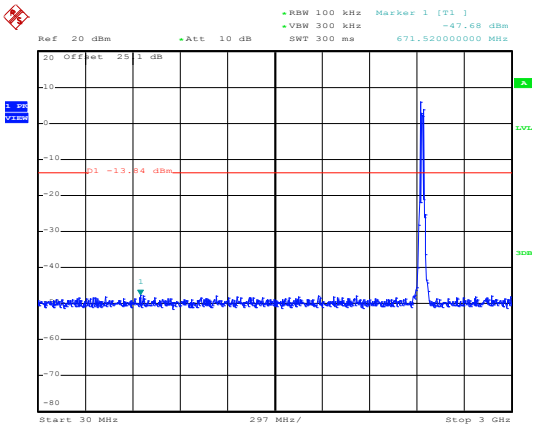
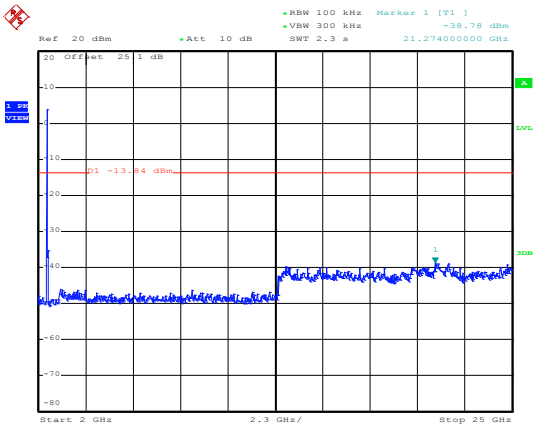
Spurious Emission 30MHz~3GHz



Date: 28.NOV.2013 18:57:41

Spurious Emission 2GHz~25GHz

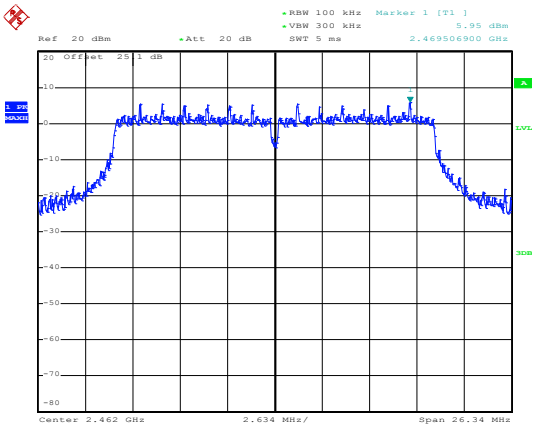


Date: 28.NOV.2013 18:58:00

Test Mode :	802.11n HT20	Temperature :	21~26℃
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Stuart Lin

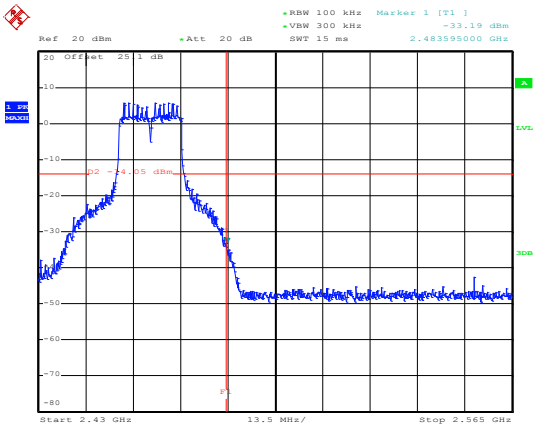
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



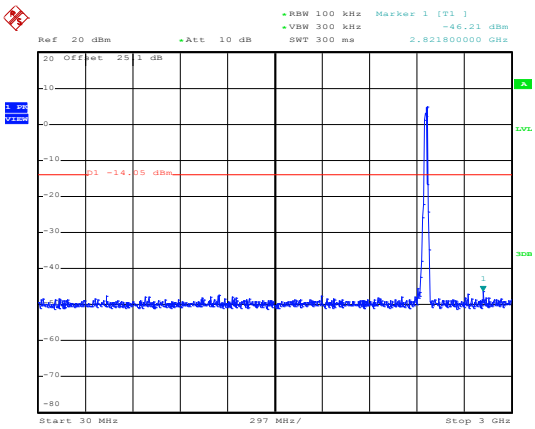
Date: 28.NOV.2013 19:00:36

High Channel Plot



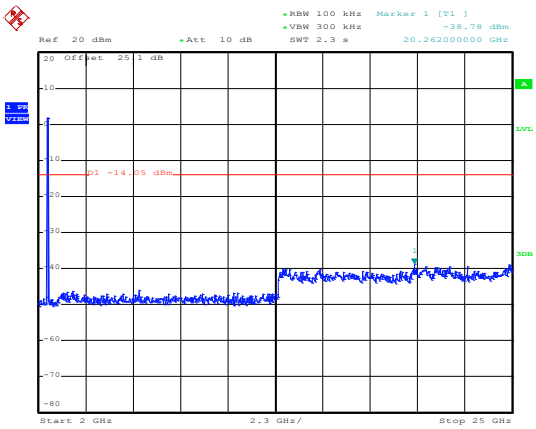
Date: 28.NOV.2013 19:00:51

Spurious Emission 30MHz~3GHz



Date: 28.NOV.2013 19:01:26

Spurious Emission 2GHz~25GHz

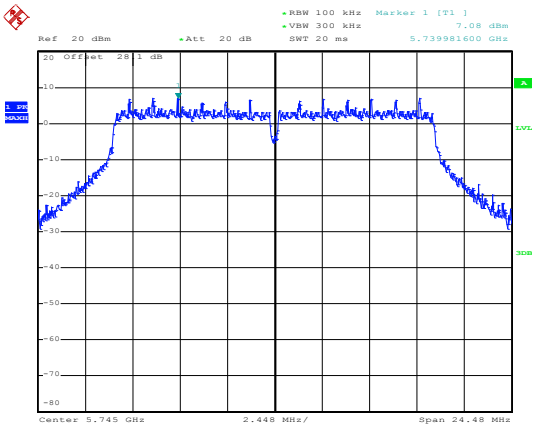


Date: 28.NOV.2013 19:01:45

Test Mode :	802.11a	**Temperature :**	21~26℃
Test Band :	5GHz Low	**Relative Humidity :**	45~54%
Test Channel :	149	**Test Engineer :**	Stuart Lin

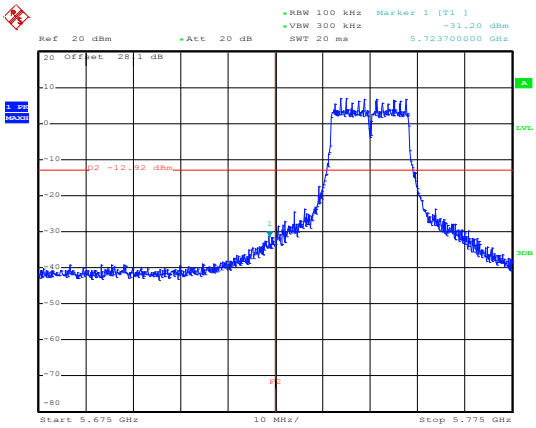
WLAN 802.11a Channel 149

100kHz PSD reference Level



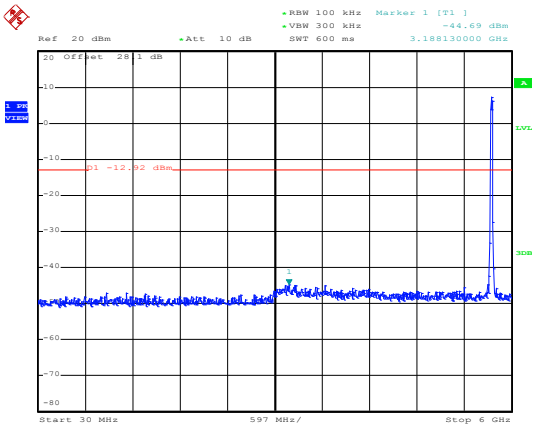
Date: 28.NOV.2013 20:11:21

Low Channel Plot



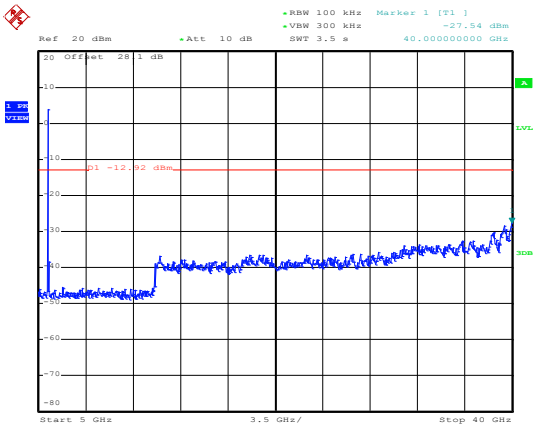
Date: 28.NOV.2013 20:11:37

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 20:12:12

Spurious Emission 5GHz~40GHz

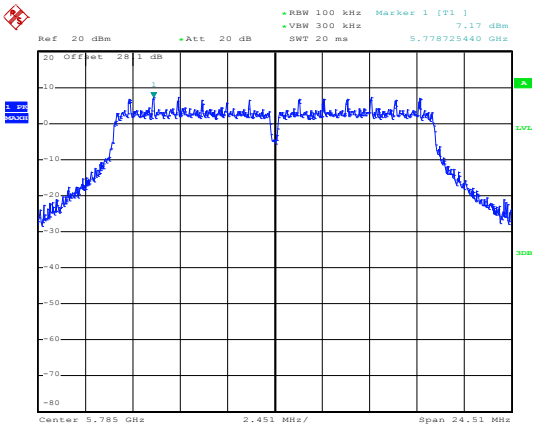


Date: 28.NOV.2013 20:12:30

Test Mode :	802.11a	**Temperature :**	21~26℃
Test Band :	5GHz Mid.	**Relative Humidity :**	45~54%
Test Channel :	157	**Test Engineer :**	Stuart Lin

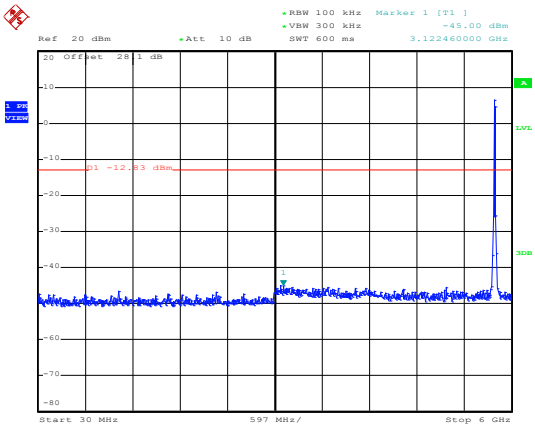
WLAN 802.11a Channel 157

100kHz PSD reference Level



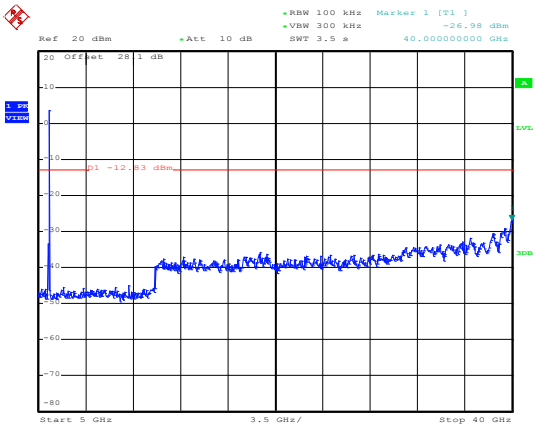
Date: 28.NOV.2013 20:13:56

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 20:14:30

Spurious Emission 5GHz~40GHz

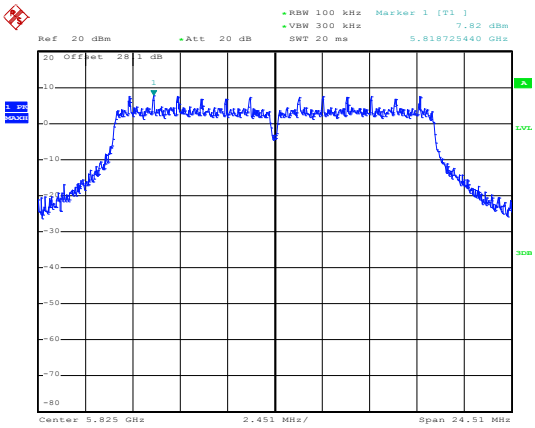


Date: 28.NOV.2013 20:14:49

Test Mode :	802.11a	**Temperature :**	21~26℃
Test Band :	5GHz High	**Relative Humidity :**	45~54%
Test Channel :	165	**Test Engineer :**	Stuart Lin

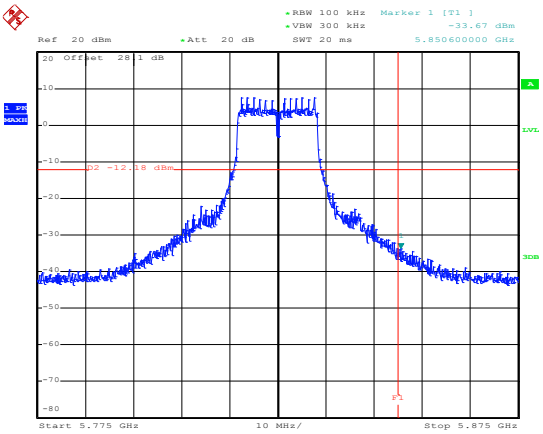
WLAN 802.11a Channel 165

100kHz PSD reference Level



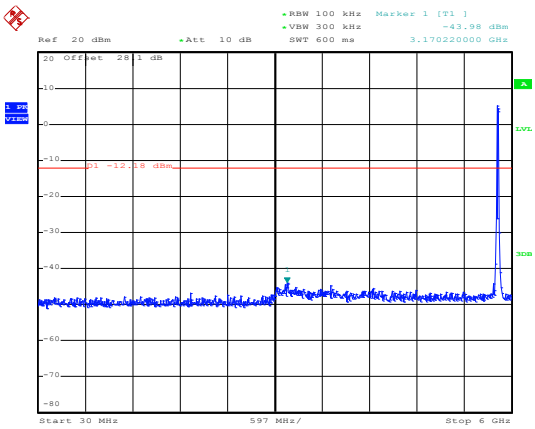
Date: 28.NOV.2013 20:17:03

High Channel Plot



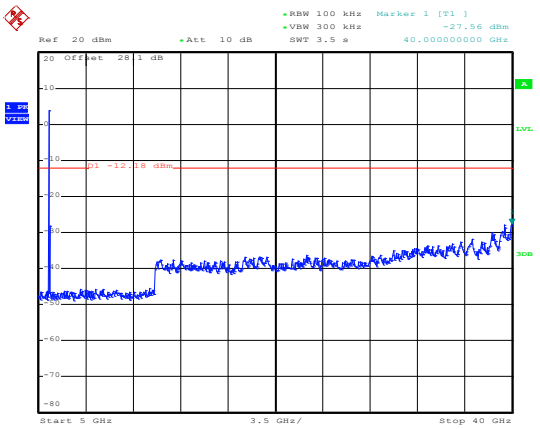
Date: 28.NOV.2013 20:17:45

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 20:18:05

Spurious Emission 5GHz~40GHz

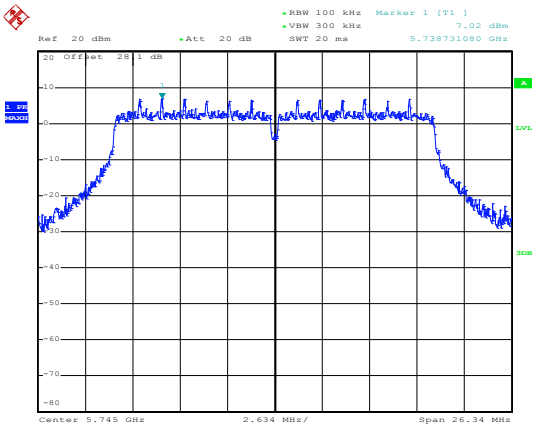


Date: 28.NOV.2013 20:18:24

Test Mode :	802.11n HT20	**Temperature :**	21~26℃
Test Band :	5GHz Low	**Relative Humidity :**	45~54%
Test Channel :	149	**Test Engineer :**	Stuart Lin

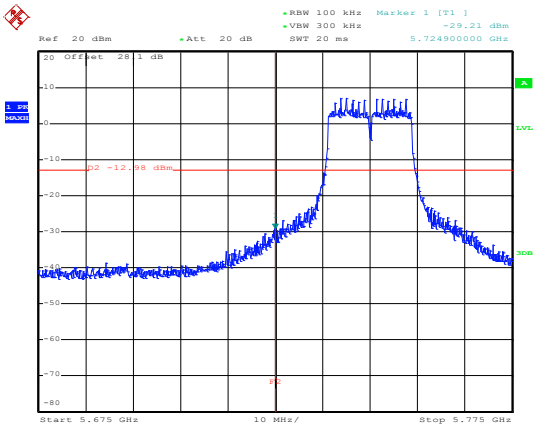
WLAN 802.11n HT20 Channel 149

100kHz PSD reference Level



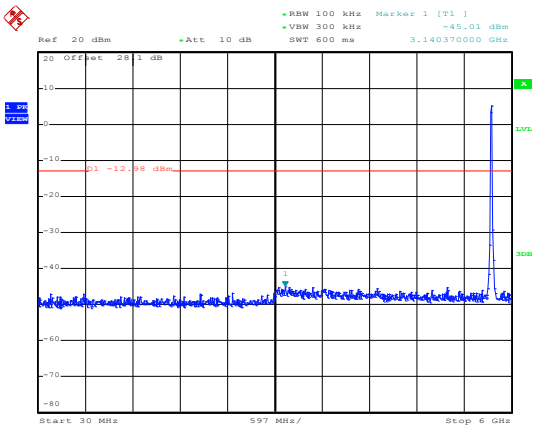
Date: 28.NOV.2013 20:08:25

Low Channel Plot



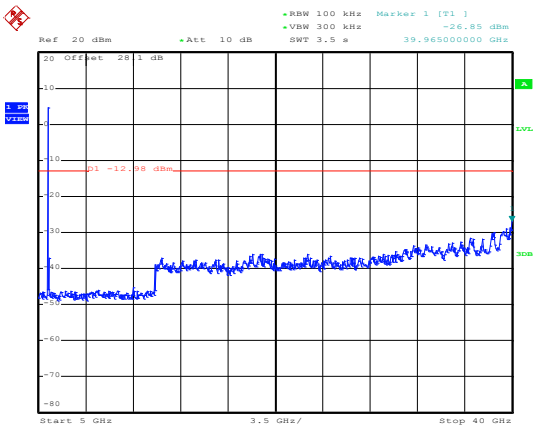
Date: 28.NOV.2013 20:08:44

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 20:09:26

Spurious Emission 5GHz~40GHz

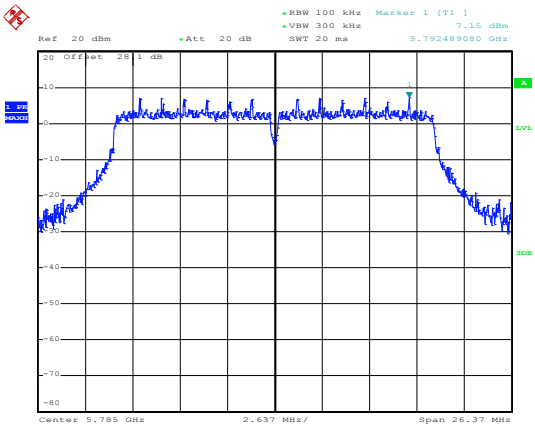


Date: 28.NOV.2013 20:09:45

Test Mode :	802.11n HT20	**Temperature :**	21~26℃
Test Band :	5GHz Mid.	**Relative Humidity :**	45~54%
Test Channel :	157	**Test Engineer :**	Stuart Lin

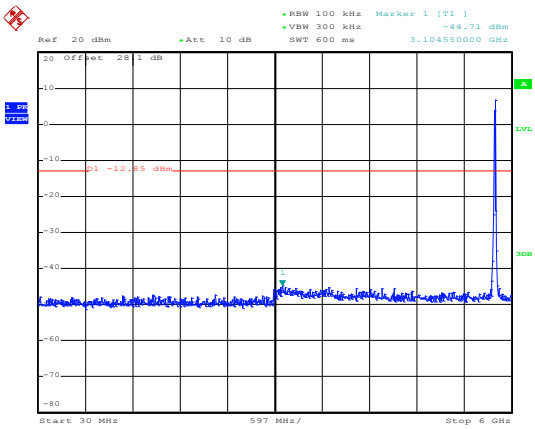
WLAN 802.11n HT20 Channel 157

100kHz PSD reference Level



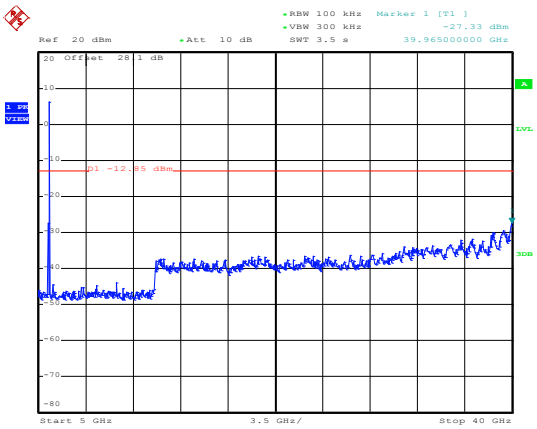
Date: 28.NOV.2013 20:05:31

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 20:06:10

Spurious Emission 5GHz~40GHz

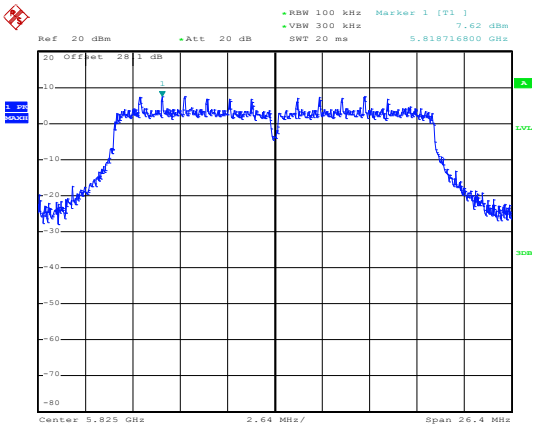


Date: 28.NOV.2013 20:06:28

Test Mode :	802.11n HT20	**Temperature :**	21~26℃
Test Band :	5GHz High	**Relative Humidity :**	45~54%
Test Channel :	165	**Test Engineer :**	Stuart Lin

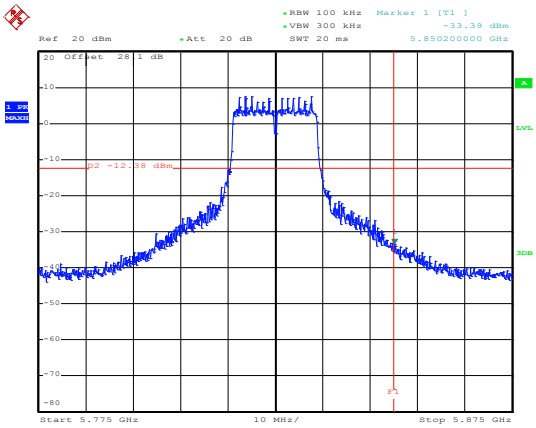
WLAN 802.11n HT20 Channel 165

100kHz PSD reference Level



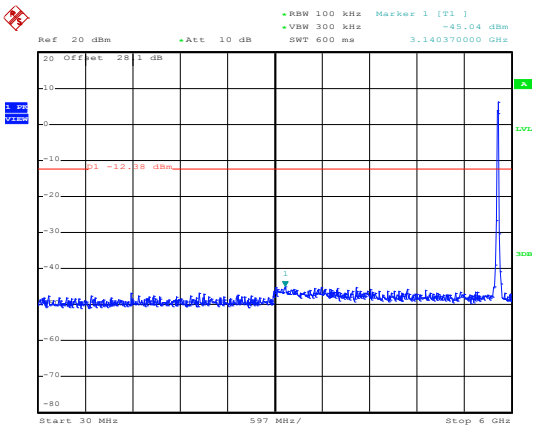
Date: 28.NOV.2013 20:02:10

High Channel Plot



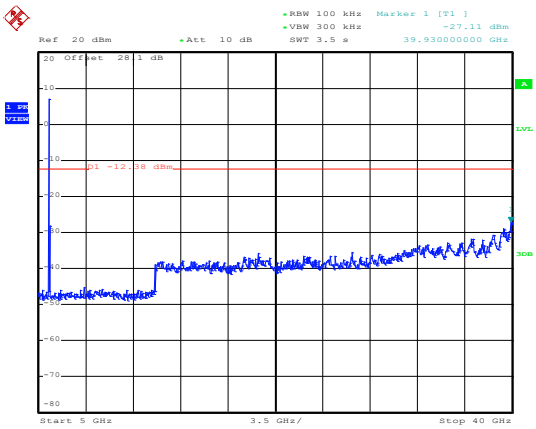
Date: 28.NOV.2013 20:02:43

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 20:03:21

Spurious Emission 5GHz~40GHz

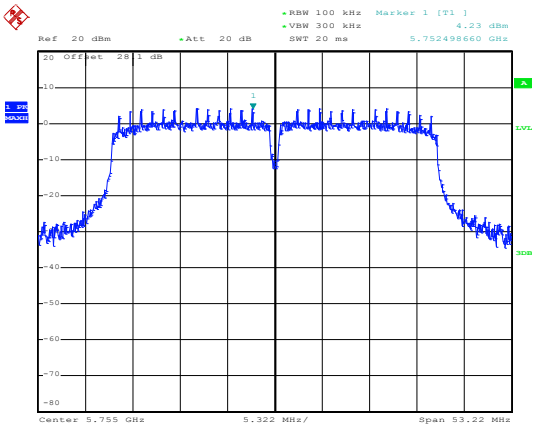


Date: 28.NOV.2013 20:03:39

Test Mode :	802.11n HT40	Temperature :	21~26℃
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	151	Test Engineer :	Stuart Lin

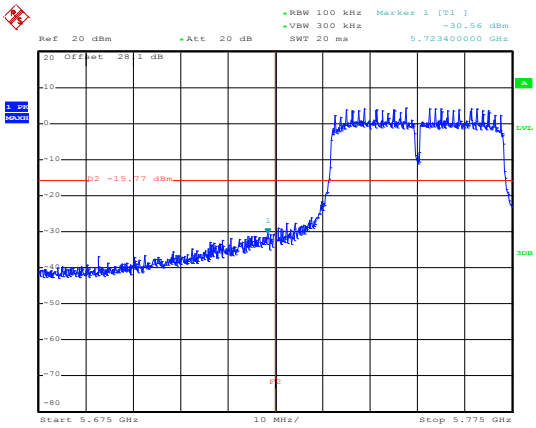
WLAN 802.11n HT40 Channel 151

100kHz PSD reference Level



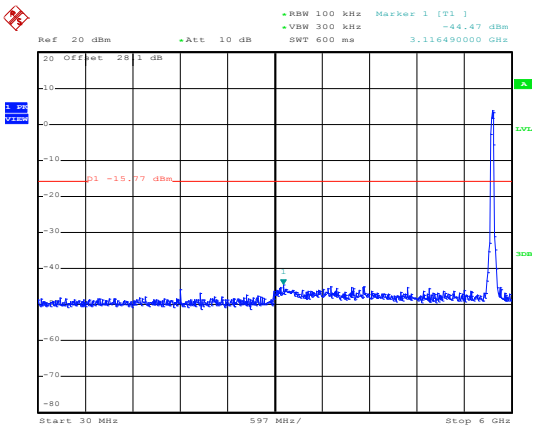
Date: 28.NOV.2013 19:39:37

Low Channel Plot



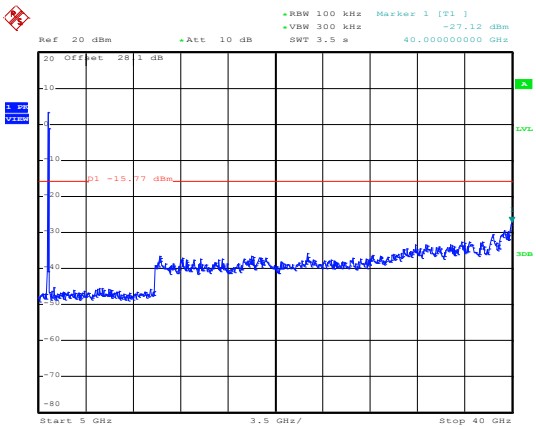
Date: 28.NOV.2013 19:39:52

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 19:40:26

Spurious Emission 5GHz~40GHz

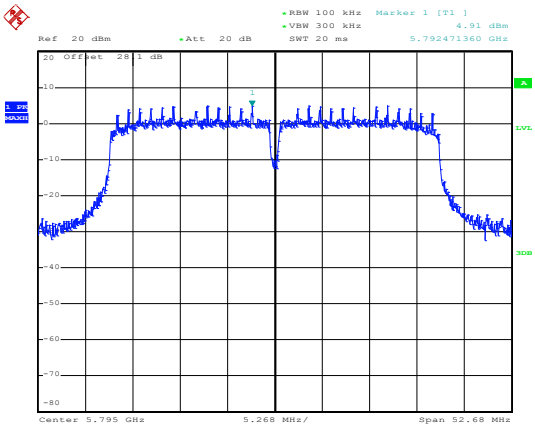


Date: 28.NOV.2013 19:40:44

Test Mode :	802.11n HT40	**Temperature :**	21~26℃
Test Band :	5GHz High	**Relative Humidity :**	45~54%
Test Channel :	159	**Test Engineer :**	Stuart Lin

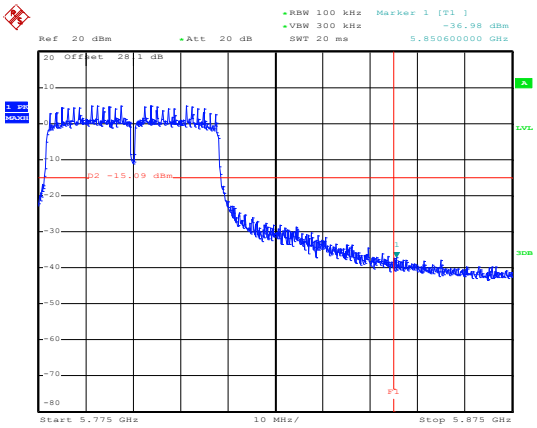
WLAN 802.11n HT40 Channel 159

100kHz PSD reference Level



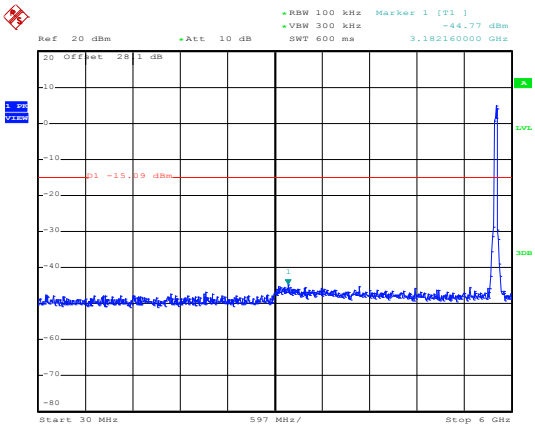
Date: 28.NOV.2013 19:42:52

High Channel Plot



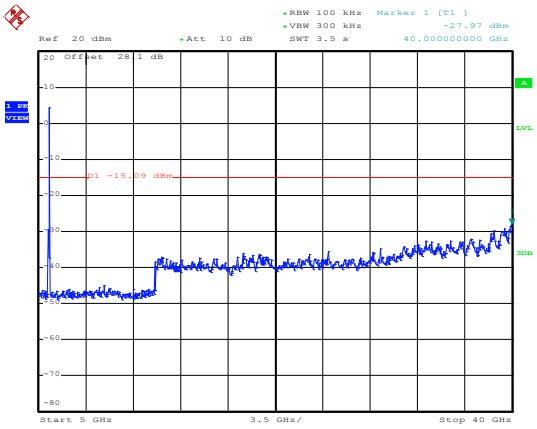
Date: 28.NOV.2013 19:43:07

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 19:43:28

Spurious Emission 5GHz~40GHz

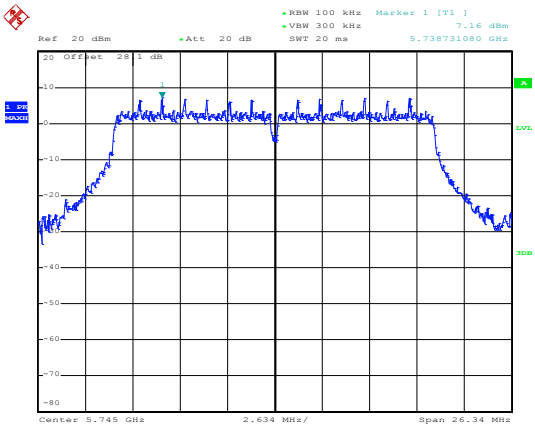


Date: 28.NOV.2013 19:43:46

Test Mode :	802.11ac VHT20	**Temperature :**	21~26℃
Test Band :	5GHz Low	**Relative Humidity :**	45~54%
Test Channel :	149	**Test Engineer :**	Stuart Lin

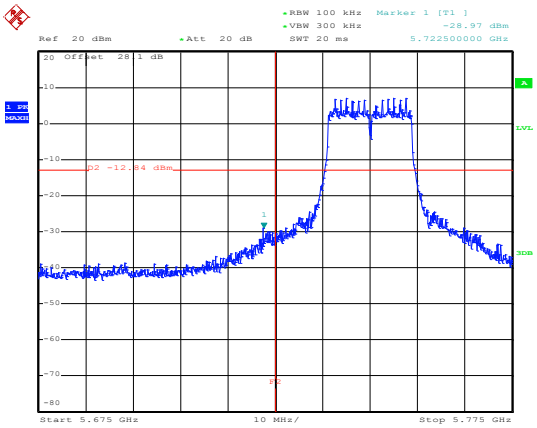
WLAN 802.11ac VHT20 Channel 149

100kHz PSD reference Level



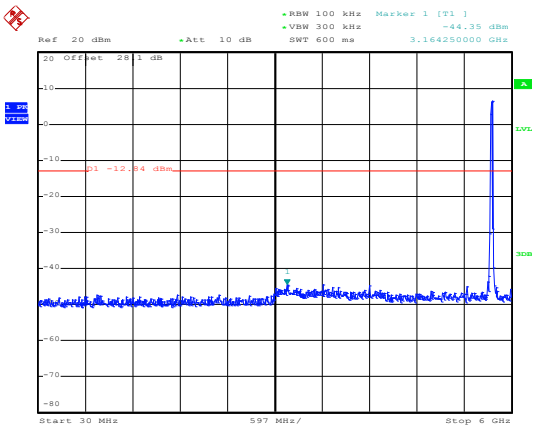
Date: 28.NOV.2013 19:51:48

Low Channel Plot



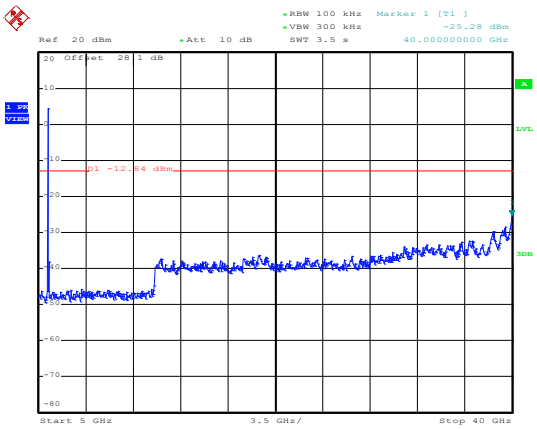
Date: 28.NOV.2013 19:52:12

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 19:52:53

Spurious Emission 5GHz~40GHz

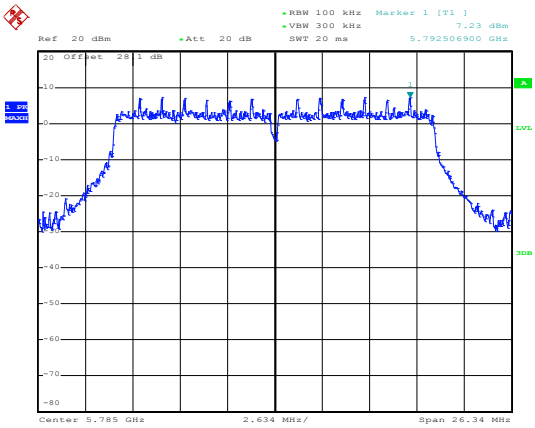


Date: 28.NOV.2013 19:53:11

Test Mode :	802.11ac VHT20	**Temperature :**	21~26℃
Test Band :	5GHz Mid.	**Relative Humidity :**	45~54%
Test Channel :	157	**Test Engineer :**	Stuart Lin

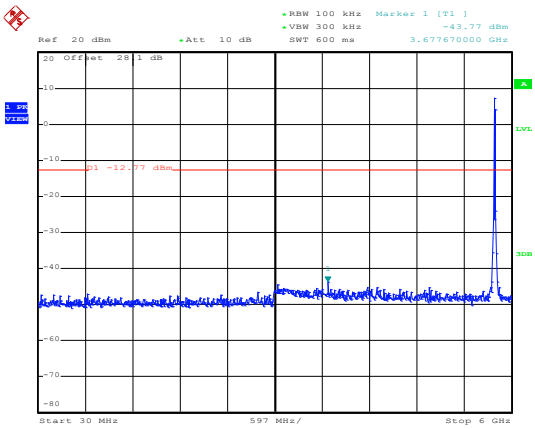
WLAN 802.11ac VHT20 Channel 157

100kHz PSD reference Level



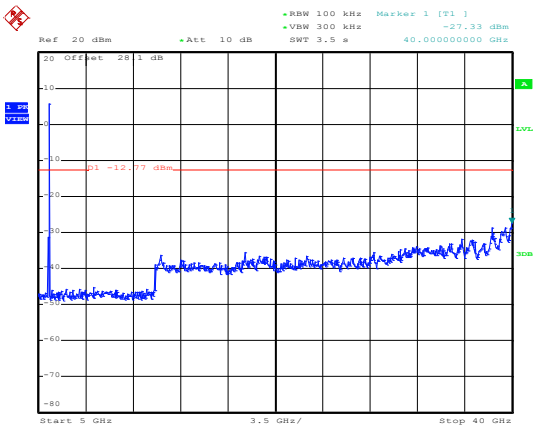
Date: 28.NOV.2013 19:54:39

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 19:55:15

Spurious Emission 5GHz~40GHz

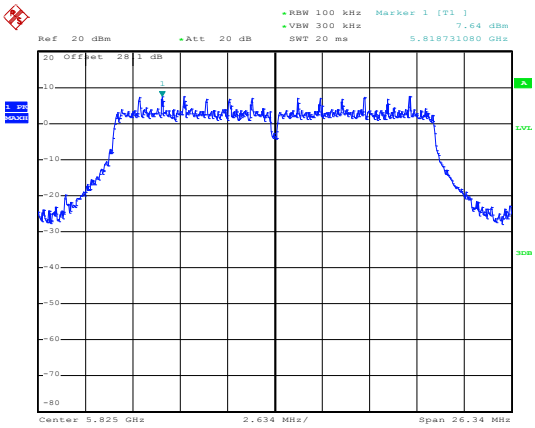


Date: 28.NOV.2013 19:55:34

Test Mode :	802.11ac VHT20	**Temperature :**	21~26℃
Test Band :	5GHz High	**Relative Humidity :**	45~54%
Test Channel :	165	**Test Engineer :**	Stuart Lin

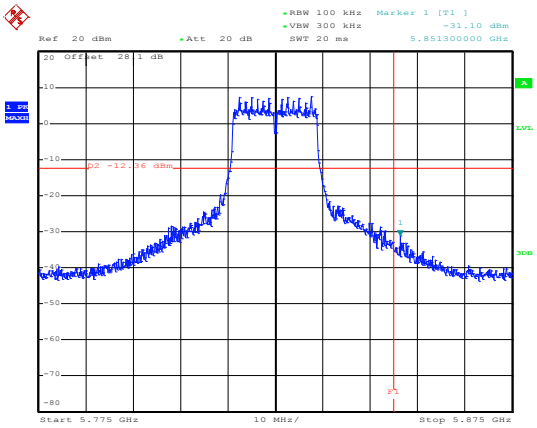
WLAN 802.11ac VHT20 Channel 165

100kHz PSD reference Level



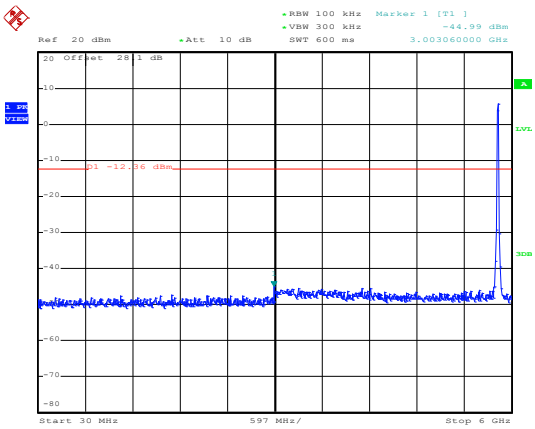
Date: 28.NOV.2013 19:57:59

High Channel Plot



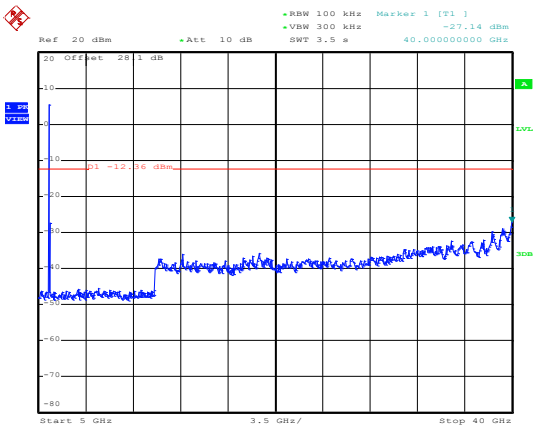
Date: 28.NOV.2013 19:58:16

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 19:58:50

Spurious Emission 5GHz~40GHz

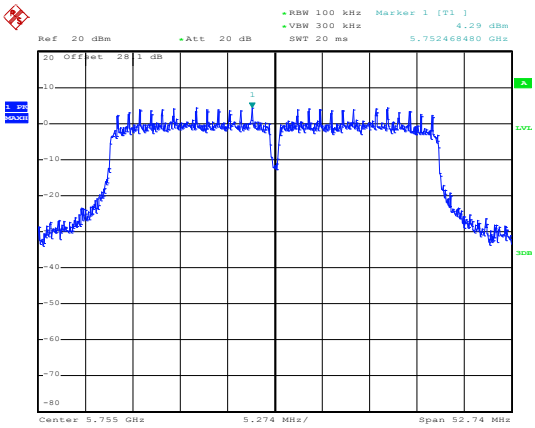


Date: 28.NOV.2013 19:59:09

Test Mode :	802.11ac VHT40	**Temperature :**	21~26℃
Test Band :	5GHz Low	**Relative Humidity :**	45~54%
Test Channel :	151	**Test Engineer :**	Stuart Lin

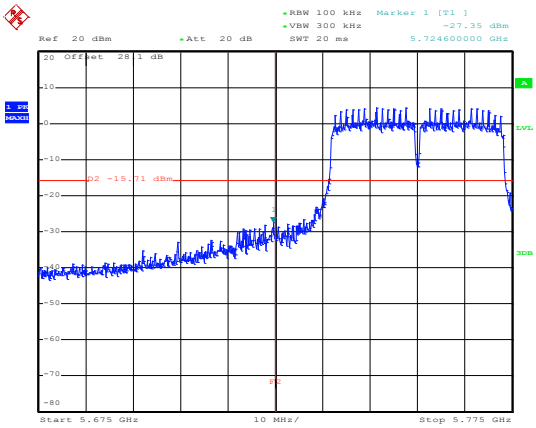
WLAN 802.11ac VHT40 Channel 151

100kHz PSD reference Level



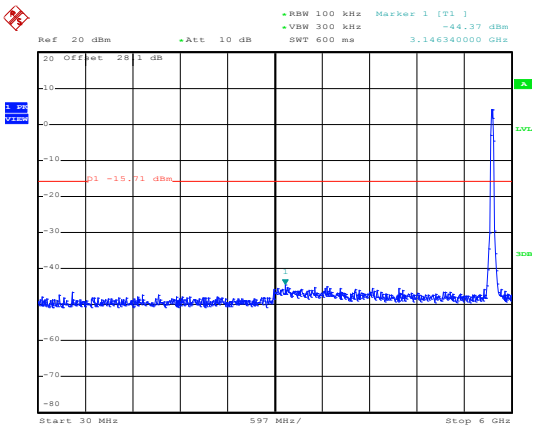
Date: 28.NOV.2013 19:48:25

Low Channel Plot



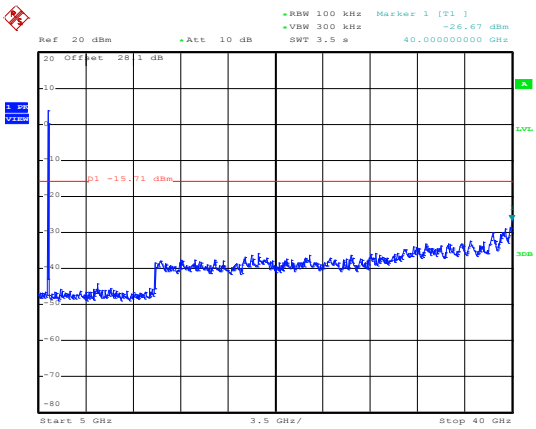
Date: 28.NOV.2013 19:48:41

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 19:49:13

Spurious Emission 5GHz~40GHz

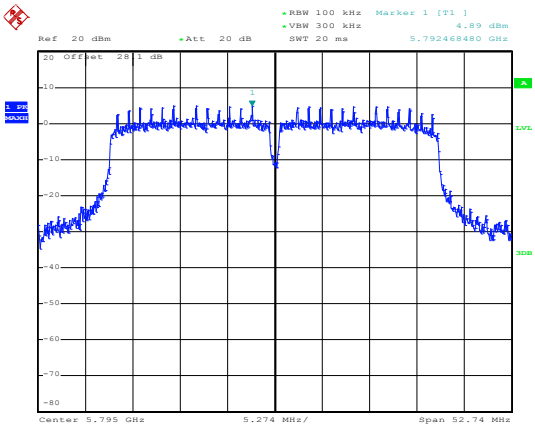


Date: 28.NOV.2013 19:49:31

Test Mode :	802.11ac VHT40	**Temperature :**	21~26℃
Test Band :	5GHz High	**Relative Humidity :**	45~54%
Test Channel :	159	**Test Engineer :**	Stuart Lin

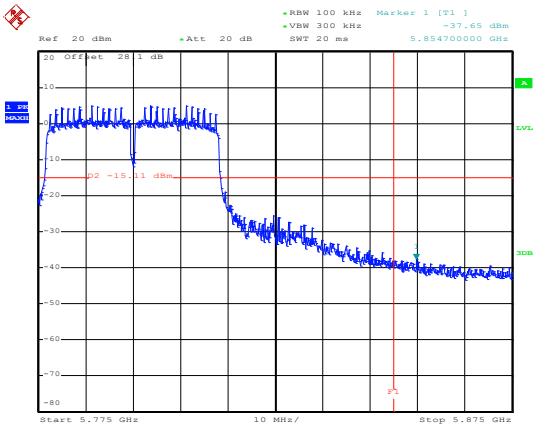
WLAN 802.11ac VHT40 Channel 159

100kHz PSD reference Level



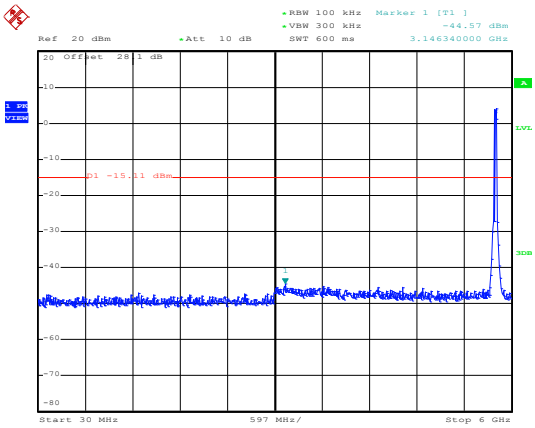
Date: 28.NOV.2013 19:45:41

High Channel Plot



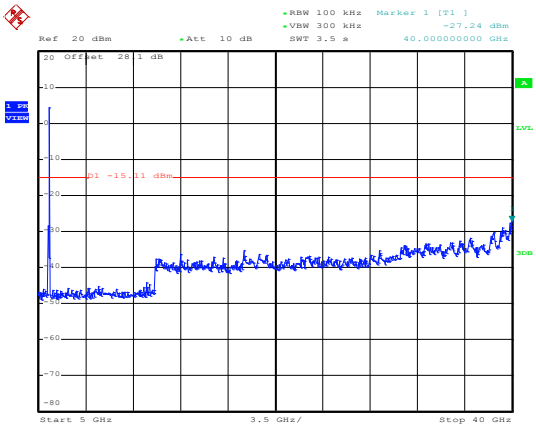
Date: 28.NOV.2013 19:46:01

Spurious Emission 30MHz~6GHz



Date: 28.NOV.2013 19:46:37

Spurious Emission 5GHz~40GHz

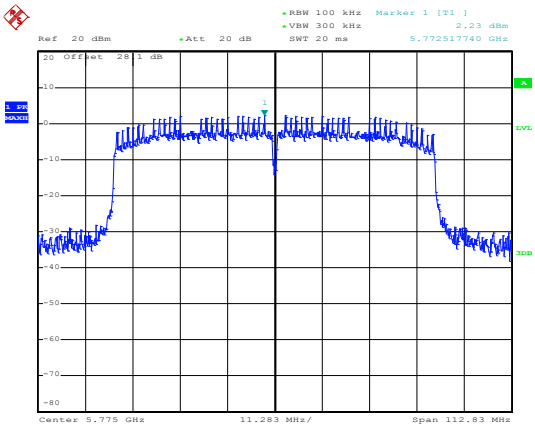


Date: 28.NOV.2013 19:46:56

Test Mode :	802.11ac VHT80	**Temperature :**	21~26℃
Test Band :	5GHz	**Relative Humidity :**	45~54%
Test Channel :	155	**Test Engineer :**	Stuart Lin

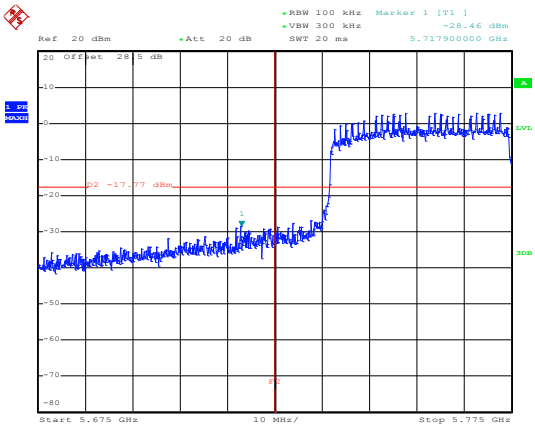
WLAN 802.11ac VHT80 Channel 155

100kHz PSD reference Level



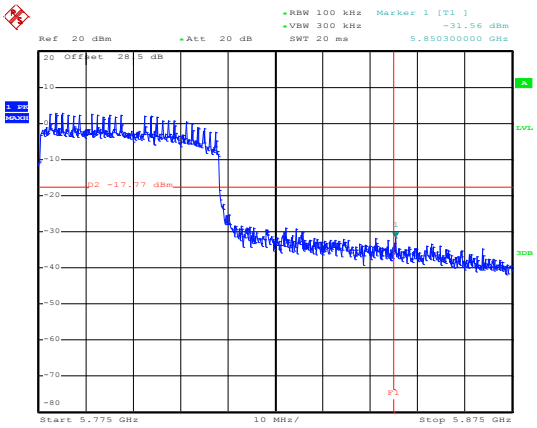
Date: 28.NOV.2013 20:21:26

Low Channel Plot

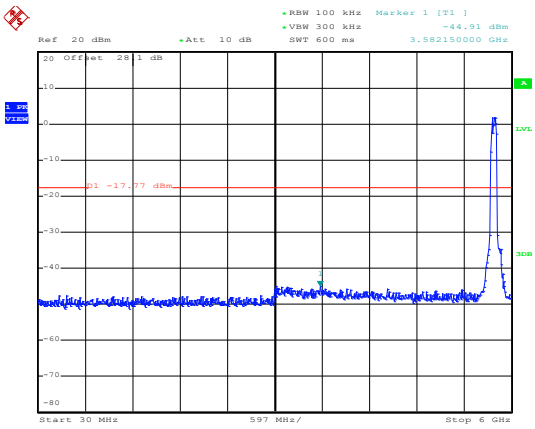
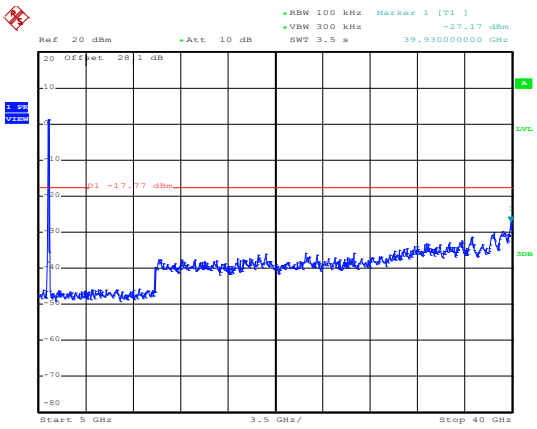


Date: 26.DEC.2013 22:32:44

High Channel Plot



Date: 26.DEC.2013 22:31:33

Spurious Emission 30MHz~6GHz	Spurious Emission 5GHz~40GHz
	
Date: 28.NOV.2013 20:22:27	Date: 28.NOV.2013 20:22:46

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

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

3.5.2 Measuring Instruments

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

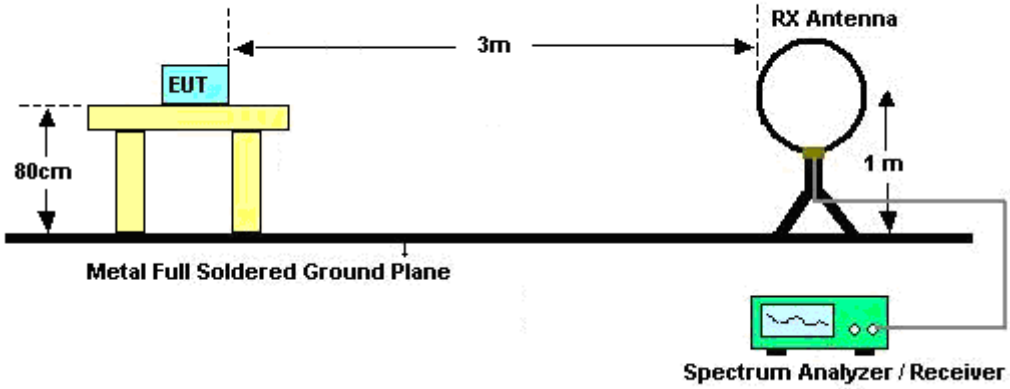
3.5.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - 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.

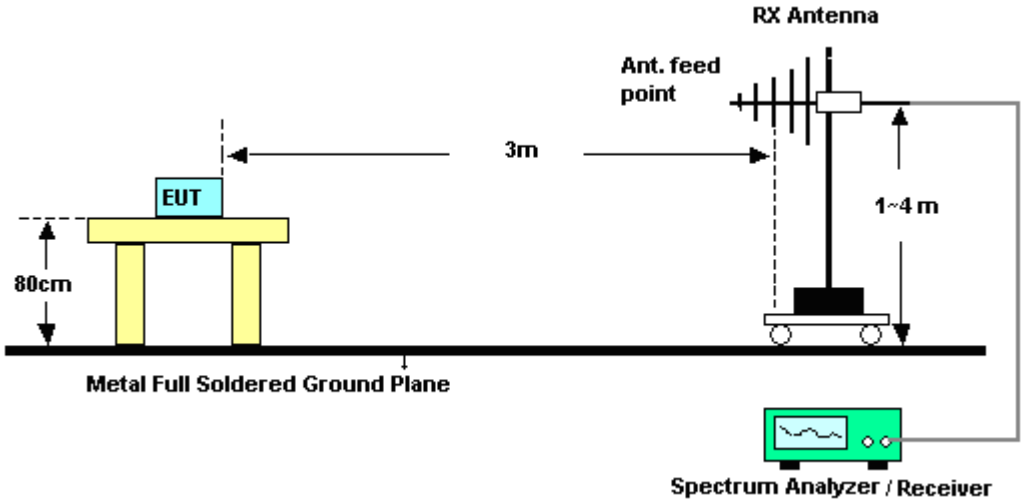
Band	Duty Cycle(%)	T(μs)	1/T(kHz)	VBW Setting
802.11b	100	-	-	10Hz
802.11g	100	-	-	10Hz
2.4GHz 802.11n HT20	100	-	-	10Hz
802.11a	100	-	-	10Hz
5GHz 802.11n HT20	100	-	-	10Hz
5GHz 802.11n HT40	98.40	-	-	10Hz
5GHz 802.11n VHT20	99.11	-	-	10Hz
5GHz 802.11n VHT40	97.60	488.00	2.05	3kHz
5GHz 802.11n VHT80	96.12	248.00	4.03	10kHz

3.5.4 Test Setup

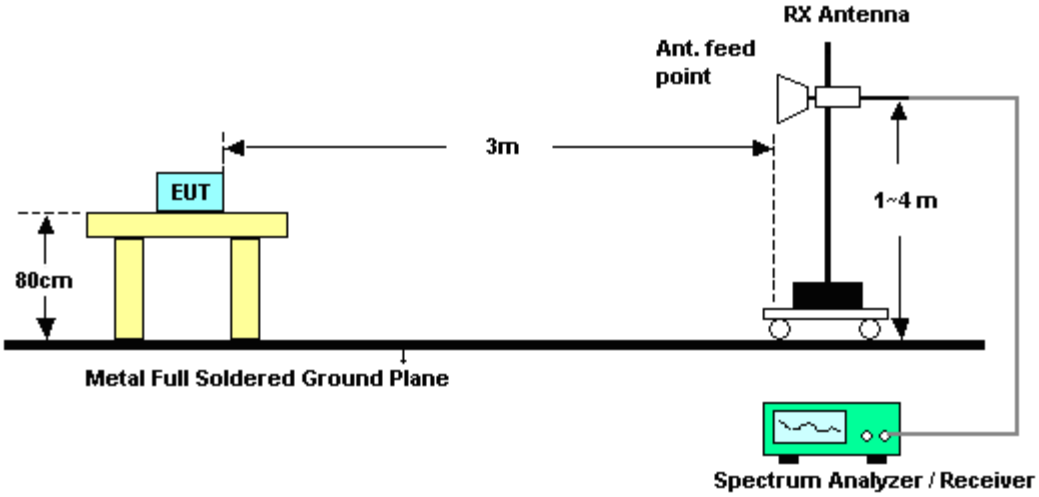
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.5.6 Test Result of Radiated Spurious at Band Edges

Test Mode :	802.11b	**Temperature :**	20~21°C
Test Band :	Low	**Relative Humidity :**	50~54%
Test Channel :	01	**Test Engineer :**	Jet Lui

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
2383.44	57.14	-16.86	74	54.64	32.2	6.22	35.92	100	179	Peak
2390	43.51	-10.49	54	40.92	32.27	6.22	35.9	100	179	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
2366.61	56.83	-17.17	74	54.7	31.84	6.21	35.92	177	70	Peak
2387.67	43.05	-10.95	54	40.69	32.06	6.22	35.92	177	70	Average

Test Mode :	802.11b	**Temperature :**	20~21°C
Test Band :	High	**Relative Humidity :**	50~54%
Test Channel :	11	**Test Engineer :**	Jet Lui

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
2484.97	59.21	-14.79	74	55.96	32.63	6.45	35.83	100	354	Peak
2483.68	45.64	-8.36	54	42.39	32.63	6.45	35.83	100	354	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
2499.55	58.95	-15.05	74	55.6	32.7	6.45	35.8	100	161	Peak
2483.92	45.94	-8.06	54	42.73	32.59	6.45	35.83	100	161	Average

Test Mode :	802.11g	**Temperature :**	20~21°C
Test Band :	Low	**Relative Humidity :**	50~54%
Test Channel :	01	**Test Engineer :**	Jet Lui

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
2389.65	71.79	-2.21	74	69.22	32.27	6.22	35.92	100	358	Peak
2390	51	-3	54	48.41	32.27	6.22	35.9	100	358	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
2389.65	72.72	-1.28	74	70.36	32.06	6.22	35.92	100	37	Peak
2390	51.18	-2.82	54	48.8	32.06	6.22	35.9	100	37	Average

Test Mode :	802.11g	**Temperature :**	20~21°C
Test Band :	High	**Relative Humidity :**	50~54%
Test Channel :	11	**Test Engineer :**	Jet Lui

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
2483.59	69.07	-4.93	74	65.82	32.63	6.45	35.83	100	6	Peak
2483.5	49.94	-4.06	54	46.69	32.63	6.45	35.83	100	6	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.53	72.11	-1.89	74	68.9	32.59	6.45	35.83	100	324	Peak
2483.5	51.94	-2.06	54	48.73	32.59	6.45	35.83	100	324	Average

Test Mode :	802.11n HT20	**Temperature :**	20~21°C
Test Band :	Low	**Relative Humidity :**	50~54%
Test Channel :	01	**Test Engineer :**	Jet Lui

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
2389.29	72.84	-1.16	74	70.27	32.27	6.22	35.92	100	316	Peak
2389.92	51.71	-2.29	54	49.12	32.27	6.22	35.9	100	316	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
2390	71.77	-2.23	74	69.39	32.06	6.22	35.9	100	319	Peak
2390	49.63	-4.37	54	47.25	32.06	6.22	35.9	100	319	Average

Test Mode :	802.11n HT20	**Temperature :**	20~21°C
Test Band :	High	**Relative Humidity :**	50~54%
Test Channel :	11	**Test Engineer :**	Jet Lui

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
2484.31	67.37	-6.63	74	64.12	32.63	6.45	35.83	100	5	Peak
2483.5	48.48	-5.52	54	45.23	32.63	6.45	35.83	100	5	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
2483.8	73.28	-0.72	74	70.07	32.59	6.45	35.83	100	322	Peak
2483.5	50.87	-3.13	54	47.66	32.59	6.45	35.83	100	322	Average

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

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

Test Mode :	802.11b	**Temperature :**	20~21°C
Test Channel :	01	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2412	99.28	-	-	96.56	32.34	6.28	35.9	100	179	Average
2412	104.82	-	-	102.1	32.34	6.28	35.9	100	179	Peak
4824	38.82	-35.18	54	55.28	34.44	8.04	58.94	100	0	Peak

Test Mode :	802.11b	**Temperature :**	20~21°C
Test Channel :	01	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 2414 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2414	98	-	-	95.46	32.16	6.28	35.9	177	70	Average
2414	103.55	-	-	101.01	32.16	6.28	35.9	177	70	Peak
4824	39.06	-34.94	54	55.52	34.44	8.04	58.94	100	0	Peak

Test Mode :	802.11b	**Temperature :**	20~21°C
Test Channel :	06	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2439	101.72	-	-	98.77	32.49	6.34	35.88	100	316	Average
2439	106.41	-	-	103.46	32.49	6.34	35.88	100	316	Peak
4875	39.48	-34.52	54	55.84	34.4	8.11	58.87	100	0	Peak
7311	46.01	-27.99	54	58.38	35.62	10.47	58.46	100	0	Peak

Test Mode :	802.11b	**Temperature :**	20~21°C
Test Channel :	06	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2439	101.32	-	-	98.48	32.38	6.34	35.88	123	239	Average
2439	105.75	-	-	102.91	32.38	6.34	35.88	123	239	Peak
4875	38.98	-35.02	54	55.34	34.4	8.11	58.87	100	0	Peak
7311	46.08	-27.92	54	58.51	35.56	10.47	58.46	100	0	Peak

Test Mode :	802.11b	**Temperature :**	20~21°C
Test Channel :	11	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 2464 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
95.61	23.04	-20.46	43.5	44.31	9.57	1.13	31.97	101	186	Peak
133.68	20.48	-23.02	43.5	39.66	11.31	1.35	31.84	-	-	Peak
253.02	21.74	-24.26	46	39.4	12.24	1.84	31.74	-	-	Peak
374.2	23.84	-22.16	46	38.28	14.96	2.23	31.63	-	-	Peak
419	22.2	-23.8	46	34.77	16.45	2.38	31.4	-	-	Peak
550.6	21.82	-24.18	46	32.16	18.23	2.72	31.29	-	-	Peak
2464	97.85	-	-	94.75	32.56	6.39	35.85	100	354	Average
2464	102.76	-	-	99.66	32.56	6.39	35.85	100	354	Peak
4923	39.71	-34.29	54	55.97	34.36	8.18	58.8	100	0	Peak
7386	44.85	-29.15	54	57.35	35.66	10.45	58.61	100	0	Peak

Test Mode :	802.11b	**Temperature :**	20~21°C
Test Channel :	11	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
30.27	30.84	-9.16	40	40.6	21.66	0.64	32.06	102	207	Peak
91.83	27.1	-16.4	43.5	48.58	9.28	1.12	31.88	-	-	Peak
95.34	28.05	-15.45	43.5	49.32	9.57	1.13	31.97	-	-	Peak
553.4	24.75	-21.25	46	35.11	18.19	2.73	31.28	-	-	Peak
673.1	22.91	-23.09	46	32.04	18.87	2.99	30.99	-	-	Peak
830.6	21.83	-24.17	46	29.04	20.31	3.33	30.85	-	-	Peak
2462	101.23	-	-	98.2	32.49	6.39	35.85	100	161	Average
2462	105.97	-	-	102.94	32.49	6.39	35.85	100	161	Peak
4923	39.55	-34.45	54	55.81	34.36	8.18	58.8	100	0	Peak
7386	42	-32	54	54.67	35.49	10.45	58.61	100	0	Peak

Test Mode :	802.11g	**Temperature :**	20~21°C
Test Channel :	01	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 2414 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
96.15	23.88	-19.62	43.5	44.98	9.72	1.14	31.96	105	203	Peak
134.49	20.48	-23.02	43.5	39.66	11.31	1.35	31.84	-	-	Peak
249.78	22.85	-23.15	46	40.78	11.99	1.83	31.75	-	-	Peak
374.2	23.32	-22.68	46	37.76	14.96	2.23	31.63	-	-	Peak
489.7	22.02	-23.98	46	33.74	16.91	2.55	31.18	-	-	Peak
547.1	21.61	-24.39	46	32.03	18.15	2.71	31.28	-	-	Peak
2414	93.96	-	-	91.24	32.34	6.28	35.9	100	358	Average
2414	105.2	-	-	102.48	32.34	6.28	35.9	100	358	Peak
4824	39.71	-34.29	54	56.17	34.44	8.04	58.94	100	0	Peak

Test Mode :	802.11g	**Temperature :**	20~21°C
Test Channel :	01	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 2414 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
38.64	27.21	-12.79	40	45.24	13.24	0.73	32	102	209	Peak
75.9	23.28	-16.72	40	47.81	6.41	1.02	31.96	-	-	Peak
95.07	26.85	-16.65	43.5	48.12	9.57	1.13	31.97	-	-	Peak
386.8	22.52	-23.48	46	36.52	15.29	2.27	31.56	-	-	Peak
553.4	24.13	-21.87	46	34.49	18.19	2.73	31.28	-	-	Peak
673.1	22.76	-23.24	46	31.89	18.87	2.99	30.99	-	-	Peak
2414	94.15	-	-	91.61	32.16	6.28	35.9	100	37	Average
2414	105.87	-	-	103.33	32.16	6.28	35.9	100	37	Peak
4824	39.23	-34.77	54	55.69	34.44	8.04	58.94	100	0	Peak

Test Mode :	802.11g	**Temperature :**	20~21°C
Test Channel :	06	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2439	98.3	-	-	95.35	32.49	6.34	35.88	112	313	Average
2439	109.14	-	-	106.16	32.49	6.34	35.85	112	313	Peak
4875	39.72	-34.28	54	56.08	34.4	8.11	58.87	100	0	Peak
7309	48.48	-25.52	54	60.85	35.62	10.47	58.46	100	0	Peak

Test Mode :	802.11g	**Temperature :**	20~21°C
Test Channel :	06	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2439	98.35	-	-	95.51	32.38	6.34	35.88	103	167	Average
2439	109.36	-	-	106.52	32.38	6.34	35.88	103	167	Peak
4875	38.66	-35.34	54	55.02	34.4	8.11	58.87	100	0	Peak
7311	43.72	-30.28	54	56.15	35.56	10.47	58.46	100	0	Peak

Test Mode :	802.11g	**Temperature :**	20~21°C
Test Channel :	11	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 2460 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2460	95.67	-	-	92.57	32.56	6.39	35.85	100	6	Average
2460	106.79	-	-	103.69	32.56	6.39	35.85	100	6	Peak
4923	40.9	-33.1	54	57.16	34.36	8.18	58.8	100	0	Peak
7388	44.29	-29.71	54	56.79	35.66	10.45	58.61	100	0	Peak

Test Mode :	802.11g	**Temperature :**	20~21°C
Test Channel :	11	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 2460 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2460	95.68	-	-	92.65	32.49	6.39	35.85	100	324	Average
2460	106.49	-	-	103.46	32.49	6.39	35.85	100	324	Peak
4923	39.45	-34.55	54	55.71	34.36	8.18	58.8	100	0	Peak
7386	39.98	-34.02	54	52.65	35.49	10.45	58.61	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	01	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 2414 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2414	94.12	-	-	91.4	32.34	6.28	35.9	100	316	Average
2414	105.49	-	-	102.77	32.34	6.28	35.9	100	316	Peak
4824	38.95	-35.05	54	55.41	34.44	8.04	58.94	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	01	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 2414 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2414	94.41	-	-	91.87	32.16	6.28	35.9	100	319	Average
2414	105.57	-	-	103.03	32.16	6.28	35.9	100	319	Peak
4824	39.07	-34.93	54	55.53	34.44	8.04	58.94	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	06	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2439	97.93	-	-	94.98	32.49	6.34	35.88	109	311	Average
2439	109.2	-	-	106.25	32.49	6.34	35.88	109	311	Peak
4875	40.48	-33.52	54	56.84	34.4	8.11	58.87	100	0	Peak
7311	45.65	-28.35	54	58.02	35.62	10.47	58.46	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	06	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
2439	97.81	-	-	94.97	32.38	6.34	35.88	124	139	Average
2439	109.08	-	-	106.24	32.38	6.34	35.88	124	139	Peak
4875	38.85	-35.15	54	55.21	34.4	8.11	58.87	100	0	Peak
7311	42.46	-31.54	54	54.89	35.56	10.47	58.46	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	11	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 2460 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
95.61	24.03	-19.47	43.5	45.3	9.57	1.13	31.97	145	221	Peak
249.78	21.07	-24.93	46	39	11.99	1.83	31.75	-	-	Peak
281.64	21.19	-24.81	46	38.32	12.62	1.94	31.69	-	-	Peak
307	21.94	-24.06	46	38.28	13.31	2.02	31.67	-	-	Peak
367.9	24.35	-21.65	46	38.96	14.84	2.21	31.66	-	-	Peak
964.3	21.82	-32.18	54	27.62	21.11	3.6	30.51	-	-	Peak
2460	92.85	-	-	89.75	32.56	6.39	35.85	100	5	Average
2460	104.02	-	-	100.92	32.56	6.39	35.85	100	5	Peak
4923	39.51	-34.49	54	55.77	34.36	8.18	58.8	100	0	Peak
7386	40.05	-33.95	54	52.55	35.66	10.45	58.61	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	11	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 2460 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
30	29.98	-10.02	40	39.74	21.66	0.64	32.06	147	205	Peak
39.45	27.93	-12.07	40	47.07	12.13	0.74	32.01	-	-	Peak
93.45	27.34	-16.16	43.5	48.63	9.5	1.12	31.91	-	-	Peak
390.3	22.57	-23.43	46	36.39	15.44	2.28	31.54	-	-	Peak
550.6	24.44	-21.56	46	35.01	18	2.72	31.29	-	-	Peak
673.1	22.81	-23.19	46	31.94	18.87	2.99	30.99	-	-	Peak
2460	95.22	-	-	92.19	32.49	6.39	35.85	100	322	Average
2460	105.21	-	-	102.18	32.49	6.39	35.85	100	322	Peak
4923	39.26	-34.74	54	55.52	34.36	8.18	58.8	100	0	Peak
7386	40.37	-33.63	54	53.04	35.49	10.45	58.61	100	0	Peak

Test Mode :	802.11a	**Temperature :**	20~21°C
Test Channel :	149	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5747 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5747	95.09	-	-	86.19	34.7	9.1	34.9	148	316	Average
5747	106.21	-	-	97.31	34.7	9.1	34.9	148	316	Peak
11490	42.19	-31.81	54	47.99	38.59	12.92	57.31	100	0	Peak

Test Mode :	802.11a	**Temperature :**	20~21°C
Test Channel :	149	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5747 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5747	96.15	-	-	87.25	34.7	9.1	34.9	146	223	Average
5747	107.03	-	-	98.13	34.7	9.1	34.9	146	223	Peak
11490	41.19	-32.81	54	47.8	37.78	12.92	57.31	100	0	Peak

Test Mode :	802.11a	**Temperature :**	20~21°C
Test Channel :	157	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5787 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5787	95.72	-	-	86.71	34.8	9.13	34.92	149	341	Average
5787	105.35	-	-	96.34	34.8	9.13	34.92	149	341	Peak
11571	41.91	-32.09	54	47.58	38.63	13	57.3	100	0	Peak

Test Mode :	802.11a	**Temperature :**	20~21°C
Test Channel :	157	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5787 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5787	96.34	-	-	87.39	34.74	9.13	34.92	108	262	Average
5787	107.36	-	-	98.41	34.74	9.13	34.92	108	262	Peak
11571	40.46	-33.54	54	46.9	37.86	13	57.3	100	0	Peak

Test Mode :	802.11a	**Temperature :**	20~21°C
Test Channel :	165	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5823 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
93.18	33	-10.5	43.5	54.37	9.42	1.12	31.91	-	-	Peak
96.42	35.9	-7.6	43.5	57	9.72	1.14	31.96	147	258	Peak
101.55	30.71	-12.79	43.5	51.12	10.32	1.18	31.91	-	-	Peak
923.7	22.06	-23.94	46	28.38	20.72	3.53	30.57	-	-	Peak
937	22.73	-23.27	46	28.91	20.81	3.55	30.54	-	-	Peak
997.2	21.71	-32.29	54	27.01	21.53	3.67	30.5	-	-	Peak
5823	95.81	-	-	86.62	34.87	9.25	34.93	100	317	Average
5823	106.74	-	-	97.55	34.87	9.25	34.93	100	317	Peak
11649	43.47	-30.53	54	49.02	38.66	13.09	57.3	100	0	Peak

Test Mode :	802.11a	**Temperature :**	20~21°C
Test Channel :	165	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
30	29	-11	40	38.76	21.66	0.64	32.06	-	-	Peak
42.69	27.65	-12.35	40	47.78	11.1	0.76	31.99	-	-	Peak
94.26	37.34	-6.16	43.5	58.58	9.57	1.13	31.94	154	221	Peak
644.4	20.96	-25.04	46	30.41	18.62	2.93	31	-	-	Peak
673.1	22.11	-23.89	46	31.24	18.87	2.99	30.99	-	-	Peak
953.8	21.62	-24.38	46	27.56	21	3.58	30.52	-	-	Peak
5827	95.2	-	-	86.11	34.77	9.25	34.93	156	216	Average
5827	105.66	-	-	96.57	34.77	9.25	34.93	156	216	Peak
11649	41.52	-32.48	54	47.82	37.91	13.09	57.3	100	0	Peak

Test Mode :	5GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	149	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5743 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5743	95.24	-	-	86.34	34.7	9.1	34.9	122	308	Average
5743	105.88	-	-	96.98	34.7	9.1	34.9	122	308	Peak
11490	40.91	-33.09	54	46.71	38.59	12.92	57.31	100	0	Peak

Test Mode :	5GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	149	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5743 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5743	95.27	-	-	86.37	34.7	9.1	34.9	121	221	Average
5743	106.3	-	-	97.4	34.7	9.1	34.9	121	221	Peak
11490	41.76	-32.24	54	48.37	37.78	12.92	57.31	100	0	Peak

Test Mode :	5GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	157	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5786 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5786	95.51	-	-	86.5	34.8	9.13	34.92	100	311	Average
5786	106.3	-	-	97.29	34.8	9.13	34.92	100	311	Peak
11571	41.92	-32.08	54	47.59	38.63	13	57.3	100	0	Peak

Test Mode :	5GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	157	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5783 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5783	94.39	-	-	85.45	34.73	9.13	34.92	110	210	Average
5783	105.14	-	-	96.2	34.73	9.13	34.92	110	210	Peak
11571	40.77	-33.23	54	47.21	37.86	13	57.3	100	0	Peak

Test Mode :	5GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	165	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5827	95.94	-	-	86.75	34.87	9.25	34.93	100	317	Average
5827	107.18	-	-	97.99	34.87	9.25	34.93	100	317	Peak
11649	42.06	-31.94	54	47.61	38.66	13.09	57.3	100	0	Peak

Test Mode :	5GHz 802.11n HT20	**Temperature :**	20~21°C
Test Channel :	165	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5823 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5823	94.59	-	-	85.5	34.77	9.25	34.93	109	212	Average
5823	105.18	-	-	96.09	34.77	9.25	34.93	109	212	Peak
11649	40.9	-33.1	54	47.2	37.91	13.09	57.3	100	0	Peak

Test Mode :	5GHz 802.11n HT40	**Temperature :**	20~21°C
Test Channel :	151	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5757 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
94.26	26.2	-17.3	43.5	47.44	9.57	1.13	31.94	169	332	Peak
233.58	20.88	-25.12	46	40.78	10.05	1.78	31.73			Peak
249.78	22.04	-23.96	46	39.97	11.99	1.83	31.75			Peak
370.7	21.09	-24.91	46	35.65	14.87	2.22	31.65			Peak
909.7	21.11	-24.89	46	27.42	20.77	3.51	30.59			Peak
968.5	22.46	-31.54	54	28.19	21.17	3.61	30.51			Peak
5757	93.95	-	-	85.03	34.73	9.1	34.91	127	314	Average
5757	103.69	-	-	94.77	34.73	9.1	34.91	127	314	Peak
11511	42.46	-31.54	54	48.21	38.6	12.95	57.3	100	0	Peak

Test Mode :	5GHz 802.11n HT40	**Temperature :**	20~21°C
Test Channel :	151	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5753 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
30	31.41	-8.59	40	41.17	21.66	0.64	32.06	125	210	Peak
38.37	26.83	-13.17	40	44.86	13.24	0.73	32			Peak
93.72	28.44	-15.06	43.5	49.73	9.5	1.12	31.91			Peak
544.3	21.27	-24.73	46	31.91	17.93	2.71	31.28			Peak
673.1	22.4	-23.6	46	31.53	18.87	2.99	30.99			Peak
974.1	22.7	-31.3	54	28.29	21.3	3.62	30.51			Peak
5753	93.39	-	-	84.48	34.71	9.1	34.9	100	211	Average
5753	103.21	-	-	94.3	34.71	9.1	34.9	100	211	Peak
11511	41.01	-32.99	54	47.56	37.8	12.95	57.3	100	0	Peak

Test Mode :	5GHz 802.11n HT40	**Temperature :**	20~21°C
Test Channel :	159	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5793 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5793	91.65	-	-	82.61	34.8	9.16	34.92	100	312	Average
5793	102.47	-	-	93.43	34.8	9.16	34.92	100	312	Peak
11589	41.1	-32.9	54	46.74	38.64	13.02	57.3	100	0	Peak

Test Mode :	5GHz 802.11n HT40	**Temperature :**	20~21°C
Test Channel :	159	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5793 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5793	93.19	-	-	84.21	34.74	9.16	34.92	110	211	Average
5793	104.4	-	-	95.42	34.74	9.16	34.92	110	211	Peak
11589	40.82	-33.18	54	47.23	37.87	13.02	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT20	**Temperature :**	20~21°C
Test Channel :	149	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5743 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5743	95.3	-	-	86.4	34.7	9.1	34.9	101	313	Average
5743	105.5	-	-	96.6	34.7	9.1	34.9	101	313	Peak
11490	41.79	-32.21	54	47.59	38.59	12.92	57.31	100	0	Peak

Test Mode :	5GHz 802.11n VHT20	**Temperature :**	20~21°C
Test Channel :	149	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5747 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5747	94.83	-	-	85.93	34.7	9.1	34.9	111	211	Average
5747	105.41	-	-	96.51	34.7	9.1	34.9	111	211	Peak
11490	40.73	-33.27	54	47.34	37.78	12.92	57.31	100	0	Peak

Test Mode :	5GHz 802.11n VHT20	**Temperature :**	20~21°C
Test Channel :	157	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5786 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
95.88	35.57	-7.93	43.5	56.82	9.57	1.14	31.96	110	201	Peak
99.93	32.72	-10.78	43.5	53.45	10.01	1.17	31.91	-	-	Peak
125.85	26.01	-17.49	43.5	44.88	11.69	1.31	31.87	-	-	Peak
529.6	18.58	-27.42	46	29.65	17.5	2.67	31.24	-	-	Peak
831.3	20.62	-25.38	46	27.9	20.24	3.33	30.85	-	-	Peak
971.3	21.32	-32.68	54	26.99	21.22	3.62	30.51	-	-	Peak
5786	95.71	-	-	86.7	34.8	9.13	34.92	125	313	Average
5786	106.15	-	-	97.14	34.8	9.13	34.92	125	313	Peak
11571	42.42	-31.58	54	48.09	38.63	13	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT20	**Temperature :**	20~21°C
Test Channel :	157	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5783 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
30	29.12	-10.88	40	38.88	21.66	0.64	32.06	102	206	Peak
44.31	25.94	-14.06	40	47.11	10.03	0.78	31.98	-	-	Peak
93.99	32.5	-11	43.5	53.81	9.5	1.13	31.94	-	-	Peak
673.1	22.48	-23.52	46	31.61	18.87	2.99	30.99	-	-	Peak
944	22.23	-23.77	46	28.36	20.84	3.56	30.53	-	-	Peak
996.5	21.9	-32.1	54	27.14	21.59	3.67	30.5	-	-	Peak
5783	95.59	-	-	86.65	34.73	9.13	34.92	110	211	Average
5783	106	-	-	97.06	34.73	9.13	34.92	110	211	Peak
11571	41.17	-32.83	54	47.61	37.86	13	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT20	**Temperature :**	20~21°C
Test Channel :	165	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5827	95.92	-	-	86.73	34.87	9.25	34.93	136	341	Average
5827	106.46	-	-	97.27	34.87	9.25	34.93	136	341	Peak
11649	41.44	-32.56	54	46.99	38.66	13.09	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT20	**Temperature :**	20~21°C
Test Channel :	165	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5823 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5823	95.02	-	-	85.93	34.77	9.25	34.93	110	212	Average
5823	105.9	-	-	96.81	34.77	9.25	34.93	110	212	Peak
11649	41.3	-32.7	54	47.6	37.91	13.09	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT40	**Temperature :**	20~21°C
Test Channel :	151	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5757 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5757	93.26	-	-	84.34	34.73	9.1	34.91	136	302	Average
5757	102.65	-	-	93.73	34.73	9.1	34.91	136	302	Peak
11511	40.79	-33.21	54	46.54	38.6	12.95	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT40	**Temperature :**	20~21°C
Test Channel :	151	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5757 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5757	94.58	-	-	85.68	34.71	9.1	34.91	158	224	Average
5757	104.4	-	-	95.5	34.71	9.1	34.91	158	224	Peak
11511	40.94	-33.06	54	47.49	37.8	12.95	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT40	**Temperature :**	20~21°C
Test Channel :	159	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5793 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5793	94.11	-	-	85.07	34.8	9.16	34.92	125	307	Average
5793	103.94	-	-	94.9	34.8	9.16	34.92	125	307	Peak
11589	40.98	-33.02	54	46.62	38.64	13.02	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT40	**Temperature :**	20~21°C
Test Channel :	159	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5793 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
5793	93.76	-	-	84.78	34.74	9.16	34.92	110	211	Average
5793	103.08	-	-	94.1	34.74	9.16	34.92	110	211	Peak
11589	41.24	-32.76	54	47.65	37.87	13.02	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT80	**Temperature :**	20~21°C
Test Channel :	155	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Horizontal
Remark :	1. 5773 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
95.07	25.84	-17.66	43.5	47.11	9.57	1.13	31.97	115	212	Peak
249.78	21.78	-24.22	46	39.71	11.99	1.83	31.75	-	-	Peak
278.4	19.11	-26.89	46	36.29	12.58	1.93	31.69	-	-	Peak
409.2	22.42	-23.58	46	35.27	16.25	2.34	31.44	-	-	Peak
924.4	22.38	-23.62	46	28.7	20.72	3.53	30.57	-	-	Peak
969.2	22.39	-31.61	54	28.09	21.2	3.61	30.51	-	-	Peak
5773	91.24	-	-	82.25	34.77	9.13	34.91	102	345	Average
5773	100.54	-	-	91.55	34.77	9.13	34.91	102	345	Peak
11550	41.49	-32.51	54	47.17	38.62	13	57.3	100	0	Peak

Test Mode :	5GHz 802.11n VHT80	**Temperature :**	20~21°C
Test Channel :	155	**Relative Humidity :**	50~54%
Test Engineer :	Jet Lui	**Polarization :**	Vertical
Remark :	1. 5773 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit. 3. No spurious emissions are detected other than listed points as below.		

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
30	30.82	-9.18	40	40.58	21.66	0.64	32.06	168	145	Peak
39.45	28.79	-11.21	40	47.93	12.13	0.74	32.01	-	-	Peak
94.26	28.58	-14.92	43.5	49.82	9.57	1.13	31.94	-	-	Peak
550.6	21.44	-24.56	46	32.01	18	2.72	31.29	-	-	Peak
673.1	21.98	-24.02	46	31.11	18.87	2.99	30.99	-	-	Peak
920.2	21.79	-24.21	46	28.18	20.66	3.52	30.57	-	-	Peak
5773	92.71	-	-	83.76	34.73	9.13	34.91	158	225	Average
5773	102.02	-	-	93.07	34.73	9.13	34.91	158	225	Peak
11550	40.77	-33.23	54	47.23	37.84	13	57.3	100	0	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (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.

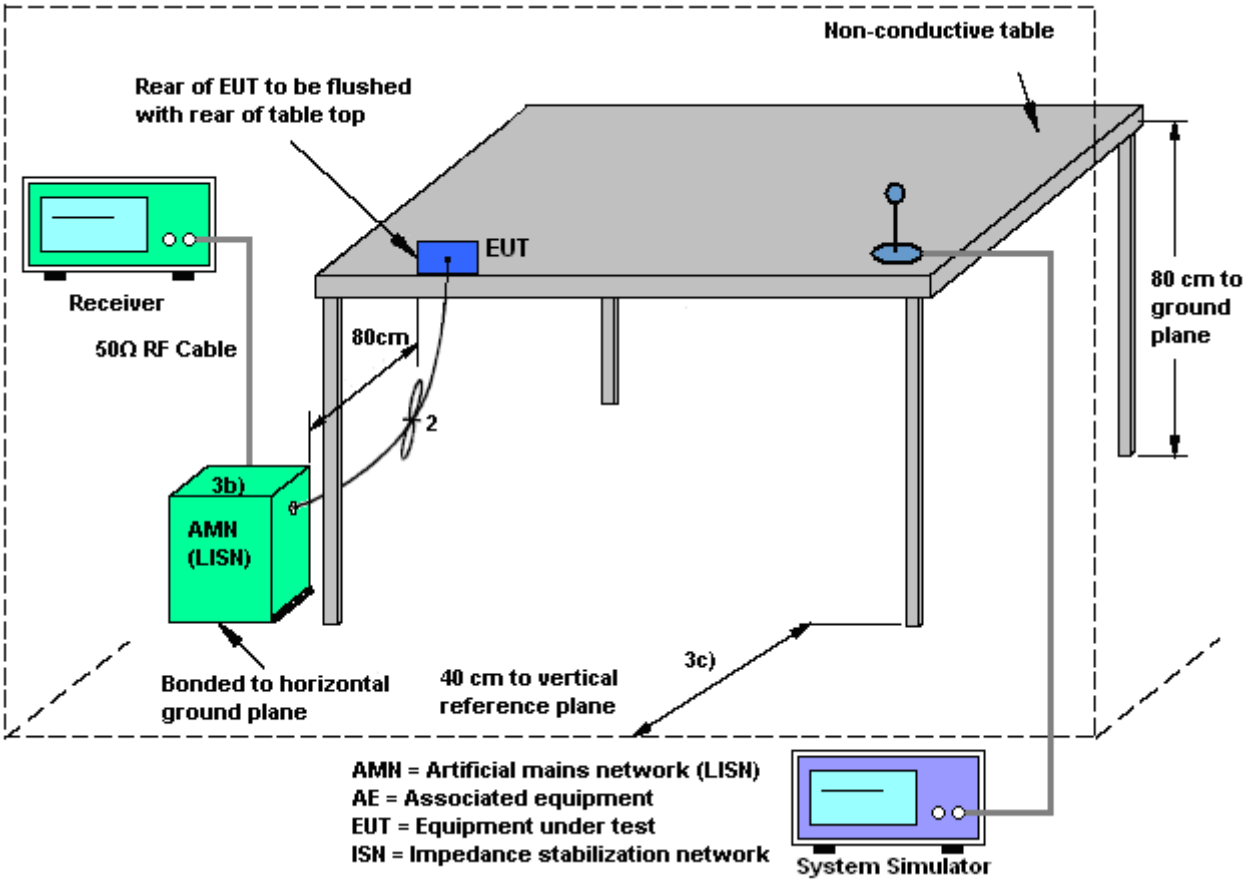
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

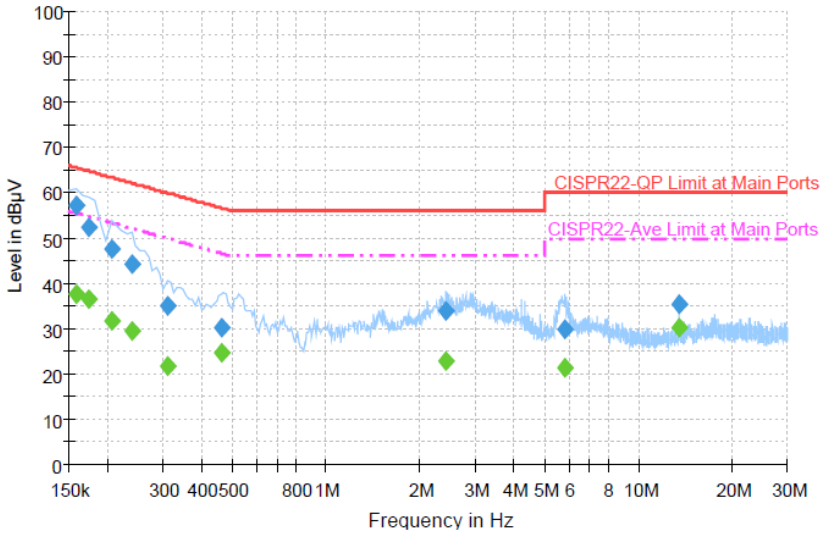
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other 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 2	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	46~48%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WCDMA Band II Idle + WLAN (5GHz) Link + Bluetooth Link + Earphone + USB Cable (Data Link with Notebook) + NFC On		



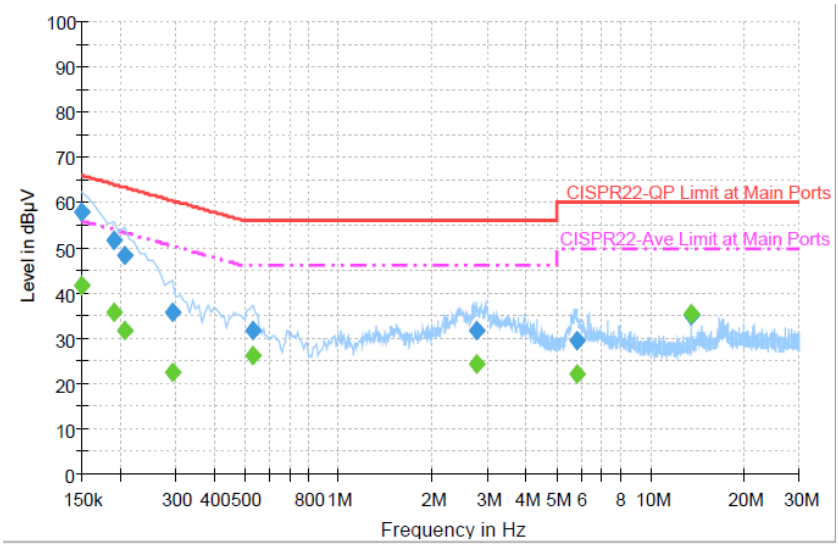
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	57.1	Off	L1	19.3	8.5	65.6
0.174000	52.6	Off	L1	19.4	12.2	64.8
0.206000	47.4	Off	L1	19.4	16.0	63.4
0.238000	44.4	Off	L1	19.5	17.8	62.2
0.310000	35.0	Off	L1	19.4	25.0	60.0
0.462000	30.4	Off	L1	19.3	26.3	56.7
2.414000	34.1	Off	L1	19.6	21.9	56.0
5.790000	29.7	Off	L1	19.6	30.3	60.0
13.558000	35.6	Off	L1	19.8	24.4	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	37.7	Off	L1	19.3	17.9	55.6
0.174000	36.5	Off	L1	19.4	18.3	54.8
0.206000	31.7	Off	L1	19.4	21.7	53.4
0.238000	29.5	Off	L1	19.5	22.7	52.2
0.310000	21.8	Off	L1	19.4	28.2	50.0
0.462000	24.7	Off	L1	19.3	22.0	46.7
2.414000	23.0	Off	L1	19.6	23.0	46.0
5.790000	21.2	Off	L1	19.6	28.8	50.0
13.558000	30.4	Off	L1	19.8	19.6	50.0

Test Mode :	Mode 2	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	46~48%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	WCDMA Band II Idle + WLAN (5GHz) Link + Bluetooth Link + Earphone + USB Cable (Data Link with Notebook) + NFC On		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	57.8	Off	N	19.4	8.2	66.0
0.190000	51.5	Off	N	19.4	12.5	64.0
0.206000	48.3	Off	N	19.4	15.1	63.4
0.294000	35.7	Off	N	19.4	24.7	60.4
0.534000	31.7	Off	N	19.4	24.3	56.0
2.758000	31.8	Off	N	19.6	24.2	56.0
5.782000	29.3	Off	N	19.6	30.7	60.0
13.558000	34.9	Off	N	19.9	25.1	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	41.8	Off	N	19.4	14.2	56.0
0.190000	35.7	Off	N	19.4	18.3	54.0
0.206000	31.7	Off	N	19.4	21.7	53.4
0.294000	22.4	Off	N	19.4	28.0	50.4
0.534000	26.2	Off	N	19.4	19.8	46.0
2.758000	24.5	Off	N	19.6	21.5	46.0
5.782000	22.0	Off	N	19.6	28.0	50.0
13.558000	35.4	Off	N	19.9	14.6	50.0

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 07, 2013	Nov. 28, 2013~ Dec. 26, 2013	Jun. 06, 2014	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 17, 2013	Nov. 28, 2013~ Dec. 26, 2013	Aug. 16, 2014	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 17, 2013	Nov. 28, 2013~ Dec. 26, 2013	Aug. 16, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz – 26.5GHz	Jan. 23, 2013	Dec. 01, 2013~ Dec. 05, 2013	Jan. 22, 2014	Radiation (03CH08-HY)
Bilog Antenna	Teseq GmbH	CBL6112D	35379	30MHz~2GHz	Oct. 10, 2013	Dec. 01, 2013~ Dec. 05, 2013	Oct. 09, 2014	Radiation (03CH08-HY)
Horn Antenna	ESCO	3117	000143261	1GHz~18GHz	Jan. 08, 2013	Dec. 01, 2013~ Dec. 05, 2013	Jan. 07, 2014	Radiation (03CH08-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 251	15GHz~40GHz	Oct. 03, 2013	Dec. 01, 2013~ Dec. 05, 2013	Oct. 02, 2014	Radiation (03CH08-HY)
Amplifier	SONOMA	310N	187231	9kHz~1GHz	May 15, 2013	Dec. 01, 2013~ Dec. 05, 2013	May 14, 2014	Radiation (03CH08-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590074	1GHz~18GHz	Jul. 09, 2013	Dec. 01, 2013~ Dec. 05, 2013	Jul. 08, 2014	Radiation (03CH08-HY)
Pre Amplifier	Agilent	8449B	3008A026 65	1GHz~26.5GHz	Sep. 04, 2013	Dec. 01, 2013~ Dec. 05, 2013	Sep. 03, 2014	Radiation (03CH08-HY)
Turn Table	Chaintek	Chaintek 3000	N/A	0~360 Degree	N/A	Dec. 01, 2013~ Dec. 05, 2013	N/A	Radiation (03CH08-HY)
Antenna Mast	MF	MFA520BS	N/A	1m~4m	N/A	Dec. 01, 2013~ Dec. 05, 2013	N/A	Radiation (03CH08-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/00 01	9 kHz~30 MhZ	Jul. 03, 2012	Dec. 01, 2013~ Dec. 05, 2013	Jul. 03, 2014	Radiation (03CH08-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 15, 2013	Nov. 30, 2013	Nov. 14, 2014	Conduction (CO05-HY)
LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2012	Nov. 30, 2013	Dec. 11, 2013	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 06, 2012	Nov. 30, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Nov. 30, 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**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.30**