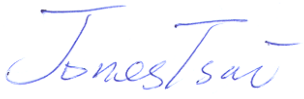
FCC RF Test Report

APPLICANT	:	Lenovo (Shanghai) Electronics Technology Co., Ltd.
EQUIPMENT	:	Portable Tablet Computer
BRAND NAME	:	lenovo
MODEL NAME	:	YOGA Tablet 2–851F
FCC ID	:	O57YT2851F
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Nov. 24, 2014 and testing was completed on Dec. 11, 2014. We, SPORTON INTERNATIONAL (KUNSHAN) 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager

Testing Laboratory
2627

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR4N2403C	Rev. 01	Initial issue of report	Jan. 07, 2015

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	99% Bandwidth	-	Pass	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.75 dB at 2484.920 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 18.38 dB at 0.150 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Lenovo (Shanghai) Electronics Technology Co., Ltd.
No. 68 Building, 199 Fenju Road, Wai Gao Qiao FTZ, Shanghai, China

1.2 Manufacturer

Lenovo PC HK Limited
23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong

1.3 Factory

LENOVO MOBILE COMMUNICATION TECHNOLOGY CO., LTD
NO.999 QISHAN NORTH 2ND ROAD, INFORMATION & OPTOELECTRONICS PARK, TORCH HIGH TECH, XIAMEN FUJIAN 361009, CHINA

LENOVO MOBILE COMMUNICATION (WUHAN) CO., LTD
19 GAOXIN 4TH RD EAST LAKE HIGH-TECH, ZONE WUHAN HUBEI 430205, CHINA

1.4 Product Feature of Equipment Under Test

Product Feature	
Equipment	Portable Tablet Computer
Brand Name	lenovo
Model Name	YOGA Tablet 2–851F
FCC ID	O57YT2851F
EUT supports Radios application	WLAN2.4GHz 802.11b/g/n HT20/HT40 WLAN5GHz 802.11a/n HT20/HT40 Bluetooth v3.0+EDR Bluetooth v4.0 LE
HW Version	Lenovopad YOGA Tablet 2-851F
SW Version	Lenovo TAB2-W10-S100-001-140624-ES
EUT Stage	Production Unit

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

1.5 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>802.11b : 14.99 dBm (0.0316 W)
802.11g : 19.27 dBm (0.0845 W)
802.11n HT20 : 20.09 dBm (0.1021 W)
802.11n HT40 : 16.63 dBm (0.0460 W)</td></tr>
<tr><td>99% Occupied Bandwidth</td><td>802.11b : 11.35MHz
802.11g : 17.15MHz
802.11n HT20 : 18.05MHz
802.11n HT40 : 36.80MHz</td></tr>
<tr><td>Antenna Type</td><td>< Chain Port 0>
802.11b/g/n : IFA Antenna with gain 0.00 dBi
< Chain Port 1>
802.11b/g/n : IFA Antenna with gain -0.50 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><th></th><th>Chain Port 0</th><th>Chain Port 1</th></tr>
<tr><td>802.11 b</td><td>V</td><td>V</td></tr>
<tr><td>802.11 g</td><td>V</td><td>V</td></tr>
<tr><td>802.11 n SISO</td><td>V</td><td>V</td></tr>
<tr><td>802.11 n MIMO</td><td>V</td><td>V</td></tr>
</table>
</td></tr>
</table>

1.6 Modification of EUT

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

1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.			
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	**Sporton Site No.**			**FCC/IC Registration No.**
	TH01-KS	03CH01-KS	CO01-KS	149928/4086E-1

Note: The test site complies with ANSI C63.4 2009 requirement.

1.8 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 C63.4-2009
- ANSI C63.10-2009
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 4
- NOTICE 2012-DRS0126

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. Per the section 2.2.3 of Notice of 2012-DRS0126, " Receivers Excluded from Industry Canada Requirements", only radiocommunication receivers operating in stand-alone mode within the band 30-960 MHz and scanner receivers are subject to Industry Canada requirements.

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 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.

Channel	Frequency (MHz)	Chain Port	2.4GHz 802.11b RF Power (dBm)				
			Data Rate	Power vs. Data Rate			
			1Mbps	Channel	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412	0	14.55	CH 11	14.30	14.36	14.67
CH 06	2437	0	14.71				
CH 11	2462	0	**14.73**				
CH 01	2412	1	14.81	CH 11	14.77	14.93	14.84
CH 06	2437	1	14.91				
CH 11	2462	1	**14.99**				

Channel	Frequency (MHz)	Chain Port	2.4GHz 802.11g RF Power (dBm)							
			Data Rate	Power vs. Data Rate						
			6Mbps	Channel	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 01	2412	0	18.78	CH 06	18.34	17.97	18.14	17.90	17.94	18.03	17.98
CH 06	2437	0	**19.04**								
CH 11	2462	0	18.96								
CH 01	2412	1	19.21	CH 06	19.12	18.89	18.88	18.34	18.43	18.38	18.23
CH 06	2437	1	**19.27**								
CH 11	2462	1	19.23								

Channel	Frequency (MHz)	Chain Port	2.4GHz 802.11n HT-20 RF Power (dBm)							
			MCS Index	Power vs. MCS Index						
			MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412	0	17.07	CH 06	17.08	16.81	16.79	16.69	16.52	16.29	16.15
CH 06	2437	0	**17.23**								
CH 11	2462	0	17.17								
CH 01	2412	1	17.02	CH 11	16.89	16.79	16.91	16.88	16.78	16.86	16.94
CH 06	2437	1	16.96								
CH 11	2462	1	**17.63**								
CH 01	2412	0+1(0)	16.88	CH 01	16.58	16.48	16.33	16.11	16.05	15.79	15.51
CH 06	2437	0+1(0)	16.35								
CH 11	2462	0+1(0)	16.72								
CH 01	2412	0+1(1)	17.27	CH 01	16.92	17.03	16.74	16.69	16.81	16.87	16.66
CH 06	2437	0+1(1)	16.77								
CH 11	2462	0+1(1)	16.97								
CH 01	2412	0+1	**20.09**	CH 01	19.76	19.77	19.55	19.42	19.46	19.37	19.13
CH 06	2437	0+1	19.58								
CH 11	2462	0+1	19.86								

Channel	Frequency (MHz)	Chain Port	2.4GHz 802.11n HT-40 RF Power (dBm)							
			MCS Index	Power vs. MCS Index						
			MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 03	2422	0	14.03	CH 06	14.44	14.32	14.29	14.12	13.94	14.03	13.75
CH 06	2437	0	**14.55**								
CH 09	2452	0	14.32								
CH 03	2422	1	14.53	CH 09	14.69	14.38	14.25	14.23	14.53	14.44	14.04
CH 06	2437	1	14.68								
CH 09	2452	1	**14.73**								
CH 03	2422	0+1(0)	13.66	CH 06	13.58	13.53	13.47	13.51	13.38	13.52	13.48
CH 06	2437	0+1(0)	13.66								
CH 09	2452	0+1(0)	13.44								
CH 03	2422	0+1(1)	13.43	CH 06	13.03	12.99	12.89	12.92	13.03	12.87	12.83
CH 06	2437	0+1(1)	13.57								
CH 09	2452	0+1(1)	13.66								
CH 03	2422	0+1	16.56	CH 06	16.32	16.28	16.20	16.24	16.22	16.22	16.18
CH 06	2437	0+1	**16.63**								
CH 09	2452	0+1	16.56								

Note: Chain Port 0+1 is a calculated result from sum of the power Chain Port 0+1(0) and Chain Port 0+1(1).

2.3 Test Mode

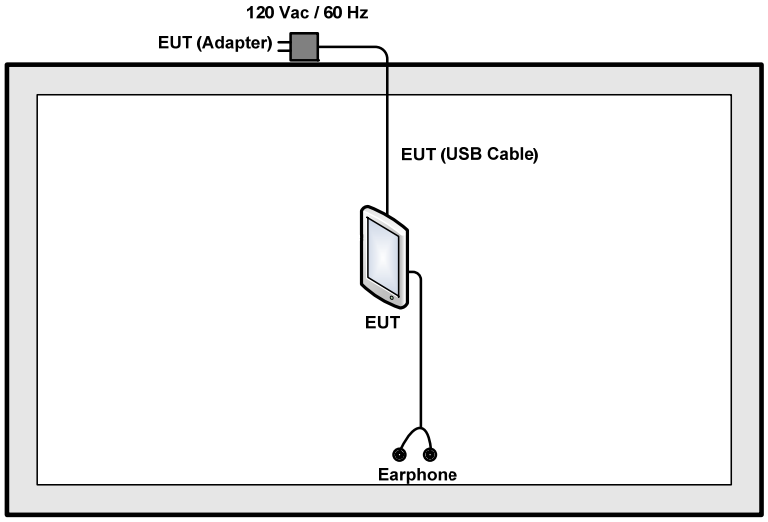
Final results of test modes, data rates and test channels are shown as following table.

<2.4GHz>

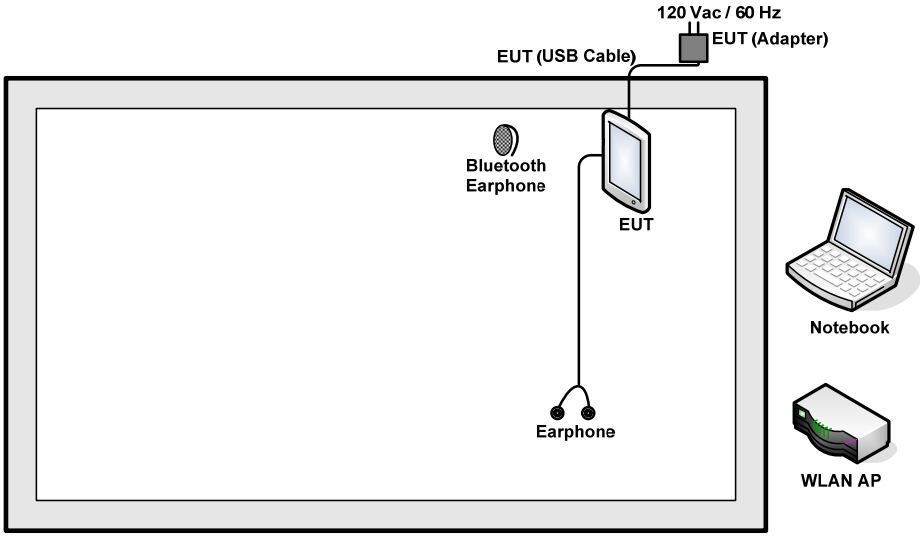
Test Cases				
	Test Items	**Mode**	**Data Rate**	**Test Channel**
Conducted TCs	**6dB and 99% BW Power Spectral Density**	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
		802.11n HT40	**MCS0**	**3/6/9**
	Output Power	**802.11b**	**1 Mbps**	**1/6/11**
		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 : Bluetooth Link + WLAN (2.4G) Link + USB Cable (Charging from Adapter) + Battery + Earphone			

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.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Bluetooth Earphone	Lenovo	LBH505	N/A	N/A	N/A
4.	Earphone	Lenovo	SH100	N/A	Unshielded, 1.2 m	N/A

2.6 EUT Operation Test Setup

For WLAN function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.

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

2.7 Measurement Results Explanation Example

For all conducted test items:

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

Example:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.
Following shows an offset computation example with cable loss 6 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
= 6 + 10 = 16 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

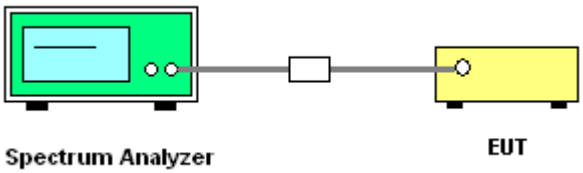
3.1.2 Measuring Instruments

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

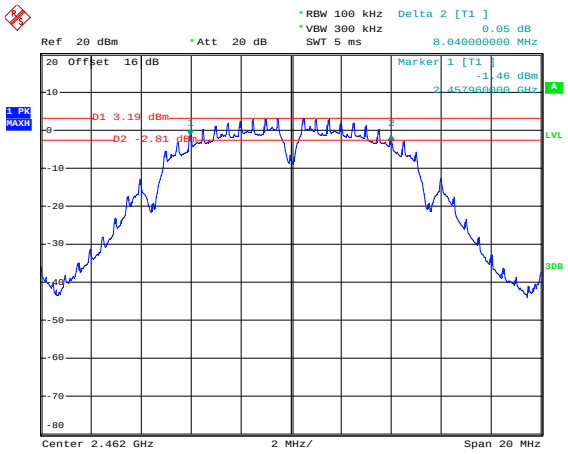
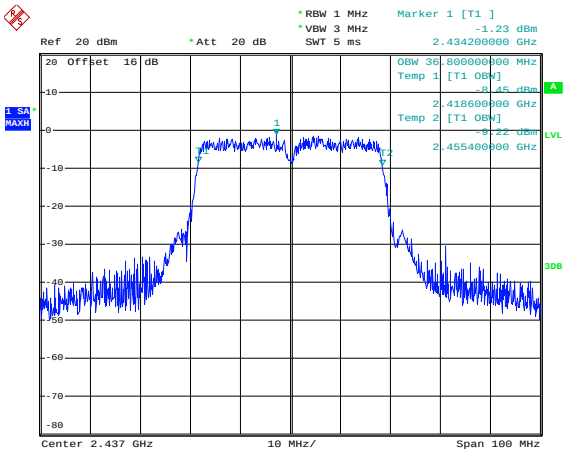
3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Test Band :	2.4GHz	Temperature :	24~25℃
Test Engineer :	Issac Song	Relative Humidity :	49~51%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	99% Bandwidth (MHz)		6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Chain Port 0	Chain Port 1	Chain Port 0	Chain Port 1		
11b	1Mbps	1	1	2412	-	11.35	-	8.08	0.5	Pass
11b	1Mbps	1	6	2437	-	11.35	-	8.08	0.5	Pass
11b	1Mbps	1	11	2462	-	11.35	-	8.04	0.5	Pass
11g	6Mbps	1	1	2412	-	17.10	-	15.54	0.5	Pass
11g	6Mbps	1	6	2437	-	17.00	-	15.32	0.5	Pass
11g	6Mbps	1	11	2462	-	17.15	-	15.64	0.5	Pass
HT20	MCS0	1	1	2412	-	18.05	-	15.44	0.5	Pass
HT20	MCS0	1	6	2437	-	17.90	-	15.64	0.5	Pass
HT20	MCS0	1	11	2462	-	17.90	-	15.78	0.5	Pass
HT40	MCS0	1	3	2422	-	36.70	-	36.32	0.5	Pass
HT40	MCS0	1	6	2437	-	36.70	-	36.24	0.5	Pass
HT40	MCS0	1	9	2452	-	36.70	-	36.36	0.5	Pass
HT20	MCS0	2	1	2412	17.95	17.95	15.62	15.46	0.5	Pass
HT20	MCS0	2	6	2437	18.05	17.95	15.76	16.26	0.5	Pass
HT20	MCS0	2	11	2462	18.00	18.00	15.44	16.28	0.5	Pass
HT40	MCS0	2	3	2422	36.70	36.70	36.32	36.28	0.5	Pass
HT40	MCS0	2	6	2437	36.80	36.60	36.28	36.32	0.5	Pass
HT40	MCS0	2	9	2452	36.70	36.60	36.32	36.32	0.5	Pass

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	
Date: 25.NOV.2014 11:50:12	Date: 3.DEC.2014 16:37:46

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

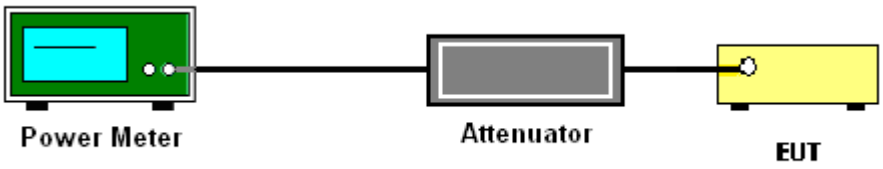
3.2.2 Measuring Instruments

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 :	24~25℃
Test Engineer :	Issac Song	Relative Humidity :	49~51%

Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Max. Limit (dBm)		DG (dBi)		Pass/Fail
					Chain Port 0	Chain Port 1	SUM	Chain Port 0	Chain Port 1	Chain Port 0	Chain Port 1	
11b	1Mbps	1	1	2412	14.55	14.81		30.00	30.00	0.00	-0.50	Pass
11b	1Mbps	1	6	2437	14.71	14.91		30.00	30.00	0.00	-0.50	Pass
11b	1Mbps	1	11	2462	14.73	14.99		30.00	30.00	0.00	-0.50	Pass
11g	6Mbps	1	1	2412	18.78	19.21		30.00	30.00	0.00	-0.50	Pass
11g	6Mbps	1	6	2437	19.04	19.27		30.00	30.00	0.00	-0.50	Pass
11g	6Mbps	1	11	2462	18.96	19.23		30.00	30.00	0.00	-0.50	Pass
HT20	MCS0	1	1	2412	17.07	17.02	-	30.00	30.00	0.00	-0.50	Pass
HT20	MCS0	1	6	2437	17.23	16.96		30.00	30.00	0.00	-0.50	Pass
HT20	MCS0	1	11	2462	17.17	17.63		30.00	30.00	0.00	-0.50	Pass
HT40	MCS0	1	3	2422	14.03	14.53		30.00	30.00	0.00	-0.50	Pass
HT40	MCS0	1	6	2437	14.55	14.68		30.00	30.00	0.00	-0.50	Pass
HT40	MCS0	1	9	2452	14.32	14.73		30.00	30.00	0.00	-0.50	Pass
HT20	MCS0	2	1	2412	16.88	17.27	20.09	30.00		2.76		Pass
HT20	MCS0	2	6	2437	16.35	16.77	19.58	30.00		2.76		Pass
HT20	MCS0	2	11	2462	16.72	16.97	19.86	30.00		2.76		Pass
HT40	MCS0	2	3	2422	13.66	13.43	16.56	30.00		2.76		Pass
HT40	MCS0	2	6	2437	13.66	13.57	16.63	30.00		2.76		Pass
HT40	MCS0	2	9	2452	13.44	13.66	16.56	30.00		2.76		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 :	24~25℃
Test Engineer :	Issac Song	Relative Humidity :	49~51%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					Chain Port 0	Chain Port 1	Chain Port 0	Chain Port 1	Sum Power
11b	1Mbps	1	1	2412	0.00	0.00	11.08	11.36	-
11b	1Mbps	1	6	2437	0.00	0.00	11.23	11.48	
11b	1Mbps	1	11	2462	0.00	0.00	11.24	11.57	
11g	6Mbps	1	1	2412	0.20	0.21	8.22	8.88	
11g	6Mbps	1	6	2437	0.20	0.21	8.63	8.95	
11g	6Mbps	1	11	2462	0.20	0.21	8.47	8.90	
HT20	MCS0	1	1	2412	0.22	0.22	6.60	7.31	
HT20	MCS0	1	6	2437	0.22	0.22	6.91	7.20	
HT20	MCS0	1	11	2462	0.22	0.22	6.76	7.65	
HT40	MCS0	1	3	2422	0.22	0.23	4.57	4.99	
HT40	MCS0	1	6	2437	0.22	0.23	4.94	5.05	
HT40	MCS0	1	9	2452	0.22	0.23	4.78	5.16	
HT20	MCS0	2	1	2412	0.42	0.42	6.84	7.33	10.10
HT20	MCS0	2	6	2437	0.42	0.42	6.38	6.96	9.69
HT20	MCS0	2	11	2462	0.42	0.42	6.82	7.13	9.98
HT40	MCS0	2	3	2422	0.43	0.43	4.12	3.92	7.03
HT40	MCS0	2	6	2437	0.43	0.43	4.29	3.89	7.10
HT40	MCS0	2	9	2452	0.43	0.43	4.32	3.82	7.09

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.

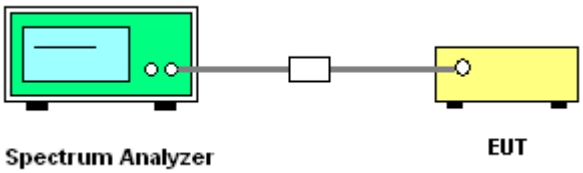
   If measurements performed using method (2) plus 10 log (N) exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

   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



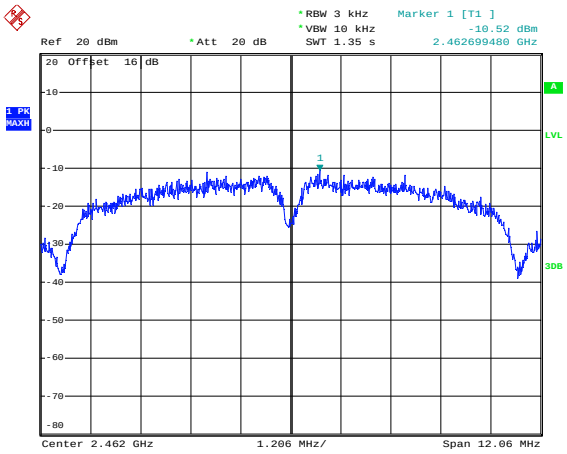
3.3.5 Test Result of Power Spectral Density

Test Band :	2.4GHz	Temperature :	24~25℃
Test Engineer :	Issac Song	Relative Humidity :	49~51%

Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak Power Density (dBm/3kHz)			Max. Limit (dBm/3kHz)		DG (dBi)		Pass/Fail
					Chain Port 0	Chain Port 1	Worst +10log(2)	Chain Port 0	Chain Port 1	Chain Port 0	Chain Port 1	
11b	1Mbps	1	1	2412	-	-11.17	-	8.00	8.00	0.00	-0.50	Pass
11b	1Mbps	1	6	2437	-	-11.09		8.00	8.00	0.00	-0.50	Pass
11b	1Mbps	1	11	2462	-	-10.52		8.00	8.00	0.00	-0.50	Pass
11g	6Mbps	1	1	2412	-	-16.24		8.00	8.00	0.00	-0.50	Pass
11g	6Mbps	1	6	2437	-	-16.54		8.00	8.00	0.00	-0.50	Pass
11g	6Mbps	1	11	2462	-	-16.42		8.00	8.00	0.00	-0.50	Pass
HT20	MCS0	1	1	2412	-	-18.62		8.00	8.00	0.00	-0.50	Pass
HT20	MCS0	1	6	2437	-	-17.26		8.00	8.00	0.00	-0.50	Pass
HT20	MCS0	1	11	2462	-	-18.37		8.00	8.00	0.00	-0.50	Pass
HT40	MCS0	1	3	2422	-	-22.29		8.00	8.00	0.00	-0.50	Pass
HT40	MCS0	1	6	2437	-	-23.16		8.00	8.00	0.00	-0.50	Pass
HT40	MCS0	1	9	2452	-	-22.67		8.00	8.00	0.00	-0.50	Pass
HT20	MCS0	2	1	2412	-18.60	-17.88	-14.87	8.00		2.76		Pass
HT20	MCS0	2	6	2437	-19.24	-17.17	-14.16	8.00		2.76		Pass
HT20	MCS0	2	11	2462	-18.24	-16.98	-13.97	8.00		2.76		Pass
HT40	MCS0	2	3	2422	-23.50	-24.22	-20.49	8.00		2.76		Pass
HT40	MCS0	2	6	2437	-24.18	-23.93	-20.92	8.00		2.76		Pass
HT40	MCS0	2	9	2452	-24.06	-22.93	-19.92	8.00		2.76		Pass

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

Worst Case Power Density (dBm/3kHz)



Date: 25.NOV.2014 11:50:49

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).

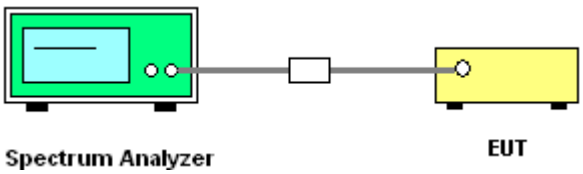
3.4.2 Measuring Instruments

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



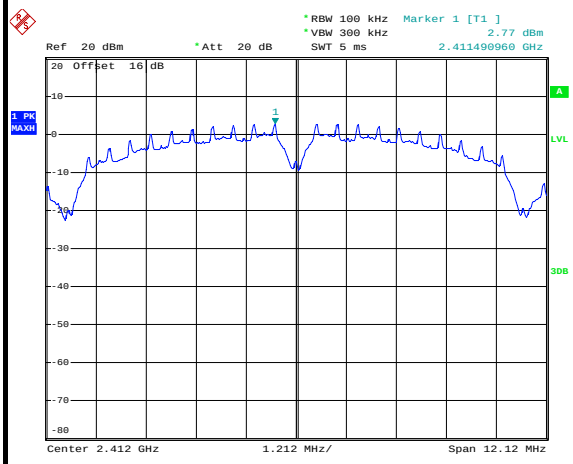
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Number of TX = 1, Chain Port 1 (Measured)

Number of TX	1	**Chain Port :**	1
Test Mode :	802.11b	**Temperature :**	24~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	49~51%
Test Channel :	01	**Test Engineer :**	Issac Song

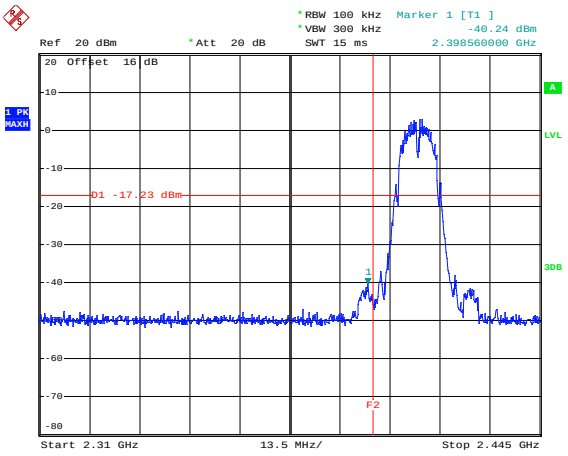
WLAN 802.11b Channel 01

100kHz PSD reference Level



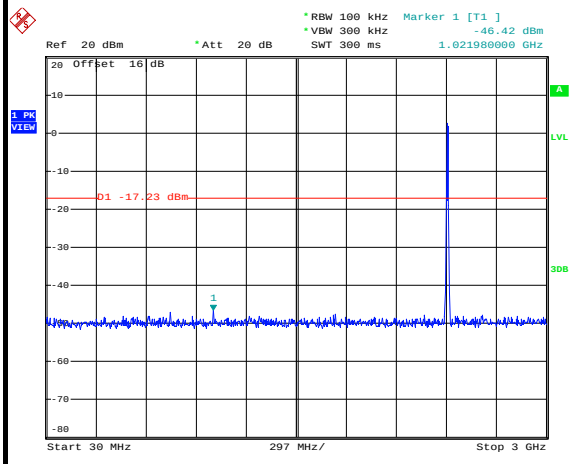
Date: 25.NOV.2014 11:42:24

Low Channel Plot



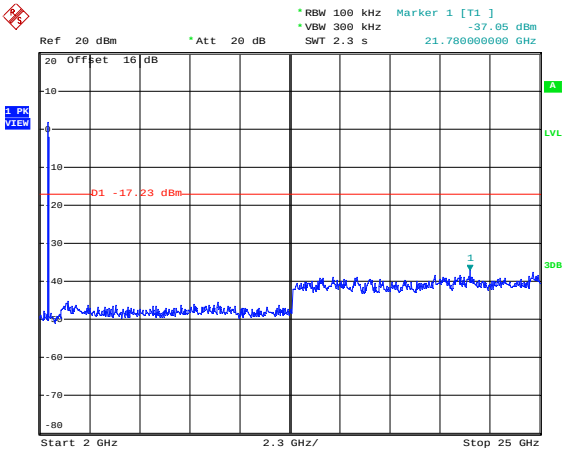
Date: 25.NOV.2014 11:42:42

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 11:43:08

Spurious Emission 2GHz~25GHz

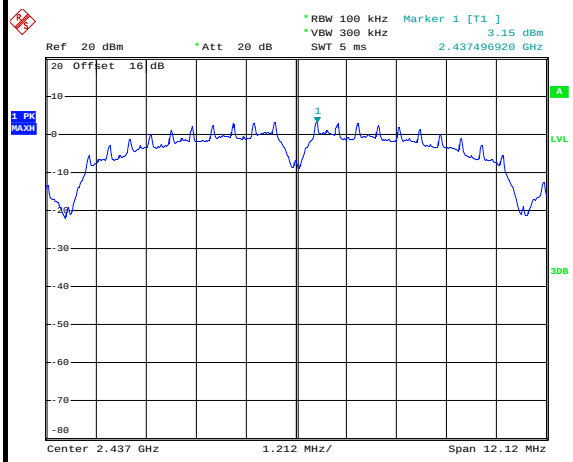


Date: 25.NOV.2014 11:43:26

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11b	**Temperature :**	24~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	49~51%
Test Channel :	06	**Test Engineer :**	Issac Song

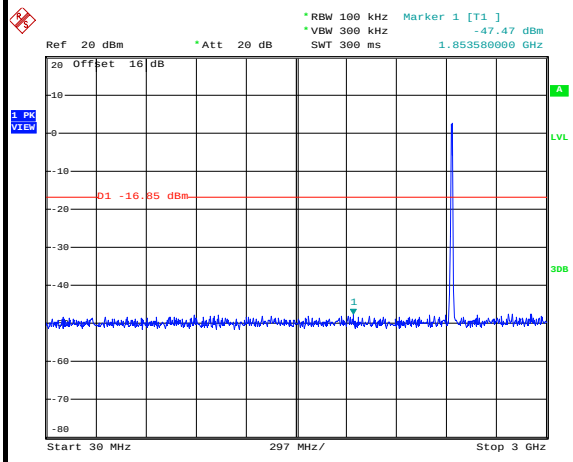
WLAN 802.11b Channel 06

100kHz PSD reference Level



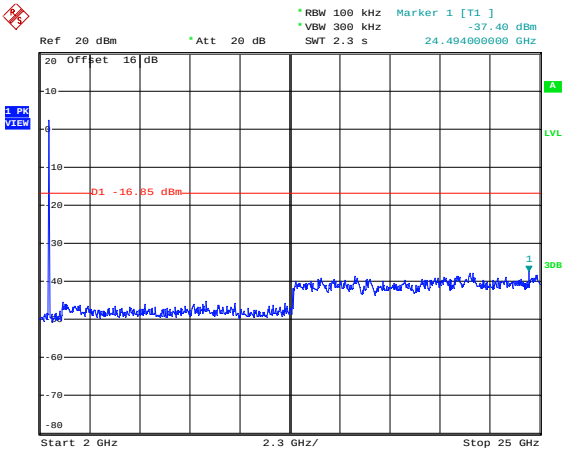
Date: 25.NOV.2014 11:47:26

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 11:47:49

Spurious Emission 2GHz~25GHz

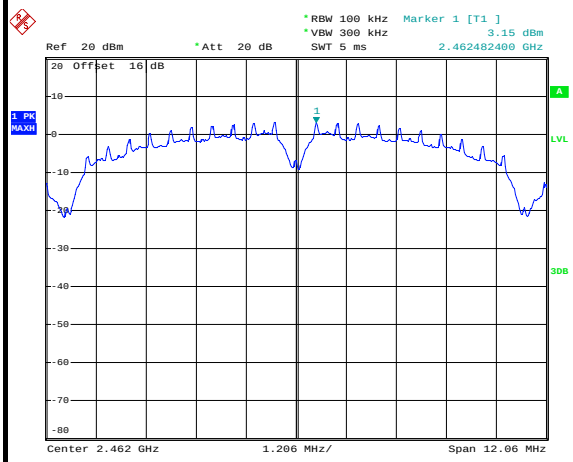


Date: 25.NOV.2014 11:48:07

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11b	**Temperature :**	24~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	49~51%
Test Channel :	11	**Test Engineer :**	Issac Song

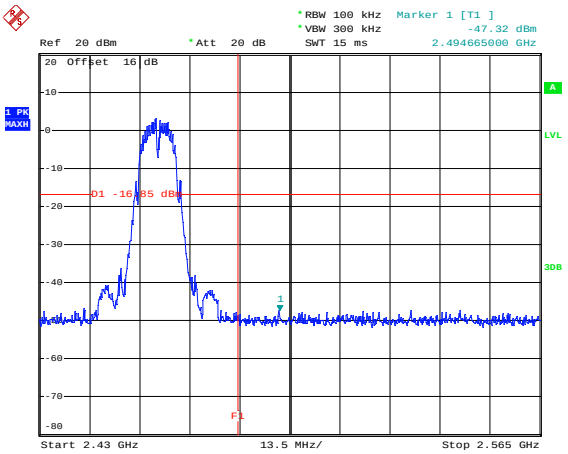
WLAN 802.11b Channel 11

100kHz PSD reference Level



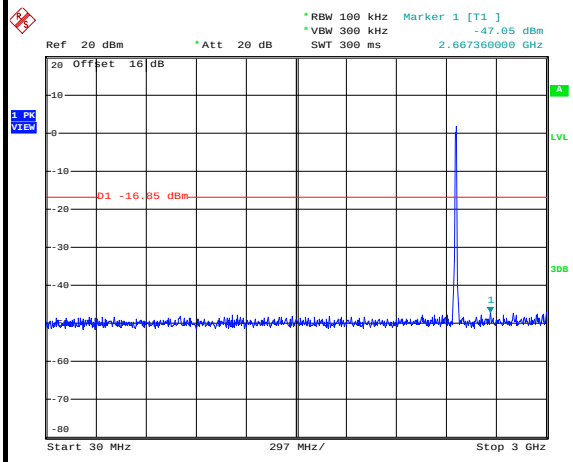
Date: 25.NOV.2014 11:51:11

High Channel Plot



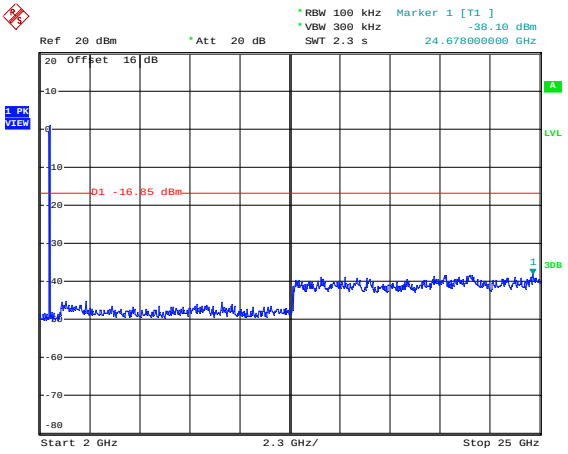
Date: 25.NOV.2014 11:51:28

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 11:51:49

Spurious Emission 2GHz~25GHz

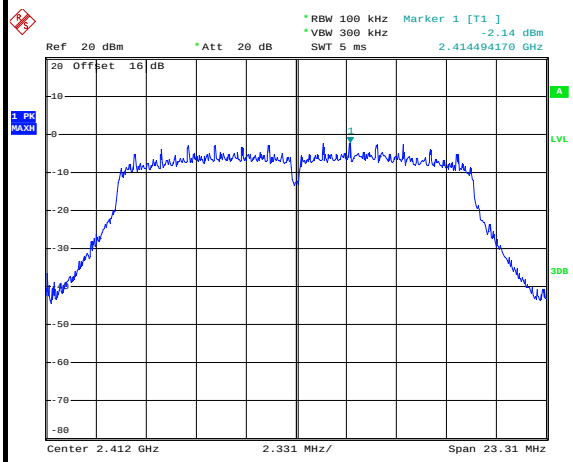


Date: 25.NOV.2014 11:52:07

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11g	**Temperature :**	24~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	49~51%
Test Channel :	01	**Test Engineer :**	Issac Song

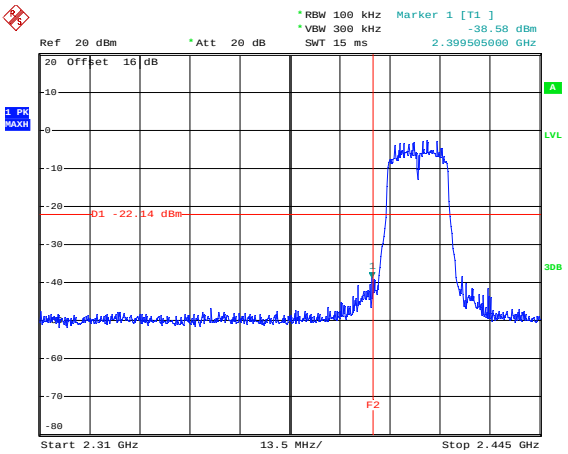
WLAN 802.11g Channel 01

100kHz PSD reference Level



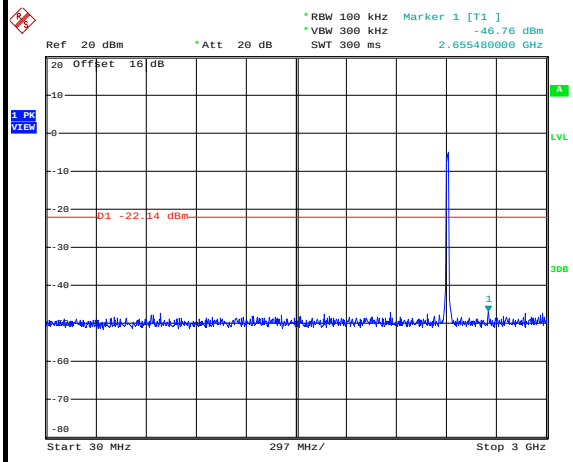
Date: 25.NOV.2014 11:58:36

Low Channel Plot



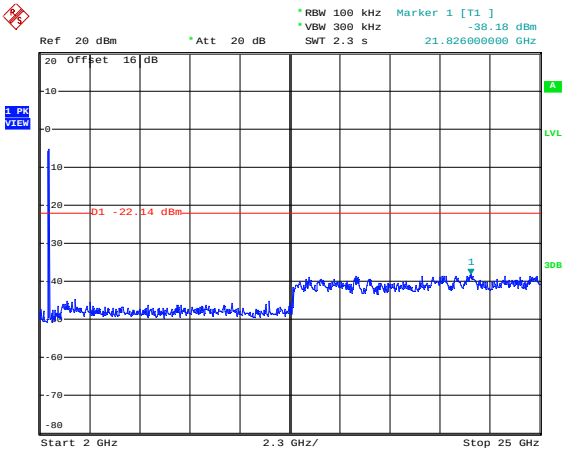
Date: 25.NOV.2014 11:58:53

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 11:59:25

Spurious Emission 2GHz~25GHz

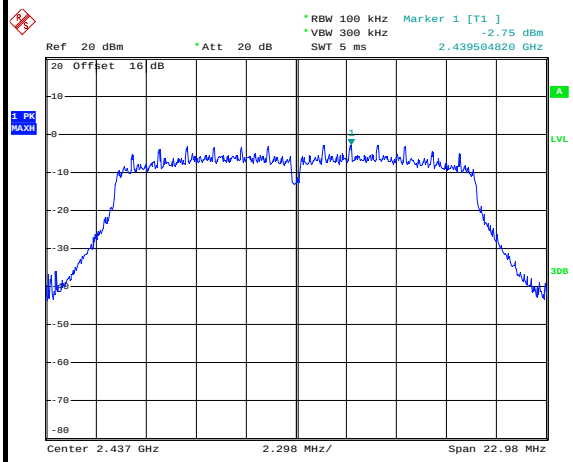


Date: 25.NOV.2014 11:59:43

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11g	**Temperature :**	24~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	49~51%
Test Channel :	06	**Test Engineer :**	Issac Song

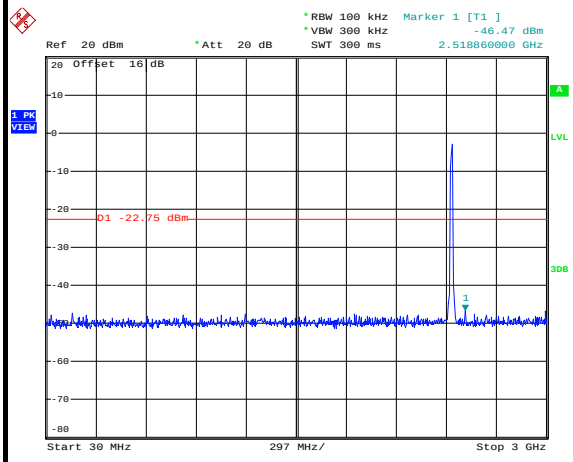
WLAN 802.11g Channel 06

100kHz PSD reference Level



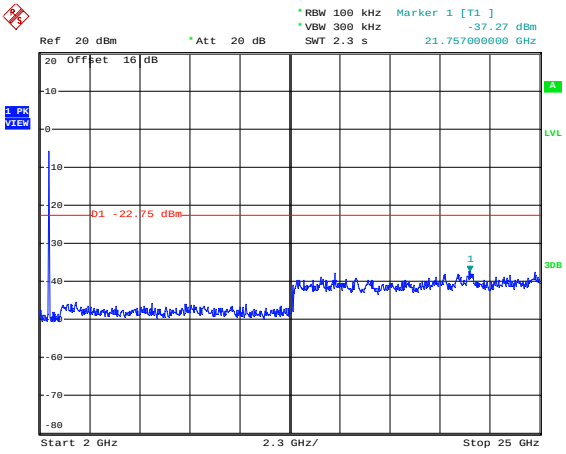
Date: 25.NOV.2014 12:03:20

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 12:03:46

Spurious Emission 2GHz~25GHz

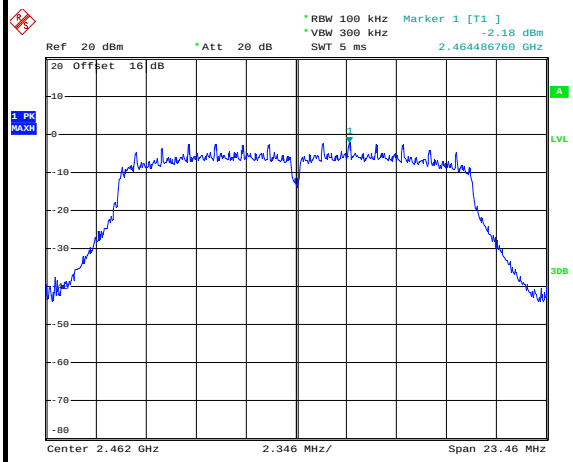


Date: 25.NOV.2014 12:04:04

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11g	**Temperature :**	24~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	49~51%
Test Channel :	11	**Test Engineer :**	Issac Song

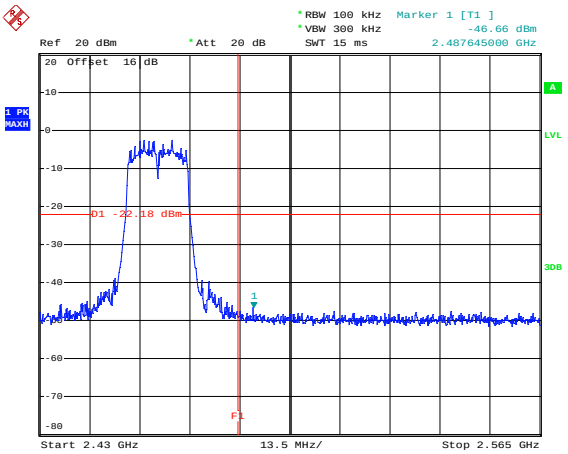
WLAN 802.11g Channel 11

100kHz PSD reference Level



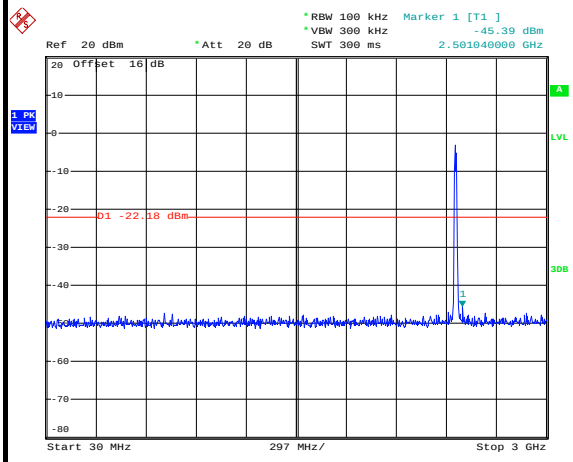
Date: 25.NOV.2014 12:12:16

High Channel Plot



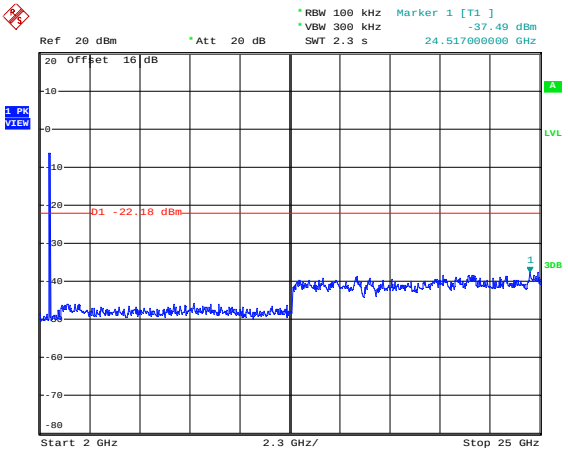
Date: 25.NOV.2014 12:12:32

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 12:12:56

Spurious Emission 2GHz~25GHz

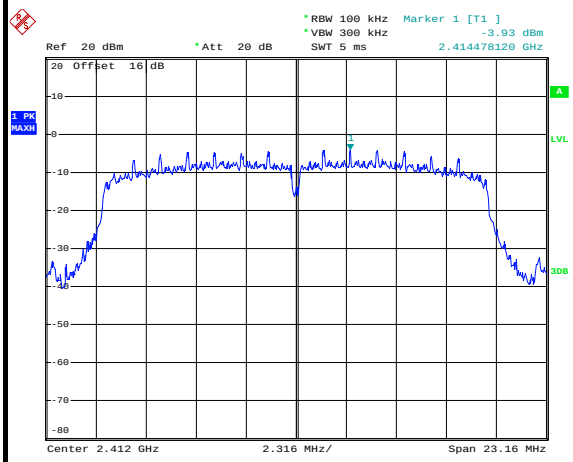


Date: 25.NOV.2014 12:13:14

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11n HT20	**Temperature :**	24~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	49~51%
Test Channel :	01	**Test Engineer :**	Issac Song

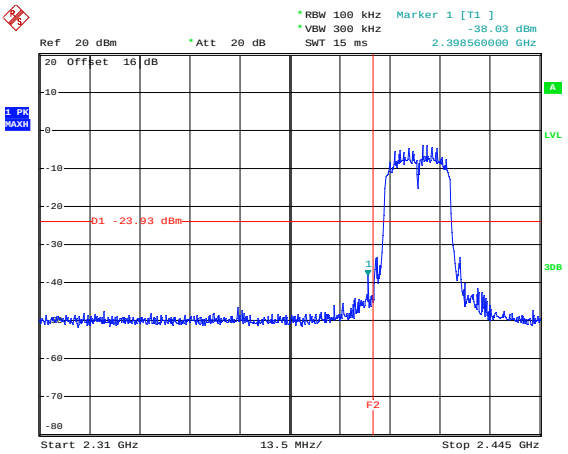
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



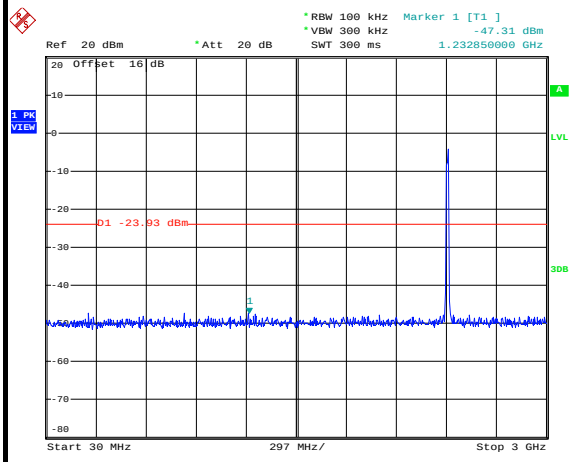
Date: 25.NOV.2014 13:31:33

Low Channel Plot



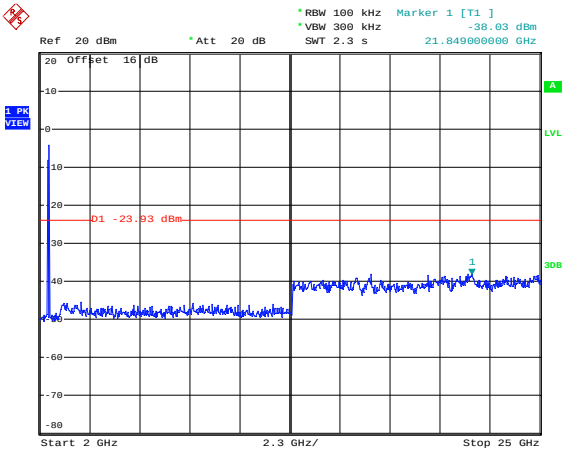
Date: 25.NOV.2014 13:31:51

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 13:32:20

Spurious Emission 2GHz~25GHz

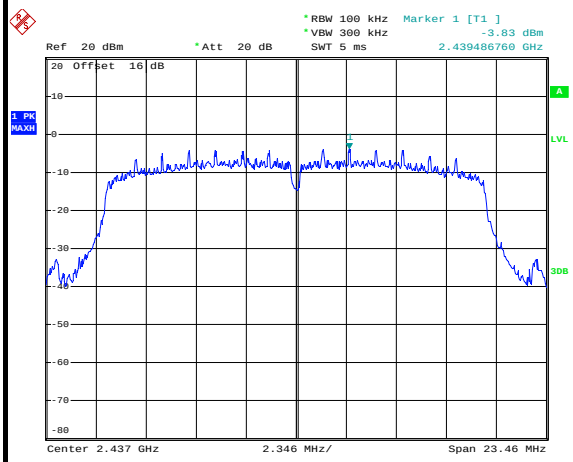


Date: 25.NOV.2014 13:32:38

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11n HT20	**Temperature :**	24~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	49~51%
Test Channel :	06	**Test Engineer :**	Issac Song

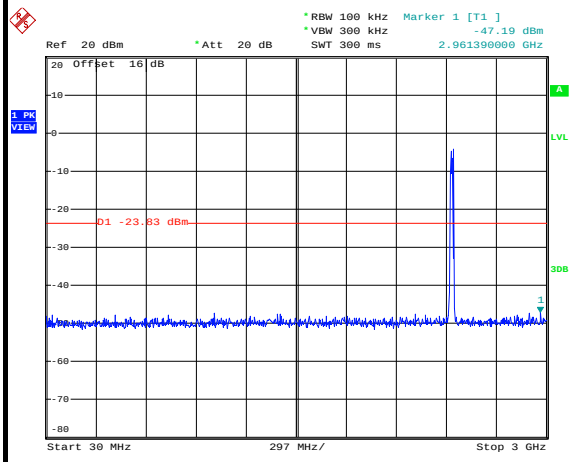
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



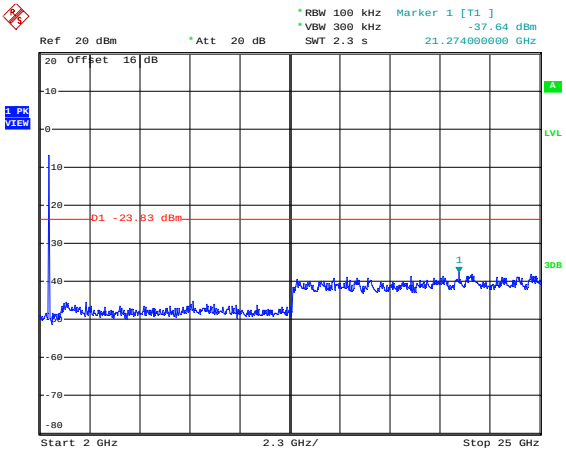
Date: 25.NOV.2014 13:37:01

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 13:37:45

Spurious Emission 2GHz~25GHz

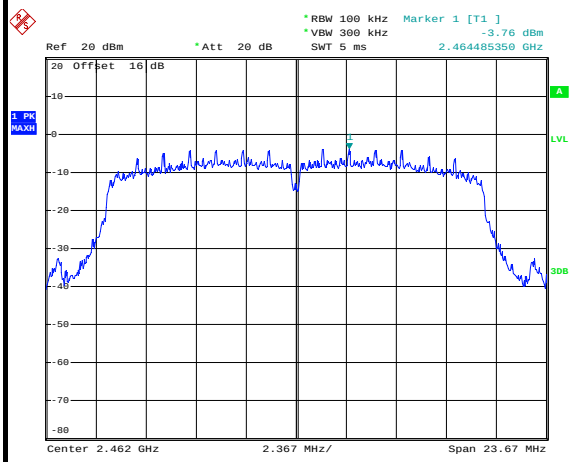


Date: 25.NOV.2014 13:38:03

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11n HT20	**Temperature :**	24~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	49~51%
Test Channel :	11	**Test Engineer :**	Issac Song

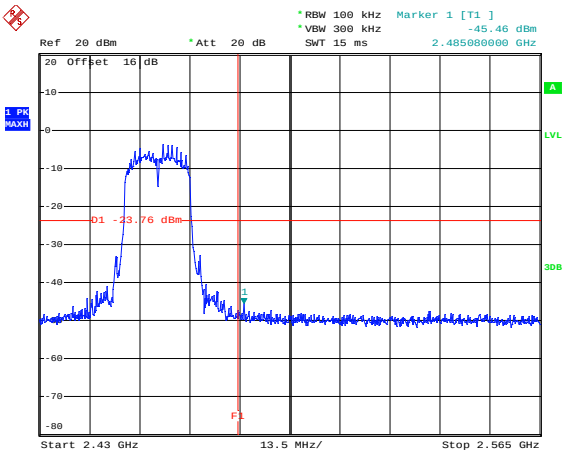
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



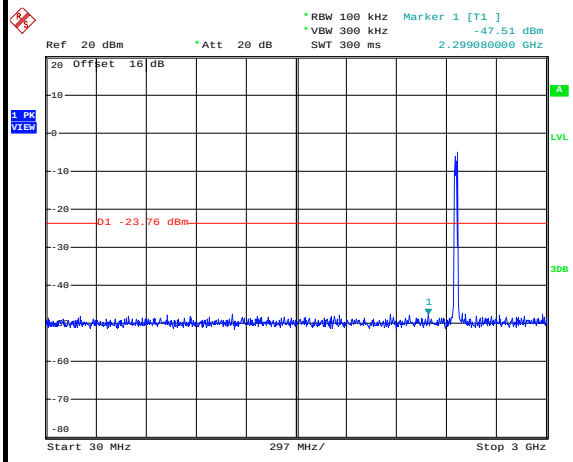
Date: 25.NOV.2014 13:43:50

High Channel Plot



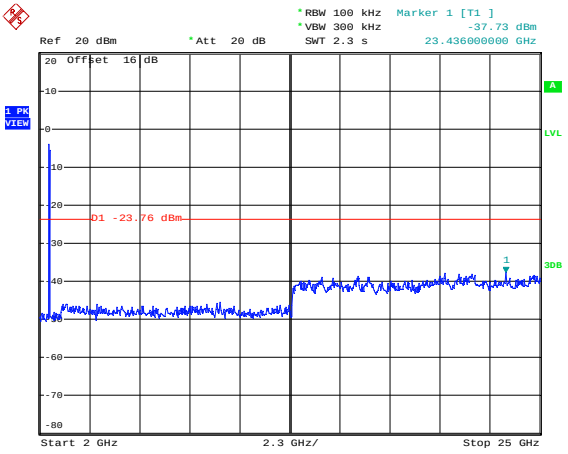
Date: 25.NOV.2014 13:44:12

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 13:44:37

Spurious Emission 2GHz~25GHz

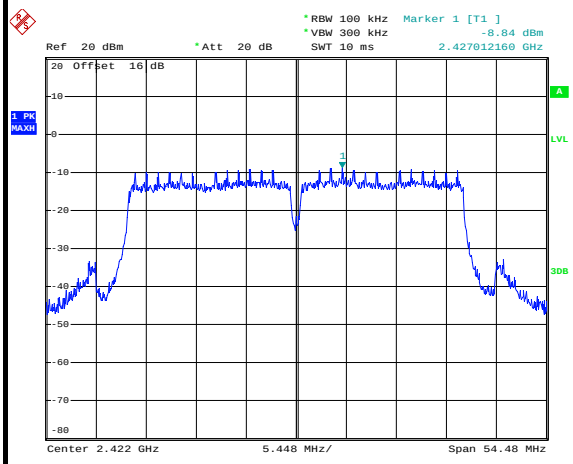


Date: 25.NOV.2014 13:44:54

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11n HT40	**Temperature :**	24~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	49~51%
Test Channel :	03	**Test Engineer :**	Issac Song

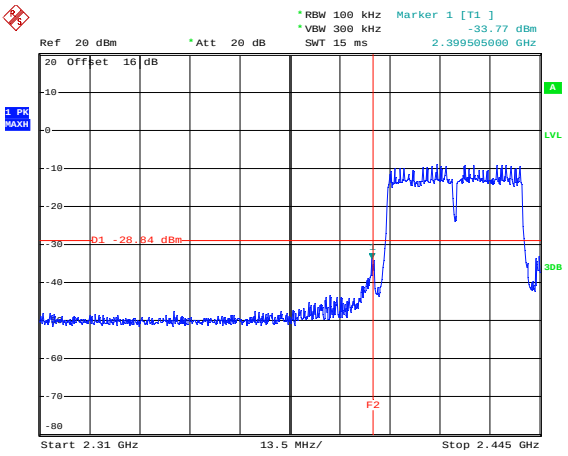
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



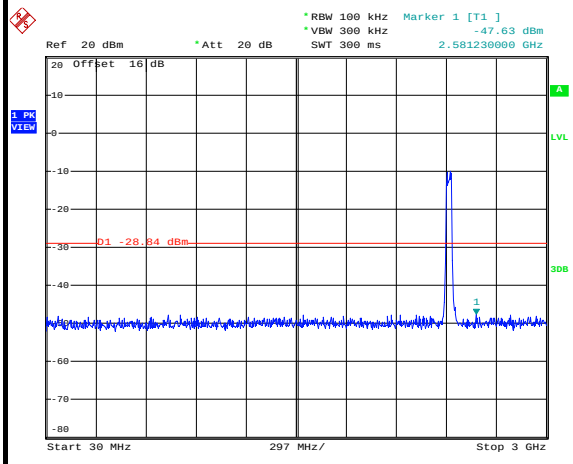
Date: 25.NOV.2014 13:52:24

Low Channel Plot



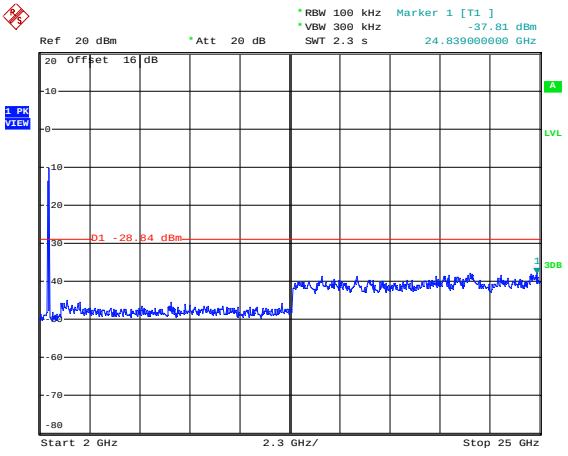
Date: 25.NOV.2014 13:52:41

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 13:56:21

Spurious Emission 2GHz~25GHz

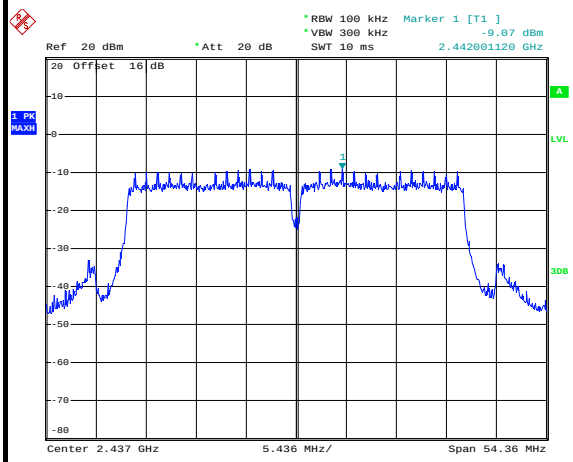


Date: 25.NOV.2014 13:54:13

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11n HT40	**Temperature :**	24~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	49~51%
Test Channel :	06	**Test Engineer :**	Issac Song

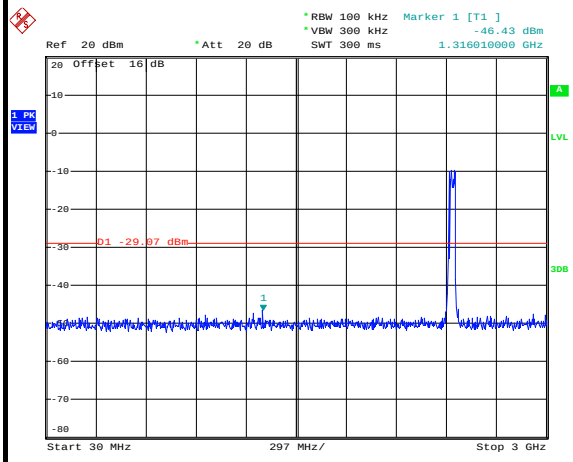
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



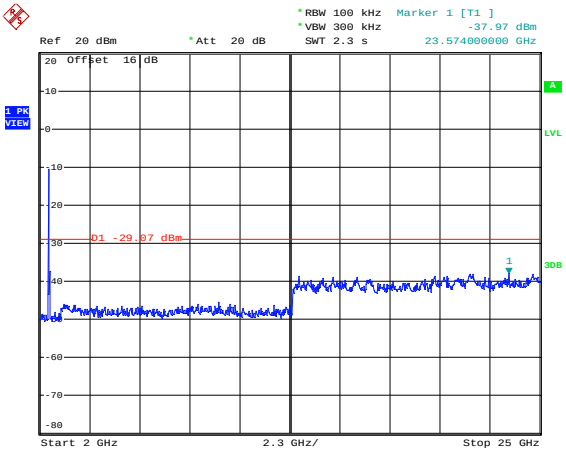
Date: 25.NOV.2014 14:01:44

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 14:05:03

Spurious Emission 2GHz~25GHz

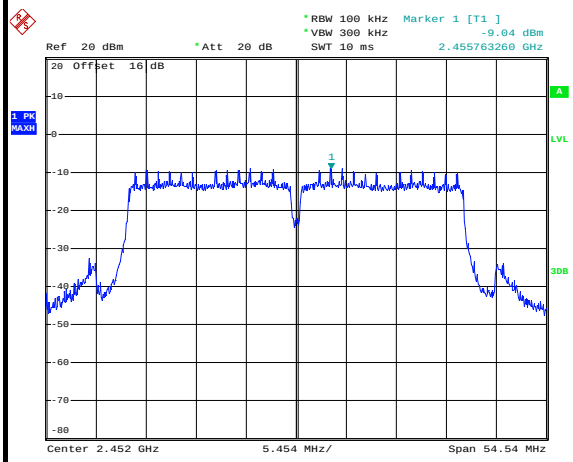


Date: 25.NOV.2014 14:03:07

Number of TX :	1	**Chain Port :**	1
Test Mode :	802.11n HT40	**Temperature :**	24~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	49~51%
Test Channel :	09	**Test Engineer :**	Issac Song

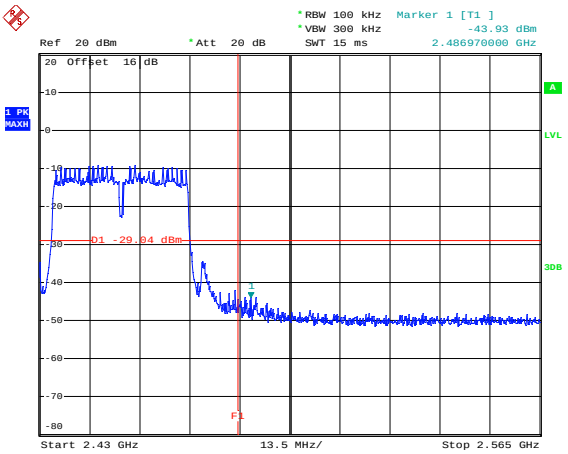
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



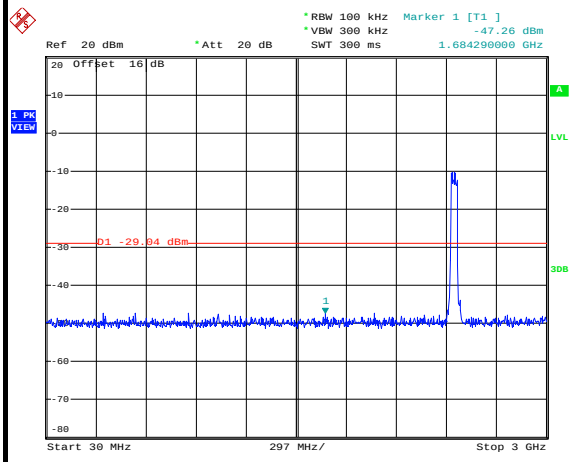
Date: 25.NOV.2014 14:09:18

High Channel Plot



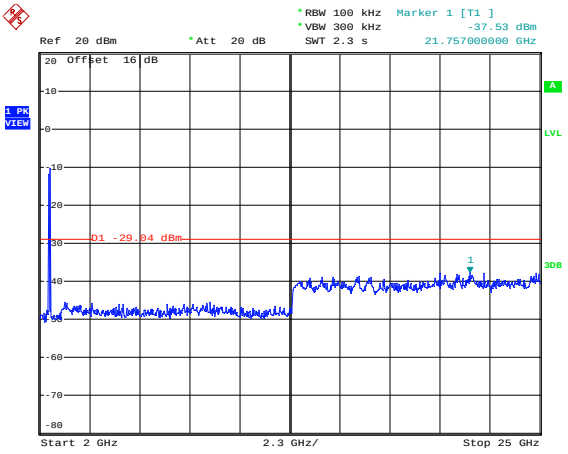
Date: 25.NOV.2014 14:09:37

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 14:10:55

Spurious Emission 2GHz~25GHz



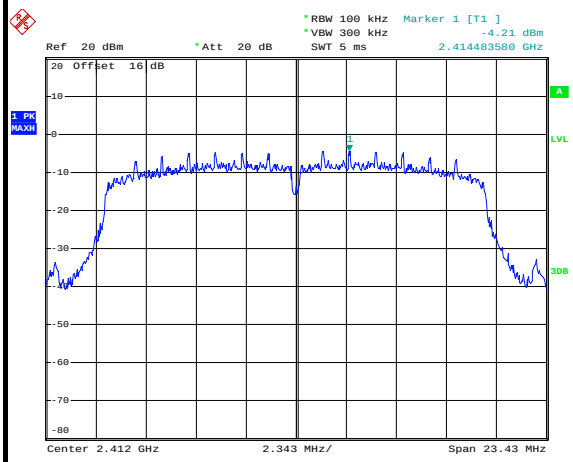
Date: 25.NOV.2014 14:11:13

Number of TX = 2, Chain Port 0+1(0) (Measured)

Number of TX :	2	**Chain Port:**	0+1(0)
Test Mode :	802.11n HT20	**Temperature :**	24~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	49~51%
Test Channel :	01	**Test Engineer :**	Issac Song

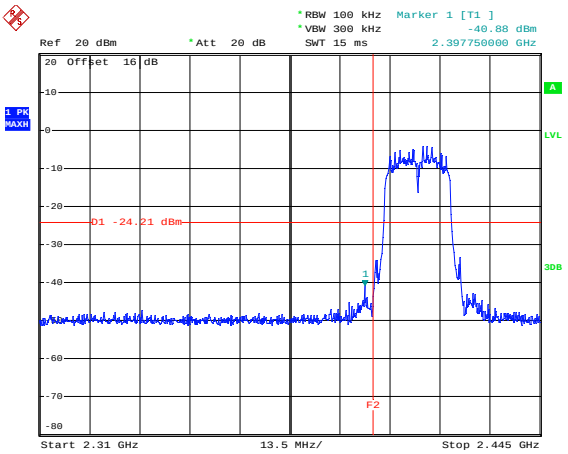
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



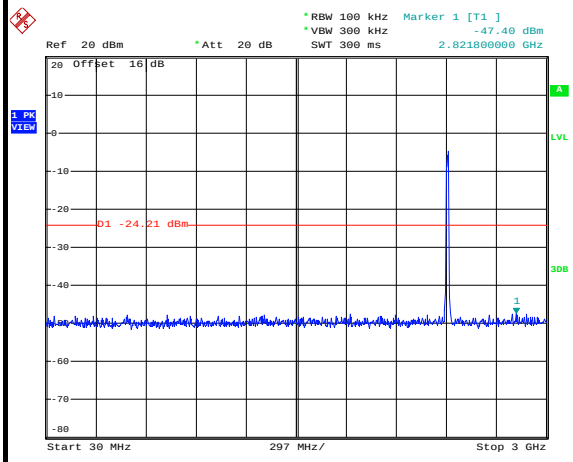
Date: 25.NOV.2014 14:50:31

Low Channel Plot



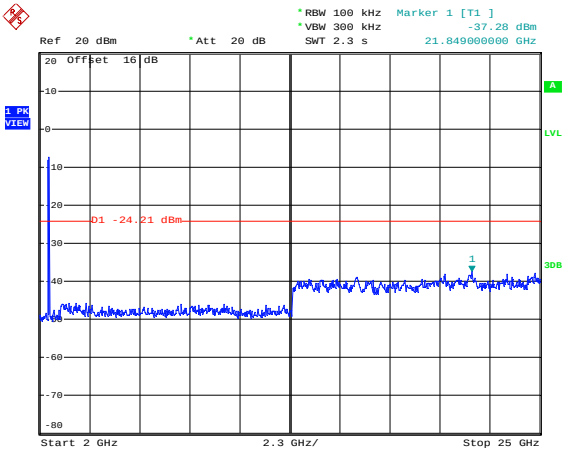
Date: 25.NOV.2014 14:51:17

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 14:51:39

Spurious Emission 2GHz~25GHz

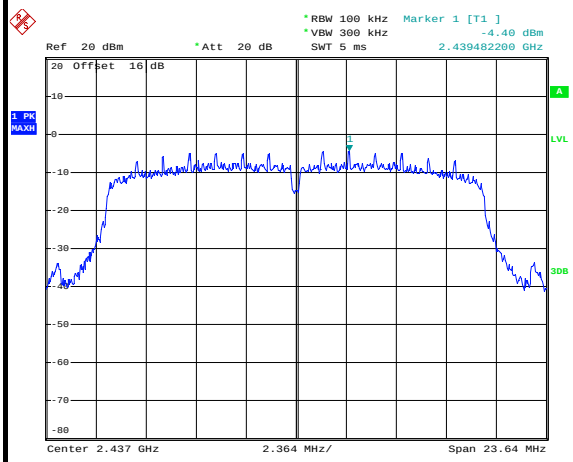


Date: 25.NOV.2014 14:51:57

Number of TX :	2	**Chain Port:**	0+1(0)
Test Mode :	802.11n HT20	**Temperature :**	24~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	49~51%
Test Channel :	06	**Test Engineer :**	Issac Song

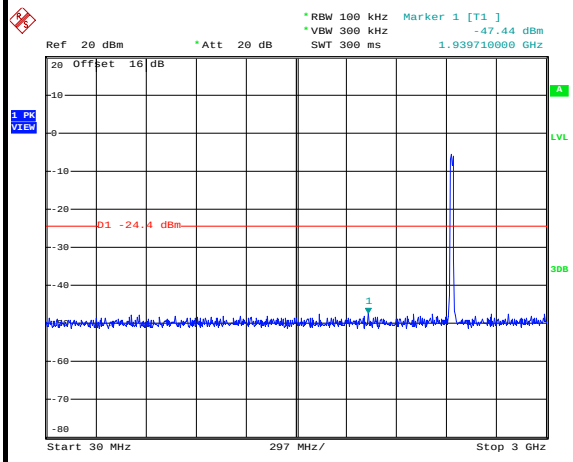
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



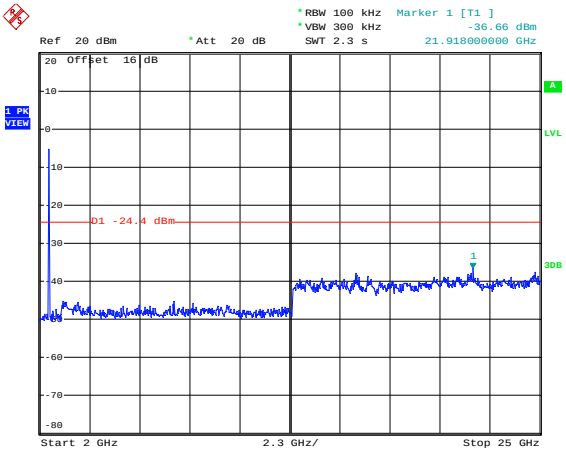
Date: 25.NOV.2014 14:45:07

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 14:45:59

Spurious Emission 2GHz~25GHz

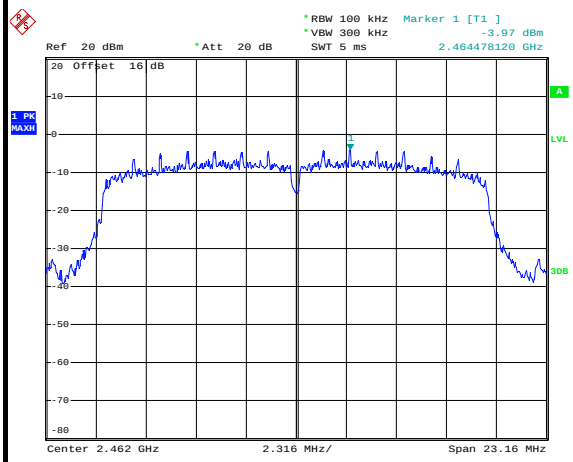


Date: 25.NOV.2014 14:46:17

Number of TX :	2	**Chain Port:**	0+1(0)
Test Mode :	802.11n HT20	**Temperature :**	24~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	49~51%
Test Channel :	11	**Test Engineer :**	Issac Song

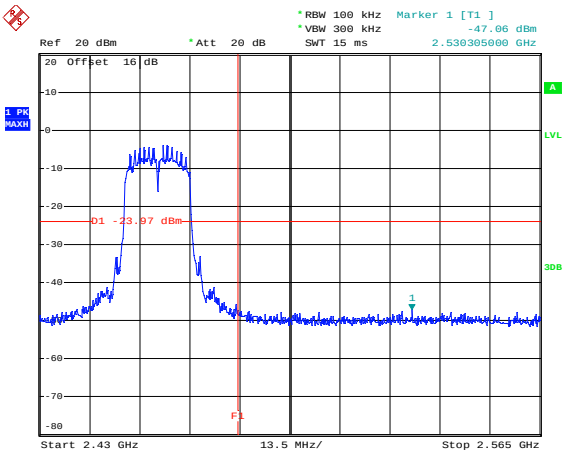
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



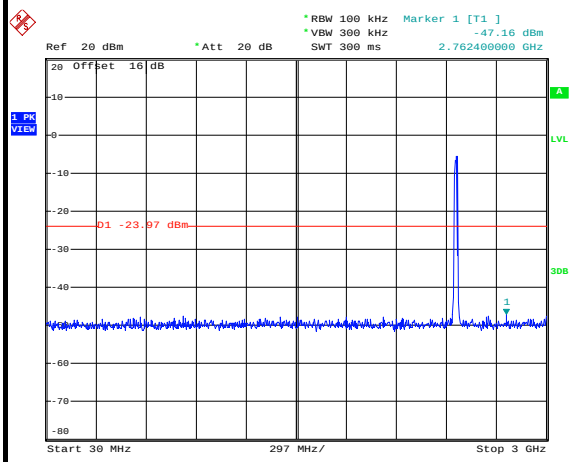
Date: 25.NOV.2014 14:39:17

High Channel Plot



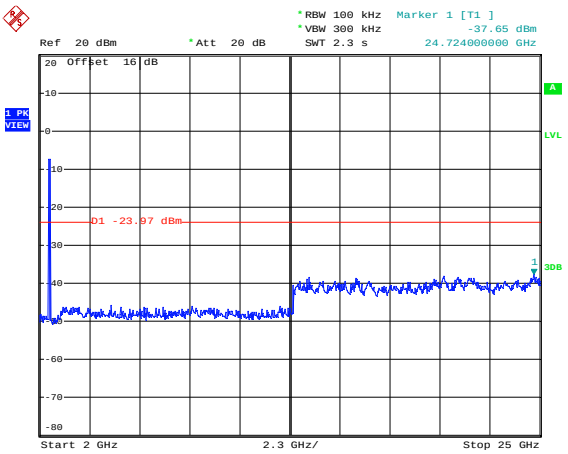
Date: 25.NOV.2014 14:39:48

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 14:40:15

Spurious Emission 2GHz~25GHz

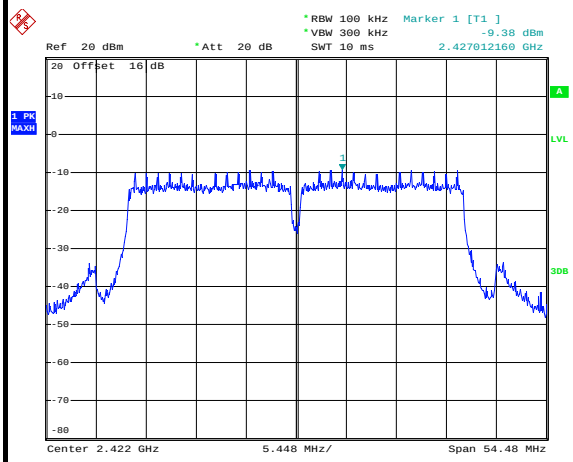


Date: 25.NOV.2014 14:40:33

Number of TX :	2	**Chain Port:**	0+1(0)
Test Mode :	802.11n HT40	**Temperature :**	24~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	49~51%
Test Channel :	03	**Test Engineer :**	Issac Song

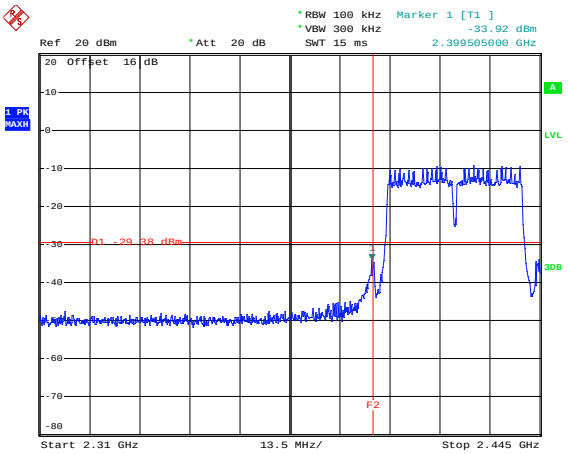
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



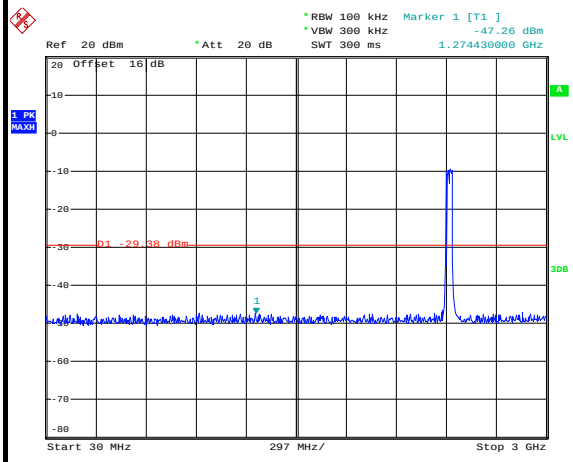
Date: 25.NOV.2014 14:58:40

Low Channel Plot



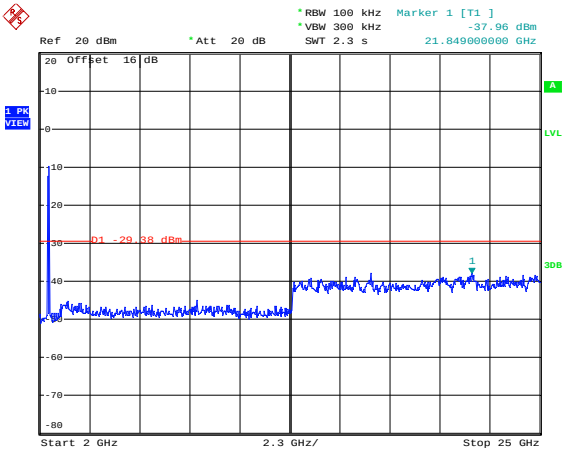
Date: 25.NOV.2014 14:59:08

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 15:02:11

Spurious Emission 2GHz~25GHz

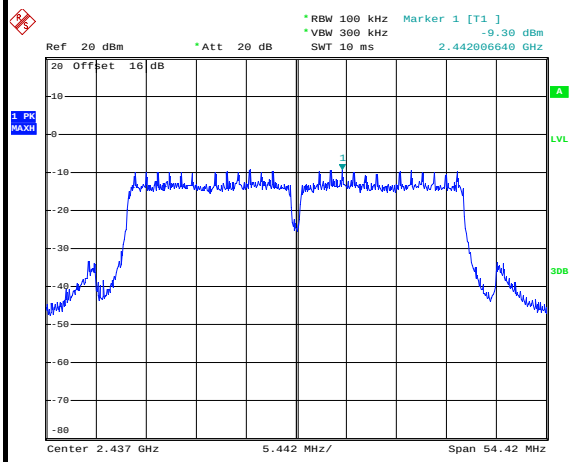


Date: 25.NOV.2014 15:00:42

Number of TX :	2	**Chain Port:**	0+1(0)
Test Mode :	802.11n HT40	**Temperature :**	24~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	49~51%
Test Channel :	06	**Test Engineer :**	Issac Song

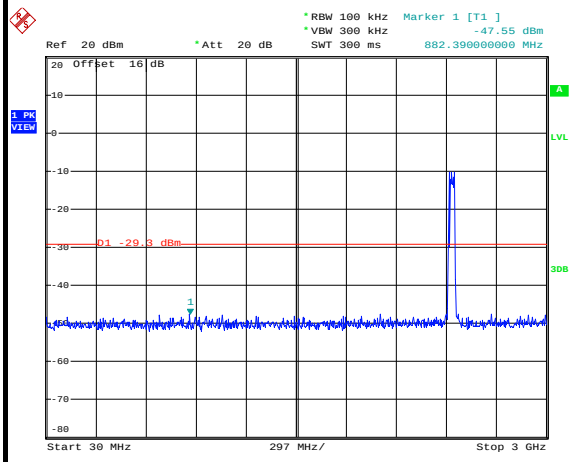
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



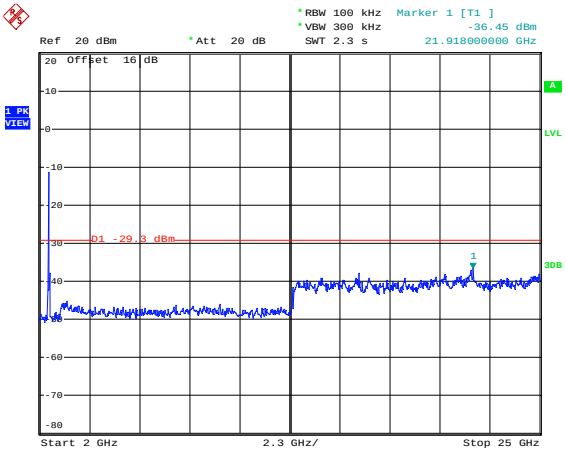
Date: 25.NOV.2014 15:04:56

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 15:07:55

Spurious Emission 2GHz~25GHz

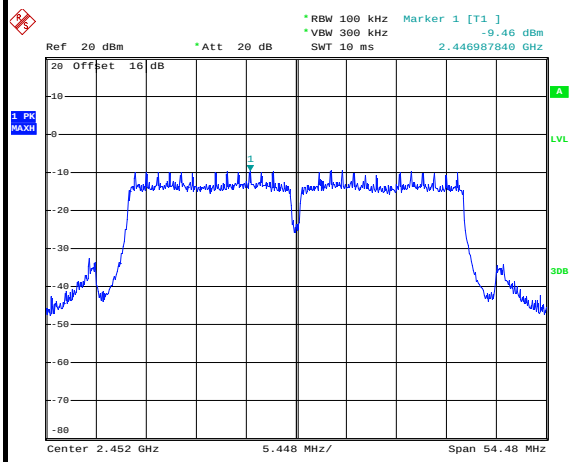


Date: 25.NOV.2014 15:06:39

Number of TX :	2	**Chain Port:**	0+1(0)
Test Mode :	802.11n HT40	**Temperature :**	24~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	49~51%
Test Channel :	09	**Test Engineer :**	Issac Song

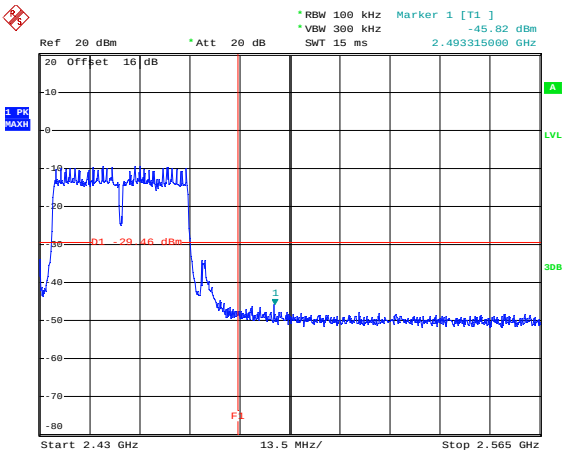
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



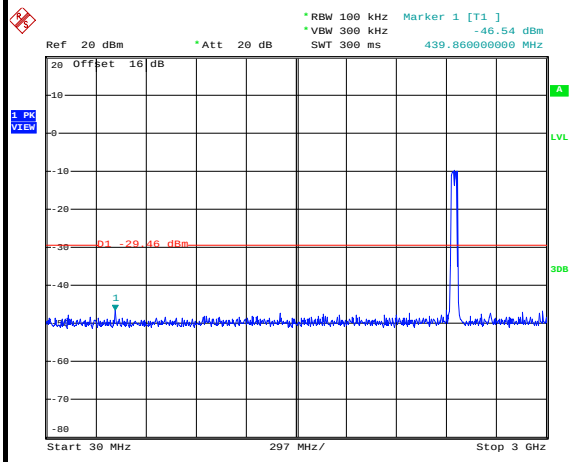
Date: 25.NOV.2014 15:14:22

High Channel Plot



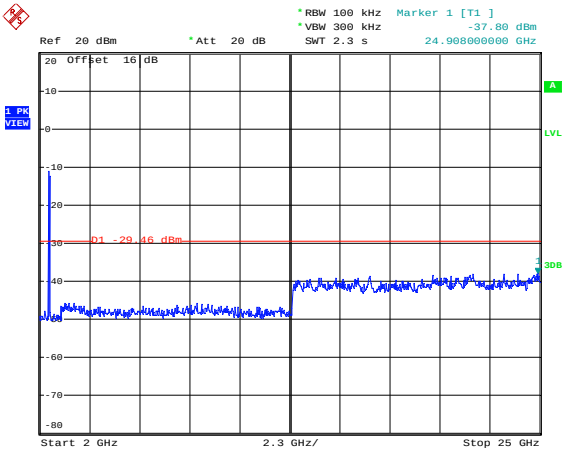
Date: 25.NOV.2014 15:14:45

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 15:16:44

Spurious Emission 2GHz~25GHz



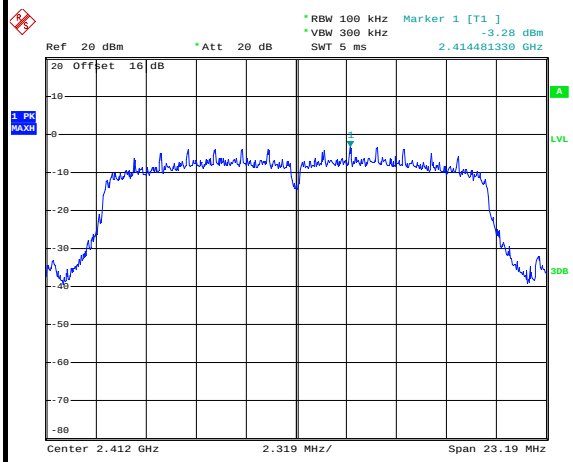
Date: 25.NOV.2014 15:15:25

Number of TX = 2, Chain Port 0+1(1) (Measured)

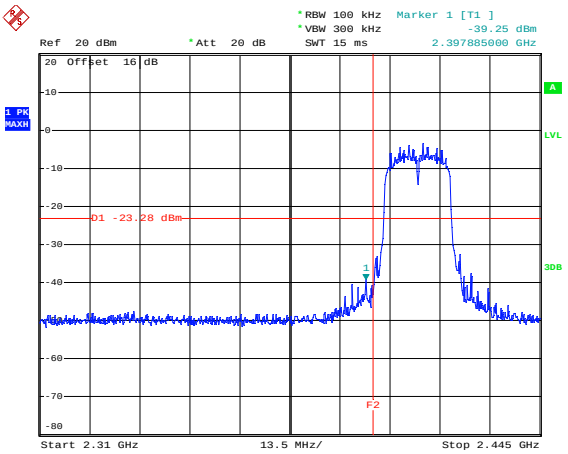
Number of TX :	2	**Chain Port:**	0+1(1)
Test Mode :	802.11n HT20	**Temperature :**	24~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	49~51%
Test Channel :	01	**Test Engineer :**	Issac Song

WLAN 802.11n HT20 Channel 01

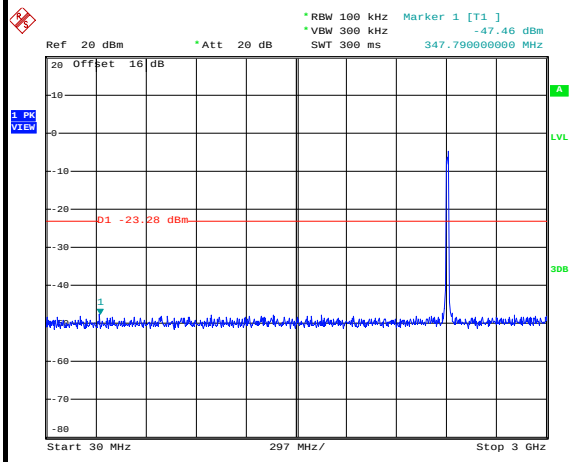
100kHz PSD reference Level



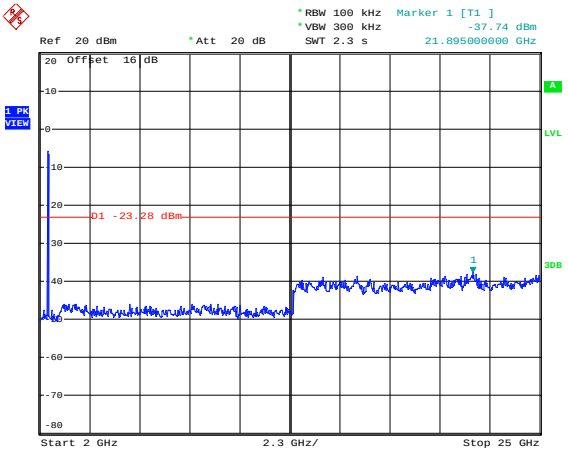
Low Channel Plot



Spurious Emission 30MHz~3GHz



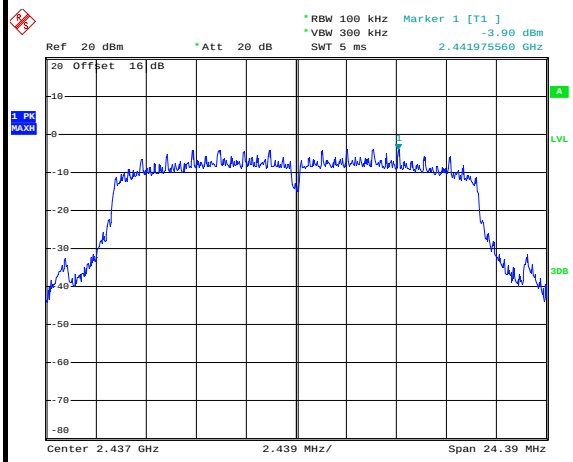
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Chain Port:**	0+1(1)
Test Mode :	802.11n HT20	**Temperature :**	24~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	49~51%
Test Channel :	06	**Test Engineer :**	Issac Song

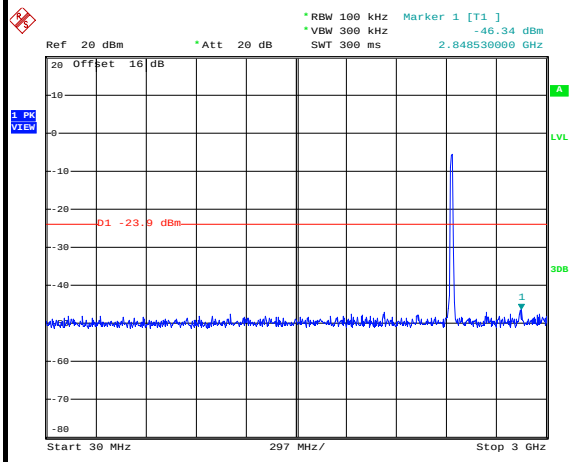
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



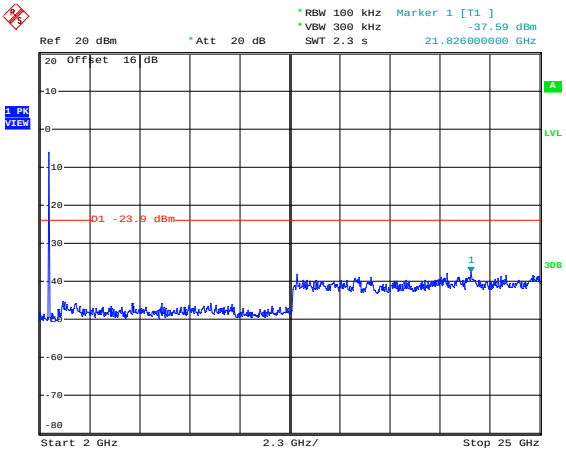
Date: 25.NOV.2014 14:27:33

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 14:27:58

Spurious Emission 2GHz~25GHz

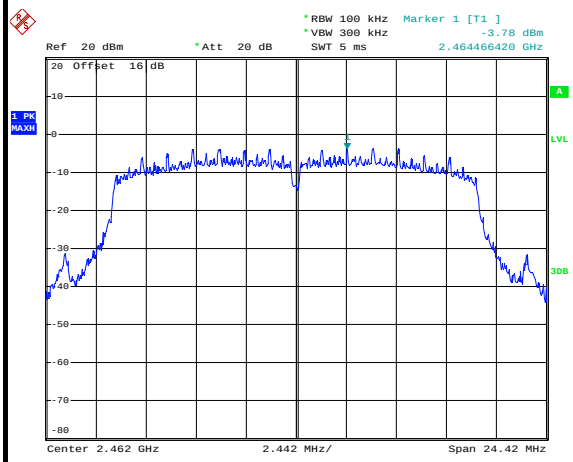


Date: 25.NOV.2014 14:28:15

Number of TX :	2	**Chain Port:**	0+1(1)
Test Mode :	802.11n HT20	**Temperature :**	24~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	49~51%
Test Channel :	11	**Test Engineer :**	Issac Song

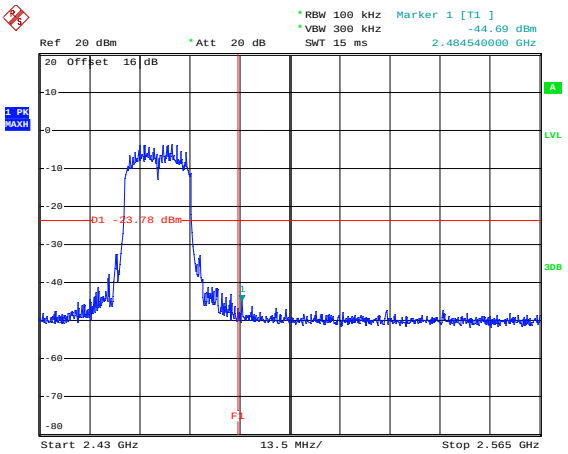
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



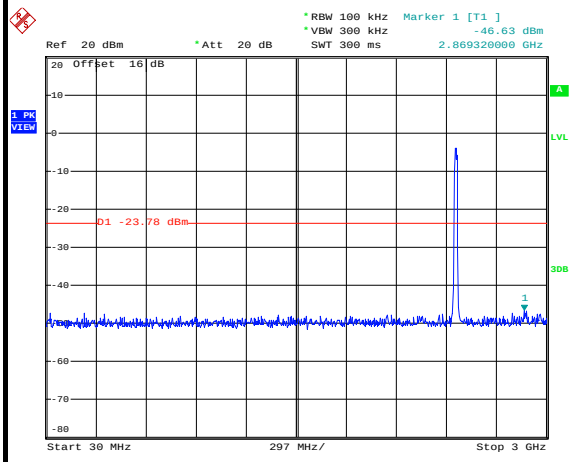
Date: 25.NOV.2014 14:31:56

High Channel Plot



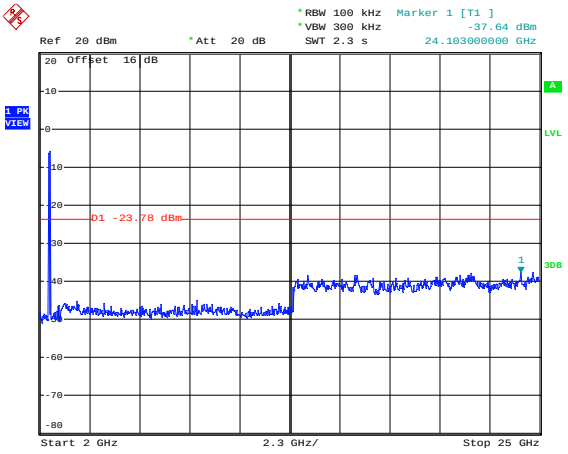
Date: 25.NOV.2014 14:32:14

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 14:32:37

Spurious Emission 2GHz~25GHz

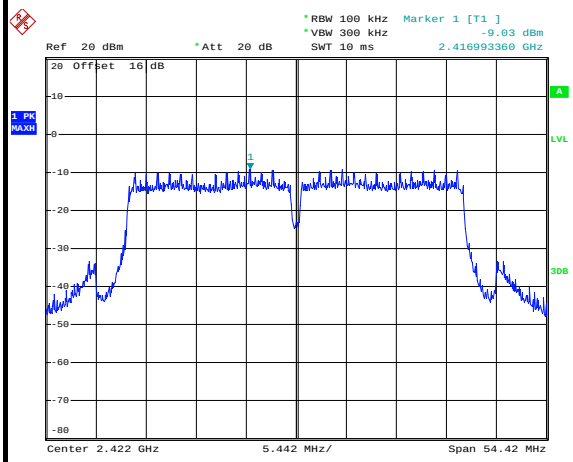


Date: 25.NOV.2014 14:32:55

Number of TX :	2	**Chain Port:**	0+1(1)
Test Mode :	802.11n HT40	**Temperature :**	24~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	49~51%
Test Channel :	03	**Test Engineer :**	Issac Song

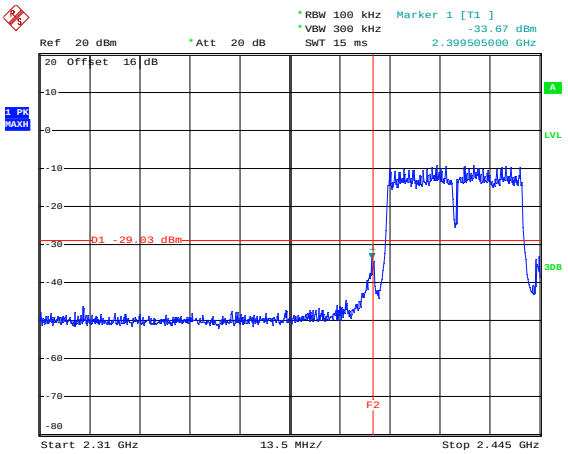
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



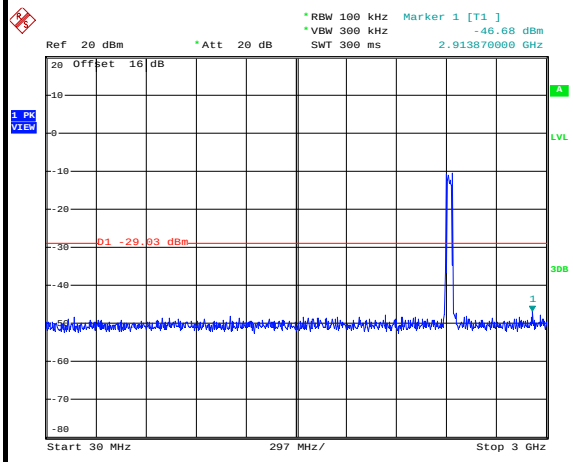
Date: 25.NOV.2014 15:34:52

Low Channel Plot



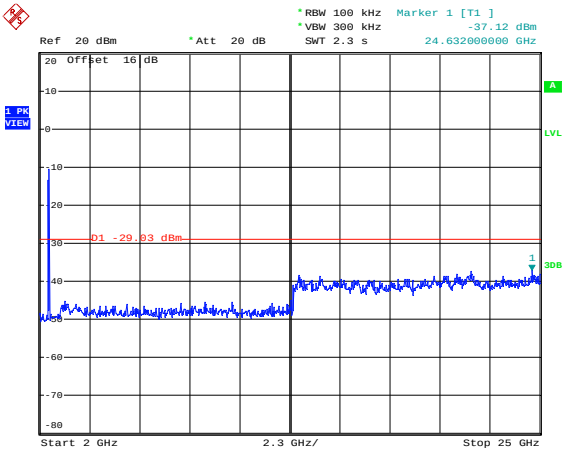
Date: 25.NOV.2014 15:35:08

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 15:38:32

Spurious Emission 2GHz~25GHz

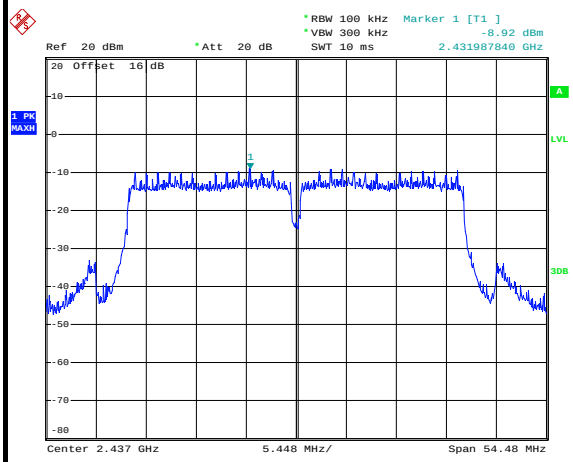


Date: 25.NOV.2014 15:37:37

Number of TX :	2	**Chain Port:**	0+1(1)
Test Mode :	802.11n HT40	**Temperature :**	24~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	49~51%
Test Channel :	06	**Test Engineer :**	Issac Song

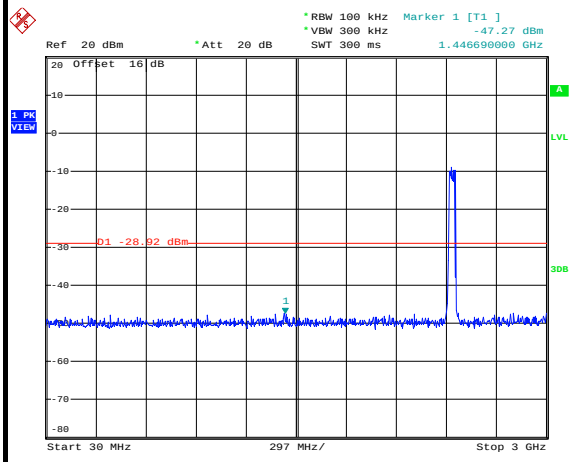
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



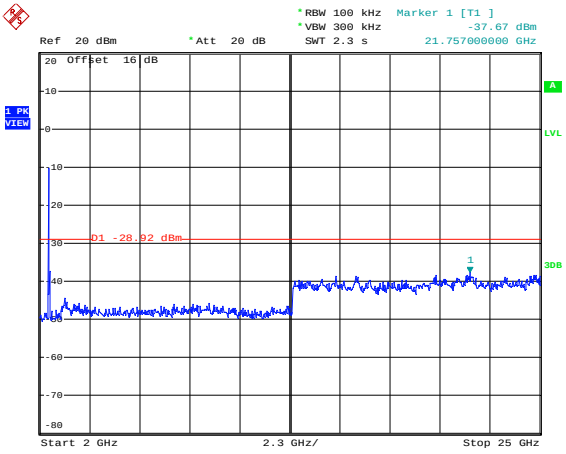
Date: 25.NOV.2014 15:29:53

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 15:31:36

Spurious Emission 2GHz~25GHz

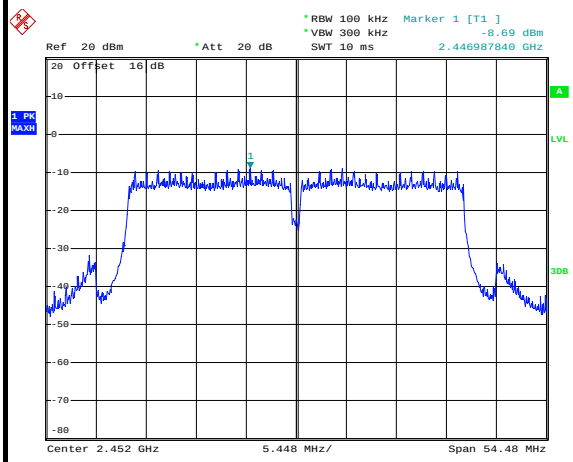


Date: 25.NOV.2014 15:31:54

Number of TX :	2	**Chain Port:**	0+1(1)
Test Mode :	802.11n HT40	**Temperature :**	24~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	49~51%
Test Channel :	09	**Test Engineer :**	Issac Song

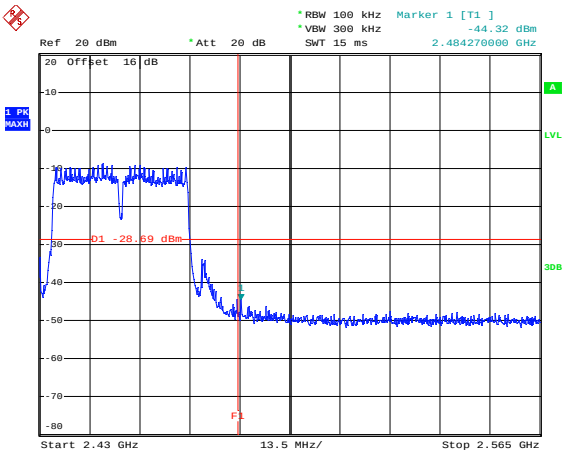
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



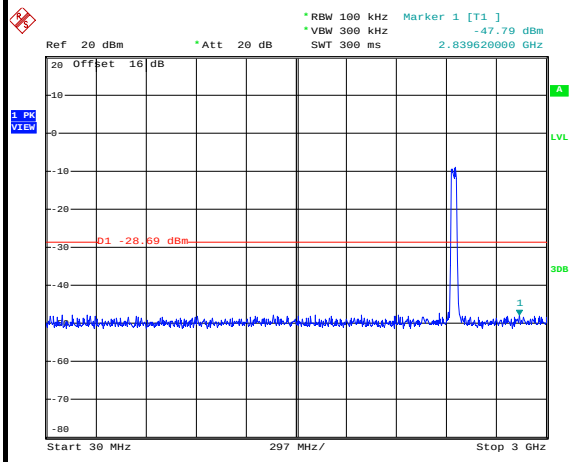
Date: 25.NOV.2014 15:24:46

High Channel Plot



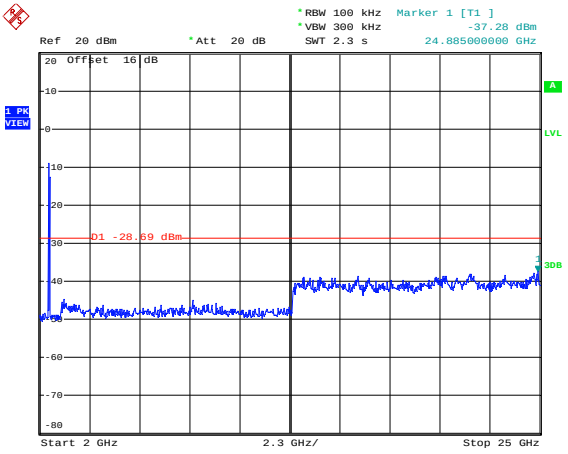
Date: 25.NOV.2014 15:25:03

Spurious Emission 30MHz~3GHz



Date: 25.NOV.2014 15:27:01

Spurious Emission 2GHz~25GHz



Date: 25.NOV.2014 15:27:19

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.

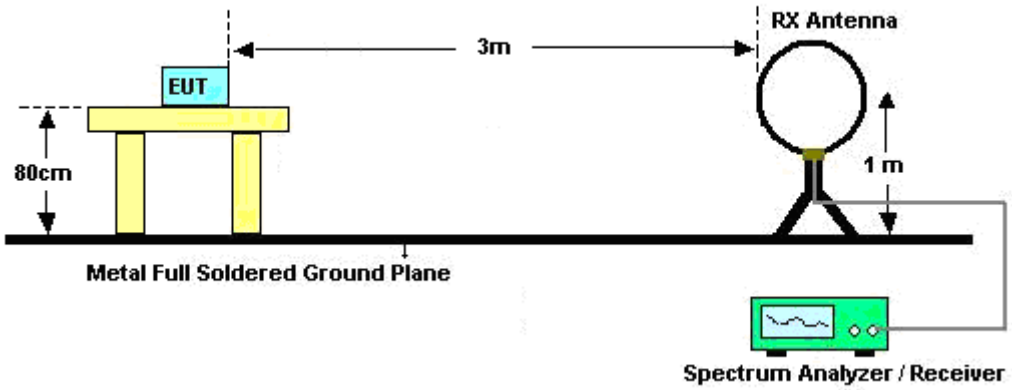
3.5.3 Test Procedure

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.

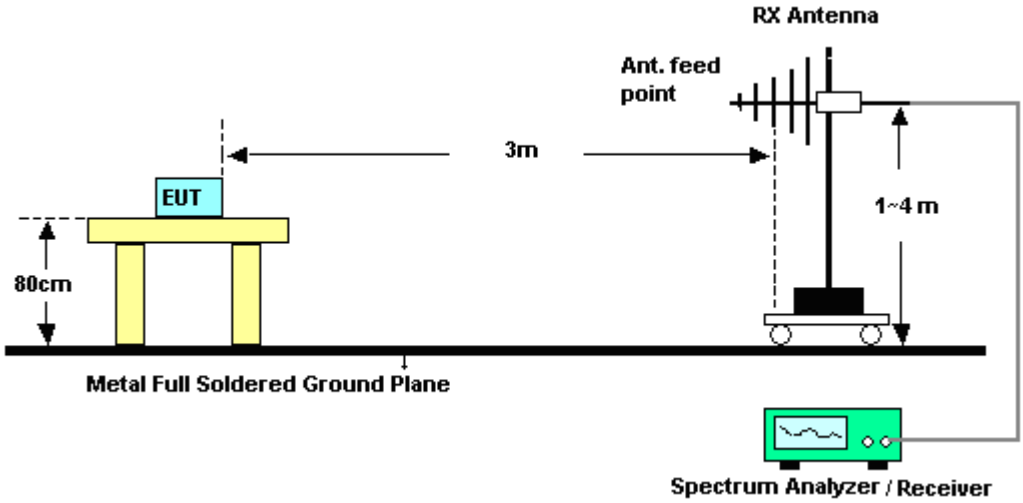
Chain Port	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
0	802.11b	100	-	-	10Hz
1	802.11b	100	-	-	
0	802.11g	95.39	2.07	0.48	1kHz
1	802.11g	95.37	2.06	0.49	
0+1	2.4GHz 802.11n HT20	90.88	0.99	1.01	3KHz
0+1	2.4GHz 802.11n HT40	90.63	0.99	1.01	3KHz

3.5.4 Test Setup

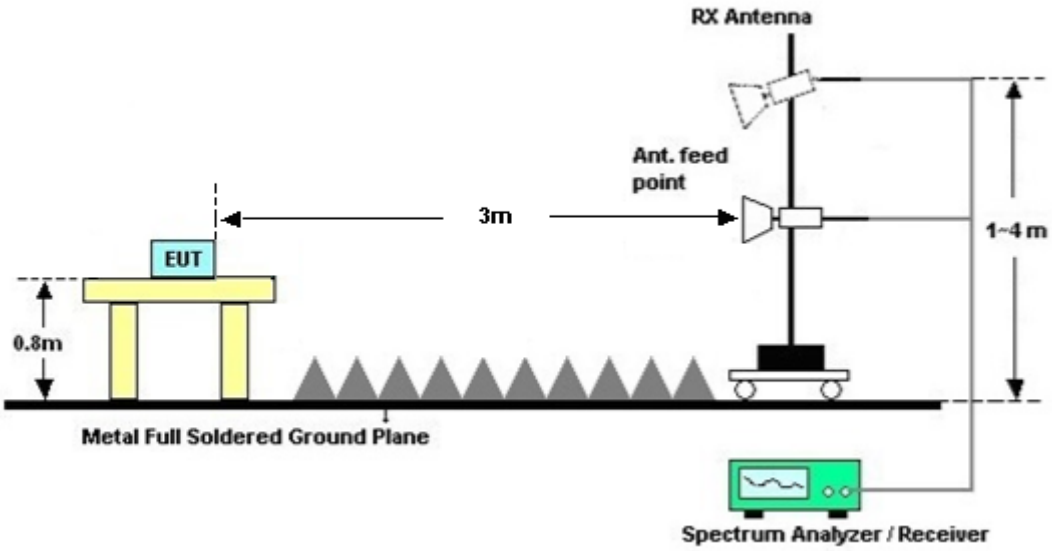
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.5.6 Test Result of Radiated Spurious at Band Edges

< Chain Port 0>

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Band :	Low	**Relative Humidity :**	40~41%
Test Channel :	01	**Test Engineer :**	Nick Su

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
2361.21	50.73	-23.27	74	49.55	31.26	6.17	36.25	120	34	Peak
2390	39.72	-14.28	54	38.33	31.3	6.17	36.08	120	34	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
2359.86	50.51	-23.49	74	49.33	31.26	6.17	36.25	191	115	Peak
2361.3	38.16	-15.84	54	36.98	31.26	6.17	36.25	191	151	Average

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Band :	High	**Relative Humidity :**	40~41%
Test Channel :	11	**Test Engineer :**	Nick Su

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
2496.68	49.21	-24.79	74	47.23	31.39	6.33	35.74	109	247	Peak
2483.52	37.8	-16.2	54	35.89	31.37	6.33	35.79	109	247	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
2490.00	48.75	-25.25	74	46.77	31.39	6.33	35.74	102	97	Peak
2483.52	36.86	-17.14	54	34.95	31.37	6.33	35.79	102	97	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Nick Su

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.56	70.11	-3.89	74	68.72	31.3	6.17	36.08	100	228	Peak
2389.74	43.72	-10.28	54	42.33	31.3	6.17	36.08	100	228	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	69	-5	74	67.61	31.3	6.17	36.08	100	67	Peak
2389.2	45.59	-8.41	54	44.2	31.3	6.17	36.08	100	67	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Nick Su

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.28	67.18	-6.82	74	65.27	31.37	6.33	35.79	174	141	Peak
2483.96	41.66	-12.34	54	39.75	31.37	6.33	35.79	174	141	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
2485.12	65.93	-8.07	74	64.02	31.37	6.33	35.79	100	79	Peak
2483.6	40.69	-13.31	54	38.78	31.37	6.33	35.79	100	79	Average

< Chain Port 1>

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Band :	Low	**Relative Humidity :**	40~41%
Test Channel :	01	**Test Engineer :**	Nick Su

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
2365.44	50.08	-23.92	74	48.9	31.26	6.17	36.25	118	251	Peak
2390.00	38.89	-15.11	54	37.5	31.3	6.17	36.08	118	251	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
2362.38	50.32	-23.68	74	49.14	31.26	6.17	36.25	184	266	Peak
2390.00	38.99	-15.01	54	37.6	31.3	6.17	36.08	184	266	Average

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Band :	High	**Relative Humidity :**	40~41%
Test Channel :	11	**Test Engineer :**	Nick Su

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
2498.04	52.95	-21.05	74	50.97	31.39	6.33	35.74	116	338	Peak
2483.52	41.57	-12.43	54	39.66	31.37	6.33	35.79	116	338	Average

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2487.96	48.99	-25.01	74	47.01	31.39	6.33	35.74	100	61	Peak
2483.52	36.69	-17.31	54	34.78	31.37	6.33	35.79	100	61	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Nick Su

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.65	71.96	-2.04	74	70.57	31.3	6.17	36.08	149	309	Peak
2390.00	46.92	-7.08	54	45.53	31.3	6.17	36.08	149	309	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.65	67.45	-6.55	74	66.06	31.3	6.17	36.08	188	253	Peak
2389.65	42.54	-11.46	54	41.15	31.3	6.17	36.08	188	253	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Nick Su

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
2485.56	69.54	-4.46	74	67.63	31.37	6.33	35.79	116	332	Peak
2483.6	42.56	-11.44	54	40.65	31.37	6.33	35.79	116	332	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
2486.72	65.49	-8.51	74	63.58	31.37	6.33	35.79	143	282	Peak
2483.72	40.27	-13.73	54	38.36	31.37	6.33	35.79	143	282	Average

< Chain Port 0+1>

Test Mode :	802.11n HT20	**Temperature :**	22~23°C
Test Band :	Low	**Relative Humidity :**	40~41%
Test Channel :	01	**Test Engineer :**	Nick Su

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.83	68.57	-5.43	74	67.18	31.3	6.17	36.08	117	118	Peak
2387.94	44.53	-9.47	54	43.14	31.3	6.17	36.08	117	118	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.47	67.95	-6.05	74	66.56	31.3	6.17	36.08	188	128	Peak
2390	44.67	-9.33	54	43.28	31.3	6.17	36.08	188	128	Average

Test Mode :	802.11n HT20	**Temperature :**	22~23°C
Test Band :	High	**Relative Humidity :**	40~41%
Test Channel :	11	**Test Engineer :**	Nick Su

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.92	72.25	-1.75	74	70.34	31.37	6.33	35.79	141	321	Peak
2483.68	46.52	-7.48	54	44.61	31.37	6.33	35.79	141	321	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
2484.08	62.94	-11.06	74	61.03	31.37	6.33	35.79	182	117	Peak
2483.52	40.42	-13.58	54	38.51	31.37	6.33	35.79	182	117	Average

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	40~41%
Test Channel :	03	Test Engineer :	Nick Su

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
2387.85	58.85	-15.15	74	57.46	31.3	6.17	36.08	180	100	Peak
2390.00	37.99	-16.01	54	36.6	31.3	6.17	36.08	180	100	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
2386.5	67.35	-6.65	74	65.96	31.3	6.17	36.08	200	100	Peak
2388.39	41.19	-12.81	54	39.8	31.3	6.17	36.08	200	100	Average

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	09	Test Engineer :	Nick Su

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
2483.96	64.35	-9.65	74	62.44	31.37	6.33	35.79	172	216	Peak
2483.6	42.17	-11.83	54	40.26	31.37	6.33	35.79	172	216	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
2485.96	64.28	-9.72	74	62.37	31.37	6.33	35.79	100	290	Peak
2483.6	41.76	-12.24	54	39.85	31.37	6.33	35.79	100	290	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.

< Chain Port 0>

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	40~41%
Test Engineer :	Nick Su	**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	101.88	-	-	100.37	31.31	6.22	36.02	120	34	Peak
2412	97.41	-	-	95.9	31.31	6.22	36.02	120	34	Average
4824	46.7	-27.3	74	39.73	34.89	8.73	36.65	100	21	Peak

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	40~41%
Test Engineer :	Nick Su	**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	101.47	-	-	99.96	31.31	6.22	36.02	191	151	Peak
2412	97.06	-	-	95.55	31.31	6.22	36.02	191	151	Average
4824	45.8	-28.2	74	38.83	34.89	8.73	36.65	100	263	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	104.95	-	-	103.36	31.33	6.22	35.96	116	62	Peak
2437	100.46	-	-	98.87	31.33	6.22	35.96	116	62	Average
4875	49.05	-24.95	74	42.21	34.92	8.76	36.84	100	25	Peak
7311	46.99	-27.01	74	39.45	35.56	10.84	38.86	100	61	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	99.9	-	-	98.25	31.34	6.22	35.91	145	60	Peak
2437	95.36	-	-	93.77	31.33	6.22	35.96	145	60	Average
4875	46.99	-27.01	74	40.15	34.92	8.76	36.84	100	261	Peak
7311	49	-25	74	41.46	35.56	10.84	38.86	100	41	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	99.1	-	-	97.31	31.36	6.28	35.85	109	247	Peak
2462	94.19	-	-	92.4	31.36	6.28	35.85	109	247	Average
4923	49.59	-24.41	74	42.88	34.95	8.79	37.03	100	61	Peak
7386	49	-25	74	41.72	35.58	10.89	39.19	100	161	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	95.54	-	-	93.75	31.36	6.28	35.85	102	97	Peak
2462	90.88	-	-	89.09	31.36	6.28	35.85	102	97	Average
4923	45.01	-28.99	74	38.3	34.95	8.79	37.03	100	165	Peak
7386	47.78	-26.22	74	40.5	35.58	10.89	39.19	100	106	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	110.94	-	-	109.43	31.31	6.22	36.02	100	228	Peak
2412	99.28	-	-	97.77	31.31	6.22	36.02	100	228	Average
4824	48.43	-25.57	74	41.46	34.89	8.73	36.65	168	325	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	105.18	-	-	103.67	31.31	6.22	36.02	100	67	Peak
2412	94.55	-	-	93.04	31.31	6.22	36.02	100	67	Average
4824	48.44	-25.56	74	41.47	34.89	8.73	36.65	100	167	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	107.08	-	-	105.49	31.33	6.22	35.96	121	45	Peak
2437	95.63	-	-	94.04	31.33	6.22	35.96	121	45	Average
4875	49.97	-24.03	74	43.13	34.92	8.76	36.84	110	35	Peak
7311	49.3	-24.7	74	41.76	35.56	10.84	38.86	124	178	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	102.82	-	-	101.23	31.33	6.22	35.96	105	235	Peak
2437	91.06	-	-	89.35	31.34	6.28	35.91	105	235	Average
4875	50.09	-23.91	74	43.25	34.92	8.76	36.84	125	326	Peak
7311	49.02	-24.98	74	41.48	35.56	10.84	38.86	145	256	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	101.79	-	-	100	31.36	6.28	35.85	174	141	Peak
2462	90.73	-	-	88.94	31.36	6.28	35.85	174	141	Average
4923	50.24	-23.76	74	43.53	34.95	8.79	37.03	112	235	Peak
7386	53.1	-20.9	74	45.82	35.58	10.89	39.19	124	56	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	102.41	-	-	100.62	31.36	6.28	35.85	100	79	Peak
2462	91.39	-	-	89.6	31.36	6.28	35.85	100	79	Average
4923	50.23	-23.77	74	43.52	34.95	8.79	37.03	115	45	Peak
7386	53.29	-20.71	74	46.01	35.58	10.89	39.19	126	87	Peak

< Chain Port 1>

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	40~41%
Test Engineer :	Nick Su	**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	105.05	-	-	103.54	31.31	6.22	36.02	118	251	Peak
2412	100.18	-	-	98.67	31.31	6.22	36.02	118	251	Average
4824	46.17	-27.83	74	39.2	34.89	8.73	36.65	100	58	Peak

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	40~41%
Test Engineer :	Nick Su	**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	102.42	-	-	100.91	31.31	6.22	36.02	184	266	Peak
2412	97.86	-	-	96.35	31.31	6.22	36.02	184	266	Average
4824	46.35	-27.65	74	39.38	34.89	8.73	36.65	106	31	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	104.38	-	-	102.79	31.33	6.22	35.96	116	164	Peak
2437	99.93	-	-	98.34	31.33	6.22	35.96	116	164	Average
4875	46.67	-27.33	74	39.83	34.92	8.76	36.84	115	24	Peak
7311	48.91	-25.09	74	41.37	35.56	10.84	38.86	145	68	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	98.96	-	-	97.31	31.34	6.22	35.91	143	288	Peak
2437	94.33	-	-	92.74	31.33	6.22	35.96	143	288	Average
4875	46.4	-27.6	74	39.56	34.92	8.76	36.84	169	47	Peak
7311	48.64	-25.36	74	41.1	35.56	10.84	38.86	102	302	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	104.39	-	-	102.6	31.36	6.28	35.85	116	338	Peak
2462	99.88	-	-	98.09	31.36	6.28	35.85	116	338	Average
4923	45.23	-28.77	74	38.52	34.95	8.79	37.03	125	65	Peak
7386	47.6	-26.4	74	40.32	35.58	10.89	39.19	114	96	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	98.46	-	-	96.67	31.36	6.28	35.85	146	265	Peak
2462	93.83	-	-	92.04	31.36	6.28	35.85	146	265	Average
4923	45.74	-28.26	74	39.03	34.95	8.79	37.03	100	231	Peak
7386	48.52	-25.48	74	41.24	35.58	10.89	39.19	104	78	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	108.51	-	-	107	31.31	6.22	36.02	149	309	Peak
2412	97.39	-	-	95.88	31.31	6.22	36.02	149	309	Average
4824	48.43	-25.57	74	41.46	34.89	8.73	36.65	154	216	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	103.49	-	-	101.98	31.31	6.22	36.02	188	253	Peak
2412	91.98	-	-	90.47	31.31	6.22	36.02	188	253	Average
4824	48.44	-25.56	74	41.47	34.89	8.73	36.65	157	261	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	107.97	-	-	106.26	31.34	6.28	35.91	118	327	Peak
2437	97.09	-	-	95.38	31.34	6.28	35.91	118	327	Average
4874	47.65	-26.35	74	40.81	34.92	8.76	36.84	158	216	Peak
7311	48.45	-25.55	74	40.91	35.56	10.84	38.86	168	249	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	102.5	-	-	100.91	31.33	6.22	35.96	183	256	Peak
2437	91.06	-	-	89.47	31.33	6.22	35.96	183	256	Average
4874	46.43	-27.57	74	39.59	34.92	8.76	36.84	105	93	Peak
7311	47.23	-26.77	74	39.69	35.56	10.84	38.86	192	101	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	105.23	-	-	103.44	31.36	6.28	35.85	116	332	Peak
2462	94.28	-	-	92.49	31.36	6.28	35.85	116	332	Average
4924	44.78	-29.22	74	38.07	34.95	8.79	37.03	157	249	Peak
7326	48.48	-25.52	74	40.99	35.57	10.84	38.92	100	141	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	102.76	-	-	100.97	31.36	6.28	35.85	143	282	Peak
2462	91.06	-	-	89.27	31.36	6.28	35.85	143	282	Average
4924	45.98	-28.02	74	39.27	34.95	8.79	37.03	100	168	Peak
7386	47.93	-26.07	74	40.65	35.58	10.89	39.19	157	187	Peak

< Chain Port 0+1>

Test Mode :	802.11n HT20	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	40~41%
Test Engineer :	Nick Su	**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	104.34	-	-	102.83	31.31	6.22	36.02	117	118	Peak
2412	94.1	-	-	92.59	31.31	6.22	36.02	117	118	Average
4824	46.52	-27.48	74	39.55	34.89	8.73	36.65	105	218	Peak

Test Mode :	802.11n HT20	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	40~41%
Test Engineer :	Nick Su	**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	105.33	-	-	103.82	31.31	6.22	36.02	188	128	Peak
2412	94.21	-	-	92.7	31.31	6.22	36.02	188	128	Average
4824	46.46	-27.54	74	39.49	34.89	8.73	36.65	128	305	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	109.25	-	-	107.54	31.34	6.28	35.91	143	302	Peak
2437	97.3	-	-	95.59	31.34	6.28	35.91	143	302	Average
4874	46.96	-27.04	74	40.12	34.92	8.76	36.84	164	210	Peak
7311	46.51	-27.49	74	38.97	35.56	10.84	38.86	100	164	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	100.87	-	-	99.28	31.33	6.22	35.96	194	115	Peak
2437	90.48	-	-	88.89	31.33	6.22	35.96	194	115	Average
4874	47.47	-26.53	74	40.63	34.92	8.76	36.84	100	210	Peak
7311	47.52	-26.48	74	39.98	35.56	10.84	38.86	105	219	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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
30.97	25.66	-14.34	40	38.82	18.71	0.79	32.66	-	-	Peak
76.56	32.62	-7.38	40	55.46	8.77	1.04	32.65	120	235	Peak
96.93	24.33	-19.17	43.5	44.93	10.97	1.04	32.61	-	-	Peak
142.52	27.86	-15.64	43.5	47.55	11.64	1.23	32.56	-	-	Peak
206.54	33.97	-9.53	43.5	54.73	10.11	1.61	32.48	-	-	Peak
293.84	34.25	-11.75	46	51.86	12.89	1.9	32.4	-	-	Peak
2462	108.84	-	-	107.05	31.36	6.28	35.85	141	321	Peak
2462	96.93	-	-	95.14	31.36	6.28	35.85	141	321	Average
4924	46.83	-27.17	74	40.12	34.95	8.79	37.03	125	146	Peak
7386	46.09	-27.91	74	38.81	35.58	10.89	39.19	151	231	Peak

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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
30.97	33.84	-6.16	40	47	18.71	0.79	32.66	100	162	Peak
81.41	29.51	-10.49	40	51.9	9.21	1.04	32.64	-	-	Peak
141.55	29.92	-13.58	43.5	49.62	11.63	1.23	32.56	-	-	Peak
206.54	30.07	-13.43	43.5	50.83	10.11	1.61	32.48	-	-	Peak
296.75	27.94	-18.06	46	45.48	12.95	1.9	32.39	-	-	Peak
608.12	29.97	-16.03	46	40.27	18.89	2.83	32.02	-	-	Peak
2462	101.25	-	-	99.46	31.36	6.28	35.85	182	117	Peak
2462	89.45	-	-	87.66	31.36	6.28	35.85	182	117	Average
4924	47.33	-26.67	74	40.62	34.95	8.79	37.03	149	206	Peak
7386	47.88	-26.12	74	40.6	35.58	10.89	39.19	100	148	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	90.55	-	-	88.96	31.33	6.22	35.96	125	214	Peak
2422	79.01	-	-	77.42	31.33	6.22	35.96	125	214	Average
4845	46.98	-27.02	74	40.07	34.9	8.73	36.72	124	256	Peak
7266	46.75	-27.25	74	39.11	35.56	10.81	38.73	124	165	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	97.69	-	-	96.18	31.31	6.22	36.02	125	215	Peak
2422	86.09	-	-	84.58	31.31	6.22	36.02	125	215	Average
4845	46.1	-27.9	74	39.19	34.9	8.73	36.72	145	235	Peak
7266	48.64	-25.36	74	41	35.56	10.81	38.73	158	264	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	101.18	-	-	99.47	31.34	6.28	35.91	112	214	Peak
2437	89.52	-	-	87.93	31.33	6.22	35.96	112	214	Average
4875	46.89	-27.11	74	40.05	34.92	8.76	36.84	114	256	Peak
7311	49.64	-24.36	74	42.1	35.56	10.84	38.86	113	268	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	98.68	-	-	97.09	31.33	6.22	35.96	131	260	Peak
2437	86.85	-	-	85.26	31.33	6.22	35.96	131	260	Average
4875	46.69	-27.31	74	39.85	34.92	8.76	36.84	126	235	Peak
7311	50.96	-23.04	74	43.42	35.56	10.84	38.86	129	289	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	98.29	-	-	96.5	31.36	6.28	35.85	172	216	Peak
2452	86.67	-	-	84.88	31.36	6.28	35.85	172	216	Average
4905	43.32	-30.68	74	36.55	34.94	8.79	36.96	100	0	Peak
7356	45.59	-28.41	74	38.22	35.57	10.86	39.06	100	45	Peak

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	40~41%
Test Engineer :	Nick Su	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	97.76	-	-	96.05	31.34	6.28	35.91	100	290	Peak
2452	86.24	-	-	84.53	31.34	6.28	35.91	100	290	Average
4905	45.15	-28.85	74	38.38	34.94	8.79	36.96	100	35	Peak
7356	48.38	-25.62	74	41.01	35.57	10.86	39.06	100	125	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.

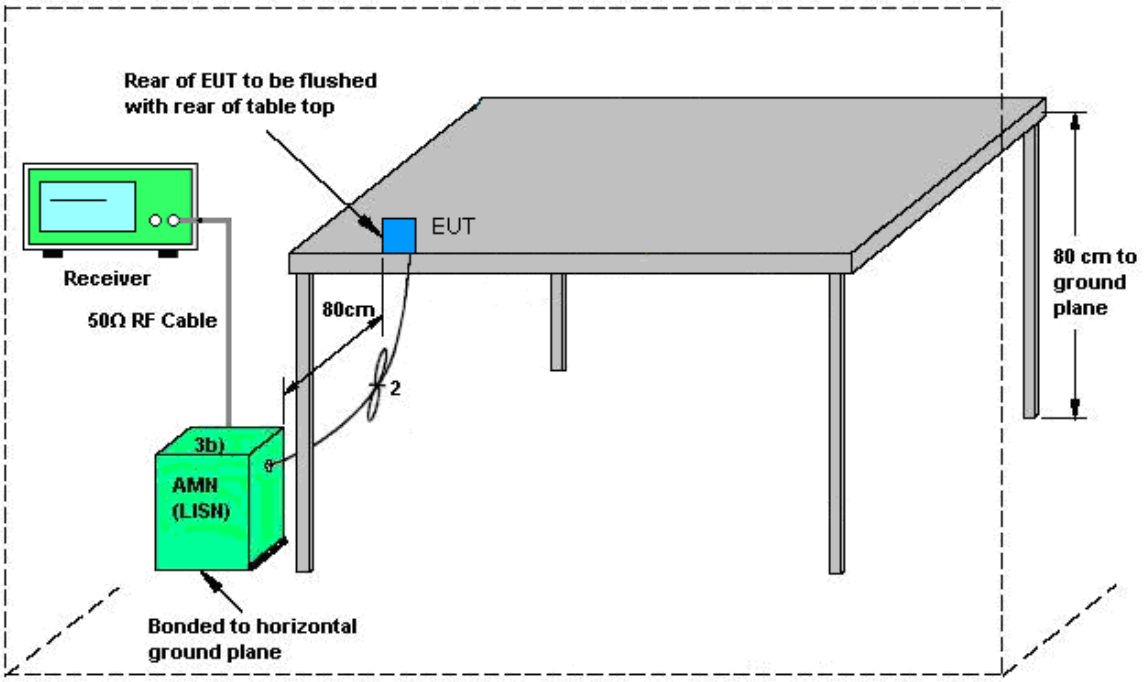
3.6.2 Measuring Instruments

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.

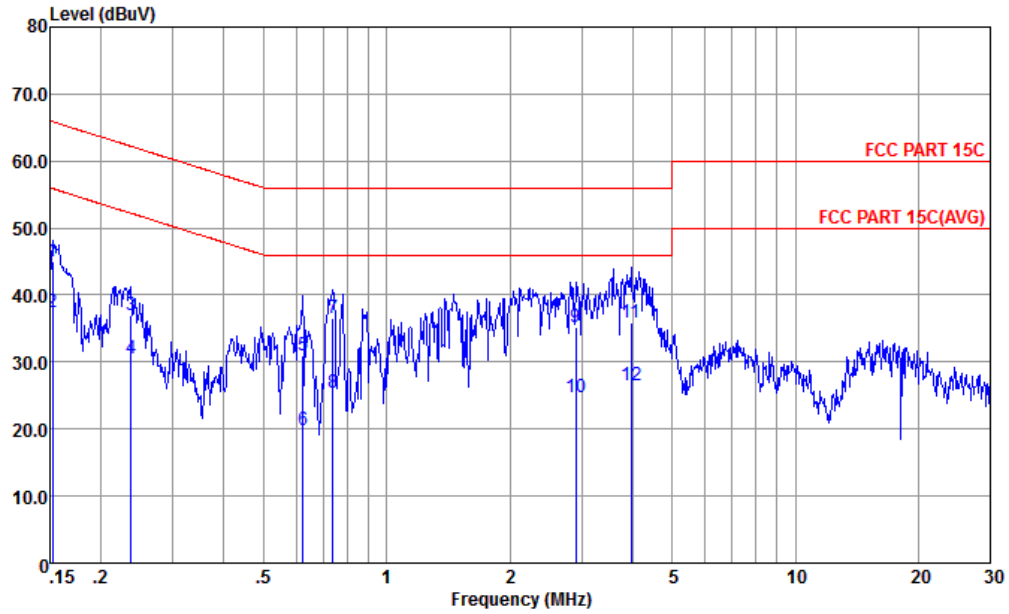
3.6.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

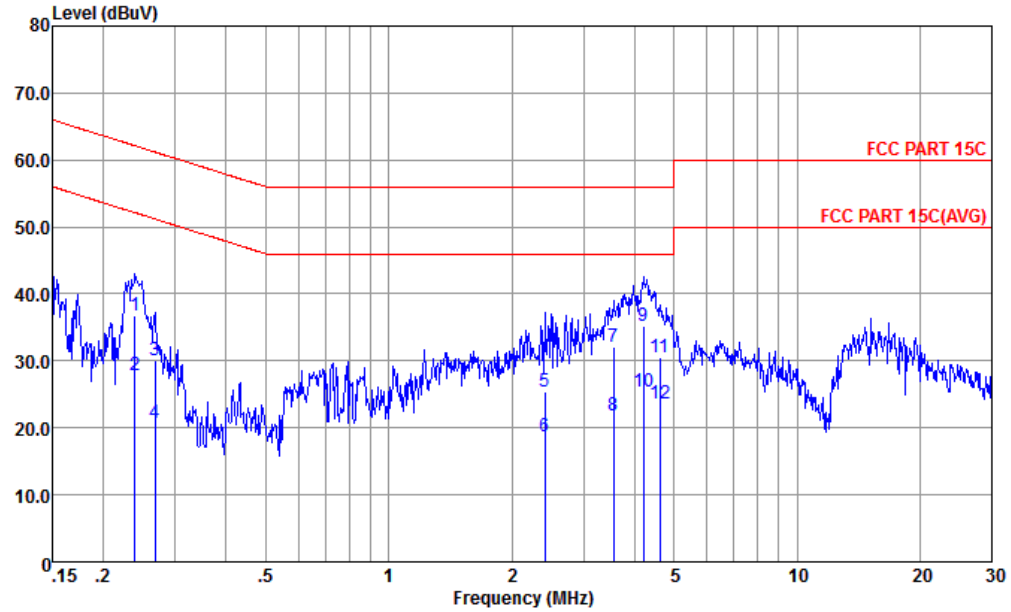
Test Mode :	Mode 1	**Temperature :**	22~24℃
Test Engineer :	Eligah Wang	**Relative Humidity :**	37~39%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	Bluetooth Link + WLAN (2.4G) Link + USB Cable (Charging from Adapter) + Battery + Earphone		



Site : CO01-KS
Condition : FCC PART 15C LISN-L20140306 LINE

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.15	44.99	-20.88	65.87	32.70	1.91	10.38	QP
2	*	0.15	37.49	-18.38	55.87	25.20	1.91	10.38	Average
3		0.24	36.93	-25.29	62.22	25.50	0.91	10.52	QP
4		0.24	30.63	-21.59	52.22	19.20	0.91	10.52	Average
5		0.62	30.93	-25.07	56.00	20.10	0.20	10.63	QP
6		0.62	19.73	-26.27	46.00	8.90	0.20	10.63	Average
7		0.74	36.63	-19.37	56.00	25.80	0.19	10.64	QP
8		0.74	25.43	-20.57	46.00	14.60	0.19	10.64	Average
9		2.90	35.31	-20.69	56.00	24.41	0.13	10.77	QP
10		2.90	24.71	-21.29	46.00	13.81	0.13	10.77	Average
11		3.96	35.81	-20.19	56.00	24.80	0.18	10.83	QP
12		3.96	26.51	-19.49	46.00	15.50	0.18	10.83	Average

Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Eligah Wang	Relative Humidity :	37~39%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	Bluetooth Link + WLAN (2.4G) Link + USB Cable (Charging from Adapter) + Battery + Earphone		



Site : CO01-KS
Condition : FCC PART 15C LISN-N20140306 NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.24	36.84	-25.29	62.13	25.40	0.92	10.52	QP
2		0.24	27.94	-24.19	52.13	16.50	0.92	10.52	Average
3		0.27	29.99	-31.21	61.20	18.60	0.85	10.54	QP
4		0.27	20.69	-30.51	51.20	9.30	0.85	10.54	Average
5		2.41	25.44	-30.56	56.00	14.61	0.11	10.72	QP
6		2.41	18.64	-27.36	46.00	7.81	0.11	10.72	Average
7		3.55	32.09	-23.91	56.00	21.10	0.17	10.82	QP
8		3.55	21.79	-24.21	46.00	10.80	0.17	10.82	Average
9		4.20	35.22	-20.78	56.00	24.20	0.19	10.83	QP
10	*	4.20	25.32	-20.68	46.00	14.30	0.19	10.83	Average
11		4.62	30.64	-25.36	56.00	19.60	0.20	10.84	QP
12		4.62	23.54	-22.46	46.00	12.50	0.20	10.84	Average

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

$$Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

The EUT supports CDD mode.

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

The directional gain “DG” is calculated as following table.

	Chain Port 0 (dBi)	Chain Port 1 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	0.00	-0.50	2.76	2.76	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	Oct. 28, 2014	Nov. 25, 2014~ Dec. 03, 2014	Oct. 27, 2015	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	30MHz~40GHz	Feb. 27, 2014	Nov. 25, 2014~ Dec. 03, 2014	Feb. 26, 2015	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Feb. 27, 2014	Nov. 25, 2014~ Dec. 03, 2014	Feb. 26, 2015	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Oct. 25, 2014	Dec. 11, 2014	Oct. 24, 2015	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 28, 2013	Dec. 11, 2014	Dec. 27, 2014	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 13, 2014	Dec. 11, 2014	Nov. 12, 2015	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 08, 2014	Dec. 11, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 08, 2014	Dec. 11, 2014	Nov. 07, 2015	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 08, 2014	Dec. 11, 2014	Nov. 07, 2015	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 10, 2014	Dec. 11, 2014	Mar. 09, 2015	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161073	1MHz~1GHz	May 04, 2014	Dec. 11, 2014	May 03, 2015	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Oct. 28, 2014	Dec. 11, 2014	Oct. 27, 2015	Radiation (03CH01-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Dec. 11, 2014	NCR	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Dec. 11, 2014	NCR	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Dec. 11, 2014	NCR	Radiation (03CH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	May 04, 2014	Nov. 27, 2014	May 03, 2015	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 25, 2014	Nov. 27, 2014	Oct. 24, 2015	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 25, 2014	Nov. 27, 2014	Oct. 24, 2015	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 25, 2014	Nov. 27, 2014	Oct. 24, 2015	Conduction (CO01-KS)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.3dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.5dB**