FCC RF Test Report

APPLICANT	:	TCT Mobile Limited
EQUIPMENT	:	LTE USB Modem/4G AP
BRAND NAME	:	ALCATEL onetouch
MODEL NAME	:	ONE TOUCH Y850O0
MARKETING NAME	:	ALCATEL ONETOUCH LINK Y850
FCC ID	:	RAD522
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Jul. 08, 2014 and testing was completed on Sep. 02, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR493052A	Rev. 01	Initial issue of report	Oct. 15, 2014
FR493052A	Rev. 02	Revising antenna function for transmitter in section 1.4.	Oct. 17, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	RSS-210 A8.2(a)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)	RSS-210 A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	RSS-210 A8.2(b)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	RSS-210 A8.5	Conducted Band Edges	≤ 20dBc	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	RSS-210 A8.5	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 7.42 dB at 30.000 MHz
3.6	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 4.60 dB at 0.16 MHz
3.7	15.203 & 15.247(b)	RSS-210 A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

TCT Mobile Limited

5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203

1.2 Manufacturer

TCL COMMUNICATION TECHNOLOGY HOLDINGS LIMITED

70 Huifeng 4rd,ZhongKai Hi-tech Development District ,Huizhou,Guangdong 516006 P.R.China (TCL Mobile Communication Co.,LTD.Huizhou)

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE USB Modem/4G AP
Brand Name	ALCATEL onetouch
Model Name	ONE TOUCH Y850O0
Marketing Name	ALCATEL ONETOUCH LINK Y850
FCC ID	RAD522
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE WLAN 11a/b/g/n HT20/HT40
HW Version	V4.0
SW Version	Y850V_00_01.13_15_20140626
EUT Stage	Identical Prototype

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

1.4 Product Specification subjective to this standard

<table>
<tr><th colspan="2">Product Specification subjective to this standard</th></tr>
<tr><td>Tx/Rx Channel Frequency Range</td><td>802.11b/g/n : 2412 MHz ~ 2462 MHz</td></tr>
<tr><td>Maximum (Peak) Output Power to antenna</td><td><Ant. 1>
802.11b : 15.83 dBm (0.0383 W)
802.11g : 18.75 dBm (0.0750 W)
802.11n HT20 : 17.02 dBm (0.0504 W)
802.11n HT40 : 17.95 dBm (0.0624 W)
<Ant. 2>
802.11b : 14.89 dBm (0.0308 W)
802.11g : 18.20 dBm (0.0661 W)
802.11n HT20 : 16.46 dBm (0.0443 W)
802.11n HT40 : 15.20 dBm (0.0331 W)
MIMO <Ant. 1 + 2>
802.11b : 18.29 dBm (0.0675 W)
802.11g : 21.34 dBm (0.1361 W)
802.11n HT20 : 19.58 dBm (0.0908 W)
802.11n HT40 : 19.13 dBm (0.0818 W)</td></tr>
<tr><td>Antenna Type</td><td><Ant 1>
802.11b/g/n : PIFA Antenna type with gain -3.00 dBi
<Ant 2>
802.11b/g/n : PIFA Antenna type with gain -3.00 dBi</td></tr>
<tr><td>Type of Modulation</td><td>802.11b : DSSS (DBPSK / DQPSK / CCK)
802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)</td></tr>
<tr><td>Antenna Function for Transmitter</td><td>
<table>
<tr><td></td><td>Ant. 1</td><td>Ant. 2</td></tr>
<tr><td>802.11 b/g/n SISO</td><td>V</td><td>V</td></tr>
<tr><td>802.11 b/g/n MIMO</td><td>V</td><td>V</td></tr>
</table>
</td></tr>
</table>

1.5 Modification of EUT

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

1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.
Test Site Location	No. 101, Complex Building C, Guanlong Village, Xili Town, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755-8637-9589
Test Site No.	**Sporton Site No. :**
	CO01-SZ

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958
Test Site No.	**Sporton Site No.**
	03CH01-KS; TH01-KS

1.7 Applicable 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 v03r02
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- 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 (Z plane) were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
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		

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.

<Ant. 1>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	**15.83**	15.73	15.56	15.75

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	**18.75**	18.27	18.68	18.08	18.72	18.68	18.71	18.58

2.4GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	**17.02**	16.82	17.01	16.90	16.98	16.96	16.92	16.89

2.4GHz 802.11n HT40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	**17.95**	17.74	17.73	17.89	17.67	17.57	17.85	17.83

<Ant. 2>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	**14.89**	14.82	14.84	14.72

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	**18.20**	17.76	18.16	17.62	18.16	18.01	18.16	18.06

2.4GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	**16.46**	16.07	16.25	16.37	16.40	16.16	16.43	16.27

2.4GHz 802.11n HT40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	**15.20**	14.28	14.98	15.09	15.17	14.87	15.13	15.15

MIMO <Ant. 1+2>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	18.29	18.26	18.24	18.26

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	21.34	20.94	21.28	20.82	21.27	21.30	21.25	21.16

2.4GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.58	19.30	19.56	18.94	18.52	18.92	18.66	19.09

2.4GHz 802.11n HT40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.13	19.06	18.82	19.00	19.02	18.96	18.86	18.93

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

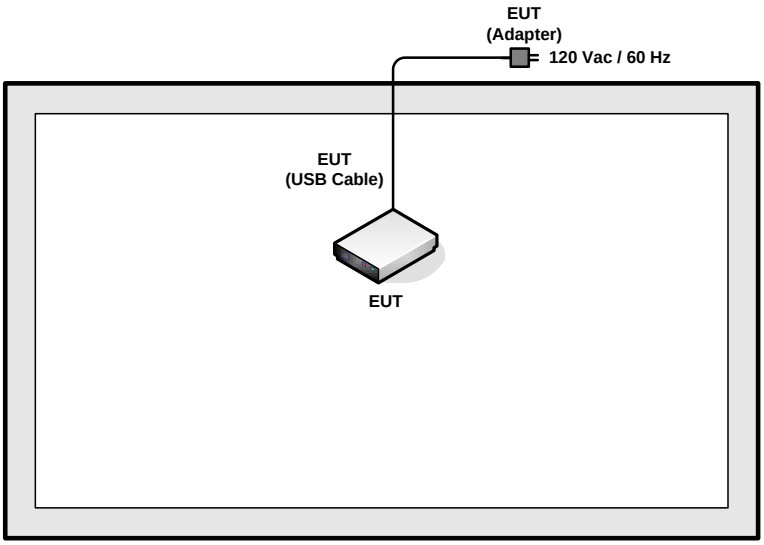
2.3 Test Mode

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

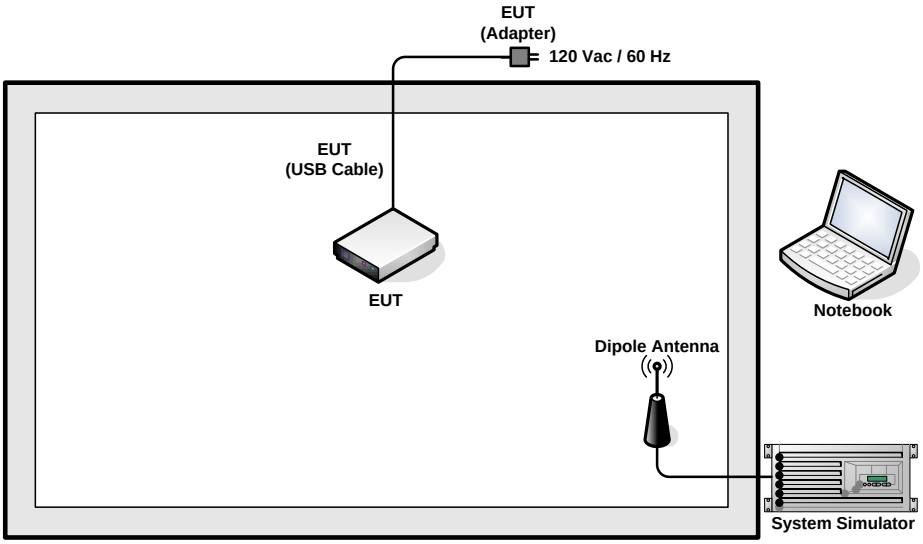
Test Cases				
	Test Items	**Mode**	**Data Rate**	**Test Channel**
Conducted TCs	**6dB Power Spectral Density**	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
		802.11n HT40	**MCS0**	**3/6/9**
	Output Power	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
		802.11n HT40	**MCS0**	**3/6/9**
	Conducted Band Edge	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT20	**MCS0**	**1/11**
		802.11n HT40	**MCS0**	**3/9**
	Conducted Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
		802.11n HT40	**MCS0**	**3/6/9**
Radiated TCs	**Radiated Band Edge**	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT20	**MCS0**	**1/11**
		802.11n HT40	**MCS0**	**3/9**
	Radiated Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
		802.11n HT40	**MCS0**	**3/6/9**
AC Conducted Emission	Mode 1 : GSM850 Idle + WLAN Link + USB Cable (Charging from Adapter)			

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMW 500	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	G480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.6 EUT Operation Test Setup

The programmed RF utility “CMD”, is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

2.7 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.
Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

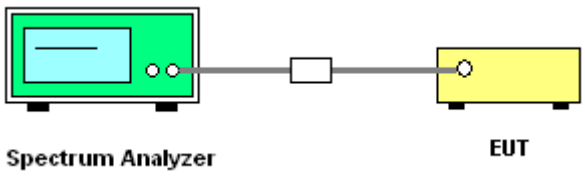
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

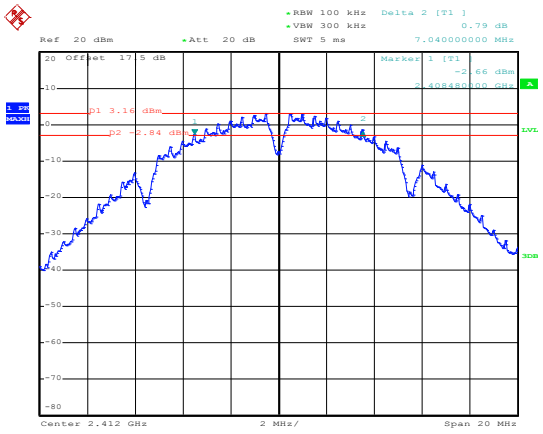
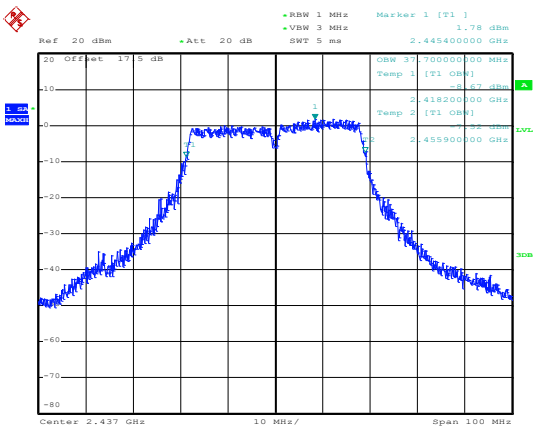
3.1.4 Test Setup



3.1.5 Test Result of 6dB Occupied Bandwidth

Test Band :	2.4GHz	Temperature :	24~26℃
Test Engineer :	Fly Liang	Relative Humidity :	45~53%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	99% Bandwidth (MHz)		6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2		
11b	1Mbps	1	1	2412	11.85	11.80	7.04	7.04	0.5	Pass
11b	1Mbps	1	6	2437	12.05	12.05	7.08	7.12	0.5	Pass
11b	1Mbps	1	11	2462	12.05	12.15	7.08	7.54	0.5	Pass
11g	6Mbps	1	1	2412	17.95	17.90	15.72	15.72	0.5	Pass
11g	6Mbps	1	6	2437	18.35	18.45	16.34	16.16	0.5	Pass
11g	6Mbps	1	11	2462	18.40	18.15	16.26	15.72	0.5	Pass
HT20	MCS0	1	1	2412	18.60	18.65	15.98	15.98	0.5	Pass
HT20	MCS0	1	6	2437	19.05	19.25	16.66	17.20	0.5	Pass
HT20	MCS0	1	11	2462	18.90	19,15	17.16	16.34	0.5	Pass
HT40	MCS0	1	3	2422	37.00	36.90	35.68	35.12	0.5	Pass
HT40	MCS0	1	6	2437	37.70	37.60	35.76	35.72	0.5	Pass
HT40	MCS0	1	9	2452	37.10	37.00	35.36	35.08	0.5	Pass
11b	1Mbps	2	1	2412	12.05	11.75	7.52	7.04	0.5	Pass
11b	1Mbps	2	6	2437	12.10	11.95	7.08	7.52	0.5	Pass
11b	1Mbps	2	11	2462	12.05	12.20	7.52	7.50	0.5	Pass
11g	6Mbps	2	1	2412	17.75	17.95	15.68	15.72	0.5	Pass
11g	6Mbps	2	6	2437	18.25	18.40	15.96	16.34	0.5	Pass
11g	6Mbps	2	11	2462	18.20	18.20	16.04	15.72	0.5	Pass
HT20	MCS0	2	1	2412	18.70	18.65	16.08	15.94	0.5	Pass
HT20	MCS0	2	6	2437	19.10	19.10	17.16	17.12	0.5	Pass
HT20	MCS0	2	11	2462	18.90	19.25	16.32	16.34	0.5	Pass
HT40	MCS0	2	3	2422	36.70	36.90	35.36	35.68	0.5	Pass
HT40	MCS0	2	6	2437	37.10	37.20	35.92	35.72	0.5	Pass
HT40	MCS0	2	9	2452	36.60	36.70	35.12	35.08	0.5	Pass

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	
Date: 28.AUG.2014 21:37:49	Date: 31.AUG.2014 20:47:45

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

3.2 Peak Output Power Measurement

3.2.1 Limit of Peak Output Power

For systems using digital modulation in the 2400-2483.5MHz, 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.

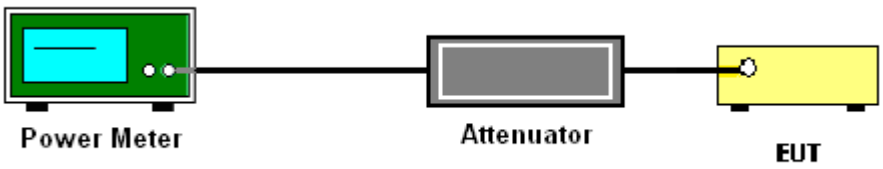
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r02.
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 v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Band :	2.4GHz	Temperature :	24~26℃
Test Engineer :	Fly Liang	Relative Humidity :	45~53%

Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Max. Limit (dBm)		DG (dBi)		Pass/Fail
					Ant. 1	Ant. 2	SUM	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
11b	1Mbps	1	1	2412	15.10	14.45	-	30.00	30.00	-3.00	-3.00	Pass
11b	1Mbps	1	6	2437	14.93	14.89		30.00	30.00	-3.00	-3.00	Pass
11b	1Mbps	1	11	2462	15.83	14.72		30.00	30.00	-3.00	-3.00	Pass
11g	6Mbps	1	1	2412	18.06	17.78		30.00	30.00	-3.00	-3.00	Pass
11g	6Mbps	1	6	2437	18.47	18.20		30.00	30.00	-3.00	-3.00	Pass
11g	6Mbps	1	11	2462	18.75	16.96		30.00	30.00	-3.00	-3.00	Pass
HT20	MCS0	1	1	2412	16.49	15.89		30.00	30.00	-3.00	-3.00	Pass
HT20	MCS0	1	6	2437	16.94	16.46		30.00	30.00	-3.00	-3.00	Pass
HT20	MCS0	1	11	2462	17.02	15.85		30.00	30.00	-3.00	-3.00	Pass
HT40	MCS0	1	3	2422	16.70	15.03		30.00	30.00	-3.00	-3.00	Pass
HT40	MCS0	1	6	2437	17.70	15.20		30.00	30.00	-3.00	-3.00	Pass
HT40	MCS0	1	9	2452	17.95	15.03		30.00	30.00	-3.00	-3.00	Pass
11b	1Mbps	2	1	2412	15.16	15.02	18.10	30.00		-3.00		Pass
11b	1Mbps	2	6	2437	14.99	15.46	18.24	30.00		-3.00		Pass
11b	1Mbps	2	11	2462	15.71	14.80	18.29	30.00		-3.00		Pass
11g	6Mbps	2	1	2412	18.22	17.98	21.11	30.00		-3.00		Pass
11g	6Mbps	2	6	2437	18.59	18.01	21.32	30.00		-3.00		Pass
11g	6Mbps	2	11	2462	18.69	17.94	21.34	30.00		-3.00		Pass
HT20	MCS0	2	1	2412	16.59	16.14	19.38	30.00		-3.00		Pass
HT20	MCS0	2	6	2437	17.07	16.00	19.58	30.00		-3.00		Pass
HT20	MCS0	2	11	2462	17.51	14.48	19.26	30.00		-3.00		Pass
HT40	MCS0	2	3	2422	15.80	14.31	18.13	30.00		-3.00		Pass
HT40	MCS0	2	6	2437	16.31	14.78	18.62	30.00		-3.00		Pass
HT40	MCS0	2	9	2452	17.20	14.68	19.13	30.00		-3.00		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	Temperature :	24~26℃
Test Engineer :	Fly Liang	Relative Humidity :	45~53%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power
11b	1Mbps	1	1	2412	0.00	0.00	12.15	11.53	-
11b	1Mbps	1	6	2437	0.00	0.00	12.05	12.05	
11b	1Mbps	1	11	2462	0.00	0.00	12.95	11.27	
11g	6Mbps	1	1	2412	0.12	0.12	9.01	8.65	
11g	6Mbps	1	6	2437	0.12	0.12	9.38	9.04	
11g	6Mbps	1	11	2462	0.12	0.12	10.16	8.37	
HT20	MCS0	1	1	2412	0.13	0.13	8.24	7.64	
HT20	MCS0	1	6	2437	0.13	0.13	8.59	8.48	
HT20	MCS0	1	11	2462	0.13	0.13	9.13	7.69	
HT40	MCS0	1	3	2422	0.24	0.25	7.38	5.72	
HT40	MCS0	1	6	2437	0.24	0.25	7.84	6.01	
HT40	MCS0	1	9	2452	0.24	0.25	8.72	5.94	
11b	1Mbps	2	1	2412	0.00	0.00	12.19	11.70	14.96
11b	1Mbps	2	6	2437	0.00	0.00	12.14	12.22	15.19
11b	1Mbps	2	11	2462	0.00	0.00	12.82	11.50	15.22
11g	6Mbps	2	1	2412	0.14	0.12	9.29	8.91	12.11
11g	6Mbps	2	6	2437	0.14	0.12	9.54	9.42	12.49
11g	6Mbps	2	11	2462	0.14	0.12	10.16	8.70	12.50
HT20	MCS0	2	1	2412	0.24	0.24	7.99	7.88	10.94
HT20	MCS0	2	6	2437	0.24	0.24	8.35	8.10	11.24
HT20	MCS0	2	11	2462	0.24	0.24	8.99	7.01	11.12
HT40	MCS0	2	3	2422	0.47	0.48	7.31	5.72	9.60
HT40	MCS0	2	6	2437	0.47	0.48	7.84	6.13	10.08
HT40	MCS0	2	9	2452	0.47	0.48	8.78	6.09	10.65

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

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02
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 v02r01.

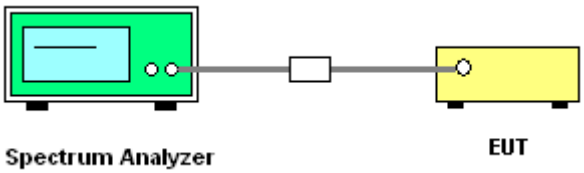
   If measurements performed using method (2) plus 10 log (N) exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

   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



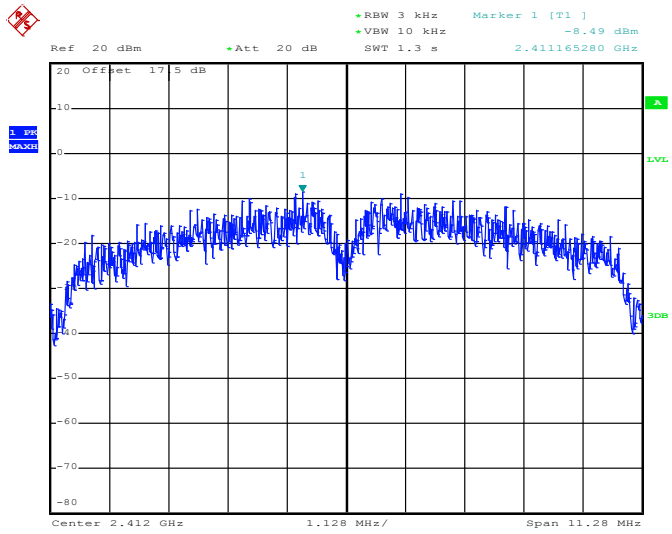
3.3.5 Test Result of Power Spectral Density

Test Band :	2.4GHz	Temperature :	24~26℃
Test Engineer :	Fly Liang	Relative Humidity :	45~53%

Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak Power Density (dBm/3kHz)			Max. Limit (dBm/3kHz)		DG (dBi)		Pass/Fail
					Ant. 1	Ant. 2	Worst + 3.01	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
11b	1Mbps	1	1	2412	-12.70	-13.28		8.00	8.00	-3.00	-3.00	Pass
11b	1Mbps	1	6	2437	-12.55	-14.74		8.00	8.00	-3.00	-3.00	Pass
11b	1Mbps	1	11	2462	-12.08	-15.30		8.00	8.00	-3.00	-3.00	Pass
11g	6Mbps	1	1	2412	-17.21	-19.35		8.00	8.00	-3.00	-3.00	Pass
11g	6Mbps	1	6	2437	-16.85	-20.76		8.00	8.00	-3.00	-3.00	Pass
11g	6Mbps	1	11	2462	-17.42	-21.22		8.00	8.00	-3.00	-3.00	Pass
HT20	MCS0	1	1	2412	-18.85	-21.08	-	8.00	8.00	-3.00	-3.00	Pass
HT20	MCS0	1	6	2437	-18.14	-21.44		8.00	8.00	-3.00	-3.00	Pass
HT20	MCS0	1	11	2462	-17.65	-20.44		8.00	8.00	-3.00	-3.00	Pass
HT40	MCS0	1	3	2422	-21.97	-24.85		8.00	8.00	-3.00	-3.00	Pass
HT40	MCS0	1	6	2437	-20.99	-23.31		8.00	8.00	-3.00	-3.00	Pass
HT40	MCS0	1	9	2452	-21.02	-23.78		8.00	8.00	-3.00	-3.00	Pass
11b	1Mbps	2	1	2412	-8.49	-8.83	-5.48	8.00		0.01		Pass
11b	1Mbps	2	6	2437	-8.73	-10.99	-5.72	8.00		0.01		Pass
11b	1Mbps	2	11	2462	-11.83	-10.73	-7.72	8.00		0.01		Pass
11g	6Mbps	2	1	2412	-18.51	-9.72	-6.71	8.00		0.01		Pass
11g	6Mbps	2	6	2437	-18.09	-10.47	-7.46	8.00		0.01		Pass
11g	6Mbps	2	11	2462	-18.71	-9.76	-6.75	8.00		0.01		Pass
HT20	MCS0	2	1	2412	-19.24	-10.15	-7.14	8.00		0.01		Pass
HT20	MCS0	2	6	2437	-19.00	-10.42	-7.41	8.00		0.01		Pass
HT20	MCS0	2	11	2462	-17.76	-9.79	-6.78	8.00		0.01		Pass
HT40	MCS0	2	3	2422	-21.35	-22.32	-18.34	8.00		0.01		Pass
HT40	MCS0	2	6	2437	-20.90	-23.87	-17.89	8.00		0.01		Pass
HT40	MCS0	2	9	2452	-20.01	-23.24	-17.00	8.00		0.01		Pass

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

Worst Case Power Density (dBm/3kHz)



Date: 2.SEP.2014 10:41:24

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

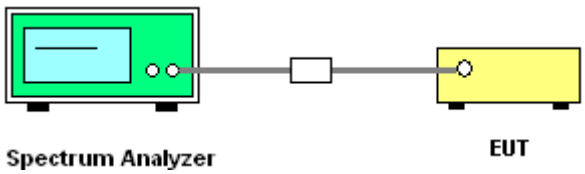
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
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



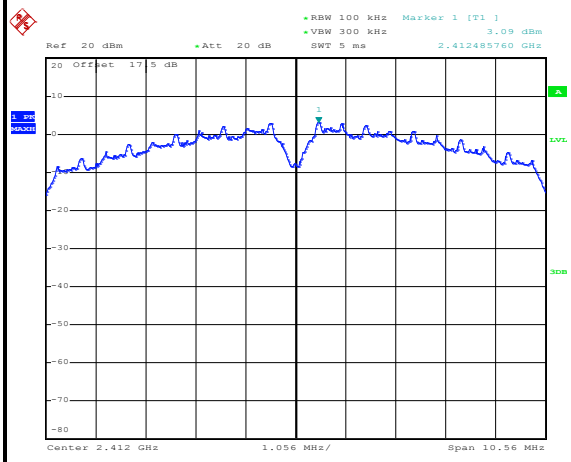
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

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

Number of TX	1	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

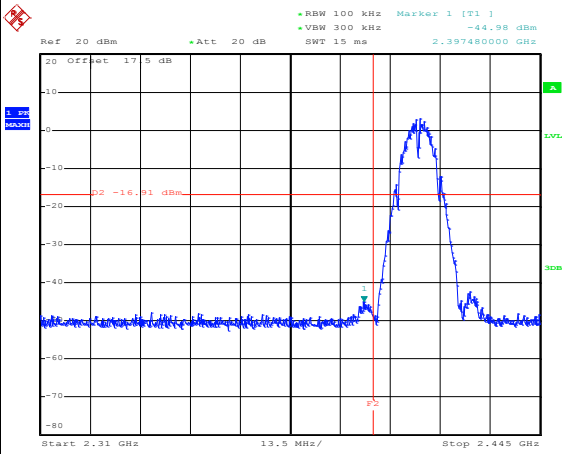
WLAN 802.11b Channel 01

100kHz PSD reference Level



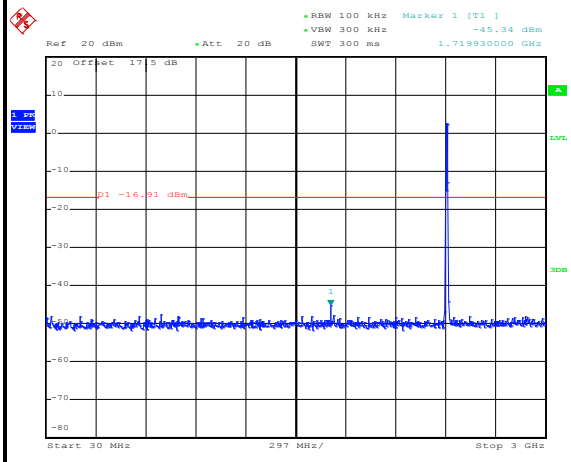
Date: 28.AUG.2014 21:38:19

Low Channel Plot



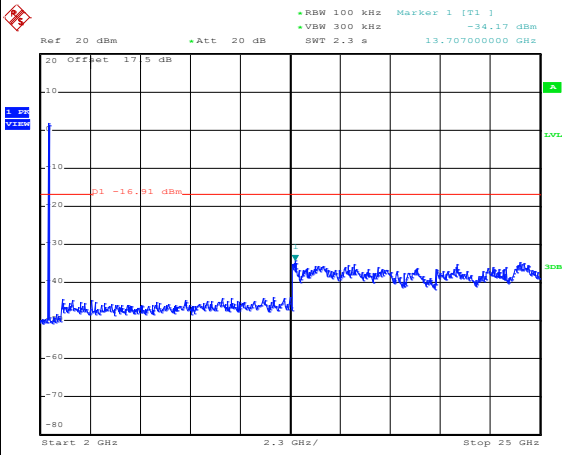
Date: 28.AUG.2014 21:38:33

Spurious Emission 30MHz~3GHz



Date: 28.AUG.2014 21:41:46

Spurious Emission 2GHz~25GHz

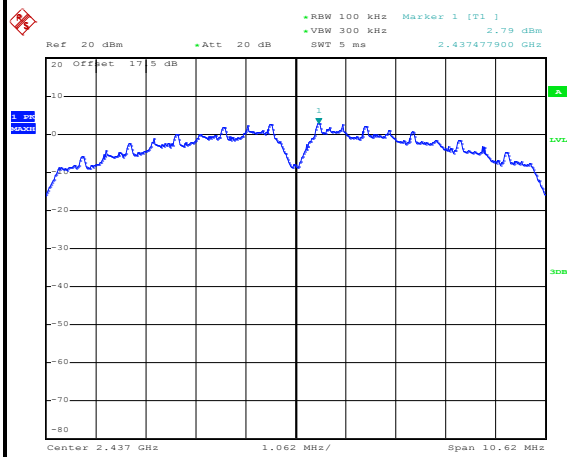


Date: 28.AUG.2014 21:42:04

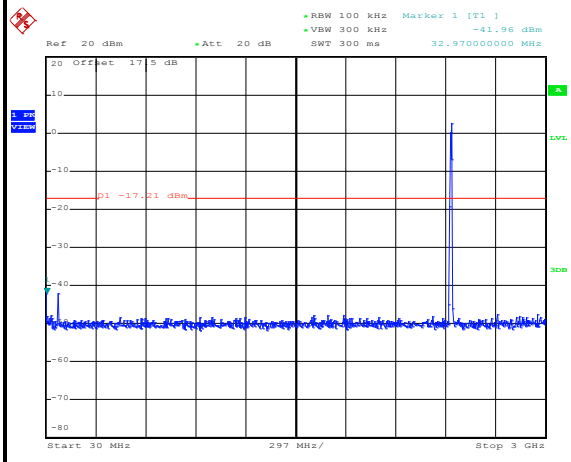
Number of TX :	1	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11b Channel 06

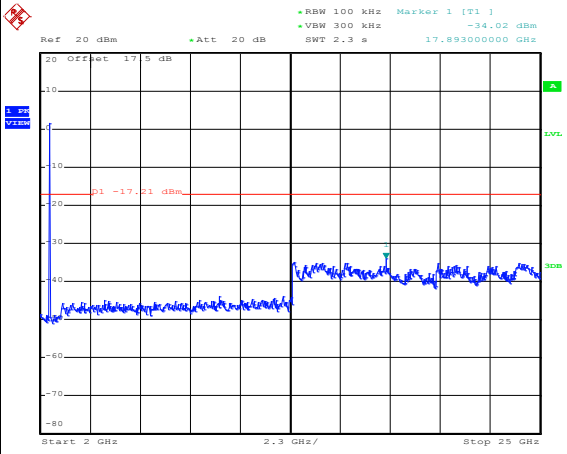
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



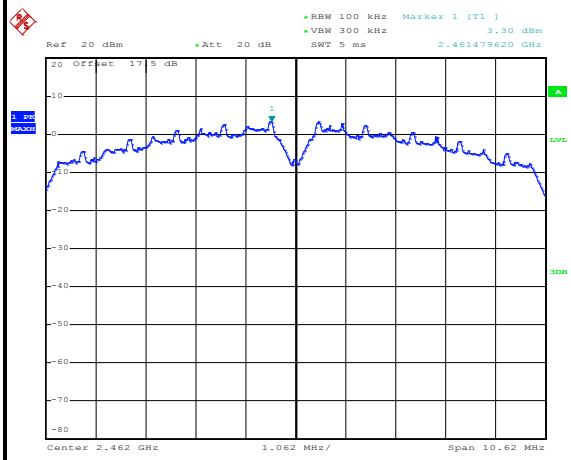
Spurious Emission 2GHz~25GHz



Number of TX :	1	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

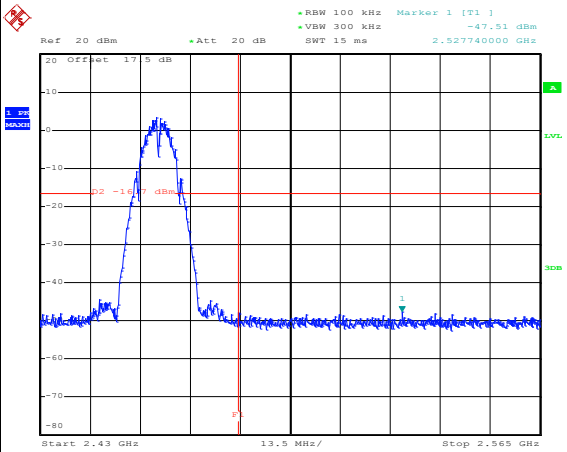
WLAN 802.11b Channel 11

100kHz PSD reference Level



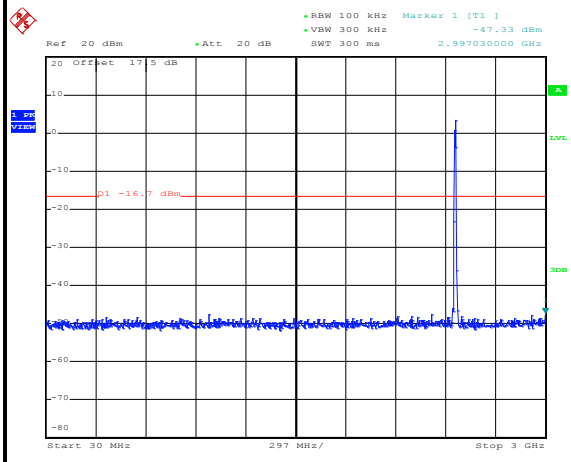
Date: 28.AUG.2014 22:31:52

High Channel Plot



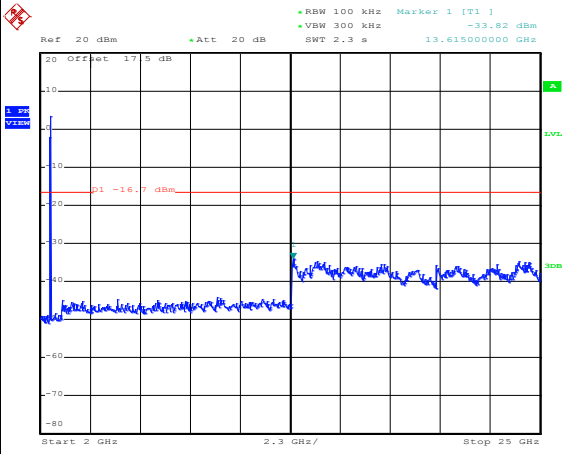
Date: 28.AUG.2014 22:32:06

Spurious Emission 30MHz~3GHz



Date: 28.AUG.2014 22:32:25

Spurious Emission 2GHz~25GHz

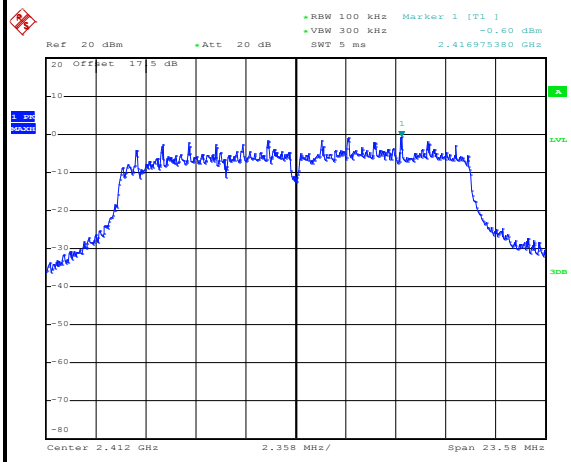


Date: 28.AUG.2014 22:32:44

Number of TX :	1	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

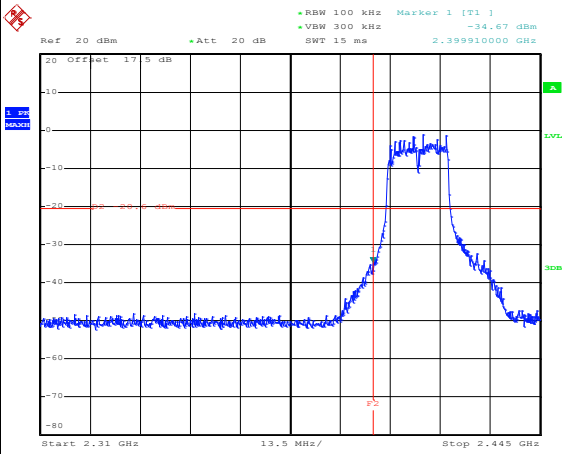
WLAN 802.11g Channel 01

100kHz PSD reference Level



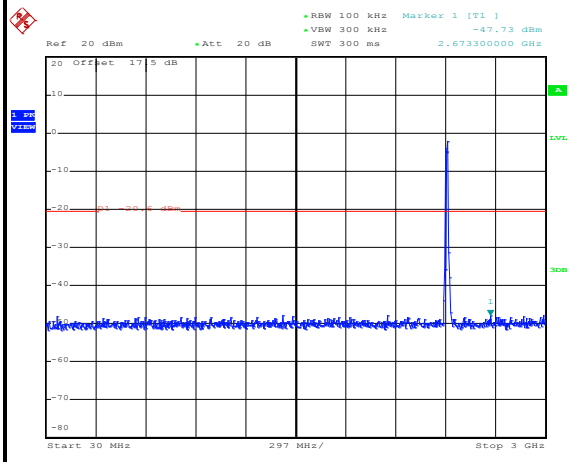
Date: 29.AUG.2014 01:26:07

Low Channel Plot



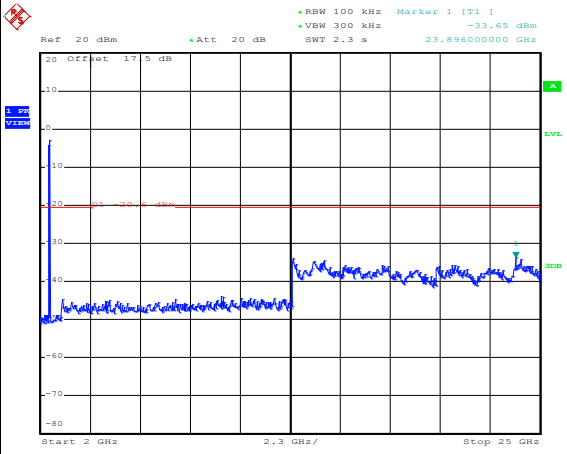
Date: 29.AUG.2014 01:26:21

Spurious Emission 30MHz~3GHz



Date: 29.AUG.2014 01:26:40

Spurious Emission 2GHz~25GHz

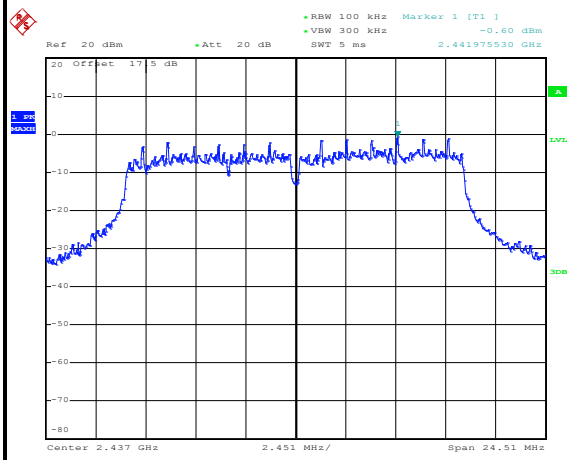


Date: 29.AUG.2014 01:26:59

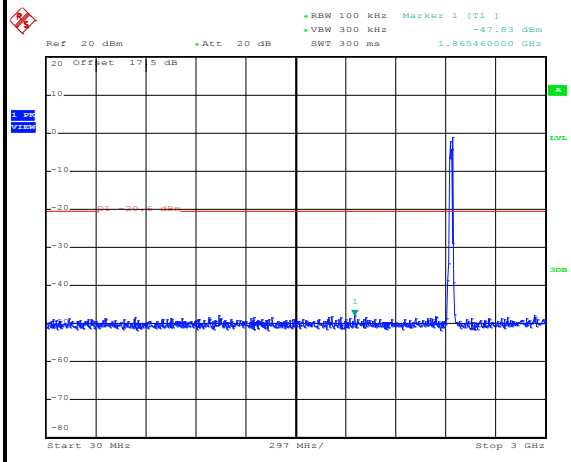
Number of TX :	1	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11g Channel 06

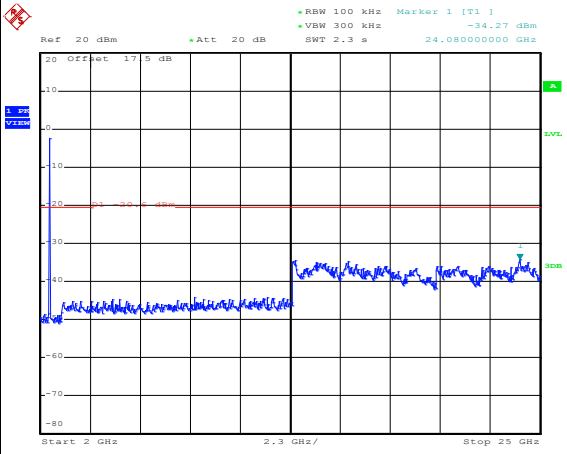
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



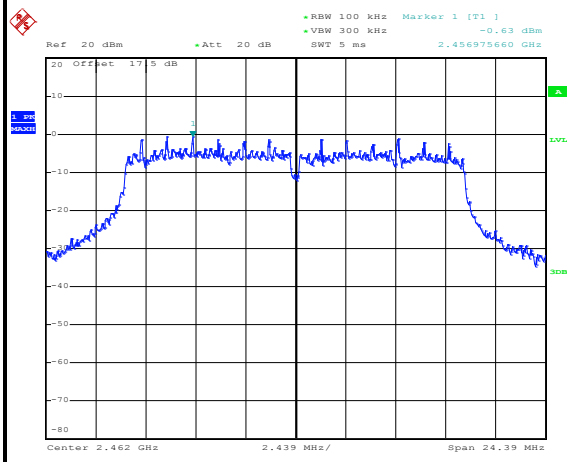
Spurious Emission 2GHz~25GHz



Number of TX :	1	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

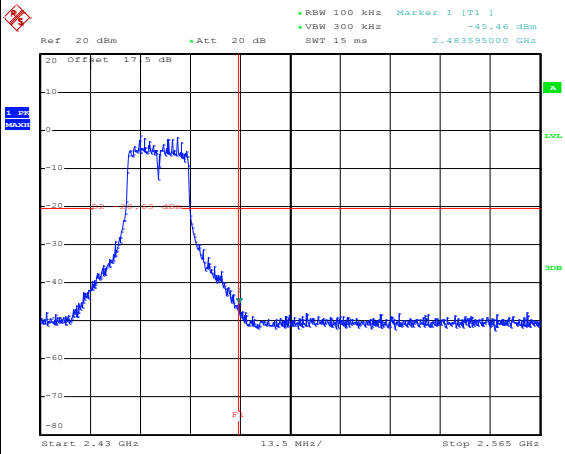
WLAN 802.11g Channel 11

100kHz PSD reference Level



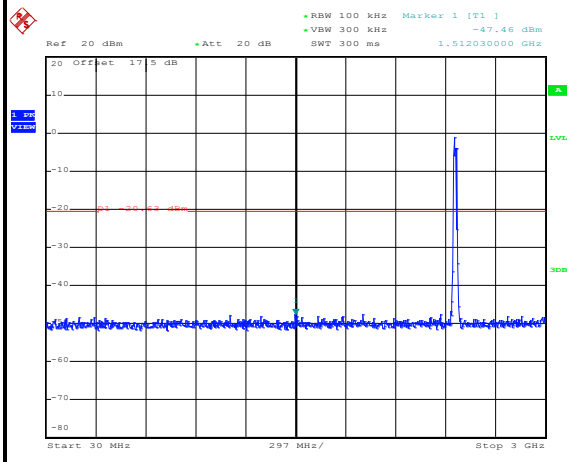
Date: 29.AUG.2014 02:02:24

High Channel Plot



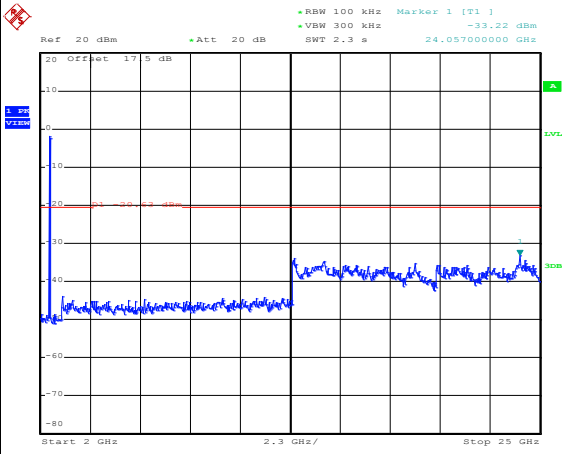
Date: 31.AUG.2014 21:13:18

Spurious Emission 30MHz~3GHz



Date: 29.AUG.2014 02:02:57

Spurious Emission 2GHz~25GHz

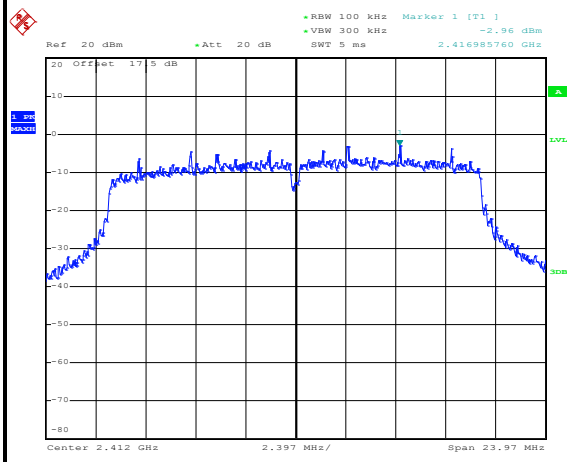


Date: 29.AUG.2014 02:03:15

Number of TX :	1	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

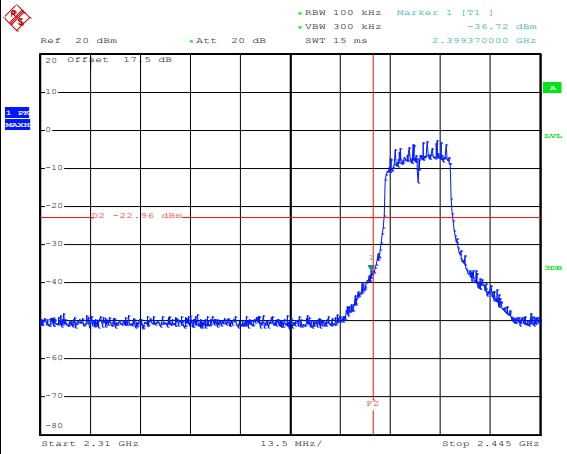
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



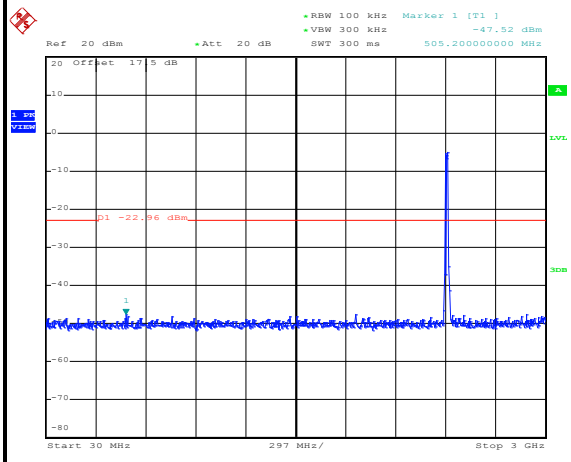
Date: 29.AUG.2014 02:06:33

Low Channel Plot



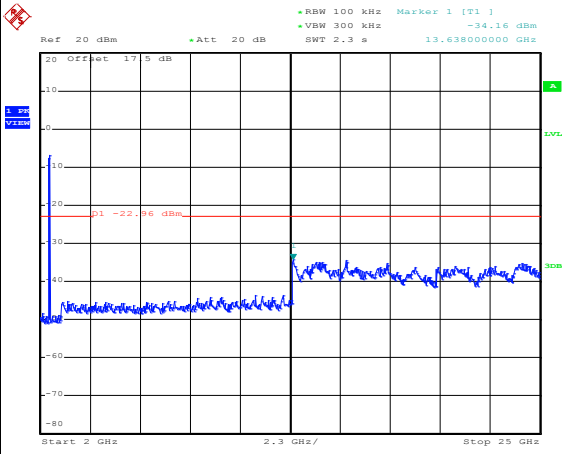
Date: 31.AUG.2014 21:07:05

Spurious Emission 30MHz~3GHz



Date: 29.AUG.2014 02:07:06

Spurious Emission 2GHz~25GHz

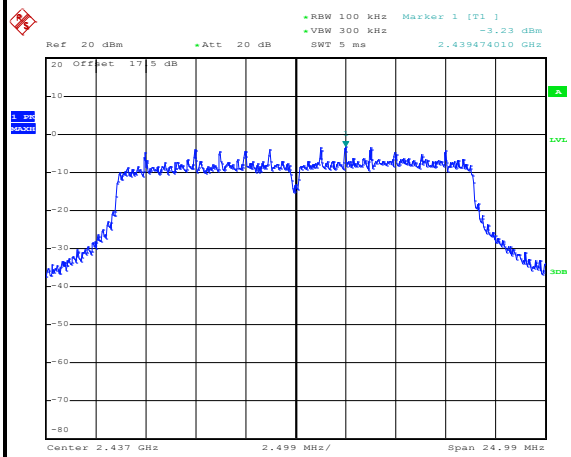


Date: 29.AUG.2014 02:07:25

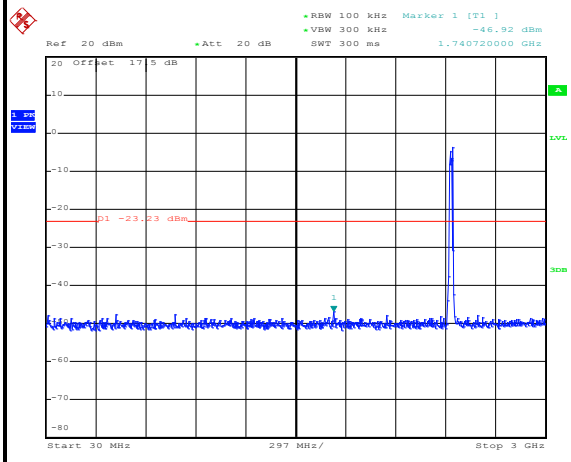
Number of TX :	1	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11n HT20 Channel 06

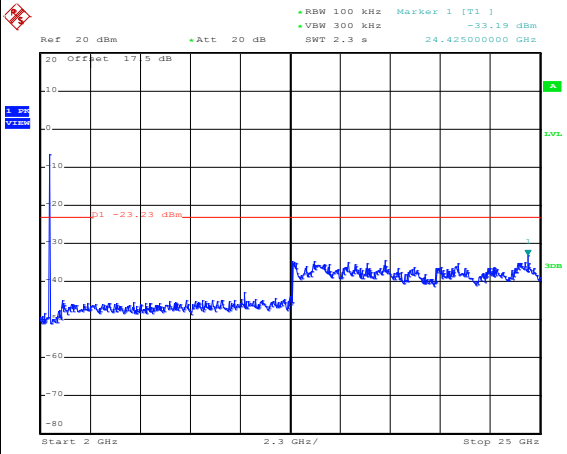
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



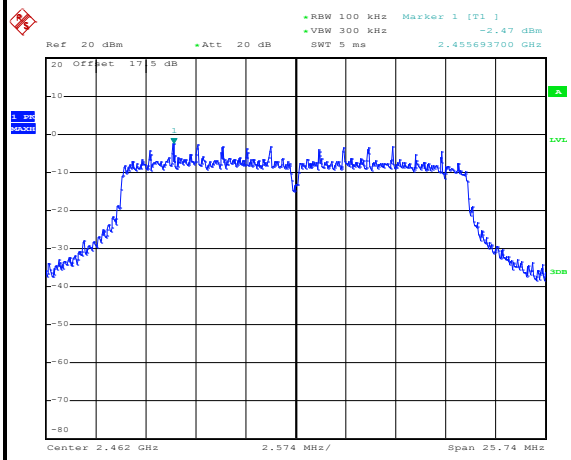
Spurious Emission 2GHz~25GHz



Number of TX :	1	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

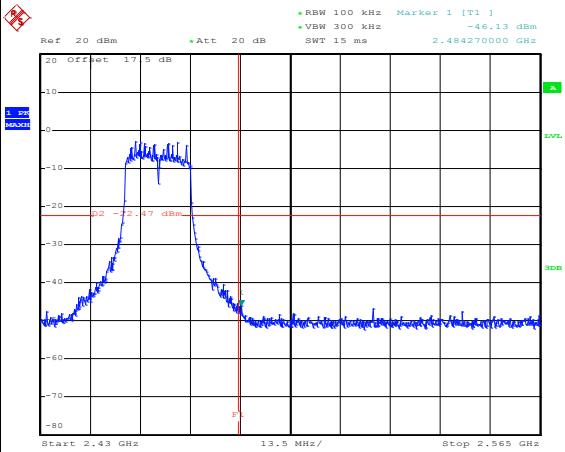
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



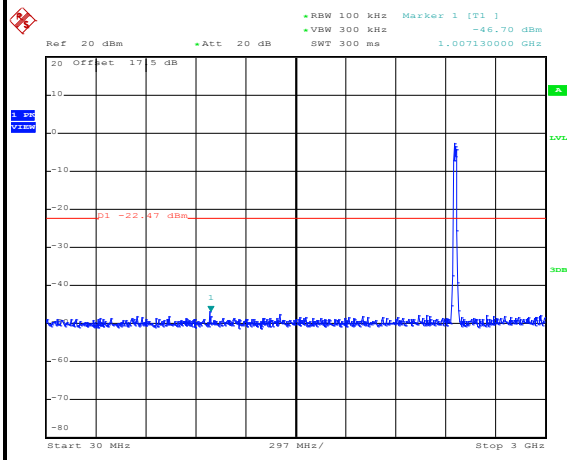
Date: 29.AUG.2014 02:21:51

High Channel Plot



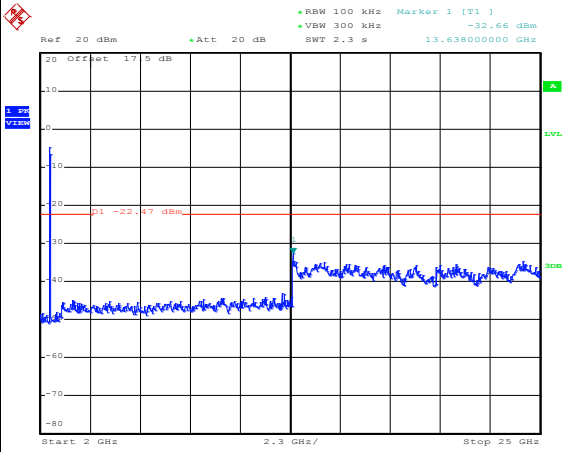
Date: 29.AUG.2014 02:22:05

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2014 21:04:50

Spurious Emission 2GHz~25GHz

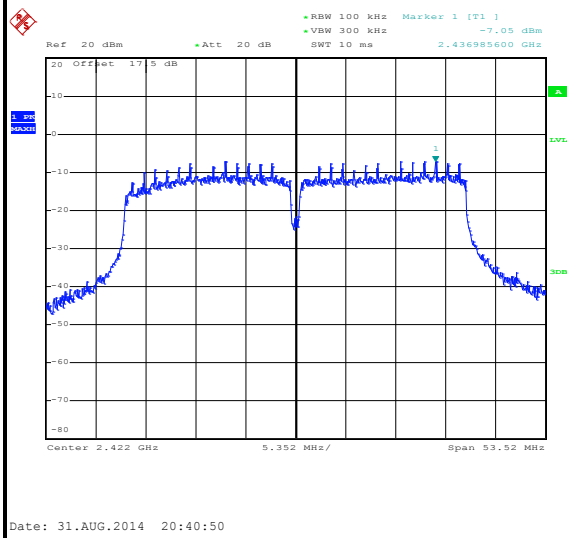


Date: 29.AUG.2014 02:22:42

Number of TX :	1	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	03	**Test Engineer :**	Fly Liang

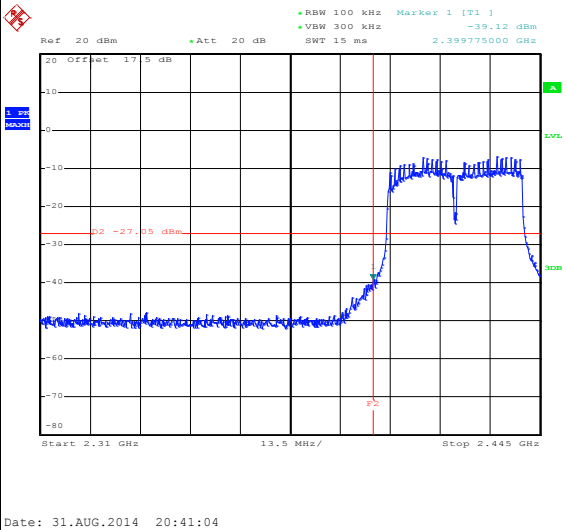
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



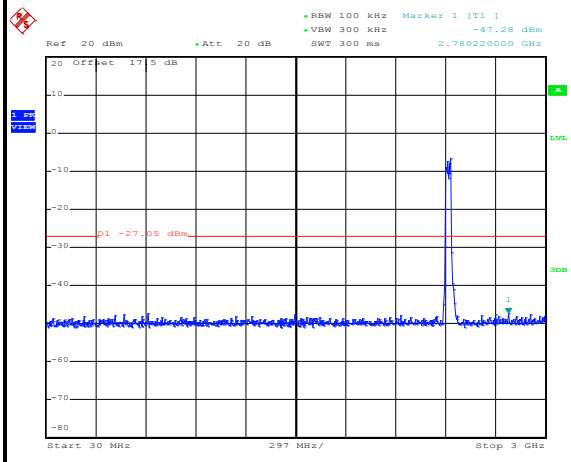
Date: 31.AUG.2014 20:40:50

Low Channel Plot



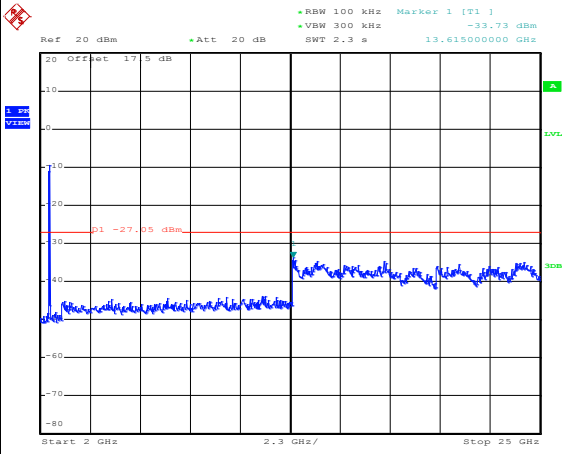
Date: 31.AUG.2014 20:41:04

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2014 21:01:10

Spurious Emission 2GHz~25GHz

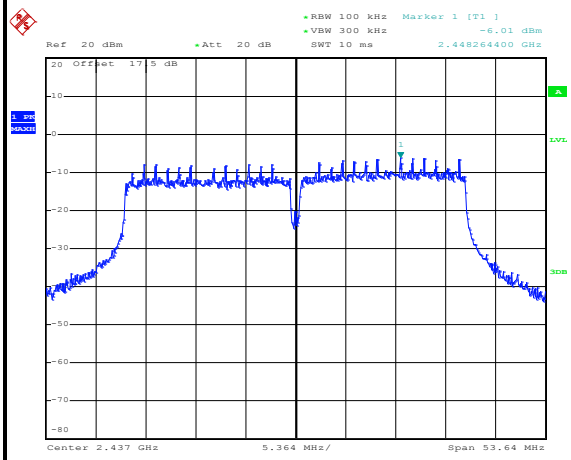


Date: 31.AUG.2014 20:41:42

Number of TX :	1	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

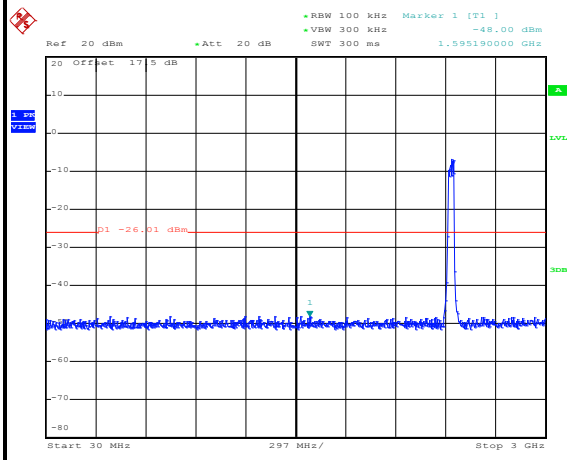
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



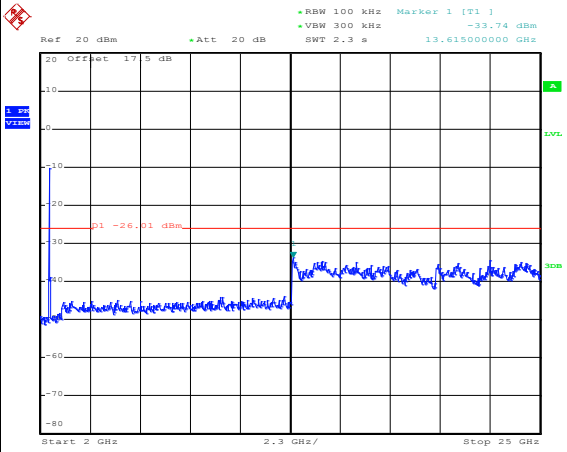
Date: 31.AUG.2014 20:46:55

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2014 20:47:15

Spurious Emission 2GHz~25GHz

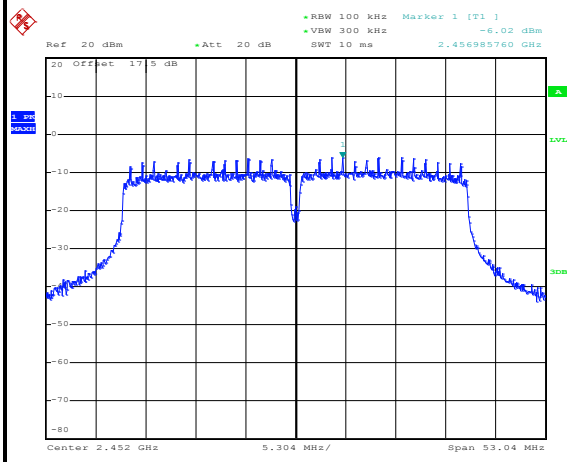


Date: 31.AUG.2014 20:47:34

Number of TX :	1	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	09	**Test Engineer :**	Fly Liang

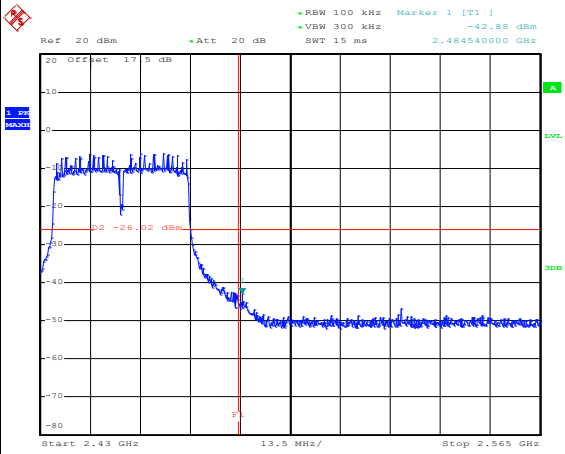
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



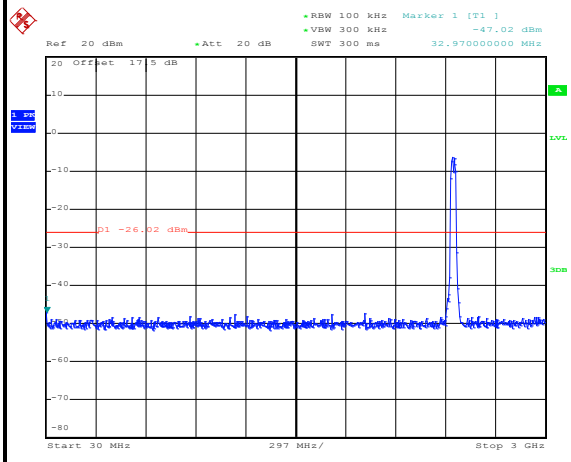
Date: 31.AUG.2014 20:51:30

High Channel Plot



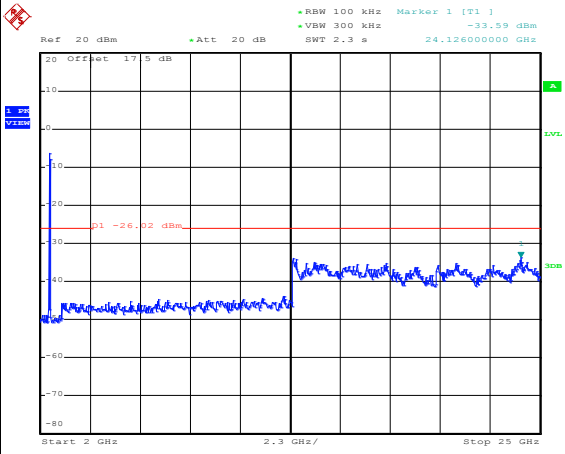
Date: 31.AUG.2014 20:51:44

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2014 20:59:13

Spurious Emission 2GHz~25GHz



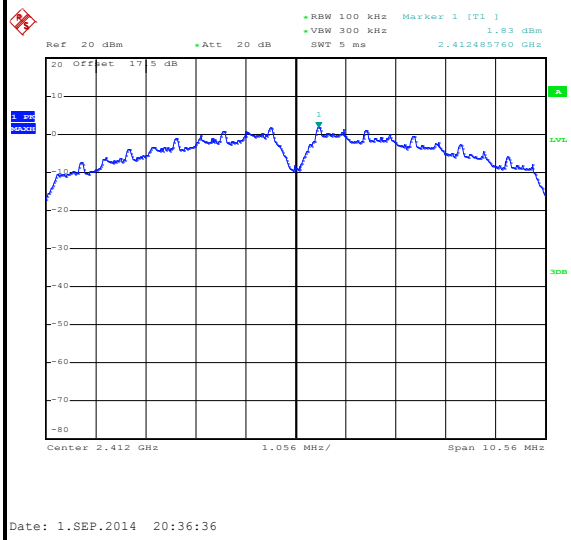
Date: 31.AUG.2014 20:55:26

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

Number of TX :	1	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

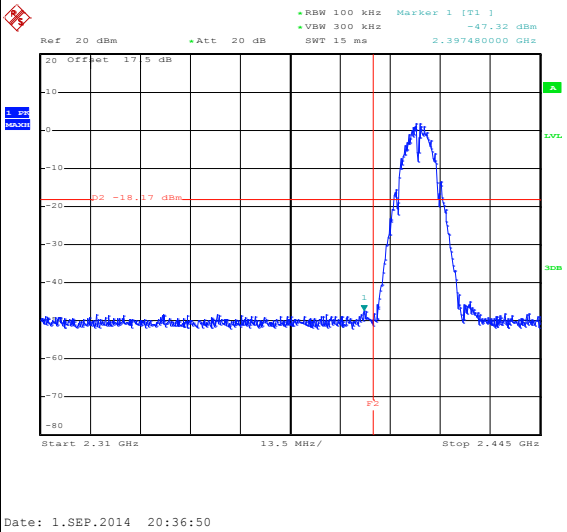
WLAN 802.11b Channel 01

100kHz PSD reference Level



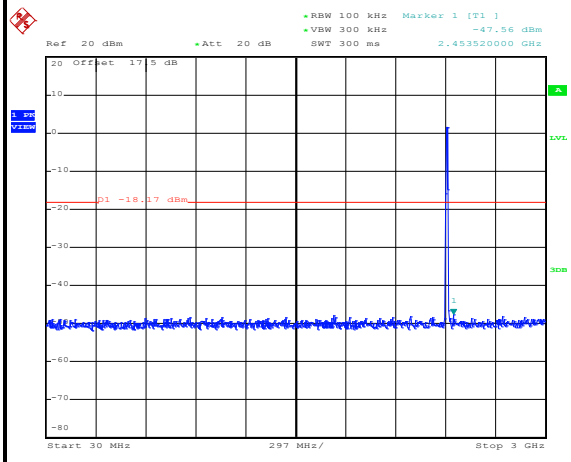
Date: 1.SEP.2014 20:36:36

Low Channel Plot



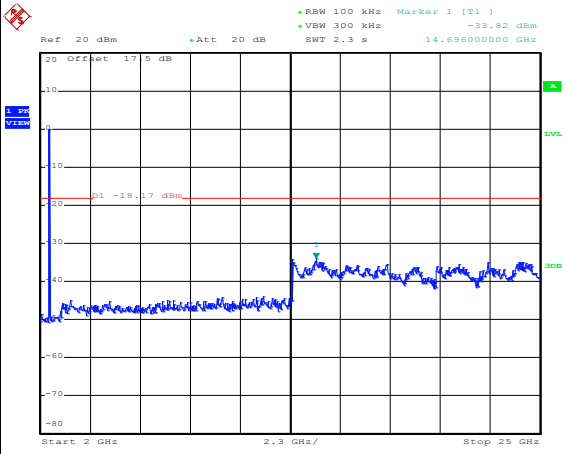
Date: 1.SEP.2014 20:36:50

Spurious Emission 30MHz~3GHz



Date: 1.SEP.2014 20:37:09

Spurious Emission 2GHz~25GHz

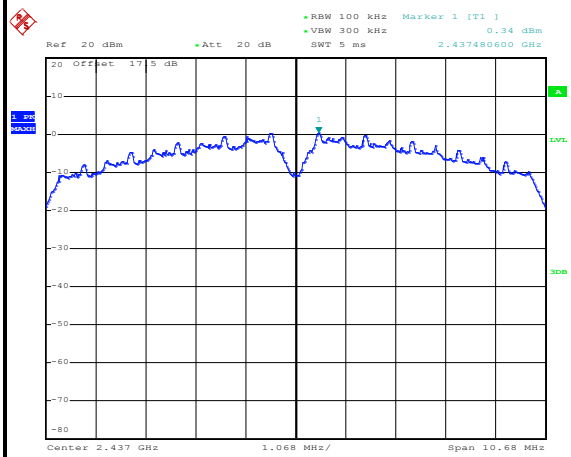


Date: 1.SEP.2014 20:37:28

Number of TX :	1	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

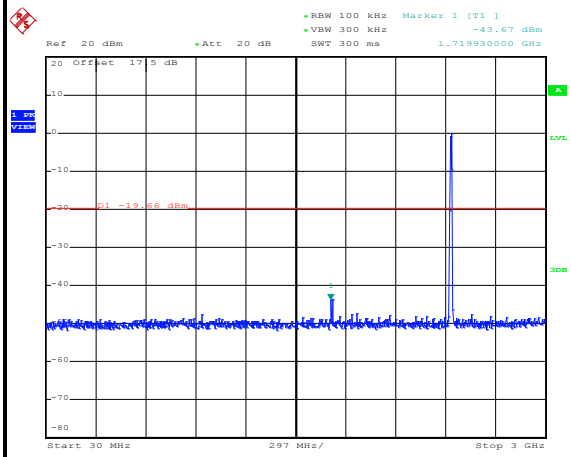
WLAN 802.11b Channel 06

100kHz PSD reference Level



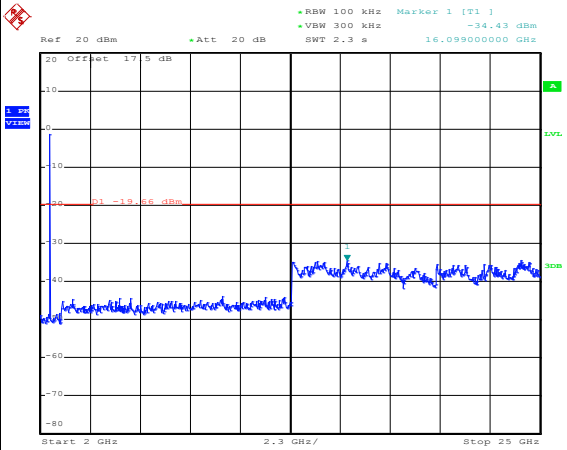
Date: 1.SEP.2014 20:44:26

Spurious Emission 30MHz~3GHz



Date: 1.SEP.2014 20:44:46

Spurious Emission 2GHz~25GHz

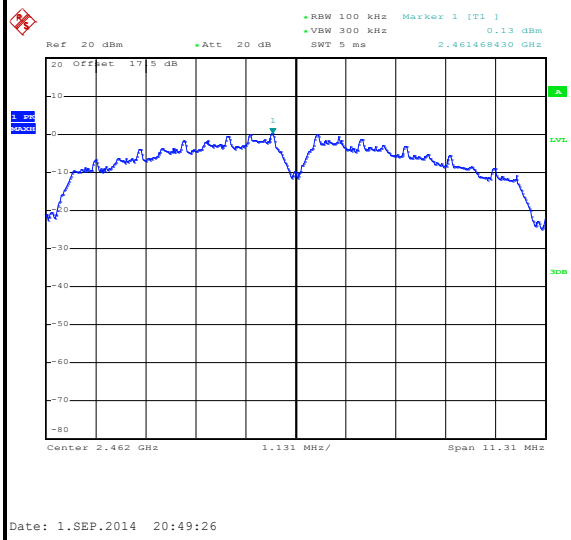


Date: 1.SEP.2014 20:45:04

Number of TX :	1	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

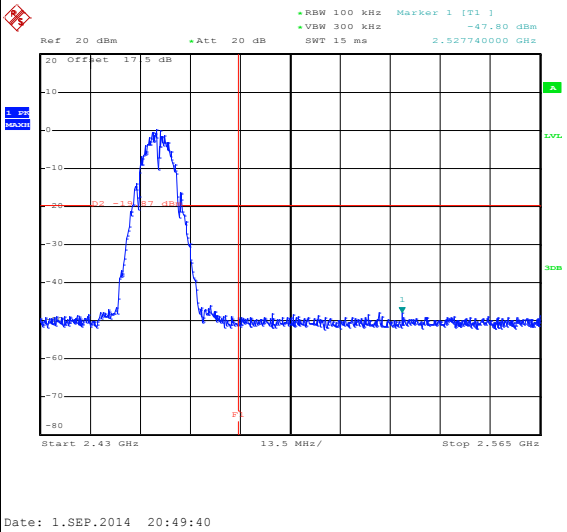
WLAN 802.11b Channel 11

100kHz PSD reference Level



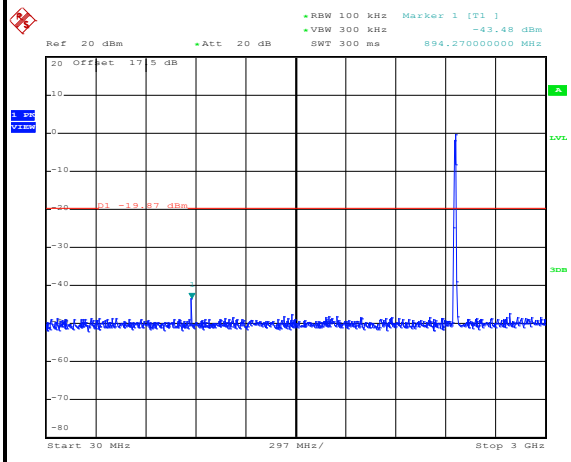
Date: 1.SEP.2014 20:49:26

High Channel Plot



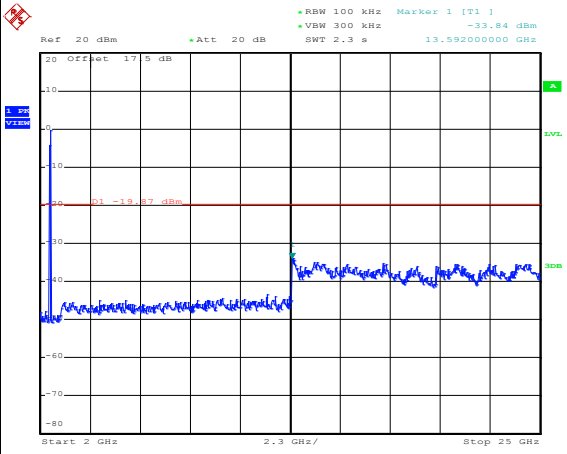
Date: 1.SEP.2014 20:49:40

Spurious Emission 30MHz~3GHz



Date: 1.SEP.2014 20:49:59

Spurious Emission 2GHz~25GHz

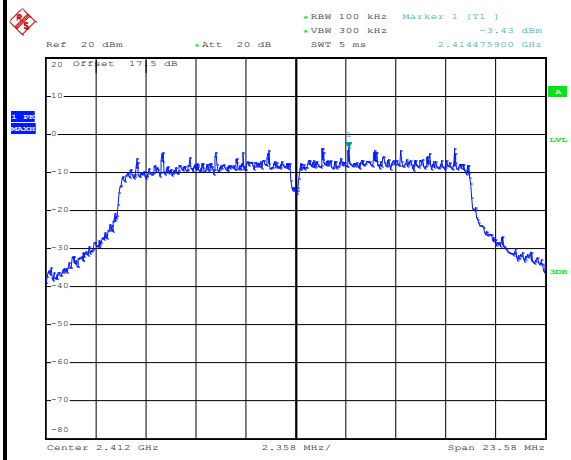


Date: 1.SEP.2014 20:50:18

Number of TX :	1	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

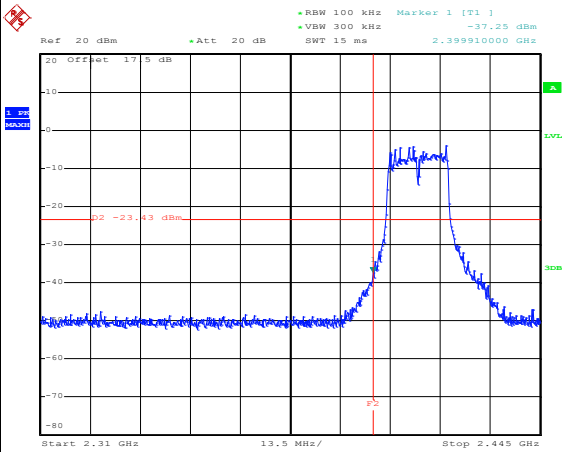
WLAN 802.11g Channel 01

100kHz PSD reference Level



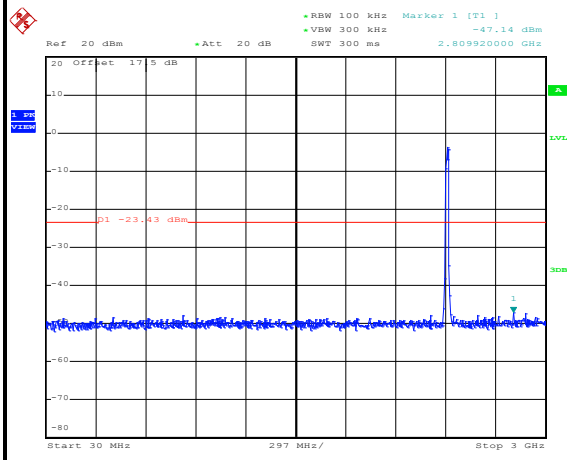
Date: 31.AUG.2014 21:23:17

Low Channel Plot



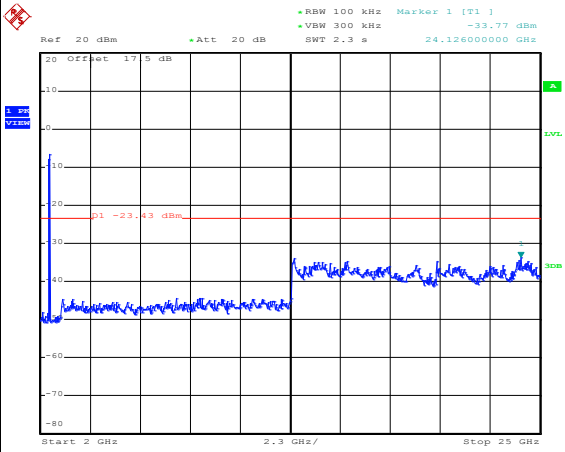
Date: 31.AUG.2014 21:23:31

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2014 21:23:51

Spurious Emission 2GHz~25GHz

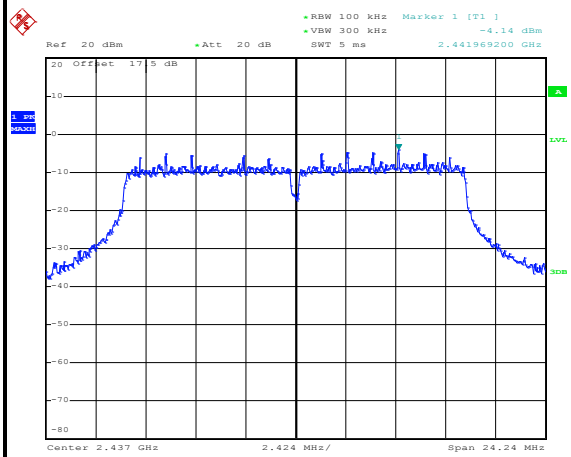


Date: 31.AUG.2014 21:24:09

Number of TX :	1	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

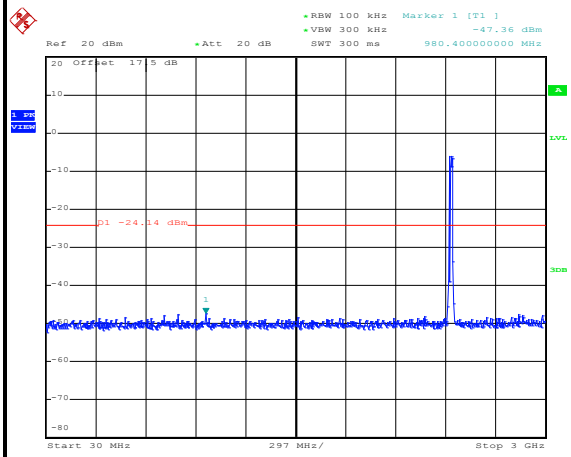
WLAN 802.11g Channel 06

100kHz PSD reference Level



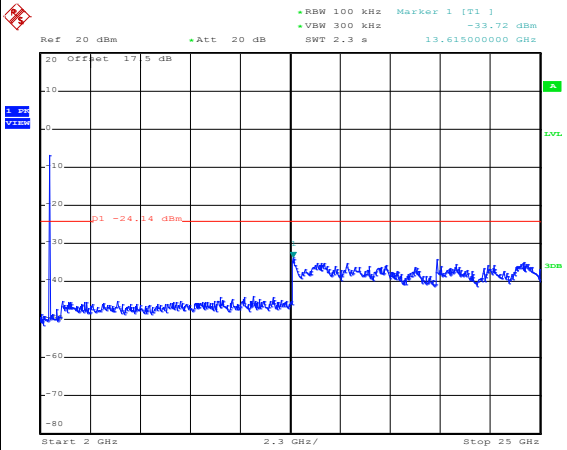
Date: 31.AUG.2014 21:28:42

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2014 21:29:01

Spurious Emission 2GHz~25GHz

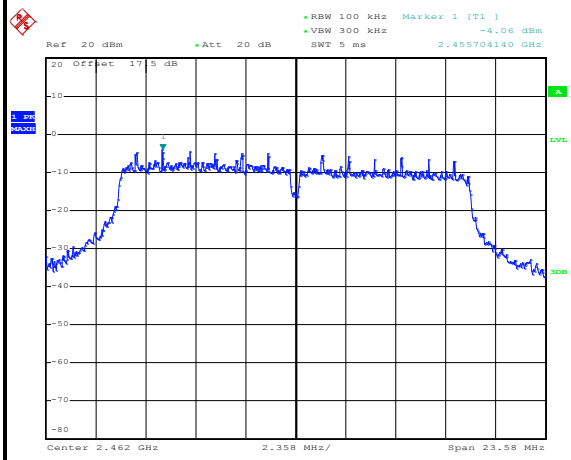


Date: 31.AUG.2014 21:29:20

Number of TX :	1	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

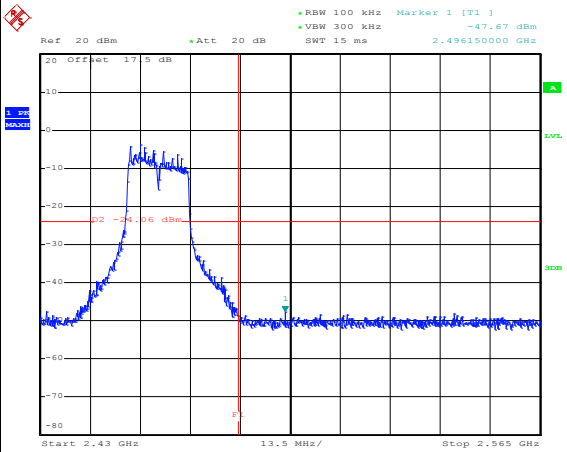
WLAN 802.11g Channel 11

100kHz PSD reference Level



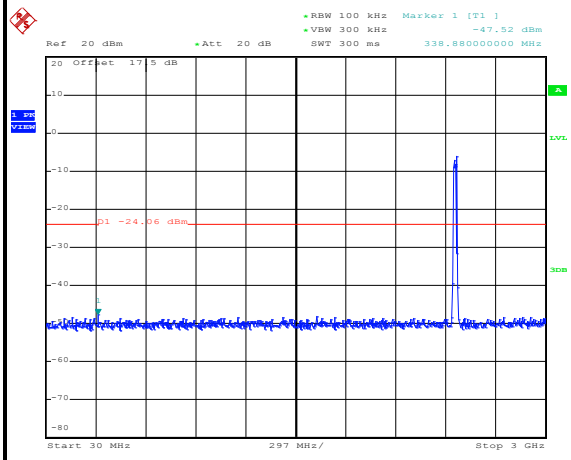
Date: 31.AUG.2014 21:33:08

High Channel Plot



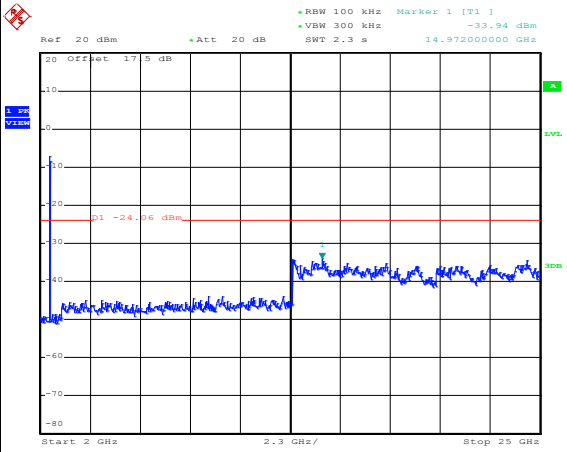
Date: 31.AUG.2014 21:33:22

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2014 21:33:41

Spurious Emission 2GHz~25GHz

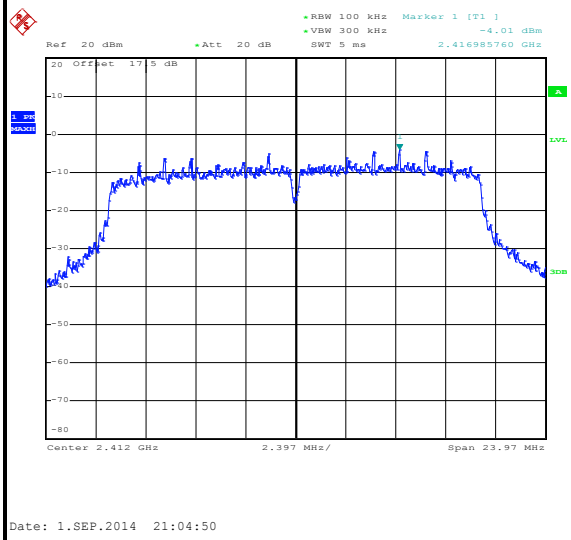


Date: 31.AUG.2014 21:34:00

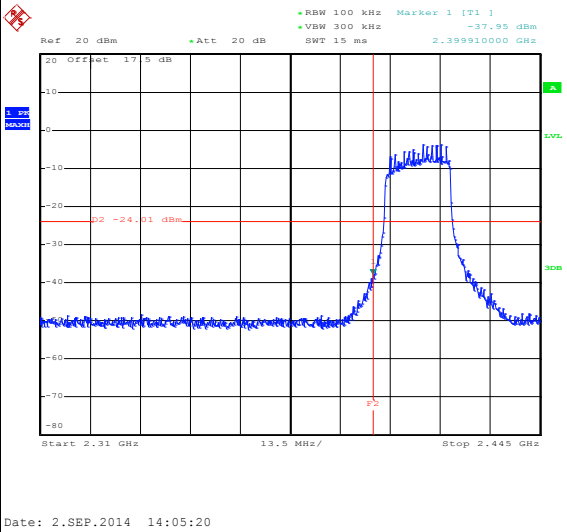
Number of TX :	1	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

WLAN 802.11n HT20 Channel 01

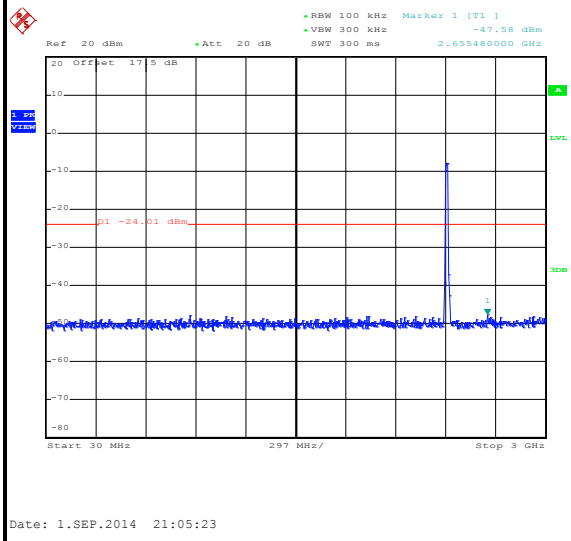
100kHz PSD reference Level



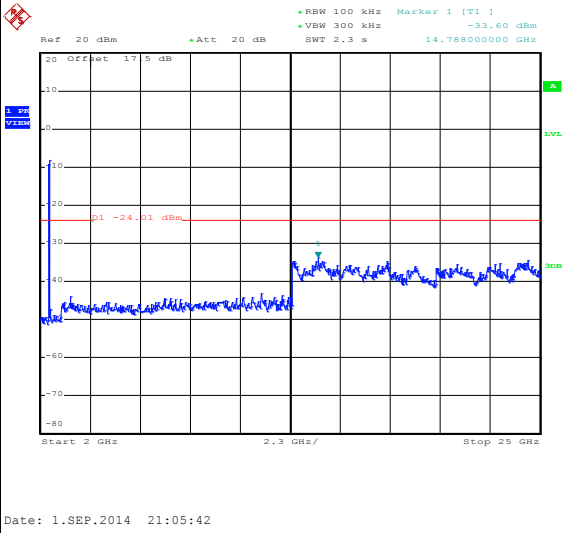
Low Channel Plot



Spurious Emission 30MHz~3GHz



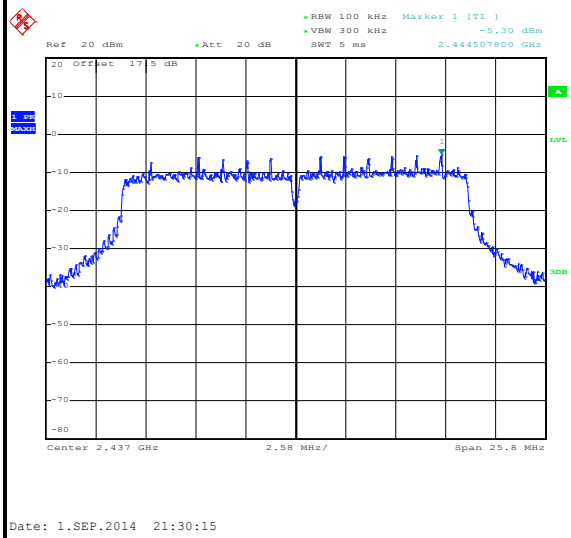
Spurious Emission 2GHz~25GHz



Number of TX :	1	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

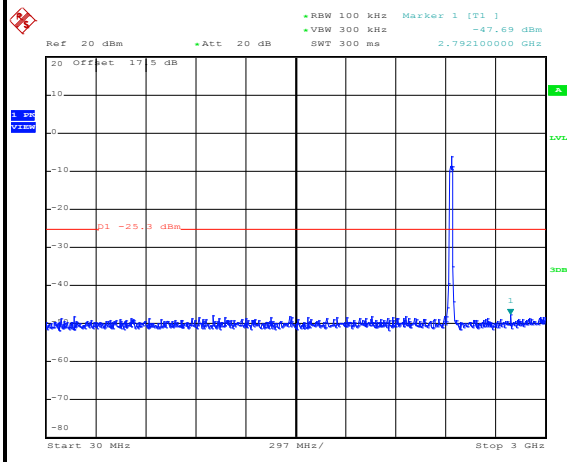
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



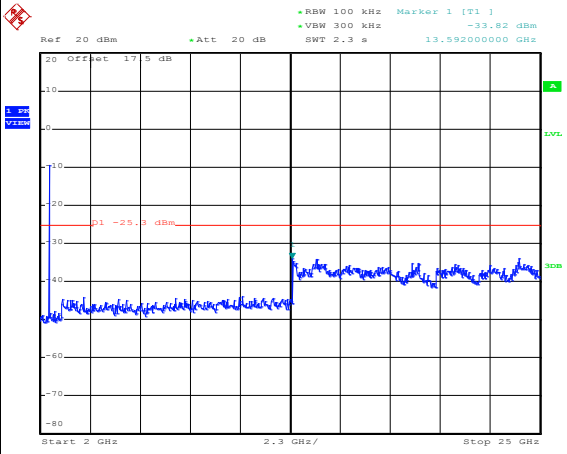
Date: 1.SEP.2014 21:30:15

Spurious Emission 30MHz~3GHz



Date: 1.SEP.2014 21:30:35

Spurious Emission 2GHz~25GHz

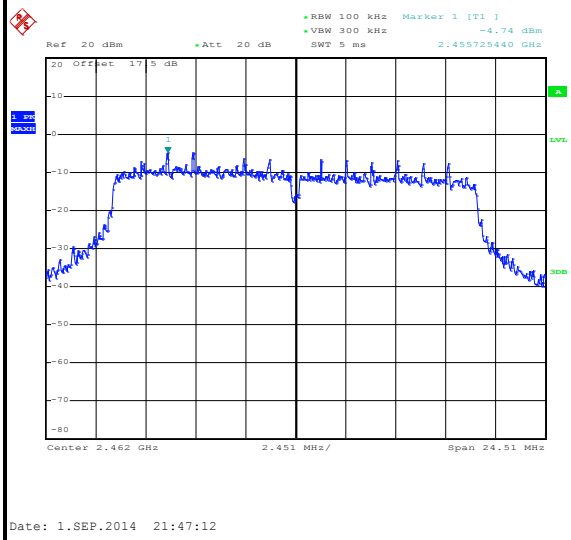


Date: 1.SEP.2014 21:30:54

Number of TX :	1	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

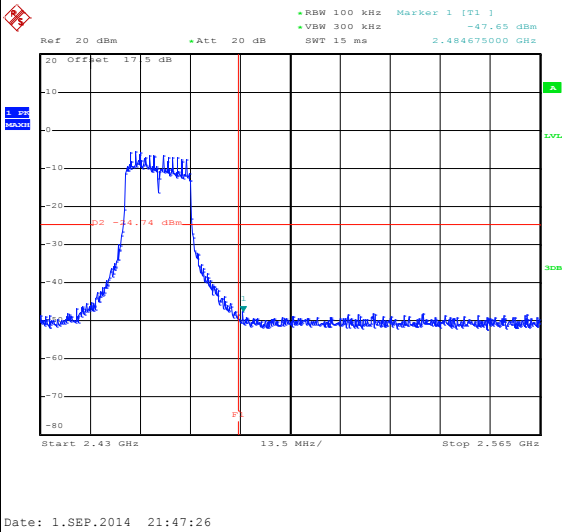
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



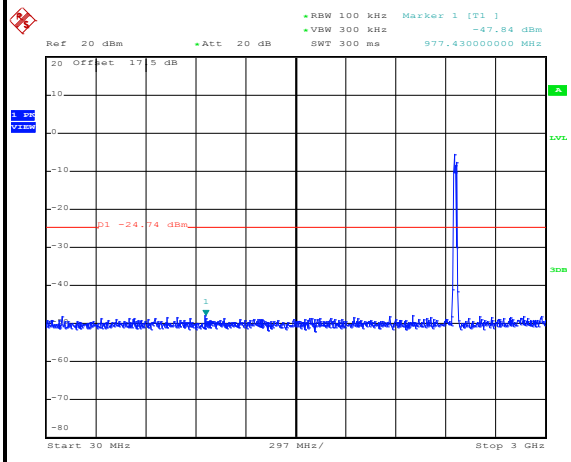
Date: 1.SEP.2014 21:47:12

High Channel Plot



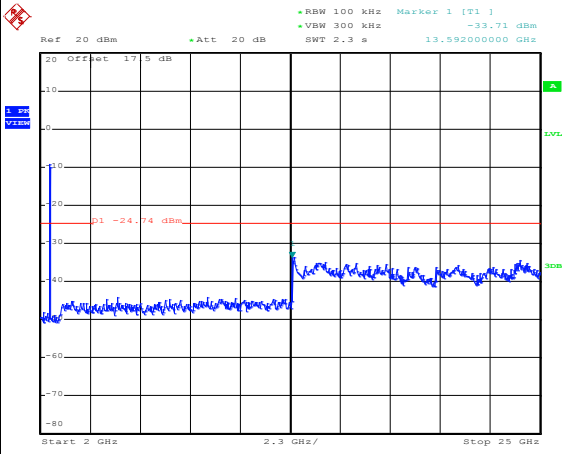
Date: 1.SEP.2014 21:47:26

Spurious Emission 30MHz~3GHz



Date: 1.SEP.2014 21:47:46

Spurious Emission 2GHz~25GHz

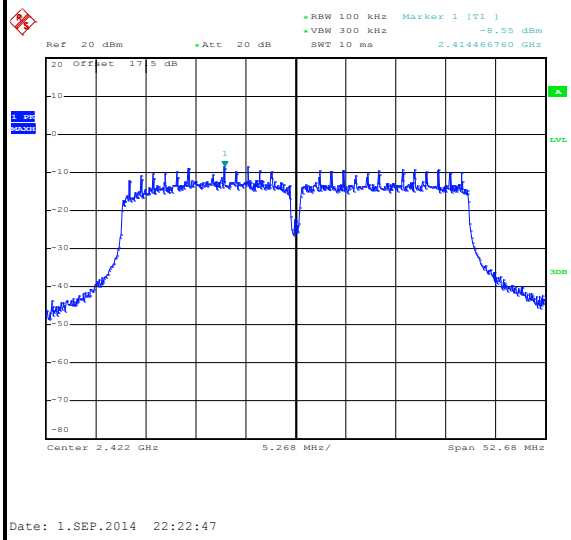


Date: 1.SEP.2014 21:48:04

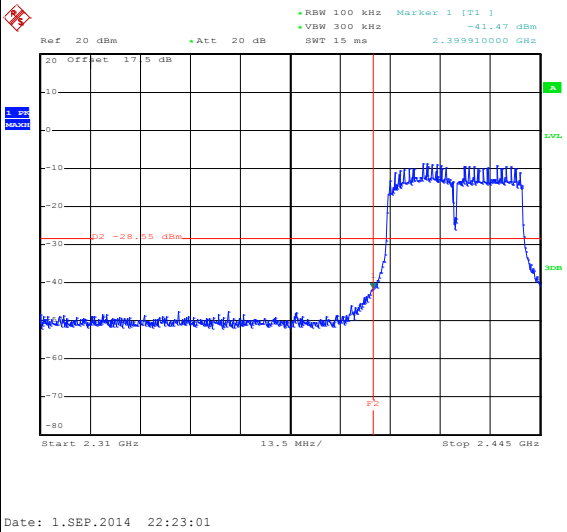
Number of TX :	1	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	03	**Test Engineer :**	Fly Liang

WLAN 802.11n HT40 Channel 03

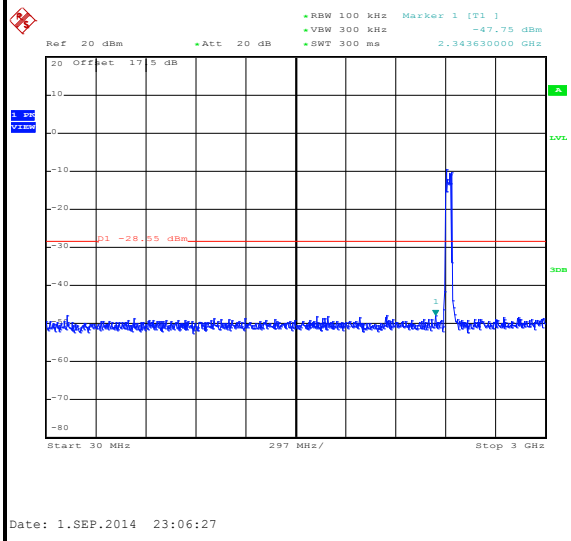
100kHz PSD reference Level



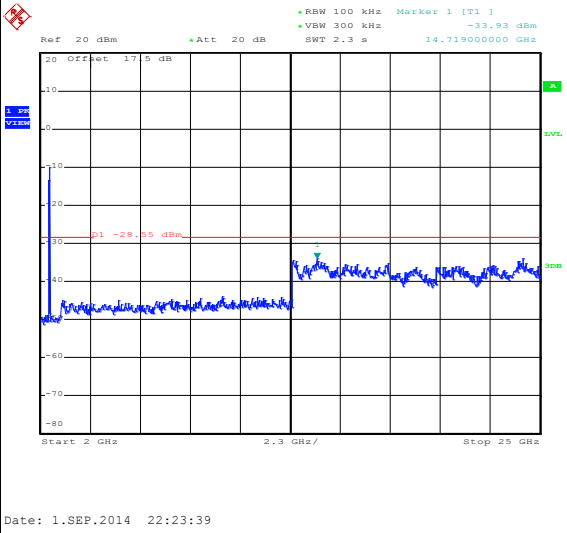
Low Channel Plot



Spurious Emission 30MHz~3GHz



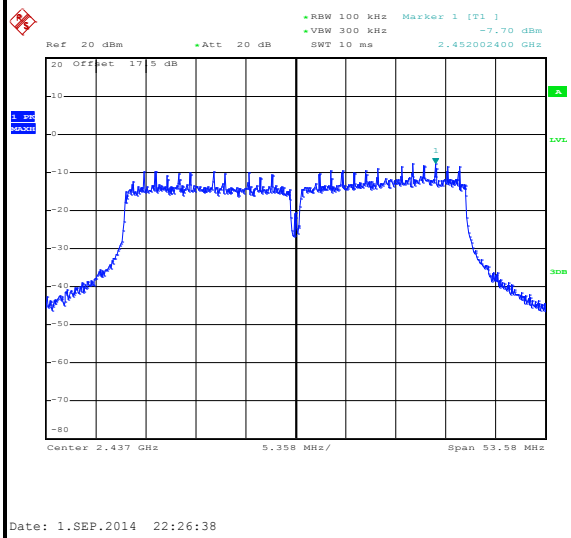
Spurious Emission 2GHz~25GHz



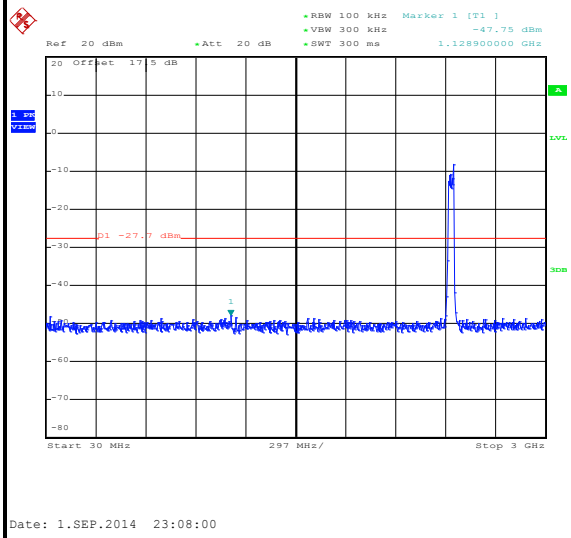
Number of TX :	1	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11n HT40 Channel 06

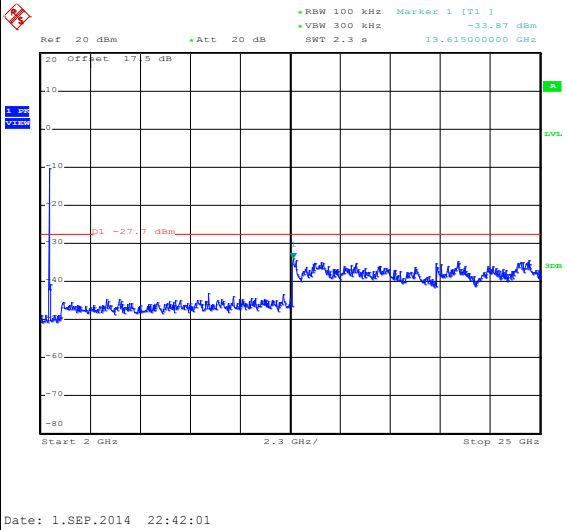
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



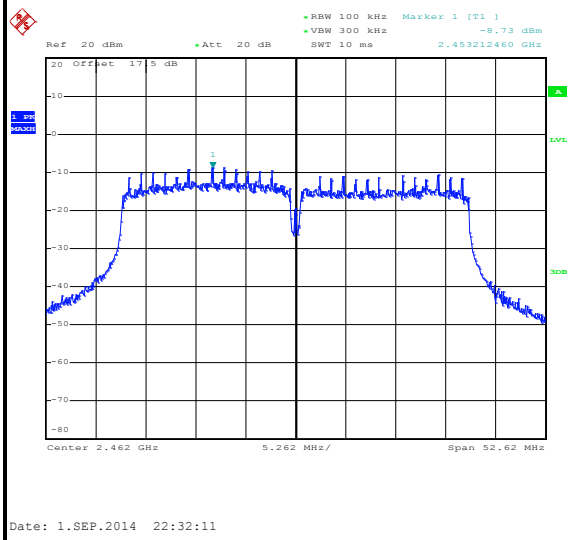
Spurious Emission 2GHz~25GHz



Number of TX :	1	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	09	**Test Engineer :**	Fly Liang

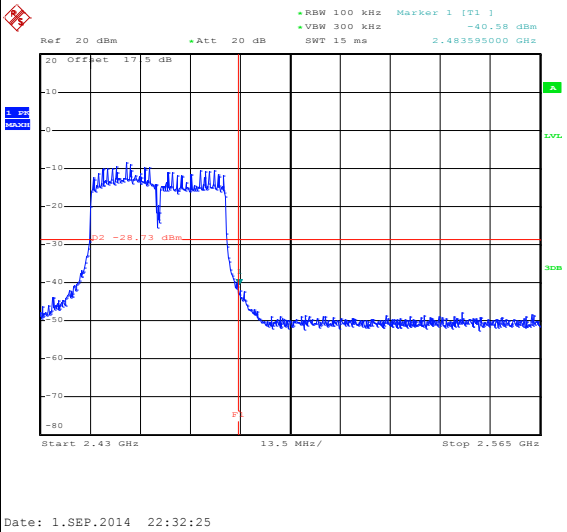
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



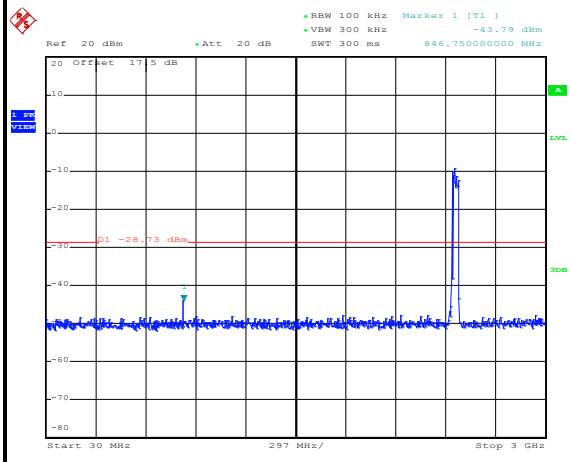
Date: 1.SEP.2014 22:32:11

High Channel Plot



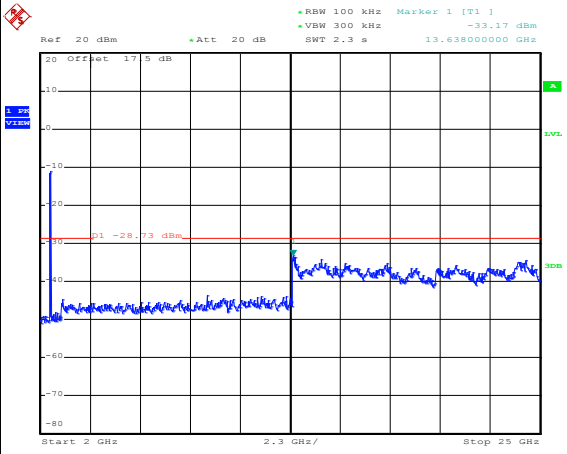
Date: 1.SEP.2014 22:32:25

Spurious Emission 30MHz~3GHz



Date: 1.SEP.2014 22:32:44

Spurious Emission 2GHz~25GHz



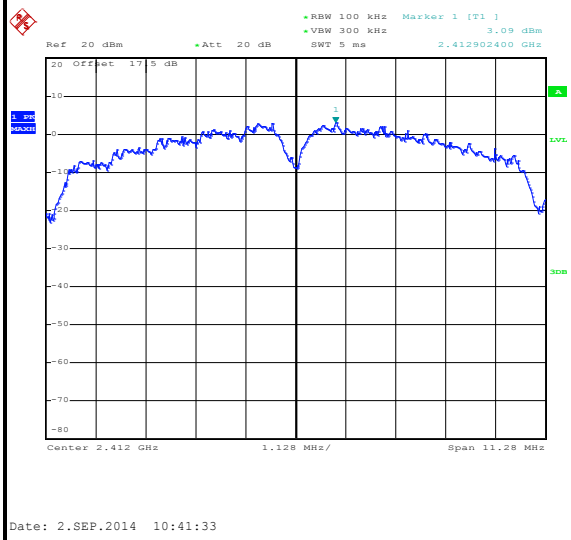
Date: 1.SEP.2014 22:33:03

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

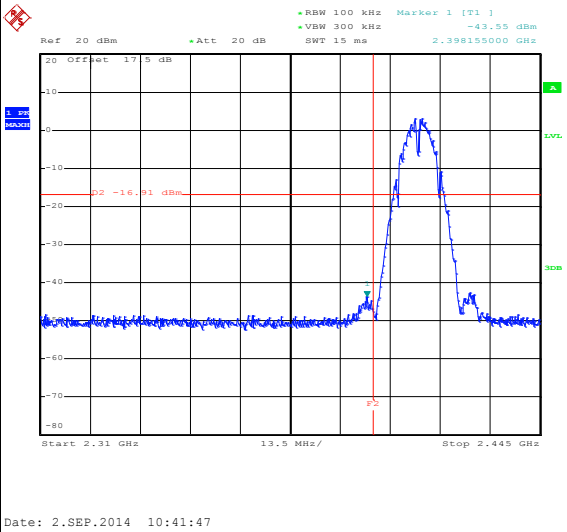
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

WLAN 802.11b Channel 01

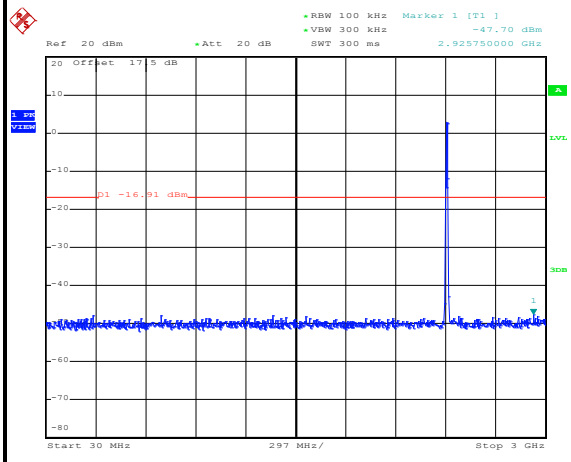
100kHz PSD reference Level



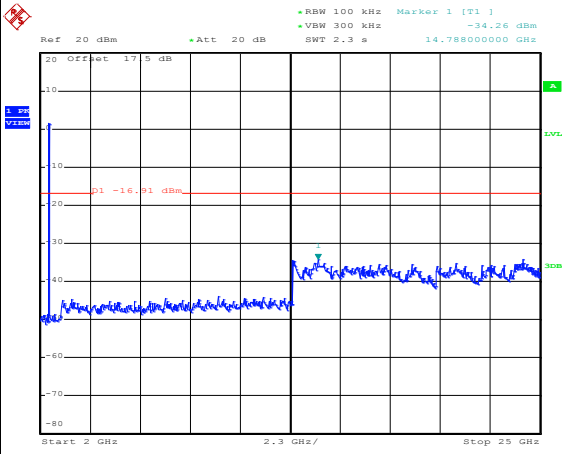
Low Channel Plot



Spurious Emission 30MHz~3GHz



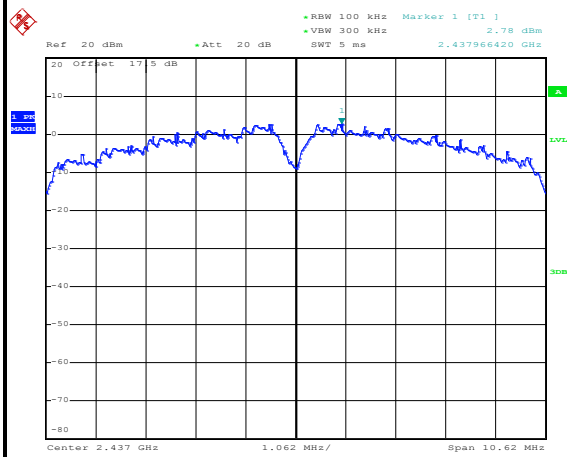
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

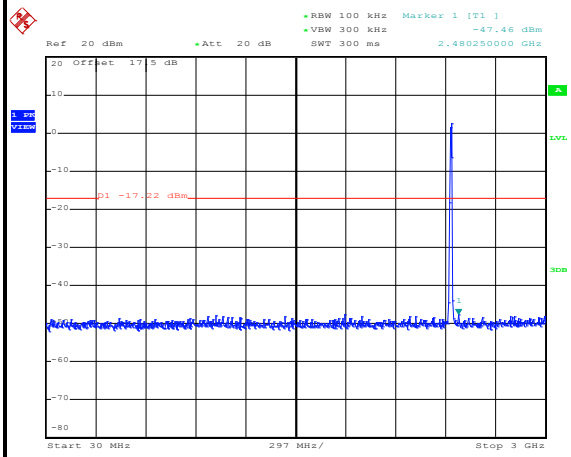
WLAN 802.11b Channel 06

100kHz PSD reference Level



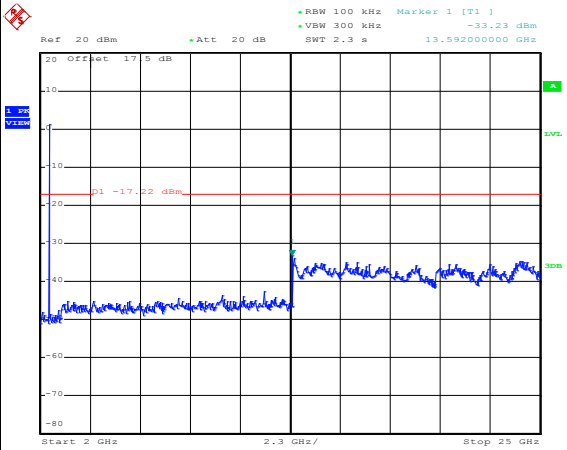
Date: 2.SEP.2014 10:46:55

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 10:47:15

Spurious Emission 2GHz~25GHz

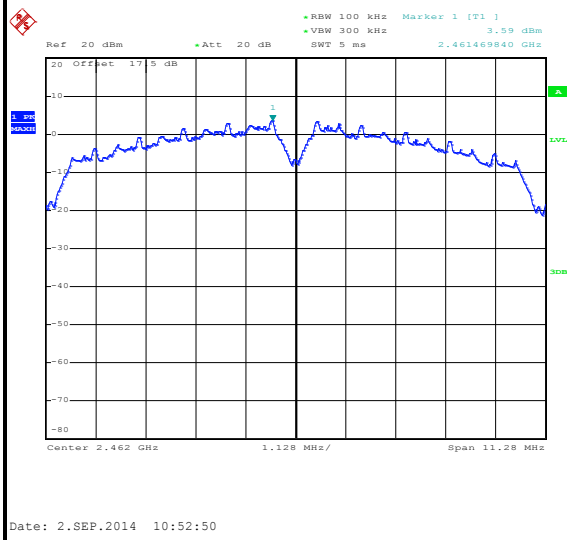


Date: 2.SEP.2014 10:47:34

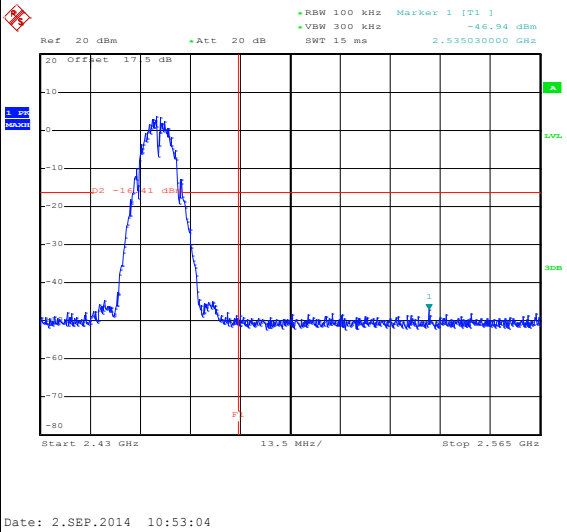
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

WLAN 802.11b Channel 11

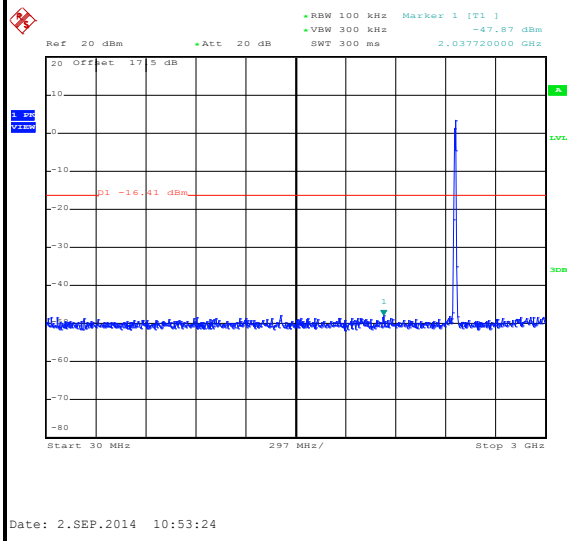
100kHz PSD reference Level



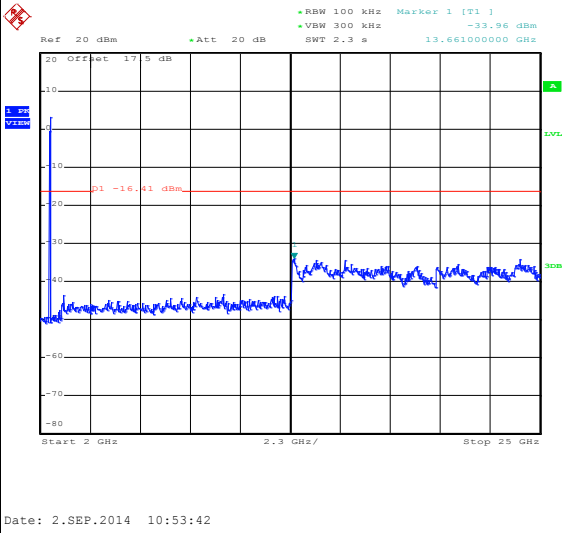
High Channel Plot



Spurious Emission 30MHz~3GHz



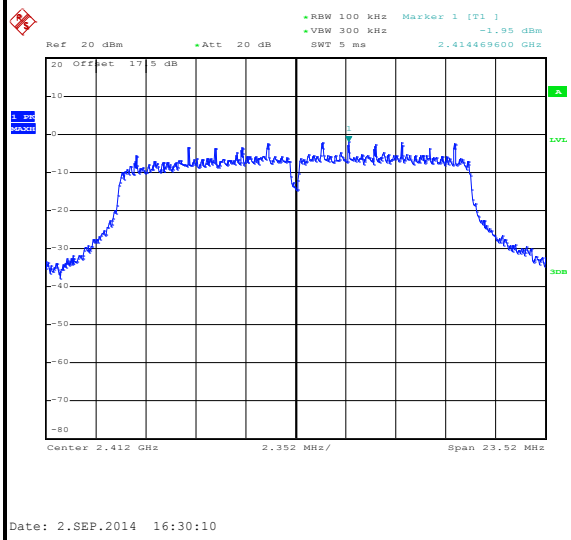
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

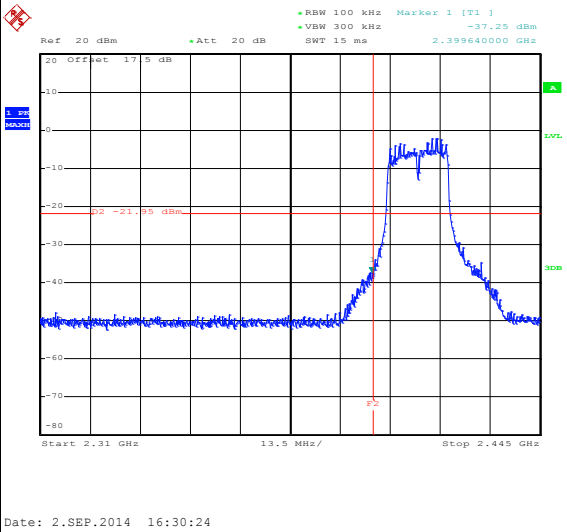
WLAN 802.11g Channel 01

100kHz PSD reference Level



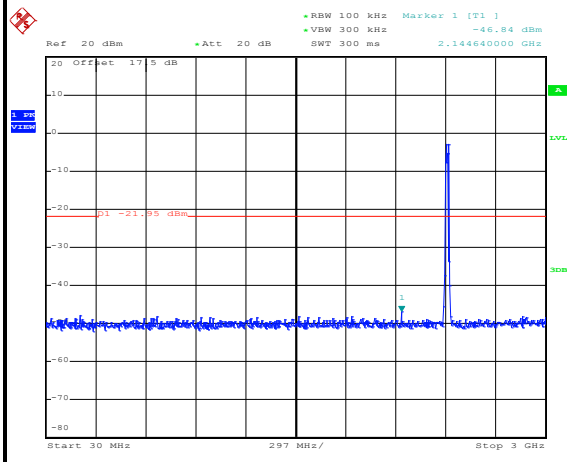
Date: 2.SEP.2014 16:30:10

Low Channel Plot



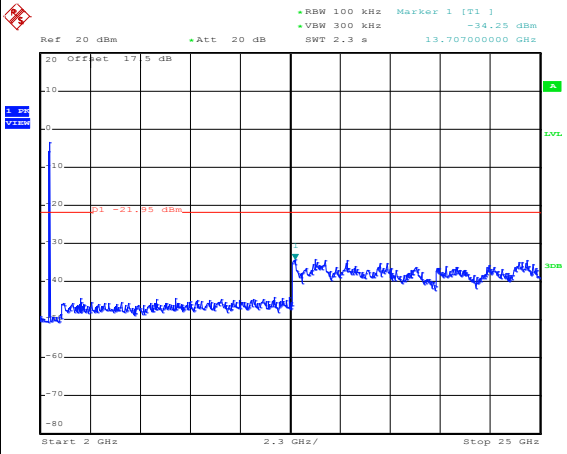
Date: 2.SEP.2014 16:30:24

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 16:30:44

Spurious Emission 2GHz~25GHz

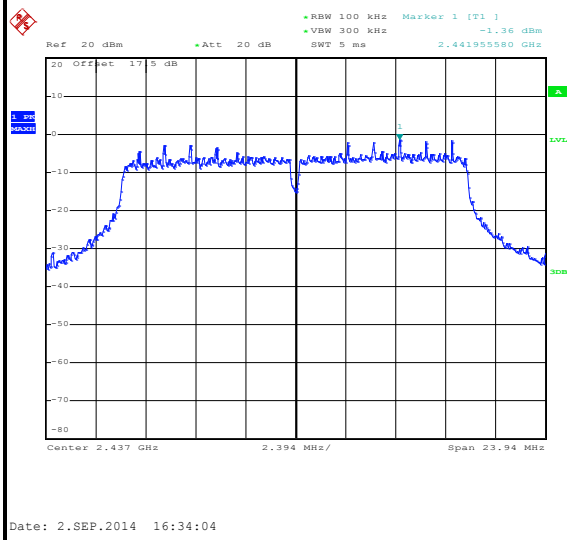


Date: 2.SEP.2014 16:31:02

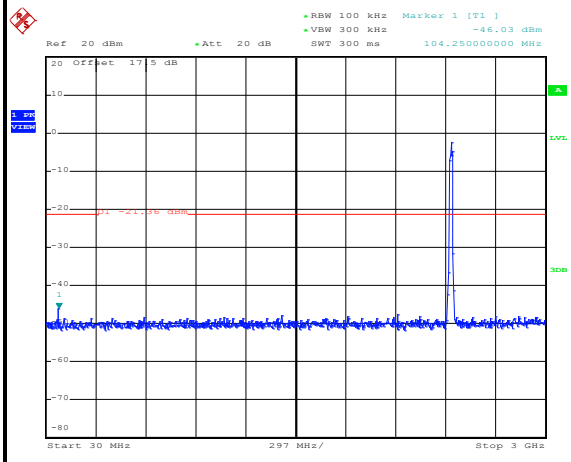
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11g Channel 06

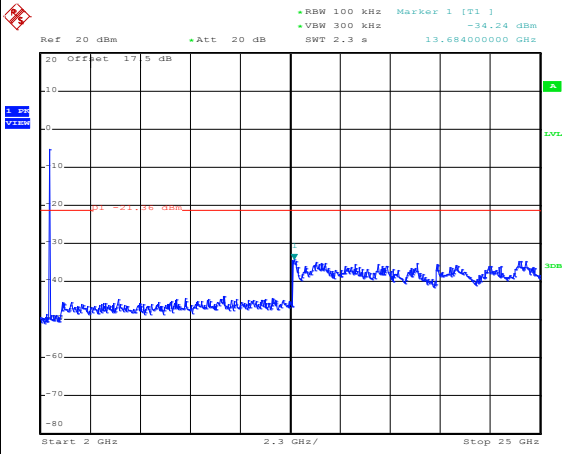
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



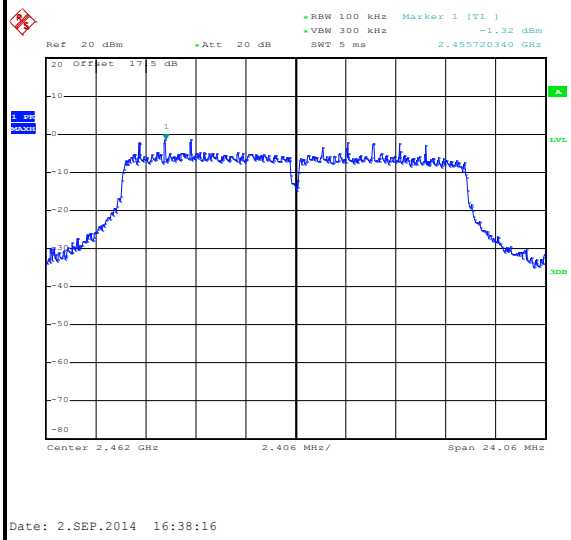
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

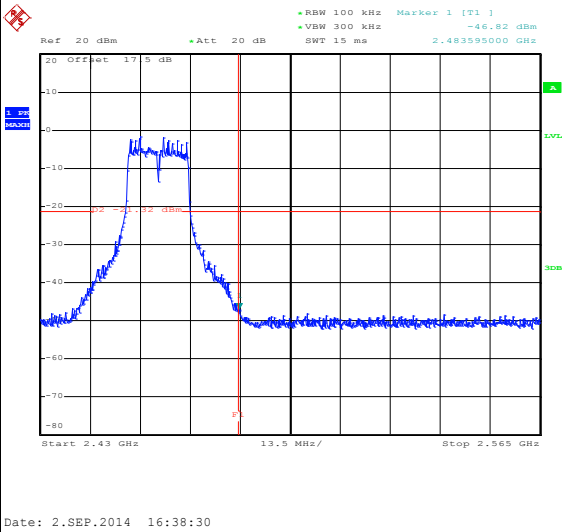
WLAN 802.11g Channel 11

100kHz PSD reference Level



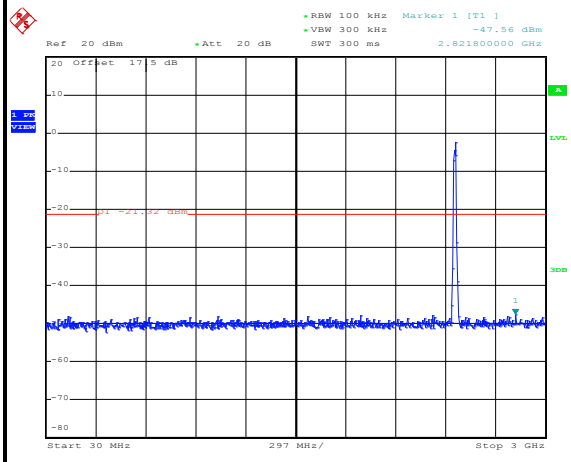
Date: 2.SEP.2014 16:38:16

High Channel Plot



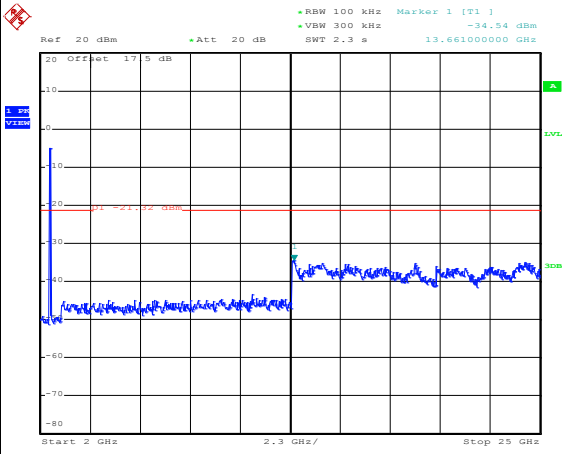
Date: 2.SEP.2014 16:38:30

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 16:42:46

Spurious Emission 2GHz~25GHz

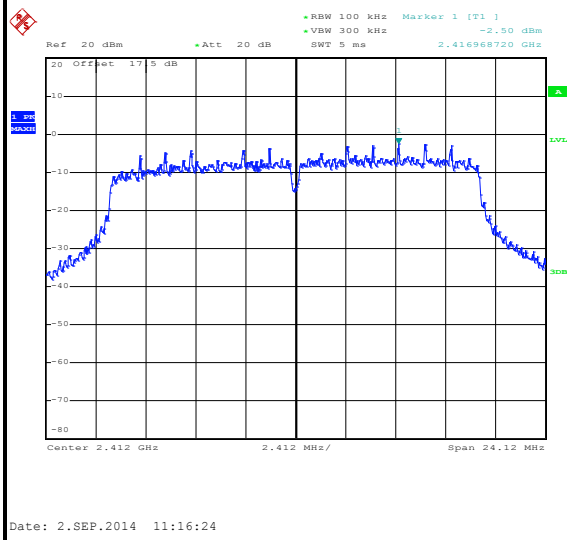


Date: 2.SEP.2014 16:43:05

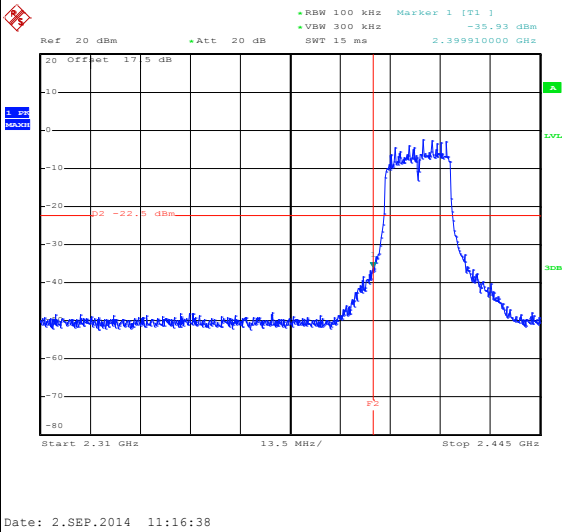
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

WLAN 802.11n HT20 Channel 01

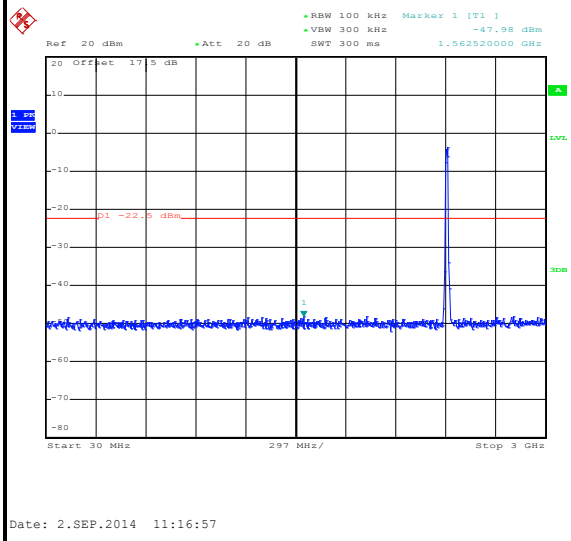
100kHz PSD reference Level



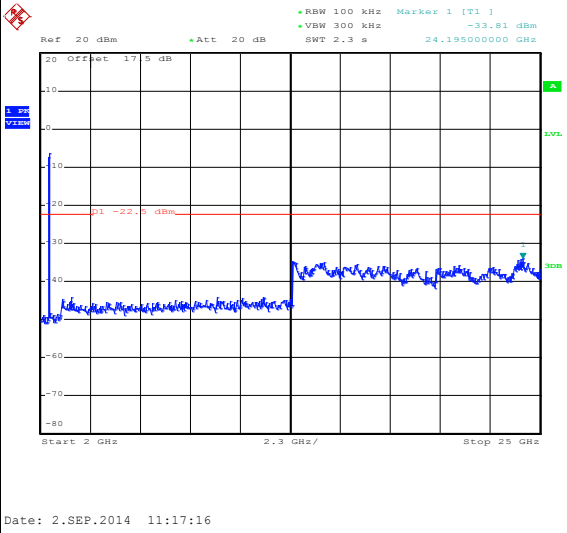
Low Channel Plot



Spurious Emission 30MHz~3GHz



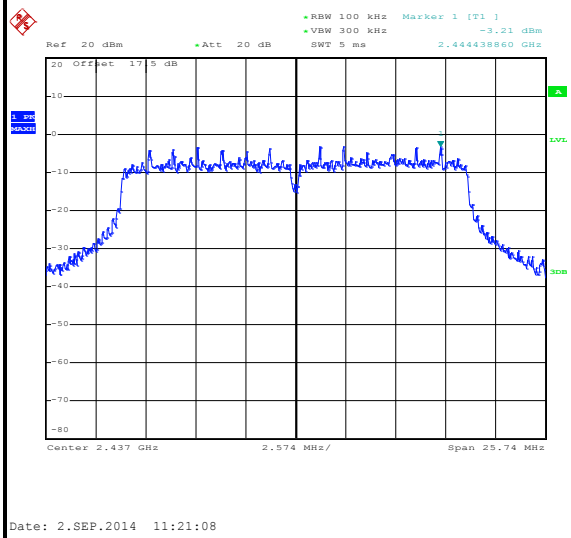
Spurious Emission 2GHz~25GHz



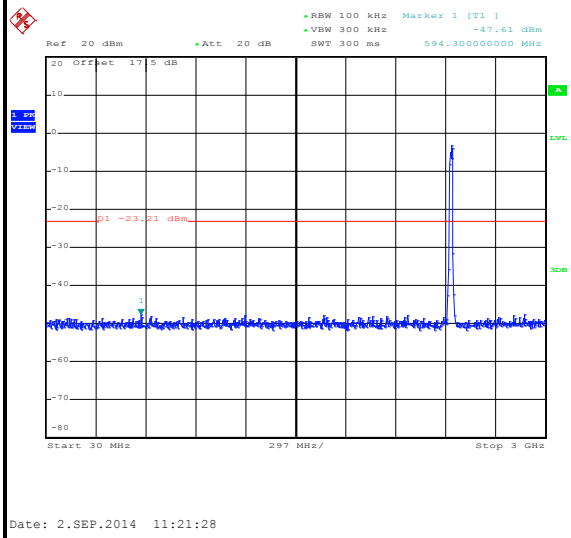
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11n HT20 Channel 06

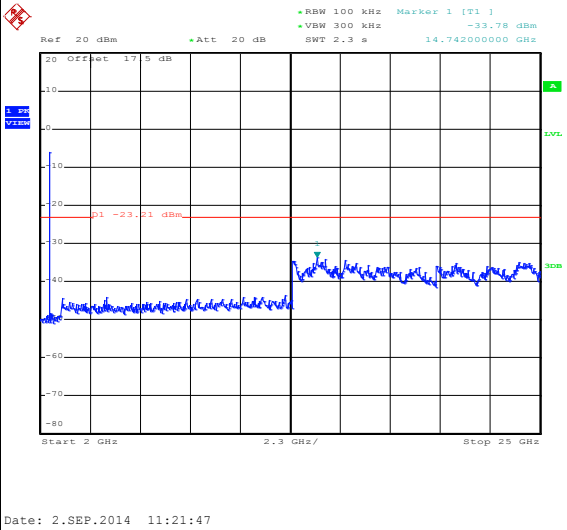
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



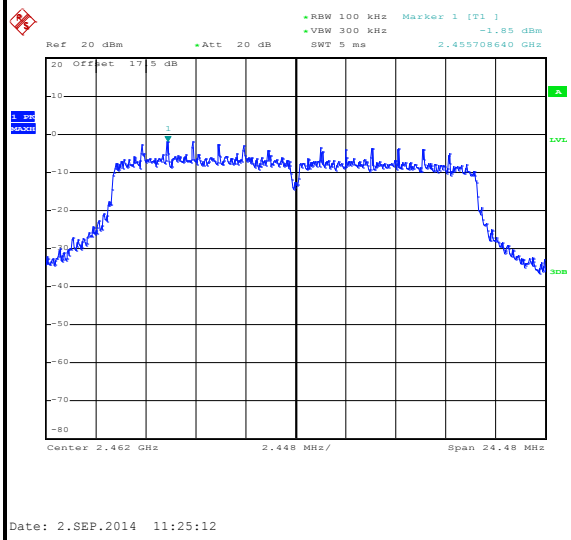
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

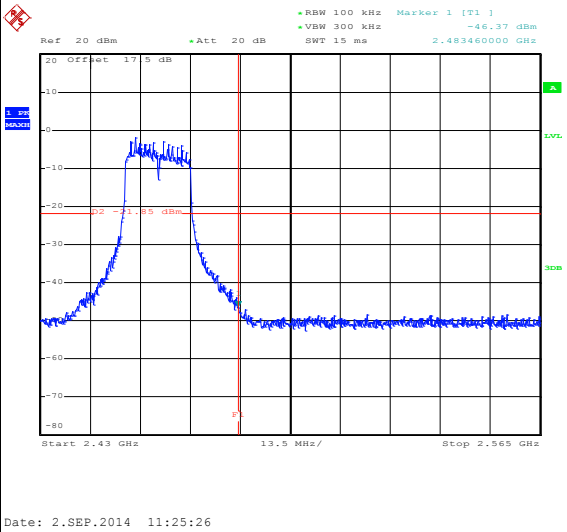
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



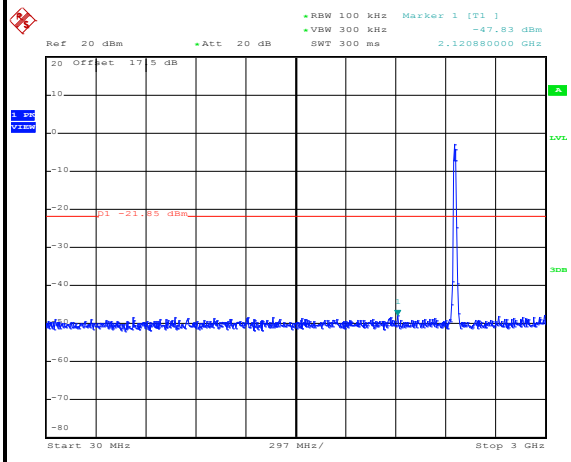
Date: 2.SEP.2014 11:25:12

High Channel Plot



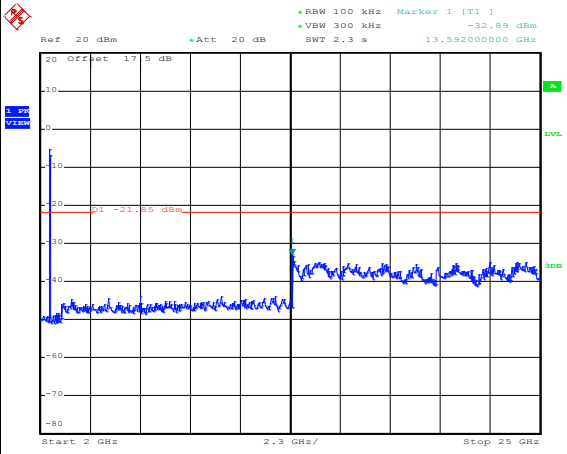
Date: 2.SEP.2014 11:25:26

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 11:25:45

Spurious Emission 2GHz~25GHz

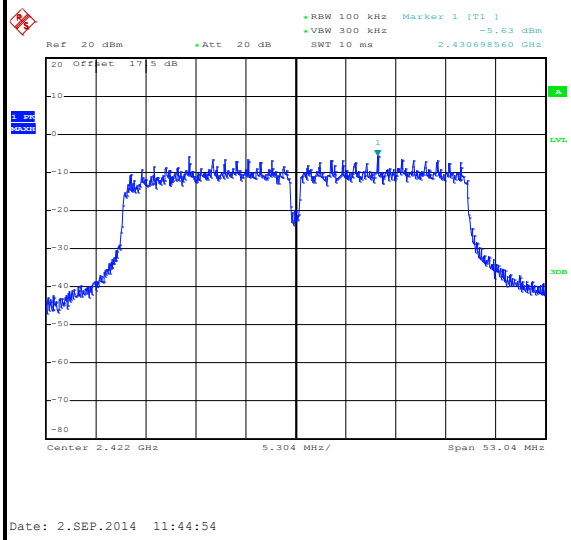


Date: 2.SEP.2014 11:26:04

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	03	**Test Engineer :**	Fly Liang

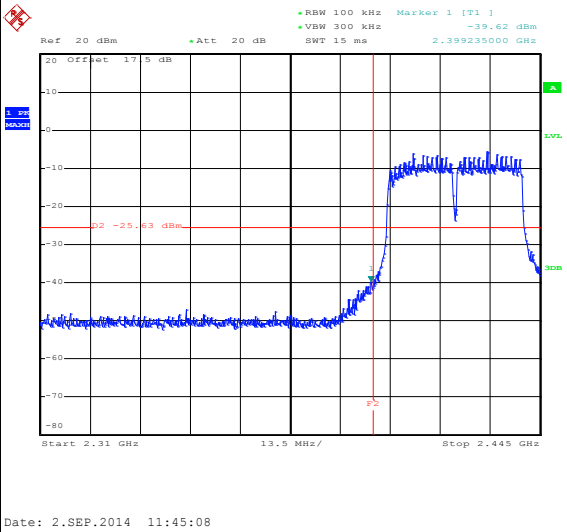
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



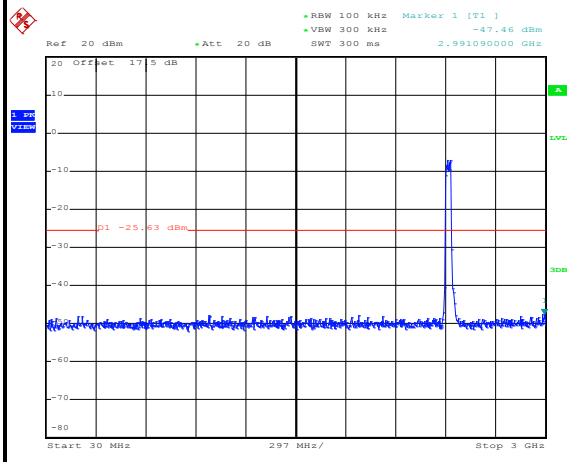
Date: 2.SEP.2014 11:44:54

Low Channel Plot



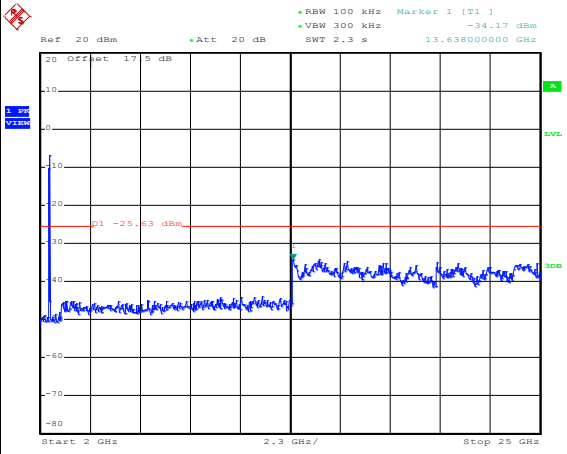
Date: 2.SEP.2014 11:45:08

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 11:45:27

Spurious Emission 2GHz~25GHz

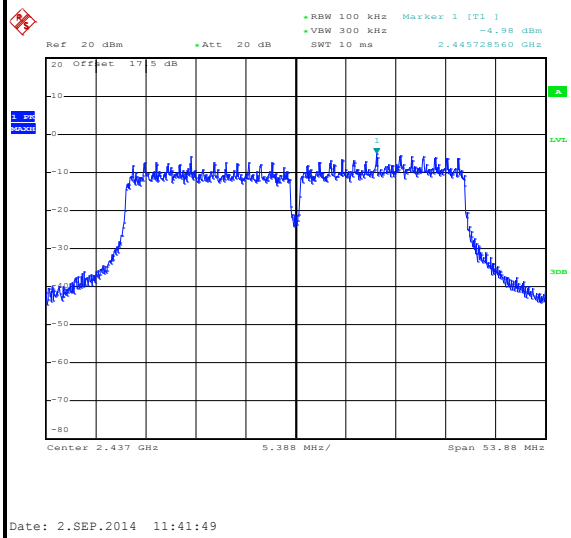


Date: 2.SEP.2014 11:45:46

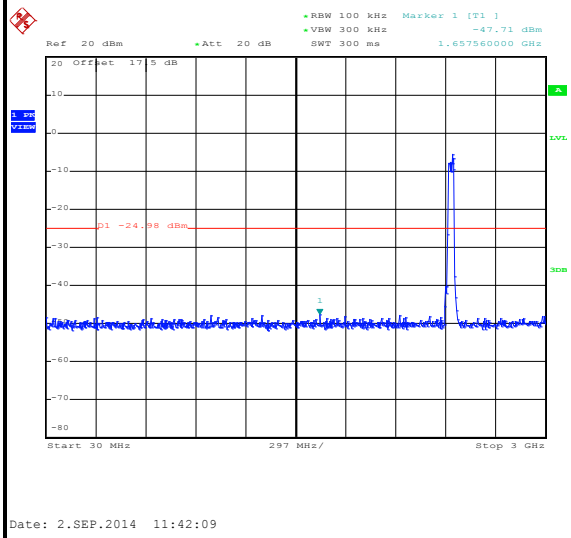
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11n HT40 Channel 06

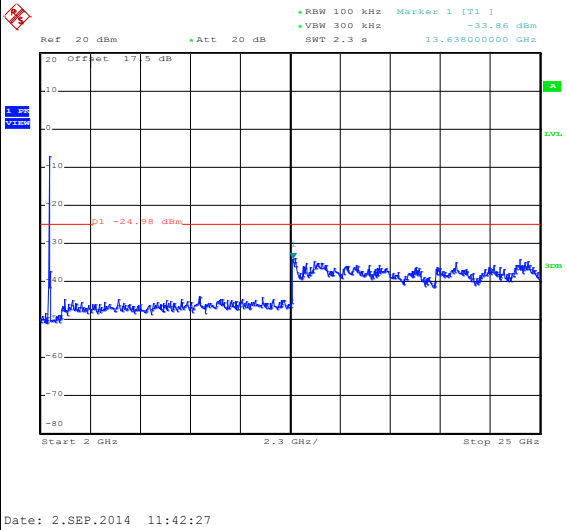
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



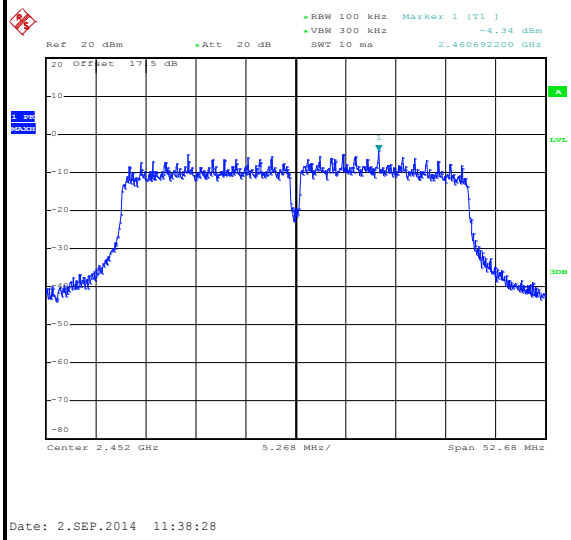
Spurious Emission 2GHz~25GHz



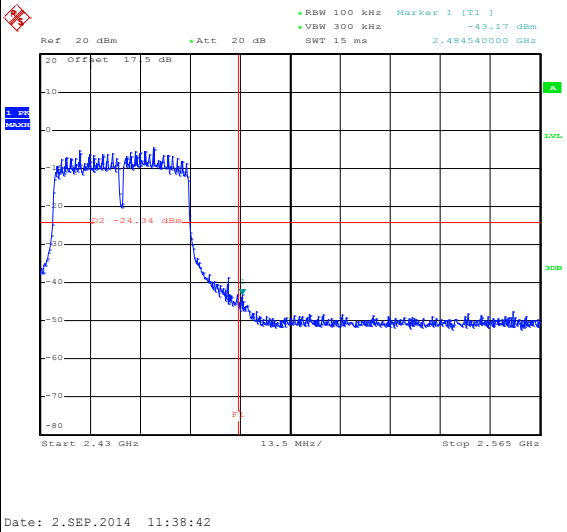
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	09	**Test Engineer :**	Fly Liang

WLAN 802.11n HT40 Channel 09

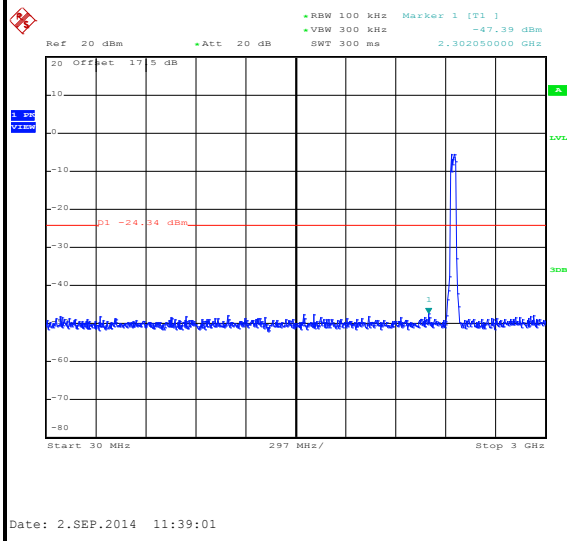
100kHz PSD reference Level



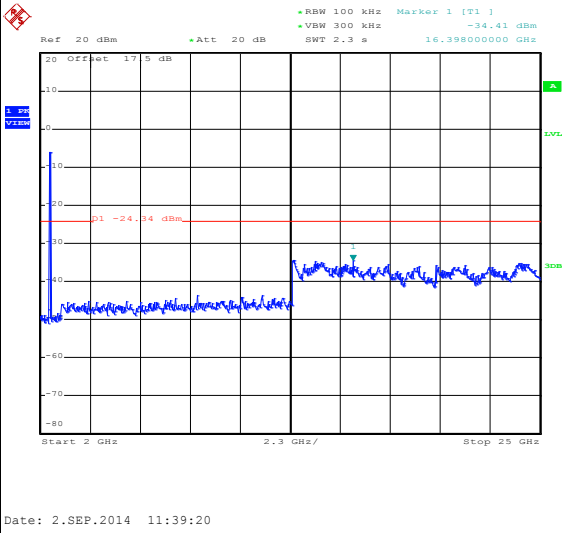
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

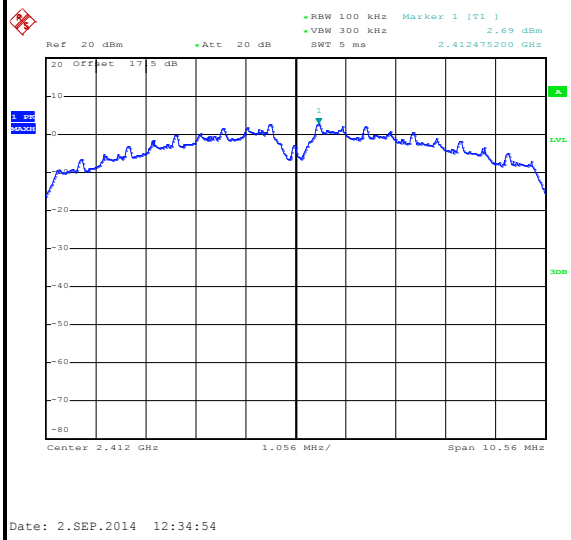


Number of TX = 2, Ant. 2 (Measured)

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

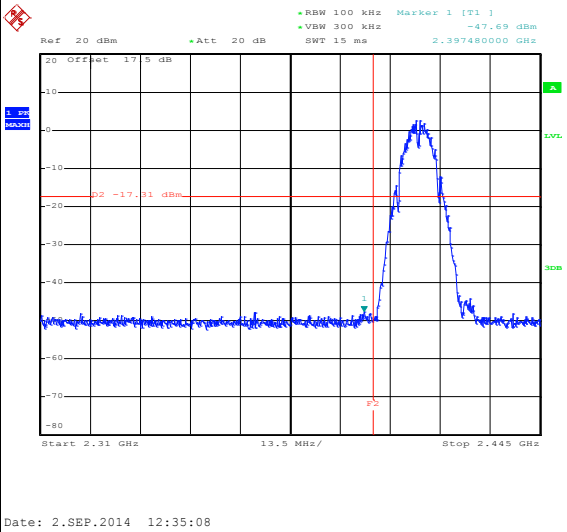
WLAN 802.11b Channel 01

100kHz PSD reference Level



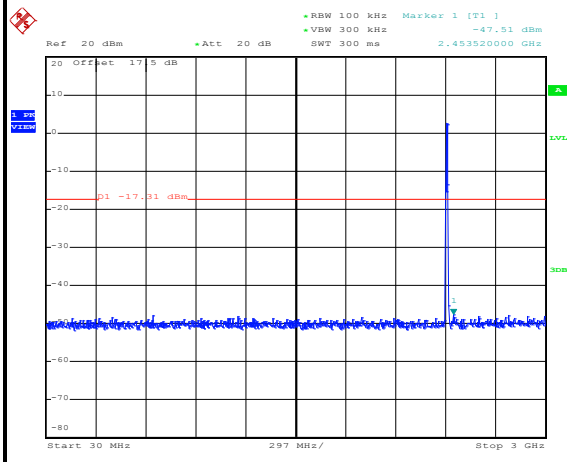
Date: 2.SEP.2014 12:34:54

Low Channel Plot



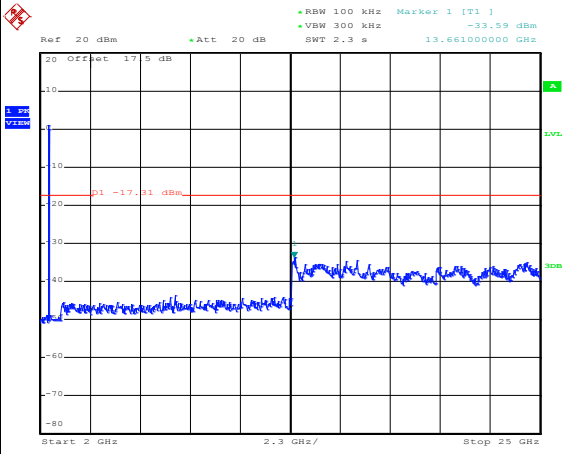
Date: 2.SEP.2014 12:35:08

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 12:35:27

Spurious Emission 2GHz~25GHz

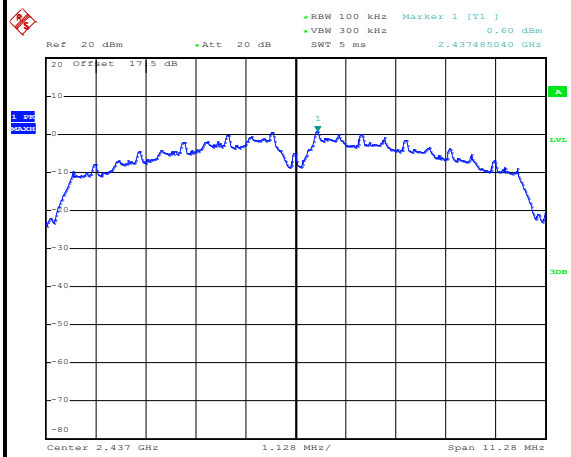


Date: 2.SEP.2014 12:35:46

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

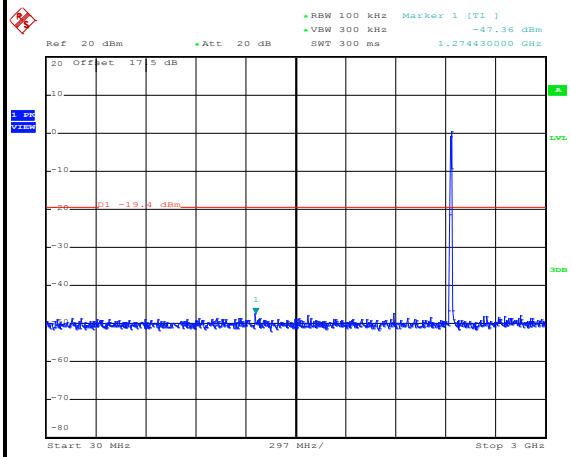
WLAN 802.11b Channel 06

100kHz PSD reference Level



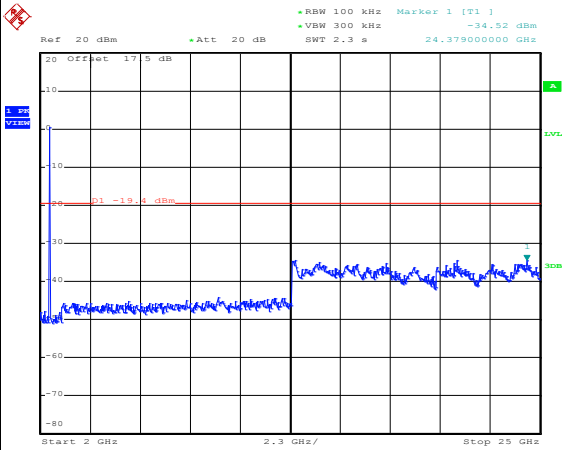
Date: 1.SEP.2014 23:38:49

Spurious Emission 30MHz~3GHz



Date: 1.SEP.2014 23:39:09

Spurious Emission 2GHz~25GHz

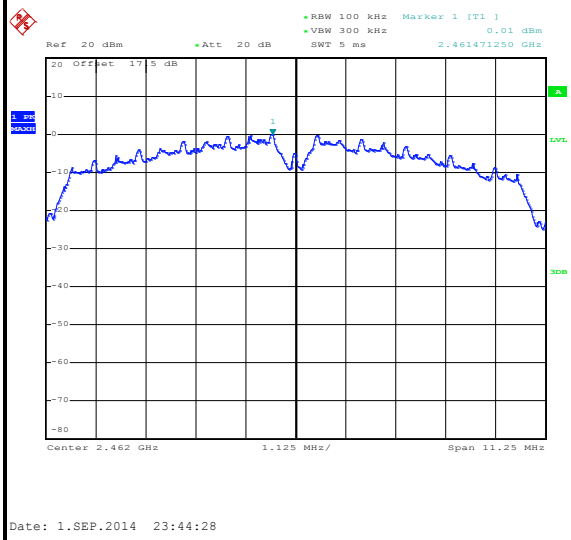


Date: 1.SEP.2014 23:39:27

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

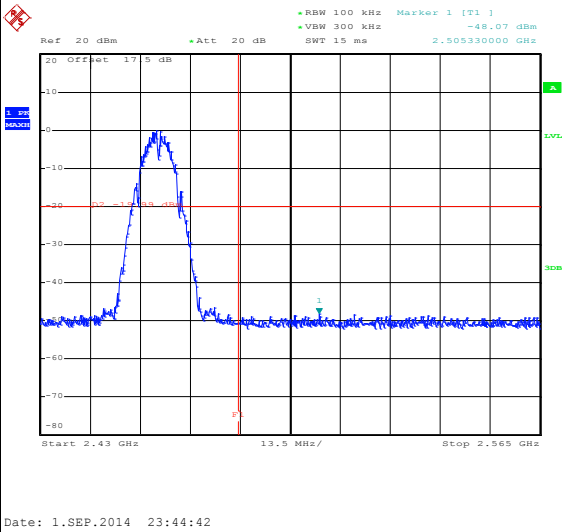
WLAN 802.11b Channel 11

100kHz PSD reference Level



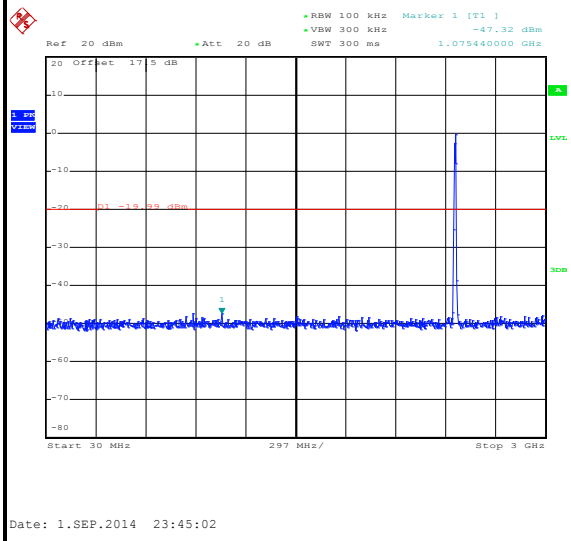
Date: 1.SEP.2014 23:44:28

High Channel Plot



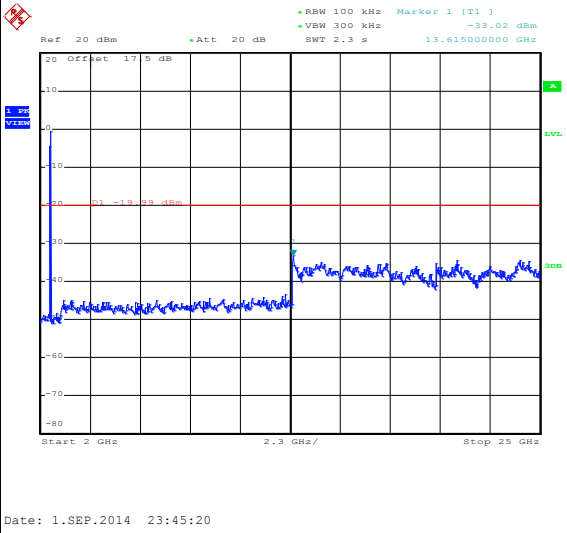
Date: 1.SEP.2014 23:44:42

Spurious Emission 30MHz~3GHz



Date: 1.SEP.2014 23:45:02

Spurious Emission 2GHz~25GHz

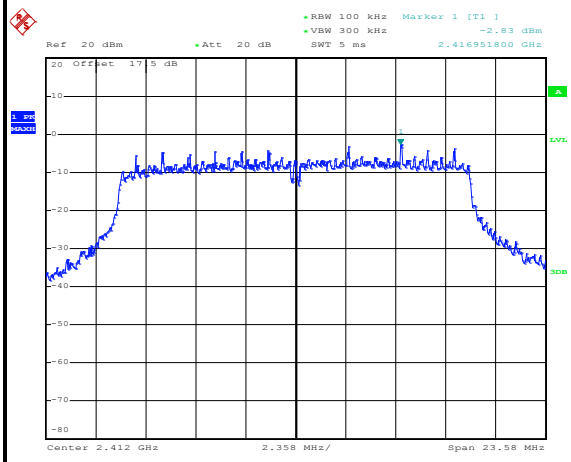


Date: 1.SEP.2014 23:45:20

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

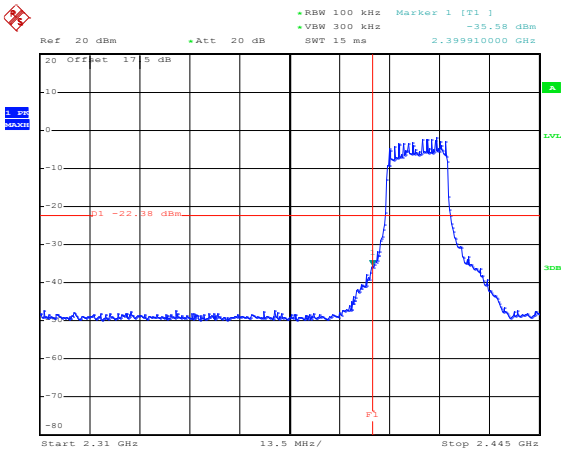
WLAN 802.11g Channel 01

100kHz PSD reference Level



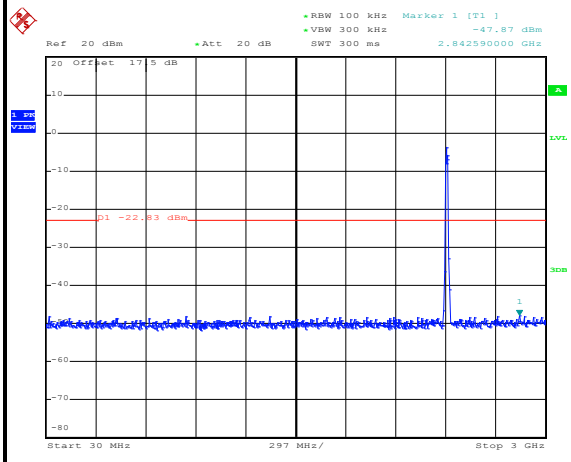
Date: 2.SEP.2014 00:32:09

Low Channel Plot



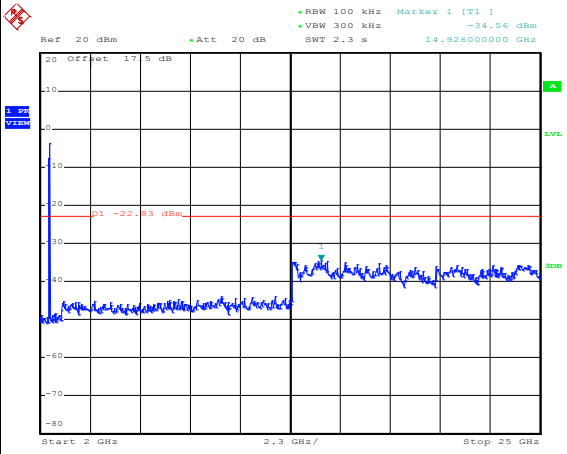
Date: 14.OCT.2014 10:41:00

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 00:32:42

Spurious Emission 2GHz~25GHz

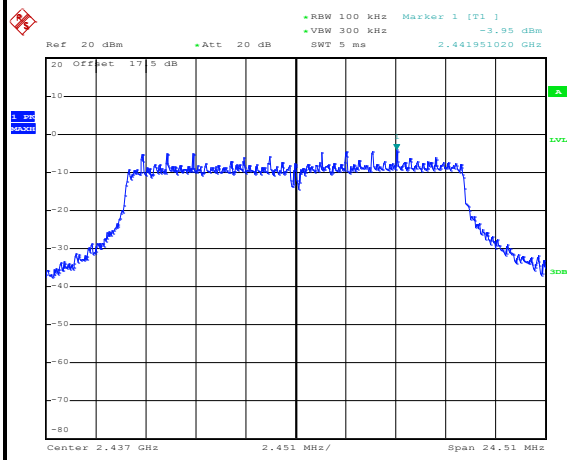


Date: 2.SEP.2014 00:33:01

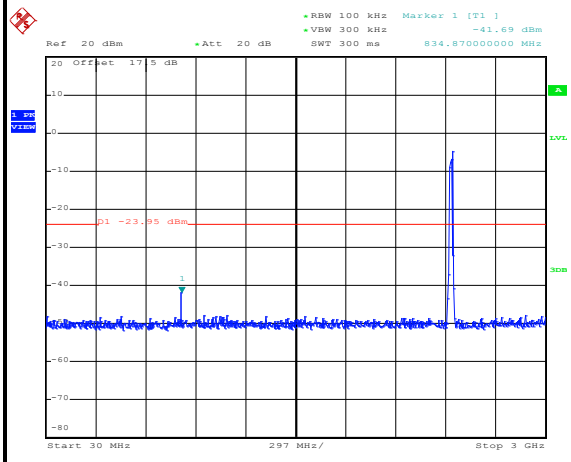
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11g Channel 06

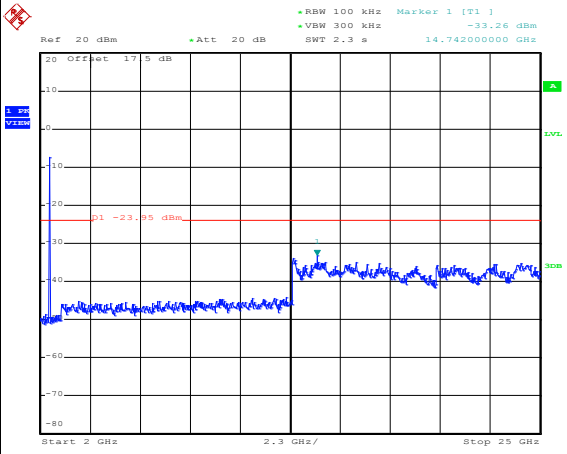
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



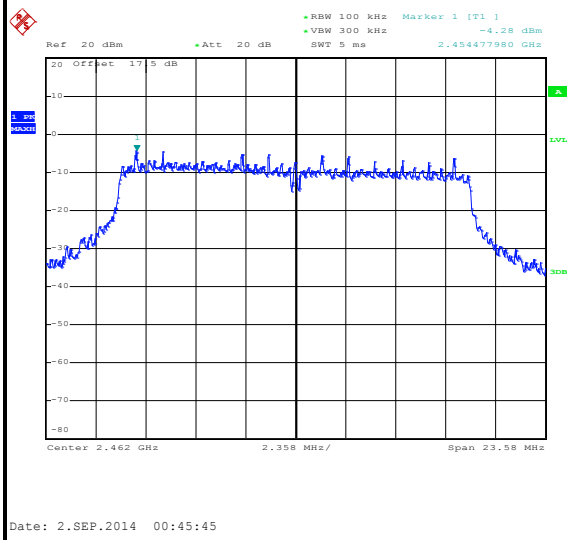
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

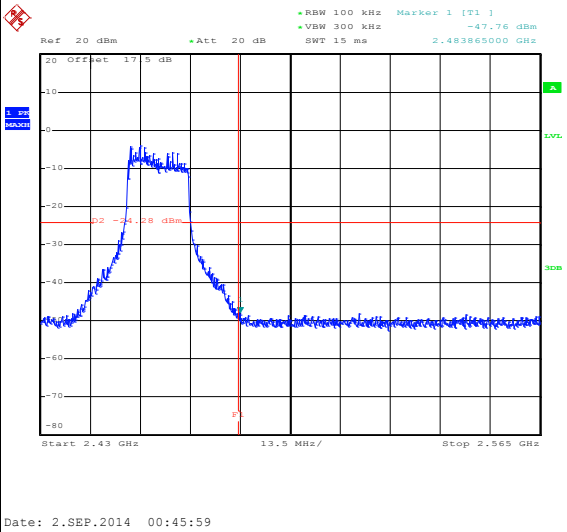
WLAN 802.11g Channel 11

100kHz PSD reference Level



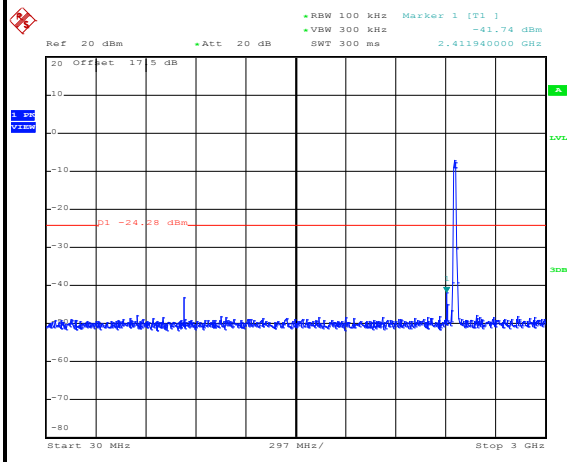
Date: 2.SEP.2014 00:45:45

High Channel Plot



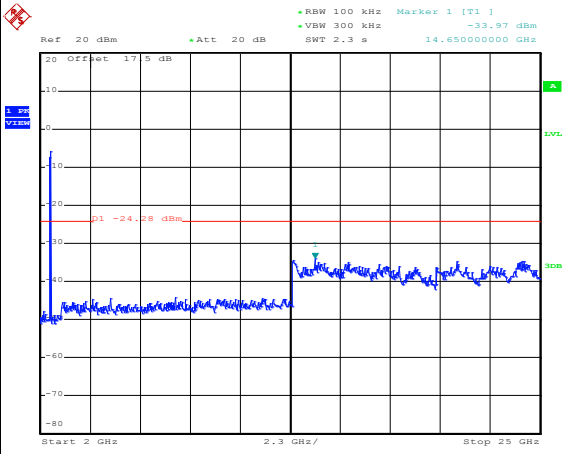
Date: 2.SEP.2014 00:45:59

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 00:46:19

Spurious Emission 2GHz~25GHz

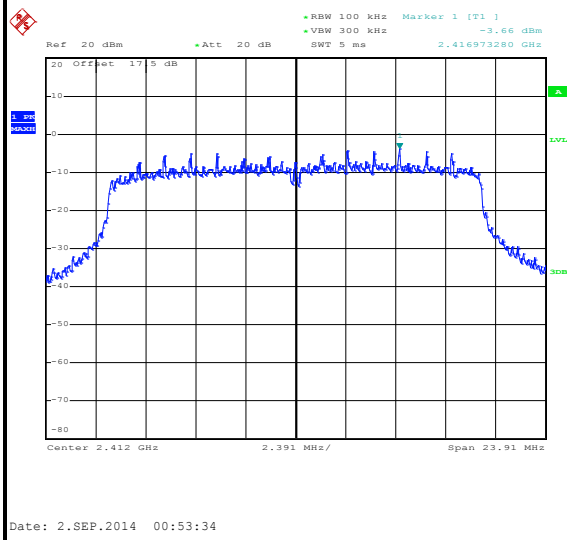


Date: 2.SEP.2014 00:46:37

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	01	**Test Engineer :**	Fly Liang

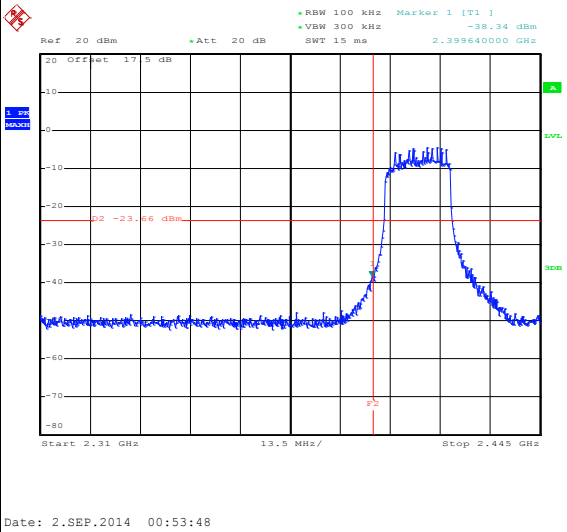
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



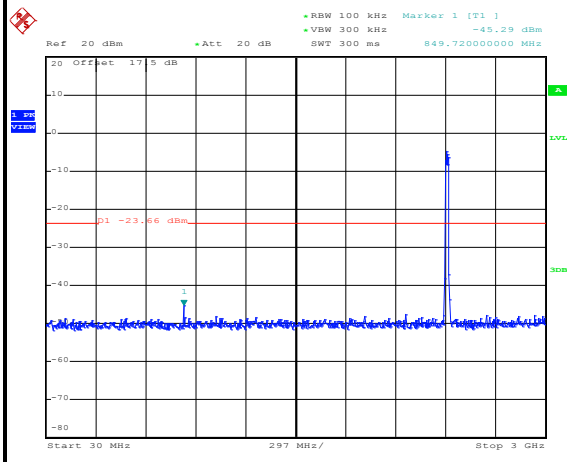
Date: 2.SEP.2014 00:53:34

Low Channel Plot



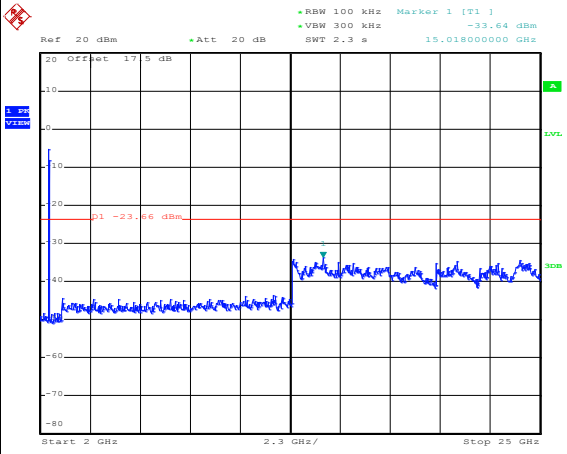
Date: 2.SEP.2014 00:53:48

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 00:54:07

Spurious Emission 2GHz~25GHz

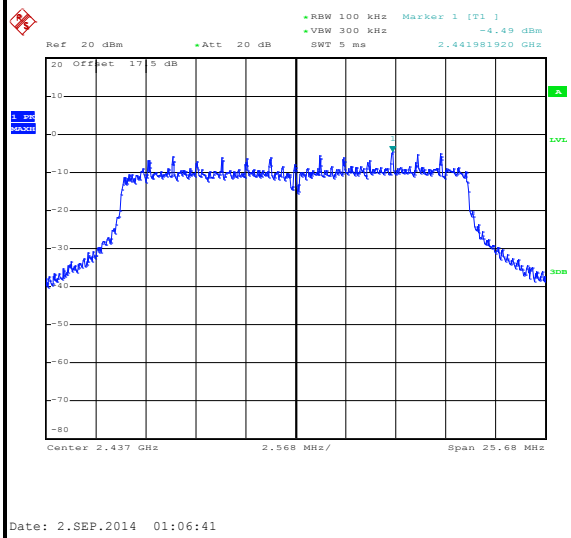


Date: 2.SEP.2014 00:54:26

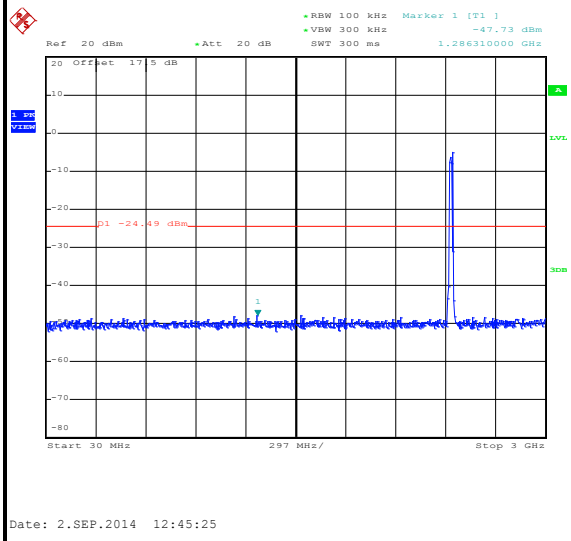
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11n HT20 Channel 06

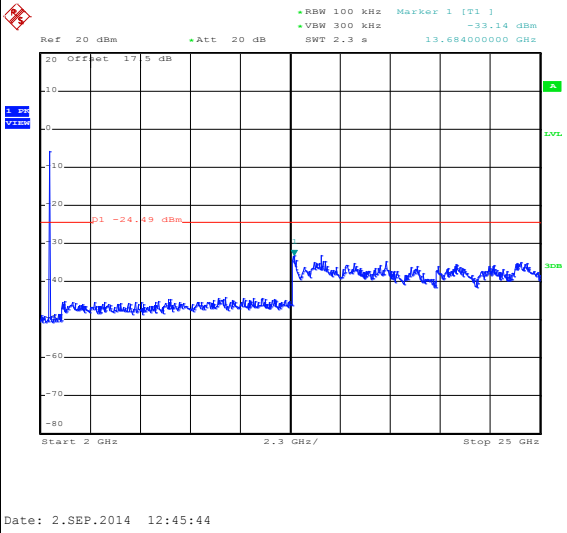
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



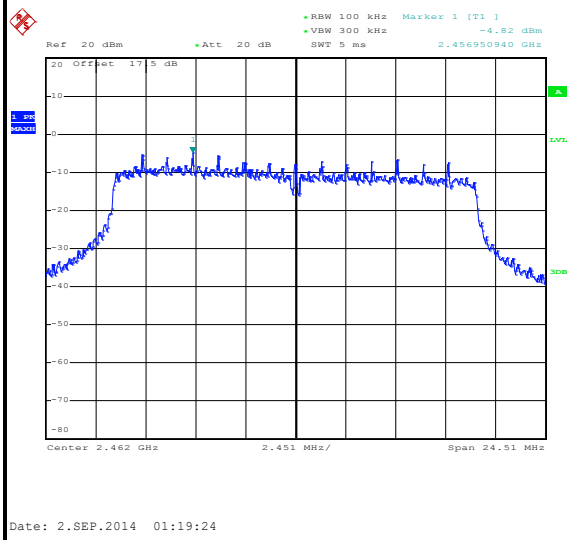
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	11	**Test Engineer :**	Fly Liang

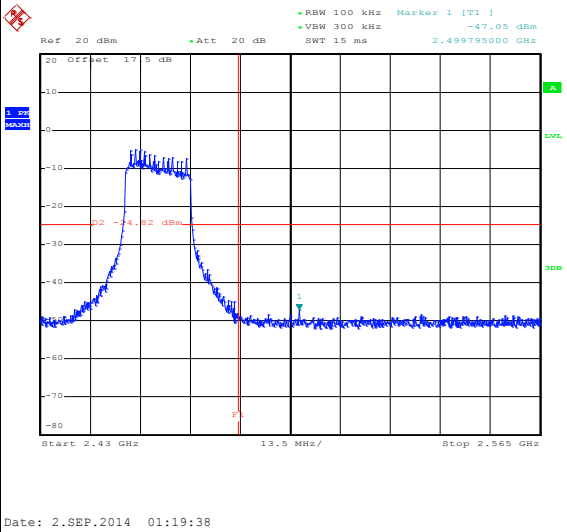
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



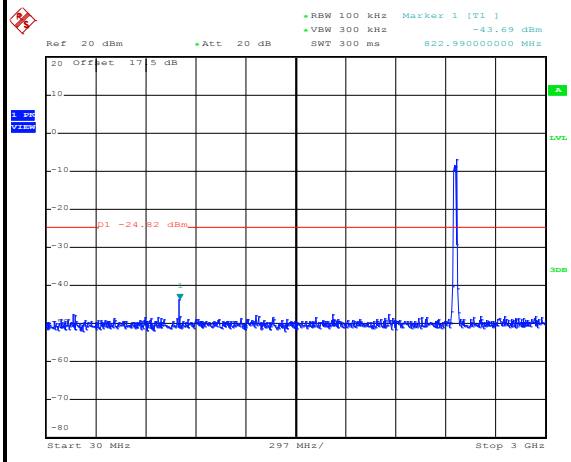
Date: 2.SEP.2014 01:19:24

High Channel Plot



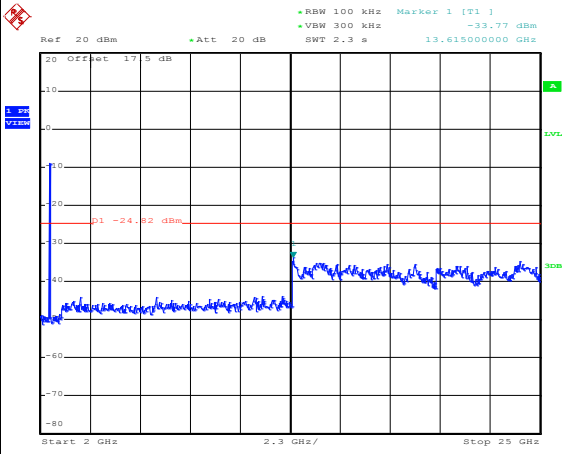
Date: 2.SEP.2014 01:19:38

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 01:19:57

Spurious Emission 2GHz~25GHz

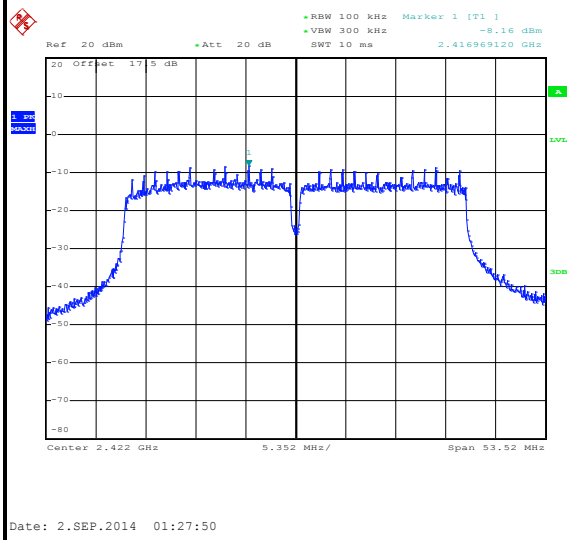


Date: 2.SEP.2014 01:20:16

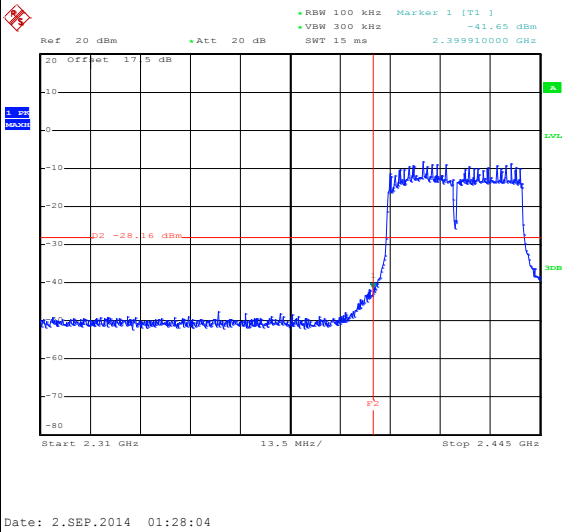
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz Low	**Relative Humidity :**	45~53%
Test Channel :	03	**Test Engineer :**	Fly Liang

WLAN 802.11n HT40 Channel 03

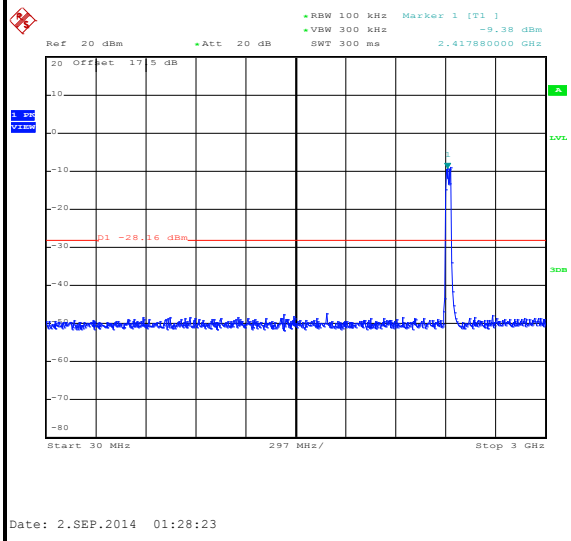
100kHz PSD reference Level



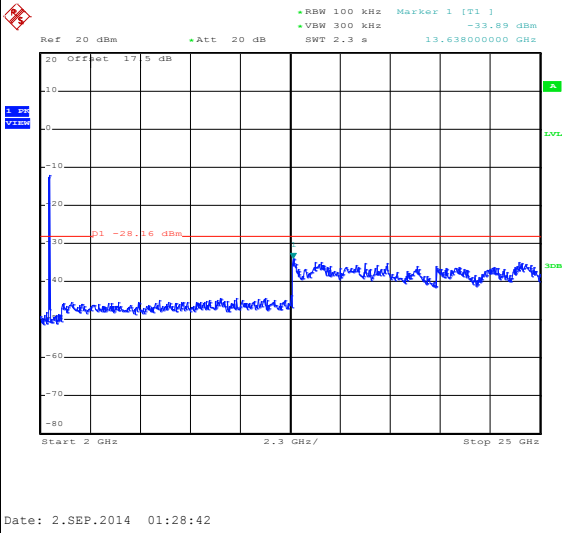
Low Channel Plot



Spurious Emission 30MHz~3GHz



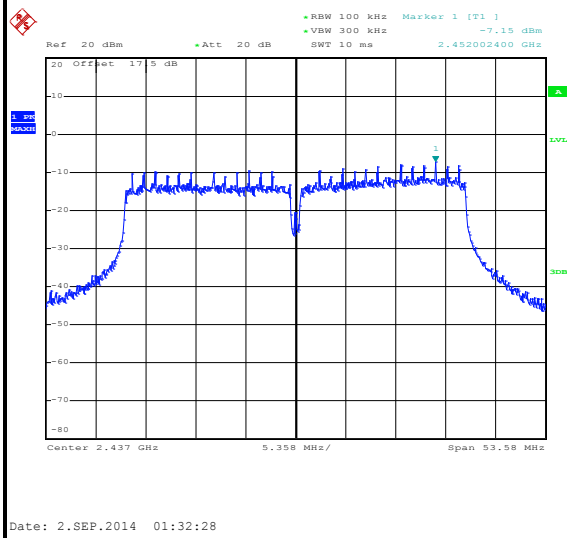
Spurious Emission 2GHz~25GHz



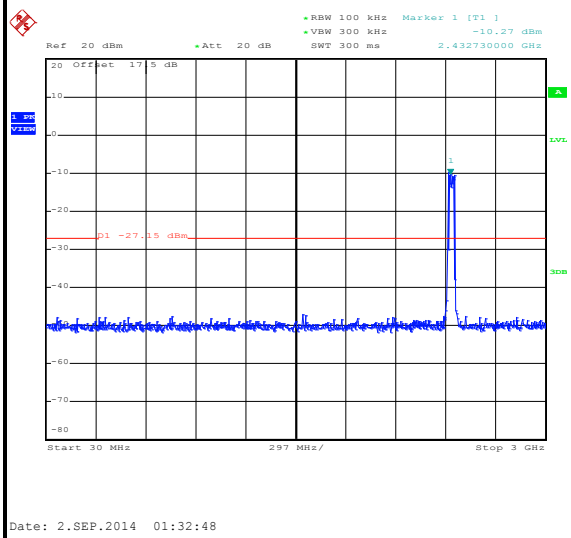
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~53%
Test Channel :	06	**Test Engineer :**	Fly Liang

WLAN 802.11n HT40 Channel 06

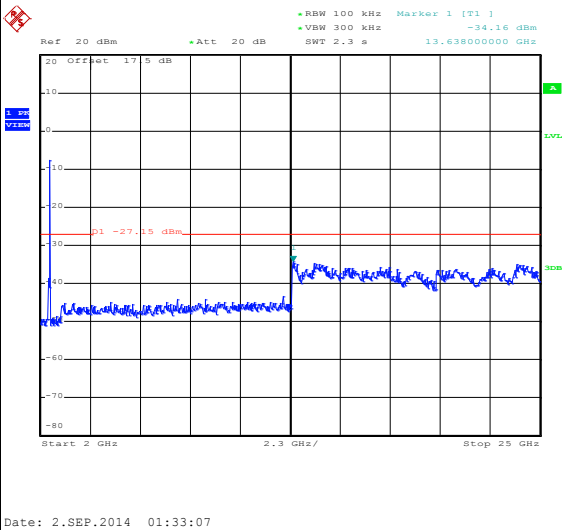
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



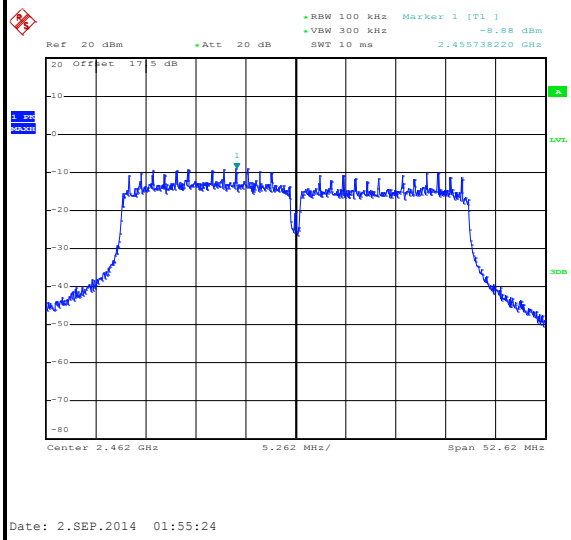
Spurious Emission 2GHz~25GHz



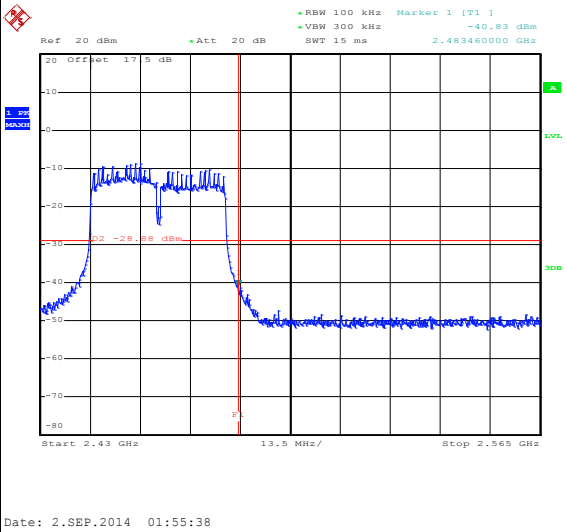
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~53%
Test Channel :	09	**Test Engineer :**	Fly Liang

WLAN 802.11n HT40 Channel 09

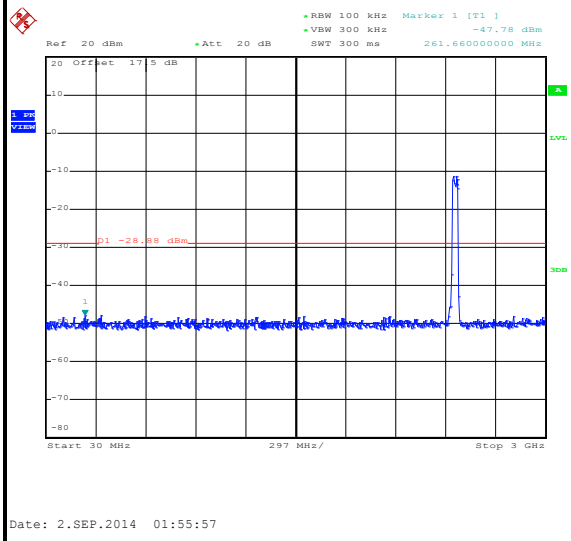
100kHz PSD reference Level



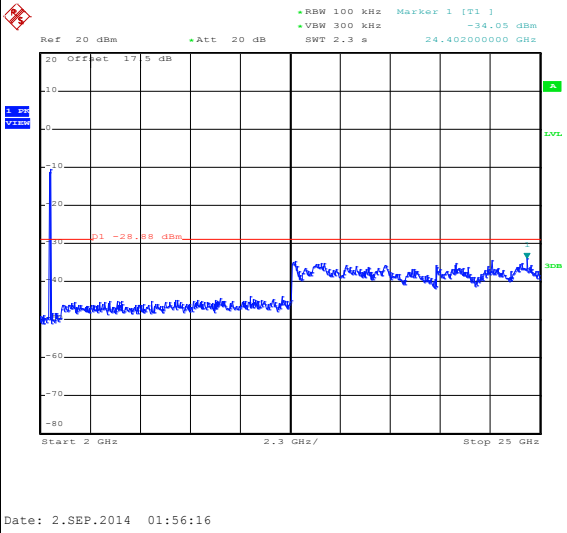
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz



3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.5.2 Measuring Instruments

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

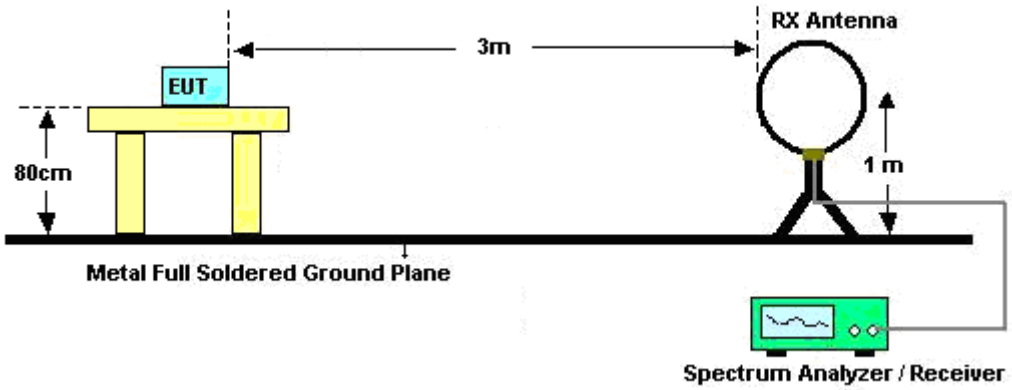
3.5.3 Test Procedure

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

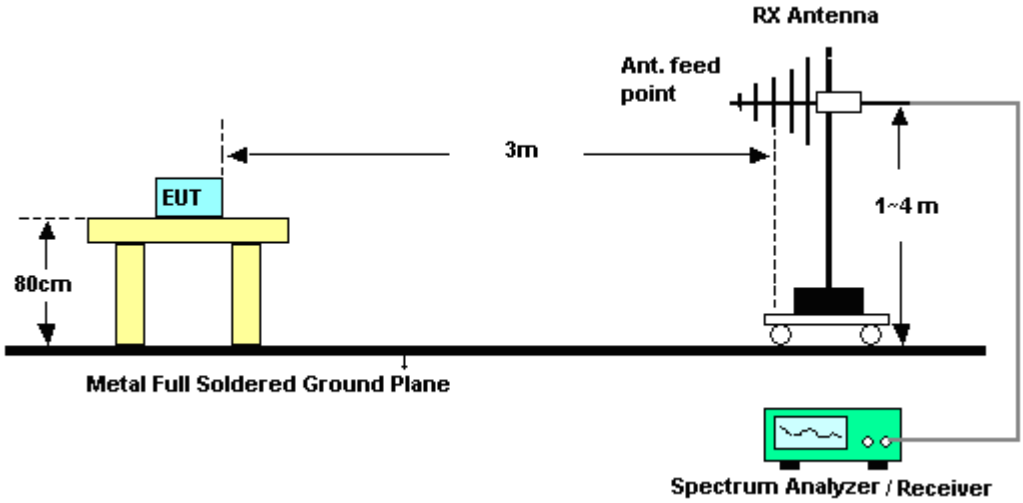
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1	802.11b	100	-	-	10Hz
1	802.11g	97.18	2070	0.48	1kHz
1+2	2.4GHz 802.11n HT20	94.63	987	1.01	3kHz
1+2	2.4GHz 802.11n HT40	89.77	500	2.00	

3.5.4 Test Setup

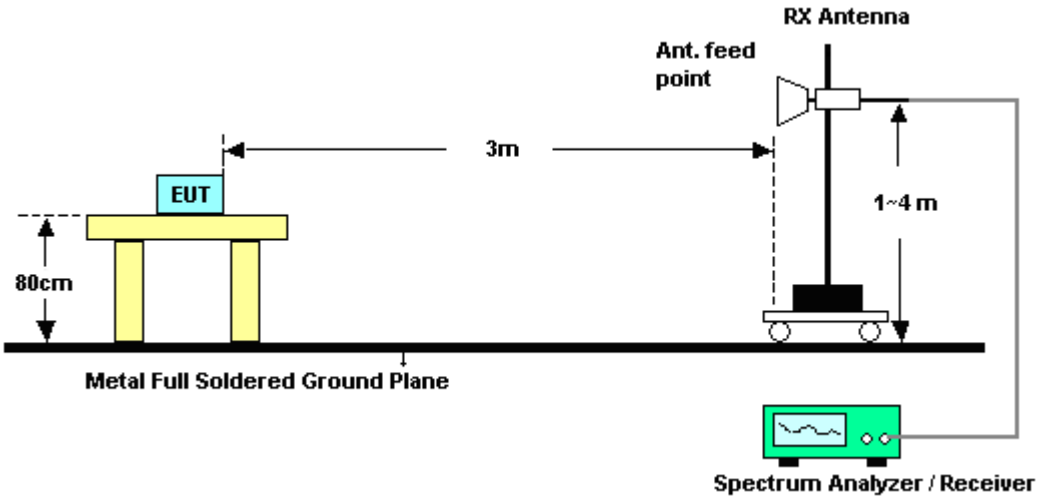
For radiated emissions below 30MHz



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 :**	22~23°C
Test Band :	Low	**Relative Humidity :**	41~42%
Test Channel :	01	**Test Engineer :**	Jun Liu

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
2344.92	48.44	-25.56	74	50.35	31.82	2.61	36.34	103	151	Peak
2335.74	33.79	-20.21	54	35.72	31.82	2.59	36.34	103	151	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
2376.51	48.15	-25.85	74	49.72	31.95	2.64	36.16	121	150	Peak
2335.74	33.76	-20.24	54	35.69	31.82	2.59	36.34	121	158	Average

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Band :	High	**Relative Humidity :**	41~42%
Test Channel :	11	**Test Engineer :**	Jun Liu

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
2499.19	49.2	-24.8	74	49.86	32.4	2.68	35.74	100	156	Peak
2483.5	35.19	-18.81	54	35.96	32.34	2.68	35.79	100	156	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
2485	52.63	-21.37	74	53.4	32.34	2.68	35.79	117	145	Peak
2483.5	34.81	-19.19	54	35.58	32.34	2.68	35.79	117	145	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Jun Liu

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
2390	50.6	-23.4	74	52.03	32.01	2.64	36.08	200	163	Peak
2390	35.89	-18.11	54	37.32	32.01	2.64	36.08	200	163	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
2382.81	50.63	-23.37	74	52.2	31.95	2.64	36.16	100	143	Peak
2390	35.32	-18.68	54	36.75	32.01	2.64	36.08	100	143	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Jun Liu

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	61.62	-12.38	74	62.39	32.34	2.68	35.79	103	22	Peak
2483.5	43.33	-10.67	54	44.1	32.34	2.68	35.79	103	22	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
2483.5	56.96	-17.04	74	57.73	32.34	2.68	35.79	146	143	Peak
2483.5	40.44	-13.56	54	41.21	32.34	2.68	35.79	146	143	Average

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Jun Liu

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
2332.68	48.43	-25.57	74	50.51	31.76	2.59	36.43	110	355	Peak
2345.1	35.51	-18.49	54	37.42	31.82	2.61	36.34	110	355	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
2388.93	48.36	-25.64	74	49.79	32.01	2.64	36.08	103	289	Peak
2321.79	35.6	-18.4	54	37.68	31.76	2.59	36.43	103	289	Average

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Jun Liu

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
2492.29	48.99	-25.01	74	49.65	32.4	2.68	35.74	108	0	Peak
2487.61	36.02	-17.98	54	36.68	32.4	2.68	35.74	108	0	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
2484.7	49.82	-24.18	74	50.59	32.34	2.68	35.79	132	290	Peak
2483.68	36.29	-17.71	54	37.06	32.34	2.68	35.79	132	290	Average

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	03	Test Engineer :	Jun Liu

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
2332.32	48.78	-25.22	74	50.86	31.76	2.59	36.43	142	341	Peak
2336.01	35.3	-18.7	54	37.23	31.82	2.59	36.34	142	341	Average
2499.88	50.02	-23.98	74	50.68	32.4	2.68	35.74	142	341	Peak
2484.52	36.38	-17.62	54	37.15	32.34	2.68	35.79	142	341	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
2357.52	49.06	-24.94	74	50.8	31.89	2.62	36.25	100	183	Peak
2386.68	35.4	-18.6	54	36.83	32.01	2.64	36.08	100	183	Average
2484.34	50.07	-23.93	74	50.84	32.34	2.68	35.79	100	183	Peak
2484.31	36.73	-17.27	54	37.5	32.34	2.68	35.79	100	183	Average

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	09	Test Engineer :	Jun Liu

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
2379.84	48.51	-25.49	74	50.08	31.95	2.64	36.16	110	342	Peak
2347.08	35.38	-18.62	54	37.29	31.82	2.61	36.34	110	342	Average
2484.19	53.47	-20.53	74	54.24	32.34	2.68	35.79	110	342	Peak
2484.55	38	-16	54	38.77	32.34	2.68	35.79	110	342	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
2332.68	48.75	-25.25	74	50.83	31.76	2.59	36.43	100	122	Peak
2385.87	35.5	-18.5	54	36.93	32.01	2.64	36.08	100	122	Average
2484.01	55.83	-18.17	74	56.6	32.34	2.68	35.79	100	122	Peak
2483.5	39.09	-14.91	54	39.86	32.34	2.68	35.79	100	122	Average

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

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

<MIMO Ant. 1+2>

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	41~42%
Test Engineer :	Jun Liu	**Polarization :**	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	106.04	-	-	107.32	32.08	2.66	36.02	103	151	Peak
2412	101.46	-	-	102.74	32.08	2.66	36.02	103	151	Average
4824	44.9	-29.1	74	43.57	34.2	3.78	36.65	100	254	Peak

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	41~42%
Test Engineer :	Jun Liu	**Polarization :**	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	101.54	-	-	102.82	32.08	2.66	36.02	121	150	Peak
2412	95.4	-	-	96.68	32.08	2.66	36.02	121	150	Average
4824	44.16	-29.84	74	42.83	34.2	3.78	36.65	156	307	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2437 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
2437	105.52	-	-	106.56	32.21	2.66	35.91	100	140	Peak
2437	103.37	-	-	104.41	32.21	2.66	35.91	100	140	Average
4874	43.61	-30.39	74	42.47	34.2	3.78	36.84	138	201	Peak
7311	47	-27	74	45.41	35.72	4.73	38.86	128	324	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2437 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
2437	101.29	-	-	102.33	32.21	2.66	35.91	200	305	Peak
2437	94.11	-	-	95.15	32.21	2.66	35.91	200	305	Average
4874	46.26	-27.74	74	45.12	34.2	3.78	36.84	200	14	Peak
7311	44.83	-29.17	74	43.24	35.72	4.73	38.86	189	325	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2462	105.98	-	-	106.89	32.27	2.67	35.85	100	156	Peak
2462	99.12	-	-	100.03	32.27	2.67	35.85	100	156	Average
4924	44.41	-29.59	74	43.46	34.2	3.78	37.03	139	352	Peak
7386	46.13	-27.87	74	44.79	35.76	4.77	39.19	108	126	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2462	101.71	-	-	102.62	32.27	2.67	35.85	117	145	Peak
2462	97.1	-	-	98.01	32.27	2.67	35.85	117	145	Average
4924	44.11	-29.89	74	43.16	34.2	3.78	37.03	147	324	Peak
7386	45.01	-28.99	74	43.67	35.76	4.77	39.19	158	232	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	104.8	-	-	106.08	32.08	2.66	36.02	200	163	Peak
2412	93.1	-	-	94.38	32.08	2.66	36.02	200	163	Average
4824	43.89	-30.11	74	42.56	34.2	3.78	36.65	176	208	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	100.69	-	-	101.97	32.08	2.66	36.02	100	143	Peak
2412	88.47	-	-	89.75	32.08	2.66	36.02	100	143	Average
4824	44.96	-29.04	74	43.63	34.2	3.78	36.65	187	219	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2437 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
2437	105.56	-	-	106.6	32.21	2.66	35.91	195	159	Peak
2437	92.65	-	-	93.69	32.21	2.66	35.91	195	159	Average
4874	44.67	-29.33	74	43.53	34.2	3.78	36.84	125	301	Peak
7311	45.48	-28.52	74	43.89	35.72	4.73	38.86	125	300	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2437 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
2437	101.36	-	-	102.4	32.21	2.66	35.91	117	101	Peak
2437	90.03	-	-	91.07	32.21	2.66	35.91	117	101	Average
4874	44.46	-29.54	74	43.32	34.2	3.78	36.84	149	308	Peak
7311	44.98	-29.02	74	43.39	35.72	4.73	38.86	147	325	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
100.81	27.66	-15.84	43.5	49.11	10.75	0.43	32.63	-	-	Peak
119.24	27.86	-15.64	43.5	48.04	11.88	0.58	32.64	-	-	Peak
238.55	31.69	-14.31	46	52.63	10.7	0.84	32.48	-	-	Peak
481.05	33.54	-12.46	46	47.19	17.3	1.22	32.17	125	220	Peak
719.67	31	-15	46	42.11	19.53	1.35	31.99	-	-	Peak
902.03	32.14	-13.86	46	41.61	20.45	1.77	31.69	-	-	Peak
2462	104.91	-	-	105.82	32.27	2.67	35.85	126	173	Peak
2462	91.72	-	-	92.63	32.27	2.67	35.85	126	173	Average
4924	42.91	-31.09	74	41.96	34.2	3.78	37.03	128	320	Peak
7386	45.42	-28.58	74	44.08	35.76	4.77	39.19	100	198	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	32.58	-7.42	40	47.05	18	0.19	32.66	100	36	Peak
54.25	26.7	-13.3	40	52.59	6.4	0.31	32.6	-	-	Peak
101.78	24.99	-18.51	43.5	46.29	10.9	0.43	32.63	-	-	Peak
229.82	31.48	-14.52	46	53.47	9.7	0.8	32.49	-	-	Peak
480.08	31.48	-14.52	46	45.13	17.3	1.22	32.17	-	-	Peak
951.5	33.08	-12.92	46	42.26	20.78	1.72	31.68	-	-	Peak
2462	101.18	-	-	102.09	32.27	2.67	35.85	146	143	Peak
2462	89.64	-	-	90.55	32.27	2.67	35.85	146	143	Average
4924	44.17	-29.83	74	43.22	34.2	3.78	37.03	200	142	Peak
7386	45.26	-28.74	74	43.92	35.76	4.77	39.19	148	348	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	103.64	-	-	104.92	32.08	2.66	36.02	110	355	Peak
2412	100.08	-	-	101.36	32.08	2.66	36.02	110	355	Average
4824	45.63	-28.37	74	44.3	34.2	3.78	36.65	100	66	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	104.29	-	-	105.57	32.08	2.66	36.02	103	289	Peak
2412	101.05	-	-	102.33	32.08	2.66	36.02	103	289	Average
4824	45.52	-28.48	74	44.19	34.2	3.78	36.65	102	118	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2437 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
2437	104.03	-	-	105.07	32.21	2.66	35.91	109	338	Peak
2437	100.07	-	-	101.11	32.21	2.66	35.91	109	338	Average
4874	45.43	-28.57	74	44.29	34.2	3.78	36.84	100	324	Peak
7312	45.75	-28.25	74	44.16	35.72	4.73	38.86	121	110	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2437 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
2437	105.37	-	-	106.41	32.21	2.66	35.91	100	300	Peak
2437	101.64	-	-	102.68	32.21	2.66	35.91	100	300	Average
4874	44.38	-29.62	74	43.24	34.2	3.78	36.84	117	123	Peak
7312	45	-29	74	43.41	35.72	4.73	38.86	100	61	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2462	101.21	-	-	102.12	32.27	2.67	35.85	108	0	Peak
2462	96.52	-	-	97.43	32.27	2.67	35.85	108	0	Average
4924	46.47	-27.53	74	45.52	34.2	3.78	37.03	122	100	Peak
7386	46.83	-27.17	74	45.49	35.76	4.77	39.19	100	54	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2462	103.25	-	-	104.16	32.27	2.67	35.85	132	290	Peak
2462	99.84	-	-	100.75	32.27	2.67	35.85	132	290	Average
4924	44.88	-29.12	74	43.93	34.2	3.78	37.03	100	125	Peak
7386	46.48	-27.52	74	45.14	35.76	4.77	39.19	125	16	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2422 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
2422	102.57	-	-	103.73	32.14	2.66	35.96	142	341	Peak
2422	98.34	-	-	99.5	32.14	2.66	35.96	142	341	Average
4844	46.83	-27.17	74	45.57	34.2	3.78	36.72	100	53	Peak
7266	44.65	-29.35	74	42.95	35.71	4.72	38.73	100	30	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2422 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
2422	103.42	-	-	104.58	32.14	2.66	35.96	100	183	Peak
2422	99.48	-	-	100.64	32.14	2.66	35.96	100	183	Average
4844	48.37	-25.63	74	47.11	34.2	3.78	36.72	102	45	Peak
7266	45.77	-28.23	74	44.07	35.71	4.72	38.73	100	44	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2437 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
2437	102.5	-	-	103.54	32.21	2.66	35.91	106	343	Peak
2437	98.75	-	-	99.79	32.21	2.66	35.91	106	343	Average
4874	45.41	-28.59	74	44.27	34.2	3.78	36.84	124	20	Peak
7312	45.06	-28.94	74	43.47	35.72	4.73	38.86	131	145	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2437 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
2437	104.46	-	-	105.5	32.21	2.66	35.91	100	265	Peak
2437	100.74	-	-	101.78	32.21	2.66	35.91	100	265	Average
4874	46.13	-27.87	74	44.99	34.2	3.78	36.84	100	48	Peak
7312	44.93	-29.07	74	43.34	35.72	4.73	38.86	100	211	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2452 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
2452	102.35	-	-	103.38	32.21	2.67	35.91	110	342	Peak
2452	99.82	-	-	100.85	32.21	2.67	35.91	110	342	Average
4904	43.73	-30.27	74	42.71	34.2	3.78	36.96	100	39	Peak
7356	46.08	-27.92	74	44.64	35.74	4.76	39.06	100	214	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	41~42%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2452 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
2452	101.74	-	-	102.77	32.21	2.67	35.91	100	122	Peak
2452	98.34	-	-	99.37	32.21	2.67	35.91	100	122	Average
4904	45.04	-28.96	74	44.02	34.2	3.78	36.96	154	200	Peak
7356	44.66	-29.34	74	43.22	35.74	4.76	39.06	112	223	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

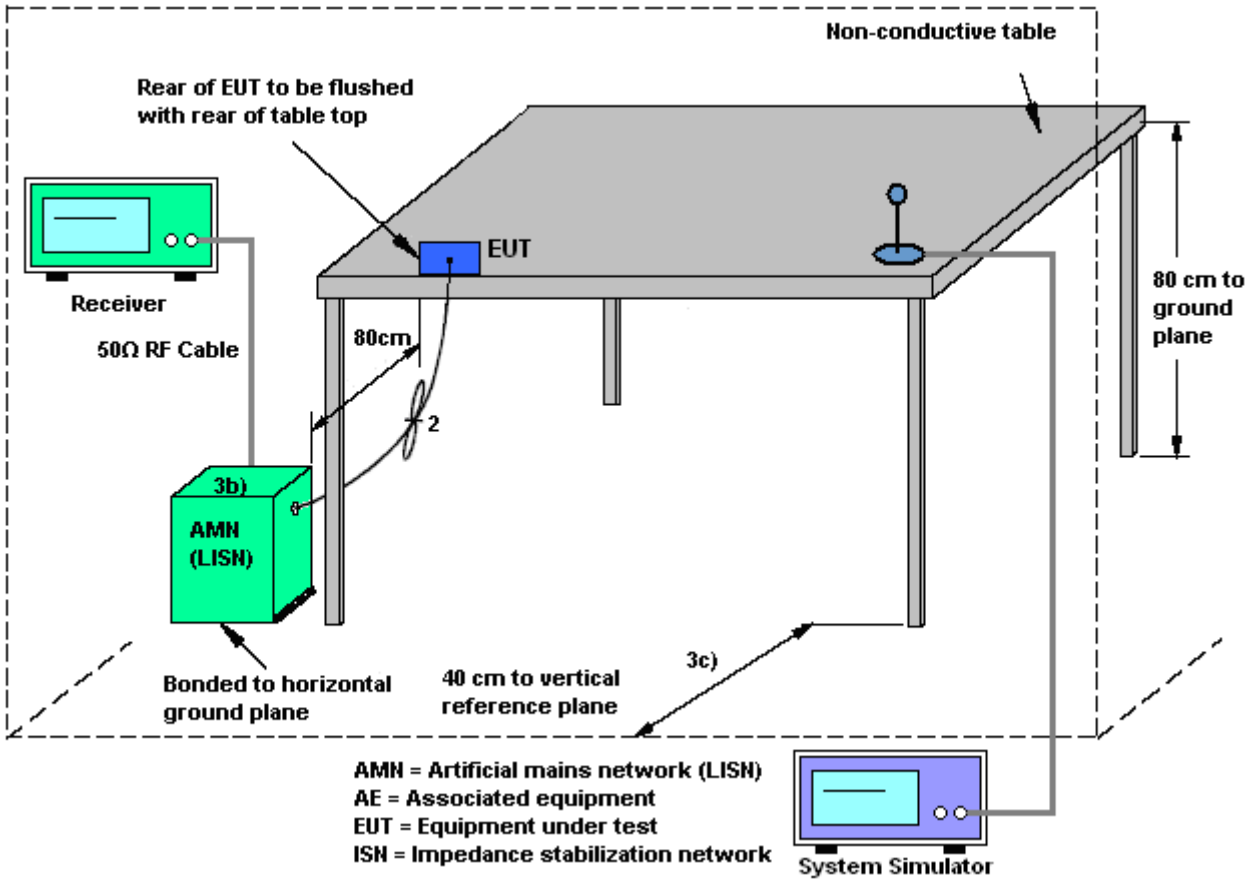
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

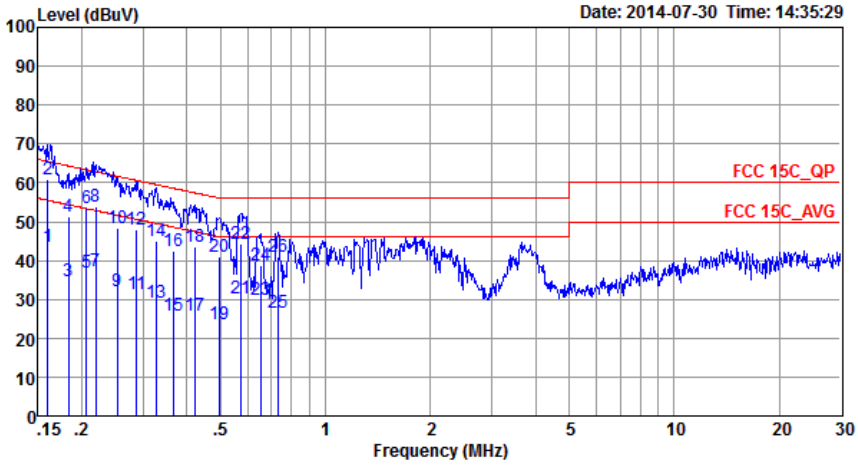
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	21~22℃
Test Engineer :	Jack Ten	**Relative Humidity :**	41~42%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + WLAN Link + USB Cable (Charging from Adapter)		

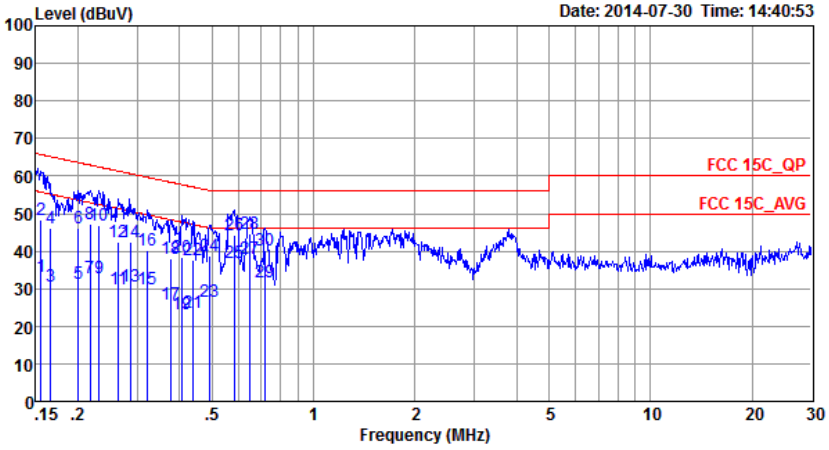


Site : CO01-SZ
Condition: FCC 15C QP LISN_L_20140304 LINE

Mode : Mode 1
IMEI : N/A

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.16	43.47	-12.00	55.47	32.90	0.22	10.35	Average
2	*	0.16	60.87	-4.60	65.47	50.30	0.22	10.35	QP
3		0.18	34.53	-19.80	54.33	24.00	0.22	10.31	Average
4		0.18	51.13	-13.20	64.33	40.60	0.22	10.31	QP
5		0.21	36.81	-16.55	53.36	26.30	0.22	10.29	Average
6		0.21	53.41	-9.95	63.36	42.90	0.22	10.29	QP
7		0.22	37.10	-15.73	52.83	26.60	0.23	10.27	Average
8		0.22	54.00	-8.83	62.83	43.50	0.23	10.27	QP
9		0.25	32.18	-19.46	51.64	21.70	0.24	10.24	Average
10		0.25	48.48	-13.16	61.64	38.00	0.24	10.24	QP
11		0.29	31.26	-19.33	50.59	20.80	0.25	10.21	Average
12		0.29	47.96	-12.63	60.59	37.50	0.25	10.21	QP
13		0.33	29.05	-20.44	49.49	18.60	0.26	10.19	Average
14		0.33	44.95	-14.54	59.49	34.50	0.26	10.19	QP
15		0.37	25.65	-22.96	48.61	15.20	0.27	10.18	Average
16		0.37	42.25	-16.36	58.61	31.80	0.27	10.18	QP
17		0.42	25.85	-21.57	47.42	15.39	0.29	10.17	Average
18		0.42	43.45	-13.97	57.42	32.99	0.29	10.17	QP
19		0.50	23.66	-22.39	46.05	13.20	0.30	10.16	Average
20		0.50	41.06	-14.99	56.05	30.60	0.30	10.16	QP
21		0.57	30.41	-15.59	46.00	20.01	0.25	10.15	Average
22		0.57	44.41	-11.59	56.00	34.01	0.25	10.15	QP
23		0.65	29.96	-16.04	46.00	19.60	0.21	10.15	Average
24		0.65	38.76	-17.24	56.00	28.40	0.21	10.15	QP
25		0.73	26.54	-19.46	46.00	16.20	0.19	10.15	Average
26		0.73	40.94	-15.06	56.00	30.60	0.19	10.15	QP

Test Mode :	Mode 1	**Temperature :**	21~22℃
Test Engineer :	Jack Ten	**Relative Humidity :**	41~42%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + WLAN Link + USB Cable (Charging from Adapter)		



Site : CO01-SZ
Condition: FCC 15C_QP LISN_N_20140304 NEUTRAL

Mode : Mode 1
IMEI : N/A

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	33.18	-22.51	55.69	22.50	0.33	10.35	Average
2	0.16	48.28	-17.41	65.69	37.60	0.33	10.35	QP
3	0.17	30.66	-24.50	55.16	19.99	0.33	10.34	Average
4	0.17	45.96	-19.20	65.16	35.29	0.33	10.34	QP
5	0.20	31.31	-22.27	53.58	20.70	0.32	10.29	Average
6	0.20	46.01	-17.57	63.58	35.40	0.32	10.29	QP
7	0.22	33.00	-19.92	52.92	22.40	0.33	10.27	Average
8	0.22	47.30	-15.62	62.92	36.70	0.33	10.27	QP
9	0.23	32.69	-19.70	52.39	22.10	0.33	10.26	Average
10	0.23	46.99	-15.40	62.39	36.40	0.33	10.26	QP
11	0.26	29.78	-21.51	51.29	19.20	0.35	10.23	Average
12	0.26	42.38	-18.91	61.29	31.80	0.35	10.23	QP
13	0.29	30.67	-19.92	50.59	20.10	0.36	10.21	Average
14	0.29	42.47	-18.12	60.59	31.90	0.36	10.21	QP
15	0.32	29.96	-19.75	49.71	19.40	0.37	10.19	Average
16	0.32	40.16	-19.55	59.71	29.60	0.37	10.19	QP
17	0.38	25.66	-22.68	48.34	15.10	0.38	10.18	Average
18	0.38	38.06	-20.28	58.34	27.50	0.38	10.18	QP
19	0.41	23.36	-24.37	47.73	12.80	0.39	10.17	Average
20	0.41	38.56	-19.17	57.73	28.00	0.39	10.17	QP
21	0.44	23.76	-23.31	47.07	13.20	0.40	10.16	Average
22	0.44	37.46	-19.61	57.07	26.90	0.40	10.16	QP
23	0.49	26.47	-19.67	46.14	15.90	0.41	10.16	Average
24	0.49	38.77	-17.37	56.14	28.20	0.41	10.16	QP
25	0.58	36.99	-9.01	46.00	26.50	0.34	10.15	Average
26	0.58	44.29	-11.71	56.00	33.80	0.34	10.15	QP
27 *	0.64	37.94	-8.06	46.00	27.50	0.29	10.15	Average
28	0.64	44.64	-11.36	56.00	34.20	0.29	10.15	QP
29	0.72	31.61	-14.39	46.00	21.20	0.26	10.15	Average
30	0.72	40.41	-15.59	56.00	30.00	0.26	10.15	QP

3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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.

	Ant. 1	Ant. 2	for Power	for PSD	Limit Reduction	Limit Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	-3.00	-3.00	-3.00	0.01	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	R&S	FSP40	100319	9kHz~40GHz	Dec. 28, 2013	Aug. 28, 2014~ Sep. 02, 2014	Dec. 27, 2014	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV30	101338	9kHz~30GHz	May 04, 2014	Aug. 28, 2014~ Sep. 02, 2014	May 03, 2015	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	30MHz~40GHz	Feb. 27, 2014	Aug. 28, 2014~ Sep. 02, 2014	Feb. 26, 2015	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Feb. 27, 2014	Aug. 28, 2014~ Sep. 02, 2014	Feb. 26, 2015	Conducted (TH01-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 09, 2013	Aug. 27, 2014~ Aug. 28, 2014	Oct. 08, 2014	Radiation (03CH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 05, 2013	Aug. 27, 2014~ Aug. 28, 2014	Nov. 04, 2014	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 04, 2014	Aug. 27, 2014~ Aug. 28, 2014	May 03, 2015	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 08, 2014	Aug. 27, 2014~ Aug. 28, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 08, 2014	Aug. 27, 2014~ Aug. 28, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 18, 2013	Aug. 27, 2014~ Aug. 28, 2014	Nov. 17, 2014	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 10, 2014	Aug. 27, 2014~ Aug. 28, 2014	Mar. 09, 2015	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161073	1MHz~1GHz	May 04, 2014	Aug. 27, 2014~ Aug. 28, 2014	May 03, 2015	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Dec. 10, 2013	Aug. 27, 2014~ Aug. 28, 2014	Dec. 09, 2014	Radiation (03CH01-KS)
AC Power Source	Chroma	61601	F104090004	N/A	N/A	Aug. 27, 2014~ Aug. 28, 2014	N/A	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	N/A	Aug. 27, 2014~ Aug. 28, 2014	N/A	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	N/A	Aug. 27, 2014~ Aug. 28, 2014	N/A	Radiation (03CH01-KS)
ESCIO TEST Receiver	R&S	ESCI	100724	9kHz~3GHz	Feb. 21, 2014	Jul. 30, 2014	Feb. 20, 2015	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Mar. 04, 2014	Jul. 30, 2014	Mar. 03, 2015	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Mar. 04, 2014	Jul. 30, 2014	Mar. 03, 2015	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Dec. 17, 2013	Jul. 30, 2014	Dec. 16, 2014	Conduction (CO01-SZ)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.30**

Uncertainty of Radiated Emission Measurement (30MHz~1GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.50**