

FCC RF Test Report

APPLICANT : Kilpatrick LLC
EQUIPMENT : Tablet PC
MODEL NAME : C6R7NC
FCC ID : S2F-5830
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The testing was completed on Sep. 10, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

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



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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

Report No. : FR332726-08B
Report Version : Rev. 01
Page Number : 1 of 128

TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Feature of Equipment Under Test	5
1.3 Product Specification of Equipment Under Test.....	6
1.4 Modification of EUT	7
1.5 Testing Site.....	7
1.6 Applied Standards	7
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	8
2.1 Carrier Frequency and Channel	8
2.2 Pre-Scanned RF Power.....	9
2.3 Test Mode.....	10
2.4 Connection Diagram of Test System.....	12
2.5 Support Unit used in test configuration and system	14
2.6 EUT Operation Test Setup	14
2.7 Measurement Results Explanation Example.....	14
3 TEST RESULT	15
3.1 6dB Bandwidth Measurement	15
3.2 Peak Output Power Measurement	18
3.3 Power Spectral Density Measurement	23
3.4 Conducted Band Edges and Spurious Emission Measurement	26
3.5 Radiated Band Edges and Spurious Emission Measurement	69
3.6 AC Conducted Emission Measurement.....	106
3.7 Antenna Requirements.....	126
4 LIST OF MEASURING EQUIPMENT	127
5 UNCERTAINTY OF EVALUATION	128

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR332726-08B	Rev. 01	Initial issue of report	Sep. 30, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	Conducted Band Edges	$\leq 20\text{dBc}$	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 0.81 dB at 7386.000 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 8.50 dB at 0.406 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Kilpatrick LLC
102 S. Tejon Street
Suite 1100
Colorado Springs, Colorado 80903

1.2 Feature of Equipment Under Test

Product Feature	
Equipment	Tablet PC
Model Name	C6R7NC
FCC ID	S2F-5830
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE WLAN 11b/g/n (HT20), WLAN 11a/n (HT20/HT40) Bluetooth v3.0

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: 5745~5825MHz.																
Maximum Output Power to Antenna	<2412 MHz ~ 2462 MHz > 802.11b : 20.3 dBm (0.1072 W) 802.11g : 22.4 dBm (0.1738 W) 802.11n HT20 : 22.5 dBm (0.1778 W) <5745 MHz ~ 5825 MHz > 802.11a : 20.3 dBm (0.1072 W) 802.11n HT20 : 20.7 dBm (0.1175 W) 802.11n HT40 : 19.3 dBm (0.0851 W)																
Antenna Type	<Ant. 1> 802.11b/g/n : Fixed Internal Antenna with gain 4.10 dBi 802.11a/n : Fixed Internal Antenna with gain 3.20 dBi <Ant. 2> 802.11b/g/n : Fixed Internal Antenna with gain 1.10 dBi 802.11a/n : Fixed Internal Antenna with gain 1.60 dBi																
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)																
Antenna Function for Transmitter	<table border="1"> <thead> <tr> <th></th> <th>Ant. 1</th> <th>Ant. 2</th> </tr> </thead> <tbody> <tr> <td>802.11 b MIMO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11 g MIMO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11 a MIMO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11 n MIMO</td> <td>V</td> <td>V</td> </tr> </tbody> </table>			Ant. 1	Ant. 2	802.11 b MIMO	V	V	802.11 g MIMO	V	V	802.11 a MIMO	V	V	802.11 n MIMO	V	V
	Ant. 1	Ant. 2															
802.11 b MIMO	V	V															
802.11 g MIMO	V	V															
802.11 a MIMO	V	V															
802.11 n MIMO	V	V															

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 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
Test Site No.	Sporton Site No.			FCC 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
- FCC KDB 662911 D01 Multiple Transmitter Output v02.
- 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 and 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 tests shown in section 2.3.

2.1 Carrier Frequency and 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 (DTS)	149	5745	159	5795
	151	5755	161	5805
	153	5765	165	5825
	157	5785	-	-

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.

MIMO <Ant 1+2>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	20.3	20.1	20.2	19.9

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	22.4	22.3	22.2	22.3	22.3	22.0	22.0	22.1

2.4GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	22.5	22.3	22.2	22.3	22.3	22.2	22.3	21.6

802.11a								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	20.3	20.2	20.1	20.1	20.2	20.1	20.1	20.0

5GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.7	20.0	19.5	20.4	20.3	20.2	20.4	19.5

5GHz 802.11n HT40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.3	18.6	18.6	19.1	19.0	19.1	18.8	18.4

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

2.3 Test Mode

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

<2.4GHz>

Test Cases					
	Test Items	Mode	Data Rate	N _{TX}	Test Channel
Conducted TCs	6dB Power Spectral Density	802.11b	1 Mbps	2	1/6/11
		802.11g	6 Mbps	2	1/2/6/10/11
		802.11n HT20	MCS0	2	1/2/6/10/11
	Output Power	802.11b	1 Mbps	2	1/6/11
		802.11g	6 Mbps	2	1/2/6/10/11
		802.11n HT20	MCS0	2	1/2/6/10/11
	Conducted Band Edge	802.11b	1 Mbps	2	1/11
		802.11g	6 Mbps	2	1/11
		802.11n HT20	MCS0	2	1/11
	Conducted Spurious Emission	802.11b	1 Mbps	2	1/6/11
		802.11g	6 Mbps	2	1/2/6/10/11
		802.11n HT20	MCS0	2	1/2/6/10/11
Radiated TCs	Radiated Band Edge	802.11b	1 Mbps	2	1/11
		802.11g	6 Mbps	2	1/2/10/11
		802.11n HT20	MCS0	2	1/2/10/11
	Radiated Spurious Emission	802.11b	1 Mbps	2	1/6/11
		802.11g	6 Mbps	2	1/2/6/10/11
		802.11n HT20	MCS0	2	1/2/6/10/11

Note: The N_{TX}=2 means 2 antenna ports simultaneously transmit during test.

<5GHz>

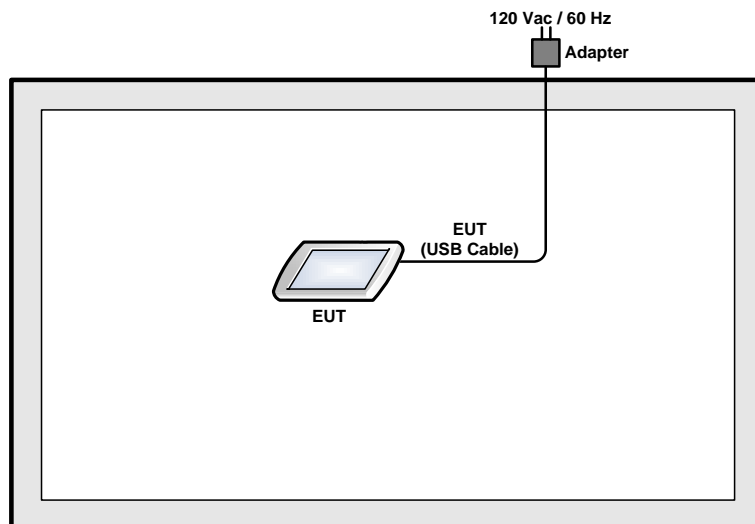
Test Cases					
	Test Items	Mode	Data Rate	N _{TX}	Test Channel
Conducted TCs	6dB Power Spectral Density	802.11a	6 Mbps	2	149/157/165
		802.11n HT20	MCS0	2	149/157/165
		802.11n HT40	MCS0	2	151/159
	Output Power	802.11a	6 Mbps	2	149/157/165
		802.11n HT20	MCS0	2	149/157/165
		802.11n HT40	MCS0	2	151/159
	Conducted Band Edge	802.11a	6 Mbps	2	149/165
		802.11n HT20	MCS0	2	149/165
		802.11n HT40	MCS0	2	151/159
	Conducted Spurious Emission	802.11a	6 Mbps	2	149/157/165
		802.11n HT20	MCS0	2	149/157/165
		802.11n HT40	MCS0	2	151/159
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	2	149/165
		802.11n HT20	MCS0	2	149/165
		802.11n HT40	MCS0	2	151/159
	Radiated Spurious Emission	802.11a	6 Mbps	2	149/157/165
		802.11n HT20	MCS0	2	149/157/165
		802.11n HT40	MCS0	2	151/159

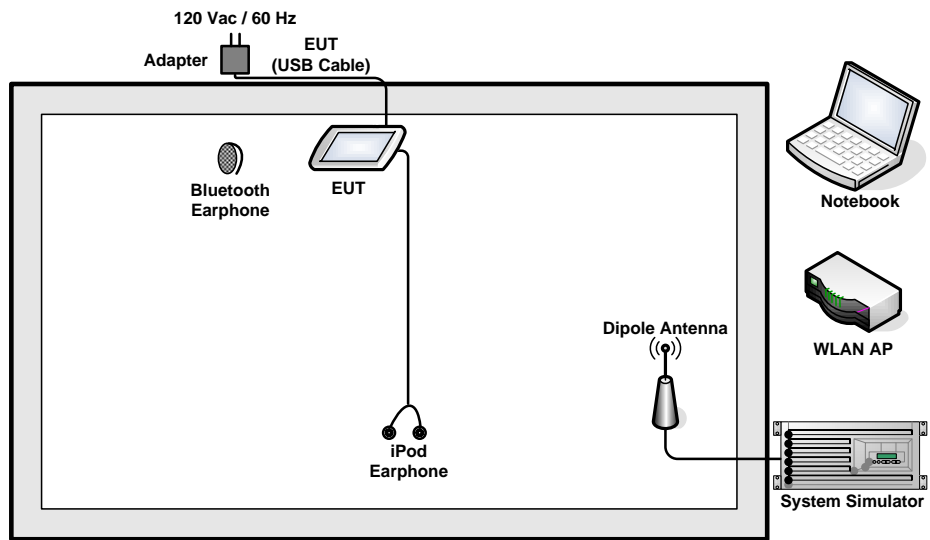
Note: The N_{TX}=2 means 2 antenna ports simultaneously transmit during test.

Test Cases	
AC Conducted Emission	Mode 1 :GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter) <Fig. 1>
	Mode 2 :GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter) <Fig. 1>
	Mode 3 :GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter) <Fig. 2>
	Mode 4 :GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter) <Fig. 2>
Remark: The worst case of conducted emission is mode 1.	

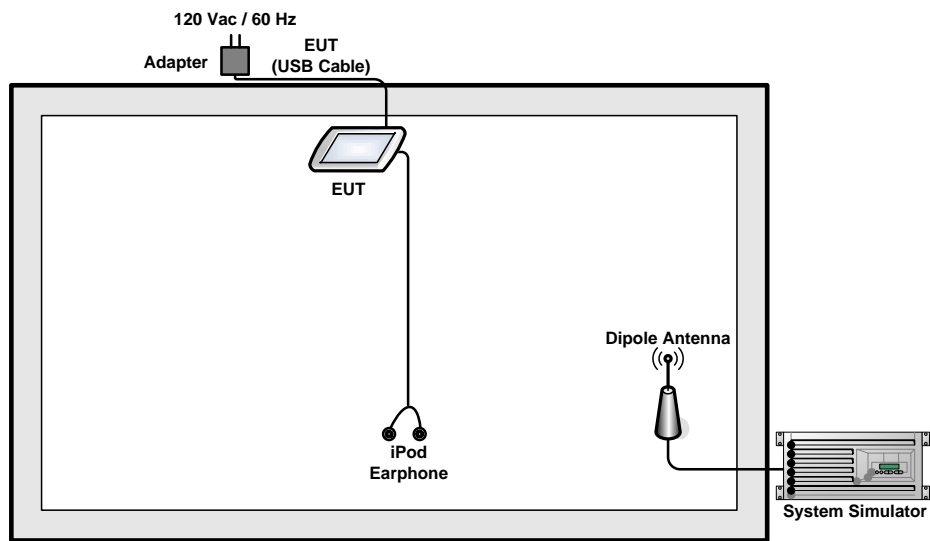
2.4 Connection Diagram of Test System

<WLAN Tx Mode>





<Fig. 1>



<Fig. 2>

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.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
5.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.0 m	N/A
6.	Adapter	Foxlink	PE98ED	Verification	N/A	N/A

2.6 EUT Operation Test Setup

For WLAN function, programmed RF utility, “ADB” installed in the notebook make the EUT provides 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.

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

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

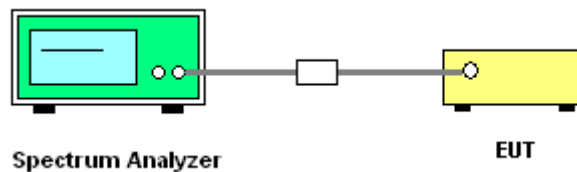
3.1.2 Measuring Instruments

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



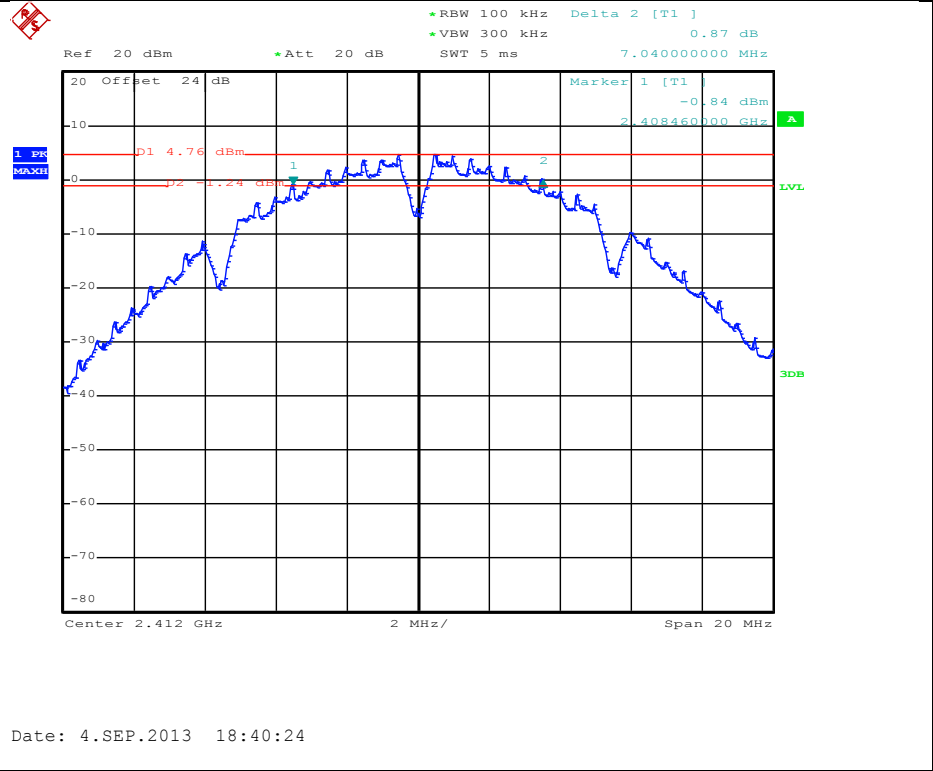
3.1.5 Test Result of 6dB Bandwidth

Test Band :	2.4GHz + 5GHz band 4	Temperature :	21~26°C
Test Engineer :	Reece Li and Stuart Lin	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Ant1	Ant2		
11b	1Mbps	2	1	2412	7.06	7.04	0.5	Pass
11b	1Mbps	2	6	2437	7.08	7.08	0.5	Pass
11b	1Mbps	2	11	2462	7.08	7.12	0.5	Pass
11g	6Mbps	2	1	2412	15.68	15.72	0.5	Pass
11g	6Mbps	2	2	2417	15.72	15.88	0.5	Pass
11g	6Mbps	2	6	2437	16.32	15.92	0.5	Pass
11g	6Mbps	2	10	2457	15.72	15.92	0.5	Pass
11g	6Mbps	2	11	2462	16.28	16.34	0.5	Pass
HT20	MCS0	2	1	2412	15.92	15.96	0.5	Pass
HT20	MCS0	2	2	2417	15.96	16.80	0.5	Pass
HT20	MCS0	2	6	2437	17.12	16.34	0.5	Pass
HT20	MCS0	2	10	2457	16.32	17.20	0.5	Pass
HT20	MCS0	2	11	2462	17.16	17.56	0.5	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Ant1	Ant2		
11a	6Mbps	2	149	5745	16.28	16.00	0.5	Pass
11a	6Mbps	2	157	5785	15.40	15.92	0.5	Pass
11a	6Mbps	2	165	5825	15.16	15.76	0.5	Pass
HT20	MCS0	2	149	5745	16.50	16.80	0.5	Pass
HT20	MCS0	2	157	5785	16.52	16.80	0.5	Pass
HT20	MCS0	2	165	5825	15.94	16.80	0.5	Pass
HT40	MCS0	2	151	5755	32.56	33.84	0.5	Pass
HT40	MCS0	2	159	5795	32.64	33.84	0.5	Pass

Minimum 6dB Bandwidth



3.2 Peak Output Power Measurement

3.2.1 Limit of Peak 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 with directional gain greater than 6dBi is 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.

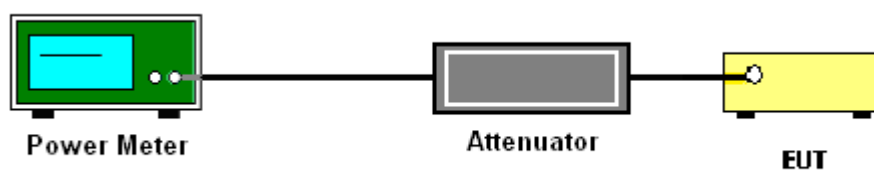
3.2.2 Measuring Instruments

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.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Band :	2.4GHz + 5GHz band 4	Temperature :	21~26°C
Test Engineer :	Reece Li and 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
					Ant1	Ant2	Sum Power			
11b	1Mbps	2	1	2412	17.7	16.8	20.3	30	2.85	Pass
11b	1Mbps	2	6	2437	17.7	16.7	20.2	30	2.85	Pass
11b	1Mbps	2	11	2462	17.5	16.6	20.1	30	2.85	Pass
11g	6Mbps	2	1	2412	15.1	13.6	17.4	30	2.85	Pass
11g	6Mbps	2	2	2417	19.1	17.7	21.4	30	2.85	Pass
11g	6Mbps	2	6	2437	20.2	18.5	22.4	30	2.85	Pass
11g	6Mbps	2	10	2457	19.7	17.7	21.8	30	2.85	Pass
11g	6Mbps	2	11	2462	15.3	13.7	17.6	30	2.85	Pass
HT20	MCS0	2	1	2412	13.6	12.4	16.1	30	2.85	Pass
HT20	MCS0	2	2	2417	18.7	17.5	21.2	30	2.85	Pass
HT20	MCS0	2	6	2437	20.2	18.6	22.5	30	2.85	Pass
HT20	MCS0	2	10	2457	19.6	18.2	22.0	30	2.85	Pass
HT20	MCS0	2	11	2462	15.9	14.3	18.2	30	2.85	Pass

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

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)			Power Limit (dBm)	DG (dBi)	Pass/Fail
					Ant1	Ant2	Sum Power			
11a	6Mbps	2	149	5745	18.0	15.8	20.1	30	2.47	Pass
11a	6Mbps	2	157	5785	18.2	15.9	20.2	30	2.47	Pass
11a	6Mbps	2	165	5825	18.2	16.0	20.3	30	2.47	Pass
HT20	MCS0	2	149	5745	18.7	16.3	20.7	30	2.47	Pass
HT20	MCS0	2	157	5785	18.5	16.5	20.6	30	2.47	Pass
HT20	MCS0	2	165	5825	18.0	16.2	20.2	30	2.47	Pass
HT40	MCS0	2	151	5755	17.4	14.9	19.3	30	2.47	Pass
HT40	MCS0	2	159	5795	17.0	15.3	19.2	30	2.47	Pass

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

3.2.6 Test Result of Average output Power (Reporting Only)

Test Band :	2.4GHz + 5GHz band 4	Temperature :	21~26°C
Test Engineer :	Reece Li and 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
					Ant1	Ant2	Sum Power			
11b	1Mbps	2	1	2412	15.0	14.0	17.5	30	2.85	Pass
11b	1Mbps	2	6	2437	14.9	14.0	17.5	30	2.85	Pass
11b	1Mbps	2	11	2462	14.9	13.8	17.4	30	2.85	Pass
11g	6Mbps	2	1	2412	8.6	6.9	10.8	30	2.85	Pass
11g	6Mbps	2	2	2417	13.0	11.8	15.5	30	2.85	Pass
11g	6Mbps	2	6	2437	15.0	14.0	17.6	30	2.85	Pass
11g	6Mbps	2	10	2457	13.7	12.1	16.0	30	2.85	Pass
11g	6Mbps	2	11	2462	9.6	7.7	11.7	30	2.85	Pass
HT20	MCS0	2	1	2412	7.4	5.8	9.7	30	2.85	Pass
HT20	MCS0	2	2	2417	12.4	11.3	14.9	30	2.85	Pass
HT20	MCS0	2	6	2437	15.0	14.0	17.5	30	2.85	Pass
HT20	MCS0	2	10	2457	13.7	12.3	16.1	30	2.85	Pass
HT20	MCS0	2	11	2462	10.1	8.1	12.2	30	2.85	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)			Power Limit (dBm)	DG (dBi)	Pass/Fail
					Ant1	Ant2	Sum Power			
11a	6Mbps	2	149	5745	12.7	10.0	14.6	30	2.47	Pass
11a	6Mbps	2	157	5785	12.9	10.0	14.7	30	2.47	Pass
11a	6Mbps	2	165	5825	13.0	9.9	14.8	30	2.47	Pass
HT20	MCS0	2	149	5745	13.0	10.0	14.8	30	2.47	Pass
HT20	MCS0	2	157	5785	12.9	10.0	14.7	30	2.47	Pass
HT20	MCS0	2	165	5825	12.7	10.0	14.6	30	2.47	Pass
HT40	MCS0	2	151	5755	12.9	10.0	14.7	30	2.47	Pass
HT40	MCS0	2	159	5795	12.5	9.9	14.4	30	2.47	Pass

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

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.
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02.

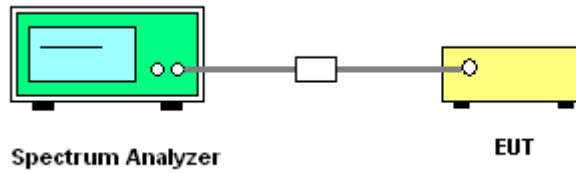
If measurements performed using method (2) plus $10 \log(N)$ exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

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

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

Method (2): Measure and add $10 \log(N)$ dB, where N is the number of outputs. (N=2)

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

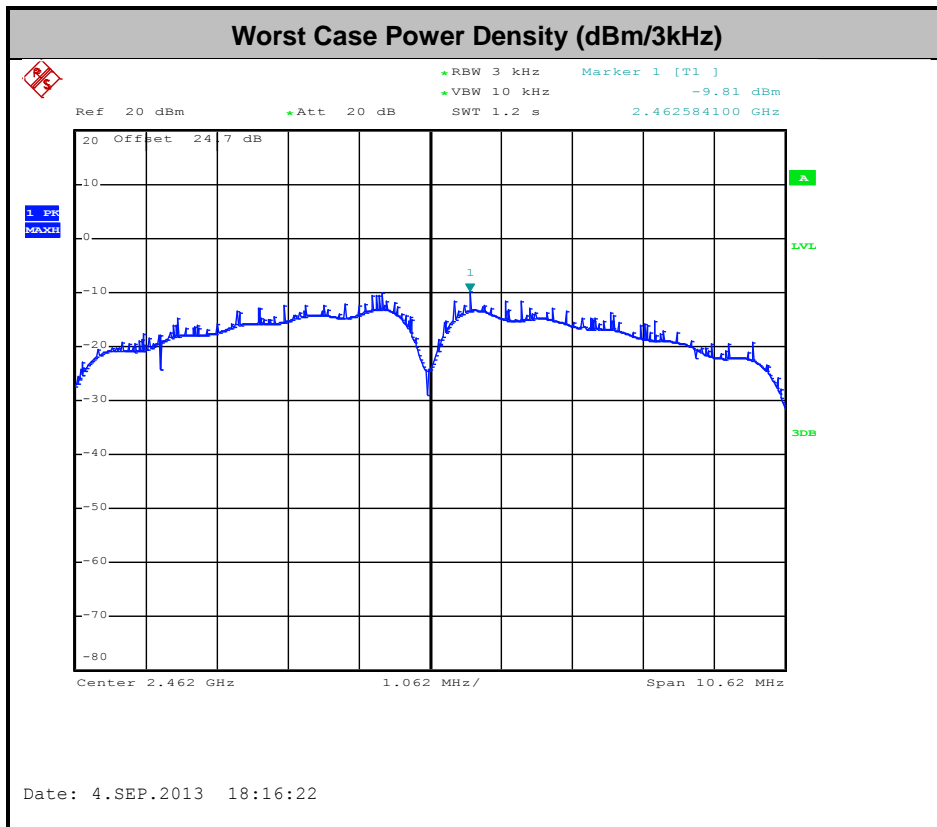
Test Band :	2.4GHz + 5GHz band 4	Temperature :	21~26°C
Test Engineer :	Reece Li and Stuart Lin	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)			Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
					Ant1	Ant2	Worst +10log(2)			
					11b	1Mbps	2			
11b	1Mbps	2	6	2437	-10.45	-10.66	-7.44	8	5.86	Pass
11b	1Mbps	2	11	2462	-9.81	-11.87	-6.80	8	5.86	Pass
11g	6Mbps	2	1	2412	-18.44	-20.34	-15.43	8	5.86	Pass
11g	6Mbps	2	2	2417	-14.90	-16.85	-11.89	8	5.86	Pass
11g	6Mbps	2	6	2437	-10.69	-13.15	-7.68	8	5.86	Pass
11g	6Mbps	2	10	2457	-13.67	-15.02	-10.66	8	5.86	Pass
11g	6Mbps	2	11	2462	-17.86	-19.86	-14.85	8	5.86	Pass
HT20	MCS0	2	1	2412	-19.36	-21.34	-16.35	8	5.86	Pass
HT20	MCS0	2	2	2417	-13.55	-16.95	-10.54	8	5.86	Pass
HT20	MCS0	2	6	2437	-10.62	-12.92	-7.61	8	5.86	Pass
HT20	MCS0	2	10	2457	-12.90	-14.83	-9.89	8	5.86	Pass
HT20	MCS0	2	11	2462	-16.53	-19.41	-13.52	8	5.86	Pass

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

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)			Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
					Ant1	Ant2	Worst +10log(2)			
11a	6Mbps	2	149	5745	-13.51	-15.43	-10.50	8	5.48	Pass
11a	6Mbps	2	157	5785	-13.33	-17.71	-10.32	8	5.48	Pass
11a	6Mbps	2	165	5825	-13.95	-16.53	-10.94	8	5.48	Pass
HT20	MCS0	2	149	5745	-13.73	-15.64	-10.72	8	5.48	Pass
HT20	MCS0	2	157	5785	-13.53	-17.29	-10.52	8	5.48	Pass
HT20	MCS0	2	165	5825	-13.97	-17.09	-10.96	8	5.48	Pass
HT40	MCS0	2	151	5755	-15.93	-18.67	-12.92	8	5.48	Pass
HT40	MCS0	2	159	5795	-16.77	-19.86	-13.76	8	5.48	Pass

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



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).

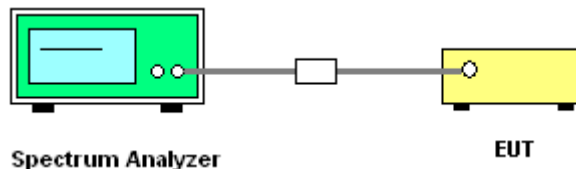
3.4.2 Measuring Instruments

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.

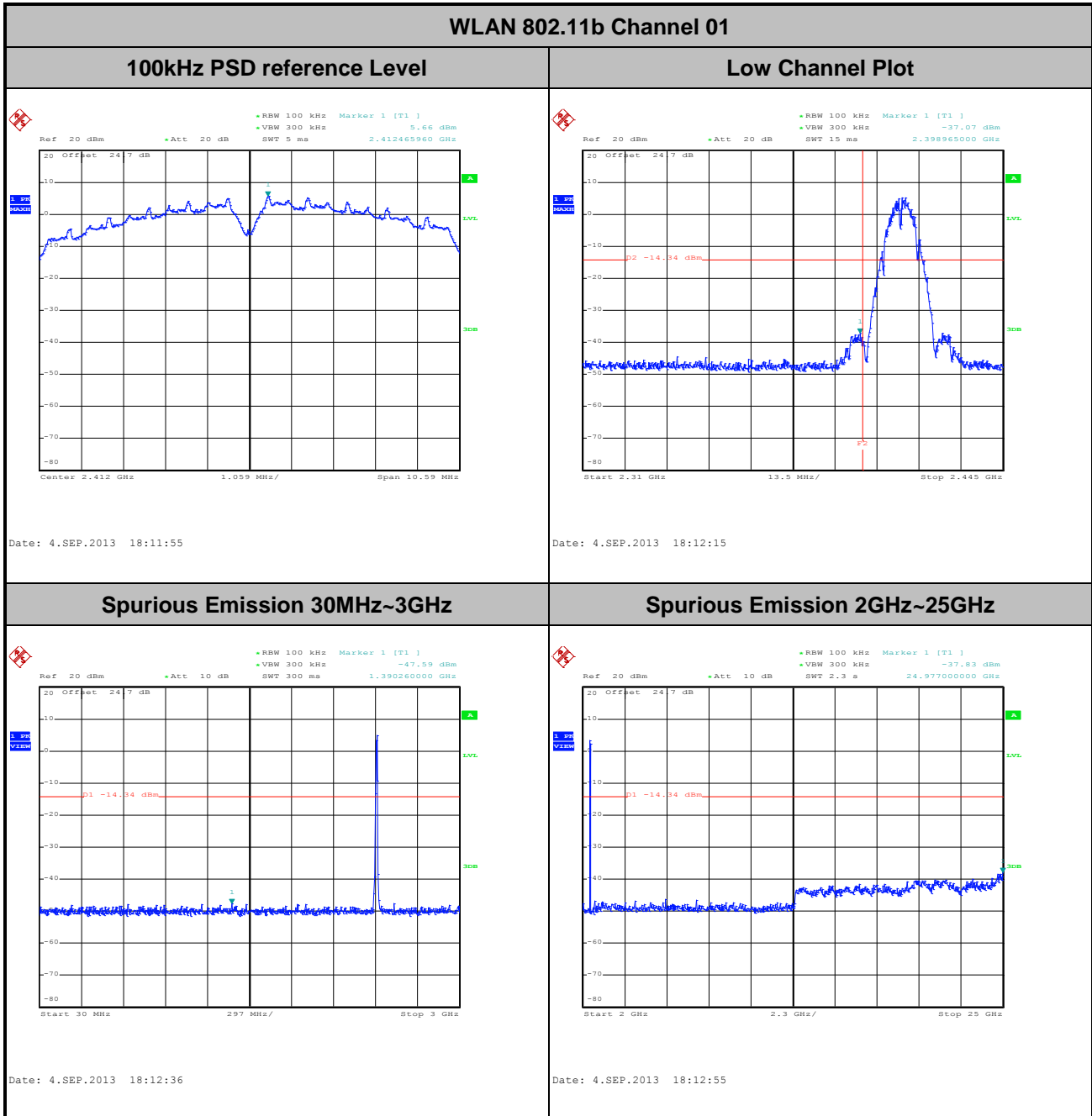
3.4.4 Test Setup



3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Number of TX = 2, Ant. 1(Measured)

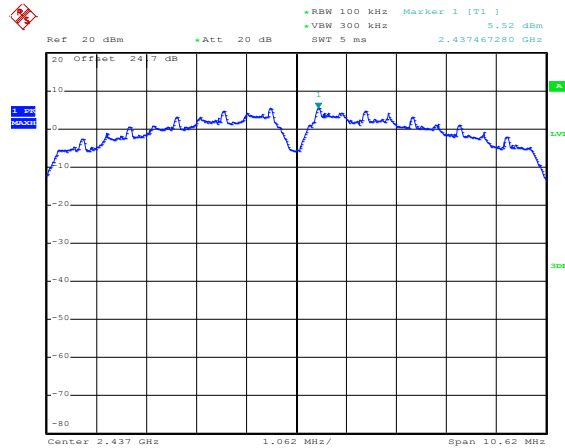
Number of TX :	2	Antenna :	1
Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Reece Li and Stuart Lin



Number of TX :	2	Antenna :	1
Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Reece Li and Stuart Lin

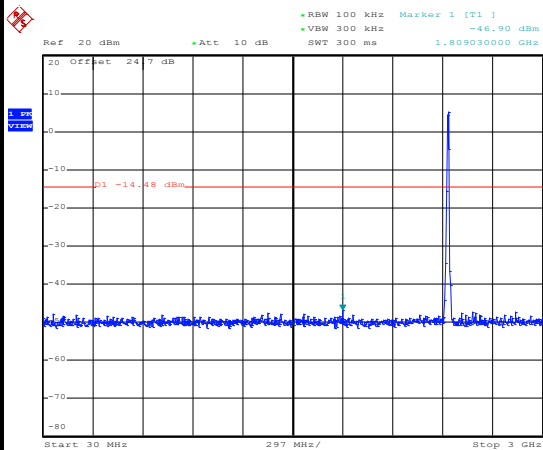
WLAN 802.11b Channel 06

100kHz PSD reference Level



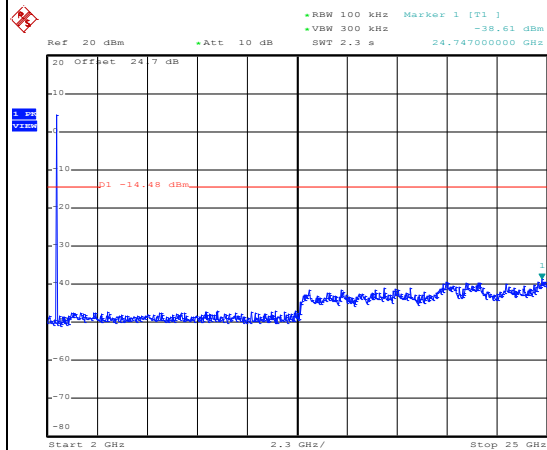
Date: 4.SEP.2013 18:08:07

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 18:08:40

Spurious Emission 2GHz~25GHz

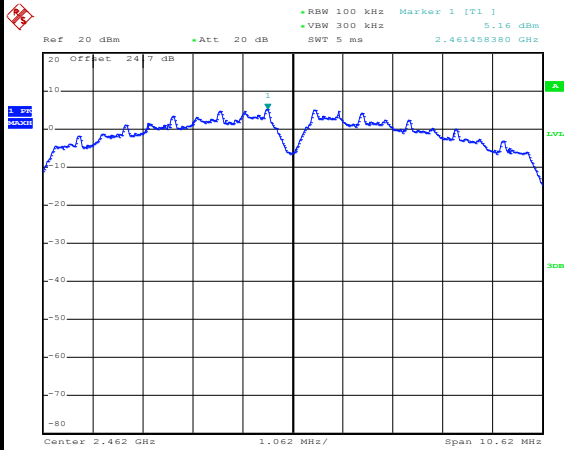


Date: 4.SEP.2013 18:08:58

Number of TX :	2	Antenna :	1
Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Reece Li and Stuart Lin

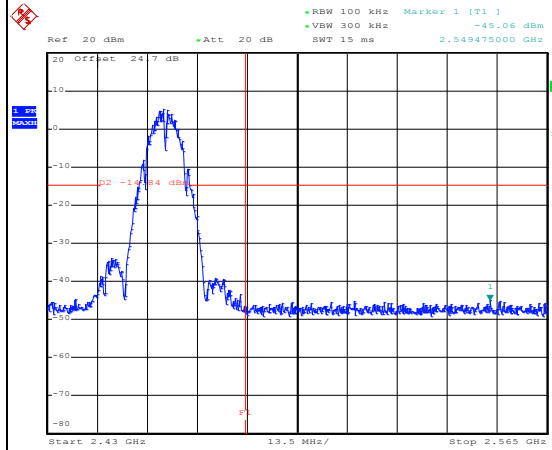
WLAN 802.11b Channel 11

100kHz PSD reference Level



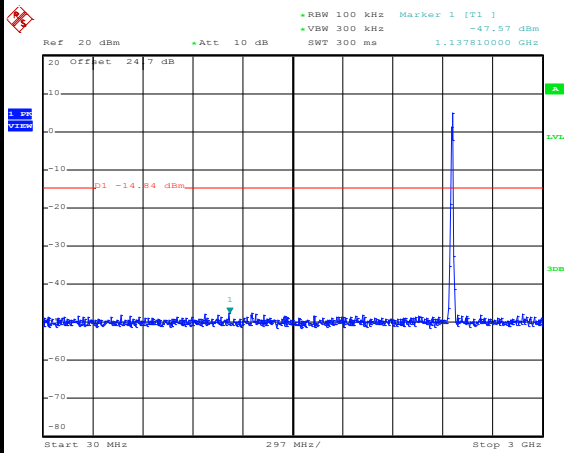
Date: 4.SEP.2013 18:16:41

High Channel Plot



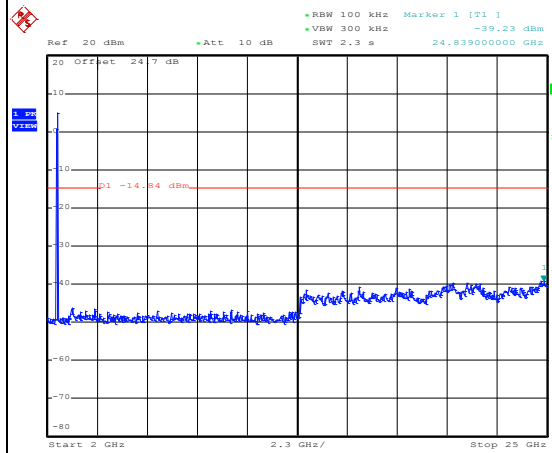
Date: 4.SEP.2013 18:16:58

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 18:17:35

Spurious Emission 2GHz~25GHz

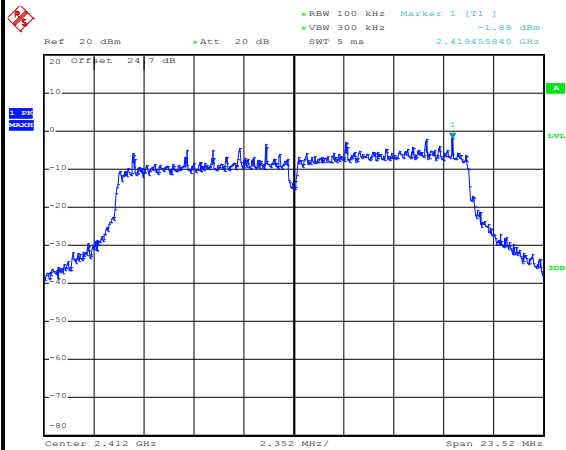


Date: 4.SEP.2013 18:17:54

Number of TX :	2	Antenna :	1
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Reece Li and Stuart Lin

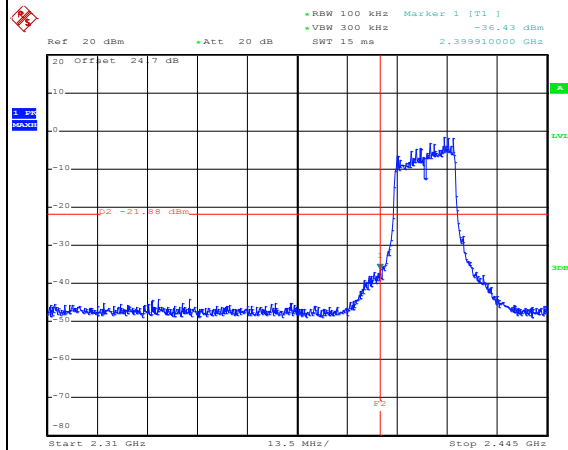
WLAN 802.11g Channel 01

100kHz PSD reference Level



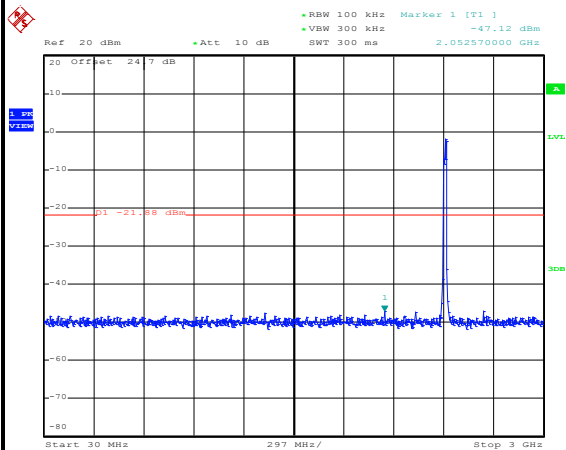
Date: 4.SEP.2013 18:56:02

Low Channel Plot



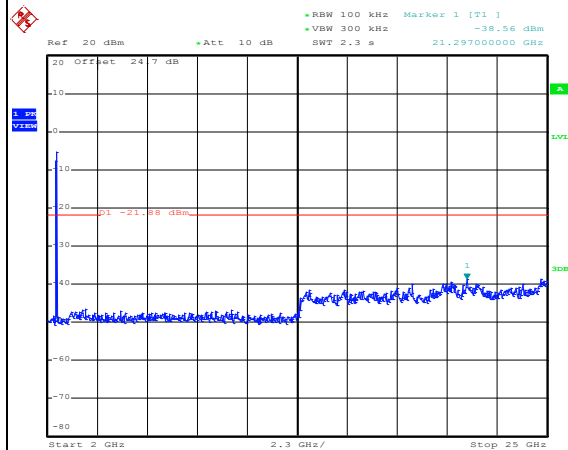
Date: 4.SEP.2013 18:57:00

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 18:56:27

Spurious Emission 2GHz~25GHz

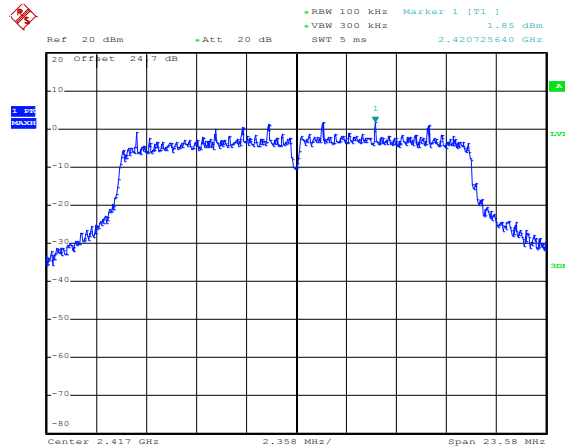


Date: 4.SEP.2013 18:56:46

Number of TX :	2	Antenna :	1
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz	Relative Humidity :	45~54%
Test Channel :	02	Test Engineer :	Reece Li and Stuart Lin

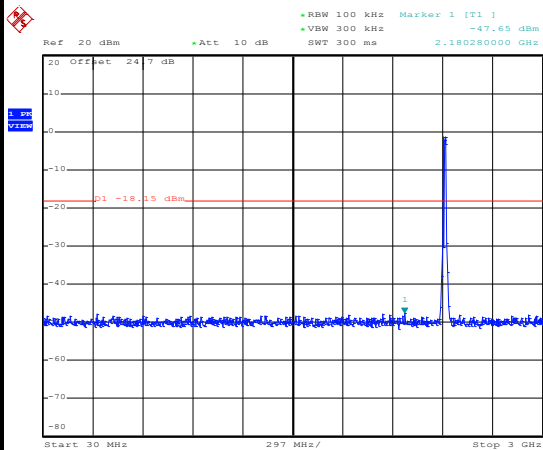
WLAN 802.11g Channel 02

100kHz PSD reference Level



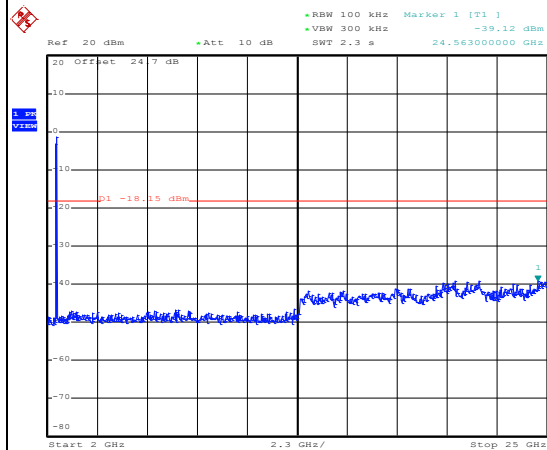
Date: 4.SEP.2013 19:01:30

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 19:01:55

Spurious Emission 2GHz~25GHz

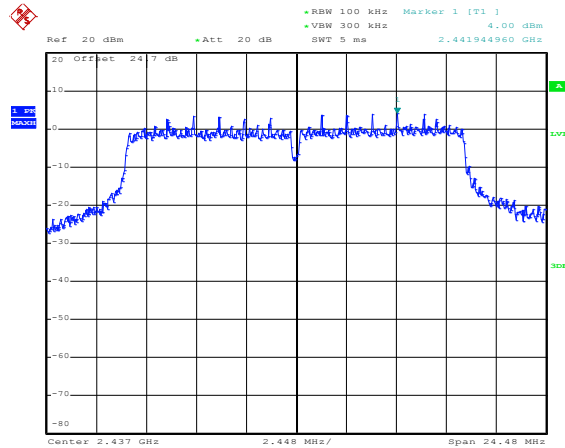


Date: 4.SEP.2013 19:02:13

Number of TX :	2	Antenna :	1
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Reece Li and Stuart Lin

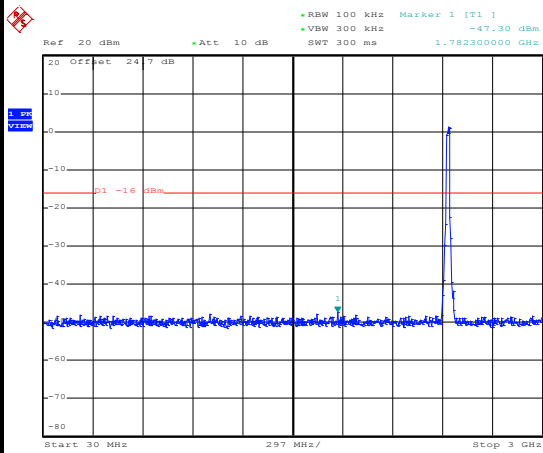
WLAN 802.11g Channel 06

100kHz PSD reference Level



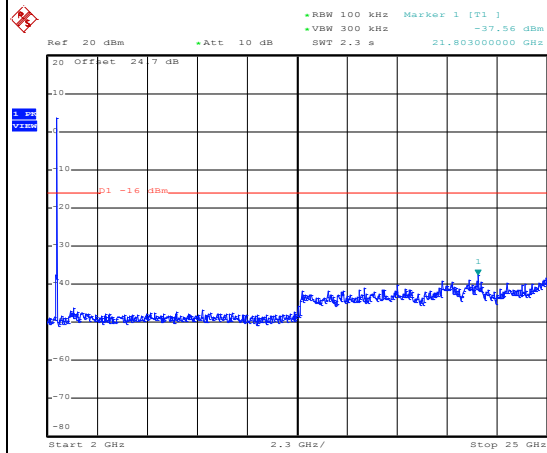
Date: 4.SEP.2013 19:30:12

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 21:40:20

Spurious Emission 2GHz~25GHz

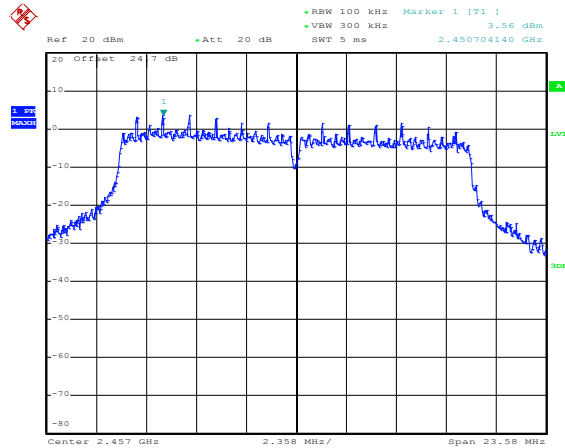


Date: 4.SEP.2013 21:40:38

Number of TX :	2	Antenna :	1
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz	Relative Humidity :	45~54%
Test Channel :	10	Test Engineer :	Reece Li and Stuart Lin

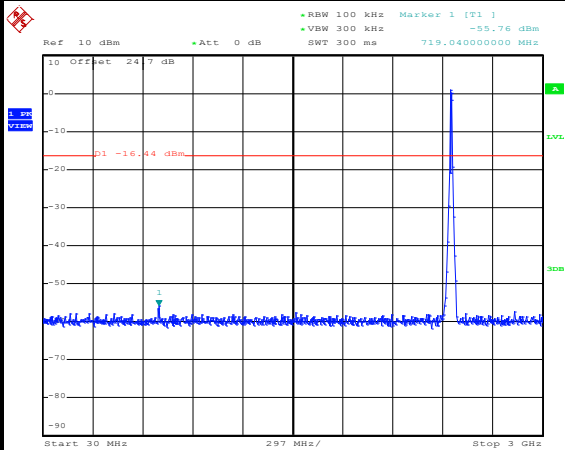
WLAN 802.11g Channel 10

100kHz PSD reference Level



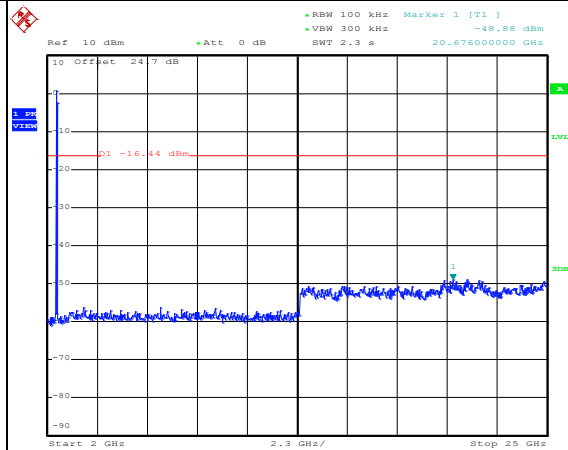
Date: 4.SEP.2013 19:44:19

Spurious Emission 30MHz~3GHz



Date: 10.SEP.2013 16:56:55

Spurious Emission 2GHz~25GHz

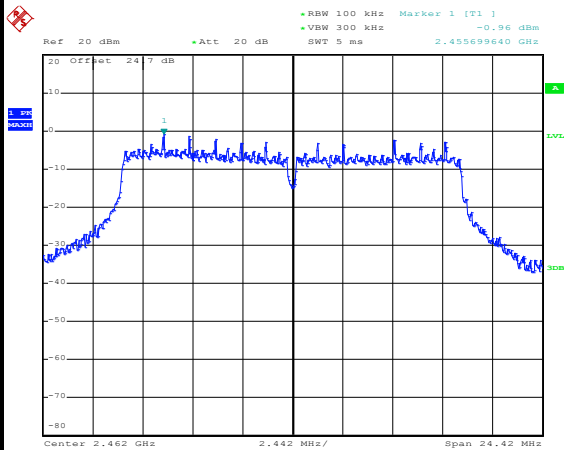


Date: 10.SEP.2013 16:57:13

Number of TX :	2	Antenna :	1
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Reece Li and Stuart Lin

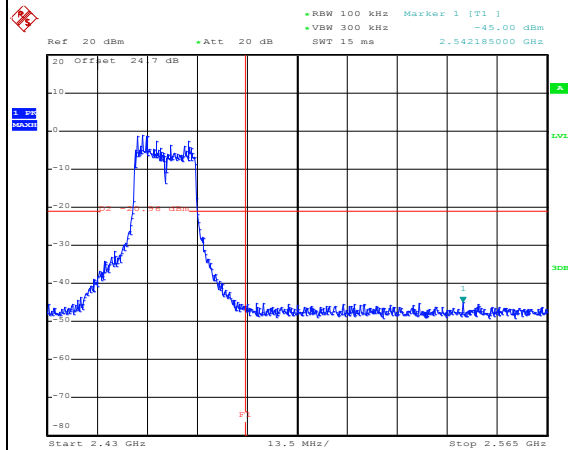
WLAN 802.11g Channel 11

100kHz PSD reference Level



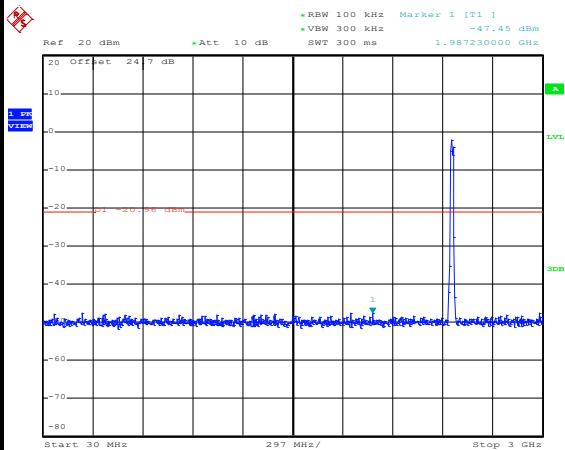
Date: 4.SEP.2013 19:48:40

High Channel Plot



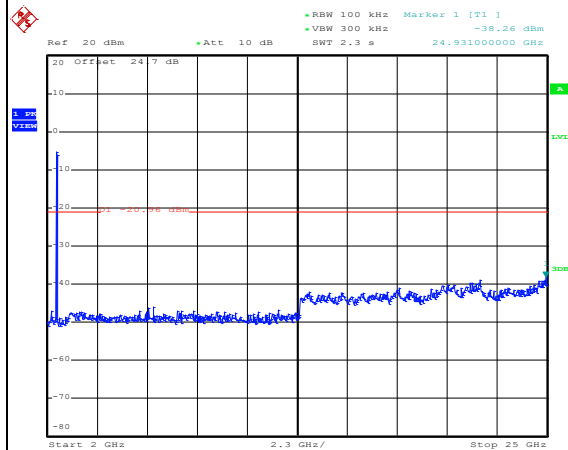
Date: 4.SEP.2013 19:48:55

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 19:50:49

Spurious Emission 2GHz~25GHz

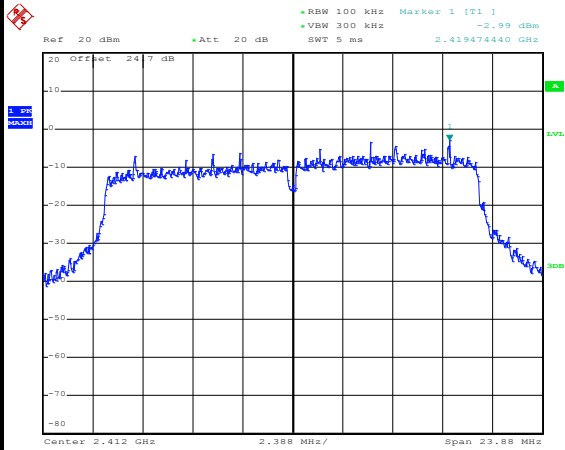


Date: 4.SEP.2013 19:51:08

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Reece Li and Stuart Lin

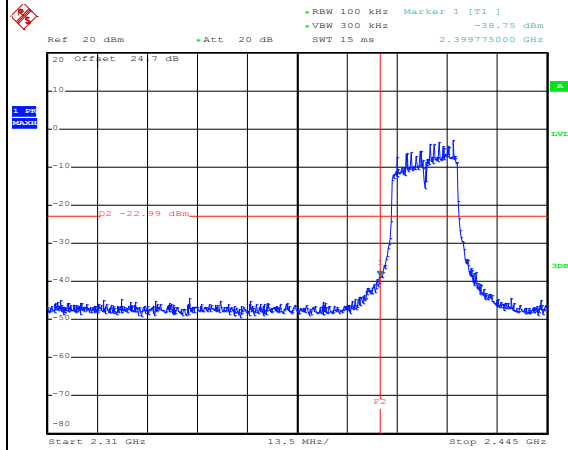
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



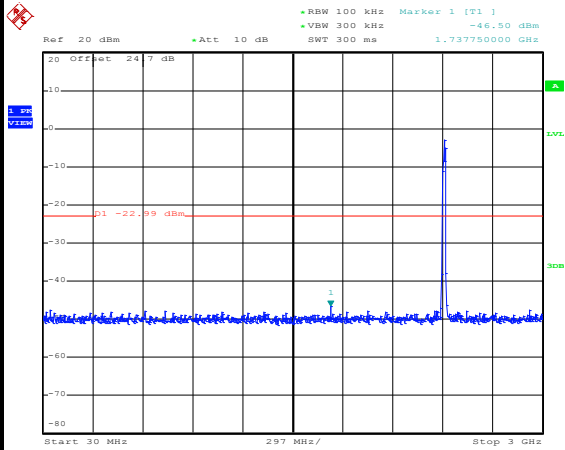
Date: 4.SEP.2013 20:11:25

Low Channel Plot



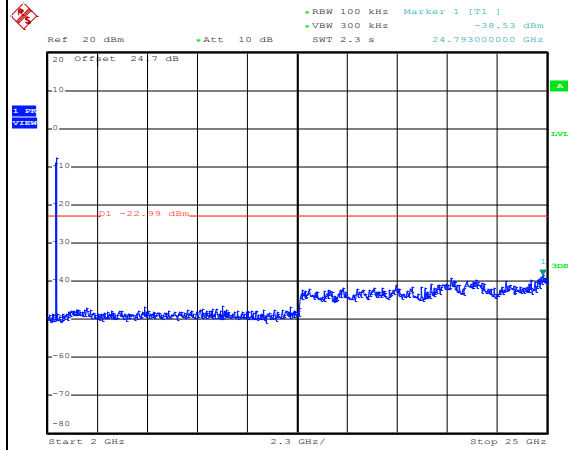
Date: 4.SEP.2013 20:11:42

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 20:12:04

Spurious Emission 2GHz~25GHz

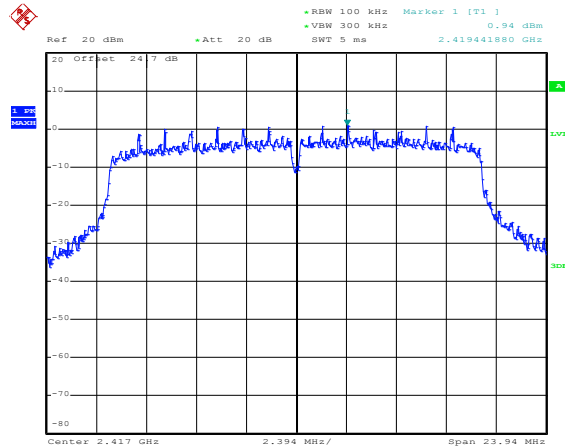


Date: 4.SEP.2013 20:12:23

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz	Relative Humidity :	45~54%
Test Channel :	02	Test Engineer :	Reece Li and Stuart Lin

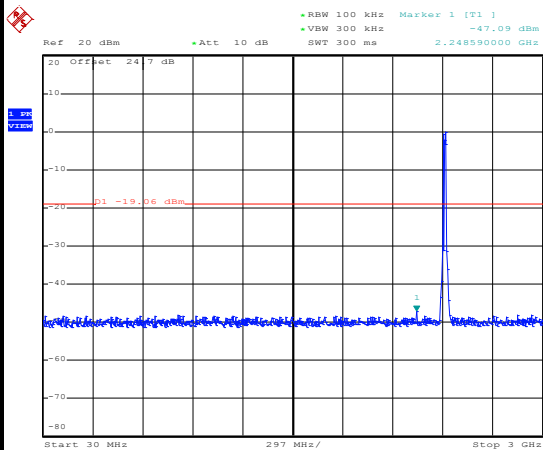
WLAN 802.11n HT20 Channel 02

100kHz PSD reference Level



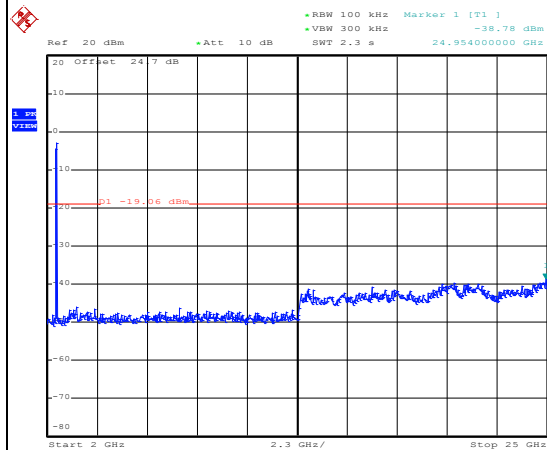
Date: 4.SEP.2013 20:37:58

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 20:38:34

Spurious Emission 2GHz~25GHz

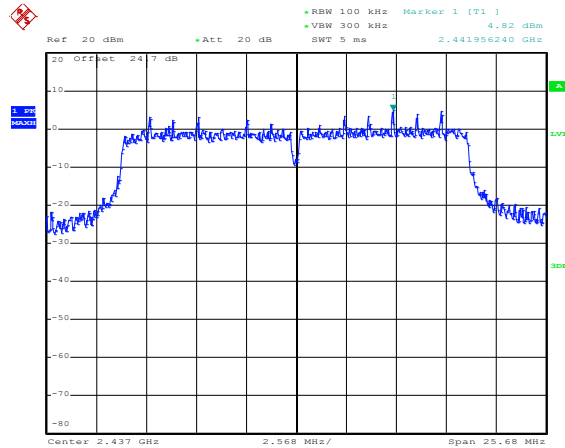


Date: 4.SEP.2013 20:38:53

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Reece Li and Stuart Lin

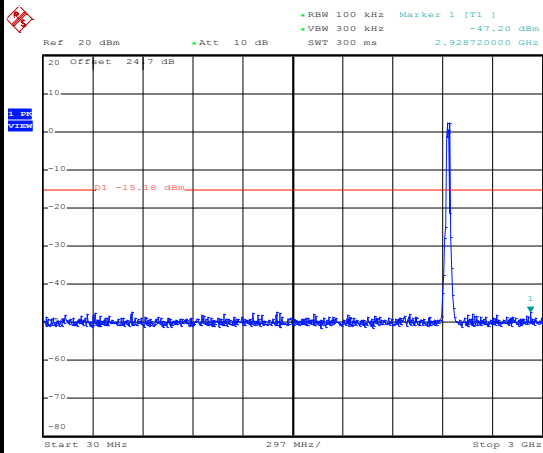
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



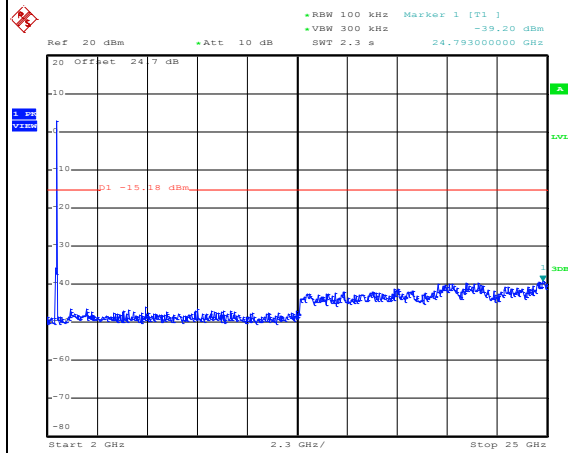
Date: 4.SEP.2013 20:05:29

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 20:05:55

Spurious Emission 2GHz~25GHz

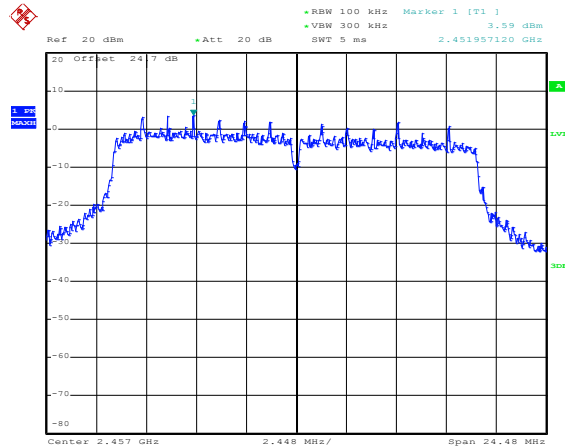


Date: 4.SEP.2013 20:06:13

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz	Relative Humidity :	45~54%
Test Channel :	10	Test Engineer :	Reece Li and Stuart Lin

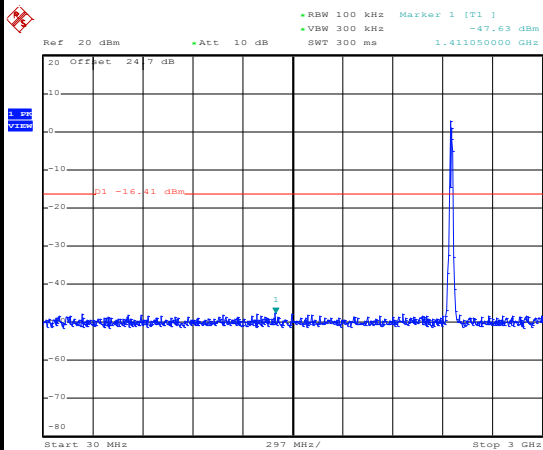
WLAN 802.11n HT20 Channel 10

100kHz PSD reference Level



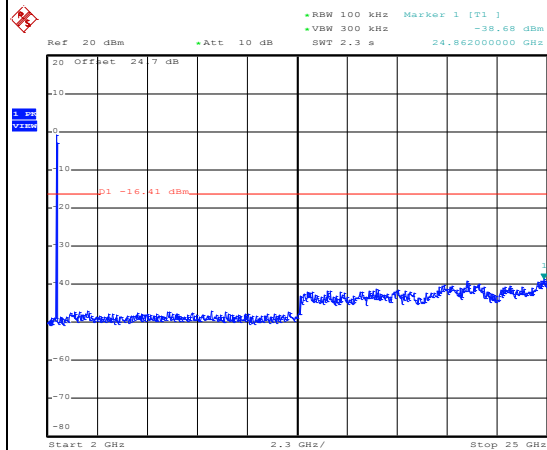
Date: 4.SEP.2013 20:41:57

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 20:42:27

Spurious Emission 2GHz~25GHz

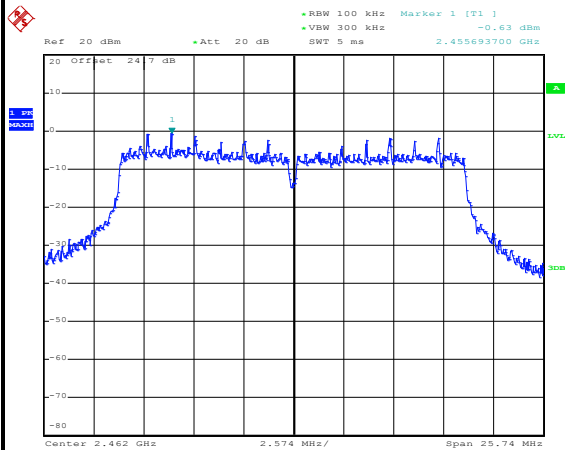


Date: 4.SEP.2013 20:42:45

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Reece Li and Stuart Lin

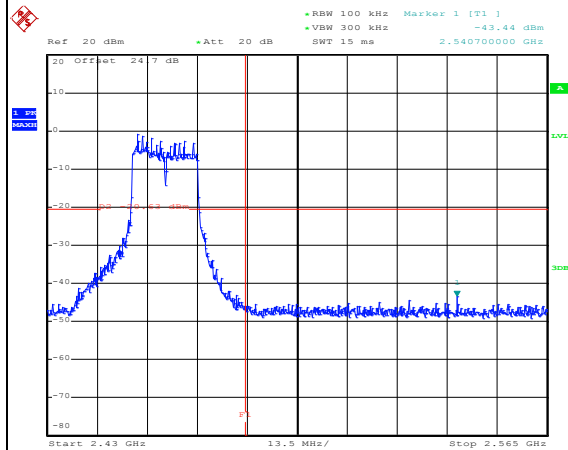
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



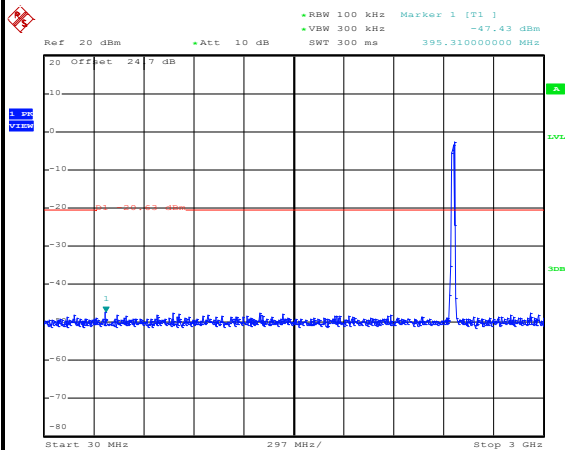
Date: 4.SEP.2013 21:44:34

High Channel Plot



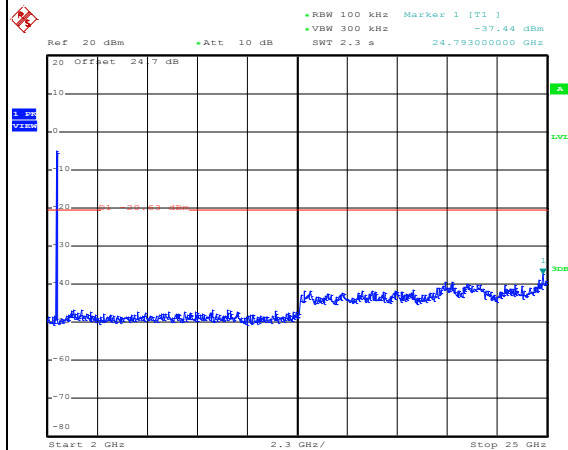
Date: 4.SEP.2013 21:44:49

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 21:45:09

Spurious Emission 2GHz~25GHz

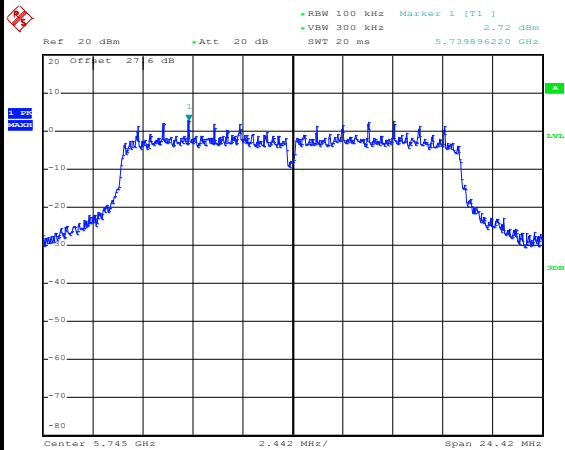


Date: 4.SEP.2013 21:45:28

Number of TX :	2	Antenna :	1
Test Mode :	802.11a	Temperature :	21~26°C
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	149	Test Engineer :	Reece Li and Stuart Lin

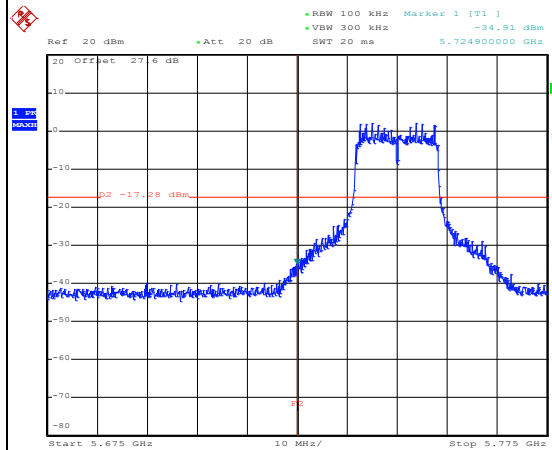
WLAN 802.11a Channel 149

100kHz PSD reference Level



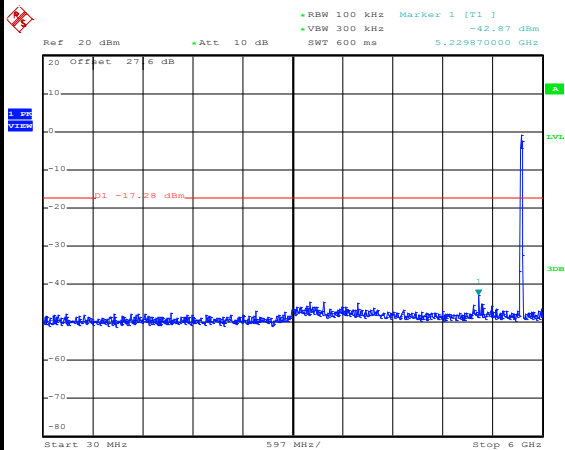
Date: 4.SEP.2013 21:56:31

Low Channel Plot



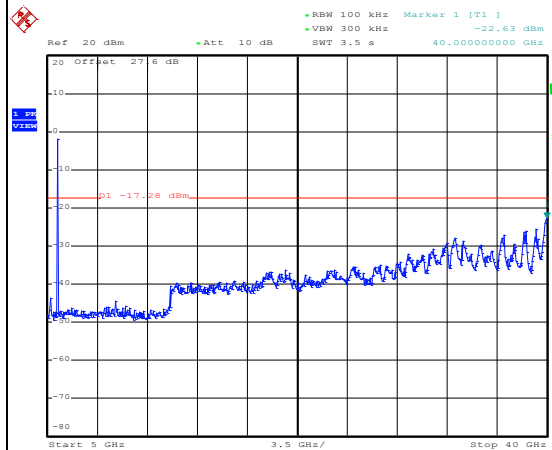
Date: 4.SEP.2013 21:56:59

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 21:57:22

Spurious Emission 5GHz~40GHz



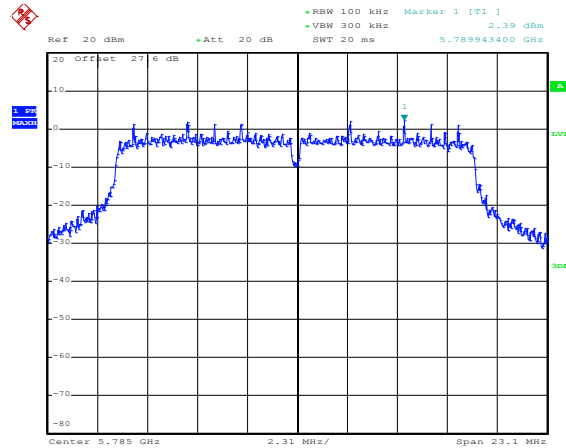
Date: 4.SEP.2013 21:57:41

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	1
Test Mode :	802.11a	Temperature :	21~26°C
Test Band :	5GHz Mid	Relative Humidity :	45~54%
Test Channel :	157	Test Engineer :	Reece Li and Stuart Lin

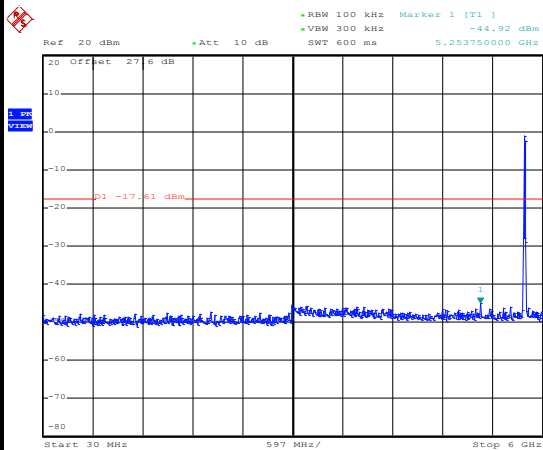
WLAN 802.11a Channel 157

100kHz PSD reference Level



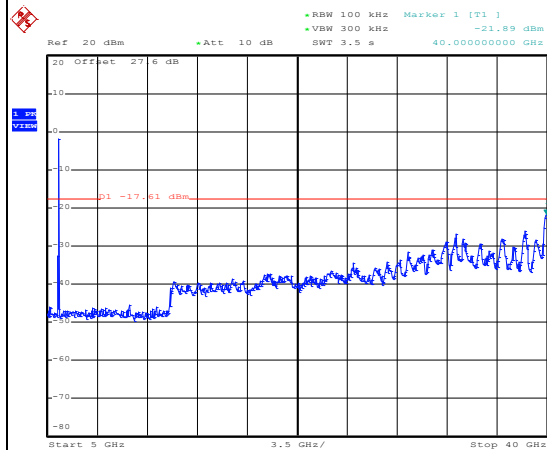
Date: 4.SEP.2013 22:10:37

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:11:04

Spurious Emission 5GHz~40GHz



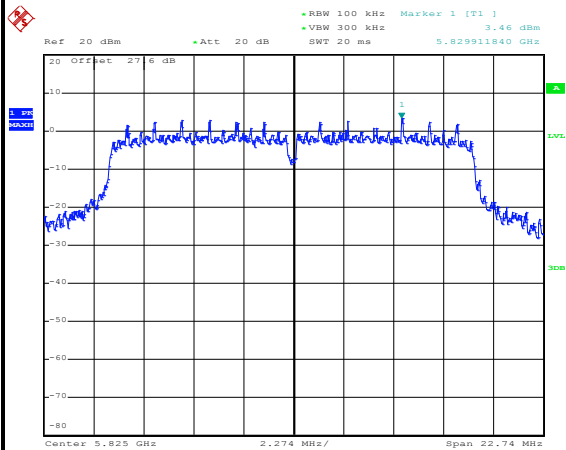
Date: 4.SEP.2013 22:11:23

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	1
Test Mode :	802.11a	Temperature :	21~26°C
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	165	Test Engineer :	Reece Li and Stuart Lin

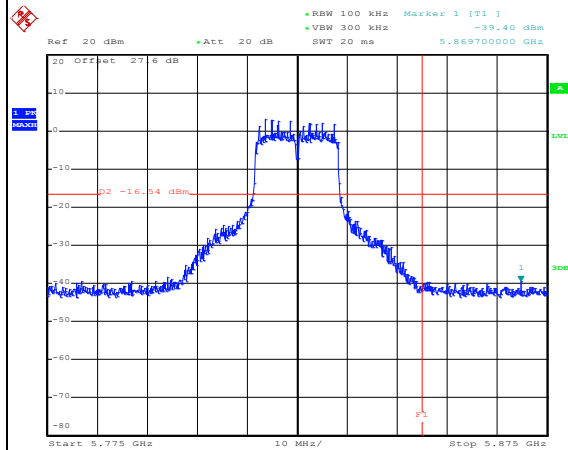
WLAN 802.11a Channel 165

100kHz PSD reference Level



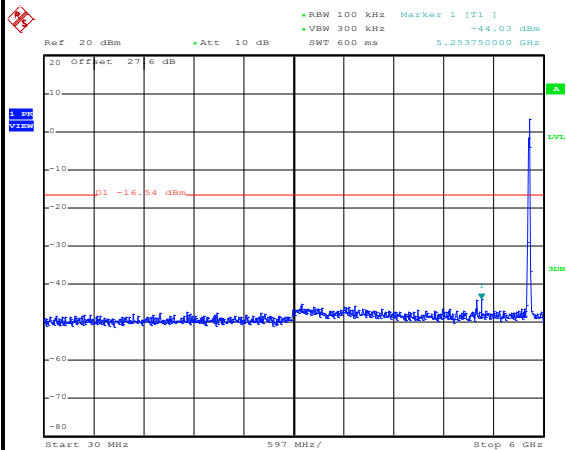
Date: 4.SEP.2013 22:16:46

High Channel Plot



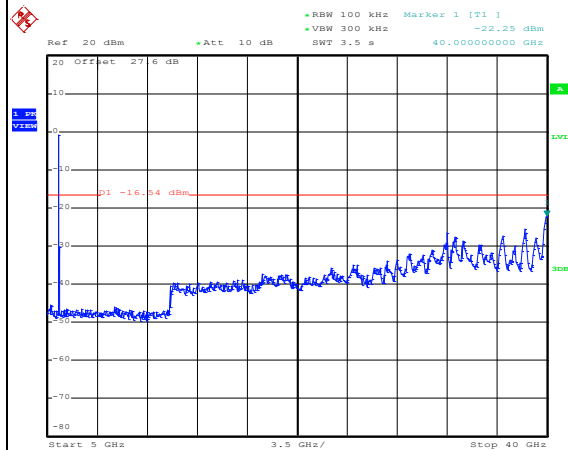
Date: 4.SEP.2013 22:17:11

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:17:31

Spurious Emission 5GHz~40GHz



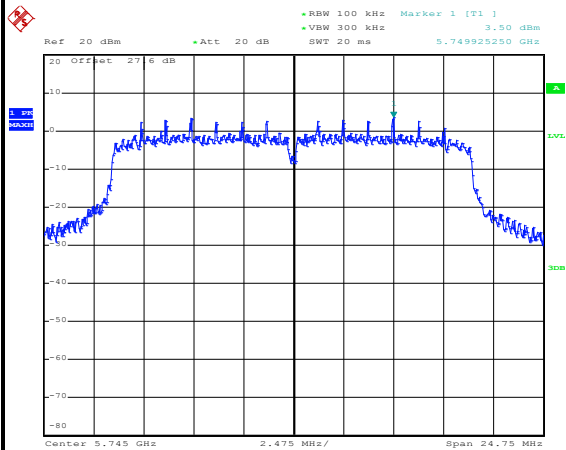
Date: 4.SEP.2013 22:17:49

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	149	Test Engineer :	Reece Li and Stuart Lin

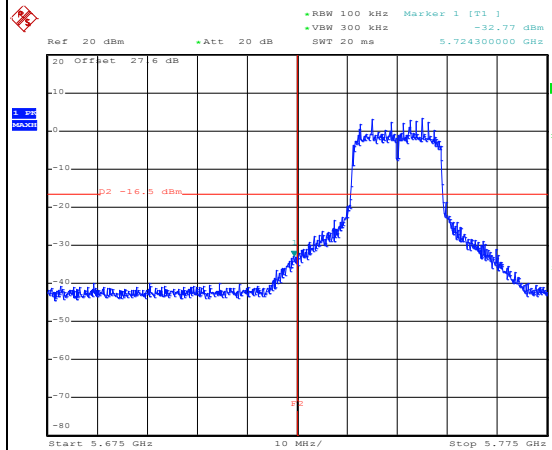
WLAN 802.11n HT20 Channel 149

100kHz PSD reference Level



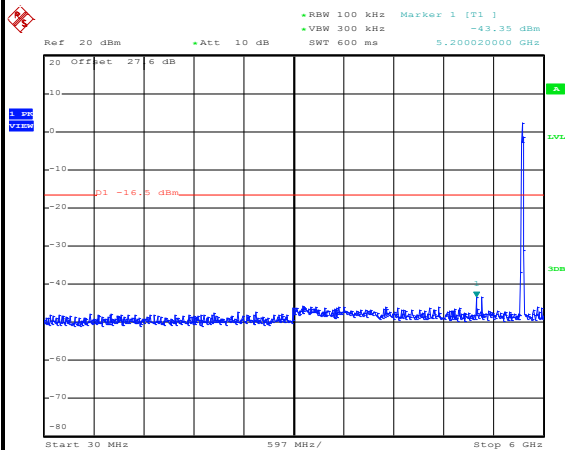
Date: 4.SEP.2013 22:58:36

Low Channel Plot



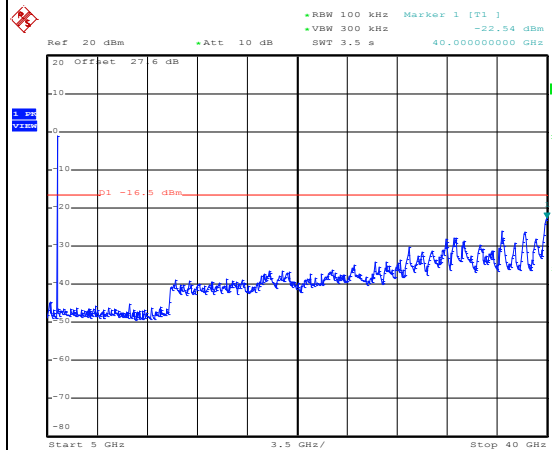
Date: 4.SEP.2013 22:59:01

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:59:31

Spurious Emission 5GHz~40GHz



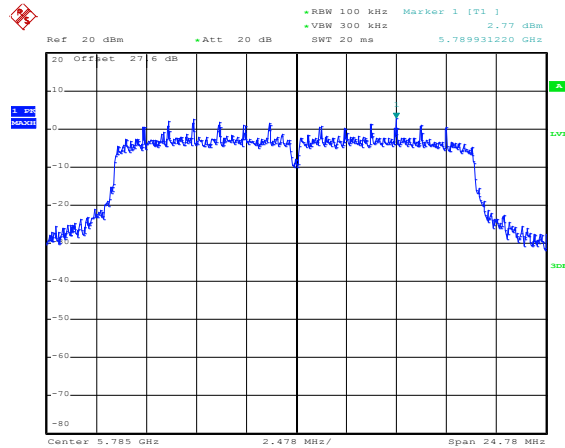
Date: 4.SEP.2013 22:59:50

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	5GHz Mid	Relative Humidity :	45~54%
Test Channel :	157	Test Engineer :	Reece Li and Stuart Lin

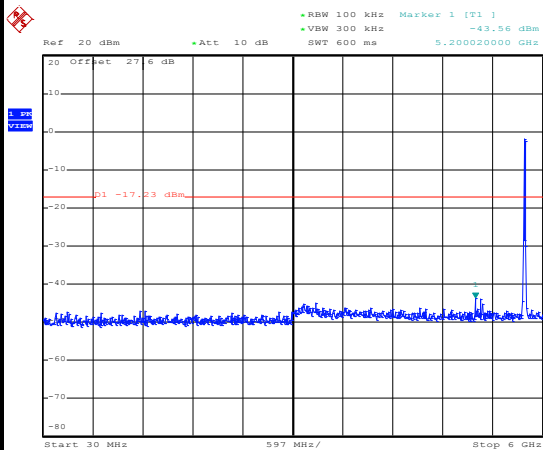
WLAN 802.11n HT20 Channel 157

100kHz PSD reference Level



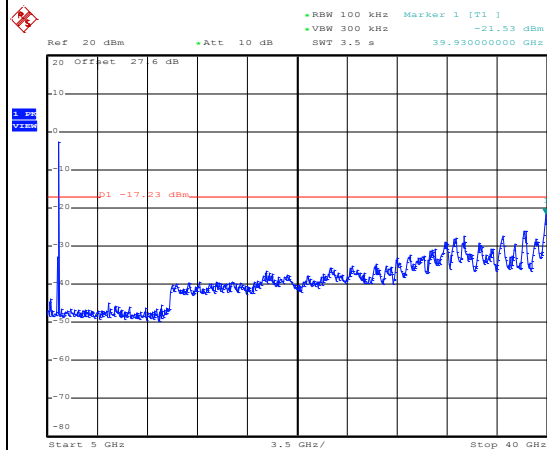
Date: 4.SEP.2013 22:54:07

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:54:29

Spurious Emission 5GHz~40GHz



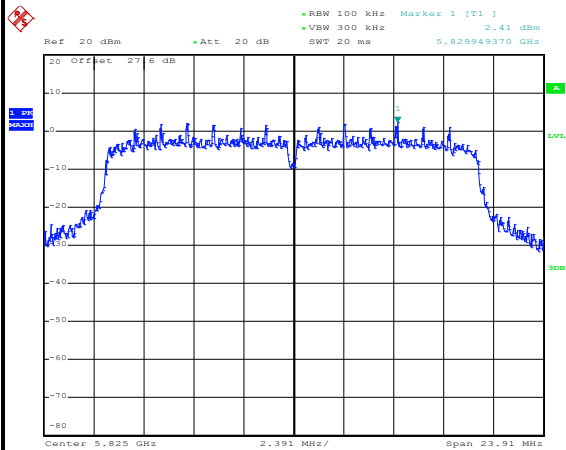
Date: 4.SEP.2013 22:54:47

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	165	Test Engineer :	Reece Li and Stuart Lin

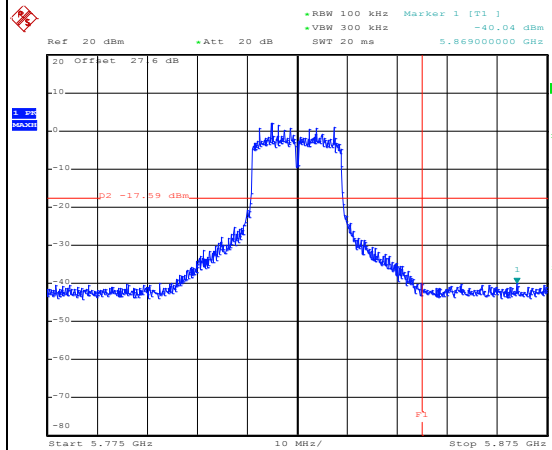
WLAN 802.11n HT20 Channel 165

100kHz PSD reference Level



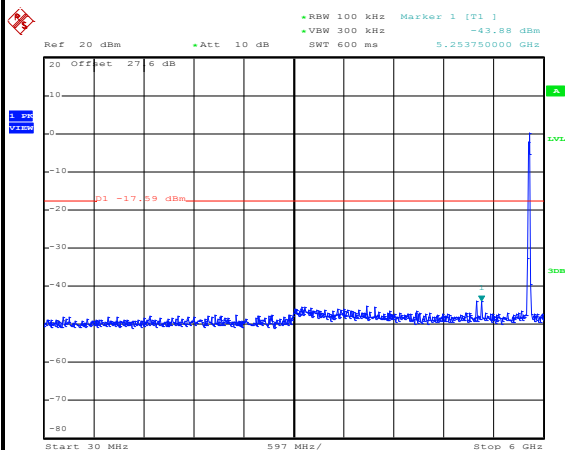
Date: 4.SEP.2013 22:41:17

High Channel Plot



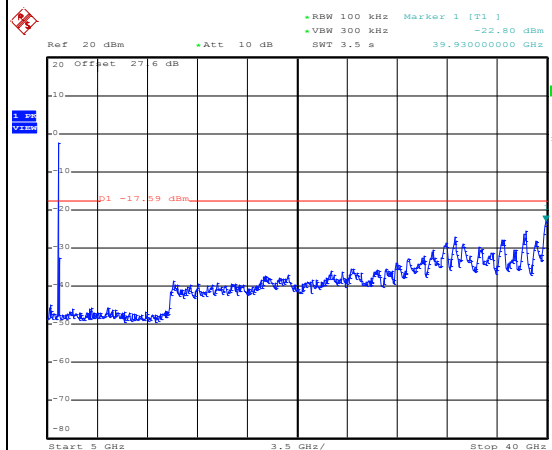
Date: 4.SEP.2013 22:41:32

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:41:54

Spurious Emission 5GHz~40GHz



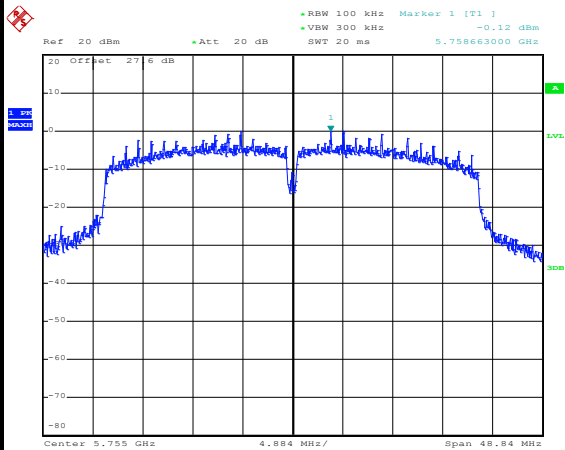
Date: 4.SEP.2013 22:42:12

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT40	Temperature :	21~26°C
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	151	Test Engineer :	Reece Li and Stuart Lin

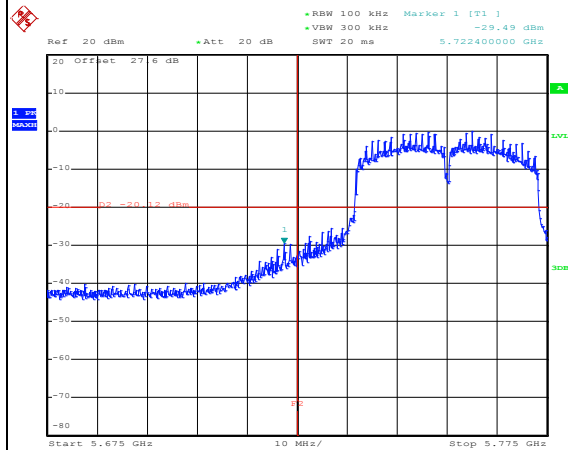
WLAN 802.11n HT40 Channel 151

100kHz PSD reference Level



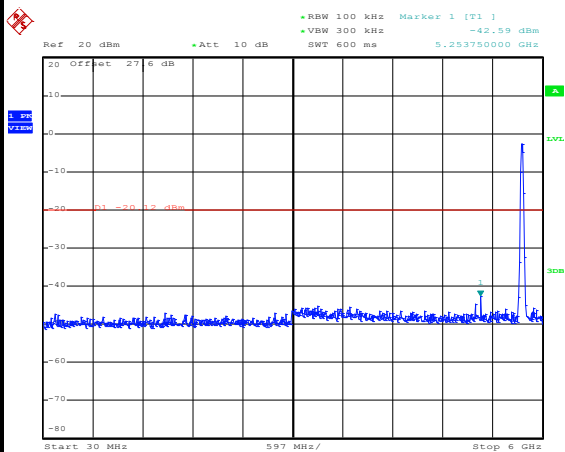
Date: 4.SEP.2013 23:03:17

Low Channel Plot



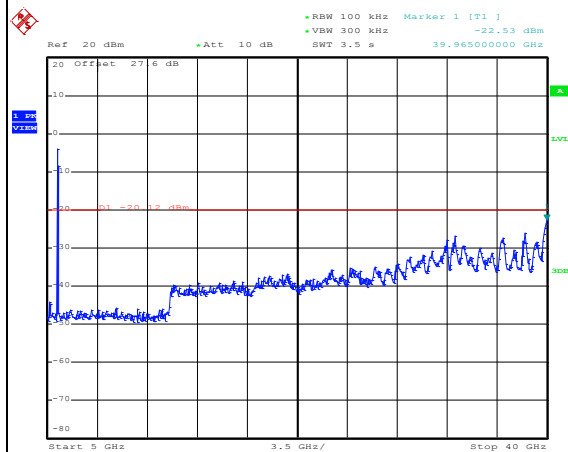
Date: 4.SEP.2013 23:03:36

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 23:03:57

Spurious Emission 5GHz~40GHz



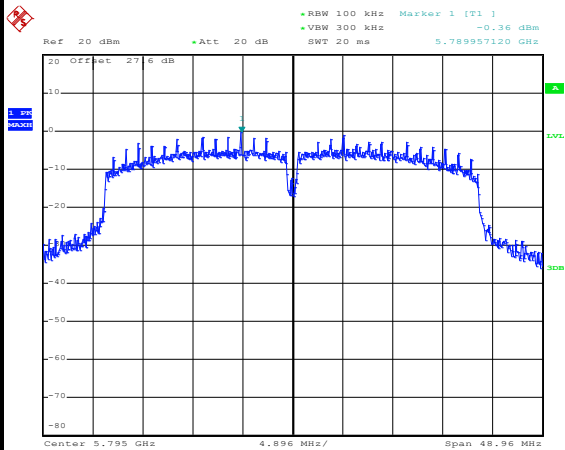
Date: 4.SEP.2013 23:04:15

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	1
Test Mode :	802.11n HT40	Temperature :	21~26°C
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	159	Test Engineer :	Reece Li and Stuart Lin

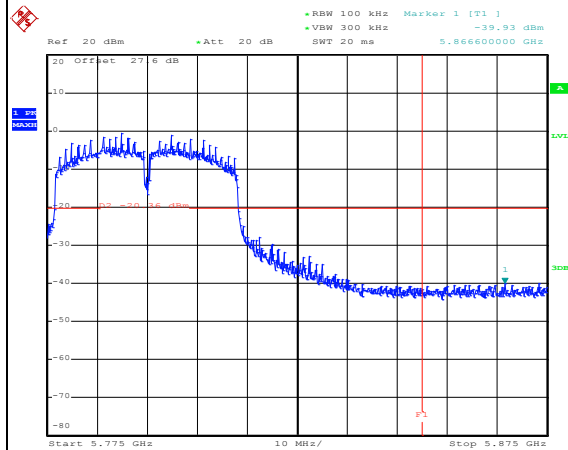
WLAN 802.11n HT40 Channel 159

100kHz PSD reference Level



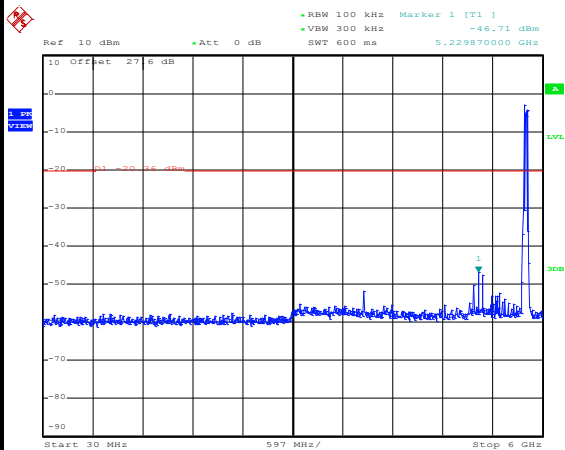
Date: 4.SEP.2013 23:19:45

High Channel Plot



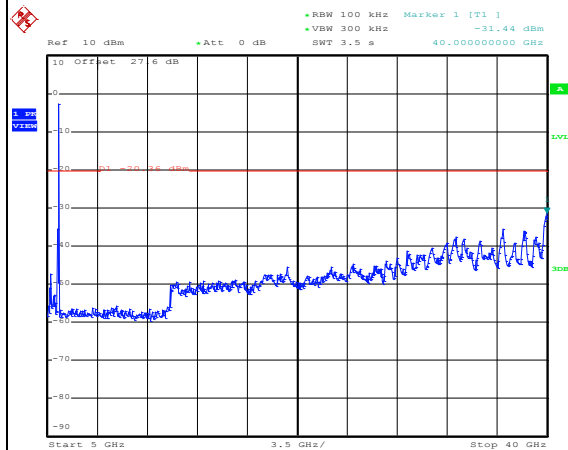
Date: 4.SEP.2013 23:20:08

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 23:37:42

Spurious Emission 5GHz~40GHz



Date: 4.SEP.2013 23:38:01

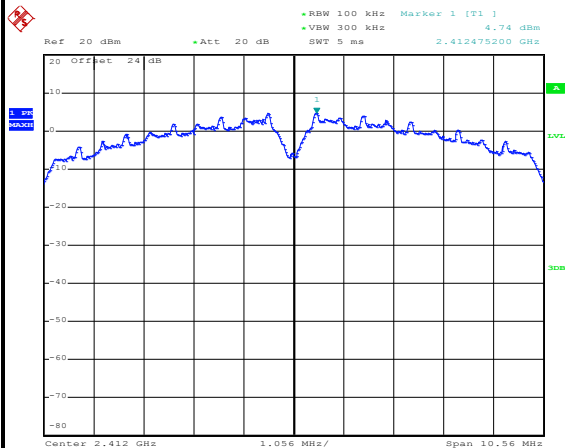
Note: Signal emissions above 29.5GHz are background noise.

Number of TX = 2, Ant. 2(Measured)

Number of TX :	2	Antenna :	2
Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Reece Li and Stuart Lin

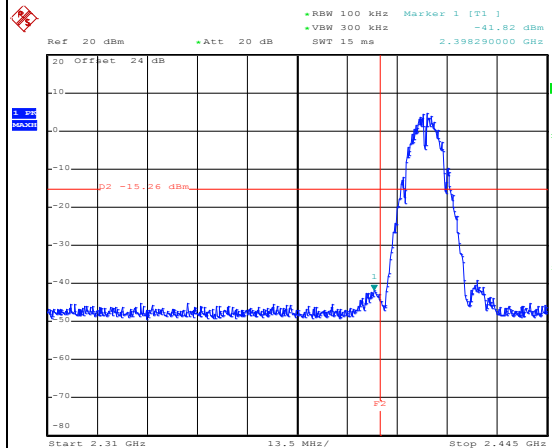
WLAN 802.11b Channel 01

100kHz PSD reference Level



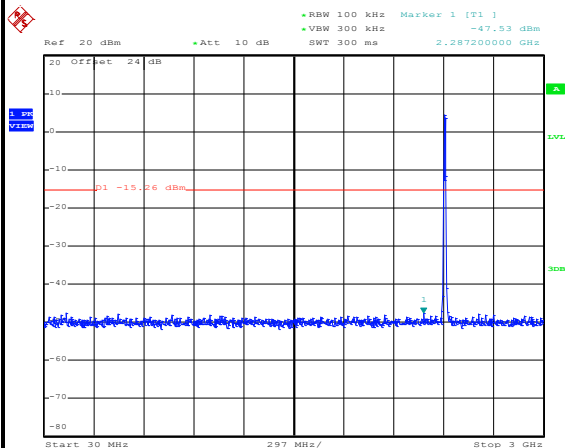
Date: 4.SEP.2013 18:40:55

Low Channel Plot



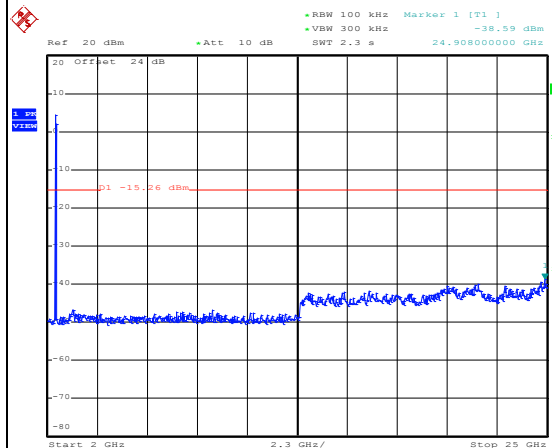
Date: 4.SEP.2013 18:41:11

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 18:42:32

Spurious Emission 2GHz~25GHz

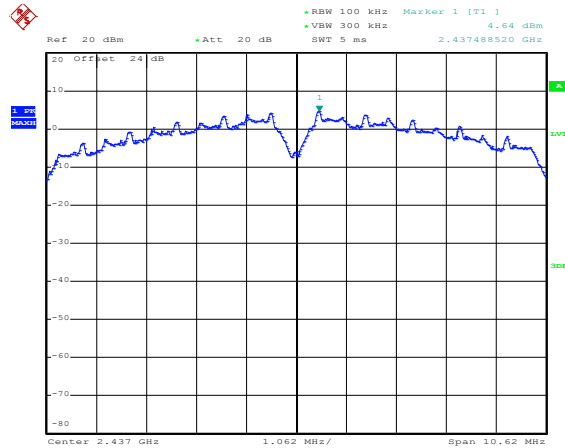


Date: 4.SEP.2013 18:42:51

Number of TX :	2	Antenna :	2
Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Reece Li and Stuart Lin

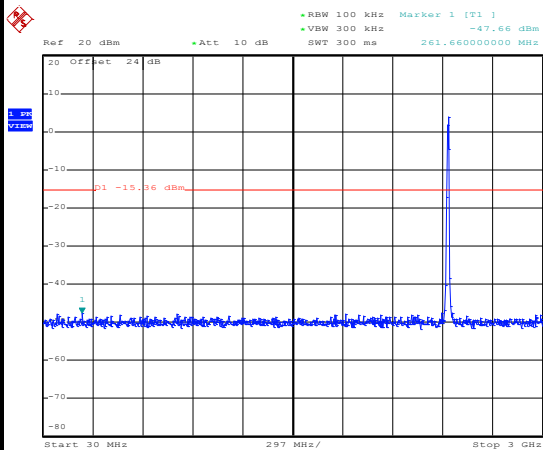
WLAN 802.11b Channel 06

100kHz PSD reference Level



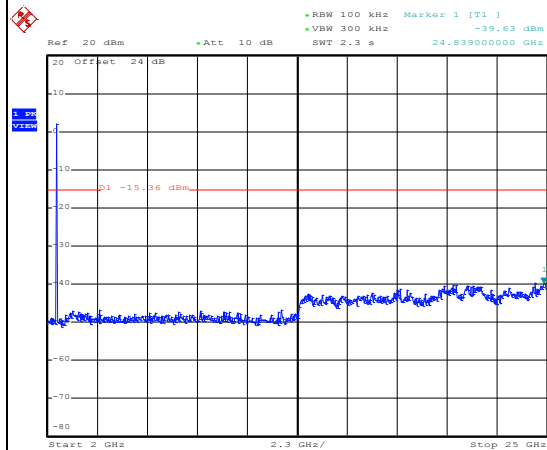
Date: 4.SEP.2013 18:44:47

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 18:45:08

Spurious Emission 2GHz~25GHz

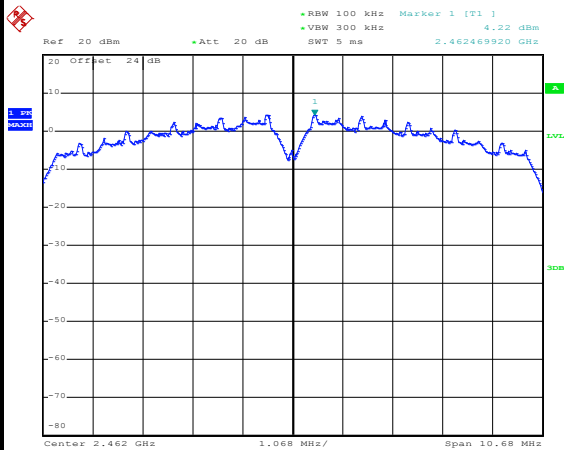


Date: 4.SEP.2013 18:45:27

Number of TX :	2	Antenna :	2
Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Reece Li and Stuart Lin

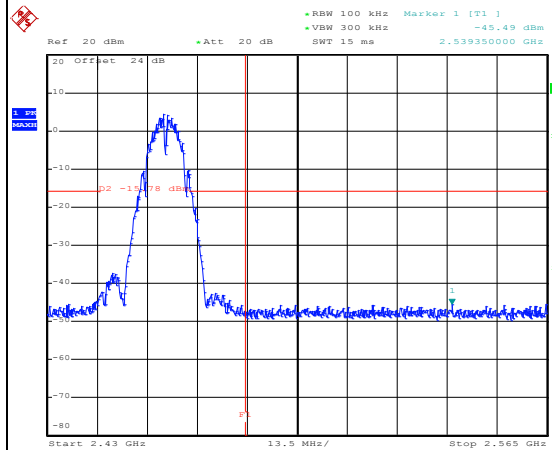
WLAN 802.11b Channel 11

100kHz PSD reference Level



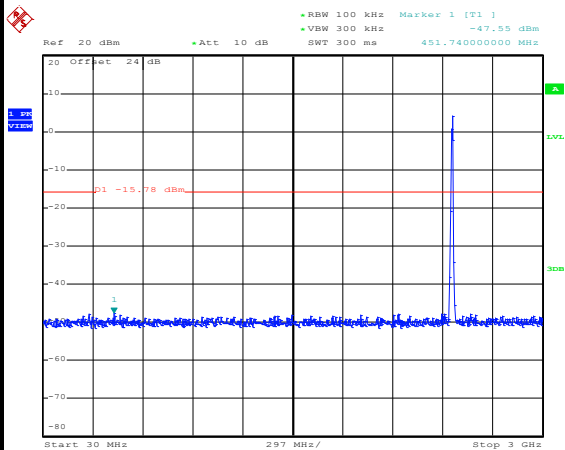
Date: 4.SEP.2013 18:48:27

High Channel Plot



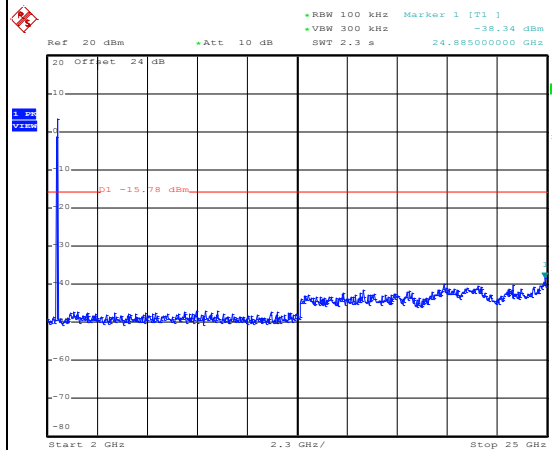
Date: 4.SEP.2013 18:48:42

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 18:49:02

Spurious Emission 2GHz~25GHz

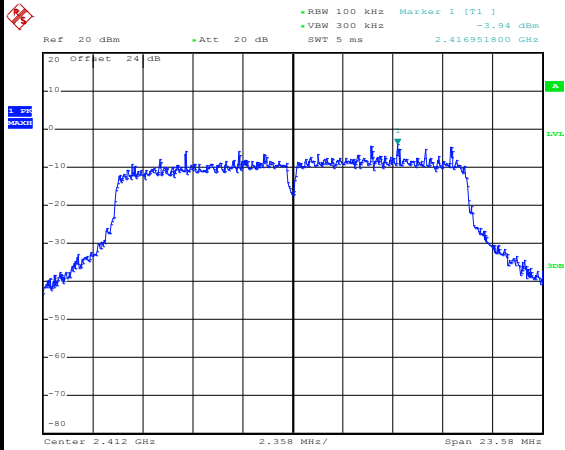


Date: 4.SEP.2013 18:49:21

Number of TX :	2	Antenna :	2
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Reece Li and Stuart Lin

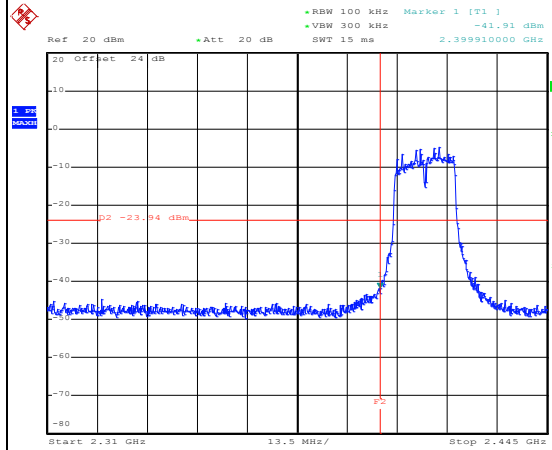
WLAN 802.11g Channel 01

100kHz PSD reference Level



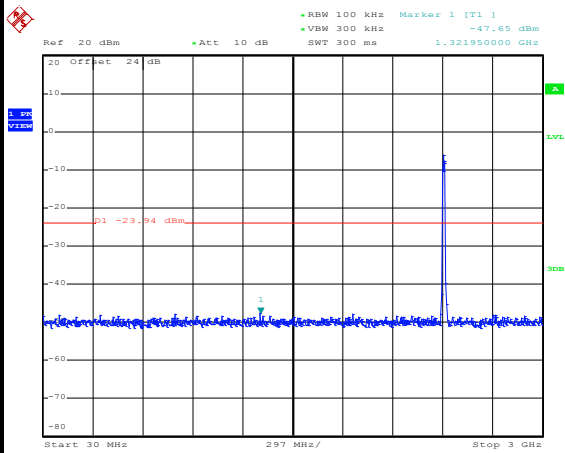
Date: 4.SEP.2013 18:52:15

Low Channel Plot



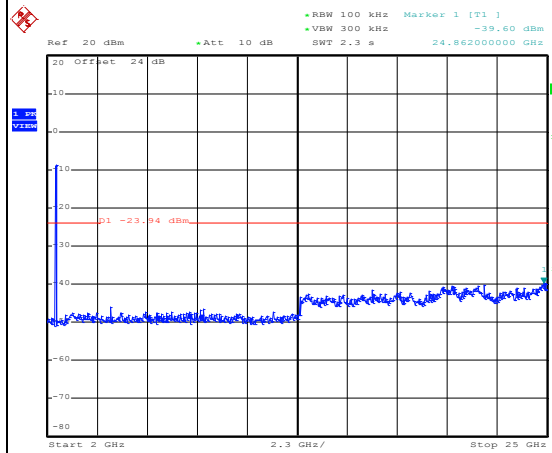
Date: 4.SEP.2013 18:52:31

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 18:52:51

Spurious Emission 2GHz~25GHz

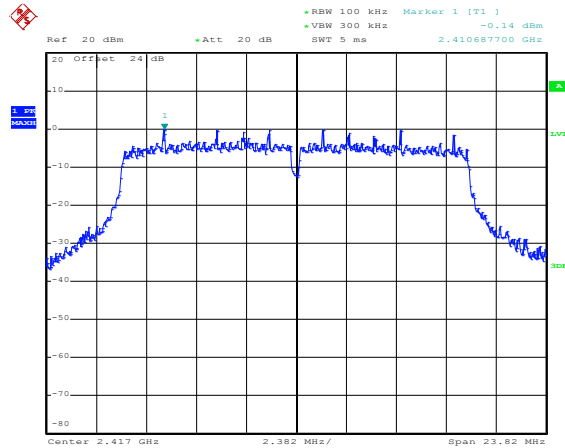


Date: 4.SEP.2013 18:53:09

Number of TX :	2	Antenna :	2
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz	Relative Humidity :	45~54%
Test Channel :	02	Test Engineer :	Reece Li and Stuart Lin

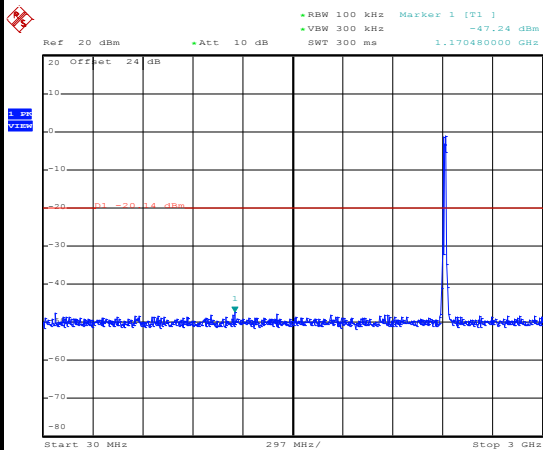
WLAN 802.11g Channel 02

100kHz PSD reference Level



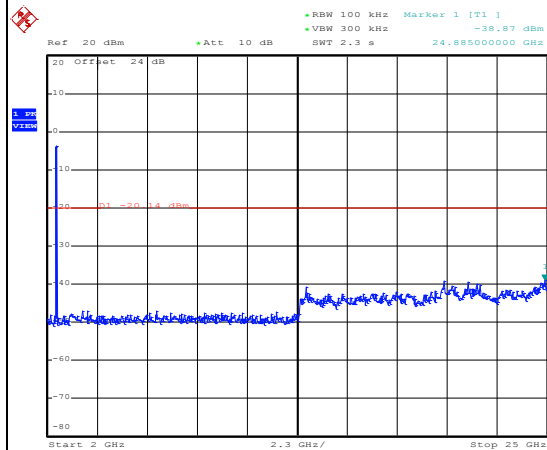
Date: 4.SEP.2013 19:04:41

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 19:05:10

Spurious Emission 2GHz~25GHz

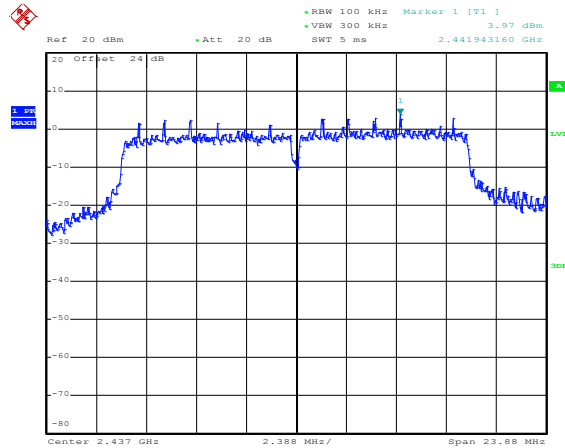


Date: 4.SEP.2013 19:05:29

Number of TX :	2	Antenna :	2
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Reece Li and Stuart Lin

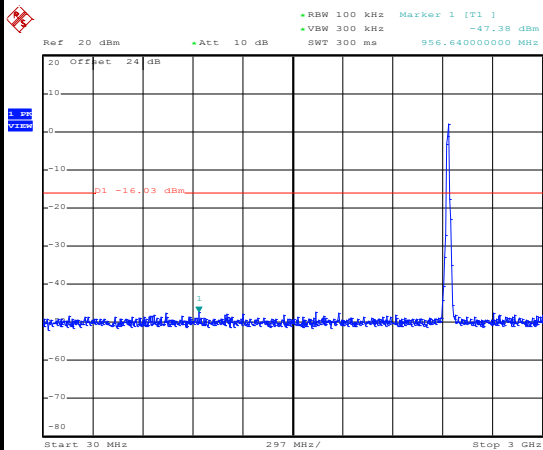
WLAN 802.11g Channel 06

100kHz PSD reference Level



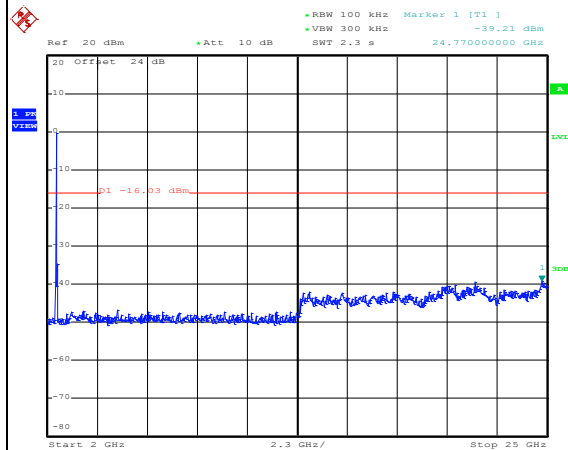
Date: 4.SEP.2013 19:18:35

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 19:19:35

Spurious Emission 2GHz~25GHz

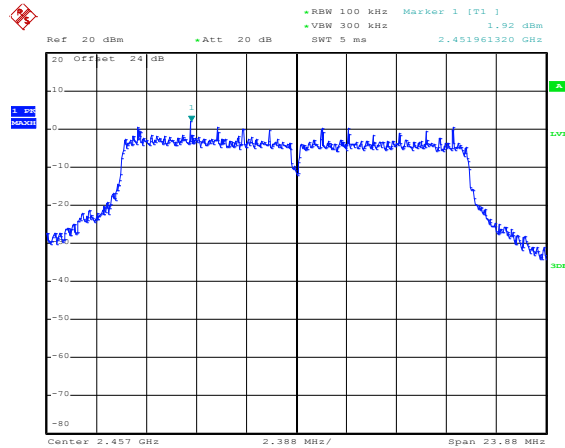


Date: 4.SEP.2013 19:19:53

Number of TX :	2	Antenna :	2
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz	Relative Humidity :	45~54%
Test Channel :	10	Test Engineer :	Reece Li and Stuart Lin

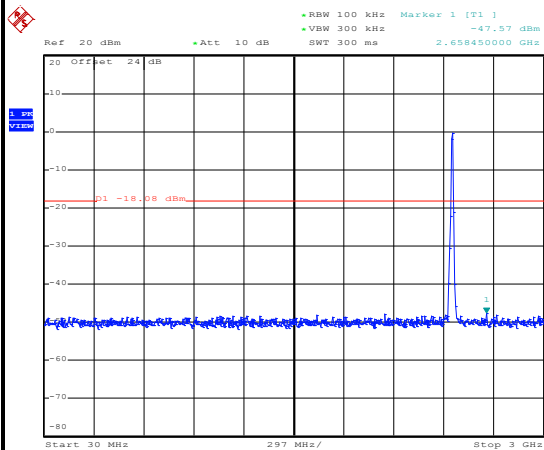
WLAN 802.11g Channel 10

100kHz PSD reference Level



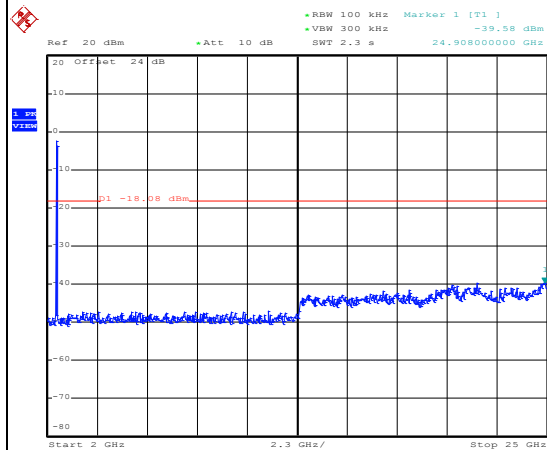
Date: 4.SEP.2013 21:35:05

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 21:35:28

Spurious Emission 2GHz~25GHz

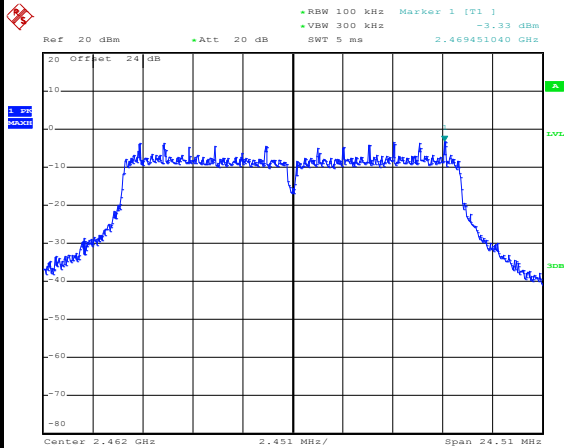


Date: 4.SEP.2013 21:35:47

Number of TX :	2	Antenna :	2
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Reece Li and Stuart Lin

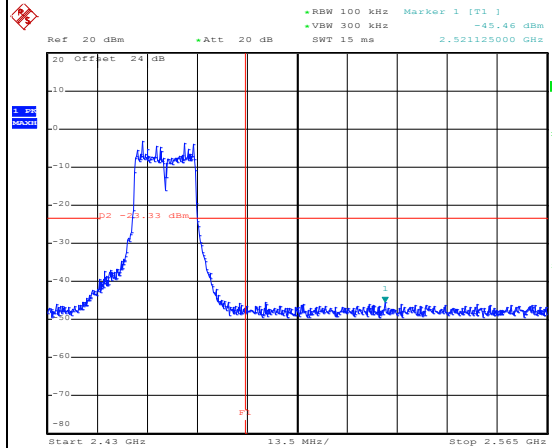
WLAN 802.11g Channel 11

100kHz PSD reference Level



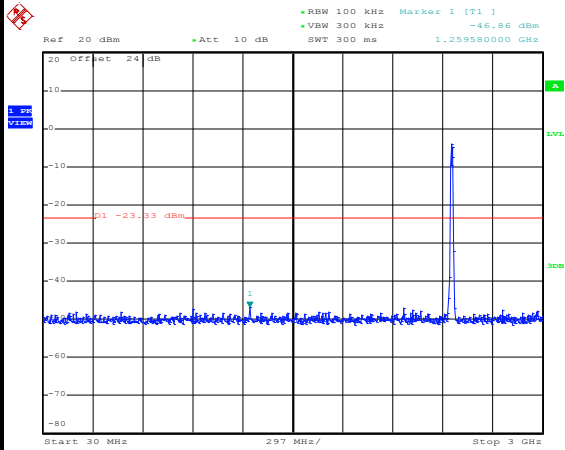
Date: 4.SEP.2013 21:29:50

High Channel Plot



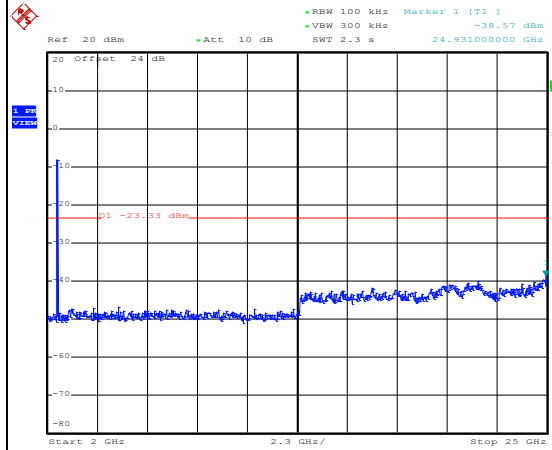
Date: 4.SEP.2013 21:30:09

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 21:31:10

Spurious Emission 2GHz~25GHz

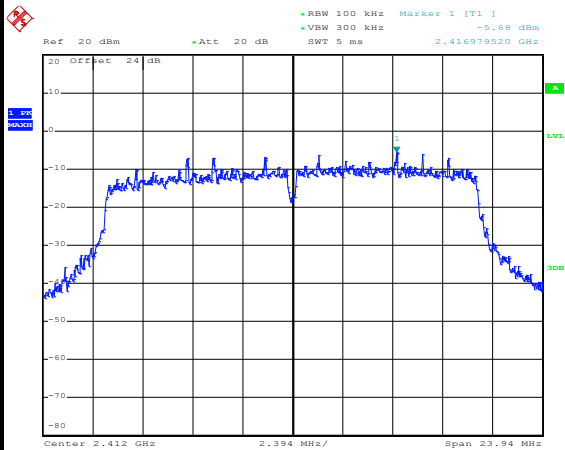


Date: 4.SEP.2013 21:31:29

Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Reece Li and Stuart Lin

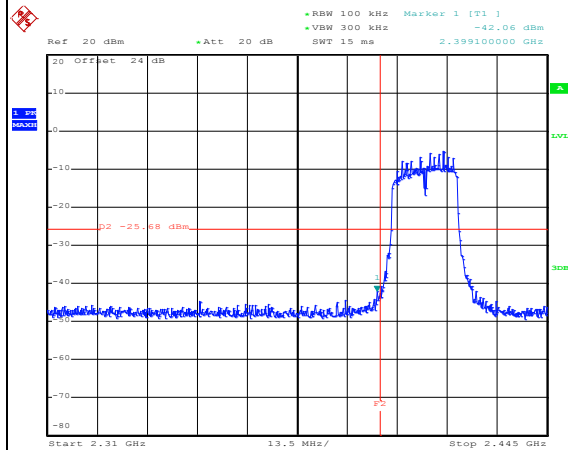
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



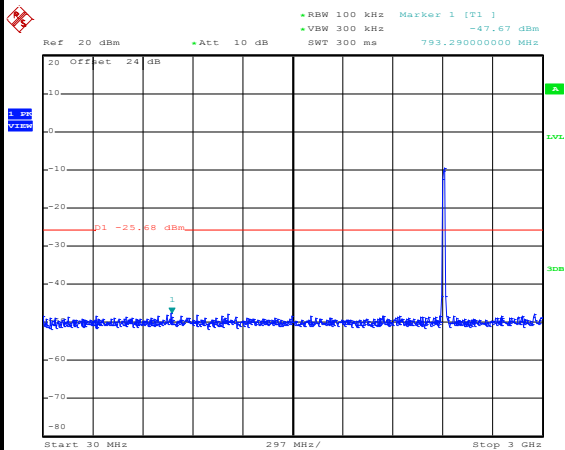
Date: 4.SEP.2013 21:22:24

Low Channel Plot



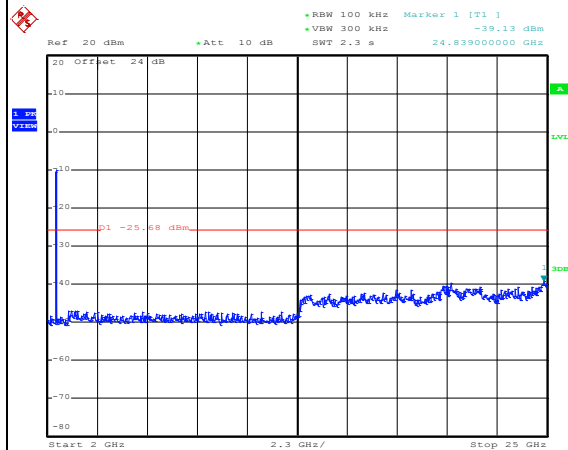
Date: 4.SEP.2013 21:22:40

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 21:23:00

Spurious Emission 2GHz~25GHz

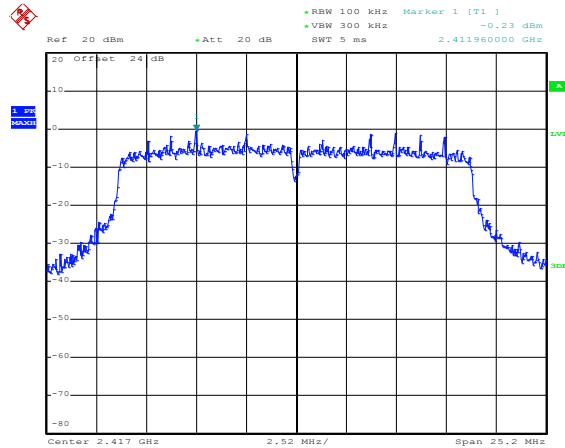


Date: 4.SEP.2013 21:23:19

Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz	Relative Humidity :	45~54%
Test Channel :	02	Test Engineer :	Reece Li and Stuart Lin

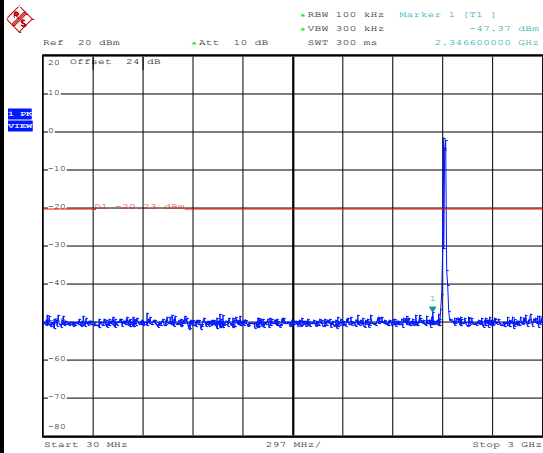
WLAN 802.11n HT20 Channel 02

100kHz PSD reference Level



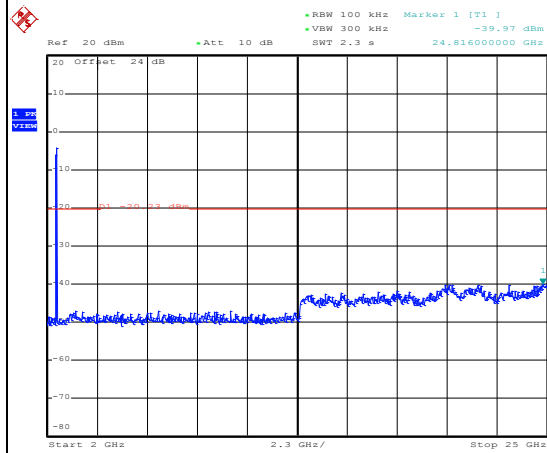
Date: 4.SEP.2013 21:18:23

Spurious Emission 30MHz~3GHz



Date: 4.SEP.2013 21:18:52

Spurious Emission 2GHz~25GHz

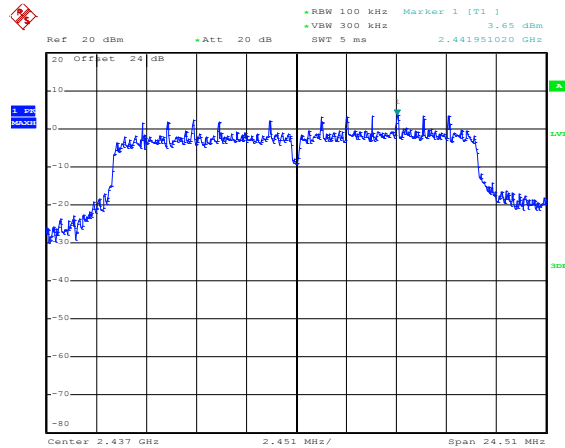


Date: 4.SEP.2013 21:19:11

Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Reece Li and Stuart Lin

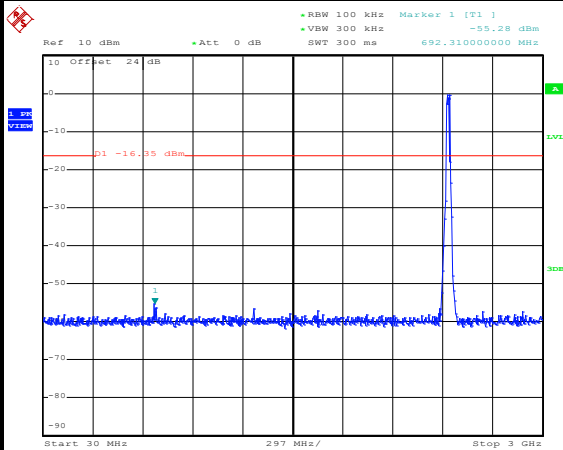
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



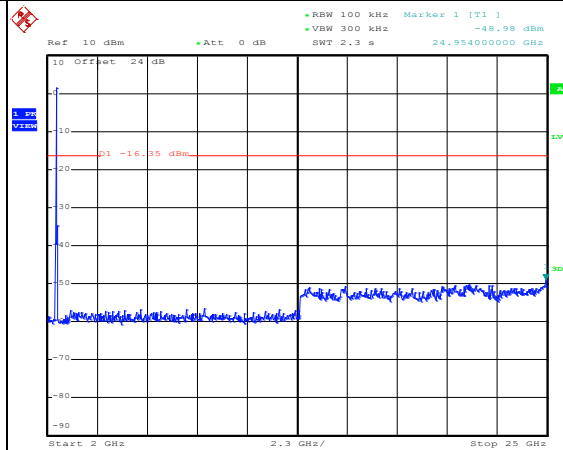
Date: 10.SEP.2013 16:51:54

Spurious Emission 30MHz~3GHz



Date: 10.SEP.2013 16:52:32

Spurious Emission 2GHz~25GHz

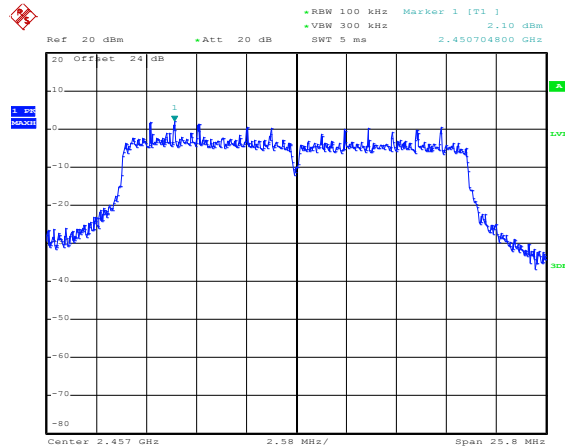


Date: 10.SEP.2013 16:52:51

Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz	Relative Humidity :	45~54%
Test Channel :	10	Test Engineer :	Reece Li and Stuart Lin

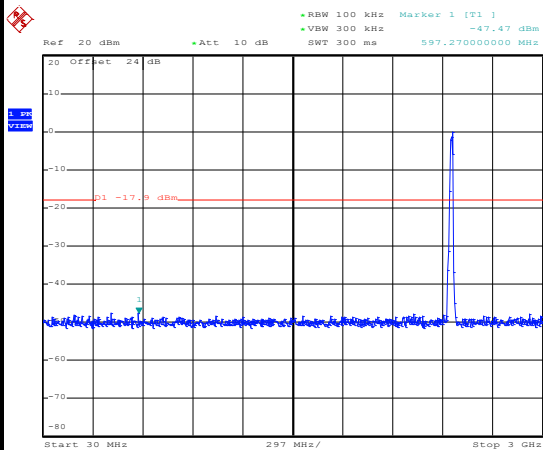
WLAN 802.11n HT20 Channel 10

100kHz PSD reference Level



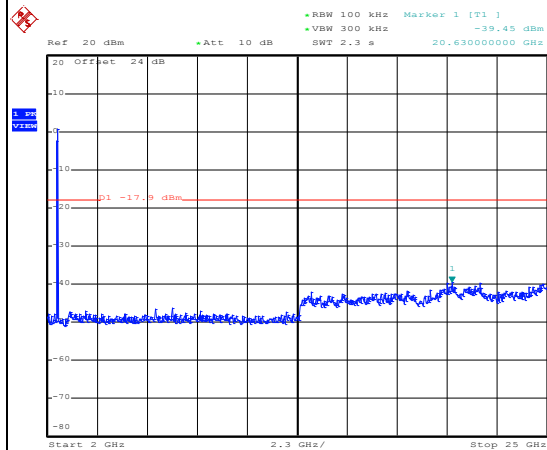
Date: 4.SEP.2013 21:09:13

Spurious Emission 30MHz~3GHz



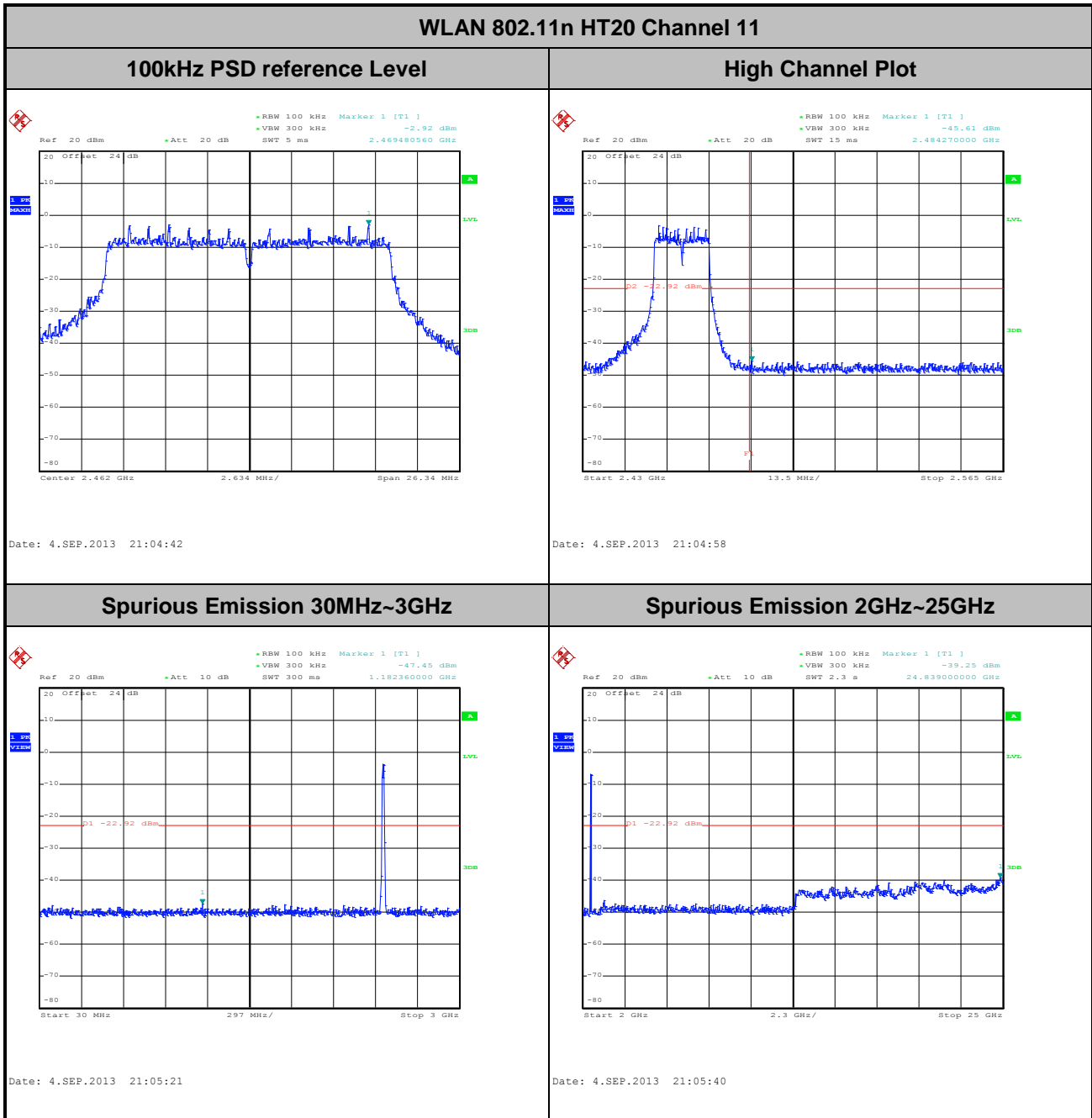
Date: 4.SEP.2013 21:09:35

Spurious Emission 2GHz~25GHz



Date: 4.SEP.2013 21:09:53

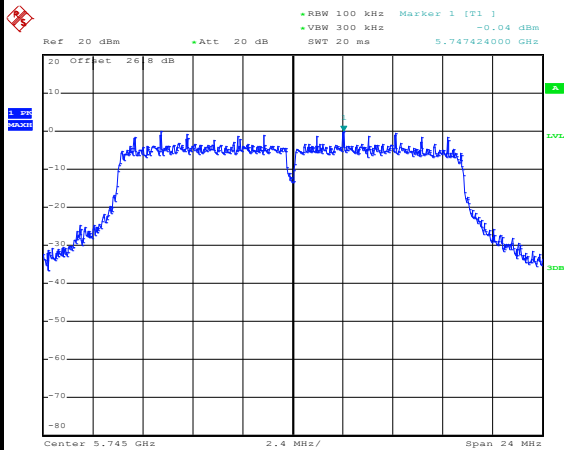
Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Reece Li and Stuart Lin



Number of TX :	2	Antenna :	2
Test Mode :	802.11a	Temperature :	21~26°C
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	149	Test Engineer :	Reece Li and Stuart Lin

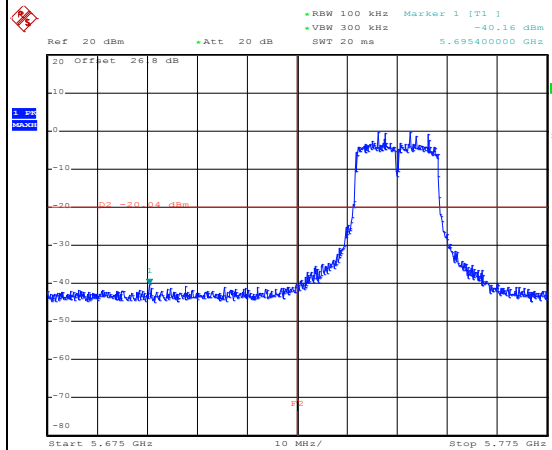
WLAN 802.11a Channel 149

100kHz PSD reference Level



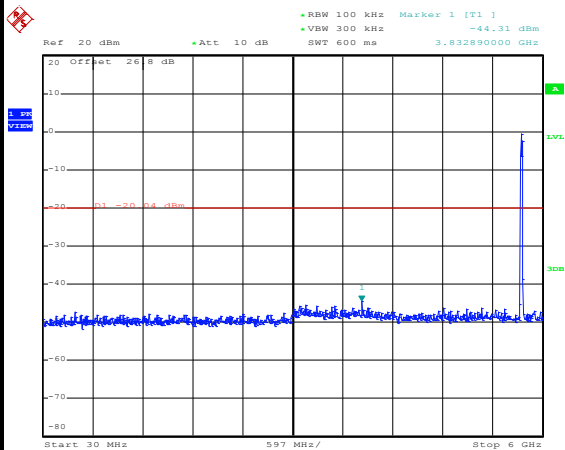
Date: 4.SEP.2013 22:01:29

Low Channel Plot



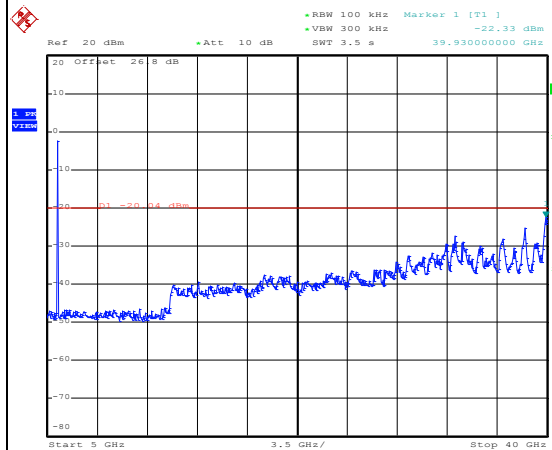
Date: 4.SEP.2013 22:01:47

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:02:08

Spurious Emission 5GHz~40GHz



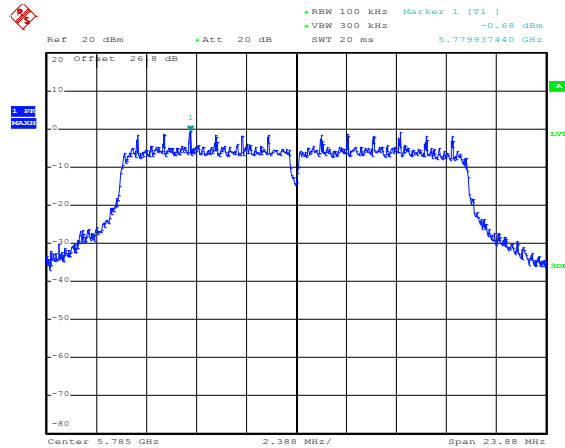
Date: 4.SEP.2013 22:02:26

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	2
Test Mode :	802.11a	Temperature :	21~26°C
Test Band :	5GHz Mid	Relative Humidity :	45~54%
Test Channel :	157	Test Engineer :	Reece Li and Stuart Lin

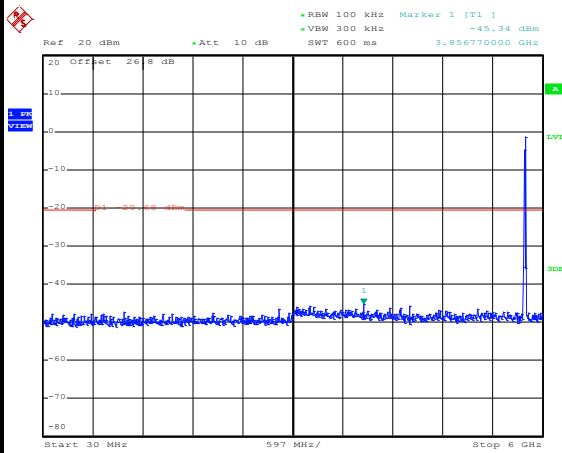
WLAN 802.11a Channel 157

100kHz PSD reference Level



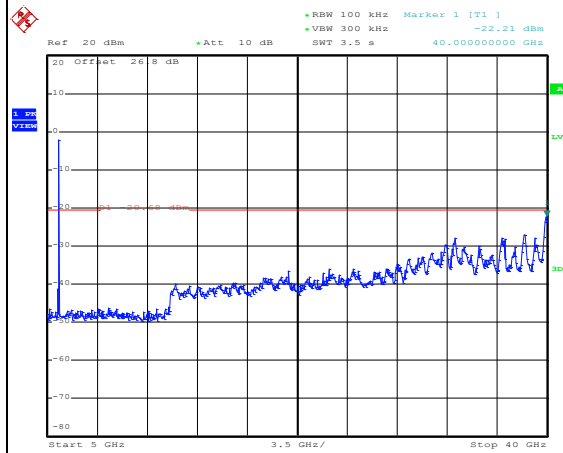
Date: 4.SEP.2013 22:05:33

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:06:04

Spurious Emission 5GHz~40GHz



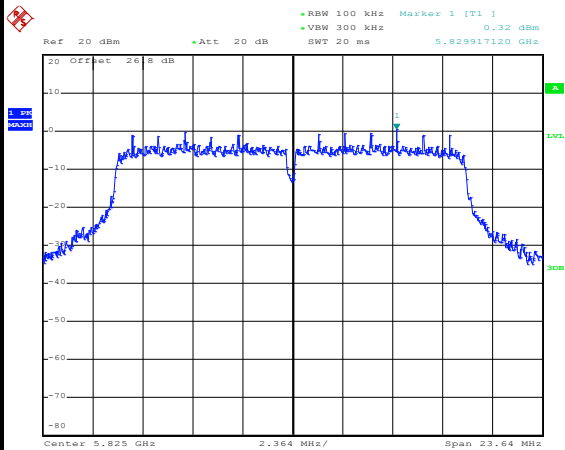
Date: 4.SEP.2013 22:06:22

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	2
Test Mode :	802.11a	Temperature :	21~26°C
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	165	Test Engineer :	Reece Li and Stuart Lin

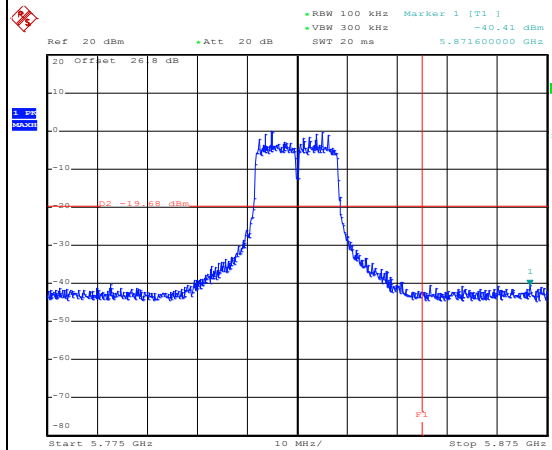
WLAN 802.11a Channel 165

100kHz PSD reference Level



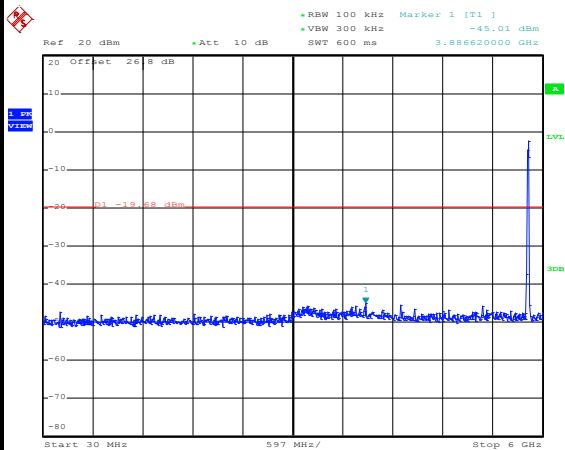
Date: 4.SEP.2013 22:20:54

High Channel Plot



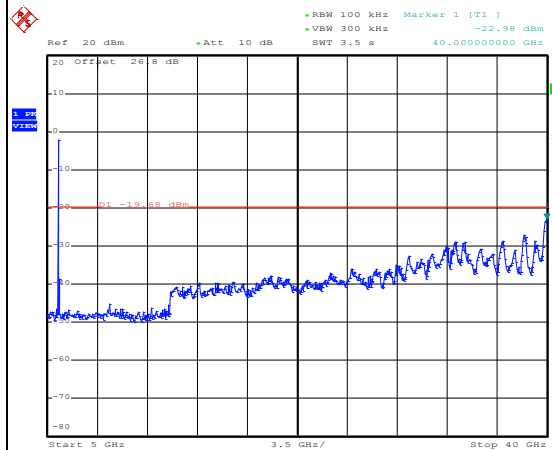
Date: 4.SEP.2013 22:21:09

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:21:32

Spurious Emission 5GHz~40GHz



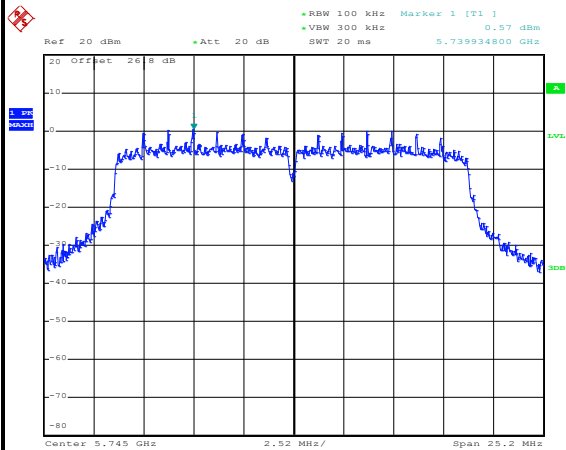
Date: 4.SEP.2013 22:21:51

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	149	Test Engineer :	Reece Li and Stuart Lin

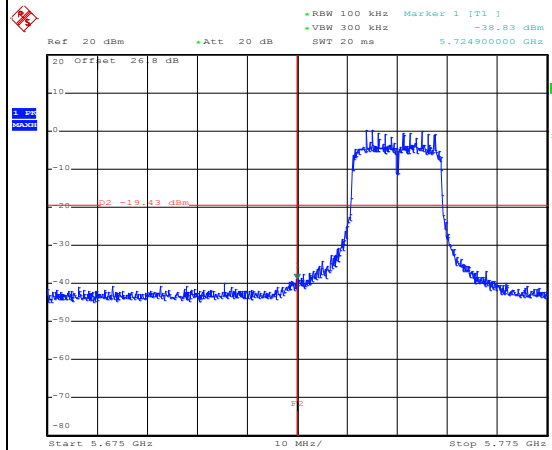
WLAN 802.11n HT20 Channel 149

100kHz PSD reference Level



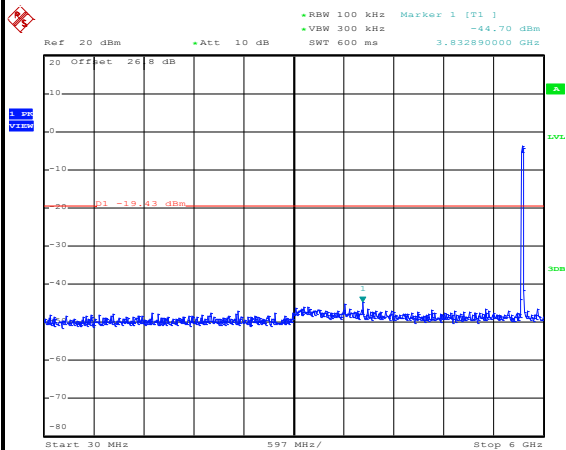
Date: 4.SEP.2013 23:24:14

Low Channel Plot



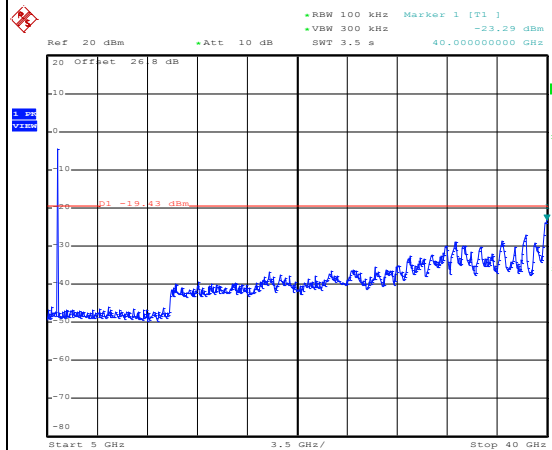
Date: 4.SEP.2013 23:24:37

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 23:24:58

Spurious Emission 5GHz~40GHz



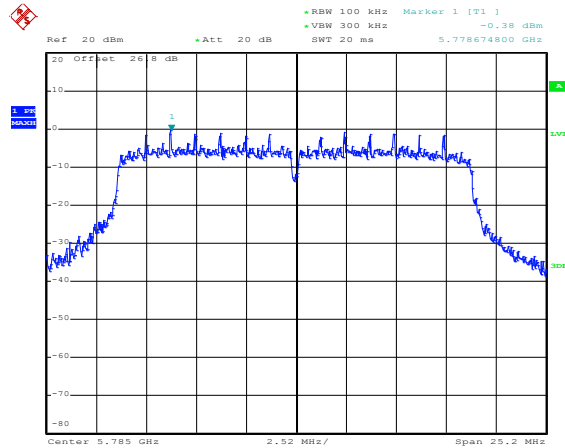
Date: 4.SEP.2013 23:25:16

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	5GHz Mid	Relative Humidity :	45~54%
Test Channel :	157	Test Engineer :	Reece Li and Stuart Lin

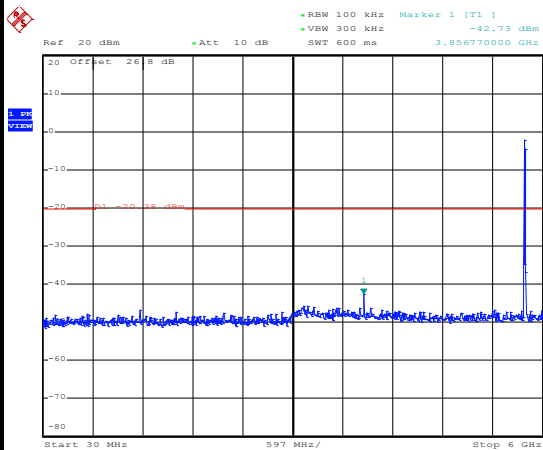
WLAN 802.11n HT20 Channel 157

100kHz PSD reference Level



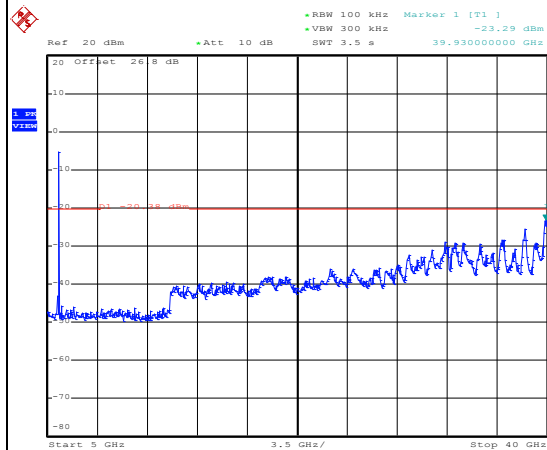
Date: 4.SEP.2013 22:49:35

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:49:56

Spurious Emission 5GHz~40GHz



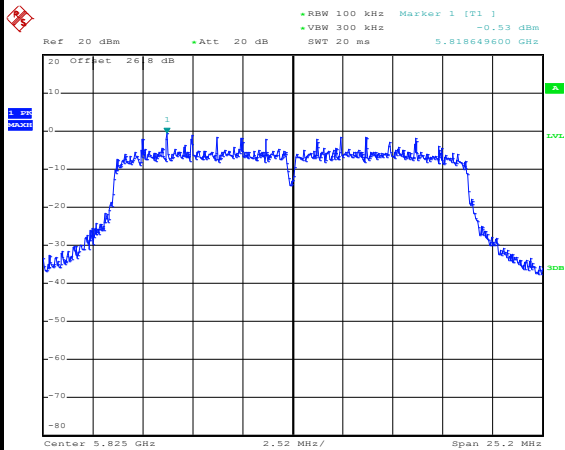
Date: 4.SEP.2013 22:50:15

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	165	Test Engineer :	Reece Li and Stuart Lin

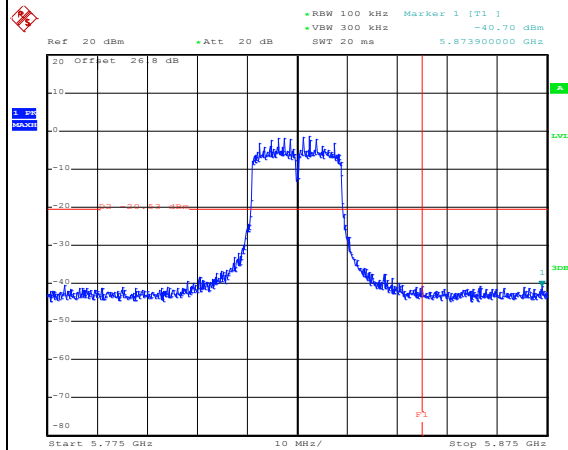
WLAN 802.11n HT20 Channel 165

100kHz PSD reference Level



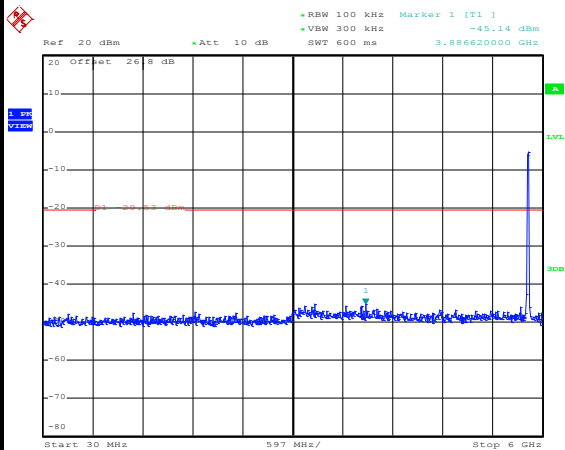
Date: 4.SEP.2013 22:46:11

High Channel Plot



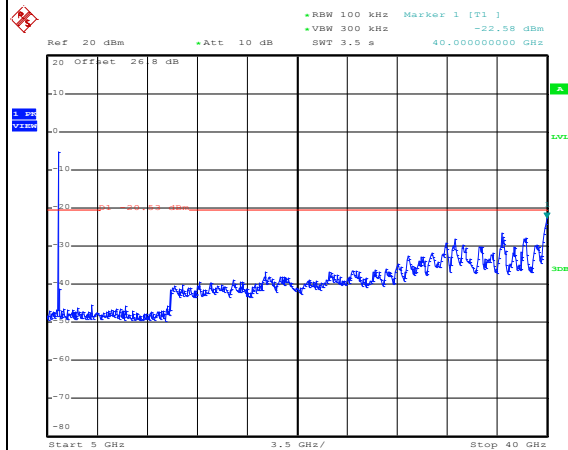
Date: 4.SEP.2013 22:46:31

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 22:46:58

Spurious Emission 5GHz~40GHz



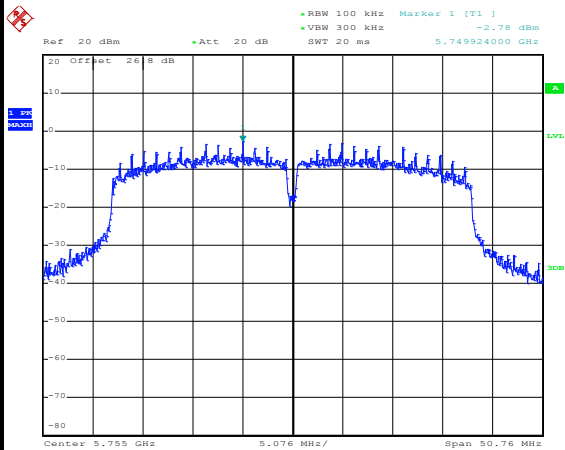
Date: 4.SEP.2013 22:47:17

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT40	Temperature :	21~26°C
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	151	Test Engineer :	Reece Li and Stuart Lin

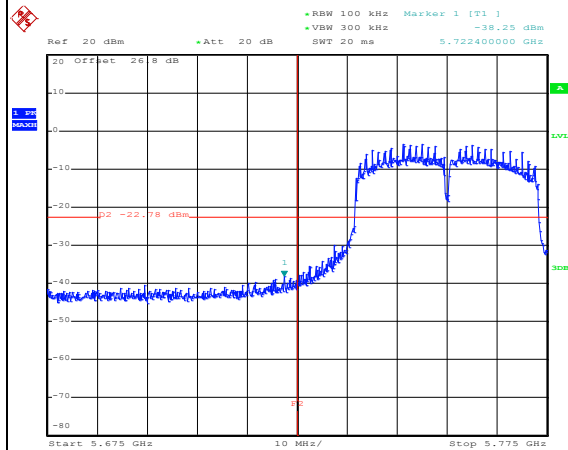
WLAN 802.11n HT40 Channel 151

100kHz PSD reference Level



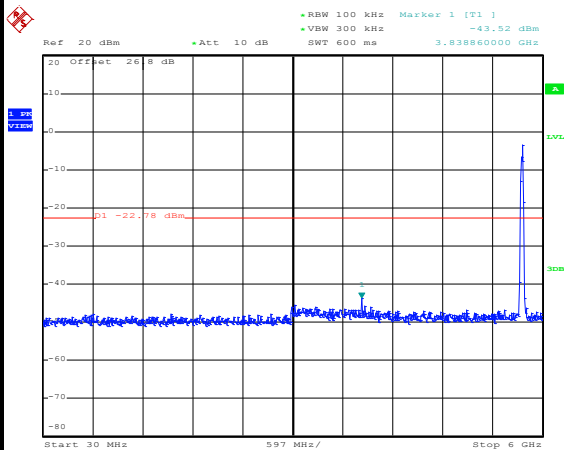
Date: 4.SEP.2013 23:07:49

Low Channel Plot



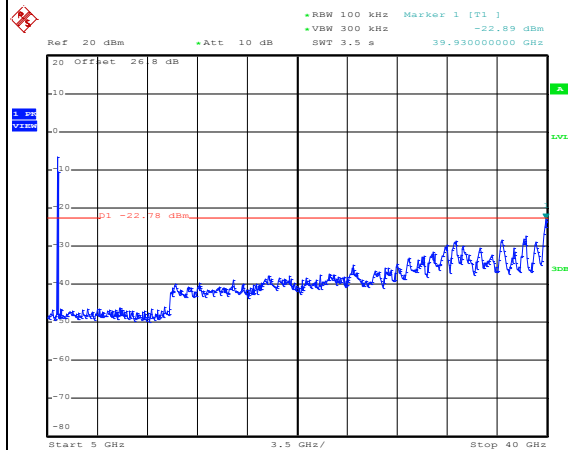
Date: 4.SEP.2013 23:08:22

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 23:09:36

Spurious Emission 5GHz~40GHz



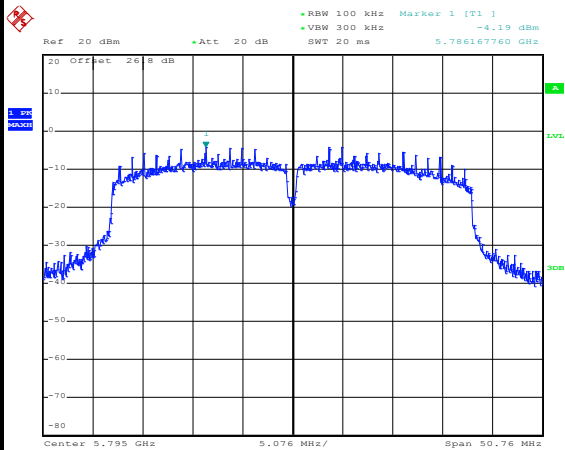
Date: 4.SEP.2013 23:09:55

Note: Signal emissions above 29.5GHz are background noise.

Number of TX :	2	Antenna :	2
Test Mode :	802.11n HT40	Temperature :	21~26°C
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	159	Test Engineer :	Reece Li and Stuart Lin

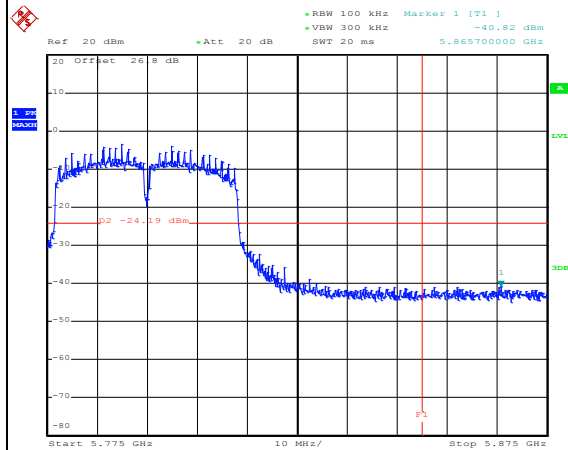
WLAN 802.11n HT40 Channel 159

100kHz PSD reference Level



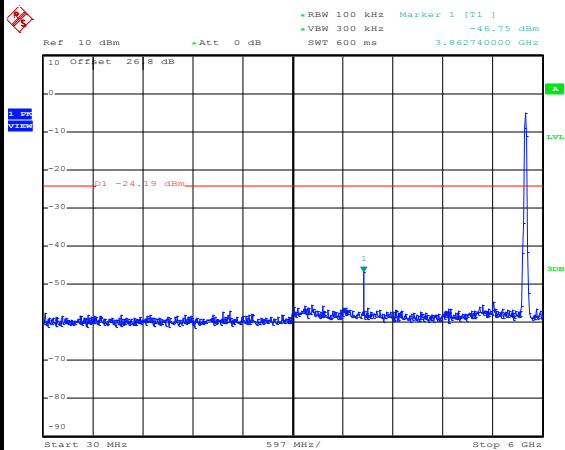
Date: 4.SEP.2013 23:13:16

High Channel Plot



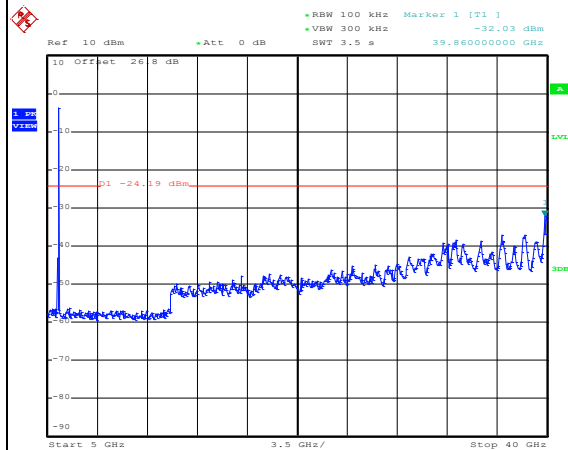
Date: 4.SEP.2013 23:13:48

Spurious Emission 30MHz~6GHz



Date: 4.SEP.2013 23:16:43

Spurious Emission 5GHz~40GHz



Date: 4.SEP.2013 23:17:02

Note: Signal emissions above 29.5GHz are background noise.

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

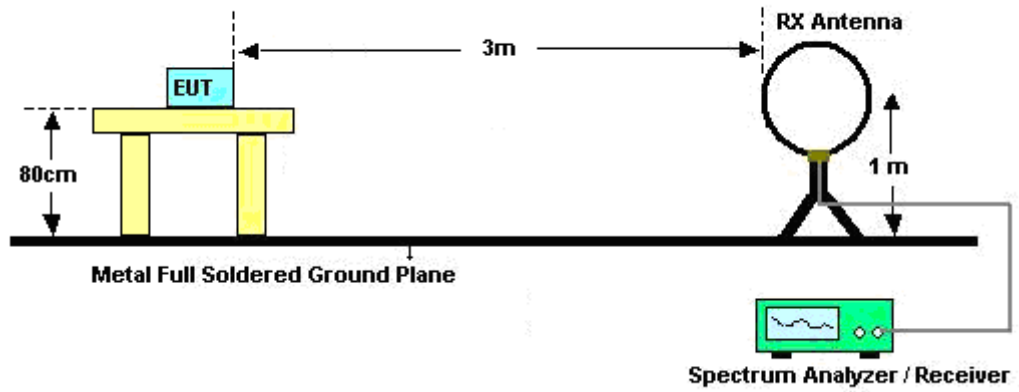
Measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedure

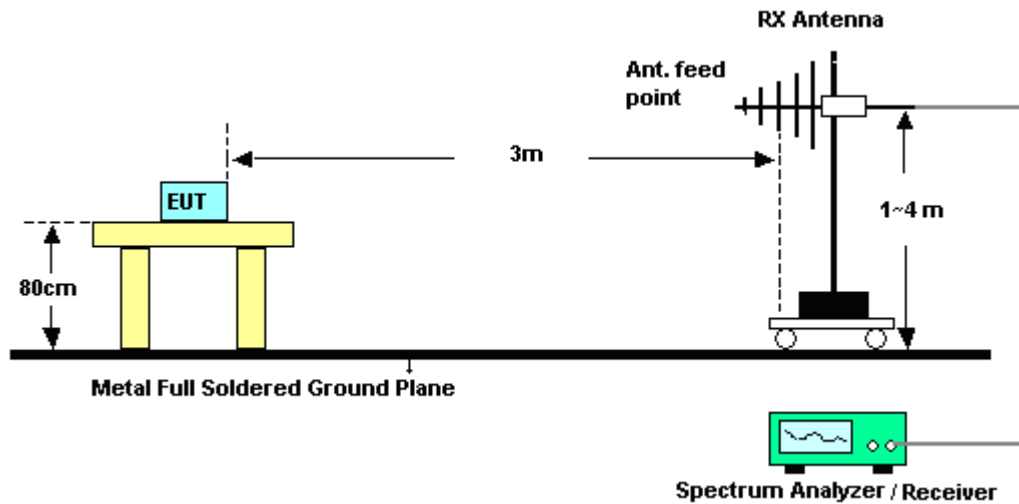
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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; $VBW \geq RBW$; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.
For average measurement:
 - $VBW = 10$ Hz, when duty cycle is no less than 98 percent.
 - $VBW \geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
 - For 11b mode, the VBW is set to 10Hz; for 11g and HT20 mode are set to 1kHz; for 11a mode is set to 10Hz; HT20 mode is set to 10Hz for Ant.1 and HT20 mode is set to 1kHz for Ant. 2; HT40 mode is set to 3kHz.

3.5.4 Test Setup

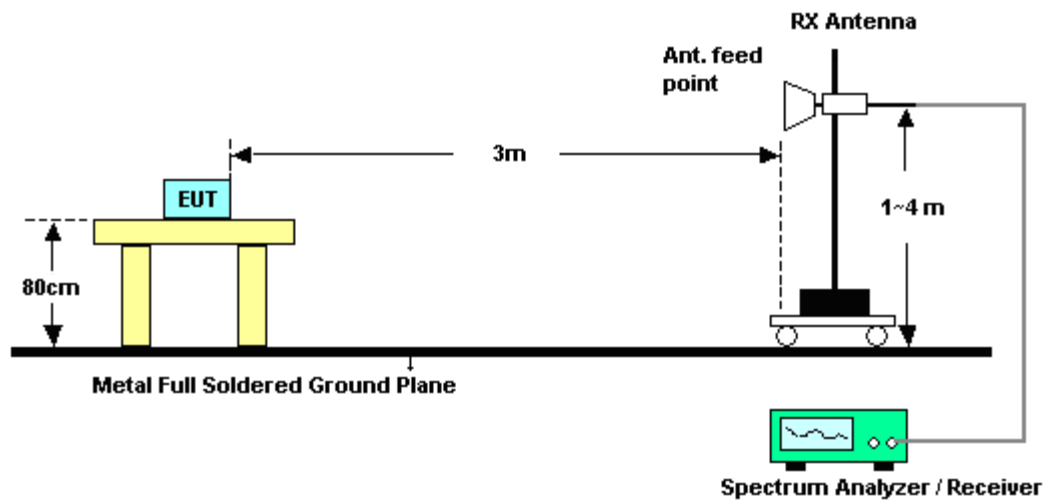
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Emissions (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

MIMO Ant. <1+2>

Test Mode :	802.11b	Temperature :	21~23°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.57	57.84	-16.16	74	55.27	32.27	6.22	35.92	100	353	Peak
2390	45.3	-8.7	54	42.71	32.27	6.22	35.9	100	353	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2341.77	57.44	-16.56	74	55.46	31.74	6.19	35.95	128	278	Peak
2390	44.87	-9.13	54	42.49	32.06	6.22	35.9	128	278	Average

Test Mode :	802.11b	Temperature :	21~23°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.59	59.19	-14.81	74	55.94	32.63	6.45	35.83	100	353	Peak
2483.5	49.26	-4.74	54	46.01	32.63	6.45	35.83	100	353	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.34	59.3	-14.7	74	56.09	32.59	6.45	35.83	147	278	Peak
2483.5	49.08	-4.92	54	45.87	32.59	6.45	35.83	147	278	Average

MIMO Ant. <1+2>

Test Mode :	802.11g	Temperature :	21~23°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	01	Test Engineer :	David Ke

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
2389.74	58.9	-15.1	74	56.33	32.27	6.22	35.92	100	49	Peak
2390	45.96	-8.04	54	43.37	32.27	6.22	35.9	100	49	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
2389.92	58.59	-15.41	74	56.21	32.06	6.22	35.9	128	93	Peak
2390	45.38	-8.62	54	43	32.06	6.22	35.9	128	93	Average

Test Mode :	802.11g	Temperature :	21~23°C
Test Band :	--	Relative Humidity :	51~53%
Test Channel :	02	Test Engineer :	David Ke

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
2389.56	60.96	-13.04	74	58.39	32.27	6.22	35.92	100	49	Peak
2390	46.58	-7.42	54	43.99	32.27	6.22	35.9	100	49	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	61.31	-12.69	74	58.95	32.06	6.22	35.92	103	84	Peak
2390	46.23	-7.77	54	43.85	32.06	6.22	35.9	103	84	Average

MIMO Ant. <1+2>

Test Mode :	802.11g	Temperature :	21~23°C
Test Band :	--	Relative Humidity :	51~53%
Test Channel :	10	Test Engineer :	David Ke

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
2484.58	63.34	-10.66	74	60.09	32.63	6.45	35.83	100	143	Peak
2483.77	48.68	-5.32	54	45.43	32.63	6.45	35.83	100	143	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
2484.28	65.22	-8.78	74	62.01	32.59	6.45	35.83	100	100	Peak
2484.01	50.07	-3.93	54	46.86	32.59	6.45	35.83	100	100	Average

Test Mode :	802.11g	Temperature :	21~23°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	11	Test Engineer :	David Ke

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
2483.53	61.44	-12.56	74	58.19	32.63	6.45	35.83	100	48	Peak
2483.5	47.38	-6.62	54	44.13	32.63	6.45	35.83	100	48	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
2483.83	61.31	-12.69	74	58.1	32.59	6.45	35.83	100	90	Peak
2483.59	47.61	-6.39	54	44.4	32.59	6.45	35.83	100	90	Average

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	01	Test Engineer :	David Ke

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
2389.92	59.84	-14.16	74	57.25	32.27	6.22	35.9	100	52	Peak
2390	46.52	-7.48	54	43.93	32.27	6.22	35.9	100	52	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	57.96	-16.04	74	55.6	32.06	6.22	35.92	101	99	Peak
2390	45.15	-8.85	54	42.77	32.06	6.22	35.9	101	99	Average

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Band :	--	Relative Humidity :	51~53%
Test Channel :	02	Test Engineer :	David Ke

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
2389.47	58.18	-15.82	74	55.61	32.27	6.22	35.92	100	146	Peak
2390	45.39	-8.61	54	42.8	32.27	6.22	35.9	100	146	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
2389.83	57.42	-16.58	74	55.04	32.06	6.22	35.9	127	82	Peak
2390	45.4	-8.6	54	43.02	32.06	6.22	35.9	127	82	Average

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Band :	--	Relative Humidity :	51~53%
Test Channel :	10	Test Engineer :	David Ke

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
2484.91	63.46	-10.54	74	60.21	32.63	6.45	35.83	100	50	Peak
2483.5	48.85	-5.15	54	45.6	32.63	6.45	35.83	100	50	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
2483.92	64.86	-9.14	74	61.65	32.59	6.45	35.83	100	89	Peak
2483.59	50.27	-3.73	54	47.06	32.59	6.45	35.83	100	89	Average

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	11	Test Engineer :	David Ke

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
2483.5	61.11	-12.89	74	57.86	32.63	6.45	35.83	100	136	Peak
2483.5	47.69	-6.31	54	44.44	32.63	6.45	35.83	100	136	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
2483.56	64.29	-9.71	74	61.08	32.59	6.45	35.83	100	92	Peak
2483.5	49.91	-4.09	54	46.7	32.59	6.45	35.83	100	92	Average

MIMO Ant. <1+2>

Test Mode :	802.11a	Temperature :	21~23°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	149	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	68.17	-17.36	85.53	59.3	34.69	9.07	34.89	101	308	Peak
5747	92.65	-	-	83.75	34.7	9.1	34.9	101	308	Average
5747	105.53	-	-	96.63	34.7	9.1	34.9	101	308	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	71.62	-15.74	87.36	62.75	34.69	9.07	34.89	108	351	Peak
5749	95.19	-	-	86.29	34.7	9.1	34.9	108	351	Average
5749	107.36	-	-	98.46	34.7	9.1	34.9	108	351	Peak

Remark: 5725 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.
For example, 105.53dBμV/m - 20dB = 85.53dBμV/m.

MIMO Ant. <1+2>

Test Mode :	802.11a	Temperature :	21~23°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	165	Test Engineer :	David Ke

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
5822	93.21	-	-	84.02	34.87	9.25	34.93	102	347	Average
5822	105.84	-	-	96.65	34.87	9.25	34.93	102	347	Peak
5850.16	56.61	-29.23	85.84	47.31	34.9	9.34	34.94	102	347	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5824	98.21	-	-	89.12	34.77	9.25	34.93	115	323	Average
5824	110.2	-	-	101.11	34.77	9.25	34.93	115	323	Peak
5850.4	62.38	-27.82	90.2	53.2	34.78	9.34	34.94	115	323	Peak

Remark: 5850.16 MHz and 5850.4 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	149	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	68.93	-16.41	85.34	60.06	34.69	9.07	34.89	103	344	Peak
5744	91.16	-	-	82.26	34.7	9.1	34.9	103	344	Average
5744	105.34	-	-	96.44	34.7	9.1	34.9	103	344	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	72.65	-16.19	88.84	63.78	34.69	9.07	34.89	108	355	Peak
5746	95.13	-	-	86.23	34.7	9.1	34.9	108	355	Average
5746	108.84	-	-	99.94	34.7	9.1	34.9	108	355	Peak

Remark: 5725 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	165	Test Engineer :	David Ke

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
5824	92.02	-	-	82.83	34.87	9.25	34.93	102	343	Average
5824	105.84	-	-	96.65	34.87	9.25	34.93	102	343	Peak
5850	58.76	-27.08	85.84	49.46	34.9	9.34	34.94	102	343	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5826	95.61	-	-	86.52	34.77	9.25	34.93	105	355	Average
5826	109.19	-	-	100.1	34.77	9.25	34.93	105	355	Peak
5850	61.82	-27.37	89.19	52.64	34.78	9.34	34.94	105	355	Peak

Remark: 5850 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.

MIMO Ant. <1+2>

Test Mode :	802.11n HT40	Temperature :	21~23°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	151	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	66.58	-13.9	80.48	57.71	34.69	9.07	34.89	103	344	Peak
5756	90.54	-	-	81.62	34.73	9.1	34.91	103	344	Average
5756	100.48	-	-	91.56	34.73	9.1	34.91	103	344	Peak
5850	50.14	-30.34	80.48	40.84	34.9	9.34	34.94	103	344	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	70.21	-14.91	85.12	61.34	34.69	9.07	34.89	107	324	Peak
5754	94.73	-	-	85.82	34.71	9.1	34.9	107	324	Average
5754	105.12	-	-	96.21	34.71	9.1	34.9	107	324	Peak
5850	52.11	-33.01	85.12	42.93	34.78	9.34	34.94	107	324	Peak

Remark: 5725 MHz and 5850 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.

MIMO Ant. <1+2>

Test Mode :	802.11n HT40	Temperature :	21~23°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	159	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	50.29	-30.38	80.67	41.42	34.69	9.07	34.89	102	344	Peak
5794	90.47	-	-	81.43	34.8	9.16	34.92	102	344	Average
5794	100.67	-	-	91.63	34.8	9.16	34.92	102	344	Peak
5850	52.14	-28.53	80.67	42.84	34.9	9.34	34.94	102	344	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	50.54	-34.31	84.85	41.67	34.69	9.07	34.89	105	321	Peak
5794	94.93	-	-	85.95	34.74	9.16	34.92	105	321	Average
5794	104.85	-	-	95.87	34.74	9.16	34.92	105	321	Peak
5850	52.31	-32.54	84.85	43.13	34.78	9.34	34.94	105	321	Peak

Remark: 5725 MHz and 5850 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.

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.

MIMO Ant. <1+2>

Test Mode :	802.11b	Temperature :	21~23°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 2414 MHz is fundamental signal which can be ignored. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 113.59dBμV/m - 20dB = 93.59dBμV/m. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	109.04	-	-	106.32	32.34	6.28	35.9	100	353	Average
2414	113.59	-	-	110.87	32.34	6.28	35.9	100	353	Peak
4824	45.25	-28.75	74	61.71	34.44	8.04	58.94	100	0	Peak
7236	46.98	-46.61	93.59	59.22	35.61	10.48	58.33	100	0	Peak

Test Mode :	802.11b	Temperature :	21~23°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 2414 MHz is Fundamental signal which can be ignored. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	108.59	-	-	106.05	32.16	6.28	35.9	128	278	Average
2414	113.08	-	-	110.54	32.16	6.28	35.9	128	278	Peak
4824	44.63	-29.37	74	61.09	34.44	8.04	58.94	100	0	Peak
7236	47.5	-45.58	93.08	59.75	35.6	10.48	58.33	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11b	Temperature :	21~23°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	David Ke	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.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (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	110.51	-	-	107.56	32.49	6.34	35.88	100	49	Average
2439	114.91	-	-	111.96	32.49	6.34	35.88	100	49	Peak
4875	48.41	-25.59	74	64.77	34.4	8.11	58.87	100	0	Peak
7311	46.34	-27.66	74	58.71	35.62	10.47	58.46	100	0	Peak

Test Mode :	802.11b	Temperature :	21~23°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	David Ke	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.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (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	111.75	-	-	108.91	32.38	6.34	35.88	125	93	Average
2439	116.64	-	-	113.8	32.38	6.34	35.88	125	93	Peak
4875	48.97	-25.03	74	62.14	34.4	8.11	55.68	100	0	Peak
7311	48.44	-5.56	54	58.69	35.56	10.47	56.28	100	339	Average
7311	51.56	-22.44	74	61.81	35.56	10.47	56.28	100	339	Peak

MIMO Ant. <1+2>

Test Mode :	802.11b	Temperature :	21~23°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	2464 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
66.72	21.05	-18.95	40	46.86	5.16	0.97	31.94	-	-	Peak
149.88	33.32	-10.18	43.5	53.72	9.96	1.44	31.8	-	-	Peak
189.3	37.19	-6.31	43.5	58.84	8.51	1.6	31.76	100	19	Peak
300.7	28.92	-17.08	46	45.55	13.02	2	31.65	-	-	Peak
409.9	24.19	-21.81	46	36.94	16.34	2.35	31.44	-	-	Peak
813.8	26.45	-19.55	46	33.81	20.26	3.29	30.91	-	-	Peak
2464	109.06	-	-	105.96	32.56	6.39	35.85	100	353	Average
2464	114.12	-	-	111.02	32.56	6.39	35.85	100	353	Peak
4923	52.15	-1.85	54	68.41	34.36	8.18	58.8	100	243	Average
4923	54.26	-19.74	74	70.52	34.36	8.18	58.8	100	243	Peak
7386	49.66	-4.34	54	62.16	35.66	10.45	58.61	100	256	Average
7386	51.76	-22.24	74	64.26	35.66	10.45	58.61	100	256	Peak

MIMO Ant. <1+2>

Test Mode :	802.11b	Temperature :	21~23°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	2464 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
66.72	32.88	-7.12	40	58.58	5.27	0.97	31.94	-	-	Peak
150.96	31.51	-11.99	43.5	50.63	11.24	1.44	31.8	-	-	Peak
187.68	36.9	-6.6	43.5	58.67	8.41	1.59	31.77	100	93	Peak
300.7	27.52	-18.48	46	43.94	13.23	2	31.65	-	-	Peak
743.8	23.19	-22.81	46	31.08	19.87	3.14	30.9	-	-	Peak
836.9	24.9	-21.1	46	32.22	20.17	3.34	30.83	-	-	Peak
2464	109.29	-	-	106.26	32.49	6.39	35.85	147	278	Average
2464	114.32	-	-	111.29	32.49	6.39	35.85	147	278	Peak
4923	52.82	-1.18	54	66.06	34.36	8.18	55.78	100	321	Average
4923	54.93	-19.07	74	68.17	34.36	8.18	55.78	100	321	Peak
7386	53.19	-0.81	54	63.36	35.49	10.45	56.11	100	336	Average
7386	55.35	-18.65	74	65.52	35.49	10.45	56.11	100	336	Peak

MIMO Ant. <1+2>

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 2414 MHz is fundamental signal which can be ignored. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	96.85	-	-	94.13	32.34	6.28	35.9	100	49	Average
2414	107.01	-	-	104.29	32.34	6.28	35.9	100	49	Peak
4824	40.76	-33.24	74	57.22	34.44	8.04	58.94	100	0	Peak
7236	43.52	-43.49	87.01	55.76	35.61	10.48	58.33	100	0	Peak

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 2414 MHz is fundamental signal which can be ignored. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	97.69	-	-	95.15	32.16	6.28	35.9	128	93	Average
2414	108.13	-	-	105.59	32.16	6.28	35.9	128	93	Peak
4824	43.24	-30.76	74	56.35	34.44	8.04	55.59	100	0	Peak
7236	44.13	-44	88.13	54.47	35.6	10.48	56.42	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	02	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2419 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2419	100.87	-	-	98.13	32.34	6.28	35.88	100	49	Average
2419	111.89	-	-	109.15	32.34	6.28	35.88	100	49	Peak
4833	41.37	-32.63	74	57.8	34.44	8.07	58.94	100	0	Peak
7251	42.2	-31.8	74	54.49	35.6	10.48	58.37	100	0	Peak

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	02	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2419 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2419	102.09	-	-	99.53	32.16	6.28	35.88	103	84	Average
2419	112.59	-	-	110.03	32.16	6.28	35.88	103	84	Peak
4833	40.31	-33.69	74	56.74	34.44	8.07	58.94	100	0	Peak
7251	43.12	-30.88	74	55.41	35.6	10.48	58.37	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	David Ke	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.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (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	104.54	-	-	101.59	32.49	6.34	35.88	100	353	Average
2439	115.15	-	-	112.2	32.49	6.34	35.88	100	353	Peak
4875	47.56	-26.44	74	63.92	34.4	8.11	58.87	100	0	Peak
7311	42.07	-31.93	74	54.44	35.62	10.47	58.46	100	0	Peak

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	David Ke	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.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (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	105.55	-	-	102.71	32.38	6.34	35.88	125	97	Average
2439	115.91	-	-	113.07	32.38	6.34	35.88	125	97	Peak
4875	47.47	-26.53	74	60.64	34.4	8.11	55.68	100	0	Peak
7311	44.55	-29.45	74	54.8	35.56	10.47	56.28	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	10	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2459 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2459	102.13	-	-	99.03	32.56	6.39	35.85	100	143	Average
2459	112.5	-	-	109.4	32.56	6.39	35.85	100	143	Peak
4914	45.24	-28.76	74	61.51	34.37	8.18	58.82	100	0	Peak
7371	42.25	-31.75	74	54.72	35.65	10.46	58.58	100	0	Peak

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	10	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2459 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2459	104.48	-	-	101.45	32.49	6.39	35.85	100	100	Average
2459	114.31	-	-	111.28	32.49	6.39	35.85	100	100	Peak
4914	42.35	-31.65	74	58.62	34.37	8.18	58.82	100	0	Peak
7371	42.45	-31.55	74	55.07	35.5	10.46	58.58	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	David Ke	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.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2464	98.54	-	-	95.44	32.56	6.39	35.85	100	48	Average
2464	108.67	-	-	105.57	32.56	6.39	35.85	100	48	Peak
4923	43.03	-30.97	74	59.29	34.36	8.18	58.8	100	0	Peak
7386	41.79	-32.21	74	54.29	35.66	10.45	58.61	100	0	Peak

Test Mode :	802.11g	Temperature :	21~23°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
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.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2464	98.98	-	-	95.95	32.49	6.39	35.85	100	90	Average
2464	109.1	-	-	106.07	32.49	6.39	35.85	100	90	Peak
4923	41.68	-32.32	74	57.94	34.36	8.18	58.8	100	0	Peak
7386	42.76	-31.24	74	55.43	35.49	10.45	58.61	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 2414 MHz is fundamental signal which can be ignored. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	95.8	-	-	93.08	32.34	6.28	35.9	100	52	Average
2414	106.16	-	-	103.44	32.34	6.28	35.9	100	52	Peak
4824	40.04	-33.96	74	56.5	34.44	8.04	58.94	100	0	Peak
7236	43.85	-42.31	86.16	56.09	35.61	10.48	58.33	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 2414 MHz is fundamental signal which can be ignored. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	96.05	-	-	93.51	32.16	6.28	35.9	101	99	Average
2414	106.49	-	-	103.95	32.16	6.28	35.9	101	99	Peak
4824	39.74	-34.26	74	56.2	34.44	8.04	58.94	100	0	Peak
7236	42.9	-43.59	86.49	55.15	35.6	10.48	58.33	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	02	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2419 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2419	99.9	-	-	97.16	32.34	6.28	35.88	100	146	Average
2419	111.01	-	-	108.27	32.34	6.28	35.88	100	146	Peak
4833	40.32	-33.68	74	56.75	34.44	8.07	58.94	100	0	Peak
7251	42.57	-31.43	74	54.86	35.6	10.48	58.37	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	02	Relative Humidity :	51~53%
Test Engineer :	David Ke	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.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2419	100.81	-	-	98.25	32.16	6.28	35.88	127	82	Average
2419	111.75	-	-	109.19	32.16	6.28	35.88	127	82	Peak
4833	40.29	-33.71	74	56.72	34.44	8.07	58.94	100	0	Peak
7251	42.28	-31.72	74	54.57	35.6	10.48	58.37	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	David Ke	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.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (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	103.77	-	-	100.82	32.49	6.34	35.88	100	137	Average
2439	114.22	-	-	111.27	32.49	6.34	35.88	100	137	Peak
4875	45.01	-28.99	74	61.37	34.4	8.11	58.87	100	0	Peak
7311	43.19	-30.81	74	55.56	35.62	10.47	58.46	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	David Ke	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.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (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	106.18	-	-	103.34	32.38	6.34	35.88	100	92	Average
2439	116.82	-	-	113.98	32.38	6.34	35.88	100	92	Peak
4875	46.24	-27.76	74	59.41	34.4	8.11	55.68	100	0	Peak
7311	44.92	-29.08	74	55.17	35.56	10.47	56.28	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	10	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2459 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2459	101.6	-	-	98.5	32.56	6.39	35.85	100	50	Average
2459	112.57	-	-	109.47	32.56	6.39	35.85	100	50	Peak
4914	45.8	-28.2	74	62.07	34.37	8.18	58.82	100	0	Peak
7371	42.58	-31.42	74	55.05	35.65	10.46	58.58	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	10	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2459 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2459	103.47	-	-	100.44	32.49	6.39	35.85	100	89	Average
2459	114.18	-	-	111.15	32.49	6.39	35.85	100	89	Peak
4914	42.73	-31.27	74	59	34.37	8.18	58.82	100	0	Peak
7371	41.95	-32.05	74	54.57	35.5	10.46	58.58	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	David Ke	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.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2464	98.18	-	-	95.08	32.56	6.39	35.85	100	136	Average
2464	108.56	-	-	105.46	32.56	6.39	35.85	100	136	Peak
4923	43.02	-30.98	74	59.28	34.36	8.18	58.8	100	0	Peak
7386	43.2	-30.8	74	55.7	35.66	10.45	58.61	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
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.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2464	99.31	-	-	96.28	32.49	6.39	35.85	100	92	Average
2464	110.07	-	-	107.04	32.49	6.39	35.85	100	92	Peak
4923	42.52	-31.48	74	58.78	34.36	8.18	58.8	100	0	Peak
7386	42.48	-31.52	74	55.15	35.49	10.45	58.61	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	149	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5747 MHz is fundamental signal which can be ignored. 17235 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5747	92.65	-	-	83.75	34.7	9.1	34.9	101	308	Average
5747	105.53	-	-	96.63	34.7	9.1	34.9	101	308	Peak
11490	45.16	-28.84	74	50.96	38.59	12.92	57.31	100	0	Peak
17235	49.73	-35.8	85.53	48.27	42.96	16.41	57.91	100	0	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	149	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5749 MHz is fundamental signal which can be ignored. 5200 MHz, 5252 MHz and 17235 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5200	56.85	-30.51	87.36	48.87	34.14	8.76	34.92	108	351	Peak
5252	57.22	-30.14	87.36	49.24	34.1	8.77	34.89	108	351	Peak
5749	95.19	-	-	86.29	34.7	9.1	34.9	108	351	Average
5749	107.36	-	-	98.46	34.7	9.1	34.9	108	351	Peak
11490	43.66	-30.34	74	50.27	37.78	12.92	57.31	100	0	Peak
17235	48.21	-39.15	87.36	48.88	40.83	16.41	57.91	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5784 MHz is fundamental signal which can be ignored. 17355 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5784	92.11	-	-	83.13	34.77	9.13	34.92	102	345	Average
5784	104.72	-	-	95.74	34.77	9.13	34.92	102	345	Peak
11571	43.48	-30.52	74	49.15	38.63	13	57.3	100	0	Peak
17355	48.02	-36.7	84.72	47.37	42.4	16.46	58.21	100	0	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5782 MHz is fundamental signal which can be ignored. 5226 MHz, 5278 MHz and 17355 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5226	57.36	-31.3	88.66	49.39	34.11	8.77	34.91	106	354	Peak
5278	56.75	-31.91	88.66	48.68	34.17	8.78	34.88	106	354	Peak
5782	95.52	-	-	86.58	34.73	9.13	34.92	106	354	Average
5782	108.66	-	-	99.72	34.73	9.13	34.92	106	354	Peak
11571	44.66	-29.34	74	51.1	37.86	13	57.3	100	0	Peak
17355	46.11	-42.55	88.66	46.94	40.92	16.46	58.21	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5822 MHz is fundamental signal which can be ignored. 17475 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5822	93.21	-	-	84.02	34.87	9.25	34.93	102	347	Average
5822	105.84	-	-	96.65	34.87	9.25	34.93	102	347	Peak
11649	45.89	-28.11	74	51.44	38.66	13.09	57.3	100	0	Peak
17475	48.35	-37.49	85.84	48.65	41.7	16.51	58.51	100	0	Peak

Test Mode :	802.11a	Temperature :	21~23°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5824 MHz is fundamental signal which can be ignored. 5226 MHz, 5278 MHz and 17475 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5226	57.9	-32.3	90.2	49.93	34.11	8.77	34.91	115	323	Peak
5278	57.31	-32.89	90.2	49.24	34.17	8.78	34.88	115	323	Peak
5824	98.21	-	-	89.12	34.77	9.25	34.93	115	323	Average
5824	110.2	-	-	101.11	34.77	9.25	34.93	115	323	Peak
11649	44.77	-29.23	74	51.07	37.91	13.09	57.3	100	0	Peak
17475	47.36	-42.84	90.2	48.3	41.06	16.51	58.51	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	149	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5744 MHz is fundamental signal which can be ignored. 17235 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5744	91.16	-	-	82.26	34.7	9.1	34.9	103	344	Average
5744	105.34	-	-	96.44	34.7	9.1	34.9	103	344	Peak
11490	44.72	-29.28	74	50.52	38.59	12.92	57.31	100	0	Peak
17235	48.92	-36.42	85.34	47.46	42.96	16.41	57.91	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	149	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5746 MHz is fundamental signal which can be ignored. 5174 MHz, 5226 MHz and 17235 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5174	54.77	-34.07	88.84	46.84	34.15	8.71	34.93	108	355	Peak
5226	55.85	-32.99	88.84	47.88	34.11	8.77	34.91	108	355	Peak
5746	95.13	-	-	86.23	34.7	9.1	34.9	108	355	Average
5746	108.84	-	-	99.94	34.7	9.1	34.9	108	355	Peak
11490	44.79	-29.21	74	51.4	37.78	12.92	57.31	100	0	Peak
17235	47.13	-41.71	88.84	47.8	40.83	16.41	57.91	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5784 MHz is fundamental signal which can be ignored. 17355 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5784	91.06	-	-	82.08	34.77	9.13	34.92	102	345	Average
5784	105.32	-	-	96.34	34.77	9.13	34.92	102	345	Peak
11571	44.43	-29.57	74	50.1	38.63	13	57.3	100	0	Peak
17355	47.97	-37.35	85.32	47.32	42.4	16.46	58.21	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5788 MHz is fundamental signal which can be ignored. 5226 MHz, 5278 MHz and 17355 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5226	55.88	-32.1	87.98	47.91	34.11	8.77	34.91	106	353	Peak
5278	55.8	-32.18	87.98	47.73	34.17	8.78	34.88	106	353	Peak
5788	94.8	-	-	85.82	34.74	9.16	34.92	106	353	Average
5788	107.98	-	-	99	34.74	9.16	34.92	106	353	Peak
11571	42.74	-31.26	74	49.18	37.86	13	57.3	100	0	Peak
17355	47.04	-40.94	87.98	47.87	40.92	16.46	58.21	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5824 MHz is fundamental signal which can be ignored. 17475 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5824	92.02	-	-	82.83	34.87	9.25	34.93	102	343	Average
5824	105.84	-	-	96.65	34.87	9.25	34.93	102	343	Peak
11649	44.72	-29.28	74	50.27	38.66	13.09	57.3	100	0	Peak
17475	48.86	-36.98	85.84	49.16	41.7	16.51	58.51	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	21~23°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5826 MHz is fundamental signal which can be ignored. 5226 MHz, 5278 MHz and 17475 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5226	54.97	-34.22	89.19	47	34.11	8.77	34.91	105	355	Peak
5278	55.46	-33.73	89.19	47.39	34.17	8.78	34.88	105	355	Peak
5826	95.61	-	-	86.52	34.77	9.25	34.93	105	355	Average
5826	109.19	-	-	100.1	34.77	9.25	34.93	105	355	Peak
11649	43.46	-30.54	74	49.76	37.91	13.09	57.3	100	0	Peak
17475	46.83	-42.36	89.19	47.77	41.06	16.51	58.51	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT40	Temperature :	21~23°C
Test Channel :	151	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 1. 5756 MHz is fundamental signal which can be ignored. 2. 17265 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
66.72	21.05	-18.95	40	46.86	5.16	0.97	31.94	-	-	Peak
149.88	33.32	-10.18	43.5	53.72	9.96	1.44	31.8	-	-	Peak
189.3	37.16	-6.34	43.5	58.81	8.51	1.6	31.76	100	19	Peak
300.7	28.92	-17.08	46	45.55	13.02	2	31.65	-	-	Peak
409.9	24.19	-21.81	46	36.94	16.34	2.35	31.44	-	-	Peak
813.8	26.45	-19.55	46	33.81	20.26	3.29	30.91	-	-	Peak
5756	90.54	-	-	81.62	34.73	9.1	34.91	103	344	Average
5756	100.48	-	-	91.56	34.73	9.1	34.91	103	344	Peak
11511	43.55	-30.45	74	49.3	38.6	12.95	57.3	100	0	Peak
17265	47.47	-33.01	80.48	46.13	42.9	16.43	57.99	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT40	Temperature :	21~23°C
Test Channel :	151	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 1. 5754 MHz is fundamental signal which can be ignored. 2. 5200 MHz, 5252 MHz and 17265 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
66.72	32.88	-7.12	40	58.58	5.27	0.97	31.94	-	-	Peak
150.96	31.51	-11.99	43.5	50.63	11.24	1.44	31.8	-	-	Peak
187.68	36.83	-6.67	43.5	58.6	8.41	1.59	31.77	100	93	Peak
300.7	27.52	-18.48	46	43.94	13.23	2	31.65	-	-	Peak
743.8	23.19	-22.81	46	31.08	19.87	3.14	30.9	-	-	Peak
836.9	24.9	-21.1	46	32.22	20.17	3.34	30.83	-	-	Peak
5200	57.61	-27.51	85.12	49.63	34.14	8.76	34.92	107	324	Peak
5252	57.15	-27.97	85.12	49.17	34.1	8.77	34.89	107	324	Peak
5754	94.73	-	-	85.82	34.71	9.1	34.9	107	324	Average
5754	105.12	-	-	96.21	34.71	9.1	34.9	107	324	Peak
11511	43.19	-30.81	74	49.74	37.8	12.95	57.3	100	0	Peak
17265	45.42	-39.7	85.12	46.16	40.82	16.43	57.99	100	0	Peak

MIMO Ant. <1+2>

Test Mode :	802.11n HT40	Temperature :	21~23°C
Test Channel :	159	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 5794 MHz is fundamental signal which can be ignored. 17385 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5794	90.47	-	-	81.43	34.8	9.16	34.92	102	344	Average
5794	100.67	-	-	91.63	34.8	9.16	34.92	102	344	Peak
11589	43.89	-30.11	74	49.53	38.64	13.02	57.3	100	0	Peak
17385	47.3	-33.37	80.67	46.92	42.2	16.48	58.3	100	0	Peak

Test Mode :	802.11n HT40	Temperature :	21~23°C
Test Channel :	159	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 5794 MHz is fundamental signal which can be ignored. 5200 MHz, 5252 MHz and 17385 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5200	57.79	-27.06	84.85	49.81	34.14	8.76	34.92	105	321	Peak
5252	56.97	-27.88	84.85	48.99	34.1	8.77	34.89	105	321	Peak
5794	94.93	-	-	85.95	34.74	9.16	34.92	105	321	Average
5794	104.85	-	-	95.87	34.74	9.16	34.92	105	321	Peak
11589	44.16	-29.84	74	50.57	37.87	13.02	57.3	100	0	Peak
17385	47.18	-37.67	84.85	48.04	40.96	16.48	58.3	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 (dB μ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

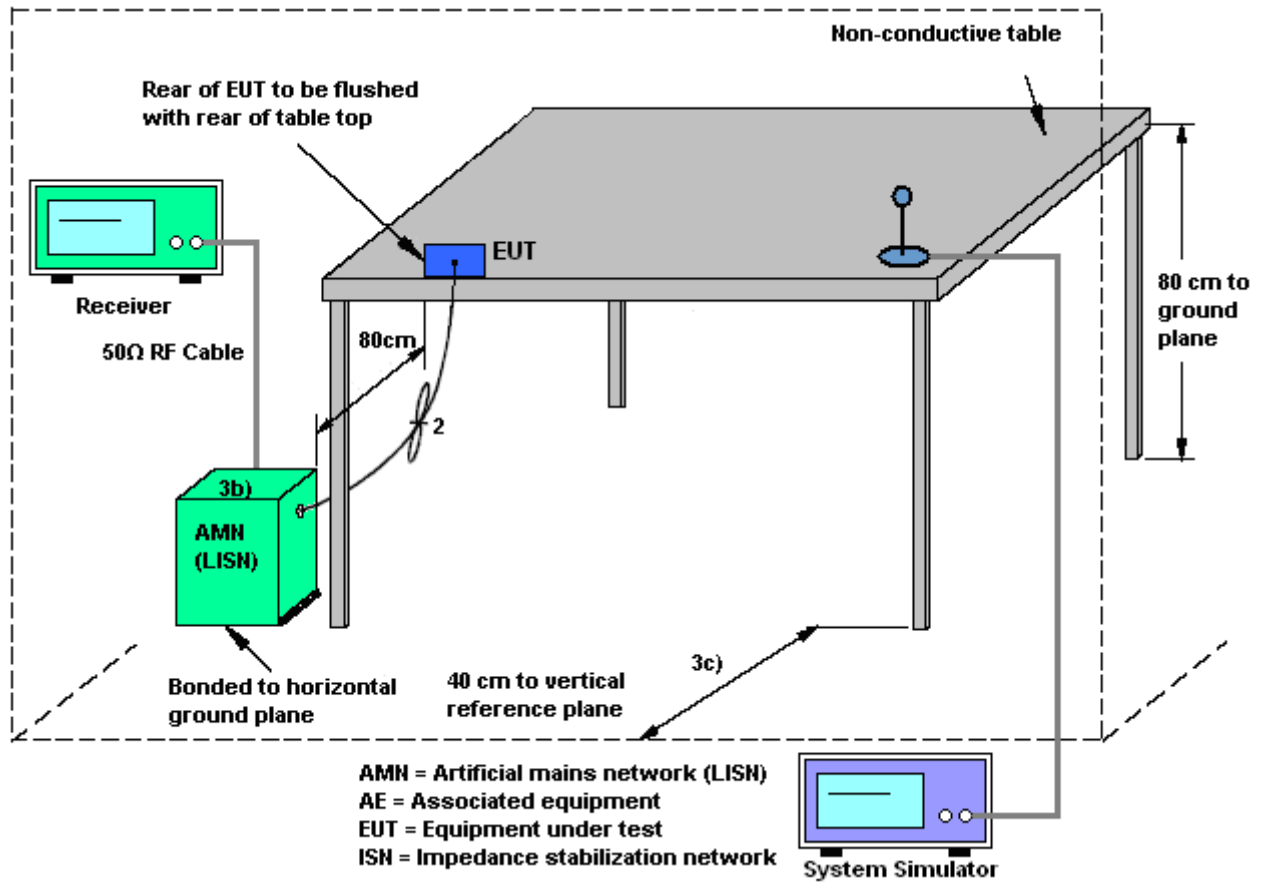
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

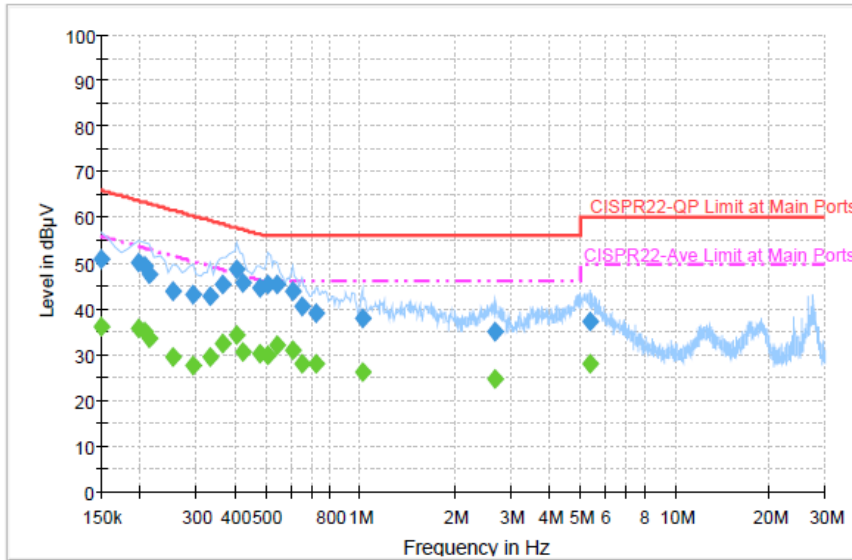
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other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

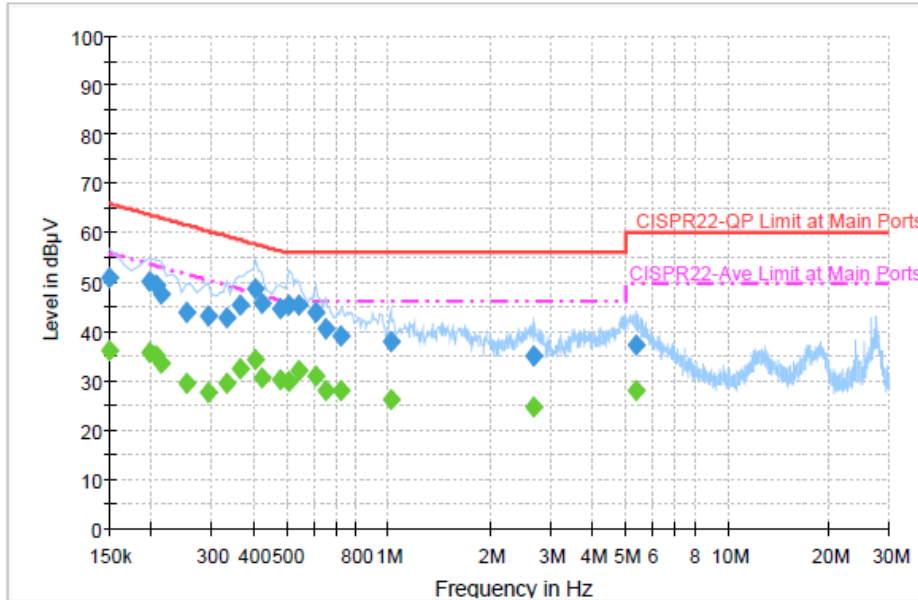
Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	51.1	Off	L1	19.4	14.9	66.0
0.198000	50.0	Off	L1	19.3	13.7	63.7
0.206000	49.5	Off	L1	19.4	13.9	63.4
0.214000	47.6	Off	L1	19.4	15.4	63.0
0.254000	43.7	Off	L1	19.5	17.9	61.6
0.294000	43.3	Off	L1	19.4	17.1	60.4
0.334000	42.6	Off	L1	19.4	16.8	59.4
0.366000	45.3	Off	L1	19.4	13.3	58.6
0.406000	48.8	Off	L1	19.4	8.9	57.7
0.422000	45.6	Off	L1	19.4	11.8	57.4
0.478000	44.7	Off	L1	19.4	11.7	56.4
0.510000	45.3	Off	L1	19.4	10.7	56.0
0.542000	45.5	Off	L1	19.4	10.5	56.0
0.606000	43.8	Off	L1	19.4	12.2	56.0
0.654000	40.5	Off	L1	19.4	15.5	56.0
0.726000	39.1	Off	L1	19.4	16.9	56.0
1.014000	37.8	Off	L1	19.5	18.2	56.0
2.694000	35.1	Off	L1	19.6	20.9	56.0
5.358000	37.2	Off	L1	19.6	22.8	60.0

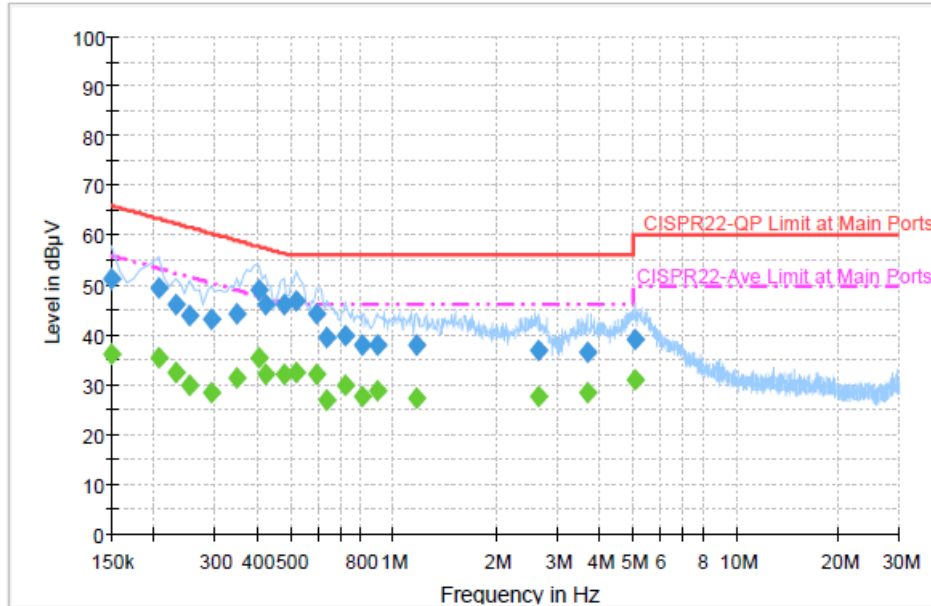
Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.3	Off	L1	19.4	19.7	56.0
0.198000	35.7	Off	L1	19.3	18.0	53.7
0.206000	35.2	Off	L1	19.4	18.2	53.4
0.214000	33.7	Off	L1	19.4	19.3	53.0
0.254000	29.6	Off	L1	19.5	22.0	51.6
0.294000	27.6	Off	L1	19.4	22.8	50.4
0.334000	29.4	Off	L1	19.4	20.0	49.4
0.366000	32.3	Off	L1	19.4	16.3	48.6
0.406000	34.5	Off	L1	19.4	13.2	47.7
0.422000	30.7	Off	L1	19.4	16.7	47.4
0.478000	30.1	Off	L1	19.4	16.3	46.4
0.510000	29.9	Off	L1	19.4	16.1	46.0
0.542000	32.1	Off	L1	19.4	13.9	46.0
0.606000	30.9	Off	L1	19.4	15.1	46.0
0.654000	28.1	Off	L1	19.4	17.9	46.0
0.726000	28.1	Off	L1	19.4	17.9	46.0
1.014000	26.3	Off	L1	19.5	19.7	46.0
2.694000	24.7	Off	L1	19.6	21.3	46.0
5.358000	28.1	Off	L1	19.6	21.9	50.0

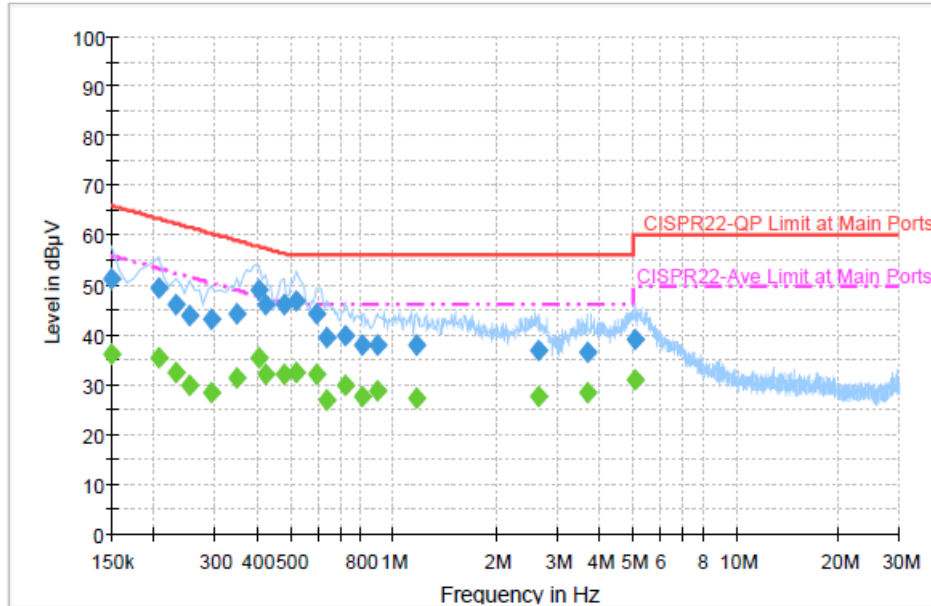
Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.4	Off	N	19.4	14.6	66.0
0.206000	49.5	Off	N	19.4	13.9	63.4
0.230000	46.0	Off	N	19.4	16.4	62.4
0.254000	44.0	Off	N	19.5	17.6	61.6
0.294000	43.1	Off	N	19.4	17.3	60.4
0.350000	44.4	Off	N	19.4	14.6	59.0
0.406000	49.2	Off	N	19.4	8.5	57.7
0.422000	46.1	Off	N	19.4	11.3	57.4
0.478000	46.0	Off	N	19.4	10.4	56.4
0.518000	46.9	Off	N	19.4	9.1	56.0
0.598000	44.3	Off	N	19.4	11.7	56.0
0.638000	39.6	Off	N	19.4	16.4	56.0
0.726000	40.0	Off	N	19.4	16.0	56.0
0.814000	38.1	Off	N	19.6	17.9	56.0
0.894000	38.1	Off	N	19.5	17.9	56.0
1.166000	38.0	Off	N	19.5	18.0	56.0
2.662000	36.8	Off	N	19.6	19.2	56.0
3.670000	36.4	Off	N	19.6	19.6	56.0
5.062000	39.0	Off	N	19.6	21.0	60.0

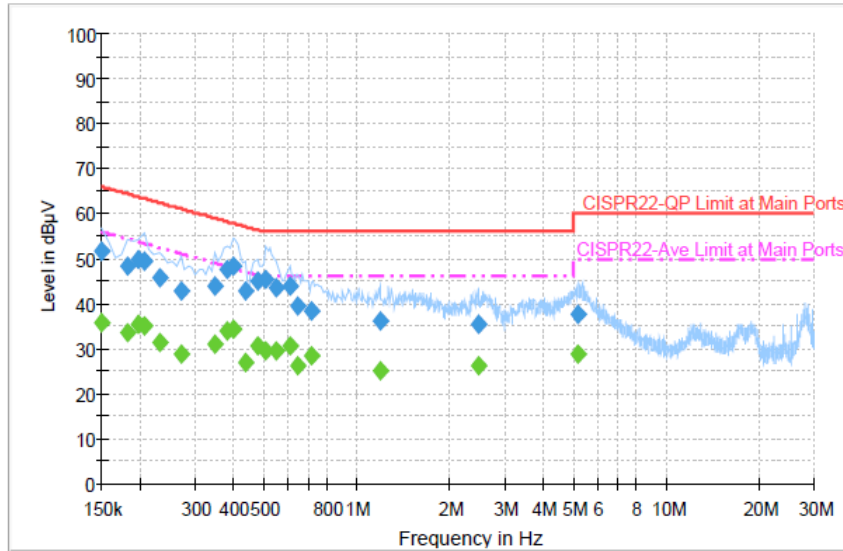
Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.1	Off	N	19.4	19.9	56.0
0.206000	35.5	Off	N	19.4	17.9	53.4
0.230000	32.3	Off	N	19.4	20.1	52.4
0.254000	29.7	Off	N	19.5	21.9	51.6
0.294000	28.3	Off	N	19.4	22.1	50.4
0.350000	31.5	Off	N	19.4	17.5	49.0
0.406000	35.5	Off	N	19.4	12.2	47.7
0.422000	32.3	Off	N	19.4	15.1	47.4
0.478000	32.3	Off	N	19.4	14.1	46.4
0.518000	32.4	Off	N	19.4	13.6	46.0
0.598000	32.2	Off	N	19.4	13.8	46.0
0.638000	27.0	Off	N	19.4	19.0	46.0
0.726000	29.8	Off	N	19.4	16.2	46.0
0.814000	27.7	Off	N	19.6	18.3	46.0
0.894000	28.7	Off	N	19.5	17.3	46.0
1.166000	27.4	Off	N	19.5	18.6	46.0
2.662000	27.8	Off	N	19.6	18.2	46.0
3.670000	28.3	Off	N	19.6	17.7	46.0
5.062000	30.9	Off	N	19.6	19.1	50.0

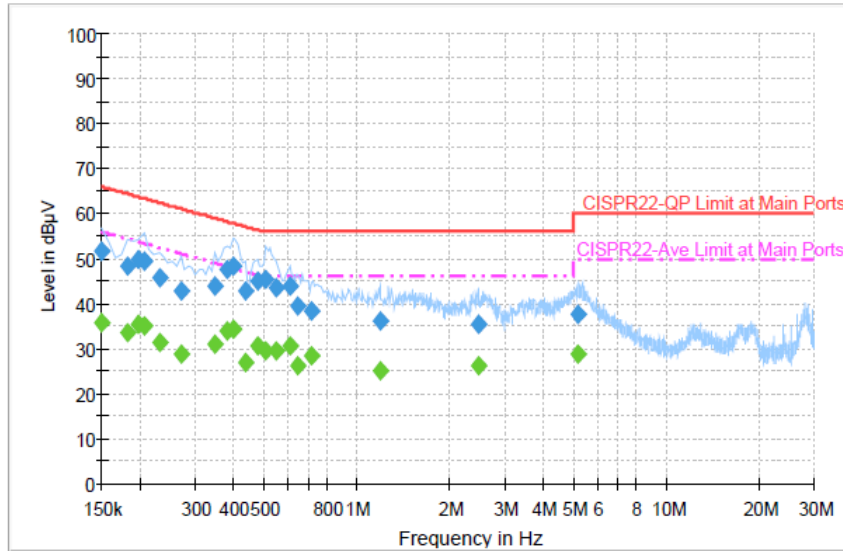
Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.5	Off	L1	19.4	14.5	66.0
0.182000	48.2	Off	L1	19.4	16.2	64.4
0.198000	49.8	Off	L1	19.3	13.9	63.7
0.206000	49.5	Off	L1	19.4	13.9	63.4
0.230000	45.6	Off	L1	19.4	16.8	62.4
0.270000	42.9	Off	L1	19.3	18.2	61.1
0.350000	43.9	Off	L1	19.4	15.1	59.0
0.382000	47.5	Off	L1	19.4	10.7	58.2
0.398000	48.4	Off	L1	19.5	9.5	57.9
0.438000	42.9	Off	L1	19.4	14.2	57.1
0.478000	45.1	Off	L1	19.4	11.3	56.4
0.510000	45.3	Off	L1	19.4	10.7	56.0
0.550000	43.4	Off	L1	19.4	12.6	56.0
0.606000	43.8	Off	L1	19.4	12.2	56.0
0.646000	39.5	Off	L1	19.4	16.5	56.0
0.718000	38.5	Off	L1	19.5	17.5	56.0
1.190000	36.0	Off	L1	19.5	20.0	56.0
2.462000	35.4	Off	L1	19.6	20.6	56.0
5.166000	37.6	Off	L1	19.6	22.4	60.0

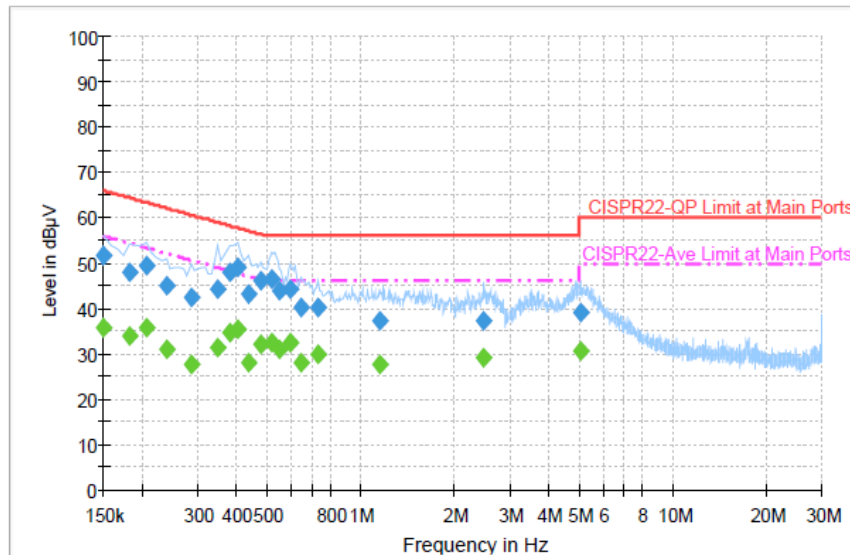
Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	35.8	Off	L1	19.4	20.2	56.0
0.182000	33.6	Off	L1	19.4	20.8	54.4
0.198000	35.4	Off	L1	19.3	18.3	53.7
0.206000	35.1	Off	L1	19.4	18.3	53.4
0.230000	31.4	Off	L1	19.4	21.0	52.4
0.270000	28.7	Off	L1	19.3	22.4	51.1
0.350000	30.8	Off	L1	19.4	18.2	49.0
0.382000	34.0	Off	L1	19.4	14.2	48.2
0.398000	34.5	Off	L1	19.5	13.4	47.9
0.438000	27.0	Off	L1	19.4	20.1	47.1
0.478000	30.8	Off	L1	19.4	15.6	46.4
0.510000	29.6	Off	L1	19.4	16.4	46.0
0.550000	29.5	Off	L1	19.4	16.5	46.0
0.606000	30.6	Off	L1	19.4	15.4	46.0
0.646000	26.2	Off	L1	19.4	19.8	46.0
0.718000	28.4	Off	L1	19.5	17.6	46.0
1.190000	25.0	Off	L1	19.5	21.0	46.0
2.462000	26.3	Off	L1	19.6	19.7	46.0
5.166000	28.6	Off	L1	19.6	21.4	50.0

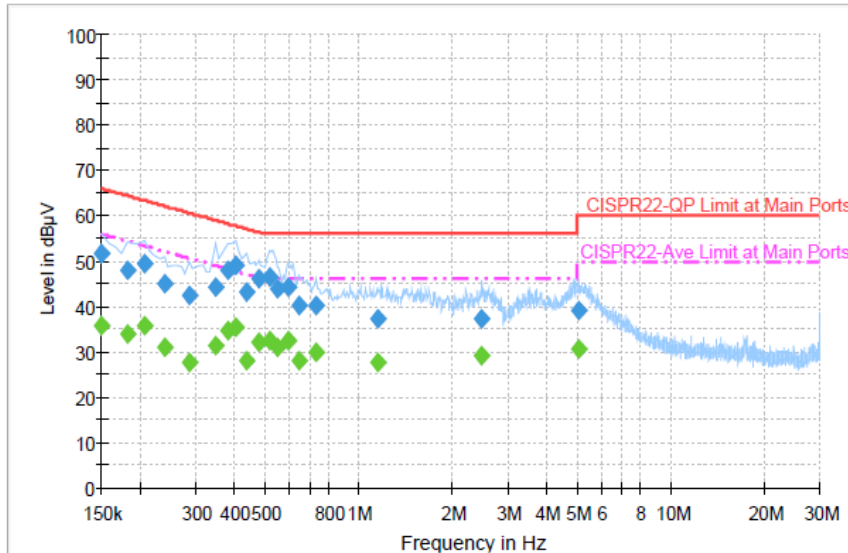
Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.7	Off	N	19.4	14.3	66.0
0.182000	48.1	Off	N	19.4	16.3	64.4
0.206000	49.5	Off	N	19.4	13.9	63.4
0.238000	45.0	Off	N	19.5	17.2	62.2
0.286000	42.4	Off	N	19.4	18.2	60.6
0.350000	44.2	Off	N	19.4	14.8	59.0
0.382000	48.0	Off	N	19.4	10.2	58.2
0.406000	49.2	Off	N	19.4	8.5	57.7
0.438000	43.3	Off	N	19.4	13.8	57.1
0.478000	46.1	Off	N	19.4	10.3	56.4
0.518000	46.5	Off	N	19.4	9.5	56.0
0.550000	43.8	Off	N	19.4	12.2	56.0
0.598000	44.3	Off	N	19.4	11.7	56.0
0.646000	40.4	Off	N	19.4	15.6	56.0
0.734000	40.2	Off	N	19.4	15.8	56.0
1.150000	37.3	Off	N	19.5	18.7	56.0
2.486000	37.2	Off	N	19.6	18.8	56.0
5.078000	39.1	Off	N	19.6	20.9	60.0

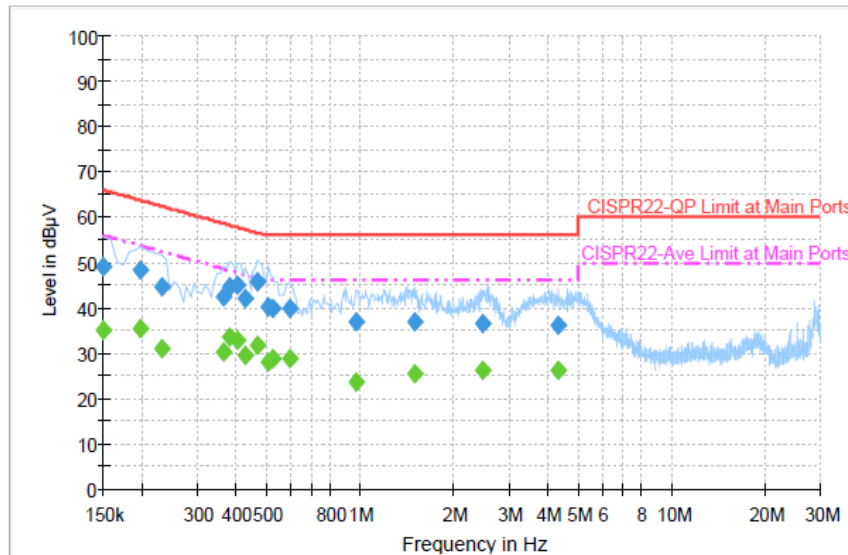
Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.0	Off	N	19.4	20.0	56.0
0.182000	34.0	Off	N	19.4	20.4	54.4
0.206000	35.9	Off	N	19.4	17.5	53.4
0.238000	31.1	Off	N	19.5	21.1	52.2
0.286000	27.6	Off	N	19.4	23.0	50.6
0.350000	31.5	Off	N	19.4	17.5	49.0
0.382000	34.8	Off	N	19.4	13.4	48.2
0.406000	35.3	Off	N	19.4	12.4	47.7
0.438000	28.0	Off	N	19.4	19.1	47.1
0.478000	32.3	Off	N	19.4	14.1	46.4
0.518000	32.5	Off	N	19.4	13.5	46.0
0.550000	30.9	Off	N	19.4	15.1	46.0
0.598000	32.5	Off	N	19.4	13.5	46.0
0.646000	27.9	Off	N	19.4	18.1	46.0
0.734000	29.9	Off	N	19.4	16.1	46.0
1.150000	27.5	Off	N	19.5	18.5	46.0
2.486000	29.2	Off	N	19.6	16.8	46.0
5.078000	30.7	Off	N	19.6	19.3	50.0

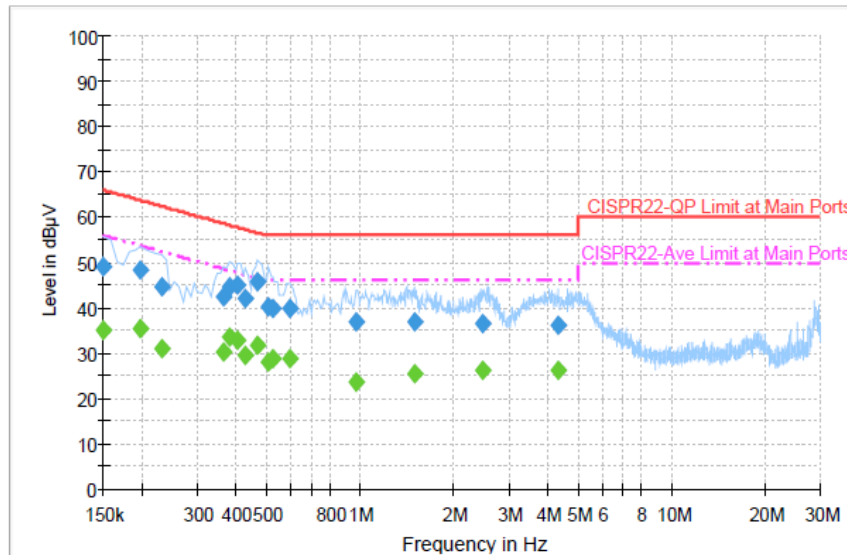
Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.2	Off	L1	19.4	16.8	66.0
0.198000	48.5	Off	L1	19.3	15.2	63.7
0.230000	44.5	Off	L1	19.4	17.9	62.4
0.366000	42.5	Off	L1	19.4	16.1	58.6
0.382000	44.6	Off	L1	19.4	13.6	58.2
0.406000	45.0	Off	L1	19.4	12.7	57.7
0.430000	41.9	Off	L1	19.4	15.4	57.3
0.470000	45.7	Off	L1	19.4	10.8	56.5
0.510000	40.1	Off	L1	19.4	15.9	56.0
0.526000	39.7	Off	L1	19.4	16.3	56.0
0.598000	39.9	Off	L1	19.4	16.1	56.0
0.974000	36.9	Off	L1	19.4	19.1	56.0
1.494000	37.0	Off	L1	19.5	19.0	56.0
2.470000	36.6	Off	L1	19.6	19.4	56.0
4.334000	36.1	Off	L1	19.6	19.9	56.0

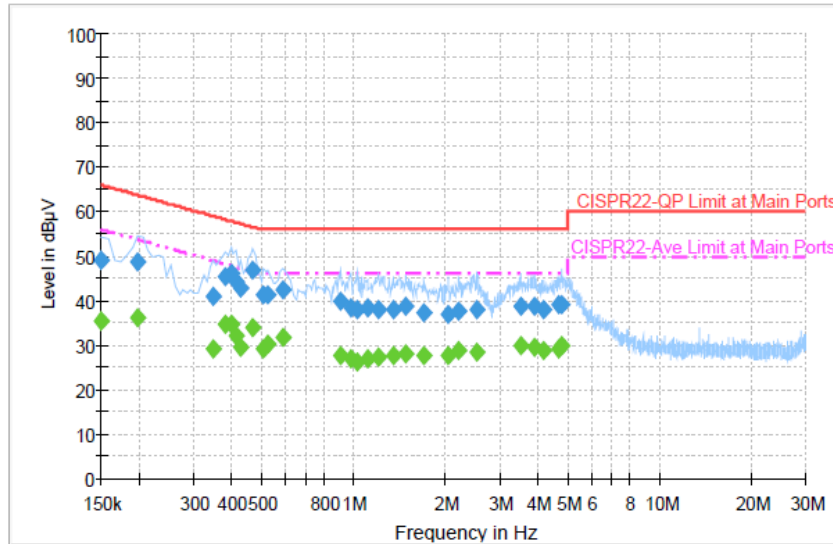
Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.9	Off	L1	19.4	21.1	56.0
0.198000	35.3	Off	L1	19.3	18.4	53.7
0.230000	31.0	Off	L1	19.4	21.4	52.4
0.366000	30.4	Off	L1	19.4	18.2	48.6
0.382000	33.7	Off	L1	19.4	14.5	48.2
0.406000	32.7	Off	L1	19.4	15.0	47.7
0.430000	29.4	Off	L1	19.4	17.9	47.3
0.470000	31.9	Off	L1	19.4	14.6	46.5
0.510000	28.0	Off	L1	19.4	18.0	46.0
0.526000	28.6	Off	L1	19.4	17.4	46.0
0.598000	28.9	Off	L1	19.4	17.1	46.0
0.974000	23.8	Off	L1	19.4	22.2	46.0
1.494000	25.6	Off	L1	19.5	20.4	46.0
2.470000	26.1	Off	L1	19.6	19.9	46.0
4.334000	26.2	Off	L1	19.6	19.8	46.0

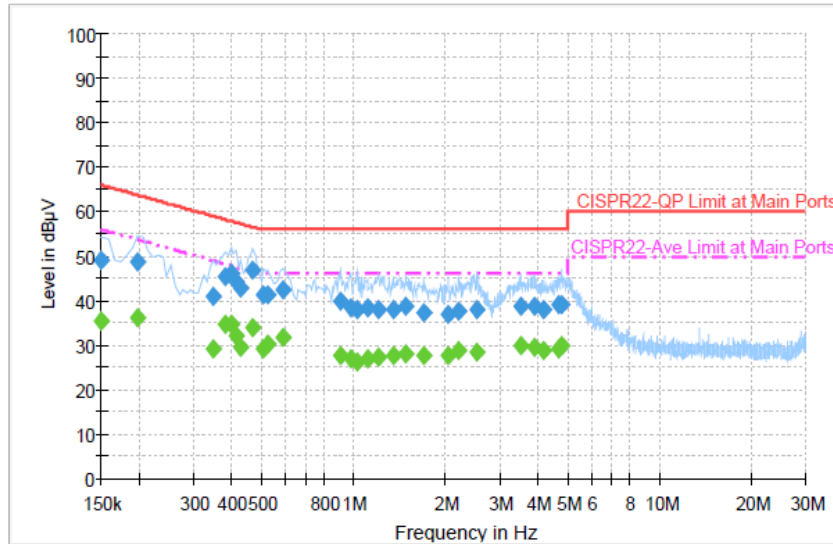
Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.0	Off	N	19.4	17.0	66.0
0.198000	48.6	Off	N	19.3	15.1	63.7
0.350000	40.9	Off	N	19.4	18.1	59.0
0.382000	45.4	Off	N	19.4	12.8	58.2
0.398000	46.3	Off	N	19.5	11.6	57.9
0.414000	44.4	Off	N	19.4	13.2	57.6
0.430000	42.6	Off	N	19.4	14.7	57.3
0.470000	46.9	Off	N	19.4	9.6	56.5
0.510000	41.2	Off	N	19.4	14.8	56.0
0.526000	41.3	Off	N	19.4	14.7	56.0
0.590000	42.5	Off	N	19.4	13.5	56.0
0.910000	39.8	Off	N	19.4	16.2	56.0
0.982000	38.5	Off	N	19.5	17.5	56.0

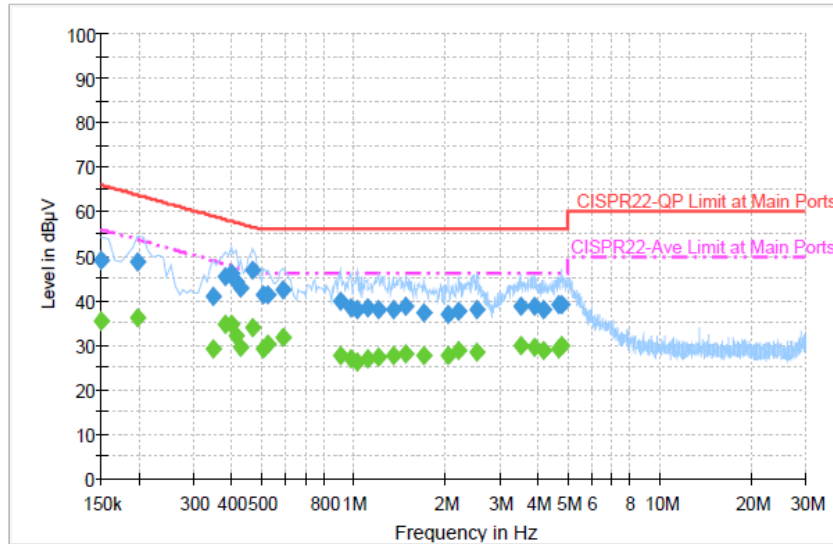
Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.030000	38.1	Off	N	19.4	17.9	56.0
1.110000	38.4	Off	N	19.4	17.6	56.0
1.206000	38.1	Off	N	19.5	17.9	56.0
1.350000	38.1	Off	N	19.5	17.9	56.0
1.486000	38.7	Off	N	19.5	17.3	56.0
1.702000	37.3	Off	N	19.5	18.7	56.0
2.038000	37.0	Off	N	19.6	19.0	56.0
2.214000	37.6	Off	N	19.6	18.4	56.0
2.542000	38.1	Off	N	19.6	17.9	56.0
3.534000	38.8	Off	N	19.6	17.2	56.0
3.902000	38.8	Off	N	19.6	17.2	56.0
4.198000	37.9	Off	N	19.6	18.1	56.0
4.694000	39.0	Off	N	19.6	17.0	56.0
4.782000	39.2	Off	N	19.6	16.8	56.0

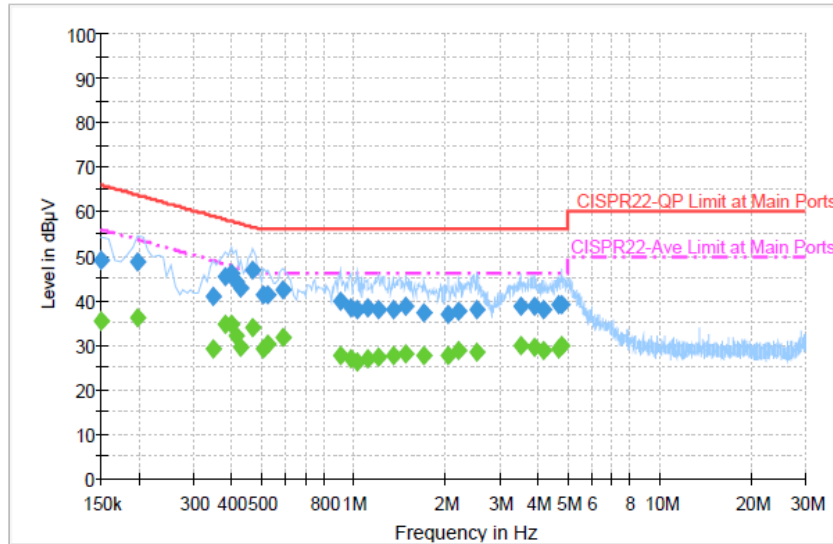
Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	35.4	Off	N	19.4	20.6	56.0
0.198000	36.2	Off	N	19.3	17.5	53.7
0.350000	29.0	Off	N	19.4	20.0	49.0
0.382000	34.8	Off	N	19.4	13.4	48.2
0.398000	34.9	Off	N	19.5	13.0	47.9
0.414000	32.1	Off	N	19.4	15.5	47.6
0.430000	29.3	Off	N	19.4	18.0	47.3
0.470000	33.9	Off	N	19.4	12.6	46.5
0.510000	29.0	Off	N	19.4	17.0	46.0
0.526000	30.4	Off	N	19.4	15.6	46.0
0.590000	31.6	Off	N	19.4	14.4	46.0
0.910000	27.7	Off	N	19.4	18.3	46.0
0.982000	26.9	Off	N	19.5	19.1	46.0

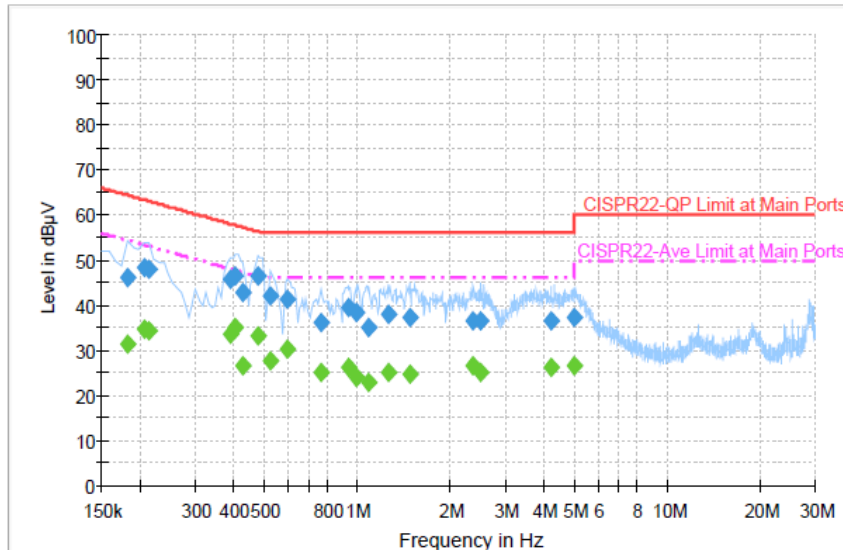
Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.030000	26.2	Off	N	19.4	19.8	46.0
1.110000	27.1	Off	N	19.4	18.9	46.0
1.206000	27.4	Off	N	19.5	18.6	46.0
1.350000	27.5	Off	N	19.5	18.5	46.0
1.486000	28.2	Off	N	19.5	17.8	46.0
1.702000	27.7	Off	N	19.5	18.3	46.0
2.038000	27.8	Off	N	19.6	18.2	46.0
2.214000	28.8	Off	N	19.6	17.2	46.0
2.542000	28.4	Off	N	19.6	17.6	46.0
3.534000	30.0	Off	N	19.6	16.0	46.0
3.902000	29.6	Off	N	19.6	16.4	46.0
4.198000	29.0	Off	N	19.6	17.0	46.0
4.694000	29.3	Off	N	19.6	16.7	46.0
4.782000	29.9	Off	N	19.6	16.1	46.0

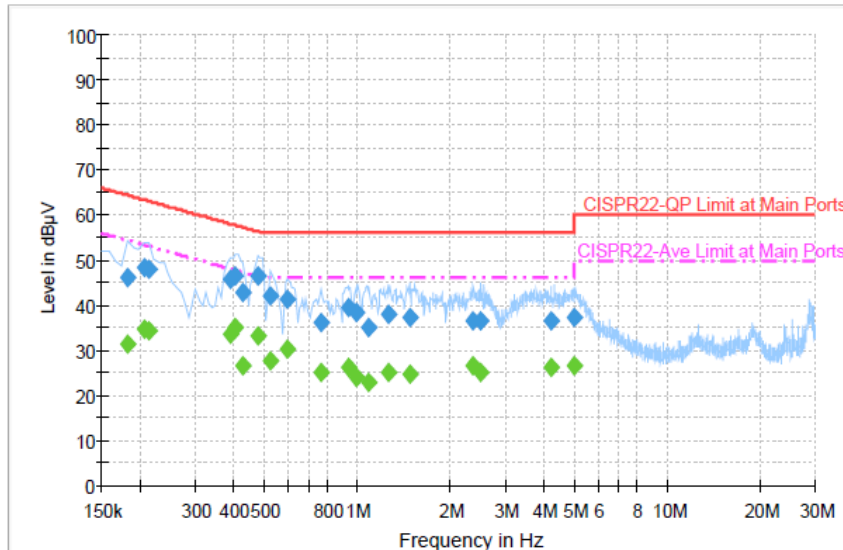
Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	46.1	Off	L1	19.4	18.3	64.4
0.206000	48.3	Off	L1	19.4	15.1	63.4
0.214000	47.9	Off	L1	19.4	15.1	63.0
0.390000	45.7	Off	L1	19.4	12.4	58.1
0.406000	46.4	Off	L1	19.4	11.3	57.7
0.430000	42.7	Off	L1	19.4	14.6	57.3
0.478000	46.5	Off	L1	19.4	9.9	56.4
0.526000	42.2	Off	L1	19.4	13.8	56.0
0.598000	41.5	Off	L1	19.4	14.5	56.0
0.766000	36.1	Off	L1	19.5	19.9	56.0
0.934000	39.5	Off	L1	19.4	16.5	56.0
0.990000	38.4	Off	L1	19.4	17.6	56.0
1.094000	34.9	Off	L1	19.5	21.1	56.0
1.262000	38.1	Off	L1	19.5	17.9	56.0
1.478000	37.2	Off	L1	19.4	18.8	56.0
2.374000	36.5	Off	L1	19.6	19.5	56.0
2.510000	36.5	Off	L1	19.6	19.5	56.0
4.230000	36.5	Off	L1	19.6	19.5	56.0
5.038000	37.3	Off	L1	19.6	22.7	60.0

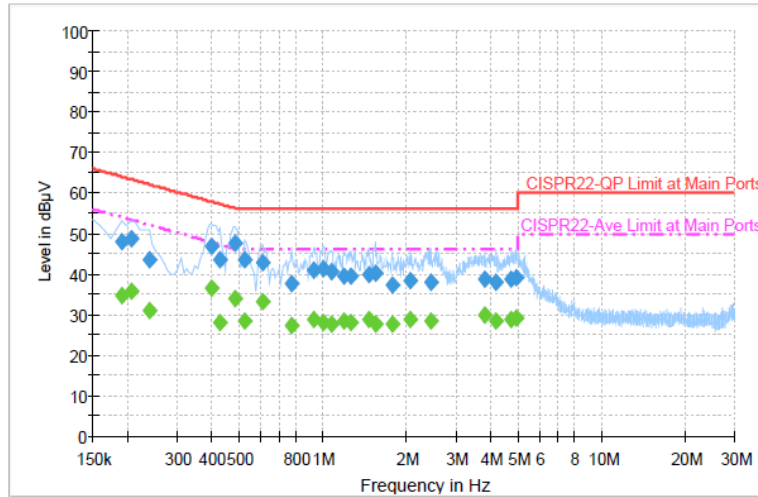
Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	31.3	Off	L1	19.4	23.1	54.4
0.206000	34.9	Off	L1	19.4	18.5	53.4
0.214000	34.2	Off	L1	19.4	18.8	53.0
0.390000	33.4	Off	L1	19.4	14.7	48.1
0.406000	34.9	Off	L1	19.4	12.8	47.7
0.430000	26.7	Off	L1	19.4	20.6	47.3
0.478000	33.3	Off	L1	19.4	13.1	46.4
0.526000	27.7	Off	L1	19.4	18.3	46.0
0.598000	30.3	Off	L1	19.4	15.7	46.0
0.766000	25.1	Off	L1	19.5	20.9	46.0
0.934000	26.3	Off	L1	19.4	19.7	46.0
0.990000	23.9	Off	L1	19.4	22.1	46.0
1.094000	22.9	Off	L1	19.5	23.1	46.0
1.262000	25.3	Off	L1	19.5	20.7	46.0
1.478000	24.7	Off	L1	19.4	21.3	46.0
2.374000	26.4	Off	L1	19.6	19.6	46.0
2.510000	25.2	Off	L1	19.6	20.8	46.0
4.230000	26.1	Off	L1	19.6	19.9	46.0
5.038000	26.6	Off	L1	19.6	23.4	50.0

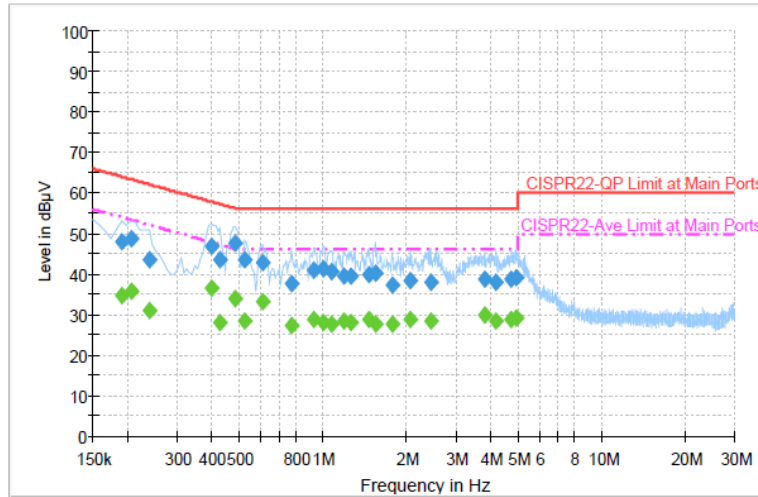
Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	48.0	Off	N	19.4	16.0	64.0
0.206000	48.6	Off	N	19.4	14.8	63.4
0.238000	43.7	Off	N	19.5	18.5	62.2
0.398000	47.0	Off	N	19.5	10.9	57.9
0.430000	43.5	Off	N	19.4	13.8	57.3
0.486000	47.6	Off	N	19.4	8.6	56.2
0.526000	43.4	Off	N	19.4	12.6	56.0
0.606000	42.9	Off	N	19.4	13.1	56.0
0.774000	37.8	Off	N	19.5	18.2	56.0
0.926000	41.1	Off	N	19.4	14.9	56.0
1.006000	41.3	Off	N	19.4	14.7	56.0
1.078000	40.5	Off	N	19.5	15.5	56.0
1.198000	39.6	Off	N	19.5	16.4	56.0
1.270000	39.4	Off	N	19.5	16.6	56.0
1.462000	39.9	Off	N	19.5	16.1	56.0
1.542000	40.1	Off	N	19.4	15.9	56.0
1.774000	37.4	Off	N	19.5	18.6	56.0
2.070000	38.2	Off	N	19.6	17.8	56.0
2.446000	38.1	Off	N	19.7	17.9	56.0
3.806000	38.6	Off	N	19.6	17.4	56.0
4.166000	38.0	Off	N	19.6	18.0	56.0
4.758000	38.7	Off	N	19.6	17.3	56.0
4.942000	39.0	Off	N	19.7	17.0	56.0

Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	34.8	Off	N	19.4	19.2	54.0
0.206000	35.7	Off	N	19.4	17.7	53.4
0.238000	30.9	Off	N	19.5	21.3	52.2
0.398000	36.4	Off	N	19.5	11.5	47.9
0.430000	28.2	Off	N	19.4	19.1	47.3
0.486000	33.8	Off	N	19.4	12.4	46.2
0.526000	28.5	Off	N	19.4	17.5	46.0
0.606000	33.1	Off	N	19.4	12.9	46.0
0.774000	27.3	Off	N	19.5	18.7	46.0
0.926000	28.8	Off	N	19.4	17.2	46.0
1.006000	28.0	Off	N	19.4	18.0	46.0
1.078000	27.6	Off	N	19.5	18.4	46.0
1.198000	28.3	Off	N	19.5	17.7	46.0
1.270000	27.9	Off	N	19.5	18.1	46.0
1.462000	28.6	Off	N	19.5	17.4	46.0
1.542000	27.8	Off	N	19.4	18.2	46.0
1.774000	27.8	Off	N	19.5	18.2	46.0
2.070000	28.7	Off	N	19.6	17.3	46.0
2.446000	28.4	Off	N	19.7	17.6	46.0
3.806000	29.8	Off	N	19.6	16.2	46.0
4.166000	28.5	Off	N	19.6	17.5	46.0
4.758000	28.7	Off	N	19.6	17.3	46.0
4.942000	29.2	Off	N	19.7	16.8	46.0

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 Connected Construction

Non-detachable antenna is used.

3.7.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(N_{ANT}/N_{SS}=1)$ dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

The EUT supports CDD mode.

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

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

	Chain Port 0 Ant 1 (dBi)	Chain Port 1 Ant 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	4.10	1.10	2.85	5.86	0.00	0.00
5 GHz	3.20	1.60	2.47	5.48	0.00	0.00

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

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

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	Aug. 20, 2013 ~ Sep. 10, 2013	Jun. 06, 2014	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 17, 2013	Aug. 20, 2013 ~ Sep. 10, 2013	Aug. 16, 2014	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 17, 2013	Aug. 20, 2013 ~ Sep. 10, 2013	Aug. 16, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz – 26.5GHz	Jan. 23, 2013	Aug. 21, 2013 ~ Aug. 22, 2013	Jan. 22, 2014	Radiation (03CH08-HY)
Bilog Antenna	Teseq GmbH	CBL6112D	35379	30MHz~2GHz	Mar. 28, 2013	Aug. 21, 2013 ~ Aug. 22, 2013	Mar. 27, 2014	Radiation (03CH08-HY)
Horn Antenna	ESCO	3117	000143261	1GHz~18GHz	Jan. 08, 2013	Aug. 21, 2013 ~ Aug. 22, 2013	Jan. 07, 2014	Radiation (03CH08-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18G~40G	Sep. 28, 2012	Aug. 21, 2013 ~ Aug. 22, 2013	Sep. 27, 2013	Radiation (03CH08-HY)
Pre Amplifier	Agilent	8449B	3008A02665	1GHz~26.5GHz	Sep. 04, 2013	Aug. 21, 2013 ~ Aug. 22, 2013	Sep. 03, 2014	Radiation (03CH08-HY)
Pre Amplifier	EMC INSTRUMENT	EMC011830	980148	100MHz~18GHz	Jun. 21, 2013	Aug. 21, 2013 ~ Aug. 22, 2013	Jun. 20, 2014	Radiation (03CH08-HY)
Preamplifier	COM-POWER	PA-103	161075	10Hz~1000MHz Gain:32dB	Feb. 26, 2013	Aug. 21, 2013 ~ Aug. 22, 2013	Feb. 25, 2014	Radiation (03CH08-HY)
Turn Table	Chaintek	Chaintek 3000	N/A	0~360 Degree	N/A	Aug. 21, 2013 ~ Aug. 22, 2013	N/A	Radiation (03CH08-HY)
Antenna Mast	MF	MFA520BS	N/A	1m~4m	N/A	Aug. 21, 2013 ~ Aug. 22, 2013	N/A	Radiation (03CH08-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/0001	9 kHz~30 MHz	Jul. 03, 2012	Aug. 21, 2013 ~ Aug. 22, 2013	Jul. 03, 2014	Radiation (03CH08-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 13, 2012	Aug. 29, 2013 ~ Sep. 04, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2012	Aug. 29, 2013 ~ Sep. 04, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 06, 2012	Aug. 29, 2013 ~ Sep. 04, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Aug. 29, 2013 ~ Sep. 04, 2013	N/A	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.72
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Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

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