

# FCC RF Test Report

APPLICANT : ZTE CORPORATION  
EQUIPMENT : GSM/WCDMA/LTE CPE  
BRAND NAME : ZTE  
MODEL NAME : Z700  
FCC ID : Q78-Z700  
STANDARD : FCC Part 15 Subpart C §15.247  
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Dec. 28, 2012 and completely tested on Feb. 22, 2013. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the 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:



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Jones Tsai / Manager



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



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## SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	RSS-210 A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	RSS-210 A8.4	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	RSS-210 A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	RSS-210 A8.5	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	
			Conducted Spurious Emission		Pass	
3.5	15.247(d)	RSS-210 A8.5	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	
			Radiated Spurious Emission		Pass	Under limit 1.02 dB at 4824.000 MHz
3.6	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 11.02 dB at 0.680 MHz
3.7	15.203 & 15.247(b)	RSS-210 A8.4	Antenna Requirement	N/A	Pass	-



# 1 General Description

## 1.1 Applicant

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

## 1.2 Manufacturer

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

## 1.3 Feature of Equipment Under Test

Product Feature	
Equipment	GSM/WCDMA/LTE CPE
Brand Name	ZTE
Model Name	Z700
FCC ID	Q78-Z700
EUT supports Radios application	GSM/WCDMA/HSPA/HSPA+/LTE/WLAN 11bgn
HW Version	dcmA
SW Version	Z700V1.0.1
EUT Stage	Identical Prototype

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

### 1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard			
<b>Tx/Rx Channel Frequency Range</b>	802.11b/g/n : 2412 MHz ~ 2462 MHz		
<b>Number of Channels</b>	11		
<b>Carrier Frequency of Each Channel</b>	2412+(n-1)*5 MHz; n=1~11		
<b>Maximum Output Power to Antenna</b>	802.11b : 19.78 dBm (0.0951 W) 802.11g : 24.96 dBm (0.3133 W) 802.11n HT20 : 25.91 dBm (0.3898 W) 802.11n HT40 : 23.65 dBm (0.2320 W)		
<b>Antenna Type</b>	Ant 1: Monopole Antenna type with gain 2.4 dBi Ant 2: IFA Antenna type with gain 2.9 dBi		
<b>Type of Modulation</b>	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)		
<b>Antenna Function for Transmitter</b>		Ant 1.	Ant 2.
	802.11 b	V	V
	802.11 g	V	V
	802.11 n SISO	V	V
	802.11 n MIMO	V	V

### 1.5 Testing Site

<b>Test Site</b>	SPORTON INTERNATIONAL INC.	
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC/IC Registration No.</b>
	03CH05-HY	722060/4086B-1

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

### 1.6 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02
- FCC KDB 662911 D01 Multiple Transmitter Output v01r02
- ANSI C63.4-2003 and ANSI C63.10-2009

**Remark:**

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

## 2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz) and radiated emission (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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 antenna configurations as following table and the highest power data rates were chosen for full test in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

Channel	Frequency	Ant. Chain	2.4GHz 802.11b RF Power (dBm)			
			DSSS Data Rate			
			1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	1	19.65	19.63	19.52	19.46
CH 06	2437 MHz	1	19.48	19.36	19.31	19.26
CH 11	2462 MHz	1	19.78	19.64	19.51	19.46
CH 01	2412 MHz	2	18.67	18.52	18.46	18.35
CH 06	2437 MHz	2	18.41	18.32	18.27	18.15
CH 11	2462 MHz	2	18.16	18.08	18.02	17.96

Channel	Frequency	Ant. Chain	2.4GHz 802.11g RF Power (dBm)							
			OFDM Data Rate							
			6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	1	24.59	24.52	24.49	24.33	24.56	24.41	24.46	24.51
CH 06	2437 MHz	1	24.5	24.46	24.68	24.45	24.39	24.18	24.35	24.3
CH 11	2462 MHz	1	24.96	24.89	24.95	24.83	24.59	24.61	24.65	24.85
CH 01	2412 MHz	2	24.8	24.58	24.38	24.56	24.79	24.53	24.46	24.53
CH 06	2437 MHz	2	24.43	24.35	24.01	24.28	23.67	24.33	23.59	24.02
CH 11	2462 MHz	2	24.58	24.53	24.52	24.37	24.42	24.11	13.81	24.22



Channel	Frequency	Ant. Chain	2.4GHz 802.11n HT-20 RF Power (dBm)							
			OFDM Data Rate							
			MCS=0 6.5 Mbps	MCS=1 13 Mbps	MCS=2 19.5 Mbps	MCS=3 26 Mbps	MCS=4 39 Mbps	MCS=5 52 Mbps	MCS=6 58.5 Mbps	MCS=7 65 Mbps
CH 01	2412 MHz	1	21.98	21.69	21.81	21.96	21.88	21.93	21.95	21.90
CH 06	2437 MHz	1	22.2	21.89	22.15	21.98	22.13	22.12	22.17	22.19
CH 11	2462 MHz	1	22.66	22.36	22.35	22.41	22.45	22.6	22.62	22.52
CH 01	2412 MHz	2	21.96	21.92	21.81	21.95	21.89	21.91	21.9	21.93
CH 06	2437 MHz	2	21.98	21.36	21.21	21.88	21.87	21.89	21.9	21.96
CH 11	2462 MHz	2	22.44	22.04	22.36	22.34	22.41	22.36	22.37	22.41
Channel	Frequency	Ant. Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
			13 Mbps	26 Mbps	39 Mbps	52 Mbps	78 Mbps	104 Mbps	117 Mbps	130 Mbps
CH 01	2412 MHz	1+2(1)	22.63	22.34	22.36	22.45	22.54	22.51	22.59	22.62
		1+2(2)	22.43	22.05	22.06	22.33	22.31	22.36	22.41	22.4
		1+2	25.54	25.21	25.22	25.40	25.44	25.45	25.51	25.52
CH 06	2437 MHz	1+2(1)	22.63	22.37	22.48	22.57	22.56	22.52	22.55	22.46
		1+2(2)	22.4	22.25	22.39	22.35	22.29	22.34	21.98	22.22
		1+2	25.53	25.32	25.45	25.47	25.44	25.44	25.28	25.35
CH 11	2462 MHz	1+2(1)	23.15	22.89	22.88	22.92	23.02	23.11	22.78	23.11
		1+2(2)	22.63	22.55	22.58	22.62	22.45	22.38	22.52	22.59
		1+2	25.91	25.73	25.74	25.78	25.75	25.77	25.66	25.87

Channel	Frequency	Ant. Chain	2.4GHz 802.11n HT-40 RF Power (dBm)							
			OFDM Data Rate							
			MCS=0 13.5 Mbps	MCS=1 27 Mbps	MCS=2 40.5 Mbps	MCS=3 54 Mbps	MCS=4 81 Mbps	MCS=5 108 Mbps	MCS=6 121.5 Mbps	MCS=7 135 Mbps
CH 03	2422 MHz	1	21.78	20.21	20.29	20.16	19.78	19.38	19.96	20.13
CH 06	2437 MHz	1	22.15	20.46	20.39	19.9	19.91	19.71	19.86	19.66
CH 09	2452 MHz	1	23.28	21.78	21.66	21.03	21.17	21.2	21.12	20.75
CH 03	2422 MHz	2	23.11	21.52	21.36	20.92	20.89	20.72	20.62	20.59
CH 06	2437 MHz	2	22.43	20.65	20.71	20.62	20.45	20.32	20.22	20.18
CH 09	2452 MHz	2	22.33	20.53	20.75	20.32	20.25	20.22	20.15	19.68
Channel	Frequency	Ant. Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
			27 Mbps	54 Mbps	81 Mbps	108 Mbps	162 Mbps	216 Mbps	243 Mbps	270 Mbps
CH 03	2422 MHz	1+2(1)	19.86	19.52	19.67	19.34	19.48	19.38	19.43	19.73
		1+2(2)	20.96	20.75	20.66	20.63	20.85	20.52	20.23	20.89
		1+2	23.46	23.19	23.20	23.04	23.23	23.00	22.86	23.36
CH 06	2437 MHz	1+2(1)	19.81	19.66	19.35	19.52	19.45	19.27	19.32	19.71
		1+2(2)	20.76	19.86	19.87	20.12	20.25	19.93	19.95	20.73
		1+2	23.32	22.77	22.63	22.84	22.88	22.62	22.66	23.26
CH 09	2452 MHz	1+2(1)	20.98	20.52	20.39	20.65	20.75	20.74	20.48	20.93
		1+2(2)	20.28	19.85	20.02	19.83	20.12	19.86	19.85	20.26
		1+2	23.65	23.21	23.22	23.27	23.46	23.33	23.19	23.62

**Remark:**

1. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6 Mbps for 802.11g, 13 Mbps for 802.11n HT-20, and 27 Mbps for 802.11n HT-40 for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.
3. MIMO Ant 1+2 is a calculated result from sum of the power MIMO Ant 1 and MIMO Ant 2.



### 2.3 Test Mode

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

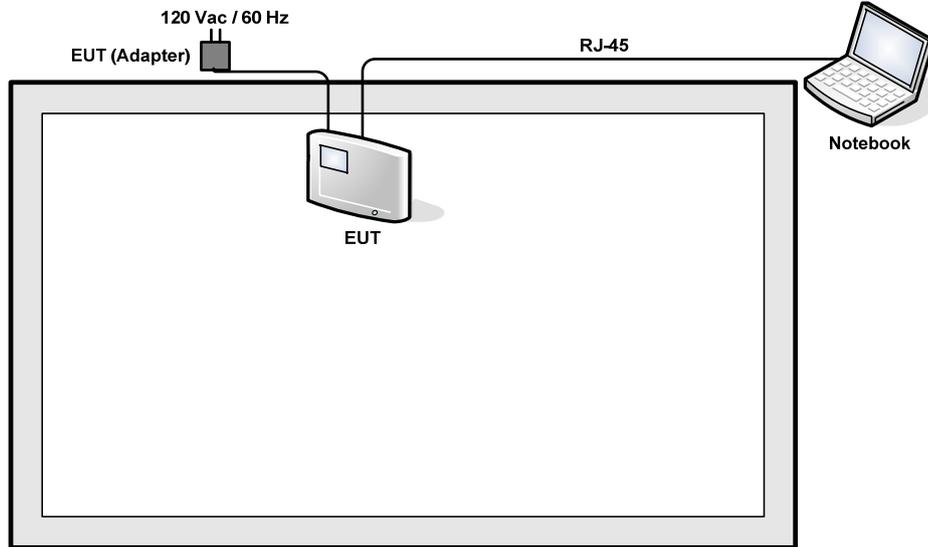
<2.4GHz>

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB BW Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	13 Mbps	1/6/11
		802.11n HT40	27 Mbps	3/6/9
	Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	13 Mbps	1/6/11
		802.11n HT40	27 Mbps	3/6/9
	Conducted Band EDGE	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT20	13 Mbps	1/11
		802.11n HT40	27 Mbps	3/9
	Conducted Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	13 Mbps	1/6/11
		802.11n HT40	27 Mbps	3/6/9
Radiated TCs	Radiated Band EDGE	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT20	13 Mbps	1/11
		802.11n HT40	27 Mbps	3/9
	Radiated Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	13 Mbps	1/6/11
		802.11n HT40	27 Mbps	3/6/9

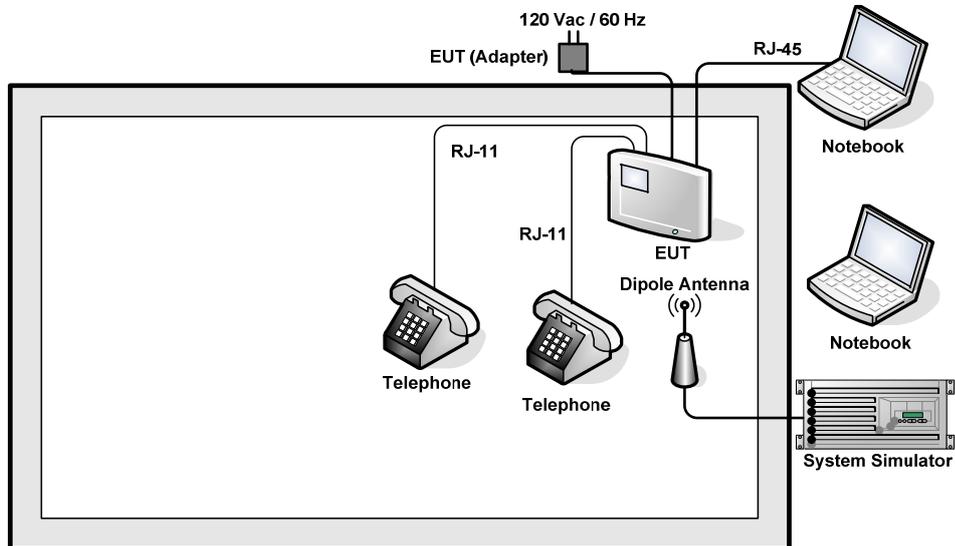
Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Adapter + WLAN Link + RJ11 Link + RJ45 Link

## 2.4 Connection Diagram of Test System

### <WLAN Tx Mode>



### <AC Conducted Emission Mode>



## 2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	AC Power Source	Chroma	61602	N/A	N/A	Unshielded, 1.8 m
3.	Telephone	bubugao	HCD007(6028)TSD	N/A	N/A	N/A
4.	Notebook	DELL	VOSTRO 1450	PPD-AR5B195	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
5.	Notebook	DELL	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
6.	Notebook	DELL	P20 G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

## 2.6 Description of RF Function Operation Test Setup

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

## 2.7 Measurement Results Explanation Example

**For conducted test items:**

The offset level is set in the spectrum analyzer to compensate the RF cable loss and 10dB attenuator between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and 10dB attenuator factor.

*Offset = RF cable loss + attenuator factor.*

Following table shows an offset computation example with cable loss 5.6 dB.

Example :

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

$$= 5.6 + 10 = 15.6 \text{ (dB)}$$

### 3 Test Result

#### 3.1 6dB Bandwidth Measurement

##### 3.1.1 Limit of 6dB Bandwidth

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

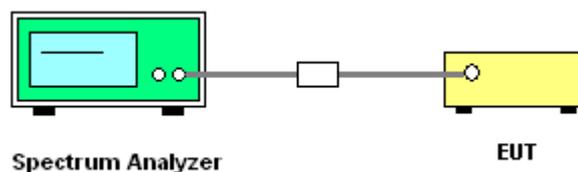
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.
5. Measure and record the results in the test report.

##### 3.1.4 Test Setup





3.1.5 Test Result of 6dB Bandwidth

Test Mode :	802.11b	Temperature :	23~24°C
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.08	0.5	Pass
06	2437	10.08	0.5	Pass
11	2462	10.04	0.5	Pass

Test Mode :	802.11g	Temperature :	23~24°C
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.56	0.5	Pass
06	2437	16.48	0.5	Pass
11	2462	16.44	0.5	Pass

Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	Chain	802.11n HT-20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	1+2(1)	17.64	0.5	Pass
06	2437	1+2(1)	17.80	0.5	Pass
11	2462	1+2(1)	17.68	0.5	Pass
01	2412	1+2(2)	17.76	0.5	Pass
06	2437	1+2(2)	17.68	0.5	Pass
11	2462	1+2(2)	17.68	0.5	Pass



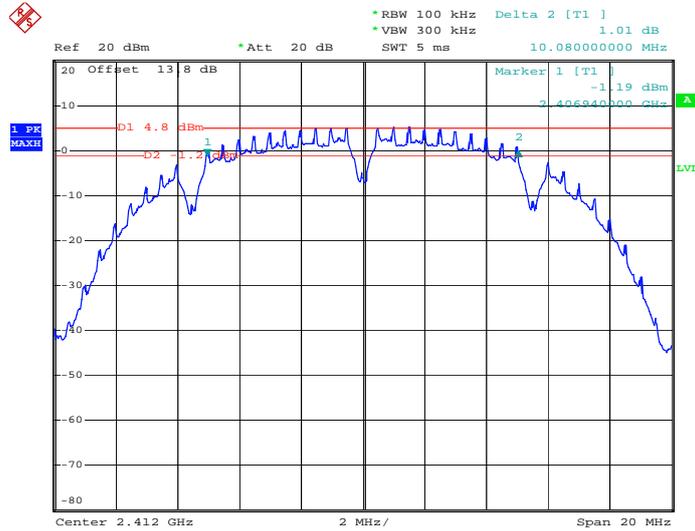
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	Chain	802.11n HT-40 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	1+2(1)	36.40	0.5	Pass
06	2437	1+2(1)	36.32	0.5	Pass
09	2452	1+2(1)	36.08	0.5	Pass
03	2422	1+2(2)	36.56	0.5	Pass
06	2437	1+2(2)	36.48	0.5	Pass
09	2452	1+2(2)	36.40	0.5	Pass

### 3.1.6 Test Result of 6dB Bandwidth Plots

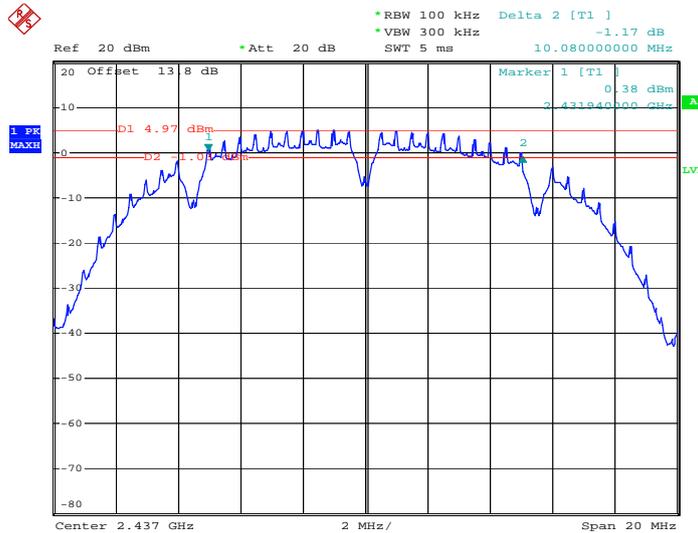
<802.11b>

#### 6 dB Bandwidth Plot on Channel 01-Chain 1



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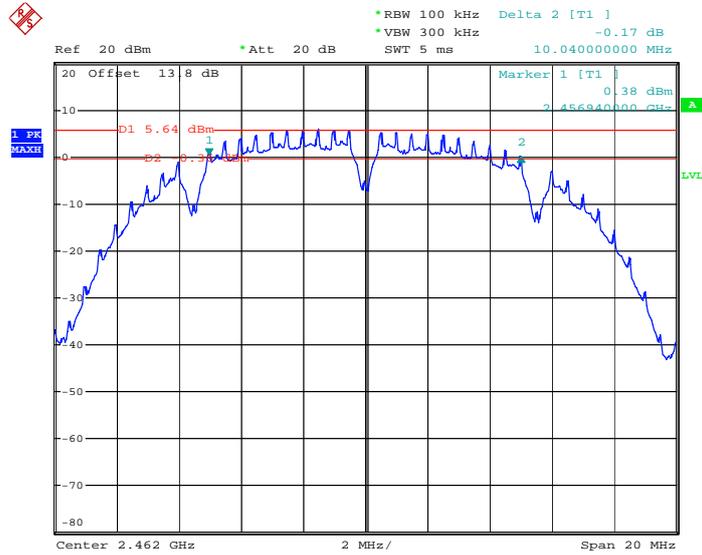
#### 6 dB Bandwidth Plot on Channel 06-Chain 1



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6 dB Bandwidth Plot on Channel 11-Chain 1

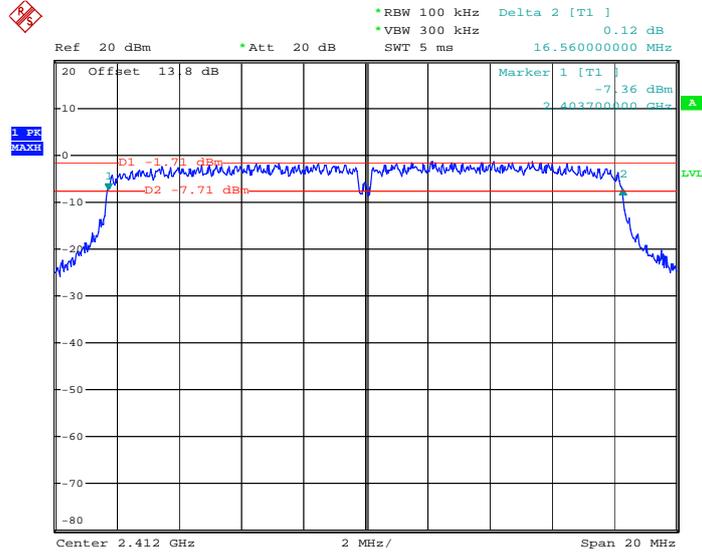


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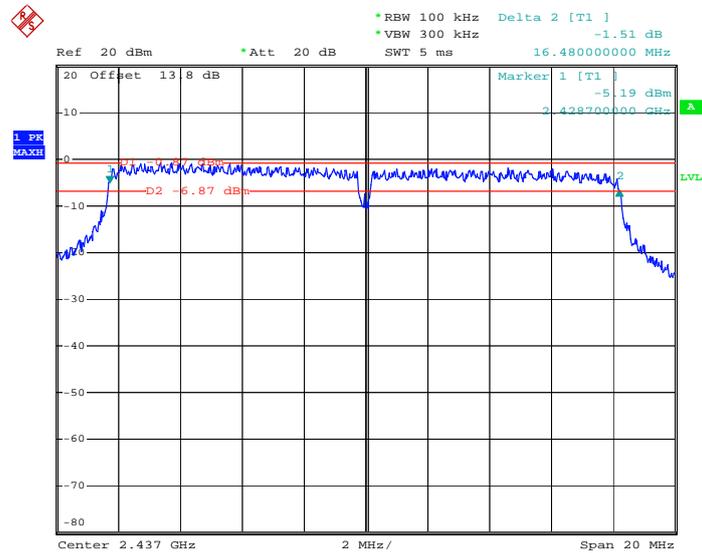
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6 dB Bandwidth Plot on Channel 01-Chain 1



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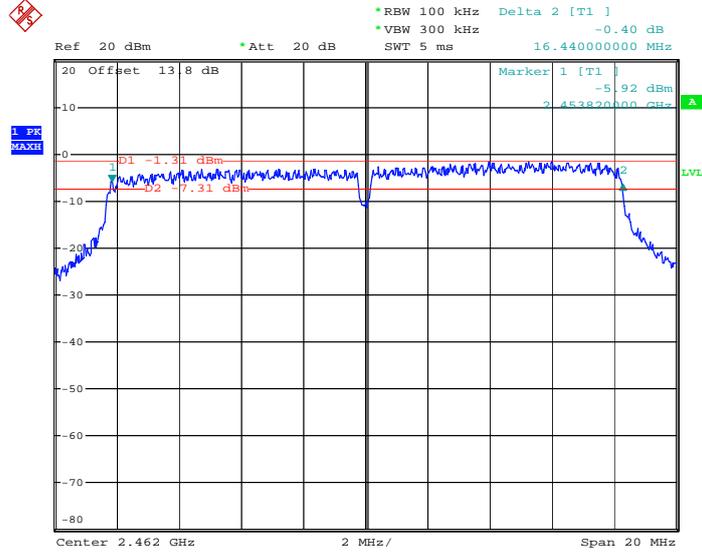
6 dB Bandwidth Plot on Channel 06-Chain 1



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6 dB Bandwidth Plot Channel 11-Chain 1

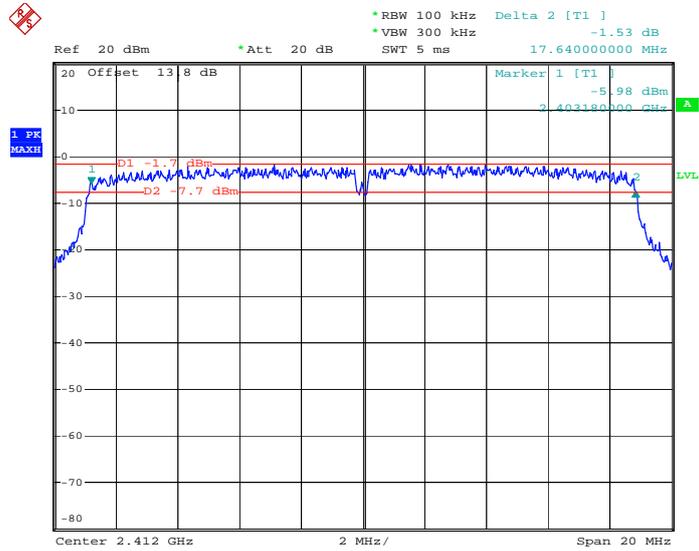


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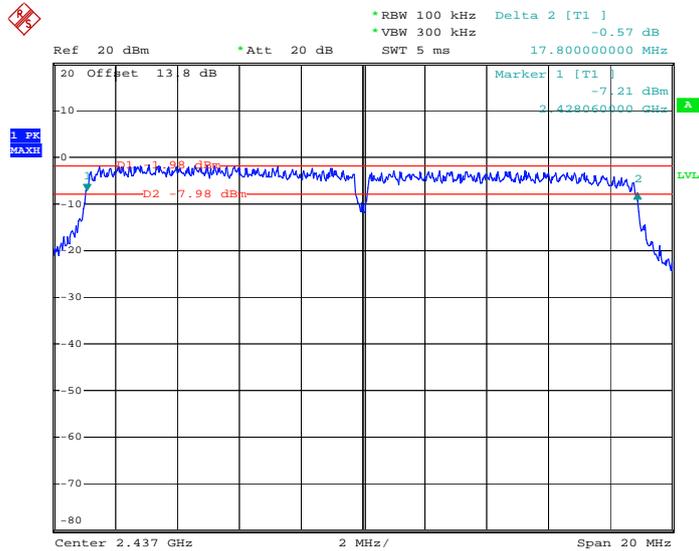
<2.4GHz 802.11n HT20>

6 dB Bandwidth Plot on Channel 01-Chain 1+2(1)



Date: 4.FEB.2013 04:28:15

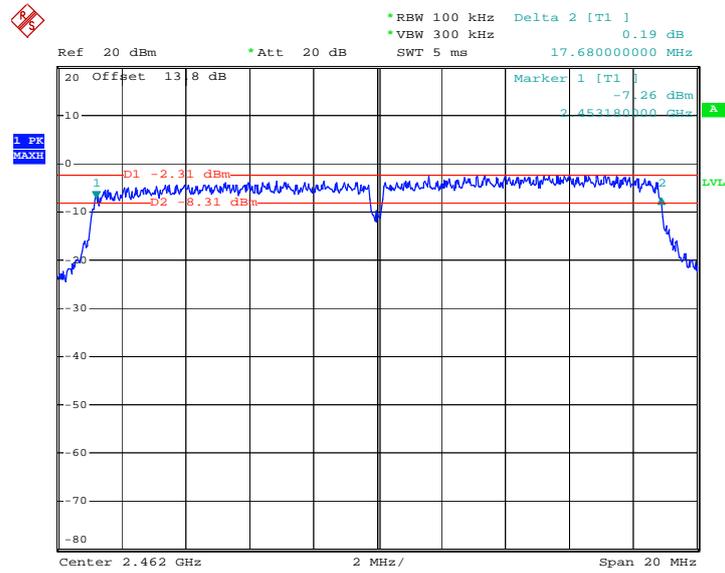
6 dB Bandwidth Plot on Channel 06-Chain 1+2(1)



Date: 4.FEB.2013 04:30:36

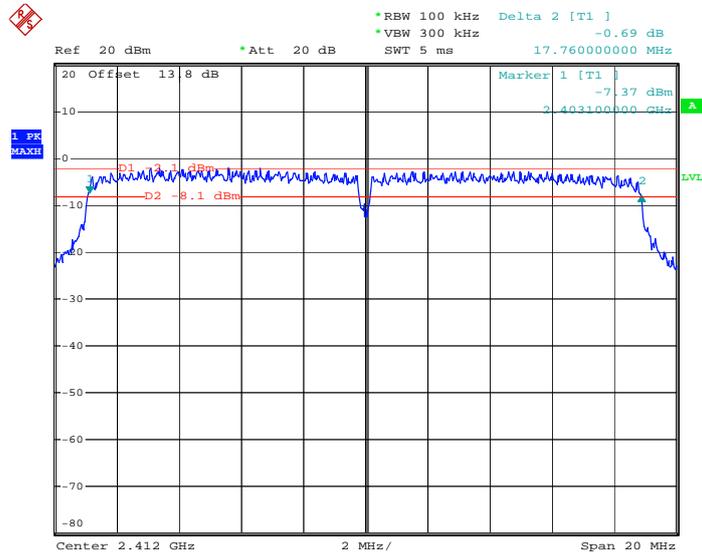


6 dB Bandwidth Plot on Channel 11-Chain 1+2(1)



Date: 4.FEB.2013 04:32:52

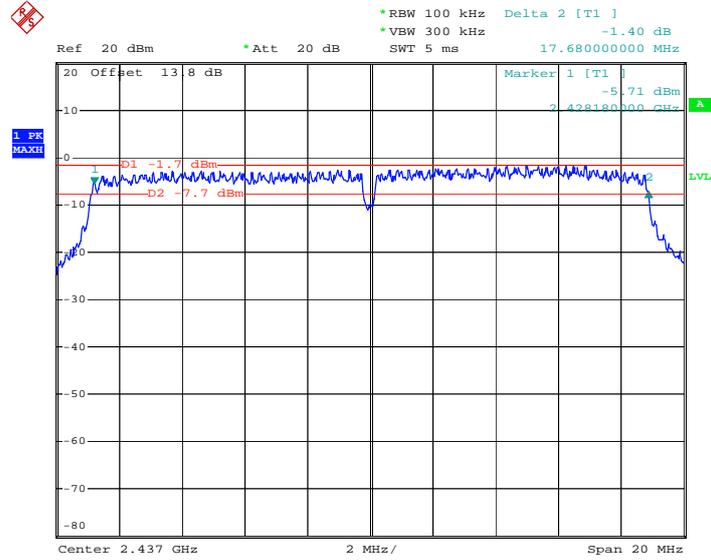
6 dB Bandwidth Plot on Channel 01-Chain 1+2(2)



Date: 4.FEB.2013 04:37:41

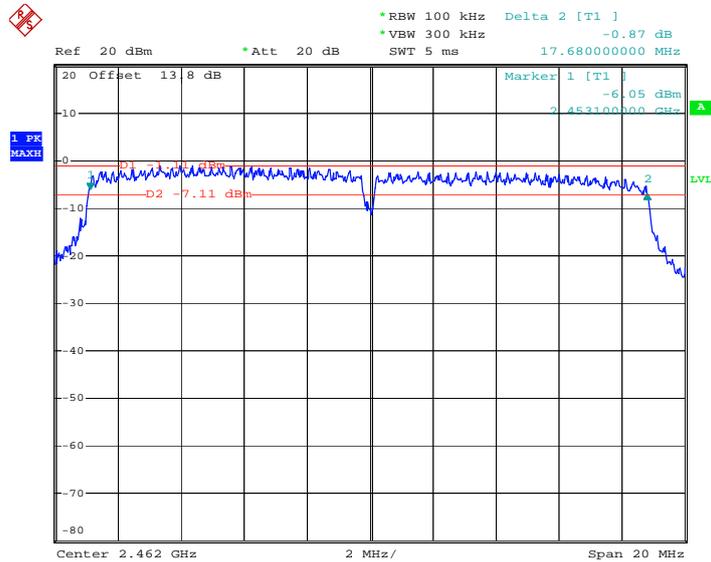


6 dB Bandwidth Plot on Channel 06-Chain 1+2(2)



Date: 4.FEB.2013 04:40:14

6 dB Bandwidth Plot on Channel 11-Chain 1+2(2)

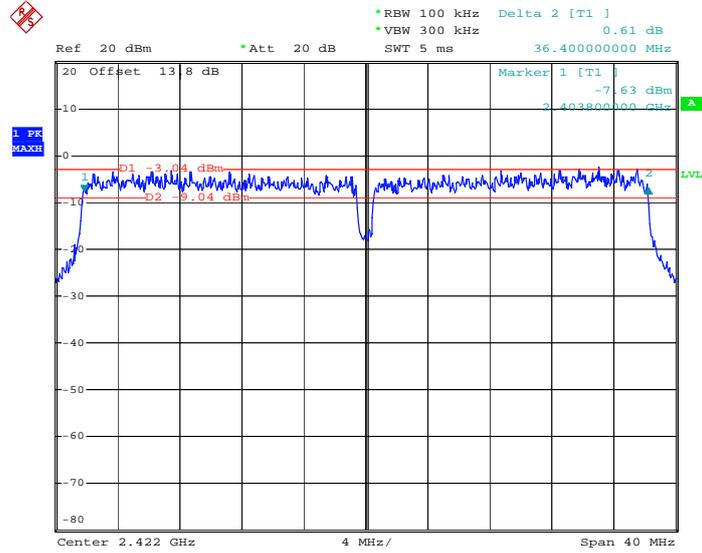


Date: 4.FEB.2013 04:42:27



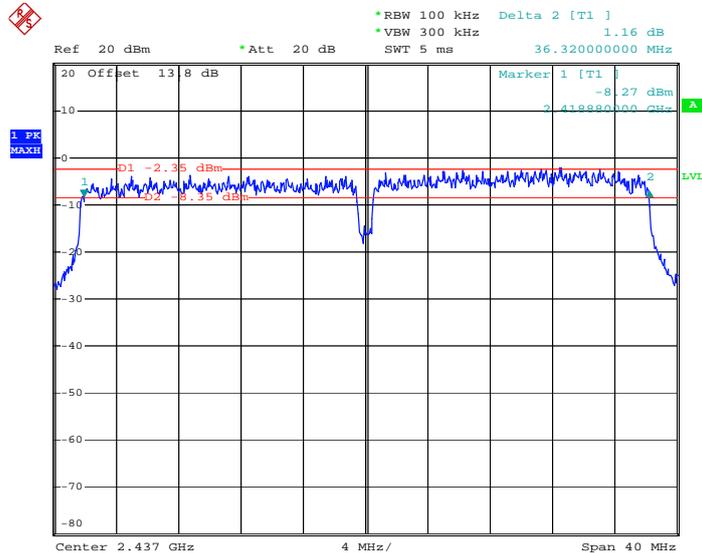
<2.4GHz 802.11n HT40>

6 dB Bandwidth Plot on Channel 03-Chain 1+2(1)



Date: 4.FEB.2013 06:32:09

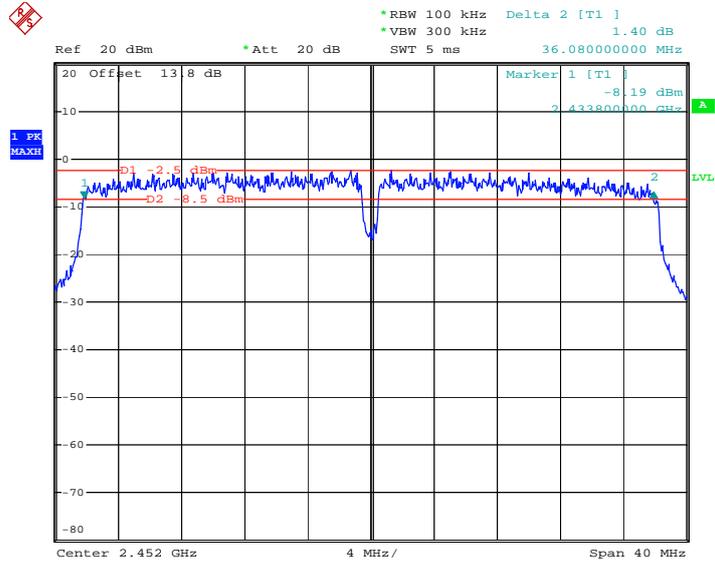
6 dB Bandwidth Plot on Channel 06-Chain 1+2(1)



Date: 4.FEB.2013 06:34:54

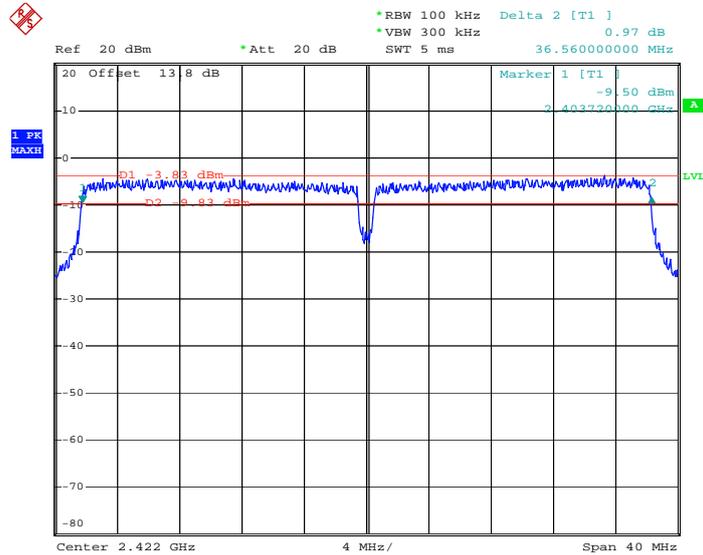


6 dB Bandwidth Plot on Channel 09-Chain 1+2(1)



Date: 4.FEB.2013 06:37:59

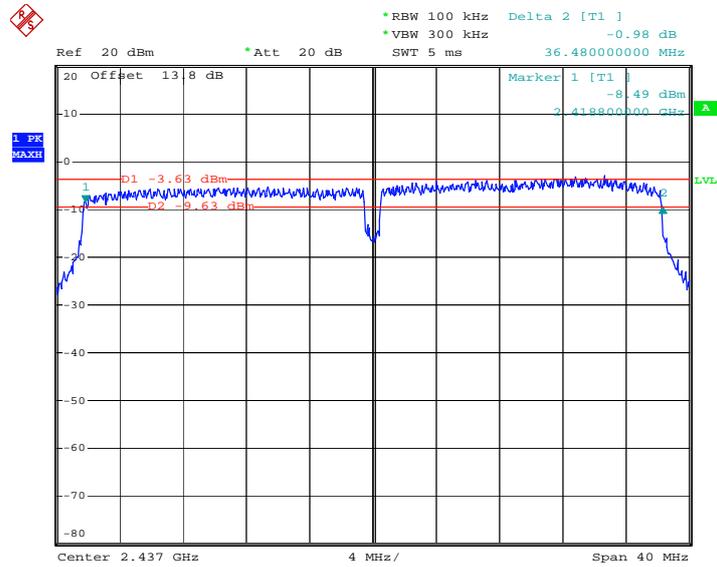
6 dB Bandwidth Plot on Channel 03-Chain 1+2(2)



Date: 4.FEB.2013 05:58:45

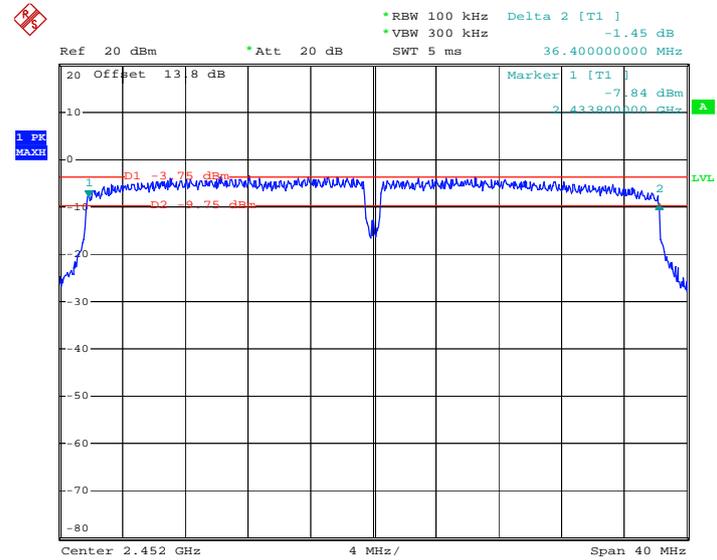


6 dB Bandwidth Plot on Channel 06-Chain 1+2(2)



Date: 4.FEB.2013 06:02:26

6 dB Bandwidth Plot on Channel 09-Chain 1+2(2)



Date: 4.FEB.2013 06:05:10

## 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.

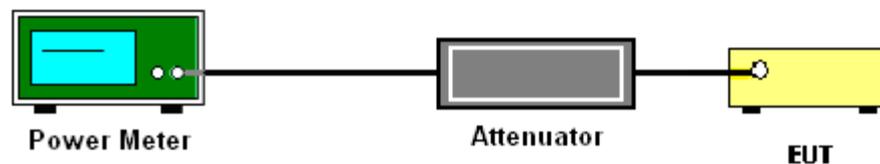
### 3.2.2 Measuring Instruments

See list of measuring instruments 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 v02.
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. 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 v01r02.

### 3.2.4 Test Setup



**3.2.5 Test Result of Peak Output Power**

<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	23~24°C
<b>Test Engineer :</b>	Lizy Li	<b>Relative Humidity :</b>	47~48%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Chain 1	Chain 2		
01	2412	19.65	18.67	30	Pass
06	2437	19.48	18.41	30	Pass
11	2462	19.78	18.16	30	Pass

<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	23~24°C
<b>Test Engineer :</b>	Lizy Li	<b>Relative Humidity :</b>	47~48%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Chain 1	Chain 2		
01	2412	24.59	24.8	30	Pass
06	2437	24.5	24.43	30	Pass
11	2462	24.96	24.58	30	Pass

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~24°C
<b>Test Engineer :</b>	Lizy Li	<b>Relative Humidity :</b>	47~48%

Channel	Frequency (MHz)	802.11n HT-20 Peak Output Power (dBm)					Max. Limits (dBm)	Pass/Fail
		SISO Chain 1	SISO Chain 2	MIMO Chain 1+2(1)	MIMO Chain 1+2(2)	MIMO Chain 1+2		
01	2412	21.98	21.96	22.63	22.43	25.54	30	Pass
06	2437	22.2	21.98	22.63	22.4	25.53	30	Pass
11	2462	22.66	22.44	23.15	22.63	25.91	30	Pass

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



Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11n HT-40 Peak Output Power (dBm)					Max. Limits (dBm)	Pass/Fail
		SISO Chain 1	SISO Chain 2	MIMO Chain 1+2(1)	MIMO Chain 1+2(2)	MIMO Chain 1+2		
03	2422	21.78	23.11	19.86	20.96	23.46	30	Pass
06	2437	22.15	22.43	19.81	20.76	23.32	30	Pass
09	2452	23.28	22.33	20.98	20.28	23.65	30	Pass

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



3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	23~24°C
Test Engineer :	Lizy Li	Relative Humidity :	47~48%
Duty Cycle:	100% for Chain 1 100% for Chain 2	Duty Factor:	0.00dB for Chain 1 0.00dB for Chain 2

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)	
		Chain 1	Chain 2
01	2412	17.23	16.15
06	2437	16.92	15.62
11	2462	17.64	15.57

Test Mode :	802.11g	Temperature :	23~24°C
Test Engineer :	Lizy Li	Relative Humidity :	47~48%
Duty Cycle:	100% for Chain 1 100% for Chain 2	Duty Factor:	0.00dB for Chain 1 0.00dB for Chain 2

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)	
		Chain 1	Chain 2
01	2412	14.60	14.32
06	2437	14.59	14.03
11	2462	15.23	14.20



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~24°C
<b>Test Engineer :</b>	Lizy Li	<b>Relative Humidity :</b>	47~48%
<b>Duty Cycle:</b>	100% for SISO Chain 1 100% for SISO Chain 2 100% for MIMO Chain 1+2(1) 100% for MIMO Chain 1+2(2) 100% for MIMO Chain 1+2	<b>Duty Factor:</b>	0.00dB for SISO Chain 1 0.00dB for SISO Chain 2 0.00dB for MIMO Chain 1+2(1) 0.00dB for MIMO Chain 1+2(2) 0.00dB for MIMO Chain 1+2

Channel	Frequency (MHz)	802.11n HT-20 Average Output Power (dBm)				
		SISO Chain 1	SISO Chain 2	MIMO Chain 1+2(1)	MIMO Chain 1+2(2)	MIMO Chain 1+2
01	2412	11.48	11.43	11.83	11.51	14.68
06	2437	11.96	11.30	12.27	11.52	14.92
11	2462	12.54	12.03	12.87	12.05	15.49

<b>Test Mode :</b>	802.11n HT40	<b>Temperature :</b>	23~24°C
<b>Test Engineer :</b>	Lizy Li	<b>Relative Humidity :</b>	47~48%
<b>Duty Cycle:</b>	100% for SISO Chain 1 100% for SISO Chain 2 100% for MIMO Chain 1+2(1) 100% for MIMO Chain 1+2(2) 100% for MIMO Chain 1+2	<b>Duty Factor:</b>	0.00dB for SISO Chain 1 0.00dB for SISO Chain 2 0.00dB for MIMO Chain 1+2(1) 0.00dB for MIMO Chain 1+2(2) 0.00dB for MIMO Chain 1+2

Channel	Frequency (MHz)	802.11n HT-40 Average Output Power (dBm)				
		SISO Chain 1	SISO Chain 2	MIMO Chain 1+2(1)	MIMO Chain 1+2(2)	MIMO Chain 1+2
03	2422	8.96	10.12	8.85	9.86	12.39
06	2437	9.25	9.78	9.14	9.61	12.39
09	2452	10.60	9.63	10.41	9.39	12.94

**Note :**

1. MIMO Ant 1+2 is a calculated result from sum of the power MIMO Ant 1 and MIMO Ant 2.
2. The average power is measured by power meter with average power sensor and is reporting only.

### 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

See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

1. The testing follows Measurement Procedure 9.1 Option 1 of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02
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 v01r02.

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.

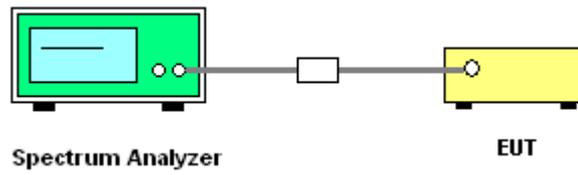
Method (1): Measure and sum the spectra across the outputs.

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)

8. The Measured power density (dBm)/ 100KHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

### 3.3.4 Test Setup



**3.3.5 Test Result of Power Spectral Density**

<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	23~24°C
<b>Test Engineer :</b>	Lizy Li	<b>Relative Humidity :</b>	47~48%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	4.54	-9.19	8	Pass
06	2437	4.71	-9.00	8	Pass
11	2462	3.70	-10.22	8	Pass

<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	23~24°C
<b>Test Engineer :</b>	Lizy Li	<b>Relative Humidity :</b>	47~48%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-1.88	-11.32	8	Pass
06	2437	-1.22	-12.62	8	Pass
11	2462	-1.99	-13.53	8	Pass

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~24°C
<b>Test Engineer :</b>	Lizy Li	<b>Relative Humidity :</b>	47~48%

Channel	Frequency (MHz)	Chain	802.11n HT-20 Power Density			Max. Limits (dBm)	Pass/Fail
			Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	PSD/3KHz (dBm) +10log2		
01	2412	1+2(1)	-2.59	-12.41	-9.40	8	Pass
06	2437	1+2(1)	-2.06	-13.33	-10.32	8	Pass
11	2462	1+2(1)	-1.88	-14.14	-11.13	8	Pass
01	2412	1+2(2)	-2.14	-13.85	-10.84	8	Pass
06	2437	1+2(2)	-2.01	-13.92	-10.91	8	Pass
11	2462	1+2(2)	-1.46	-13.19	-10.18	8	Pass



Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	Chain	802.11n HT-40 Power Density			Max. Limits (dBm)	Pass/Fail
			Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	PSD/3KHz (dBm) +10log2		
03	2422	1+2(1)	-4.96	-15.85	-12.84	8	Pass
06	2437	1+2(1)	-2.09	-16.08	-13.07	8	Pass
09	2452	1+2(1)	-3.19	-15.90	-12.89	8	Pass
03	2422	1+2(2)	-4.74	-15.72	-12.71	8	Pass
06	2437	1+2(2)	-3.83	-14.73	-11.72	8	Pass
09	2452	1+2(2)	-4.15	-15.02	-12.01	8	Pass

**Note:**

1. Measured power density (dBm) has offset with cable loss.
2. The Measured power density (dBm)/ 100KHz is reference level and used as 20dBc down for Conducted Band Edges and Conducted Spurious Emission limit line.

### 3.3.6 Test Result of Power Spectral Density Plots (100kHz)

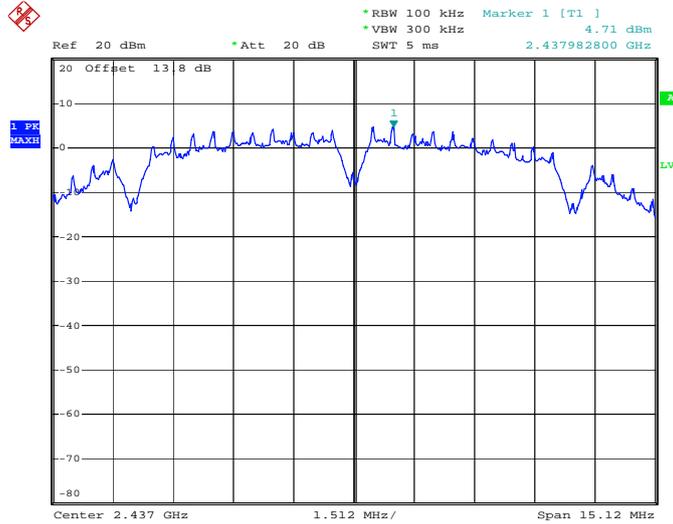
<802.11b>

PSD 100kHz Plot on Channel 01–Chain 1



Date: 4.FEB.2013 03:06:12

PSD 100kHz Plot on Channel 06–Chain 1



Date: 4.FEB.2013 03:09:44



PSD 100kHz Plot on Channel 11-Chain 1

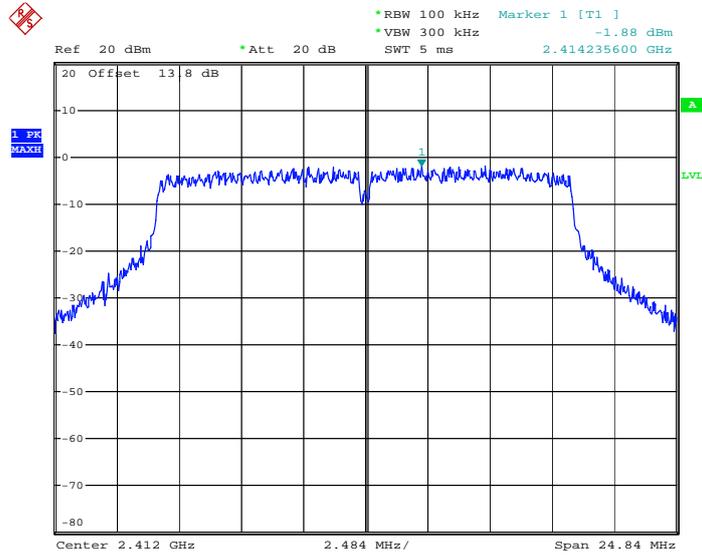


Date: 4.FEB.2013 03:12:25



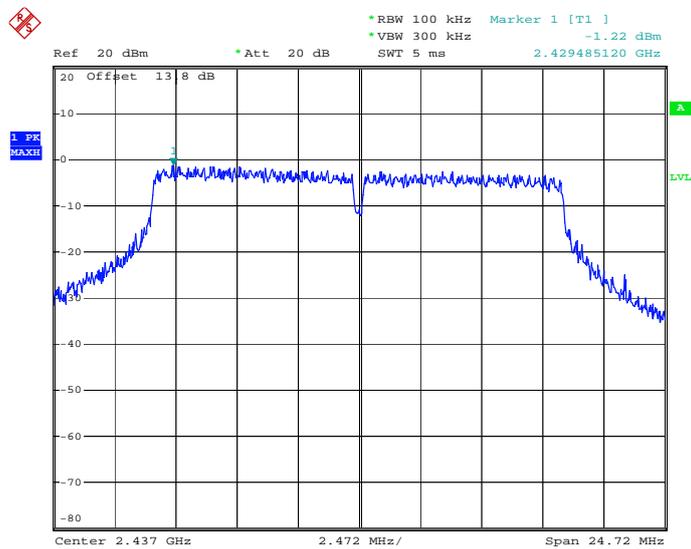
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PSD 100kHz Plot on Channel 01-Chain 1



Date: 4.FEB.2013 03:45:02

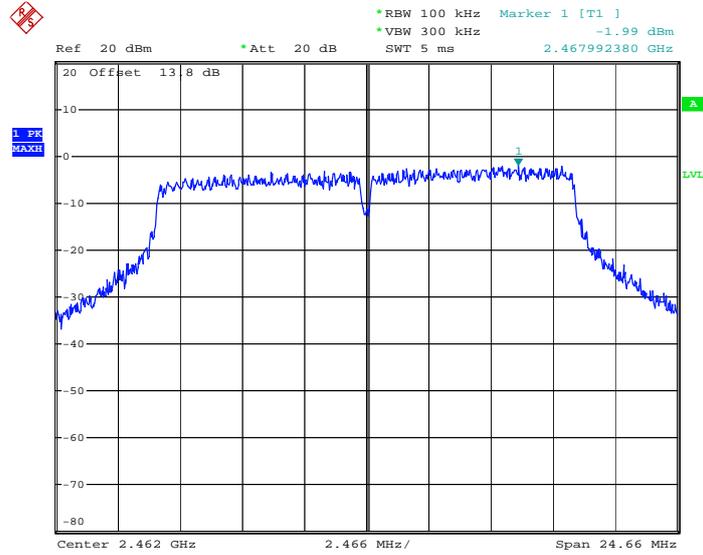
PSD 100kHz Plot on Channel 06-Chain 1



Date: 4.FEB.2013 03:48:06



PSD 100kHz Plot on Channel 11-Chain 1

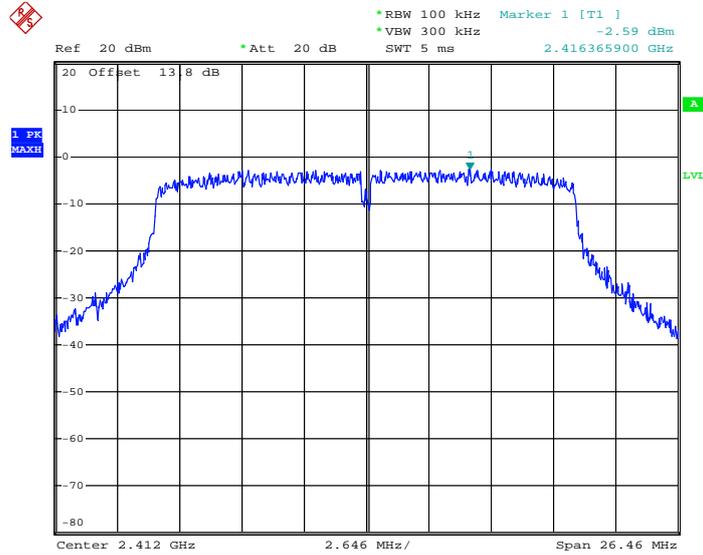


Date: 4.FEB.2013 03:50:53



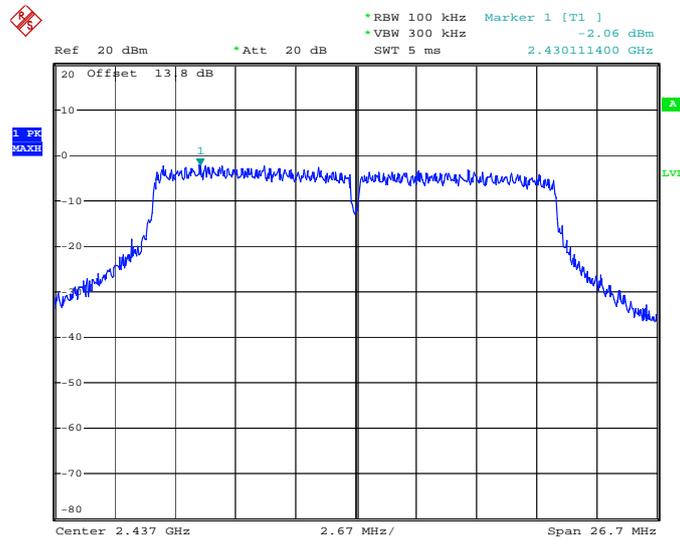
<2.4GHz 802.11n HT20>

PSD 100kHz Plot on Channel 01-Chain 1+2(1)



Date: 4.FEB.2013 04:28:45

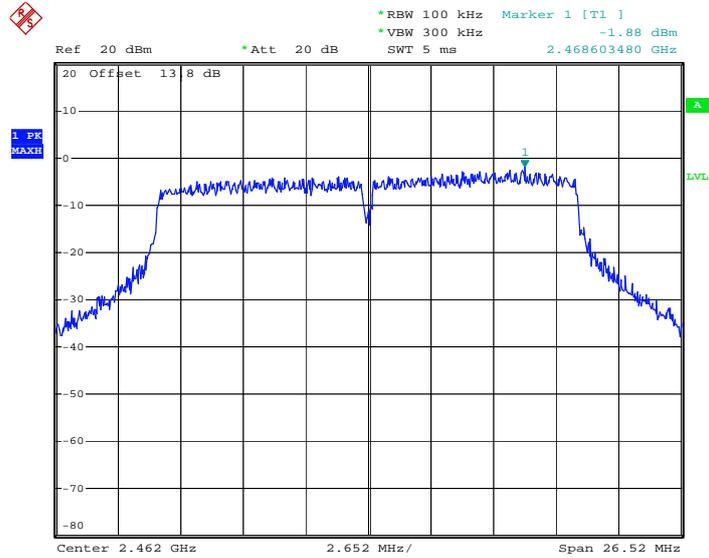
PSD 100kHz Plot on Channel 06-Chain 1+2(1)



Date: 4.FEB.2013 04:31:07

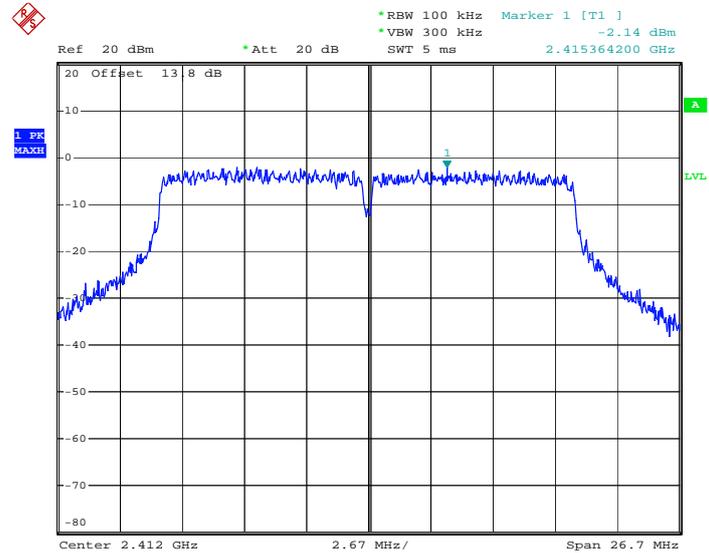


PSD 100kHz Plot on Channel 11-Chain 1+2(1)



Date: 4.FEB.2013 04:33:23

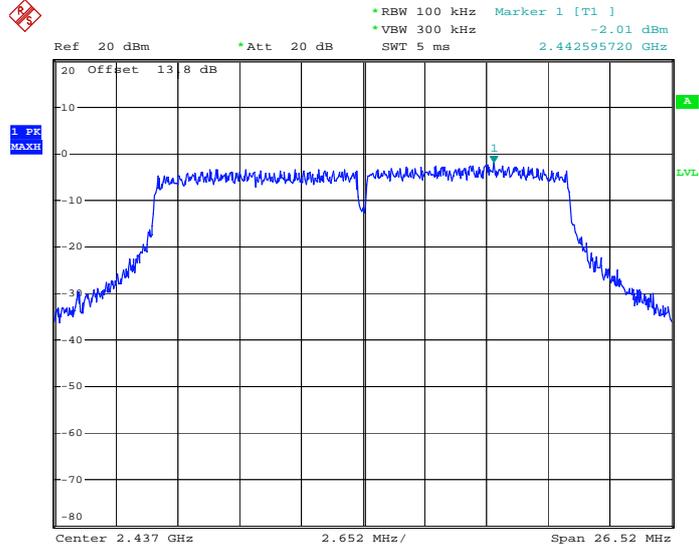
PSD 100kHz Plot on Channel 01-Chain 1+2(2)



Date: 4.FEB.2013 04:18:13

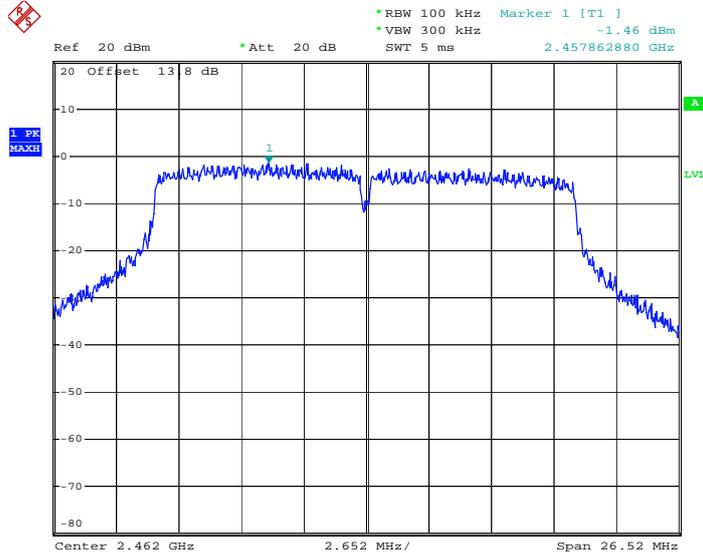


PSD 100kHz Plot on Channel 06-Chain 1+2(2)



Date: 4.FEB.2013 04:40:45

PSD 100kHz Plot on Channel 11-Chain 1+2(2)

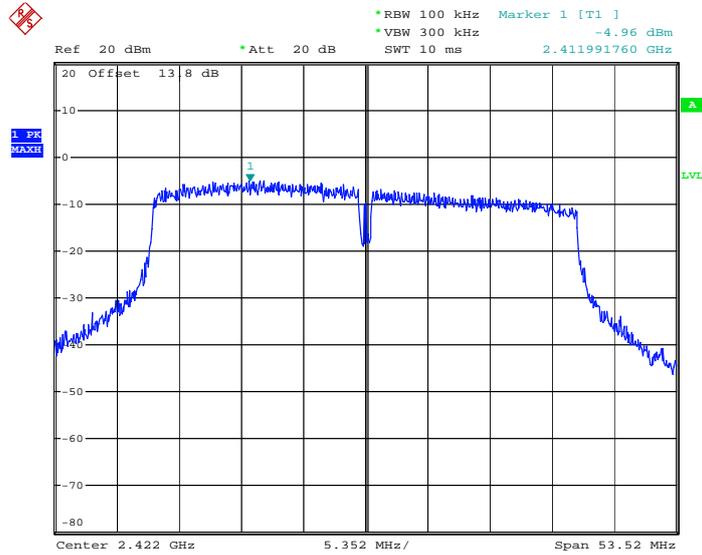


Date: 4.FEB.2013 04:42:58



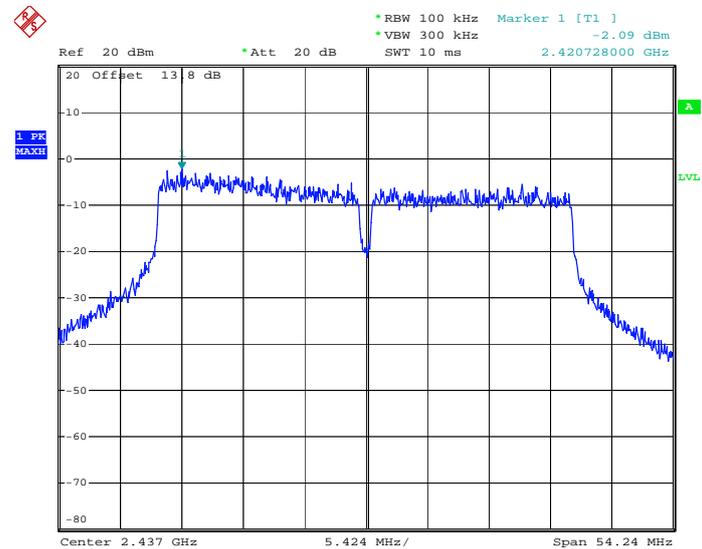
<2.4GHz 802.11n HT40>

PSD 100kHz Plot on Channel 03-Chain 1+2(1)



Date: 4.FEB.2013 05:43:51

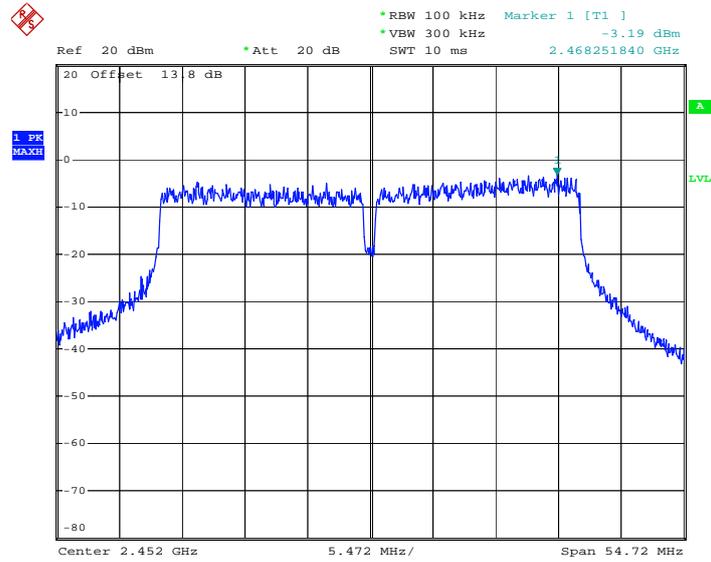
PSD 100kHz Plot on Channel 06-Chain 1+2(1)



Date: 4.FEB.2013 06:14:35

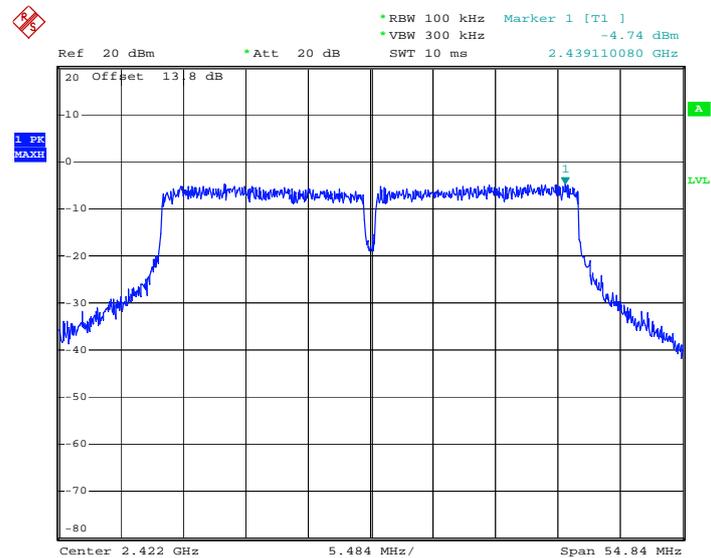


PSD 100kHz Plot on Channel 09-Chain 1+2(1)



Date: 4.FEB.2013 06:16:57

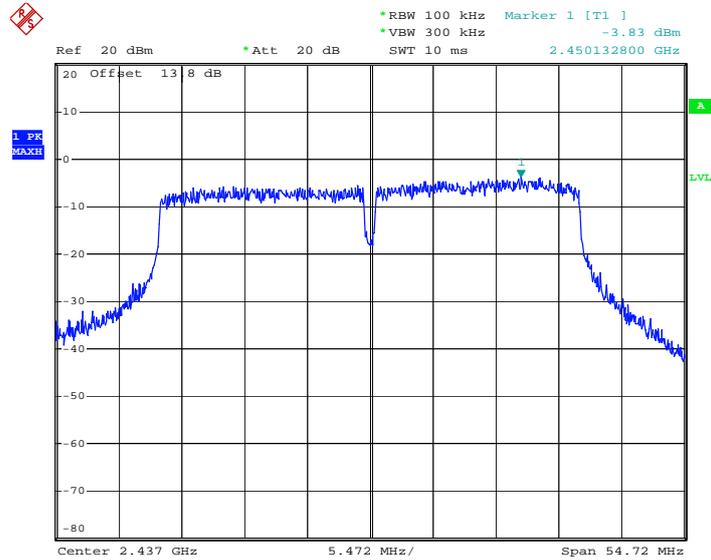
PSD 100kHz Plot on Channel 03-Chain 1+2(2)



Date: 4.FEB.2013 05:59:19

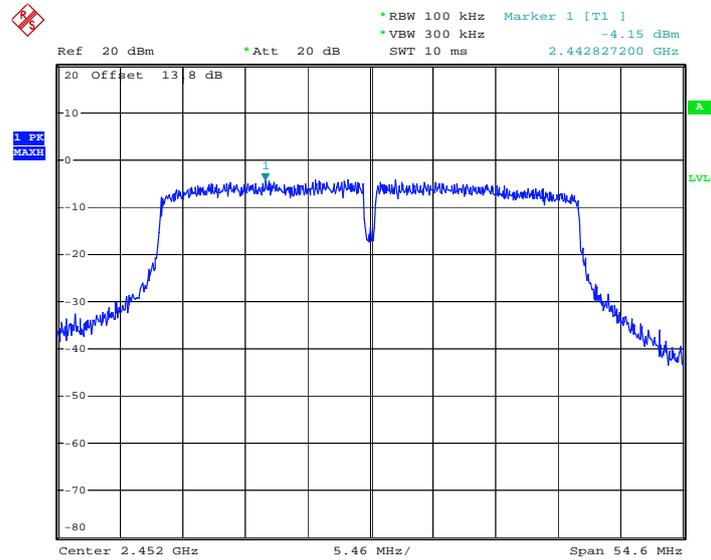


PSD 100kHz Plot on Channel 06–Chain 1+2(2)



Date: 4.FEB.2013 06:03:00

PSD 100kHz Plot on Channel 09–Chain 1+2(2)

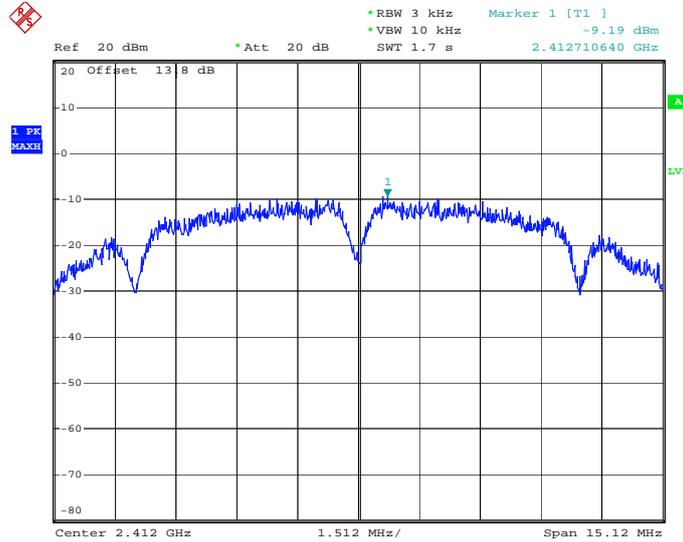


Date: 4.FEB.2013 06:05:44

### 3.3.7 Test Result of Power Spectral Density Plots (3kHz)

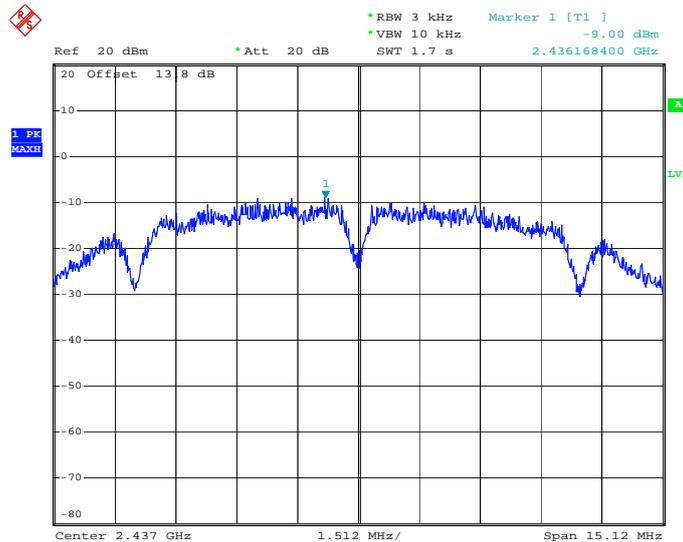
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PSD 3kHz Plot on Channel 01–Chain 1



Date: 4.FEB.2013 03:06:02

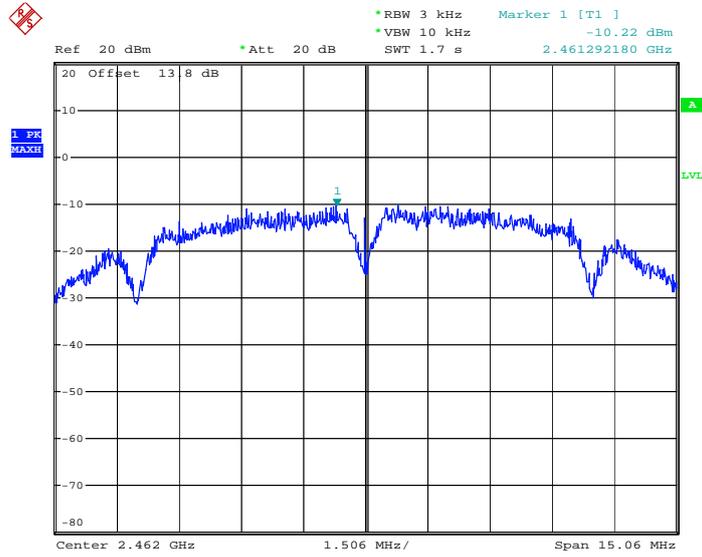
PSD 3kHz Plot on Channel 06–Chain 1



Date: 4.FEB.2013 03:09:34



PSD 3kHz Plot on Channel 11-Chain 1

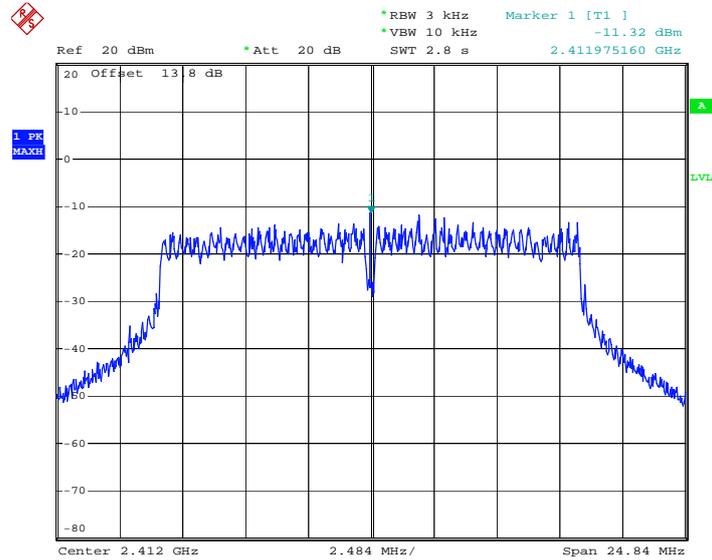


Date: 4.FEB.2013 03:12:15



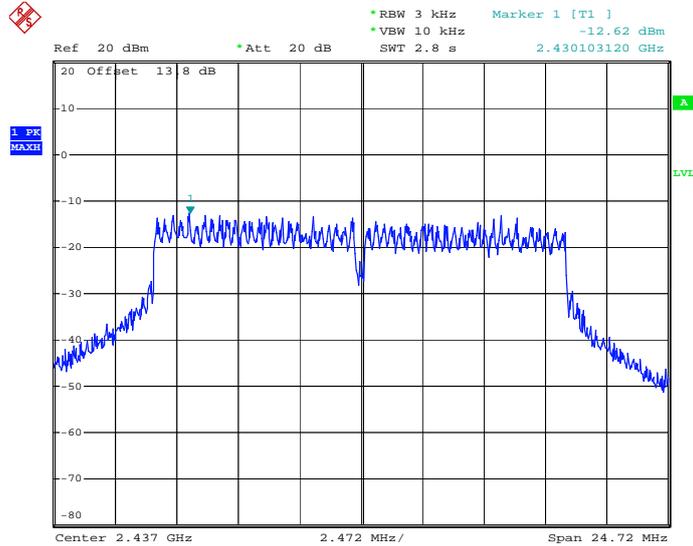
<802.11g>

PSD 3kHz Plot on Channel 01-Chain 1



Date: 4.FEB.2013 03:44:52

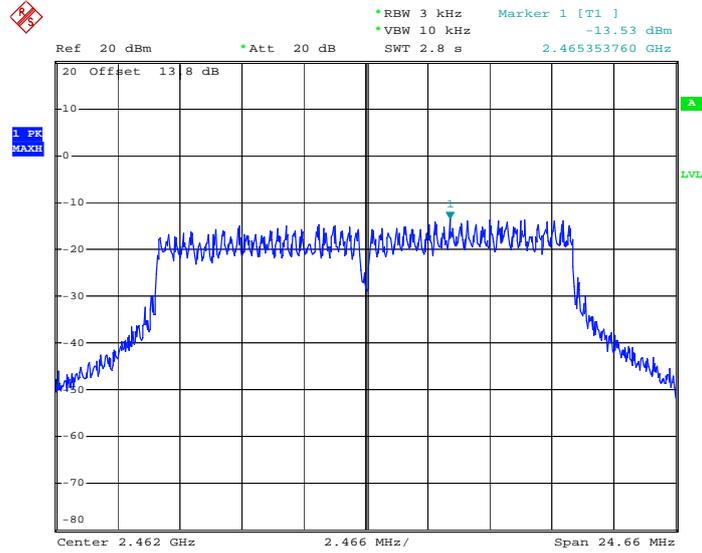
PSD 3kHz Plot on Channel 06-Chain 1



Date: 4.FEB.2013 03:47:56



PSD 3kHz Plot on Channel 11-Chain 1

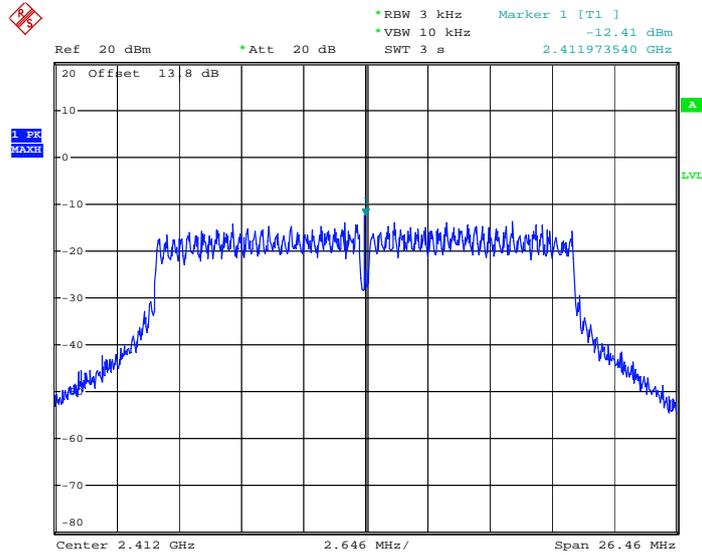


Date: 4.FEB.2013 03:50:43



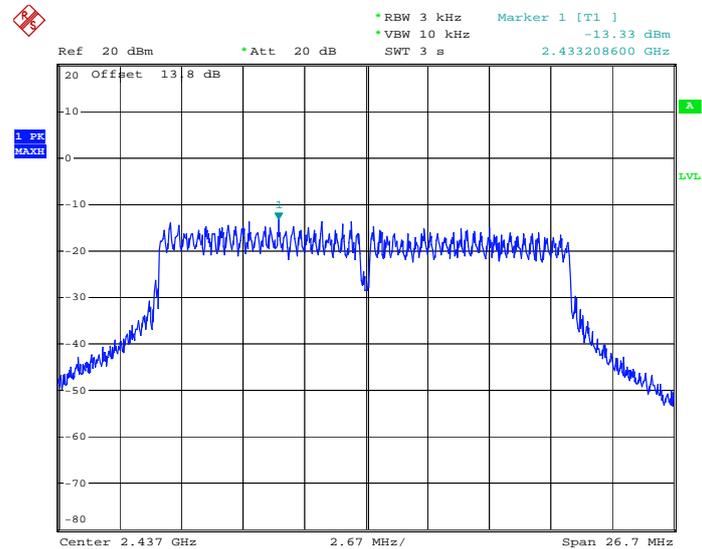
<2.4GHz 802.11n HT20>

PSD 3kHz Plot on Channel 01–Chain 1+2(1)



Date: 4.FEB.2013 04:28:35

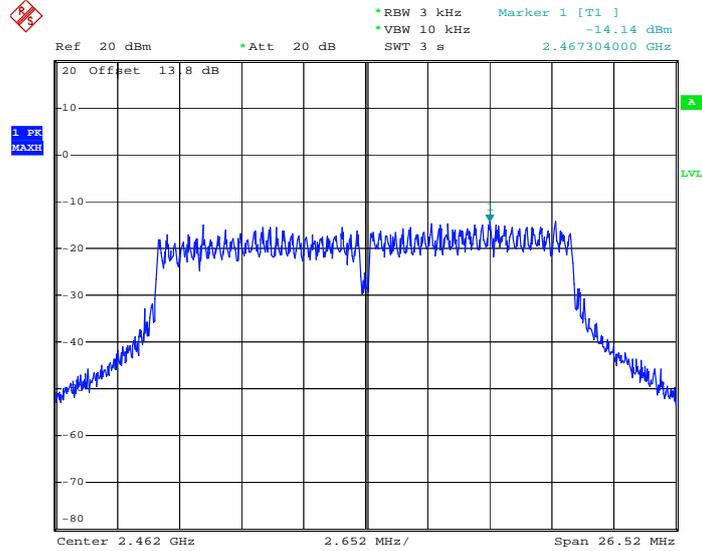
PSD 3kHz Plot on Channel 06–Chain 1+2(1)



Date: 4.FEB.2013 04:30:57

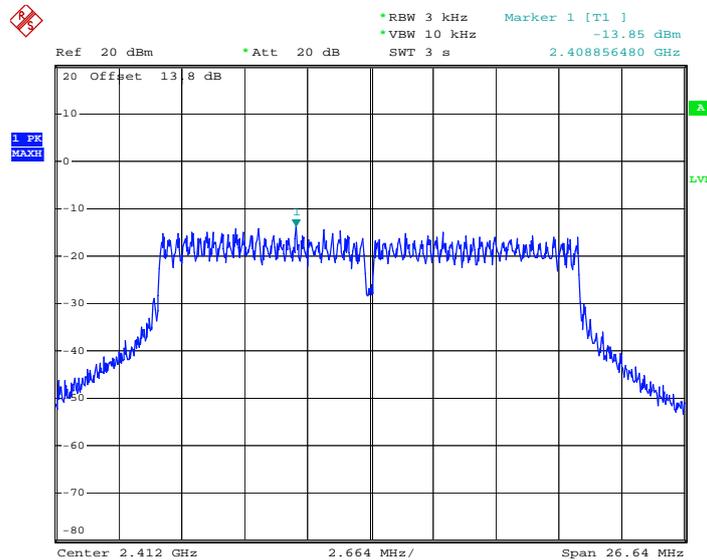


PSD 3kHz Plot on Channel 11-Chain 1+2(1)



Date: 4.FEB.2013 04:33:13

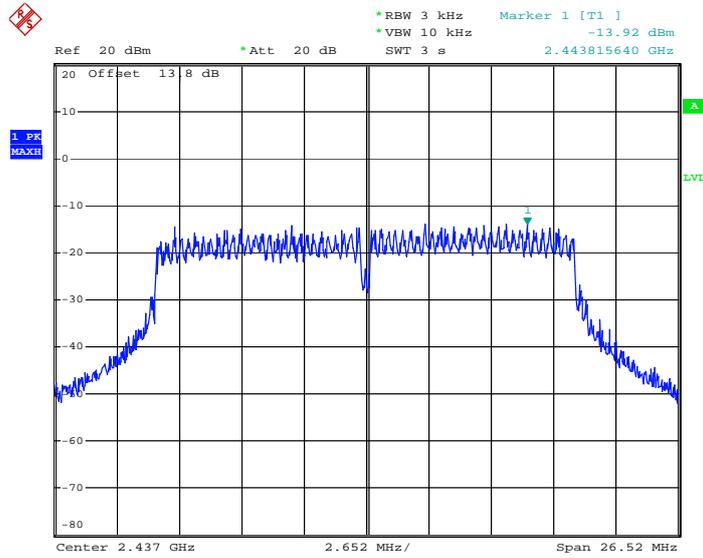
PSD 3kHz Plot on Channel 01-Chain 1+2(2)



Date: 4.FEB.2013 04:38:02

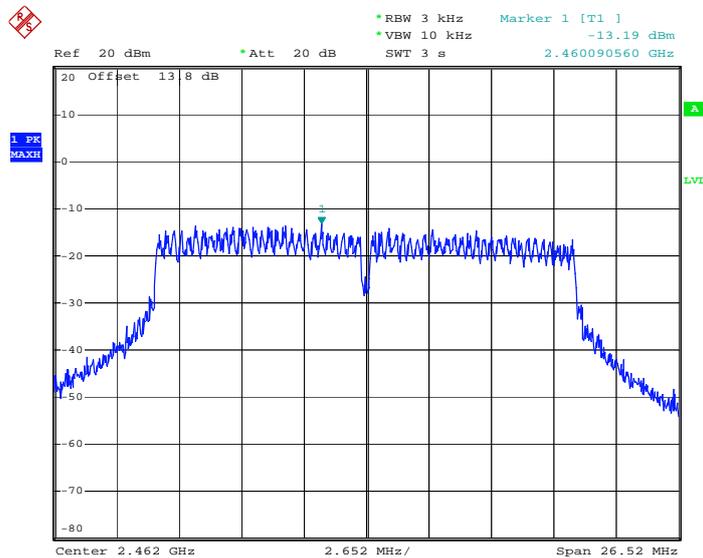


PSD 3kHz Plot on Channel 06-Chain 1+2(2)



Date: 4.FEB.2013 04:40:35

PSD 3kHz Plot on Channel 11-Chain 1+2(2)

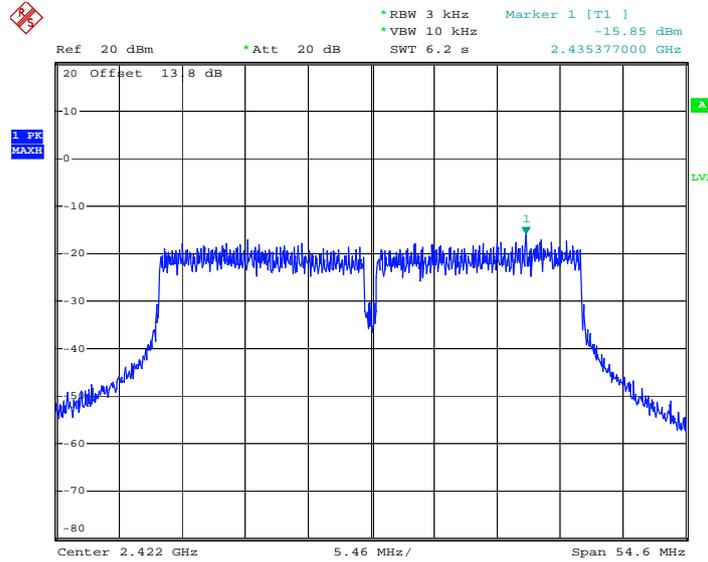


Date: 4.FEB.2013 04:42:48



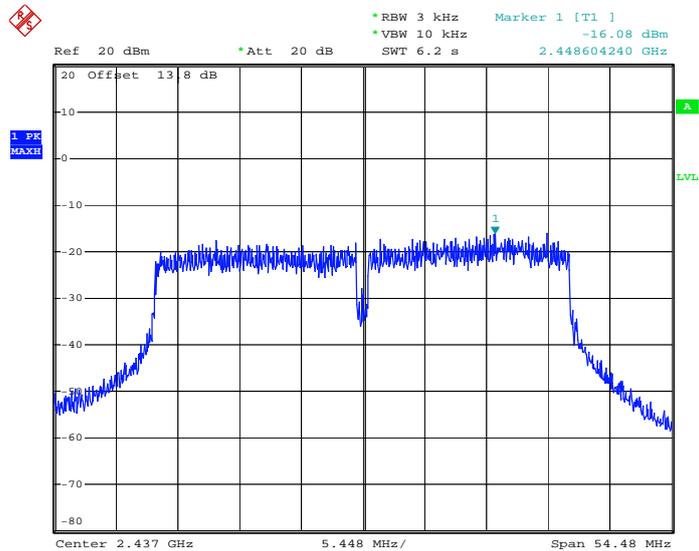
<2.4GHz 802.11n HT40>

PSD 3kHz Plot on Channel 03–Chain 1+2(1)



Date: 4.FEB.2013 06:32:33

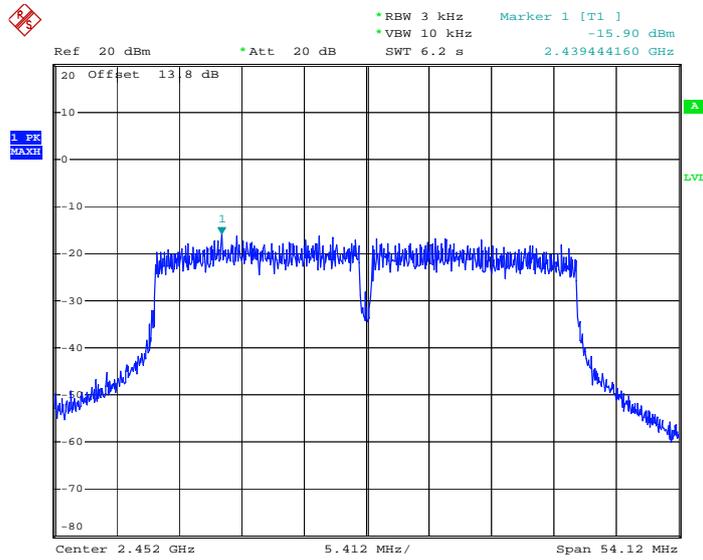
PSD 3kHz Plot on Channel 06–Chain 1+2(1)



Date: 4.FEB.2013 06:35:18

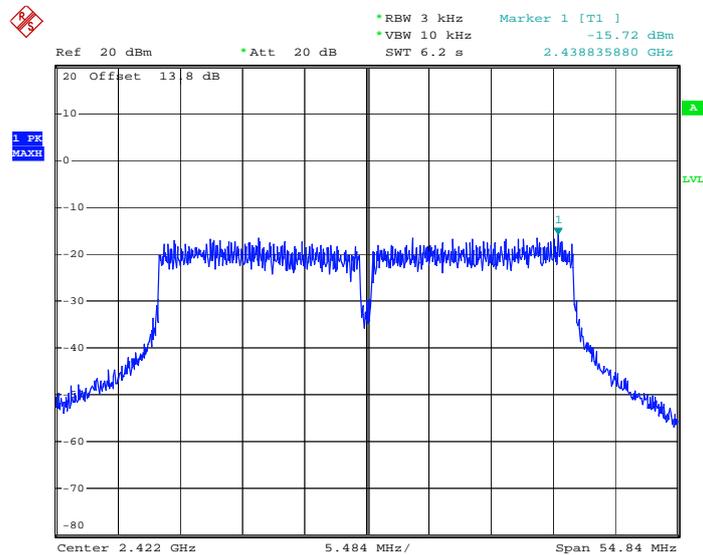


PSD 3kHz Plot on Channel 09—Chain 1+2(1)



Date: 4.FEB.2013 06:38:23

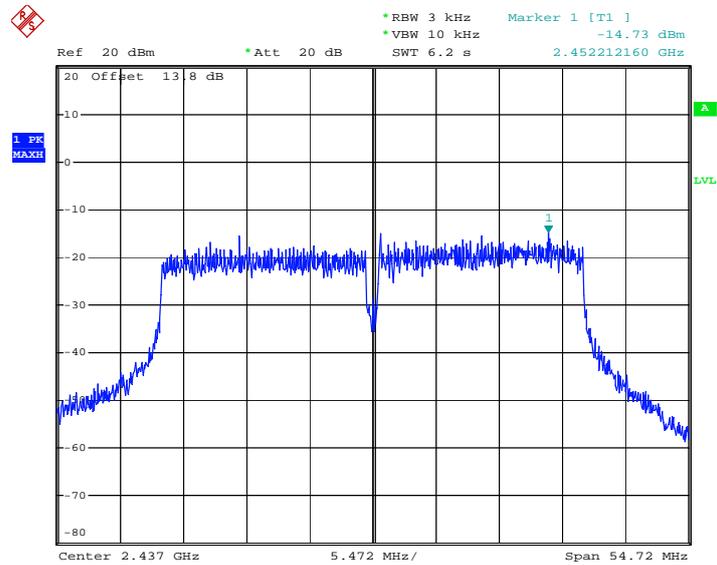
PSD 3kHz Plot on Channel 03—Chain 1+2(2)



Date: 4.FEB.2013 05:59:09

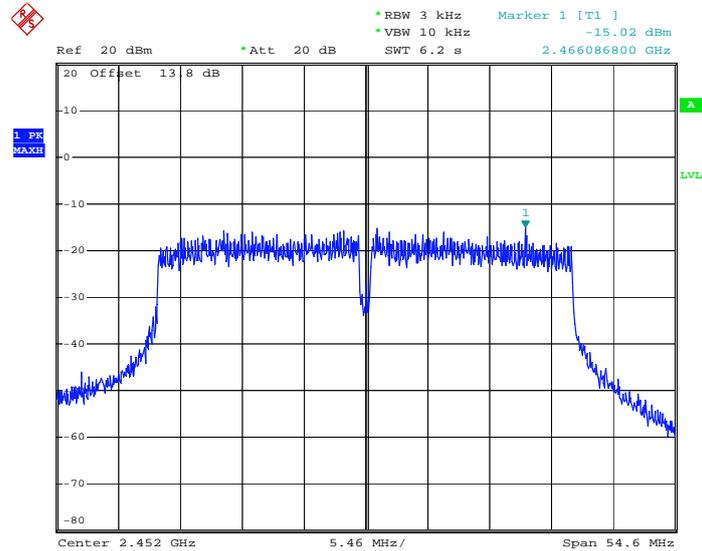


PSD 3kHz Plot on Channel 06–Chain 1+2(2)



Date: 4.FEB.2013 06:02:50

PSD 3kHz Plot on Channel 09–Chain 1+2(2)



Date: 4.FEB.2013 06:05:34

### 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).

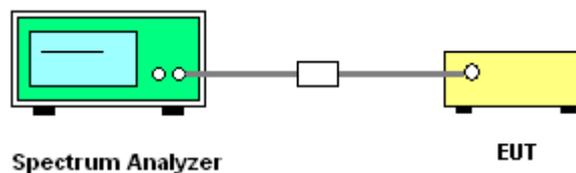
#### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02.
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

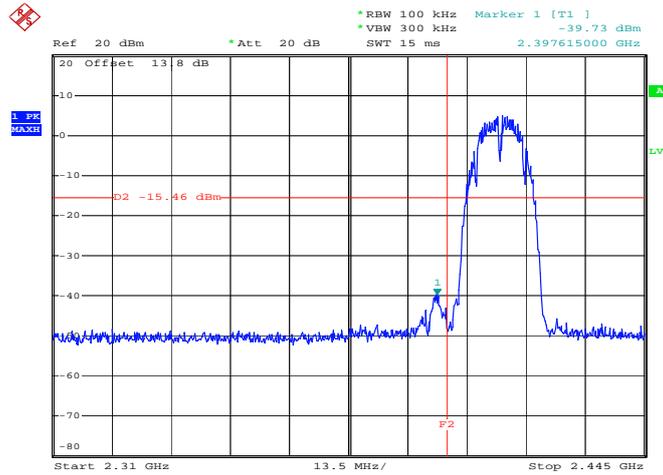


### 3.4.5 Test Result of Conducted Spurious at Band Edges

Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Lizy Li

#### 802.11b

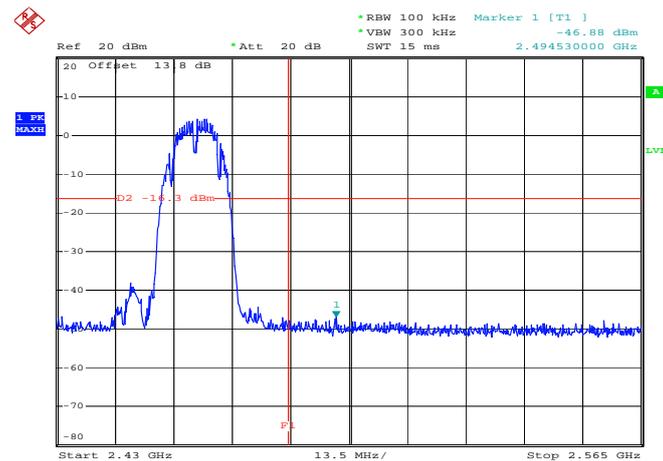
#### Low Band Edge Plot on Channel 01–Chain 1



Date: 4.FEB.2013 03:06:28

#### 802.11b

#### High Band Edge Plot on Channel 11–Chain 1



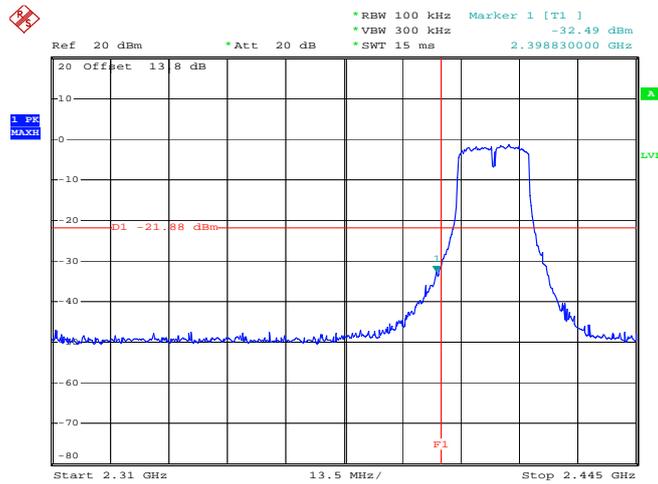
Date: 4.FEB.2013 03:12:41



Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Lizy Li

802.11g

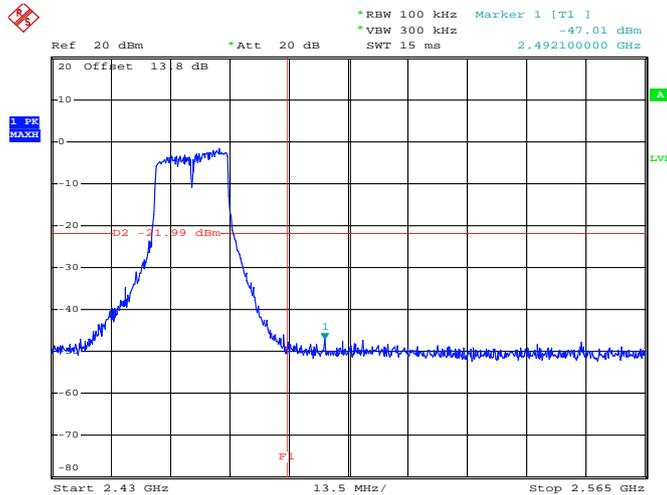
Low Band Edge Plot on Channel 01-Chain 1



Date: 4.FEB.2013 07:46:24

802.11g

High Band Edge Plot on Channel 11-Chain 1



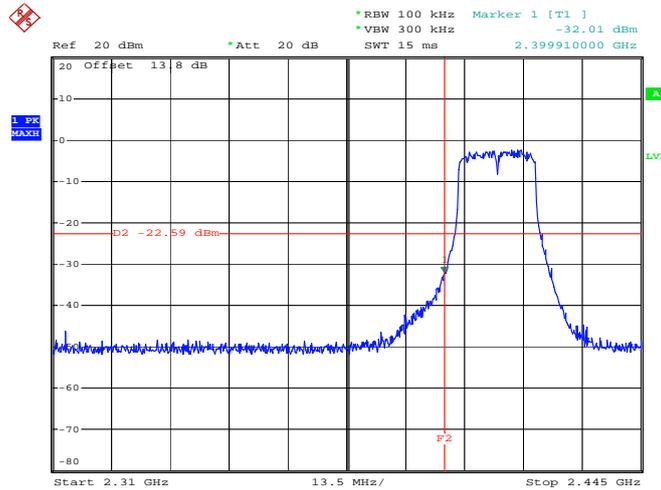
Date: 4.FEB.2013 03:51:09



Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Lizy Li

802.11n HT20

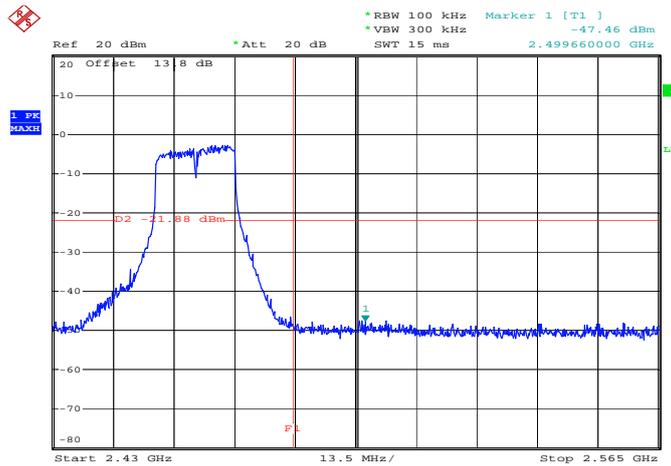
Low Band Edge Plot on Channel 01–Chain 1+2(1)



Date: 4.FEB.2013 04:29:01

802.11n HT20

High Band Edge Plot on Channel 11–Chain 1+2(1)

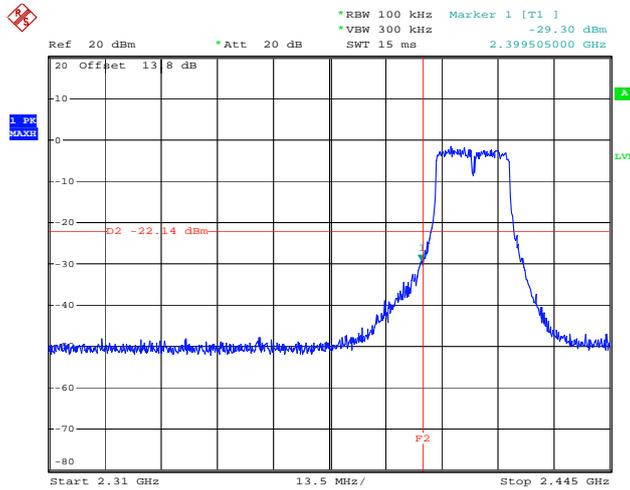


Date: 4.FEB.2013 04:33:39



802.11n HT20

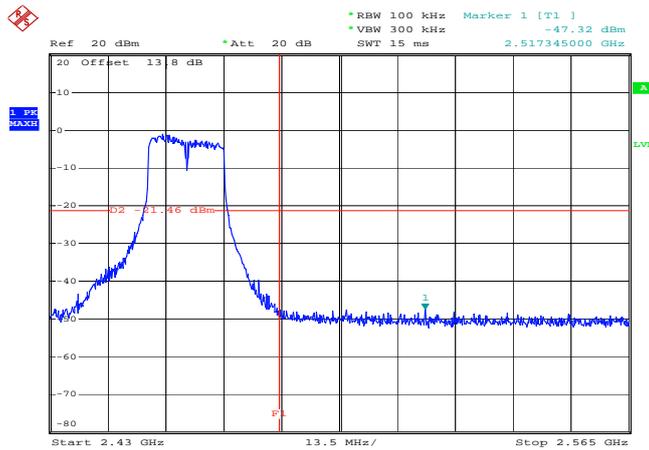
Low Band Edge Plot on Channel 01–Chain 1+2(2)



Date: 4.FEB.2013 04:18:29

802.11n HT20

High Band Edge Plot on Channel 11–Chain 1+2(2)



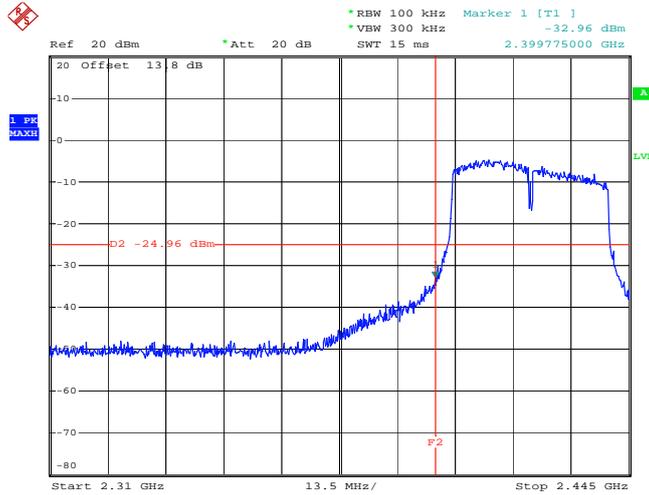
Date: 4.FEB.2013 04:43:14



Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	03 and 09	Test Engineer :	Lizy Li

802.11n HT40

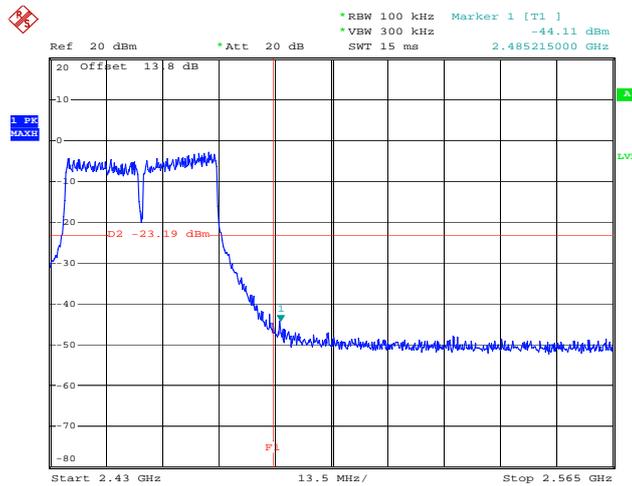
Low Band Edge Plot on Channel 03–Chain 1+2(1)



Date: 4.FEB.2013 05:44:07

802.11n HT40

High Band Edge Plot on Channel 09–Chain 1+2(1)

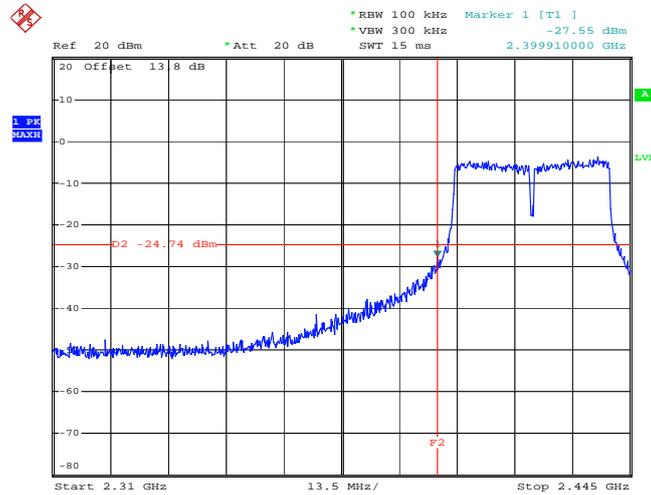


Date: 4.FEB.2013 06:17:13



802.11n HT40

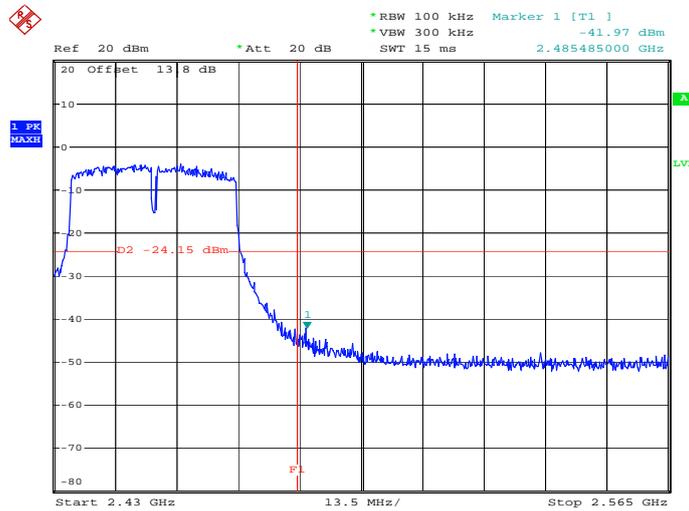
Low Band Edge Plot on Channel 03-Chain 1+2(2)



Date: 4.FEB.2013 05:59:36

802.11n HT40

High Band Edge Plot on Channel 09-Chain 1+2(2)



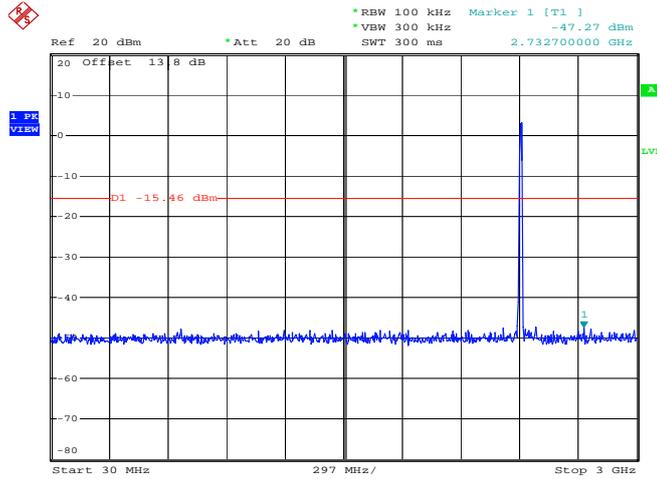
Date: 4.FEB.2013 06:06:00

### 3.4.5 Test Result of Conducted Spurious Emission

Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	Lizy Li

#### 802.11b 30 MHz~3 GHz

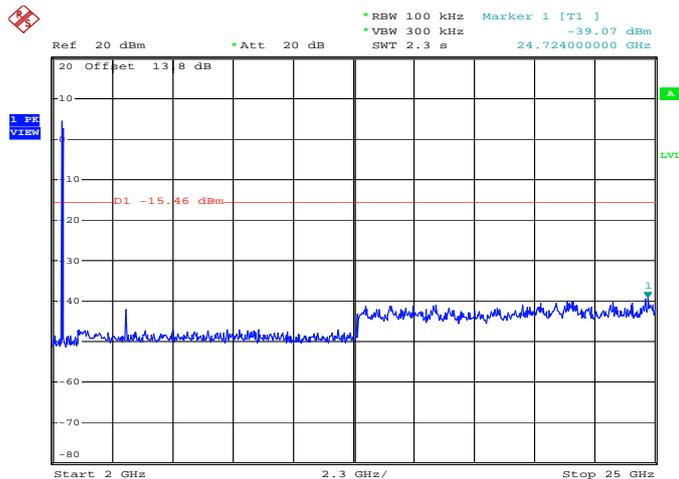
#### Conducted Spurious Emission Plot on Channel 01-Chain 1



Date: 4.FEB.2013 03:06:47

#### 802.11b 2 GHz~25 GHz

#### Conducted Spurious Emission Plot on Channel 01-Chain 1

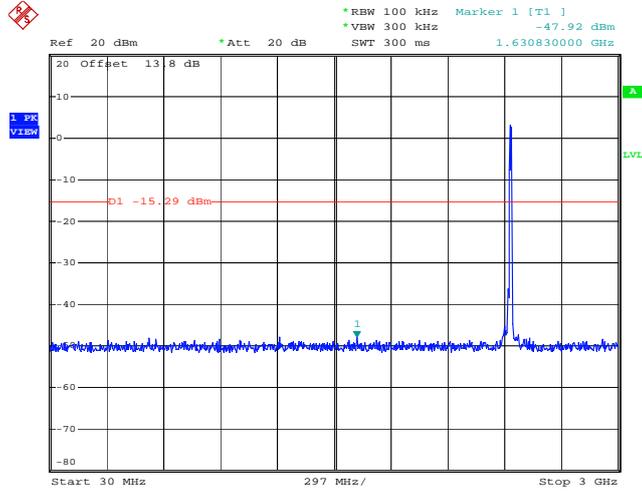


Date: 4.FEB.2013 03:07:05



802.11b 30 MHz~3 GHz

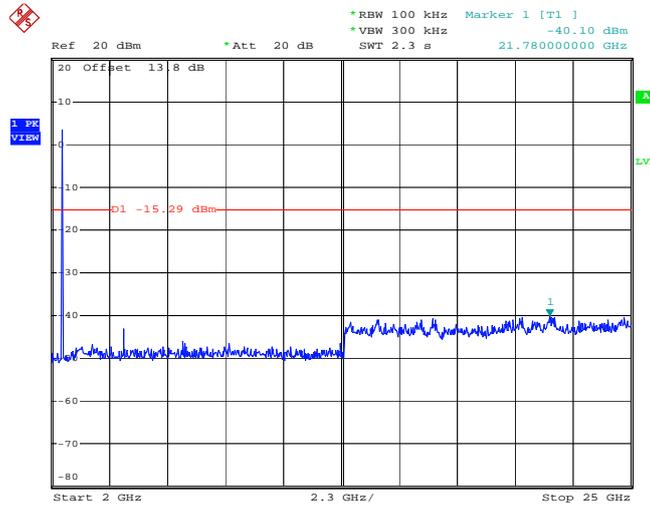
Conducted Spurious Emission Plot on Channel 06-Chain 1



Date: 4.FEB.2013 03:10:05

802.11b 2 GHz~25 GHz

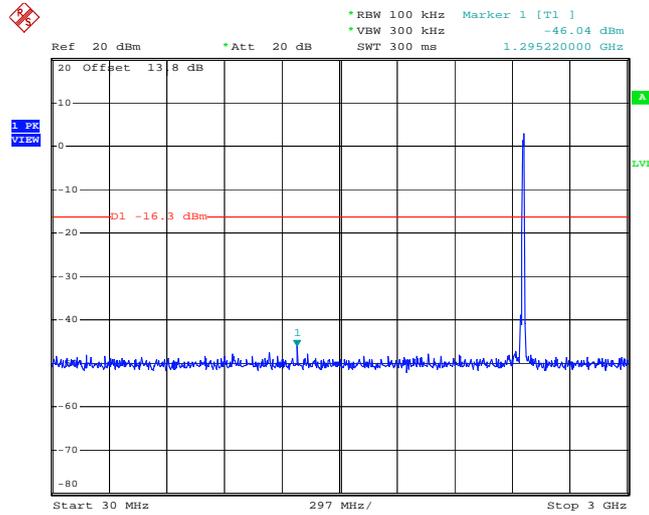
Conducted Spurious Emission Plot on Channel 06-Chain 1



Date: 4.FEB.2013 03:10:23

802.11b 30 MHz~3 GHz

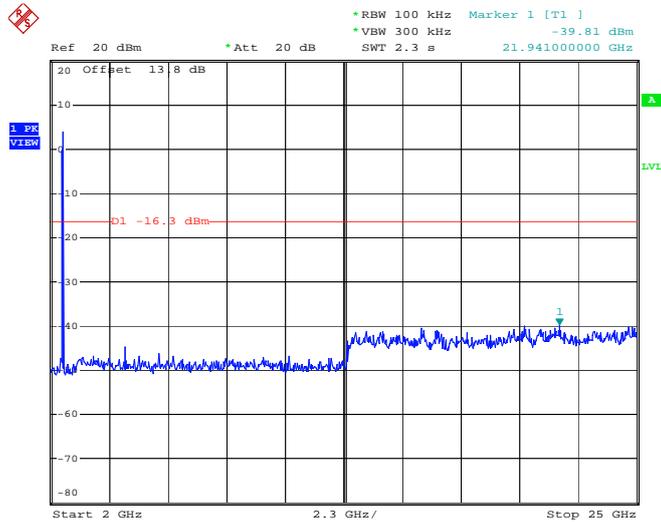
Conducted Spurious Emission Plot on Channel 11-Chain 1



Date: 4.FEB.2013 03:12:59

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11-Chain 1



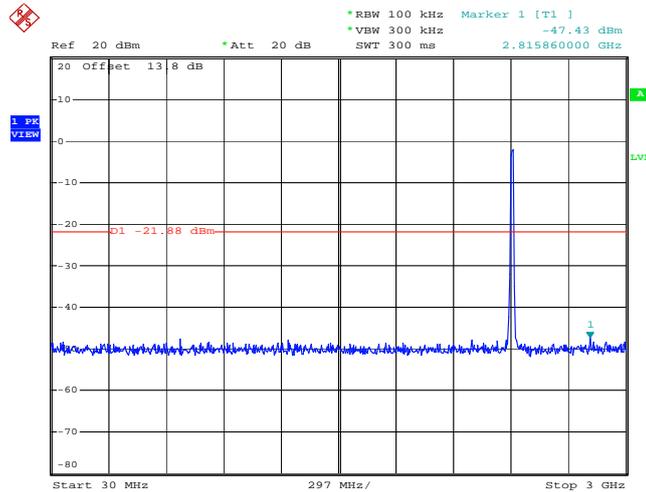
Date: 4.FEB.2013 03:13:18



Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	Lizy Li

802.11g 30 MHz~3 GHz

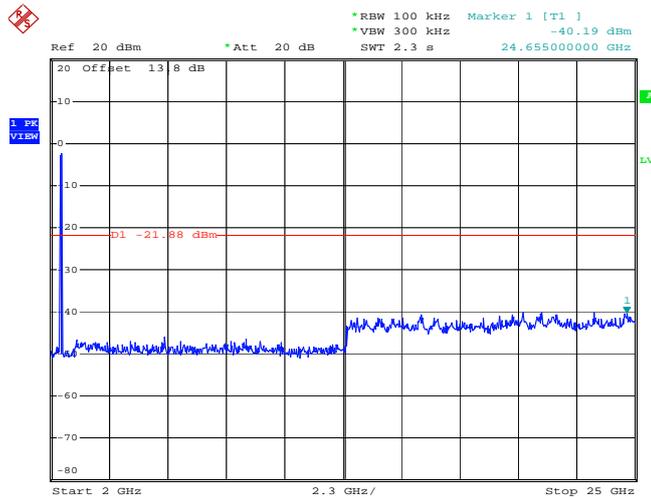
Conducted Spurious Emission Plot on Channel 01-Chain 1



Date: 4.FEB.2013 03:45:37

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01-Chain 1

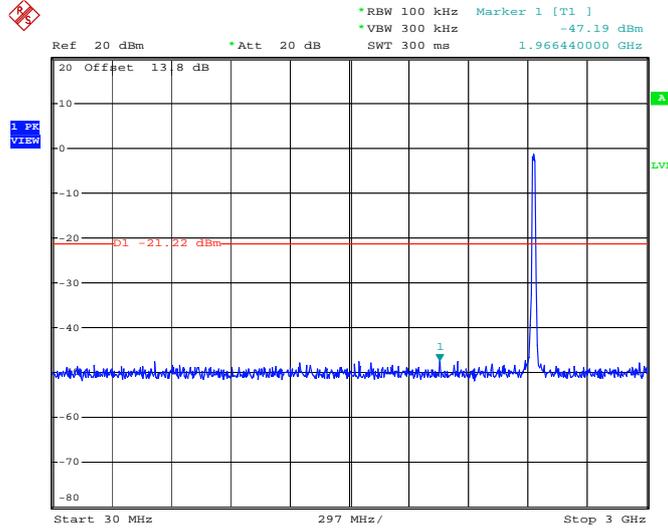


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802.11g 30 MHz~3 GHz

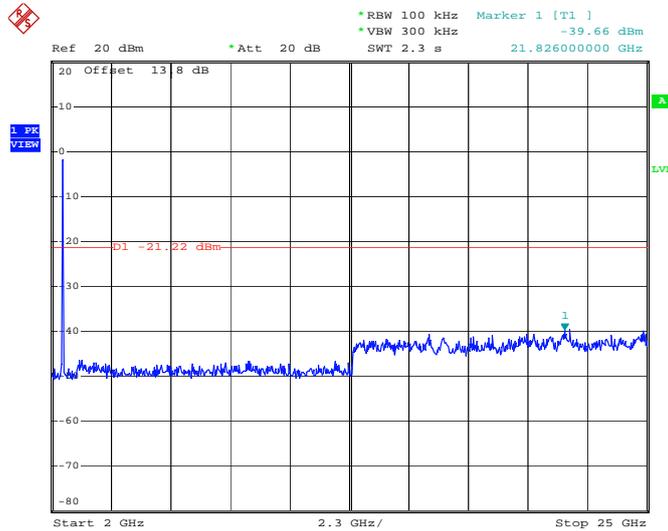
Conducted Spurious Emission Plot on Channel 06-Chain 1



Date: 4.FEB.2013 03:48:27

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06-Chain 1

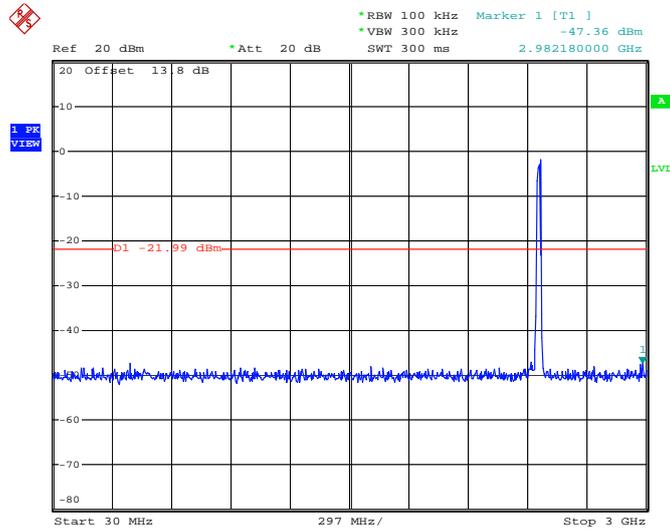


Date: 4.FEB.2013 03:48:46



802.11g 30 MHz~3 GHz

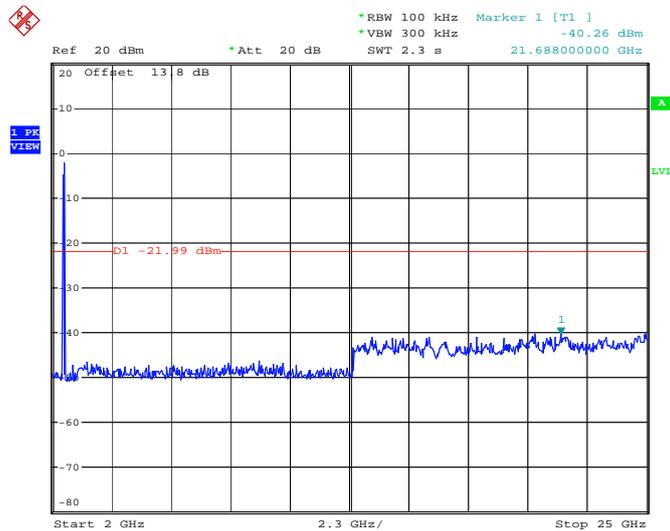
Conducted Spurious Emission Plot on Channel 11-Chain 1



Date: 4.FEB.2013 03:51:27

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11-Chain 1



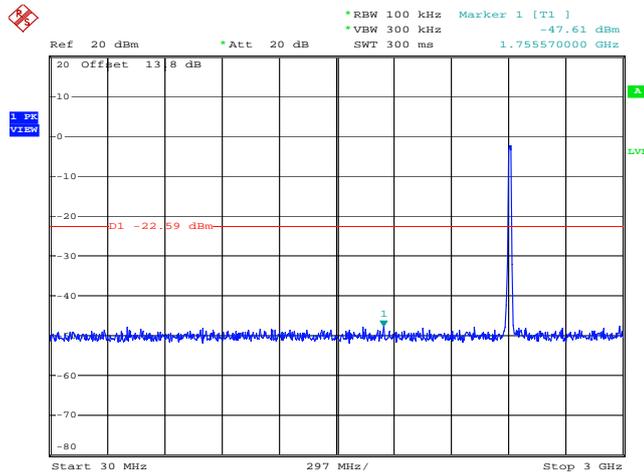
Date: 4.FEB.2013 03:51:46



Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	Lizy Li

802.11n HT20 30 MHz~3 GHz

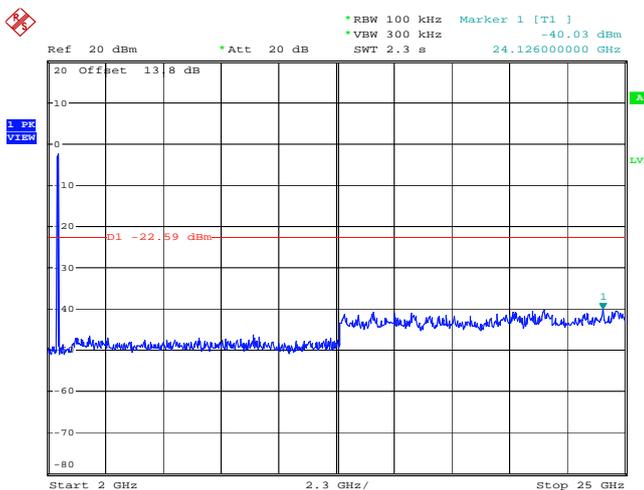
Conducted Spurious Emission Plot on Channel 01-Chain 1+2(1)



Date: 4.FEB.2013 04:29:20

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01-Chain 1+2(1)

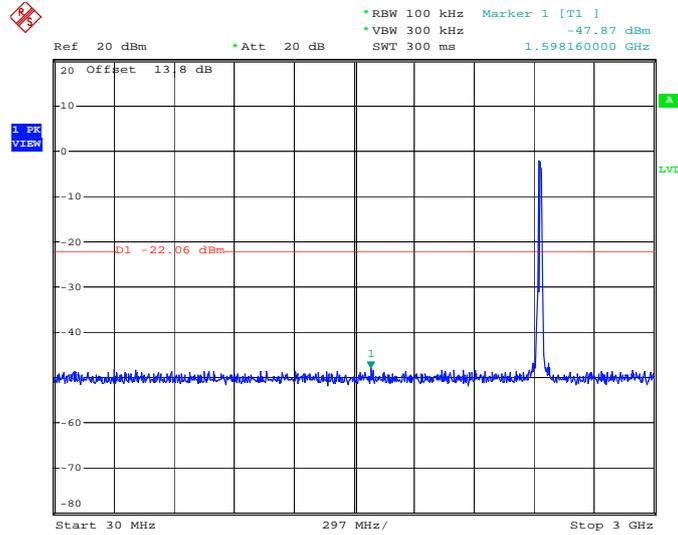


Date: 4.FEB.2013 04:29:38



802.11n HT20 30 MHz~3 GHz

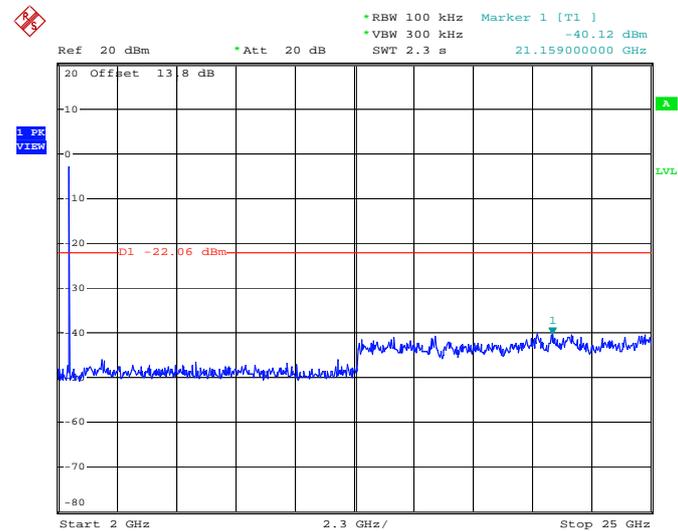
Conducted Spurious Emission Plot on Channel 06-Chain 1+2(1)



Date: 4.FEB.2013 04:31:29

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06-Chain 1+2(1)

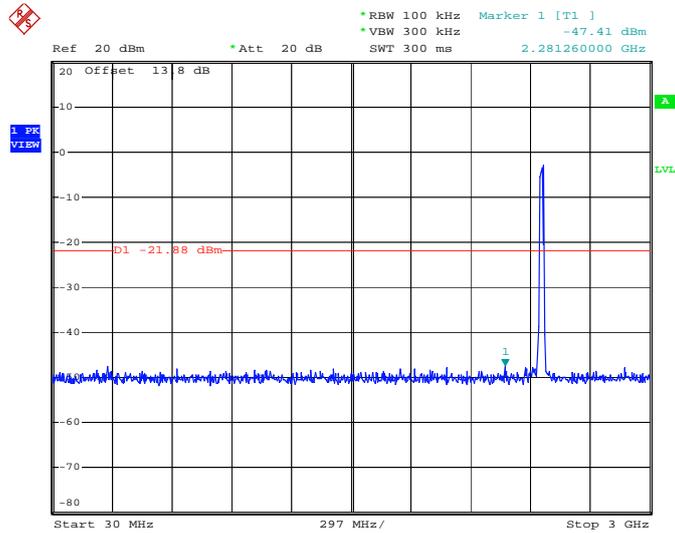


Date: 4.FEB.2013 04:31:47



802.11n HT20 30 MHz~3 GHz

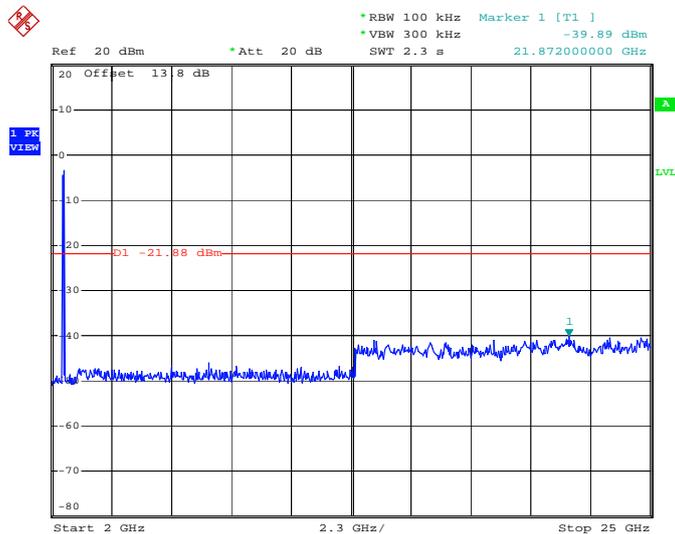
Conducted Spurious Emission Plot on Channel 11-Chain 1+2(1)



Date: 4.FEB.2013 04:33:58

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11-Chain 1+2(1)

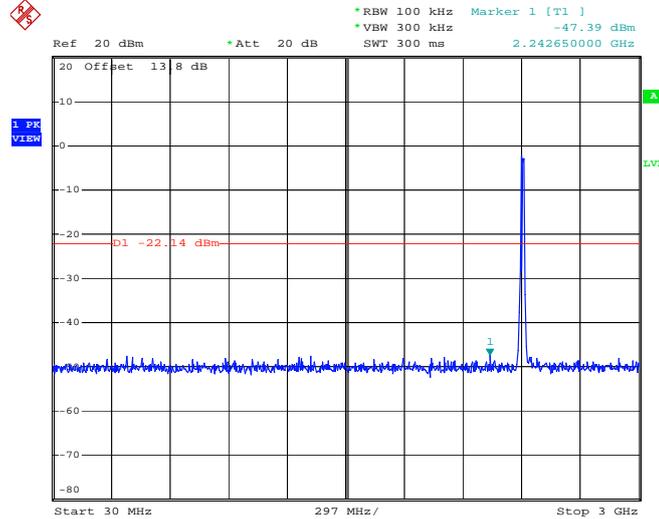


Date: 4.FEB.2013 04:34:16



802.11n HT20 30 MHz~3 GHz

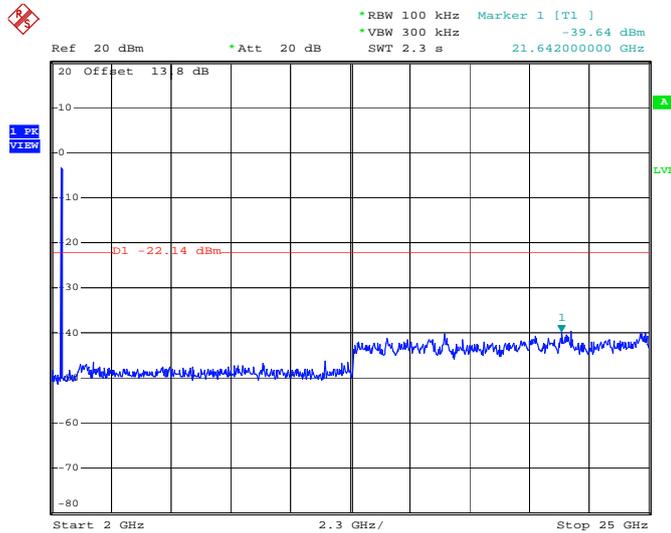
Conducted Spurious Emission Plot on Channel 01-Chain 1+2(2)



Date: 4.FEB.2013 04:18:48

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01-Chain 1+2(2)

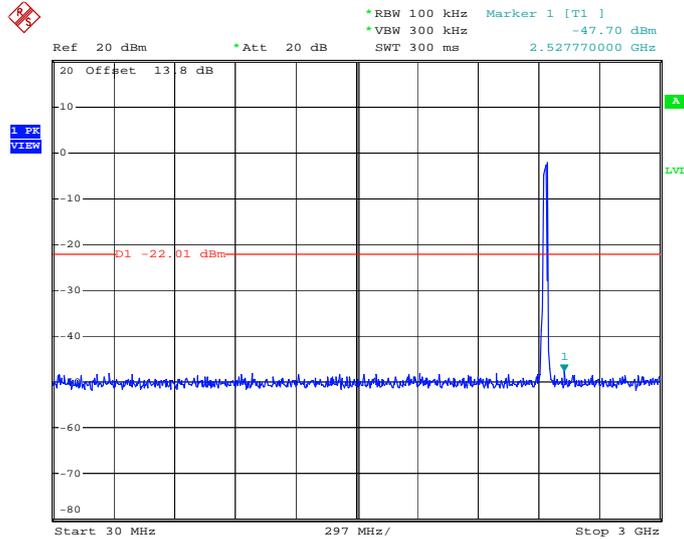


Date: 4.FEB.2013 04:19:06



802.11n HT20 30 MHz~3 GHz

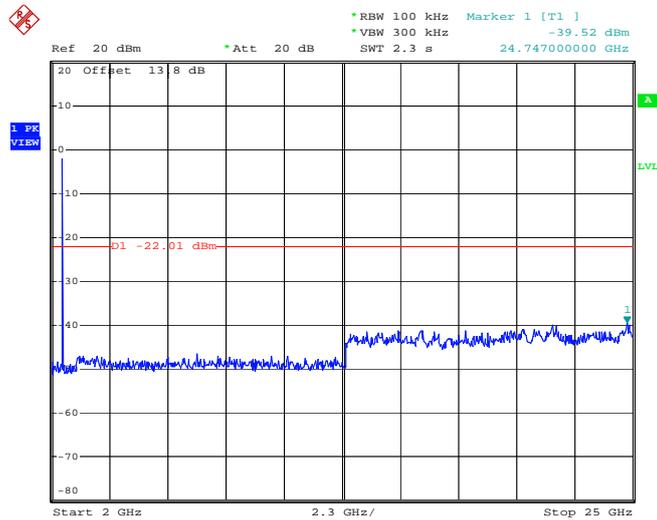
Conducted Spurious Emission Plot on Channel 06-Chain 1+2(2)



Date: 4.FEB.2013 04:41:06

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06-Chain 1+2(2)

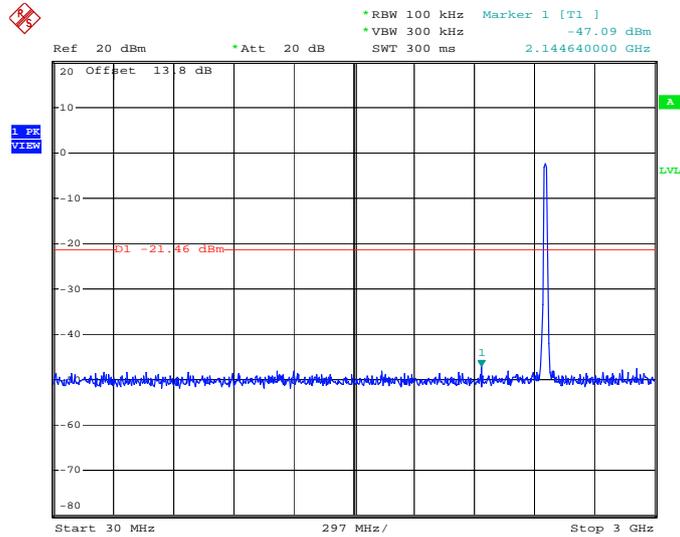


Date: 4.FEB.2013 04:41:25



802.11n HT20 30 MHz~3 GHz

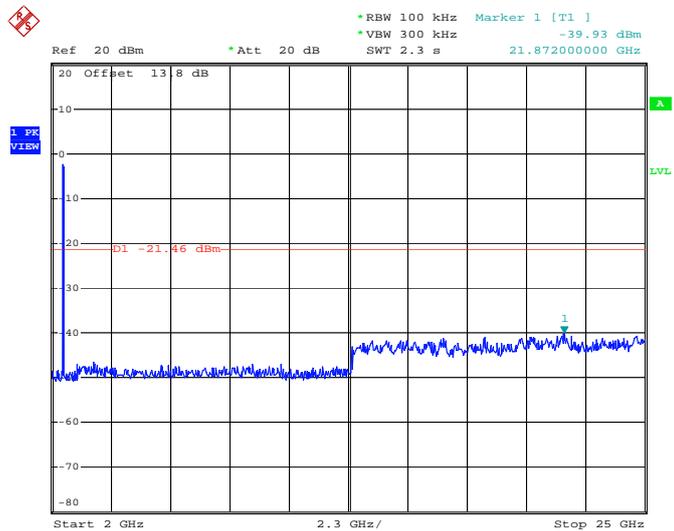
Conducted Spurious Emission Plot on Channel 11-Chain 1+2(2)



Date: 4.FEB.2013 04:43:33

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11-Chain 1+2(2)



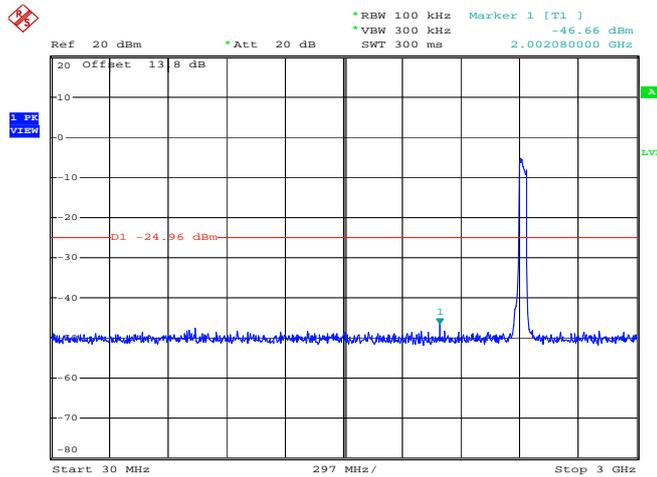
Date: 4.FEB.2013 04:43:51



Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	03, 06, 09	Test Engineer :	Lizy Li

802.11n HT40 30 MHz~3 GHz

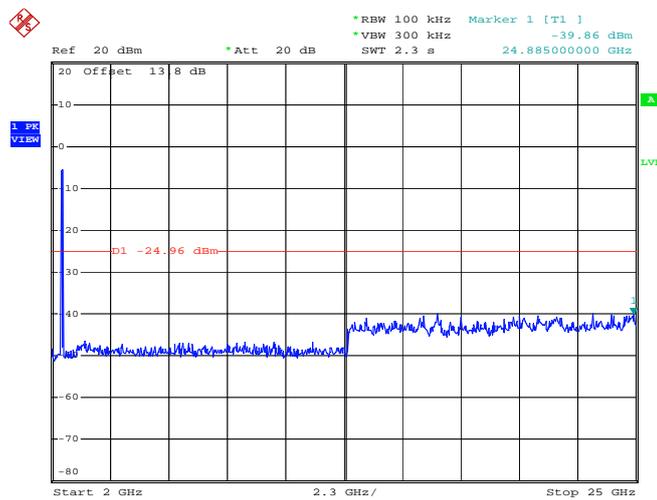
Conducted Spurious Emission Plot on Channel 03-Chain 1+2(1)



Date: 4.FEB.2013 05:44:25

802.11n HT40 2 GHz~25 GHz

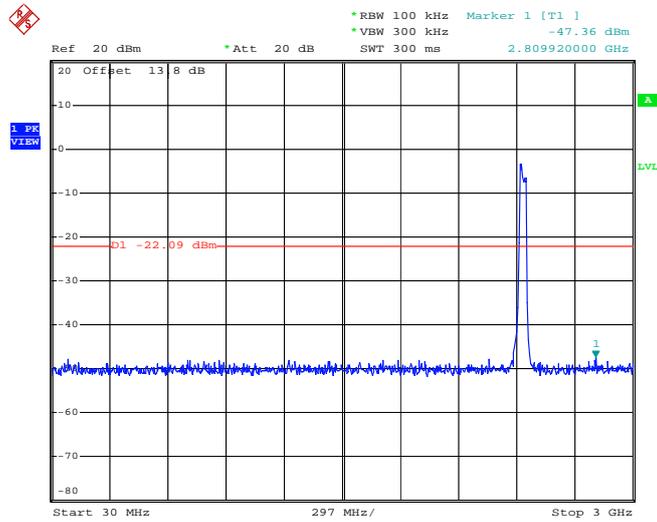
Conducted Spurious Emission Plot on Channel 03-Chain 1+2(1)



Date: 4.FEB.2013 05:44:43

802.11n HT40 30 MHz~3 GHz

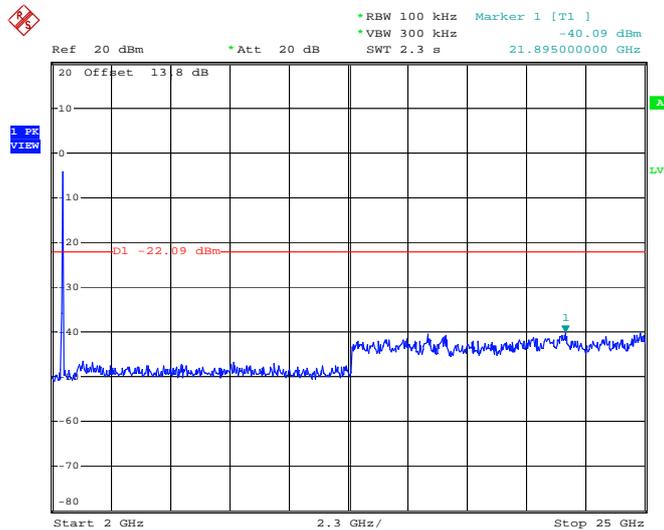
Conducted Spurious Emission Plot on Channel 06-Chain 1+2(1)



Date: 4.FEB.2013 06:14:56

802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06-Chain 1+2(1)

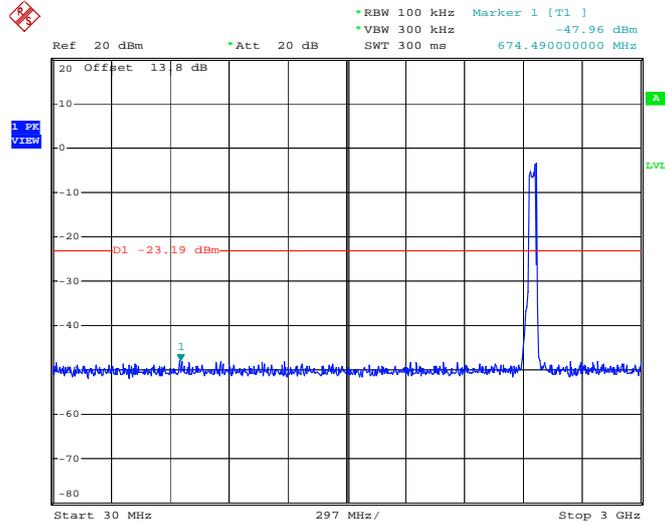


Date: 4.FEB.2013 06:15:14



802.11n HT40 30 MHz~3 GHz

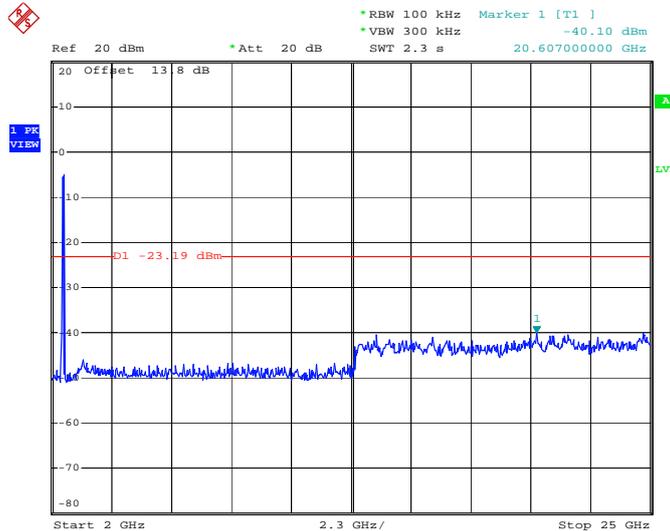
Conducted Spurious Emission Plot on Channel 09–Chain 1+2(1)



Date: 4.FEB.2013 06:17:31

802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09–Chain 1+2(1)

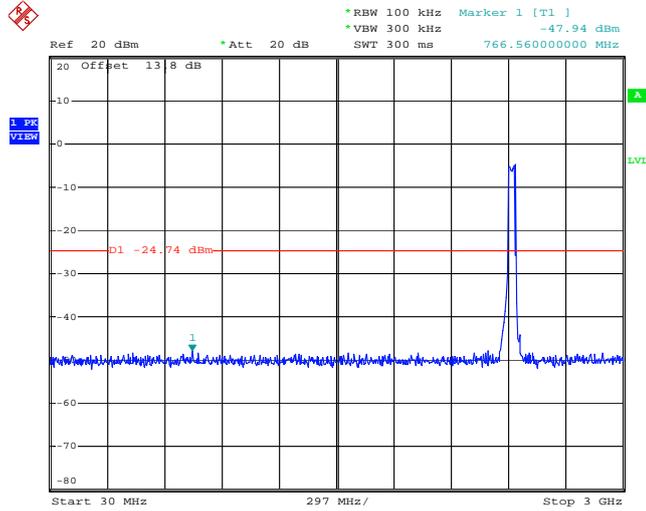


Date: 4.FEB.2013 06:17:49



802.11n HT40 30 MHz~3 GHz

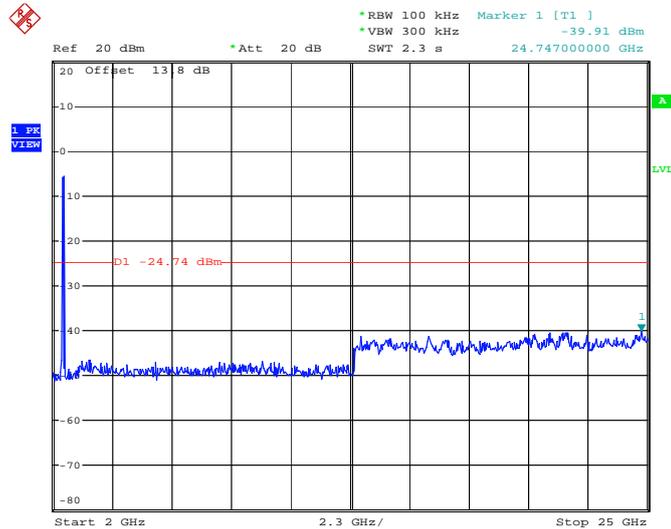
Conducted Spurious Emission Plot on Channel 03-Chain 1+2(2)



Date: 4.FEB.2013 05:59:54

802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 03-Chain 1+2(2)

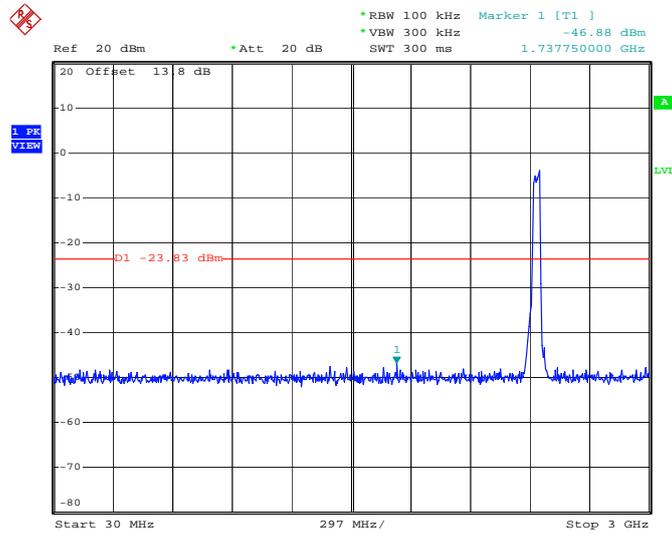


Date: 4.FEB.2013 06:00:12



802.11n HT40 30 MHz~3 GHz

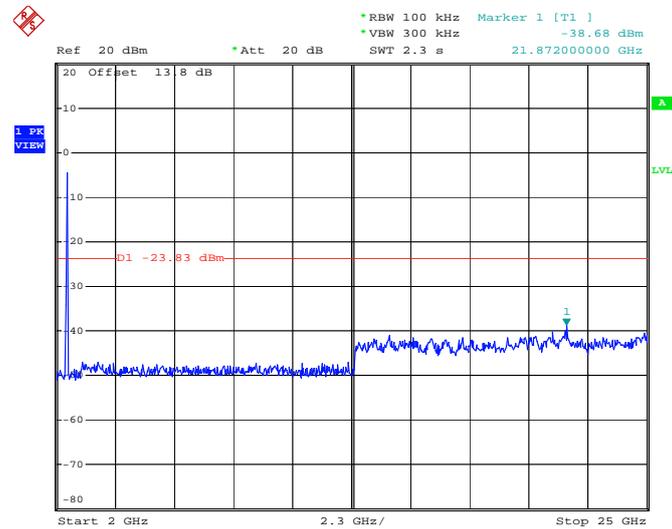
Conducted Spurious Emission Plot on Channel 06-Chain 1+2(2)



Date: 4.FEB.2013 06:03:22

802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06-Chain 1+2(2)

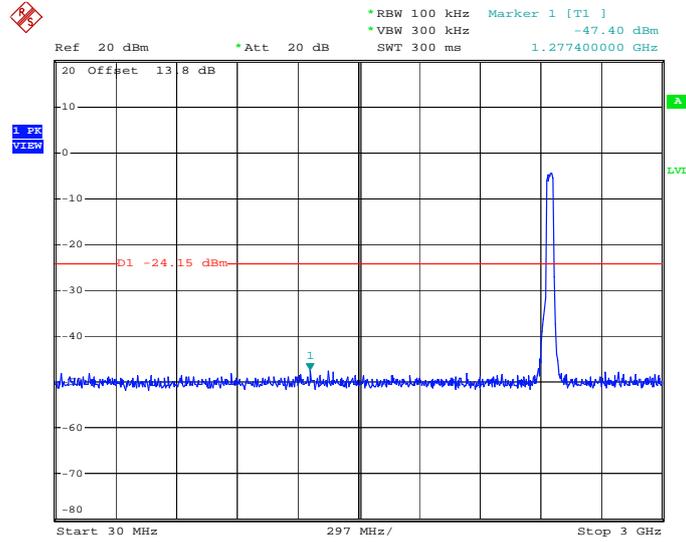


Date: 4.FEB.2013 06:03:40



802.11n HT40 30 MHz~3 GHz

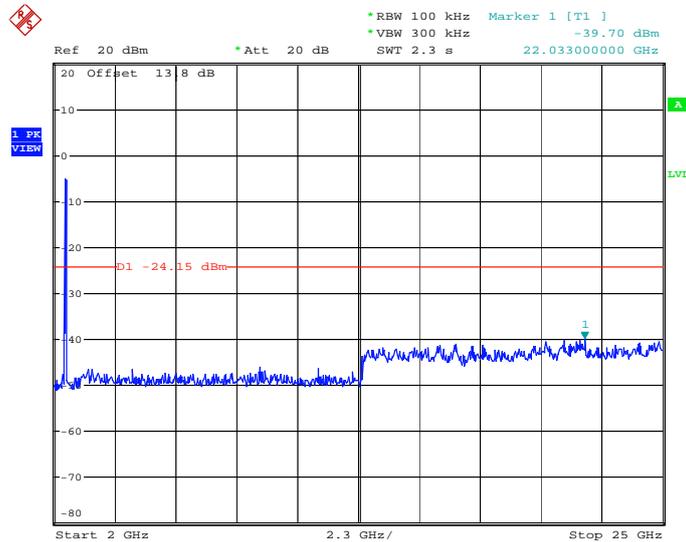
Conducted Spurious Emission Plot on Channel 09-Chain 1+2(2)



Date: 4.FEB.2013 06:06:19

802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09-Chain 1+2(2)



Date: 4.FEB.2013 06:06:37

### 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

See list of measuring instruments of this test report.

### 3.5.3 Test Procedure

1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 KHz for  $f < 1$  GHz;  $VBW \geq RBW$ ; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1$  GHz for peak measurement.  
For average measurement:
    - $VBW = 10$  Hz, when duty cycle is no less than 98 percent.
    - $VBW \geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

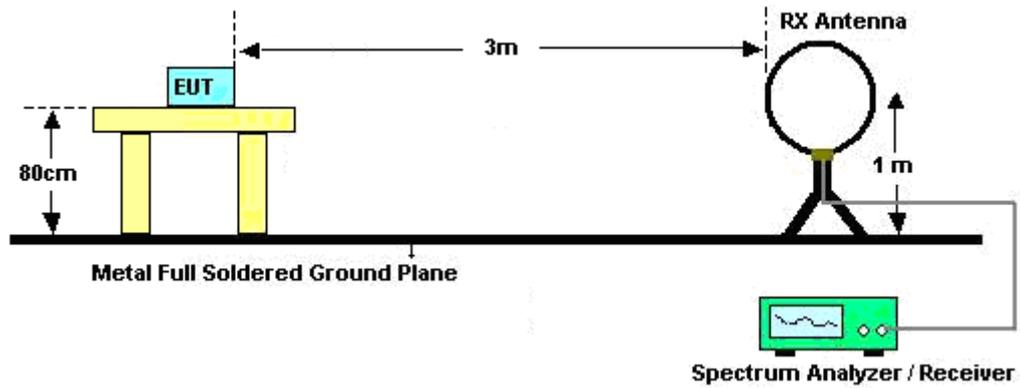


Antenna	Band	Duty Cycle(%)	T(us)	1/T(KHz)	VBW Setting
1	802.11b	100.00	-	-	10Hz
1	802.11g	100.00	-	-	
1+2	2.4G 802.11n HT20	100.00	-	-	
1+2	2.4G 802.11n HT40	100.00	-	-	

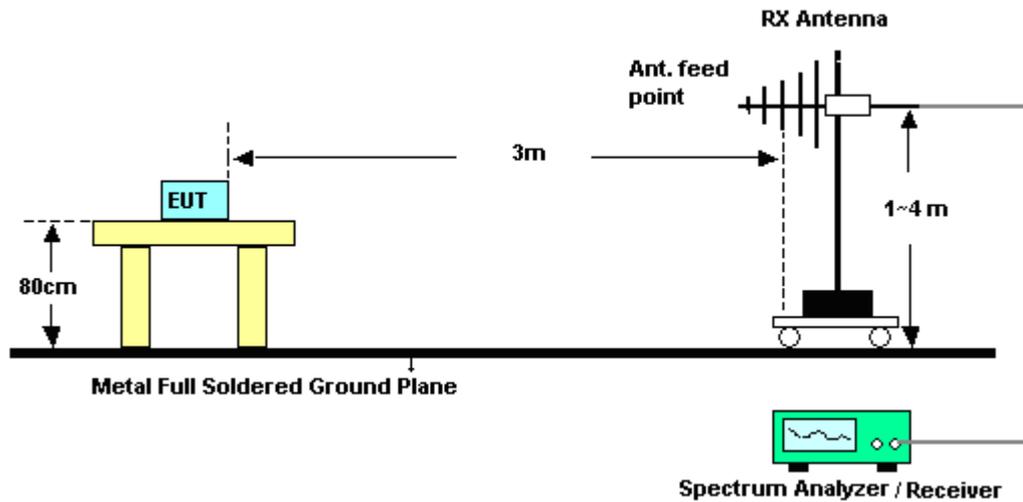
**Note:** For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

### 3.5.4 Test Setup

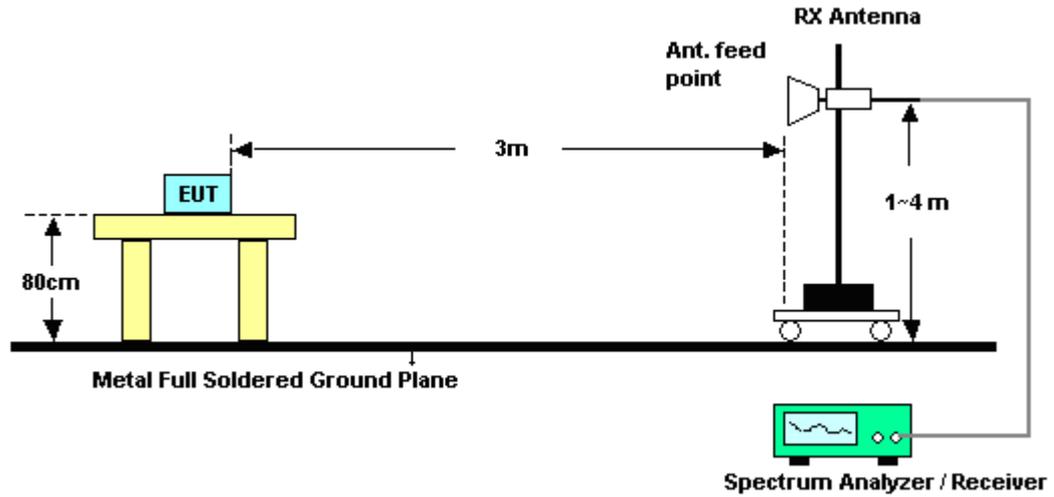
For radiated emissions below 30MHz



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

Test Mode :	802.11b Chain 1	Temperature :	23~24°C
Test Band :	Low	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	David Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	68.9	-5.1	74	68.04	32.18	4.58	35.9	111	265	Peak
2380.65	43.42	-10.58	54	42.6	32.16	4.58	35.92	111	265	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
2389.56	61.6	-12.4	74	60.76	32.18	4.58	35.92	100	226	Peak
2386.86	37.64	-16.36	54	36.8	32.18	4.58	35.92	100	226	Average

Test Mode :	802.11b Chain 1	Temperature :	23~24°C
Test Band :	High	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	David Huang

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
2483.77	70.13	-3.87	74	69.04	32.28	4.64	35.83	115	268	Peak
2497.99	41.87	-12.13	54	40.73	32.3	4.64	35.8	115	268	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	61.9	-12.1	74	60.81	32.28	4.64	35.83	100	225	Peak
2500	36.93	-17.07	54	35.79	32.3	4.64	35.8	100	225	Average



Test Mode :	802.11g Chain 1	Temperature :	23~24°C
Test Band :	Low	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	David Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	69.39	-4.61	74	68.53	32.18	4.58	35.9	107	118	Peak
2390	49.43	-4.57	54	48.57	32.18	4.58	35.9	107	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
2389.38	64.28	-9.72	74	63.44	32.18	4.58	35.92	142	294	Peak
2389.92	44.63	-9.37	54	43.77	32.18	4.58	35.9	142	294	Average

Test Mode :	802.11g Chain 1	Temperature :	23~24°C
Test Band :	High	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	David Huang

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
2484.13	70.69	-3.31	74	69.6	32.28	4.64	35.83	152	113	Peak
2483.74	45.38	-8.62	54	44.29	32.28	4.64	35.83	152	113	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
2484.91	60.37	-13.63	74	59.28	32.28	4.64	35.83	189	291	Peak
2483.5	40.67	-13.33	54	39.58	32.28	4.64	35.83	189	291	Average



Test Mode :	802.11n HT20 Chain 1+2	Temperature :	23~24°C
Test Band :	Low	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	David Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	67.88	-6.12	74	67.02	32.18	4.58	35.9	107	123	Peak
2390	48.69	-5.31	54	47.83	32.18	4.58	35.9	107	123	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.02	60.35	-13.65	74	59.51	32.18	4.58	35.92	140	259	Peak
2390	42.3	-11.7	54	41.44	32.18	4.58	35.9	140	259	Average

Test Mode :	802.11n HT20 Chain 1+2	Temperature :	23~24°C
Test Band :	High	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	David Huang

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
2484.25	70.48	-3.52	74	69.39	32.28	4.64	35.83	106	117	Peak
2483.53	46.57	-7.43	54	45.48	32.28	4.64	35.83	106	117	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	55.61	-18.39	74	54.52	32.28	4.64	35.83	169	261	Peak
2483.5	38.88	-15.12	54	37.79	32.28	4.64	35.83	169	261	Average



Test Mode :	802.11n HT40 Chain 1+2	Temperature :	23~24°C
Test Band :	Low	Relative Humidity :	48~49%
Test Channel :	03	Test Engineer :	David Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	68.81	-5.19	74	67.95	32.18	4.58	35.9	170	360	Peak
2390	51.64	-2.36	54	50.78	32.18	4.58	35.9	170	360	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
2389.02	63.75	-10.25	74	62.91	32.18	4.58	35.92	100	304	Peak
2390	46.09	-7.91	54	45.23	32.18	4.58	35.9	100	304	Average

Test Mode :	802.11n HT40 Chain 1+2	Temperature :	23~24°C
Test Band :	High	Relative Humidity :	48~49%
Test Channel :	09	Test Engineer :	David Huang

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
2484.61	69.15	-4.85	74	68.06	32.28	4.64	35.83	169	360	Peak
2483.92	50.23	-3.77	54	49.14	32.28	4.64	35.83	169	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	61.79	-12.21	74	60.7	32.28	4.64	35.83	100	303	Peak
2483.56	43.27	-10.73	54	42.18	32.28	4.64	35.83	100	303	Average



3.5.7 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)

Test Mode :	802.11b Chain 1	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	David Huang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 and 14970 MHz are not within a restricted bands, and their limit lines are 20dB below the highest emission level.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
87.24	27.72	-12.28	40	49.83	8.22	1.05	31.38	-	-	Peak
162.3	33.93	-9.57	43.5	53.37	10.4	1.35	31.19	100	97	Peak
230.88	29.27	-16.73	46	48.49	10.12	1.58	30.92	-	-	Peak
379.8	28.31	-17.69	46	42.14	15.2	1.97	31	-	-	Peak
624.8	26.31	-19.69	46	33.72	20.35	2.5	30.26	-	-	Peak
771.8	24.01	-21.99	46	29.15	22.1	2.79	30.03	-	-	Peak
2412	102.53	-	-	101.64	32.2	4.59	35.9	111	265	Average
2412	107.65	-	-	106.76	32.2	4.59	35.9	111	265	Peak
4824	49.38	-4.62	54	67.62	34.27	6.51	59.02	100	146	Average
4824	51.31	-22.69	74	69.55	34.27	6.51	59.02	100	146	Peak
7236	43.79	-43.86	87.65	57.32	36.05	8.29	57.87	100	0	Peak
14970	71.97	-15.68	87.65	77.41	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11b Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is Fundamental signal which can be ignored. 2. 7236 and 14964 MHz are not within a restricted bands, and their limit lines are 20dB below the highest emission level.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
85.89	36.52	-3.48	40	58.78	8.06	1.05	31.37	100	147	Peak
106.68	33.09	-10.41	43.5	52.97	10.52	1.12	31.52	-	-	Peak
221.97	29.4	-16.6	46	49.35	9.44	1.55	30.94	-	-	Peak
379.1	24.58	-21.42	46	38.46	15.16	1.96	31	-	-	Peak
624.8	25.87	-20.13	46	33.28	20.35	2.5	30.26	-	-	Peak
781.6	24.48	-21.52	46	29.57	22.06	2.8	29.95	-	-	Peak
2412	94.03	-	-	93.14	32.2	4.59	35.9	100	226	Average
2412	99.21	-	-	98.32	32.2	4.59	35.9	100	226	Peak
4824	52.98	-1.02	54	71.22	34.27	6.51	59.02	102	273	Average
4824	53.82	-20.18	74	72.06	34.27	6.51	59.02	102	273	Peak
7236	43.51	-35.7	79.21	57.04	36.05	8.29	57.87	100	0	Peak
14964	66.52	-12.69	79.21	71.96	40.17	11.77	57.38	100	0	Peak



<b>Test Mode :</b>	802.11b Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2437 MHz is Fundamental signal which can be ignored. 2. 14967 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2437	102.42	-	-	101.47	32.22	4.61	35.88	117	267	Average
2437	107.23	-	-	106.28	32.22	4.61	35.88	117	267	Peak
4875	49.71	-4.29	54	67.78	34.28	6.53	58.88	100	157	Average
4875	51.65	-22.35	74	69.72	34.28	6.53	58.88	100	157	Peak
7311	42.89	-31.11	74	56.42	36.04	8.42	57.99	100	0	Peak
14967	63.36	-23.87	87.23	68.8	40.18	11.77	57.39	100	0	Peak

<b>Test Mode :</b>	802.11b Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2437 MHz is Fundamental signal which can be ignored. 2. 14967 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2437	93.66	-	-	92.69	32.24	4.61	35.88	100	229	Average
2437	98.53	-	-	97.56	32.24	4.61	35.88	100	229	Peak
4875	52.76	-1.24	54	70.83	34.28	6.53	58.88	100	276	Average
4875	53.88	-20.12	74	71.95	34.28	6.53	58.88	100	276	Peak
7311	43.02	-30.98	74	56.55	36.04	8.42	57.99	100	0	Peak
14967	75.37	-3.16	78.53	80.81	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11b Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2462 MHz is fundamental signal which can be ignored. 2. 14970 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2462	102.66	-	-	101.63	32.26	4.62	35.85	115	268	Average
2462	108.19	-	-	107.16	32.26	4.62	35.85	115	268	Peak
4926	48.15	-5.85	54	66.04	34.29	6.56	58.74	100	156	Average
4926	50.71	-23.29	74	68.6	34.29	6.56	58.74	100	156	Peak
7386	43.54	-30.46	74	57.1	36.02	8.55	58.13	100	0	Peak
14970	66.91	-21.28	88.19	72.35	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11b Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2462 MHz is fundamental signal which can be ignored. 2. 14970 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2462	93.96	-	-	92.93	32.26	4.62	35.85	100	225	Average
2462	98.16	-	-	97.13	32.26	4.62	35.85	100	225	Peak
4926	52.71	-1.29	54	70.6	34.29	6.56	58.74	100	276	Average
4926	54.61	-19.39	74	72.5	34.29	6.56	58.74	100	276	Peak
7386	42.99	-31.01	74	56.55	36.02	8.55	58.13	100	0	Peak
14970	73.18	-4.98	78.16	78.62	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11g Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 and 14973 MHz are not within a restricted bands, and their limit lines are 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2412	102.18	-	-	101.29	32.2	4.59	35.9	107	118	Average
2412	112.25	-	-	111.36	32.2	4.59	35.9	107	118	Peak
4824	49.59	-24.41	74	67.83	34.27	6.51	59.02	100	0	Peak
7236	42.76	-49.49	92.25	56.29	36.05	8.29	57.87	100	0	Peak
14973	68.01	-24.24	92.25	73.45	40.18	11.77	57.39	100	0	Peak

<b>Test Mode :</b>	802.11g Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 and 14973 MHz are not within a restricted bands, and their limit lines are 20dB below the highest emission level.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( 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	98.06	-	-	97.17	32.2	4.59	35.9	142	294	Average
2412	108.56	-	-	107.67	32.2	4.59	35.9	142	294	Peak
4826	42.54	-11.46	54	60.78	34.27	6.51	59.02	198	274	Average
4826	52.86	-21.14	74	71.1	34.27	6.51	59.02	198	274	Peak
7236	43.12	-45.44	88.56	56.65	36.05	8.29	57.87	100	0	Peak
14973	77.23	-11.33	88.56	82.67	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11g Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>2437 MHz is fundamental signal which can be ignored.</li> <li>14976 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( 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	100.02	-	-	99.07	32.22	4.61	35.88	103	115	Average
2437	111.91	-	-	110.96	32.22	4.61	35.88	103	115	Peak
4872	47.88	-26.12	74	65.95	34.28	6.53	58.88	100	0	Peak
7311	42.51	-31.49	74	56.04	36.04	8.42	57.99	100	0	Peak
14976	68.35	-23.56	91.91	73.79	40.18	11.77	57.39	100	0	Peak

<b>Test Mode :</b>	802.11g Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>2437 MHz is fundamental signal which can be ignored.</li> <li>14976 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( 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	96.68	-	-	95.73	32.22	4.61	35.88	200	291	Average
2437	107.79	-	-	106.84	32.22	4.61	35.88	200	291	Peak
4875	50.59	-23.41	74	68.66	34.28	6.53	58.88	100	0	Peak
7311	42.83	-31.17	74	56.36	36.04	8.42	57.99	100	0	Peak
14976	76.45	-11.34	87.79	81.89	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11g Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2462 MHz is fundamental signal which can be ignored. 2. 14979 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
86.97	27.03	-12.97	40	49.14	8.22	1.05	31.38	-	-	Peak
162.3	33.87	-9.63	43.5	53.31	10.4	1.35	31.19	100	142	Peak
231.69	28.93	-17.07	46	48.03	10.24	1.59	30.93	-	-	Peak
374.9	27.92	-18.08	46	41.97	15	1.96	31.01	-	-	Peak
624.8	26.45	-19.55	46	33.86	20.35	2.5	30.26	-	-	Peak
727	24.03	-21.97	46	29.84	21.69	2.7	30.2	-	-	Peak
2462	98.22	-	-	97.19	32.26	4.62	35.85	152	113	Average
2462	112.34	-	-	111.31	32.26	4.62	35.85	152	113	Peak
4932	48.84	-25.16	74	66.73	34.29	6.56	58.74	100	0	Peak
7386	42.46	-31.54	74	56.02	36.02	8.55	58.13	100	0	Peak
14979	66.9	-25.44	92.34	72.34	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11g Chain 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2462 MHz is fundamental signal which can be ignored. 2. 14976 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
86.7	36.74	-3.26	40	59.01	8.06	1.05	31.38	100	116	Peak
106.68	33.58	-9.92	43.5	53.46	10.52	1.12	31.52	-	-	Peak
163.92	30.98	-12.52	43.5	50.61	10.2	1.35	31.18	-	-	Peak
448.4	24.84	-21.16	46	36.62	17.06	2.14	30.98	-	-	Peak
624.8	26.5	-19.5	46	33.91	20.35	2.5	30.26	-	-	Peak
782.3	24.63	-21.37	46	29.72	22.05	2.8	29.94	-	-	Peak
2462	94.28	-	-	93.25	32.26	4.62	35.85	189	291	Average
2462	107.79	-	-	106.76	32.26	4.62	35.85	189	291	Peak
4932	41.97	-12.03	54	59.86	34.29	6.56	58.74	100	274	Average
4932	52.87	-21.13	74	70.76	34.29	6.56	58.74	100	274	Peak
7386	42.12	-31.88	74	55.68	36.02	8.55	58.13	100	0	Peak
14976	78.92	-8.87	87.79	84.36	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11n-HT20 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 and 14982 MHz are not within a restricted bands, and their limit lines are 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2412	100.81	-	-	99.92	32.2	4.59	35.9	107	123	Average
2412	111.02	-	-	110.13	32.2	4.59	35.9	107	123	Peak
4821	47.88	-26.12	74	66.12	34.27	6.51	59.02	100	0	Peak
7236	42.85	-48.17	91.02	56.38	36.05	8.29	57.87	100	0	Peak
14982	68.56	-22.46	91.02	73.98	40.18	11.79	57.39	100	0	Peak

<b>Test Mode :</b>	802.11n-HT20 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 and 14979 MHz are not within a restricted bands, and their limit lines are 20dB below the highest emission level.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( 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	95.96	-	-	95.07	32.2	4.59	35.9	140	259	Average
2412	107.08	-	-	106.19	32.2	4.59	35.9	140	259	Peak
4815	39.93	-14.07	54	58.22	34.26	6.51	59.06	103	268	Average
4815	51.64	-22.36	74	69.93	34.26	6.51	59.06	103	268	Peak
7236	42.8	-44.28	87.08	56.33	36.05	8.29	57.87	100	0	Peak
14979	79.2	-7.88	87.08	84.64	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11n-HT20 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>2437 MHz is fundamental signal which can be ignored.</li> <li>14979 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( 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	100.34	-	-	99.37	32.24	4.61	35.88	106	117	Average
2437	110.08	-	-	109.11	32.24	4.61	35.88	106	117	Peak
4872	46.44	-27.56	74	64.51	34.28	6.53	58.88	100	0	Peak
7311	42.41	-31.59	74	55.94	36.04	8.42	57.99	100	0	Peak
14979	66.84	-23.24	90.08	72.28	40.18	11.77	57.39	100	0	Peak

<b>Test Mode :</b>	802.11n-HT20 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>2437 MHz is fundamental signal which can be ignored.</li> <li>14982 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( 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	96.4	-	-	95.45	32.22	4.61	35.88	169	310	Average
2437	107.17	-	-	106.22	32.22	4.61	35.88	169	310	Peak
4872	50.08	-23.92	74	68.15	34.28	6.53	58.88	100	0	Peak
7311	42.95	-31.05	74	56.48	36.04	8.42	57.99	100	0	Peak
14982	76.94	-10.23	87.17	82.36	40.18	11.79	57.39	100	0	Peak



<b>Test Mode :</b>	802.11n-HT20 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2462 MHz is fundamental signal which can be ignored. 2. 14979 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
87.24	27.48	-12.52	40	49.59	8.22	1.05	31.38	-	-	Peak
162.84	34.13	-9.37	43.5	53.67	10.3	1.35	31.19	100	77	Peak
230.34	29.2	-16.8	46	48.42	10.12	1.58	30.92	-	-	Peak
374.9	27.82	-18.18	46	41.87	15	1.96	31.01	-	-	Peak
624.8	27.84	-18.16	46	35.25	20.35	2.5	30.26	-	-	Peak
728.4	24.16	-21.84	46	29.92	21.73	2.71	30.2	-	-	Peak
2462	99.81	-	-	98.78	32.26	4.62	35.85	106	117	Average
2462	110.34	-	-	109.31	32.26	4.62	35.85	106	117	Peak
4923	47.88	-26.12	74	65.78	34.29	6.55	58.74	100	0	Peak
7386	42.51	-31.49	74	56.07	36.02	8.55	58.13	100	0	Peak
14979	69.01	-21.33	90.34	74.45	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11n-HT20 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2462 MHz is fundamental signal which can be ignored. 2. 14979 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
87.24	36.36	-3.64	40	58.47	8.22	1.05	31.38	100	134	Peak
106.68	33.38	-10.12	43.5	53.26	10.52	1.12	31.52	-	-	Peak
163.65	31.05	-12.45	43.5	50.68	10.2	1.35	31.18	-	-	Peak
379.8	24.6	-21.4	46	38.43	15.2	1.97	31	-	-	Peak
624.8	25.36	-20.64	46	32.77	20.35	2.5	30.26	-	-	Peak
771.1	25.03	-20.97	46	30.18	22.1	2.78	30.03	-	-	Peak
2462	93.59	-	-	92.56	32.26	4.62	35.85	169	261	Average
2462	104.07	-	-	103.04	32.26	4.62	35.85	169	261	Peak
4926	50.74	-23.26	74	68.63	34.29	6.56	58.74	100	0	Peak
7386	42.23	-31.77	74	55.79	36.02	8.55	58.13	100	0	Peak
14979	79.27	-4.8	84.07	84.71	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11n-HT40 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2422 MHz is fundamental signal which can be ignored. 2. 14976 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
85.89	28.99	-11.01	40	51.25	8.06	1.05	31.37	-	-	Peak
116.4	34.02	-9.48	43.5	53.18	11.08	1.18	31.42	100	87	Peak
233.31	29.05	-16.95	46	47.91	10.48	1.59	30.93	-	-	Peak
378.4	28.08	-17.92	46	42.01	15.12	1.96	31.01	-	-	Peak
624.8	26.41	-19.59	46	33.82	20.35	2.5	30.26	-	-	Peak
769.7	24.26	-21.74	46	29.42	22.1	2.78	30.04	-	-	Peak
2422	95.43	-	-	94.5	32.22	4.59	35.88	170	360	Average
2422	106.72	-	-	105.79	32.22	4.59	35.88	170	360	Peak
4857	44.94	-29.06	74	63.06	34.27	6.53	58.92	100	0	Peak
7266	42.15	-31.85	74	55.7	36.04	8.34	57.93	100	0	Peak
14976	68.62	-18.1	86.72	74.06	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11n-HT40 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2422 MHz is fundamental signal which can be ignored. 2. 14973 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
88.05	39.15	-4.35	43.5	61.1	8.38	1.06	31.39	100	229	Peak
107.76	32.81	-10.69	43.5	52.63	10.58	1.13	31.53	-	-	Peak
232.77	29.24	-16.76	46	48.22	10.36	1.59	30.93	-	-	Peak
379.1	24.71	-21.29	46	38.59	15.16	1.96	31	-	-	Peak
624.8	25.95	-20.05	46	33.36	20.35	2.5	30.26	-	-	Peak
774.6	24.92	-21.08	46	30.03	22.1	2.79	30	-	-	Peak
2422	90.29	-	-	89.36	32.22	4.59	35.88	100	304	Average
2422	101.67	-	-	100.74	32.22	4.59	35.88	100	304	Peak
4845	44.17	-29.83	74	62.35	34.27	6.52	58.97	100	0	Peak
7266	42.41	-31.59	74	55.96	36.04	8.34	57.93	100	0	Peak
14973	78.19	-3.48	81.67	83.63	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11n-HT40 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2437 MHz is fundamental signal which can be ignored. 2. 14973 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2437	95.76	-	-	94.79	32.24	4.61	35.88	171	360	Average
2437	106.88	-	-	105.91	32.24	4.61	35.88	171	360	Peak
4881	46.03	-27.97	74	64.09	34.28	6.54	58.88	100	0	Peak
7311	43.95	-30.05	74	57.48	36.04	8.42	57.99	100	0	Peak
14973	67.55	-19.33	86.88	72.99	40.18	11.77	57.39	100	0	Peak

<b>Test Mode :</b>	802.11n-HT40 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2437 MHz is fundamental signal which can be ignored. 2. 14970 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2437	90.46	-	-	89.49	32.24	4.61	35.88	100	291	Average
2437	102.03	-	-	101.06	32.24	4.61	35.88	100	291	Peak
4884	44.06	-29.94	74	62.12	34.28	6.54	58.88	100	0	Peak
7311	42.82	-31.18	74	56.35	36.04	8.42	57.99	100	0	Peak
14970	77.46	-4.57	82.03	82.9	40.18	11.77	57.39	100	0	Peak



<b>Test Mode :</b>	802.11n-HT40 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>2452 MHz is fundamental signal which can be ignored.</li> <li>14970 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( 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	96.4	-	-	95.37	32.26	4.62	35.85	169	360	Average
2452	107.36	-	-	106.33	32.26	4.62	35.85	169	360	Peak
4906	45.9	-28.1	74	63.86	34.28	6.55	58.79	100	0	Peak
7356	42.86	-31.14	74	56.39	36.03	8.51	58.07	100	0	Peak
14970	67.98	-19.38	87.36	73.42	40.18	11.77	57.39	100	0	Peak

<b>Test Mode :</b>	802.11n-HT40 Chain 1+2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	48~49%
<b>Test Engineer :</b>	David Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>2452 MHz is fundamental signal which can be ignored.</li> <li>14970 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( 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	91.08	-	-	90.05	32.26	4.62	35.85	100	303	Average
2452	102.45	-	-	101.42	32.26	4.62	35.85	100	303	Peak
4905	45.43	-28.57	74	63.39	34.28	6.55	58.79	100	0	Peak
7356	43.68	-30.32	74	57.21	36.03	8.51	58.07	100	0	Peak
14970	77.81	-4.64	82.45	83.25	40.18	11.77	57.39	100	0	Peak

### 3.6 AC Conducted Emission Measurement

#### 3.6.1 Limit of AC Conducted Emission

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

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

\*Decreases with the logarithm of the frequency.

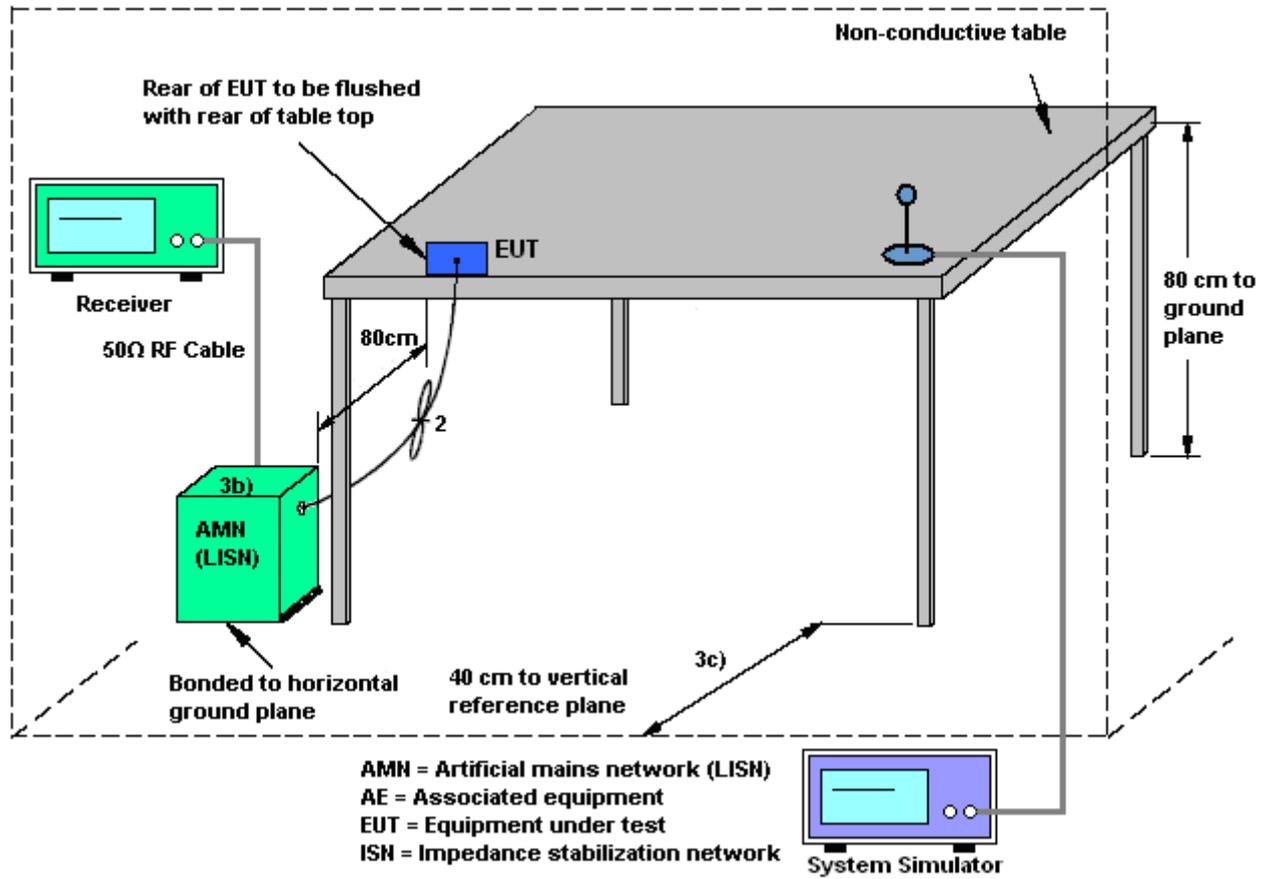
#### 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.6.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.10-2009 and ANSI C63.4-2003 test site requirement.
2. 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.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 KHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

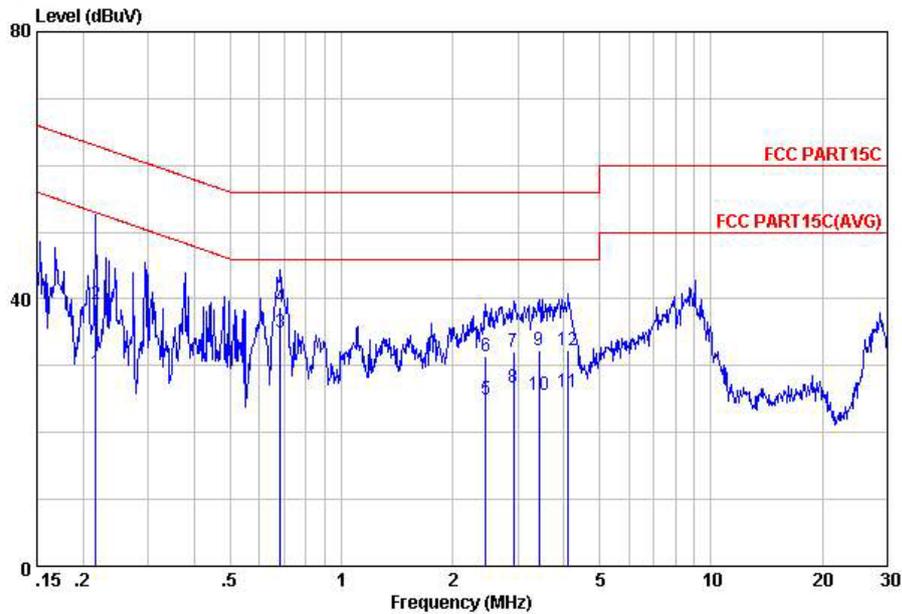
### 3.6.4 Test Setup





3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	19~22°C
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Adapter + WLAN Link + RJ11 Link + RJ45 Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

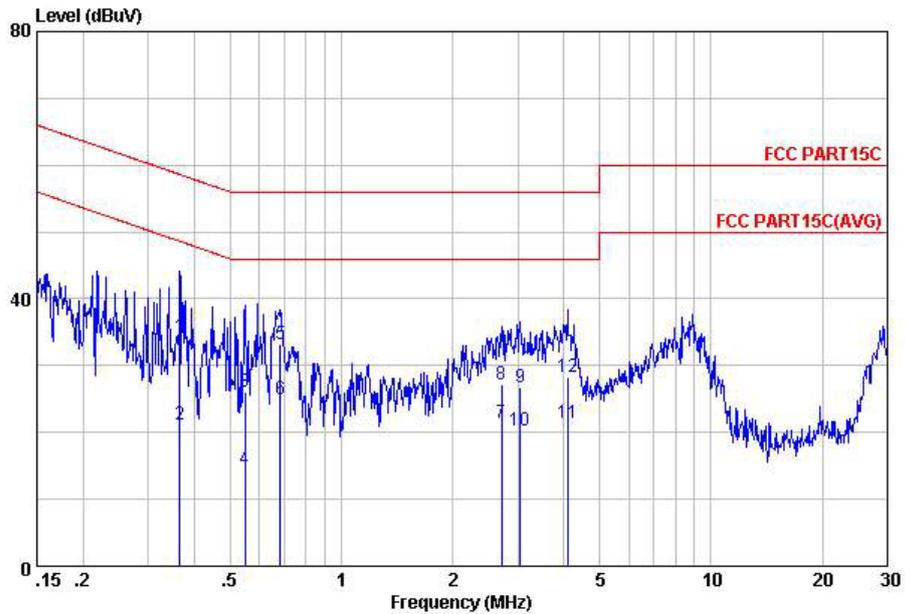


Site : C001-KS  
 Condition: FCC PART15C LISN-111230 LINE  
 Project : (FR) 2D2804  
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.22	29.05	-23.91	52.96	18.90	-0.07	10.22	Average
2	0.22	39.25	-23.71	62.96	29.10	-0.07	10.22	QP
3	0.68	34.98	-11.02	46.00	24.80	-0.09	10.27	Average
4	0.68	38.68	-17.32	56.00	28.50	-0.09	10.27	QP
5	2.46	24.89	-21.11	46.00	14.69	-0.11	10.31	Average
6	2.46	31.49	-24.51	56.00	21.29	-0.11	10.31	QP
7	2.92	32.20	-23.80	56.00	22.00	-0.12	10.32	QP
8	2.92	26.70	-19.30	46.00	16.50	-0.12	10.32	Average
9	3.42	32.40	-23.60	56.00	22.19	-0.12	10.33	QP
10	3.42	25.70	-20.30	46.00	15.49	-0.12	10.33	Average
11	4.11	26.00	-20.00	46.00	15.80	-0.13	10.33	Average
12	4.11	32.40	-23.60	56.00	22.20	-0.13	10.33	QP



Test Mode :	Mode 1	Temperature :	19~22°C
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Adapter + WLAN Link + RJ11 Link + RJ45 Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS  
 Condition: FCC PART15C LISN-111230 NEUTRAL  
 Project : (FR) 2D2804  
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.37	34.37	-24.24	58.61	24.20	-0.08	10.25	QP
2	0.37	21.07	-27.54	48.61	10.90	-0.08	10.25	Average
3	0.55	26.07	-29.93	56.00	15.89	-0.08	10.26	QP
4	0.55	14.57	-31.43	46.00	4.39	-0.08	10.26	Average
5	0.68	33.18	-22.82	56.00	22.99	-0.08	10.27	QP
6	0.68	24.88	-21.12	46.00	14.69	-0.08	10.27	Average
7	2.71	21.30	-24.70	46.00	11.10	-0.11	10.31	Average
8	2.71	27.30	-28.70	56.00	17.10	-0.11	10.31	QP
9	3.04	26.80	-29.20	56.00	16.60	-0.12	10.32	QP
10	3.04	20.30	-25.70	46.00	10.10	-0.12	10.32	Average
11	4.09	21.30	-24.70	46.00	11.10	-0.13	10.33	Average
12	4.09	28.30	-27.70	56.00	18.10	-0.13	10.33	QP

## 3.7 Antenna Requirements

### 3.7.1 Standard Applicable

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

### 3.7.2 Antenna Connected Construction

Non-standard connector is used.

### 3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit. The EUT supports MIMO mode. The composite antenna gain is as following table.



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 29, 2012	Feb. 04, 2013	Dec. 28, 2013	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 22, 2012	Feb. 04, 2013	Aug. 21, 2013	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 22, 2012	Feb. 04, 2013	Aug. 21, 2013	Conducted (TH01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 15, 2012	Feb. 04, 2013	Nov. 14, 2013	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 29, 2012	Feb. 04, 2013	Dec. 28, 2013	Conducted (TH01-KS)
Spectrum Analyzer	R&S	ESU26	100390	20Hz~26.5GHz	Dec. 14, 2012	Jan. 23, 2013~ Jan. 24, 2013	Dec. 13, 2013	Radiation (03CH05-HY)
Bilog Antenna	Schaffner	CBL6111C	2725	30MHz~2GHz	Oct. 06, 2012	Jan. 23, 2013~ Jan. 24, 2013	Oct. 05, 2013	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 ~ 360 degree	N/A	Jan. 23, 2013~ Jan. 24, 2013	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m ~ 4 m	N/A	Jan. 23, 2013~ Jan. 24, 2013	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz~18GHz	Aug. 10, 2012	Jan. 23, 2013~ Jan. 24, 2013	Aug. 09, 2013	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A02665	1GHz~26.5GHz	Aug. 28, 2012	Jan. 23, 2013~ Jan. 24, 2013	Aug. 27, 2013	Radiation (03CH05-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Sep. 28, 2012	Jan. 23, 2013~ Jan. 24, 2013	Sep. 27, 2013	Radiation (03CH05-HY)
Pre Amplifier	COM-POWER	PA-103	161075	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	Jan. 23, 2013~ Jan. 24, 2013	Feb. 26, 2013	Radiation (03CH05-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 03, 2012	Jan. 23, 2013~ Jan. 24, 2013	Jul. 02, 2013	Radiation (03CH05-HY)
EMI Receiver	R&S	ESCi7	100768	9kHz~7GHz	Jun. 01, 2012	Feb. 22, 2013	May 31, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 29, 2012	Feb. 22, 2013	Dec. 28, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 29, 2012	Feb. 22, 2013	Dec. 28, 2013	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 15, 2012	Feb. 22, 2013	Nov. 14, 2013	Conduction (CO01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 29, 2012	Feb. 22, 2013	Dec. 28, 2013	Conduction (CO01-KS)

## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150KHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.26
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### Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.72
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## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP2D2804 as below.