FCC RF Test Report

APPLICANT	:	CORPORATIVO LANIX S.A. DE C.V.
EQUIPMENT	:	Smart Mobile Phone
BRAND NAME	:	LANIX
MODEL NAME	:	ilium S200
FCC ID	:	ZC4S200
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on May 03, 2013 and completely tested on May 27, 2013. We, SPORTON INTERNATIONAL (SHENZHEN) 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai / Manager

SPORTON INTERNATIONAL (SHENZHEN) INC.
No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR350312C	Rev. 01	Initial issue of report	May 30, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	Under limit 3.01 dB at 2389.470 MHz
		Radiated Spurious Emission			
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 9.68 dB at 0.780 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

CORPORATIVO LANIX S.A. DE C.V.
CARRETERA INTERNACIONAL HERMOSILLO-NOGALE KM 8.5 HERMOSILLO MEXICO

1.2 Manufacturer

Shanghai Huaqin Telecom Technology Co., Ltd
Building1, 399 Keyuan Road, Pudong district, Shanghai, China

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Smart Mobile Phone
Brand Name	LANIX
Model Name	ilium S200
FCC ID	ZC4S200
EUT supports Radios application	GSM/GPRS/WCDMA/HSPA/WLAN11 bgn/Bluetooth/ Bluetooth v4.0-LE
HW Version	A51_MB_V2.0
SW Version	A51F_45A0_V8_0_3_20130320_DCCA51F_45A0_V0_0_P
EUT Stage	Production Unit

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

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Frequency Range	2412 MHz ~ 2462 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Maximum Output Power to Antenna	802.11b : 18.77 dBm (0.0753 W) 802.11g : 22.21 dBm (0.1663 W) 802.11n HT20 : 22.84 dBm (0.1923 W) 802.11n HT40 : 22.91 dBm (0.1954 W)
Antenna Type	PIFA Antenna type with gain -4.00 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Testing Site

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.			
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755- 3320-2398			
Test Site No.	Sporton Site No.			FCC/IC Registration No.
	TH01-SZ	CO01-SZ	03CH01-SZ	831040/4086F-1

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

1.6 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- ANSI C63.10-2009

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). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

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

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

2.1 Carrier Frequency 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.

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	18.56	18.45	18.32	18.12
CH 06	2437 MHz	18.66	18.51	18.38	18.24
CH 11	2462 MHz	**18.77**	18.63	18.48	18.31

Channel	Frequency	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	21.71	21.65	21.66	21.68	21.58	21.56	21.59	21.66
CH 06	2437 MHz	21.86	21.84	21.8	21.82	21.75	21.79	21.78	21.77
CH 11	2462 MHz	**22.21**	22.19	22.13	22.08	22.02	21.92	21.85	21.79

Channel	Frequency	2.4GHz 802.11n HT20 RF Power (dBm)							
		OFDM Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 01	2412 MHz	22.73	22.19	22.17	22.25	22.07	22.12	22.05	22.07
CH 06	2437 MHz	22.78	22.29	22.3	22.21	22.17	22.1	22.46	22.11
CH 11	2462 MHz	**22.84**	22.42	22.16	22.26	22.3	22.27	22.2	22.16

Channel	Frequency	2.4GHz 802.11n HT40 RF Power (dBm)							
		OFDM Data Rate							
		13.5 Mbps	27 Mbps	40.5 Mbps	54 Mbps	81 Mbps	108 Mbps	121.5 Mbps	135 Mbps
CH 03	2422 MHz	22.78	21.87	21.92	21.82	21.79	21.95	21.74	21.60
CH 06	2437 MHz	22.86	21.94	21.93	21.91	21.89	21.86	21.88	21.96
CH 09	2452 MHz	**22.91**	22.22	22.32	22.18	22.13	22.18	22.19	22.14

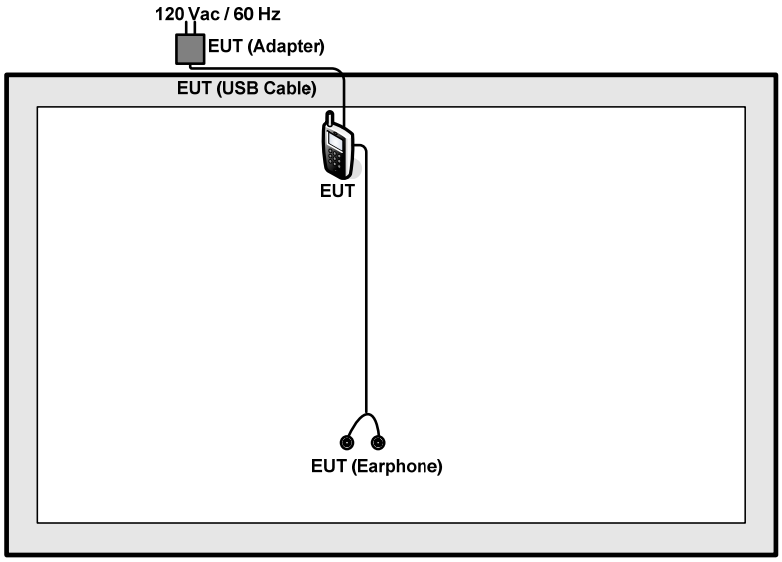
2.3 Test Mode

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

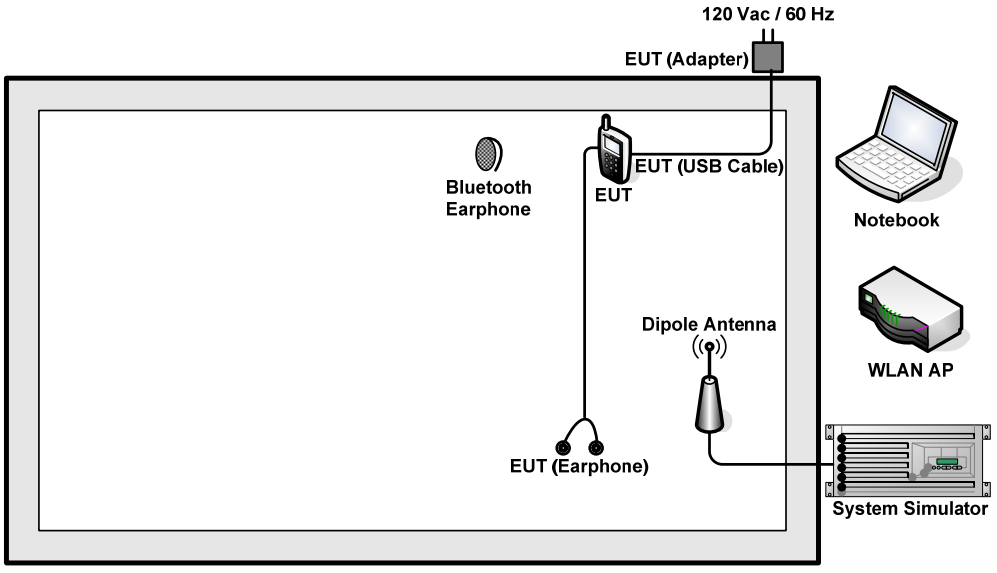
Test Cases				
	Test Items	**Mode**	**Data Rate**	**Test Channel**
Conducted TCs	**6dB BW Power Spectral Density**	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**6.5 Mbps**	**1/6/11**
		802.11n HT40	**13.5 Mbps**	**3/6/9**
	Output Power	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**6.5 Mbps**	**1/6/11**
		802.11n HT40	**13.5 Mbps**	**3/6/9**
	Conducted Band Edge	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT20	**6.5 Mbps**	**1/11**
		802.11n HT40	**13.5 Mbps**	**3/9**
	Conducted Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**6.5 Mbps**	**1/6/11**
		802.11n HT40	**13.5 Mbps**	**3/6/9**
Radiated TCs	**Radiated Band Edge**	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT20	**6.5 Mbps**	**1/11**
		802.11n HT40	**13.5 Mbps**	**3/9**
	Radiated Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**6.5 Mbps**	**1/6/11**
		802.11n HT40	**13.5 Mbps**	**3/6/9**
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Earphone			

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Agilent	E5515C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	TOPWORD	3303DR	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-612	N/A	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 0.9 m DC O/P: Shielded, 1.8 m
5.	Bluetooth Earphone	Nokia	BH-108	N/A	N/A	N/A

2.6 RF Utility

For WLAN function, key in "＊＃＊＃3646633＃＊＃＊" on the EUT directly. Then, the EUT will get into the engineering modes to contact with WLAN AP 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 (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.

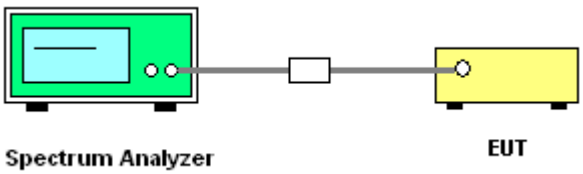
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 D01 DTS Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 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

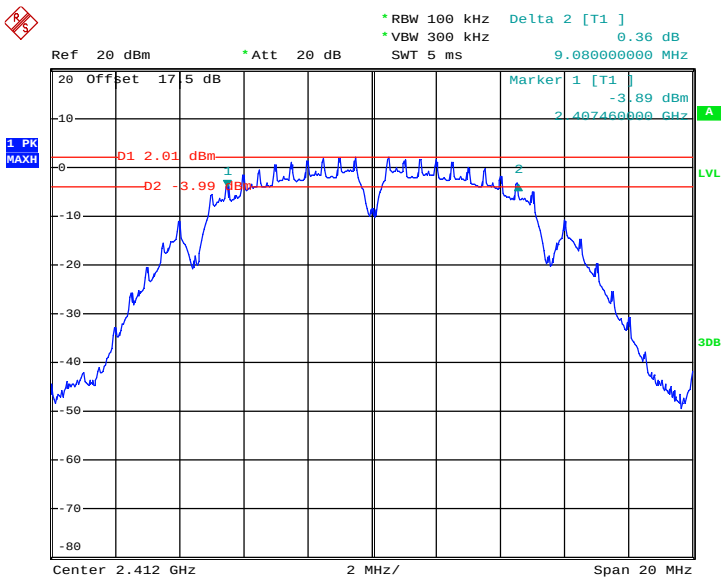


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.08	0.5	Pass
06	2437	9.04	0.5	Pass
11	2462	9.06	0.5	Pass

6 dB Bandwidth Plot on 802.11b Channel 01



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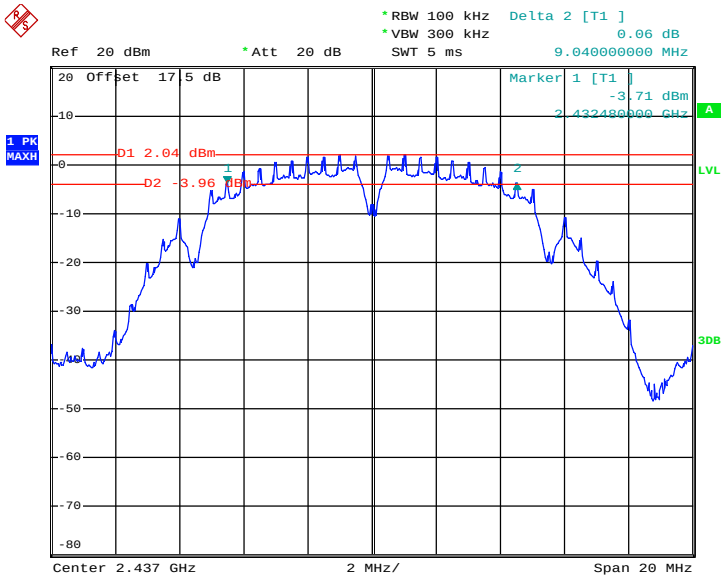
6 dB Bandwidth Plot on 802.11b Channel 06



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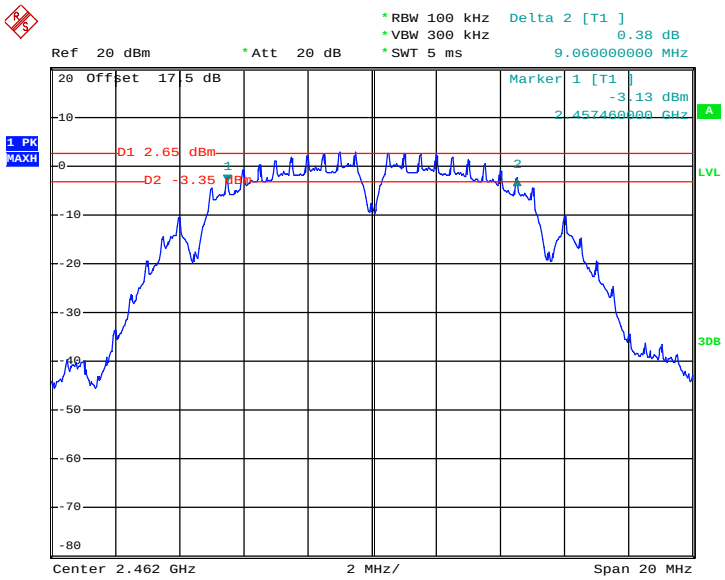
6 dB Bandwidth Plot on 802.11b Channel 11

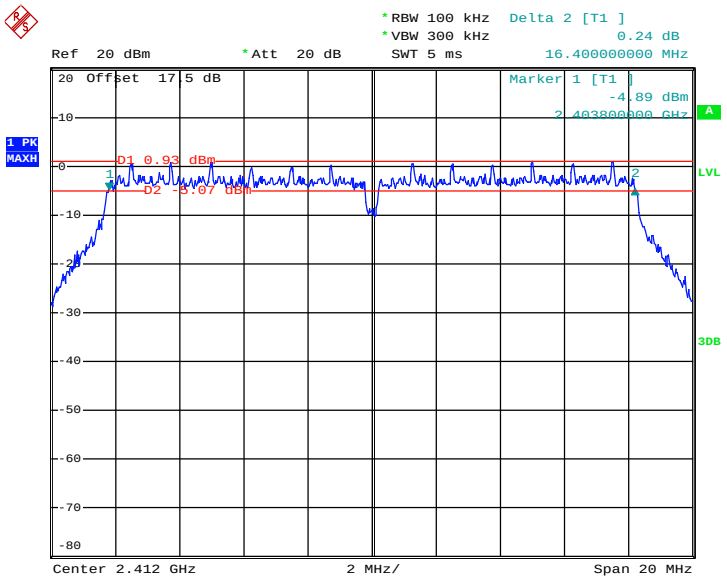


Date: 27.MAY.2013 18:00:43

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.40	0.5	Pass
06	2437	16.44	0.5	Pass
11	2462	16.42	0.5	Pass

6 dB Bandwidth Plot on 802.11g Channel 01



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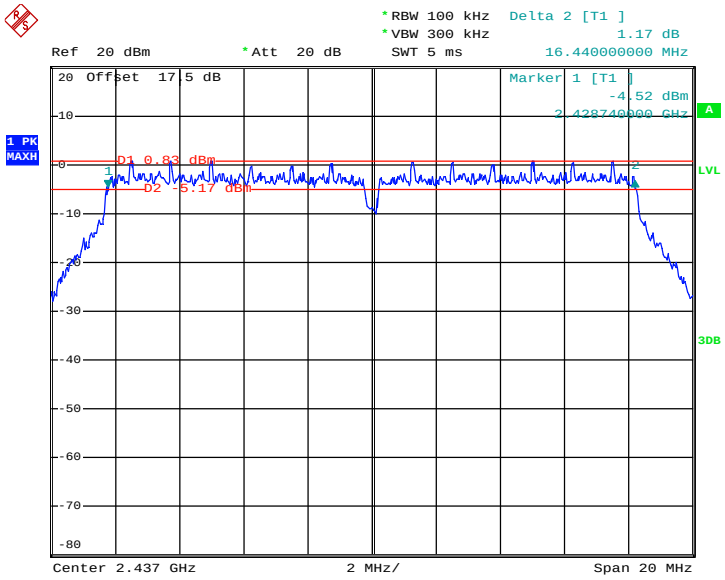
6 dB Bandwidth Plot on 802.11g Channel 06



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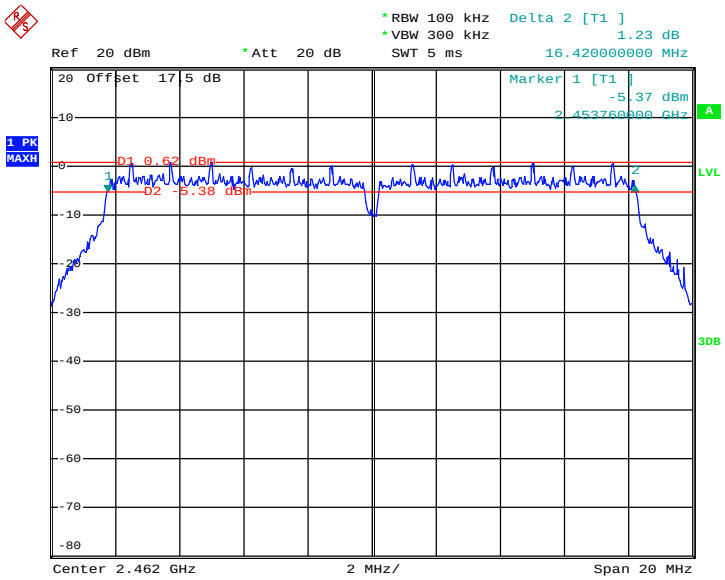
6 dB Bandwidth Plot on 802.11g Channel 11

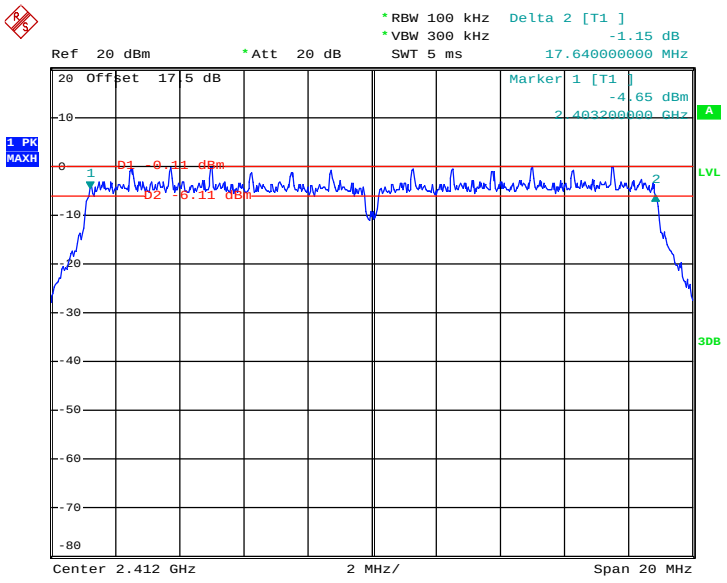


Date: 13.MAY.2013 17:03:26

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.64	0.5	Pass
06	2437	17.64	0.5	Pass
11	2462	17.64	0.5	Pass

6 dB Bandwidth Plot on 802.11n HT20 Channel 01



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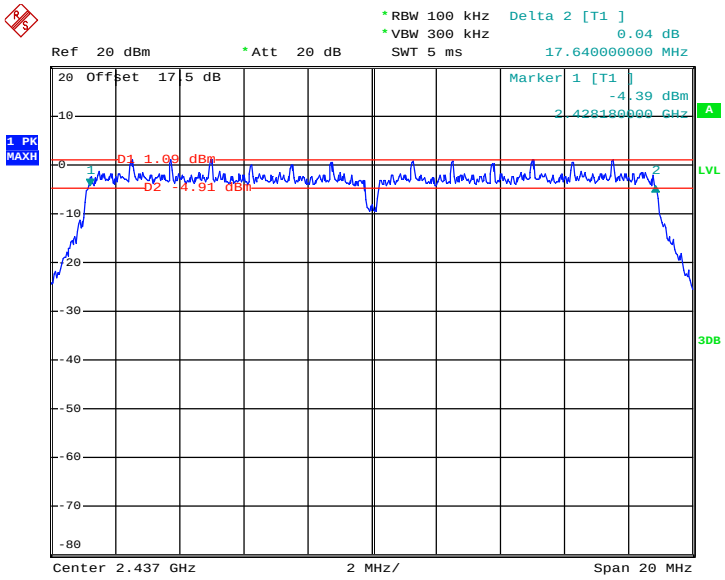
6 dB Bandwidth Plot on 802.11n HT20 Channel 06



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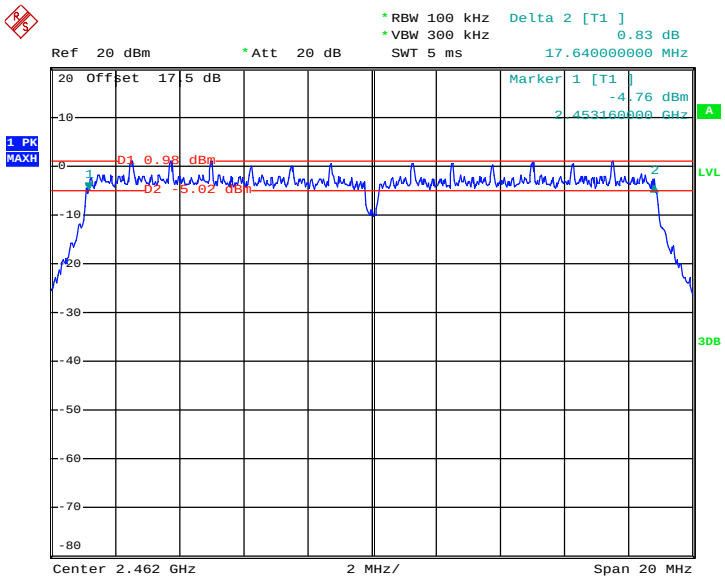
6 dB Bandwidth Plot on 802.11n HT20 Channel 11

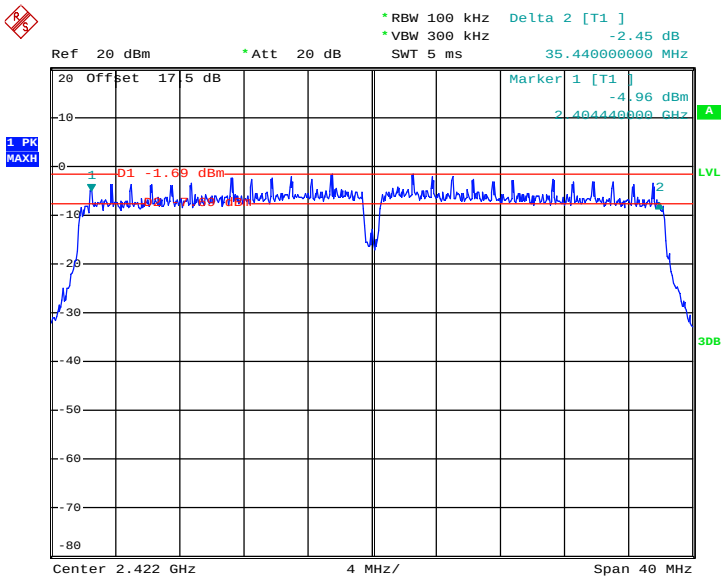


Date: 13.MAY.2013 17:19:27

Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n HT40 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	35.44	0.5	Pass
06	2437	35.44	0.5	Pass
09	2452	35.56	0.5	Pass

6 dB Bandwidth Plot on 802.11n HT40 Channel 03



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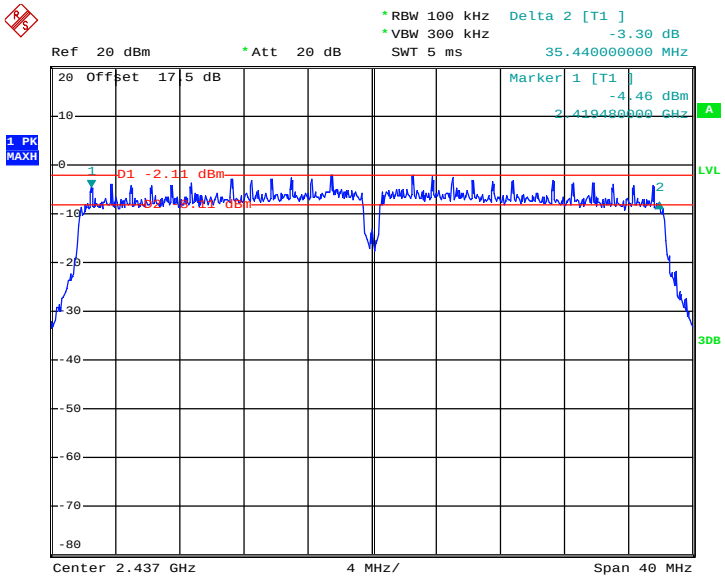
6 dB Bandwidth Plot on 802.11n HT40 Channel 06



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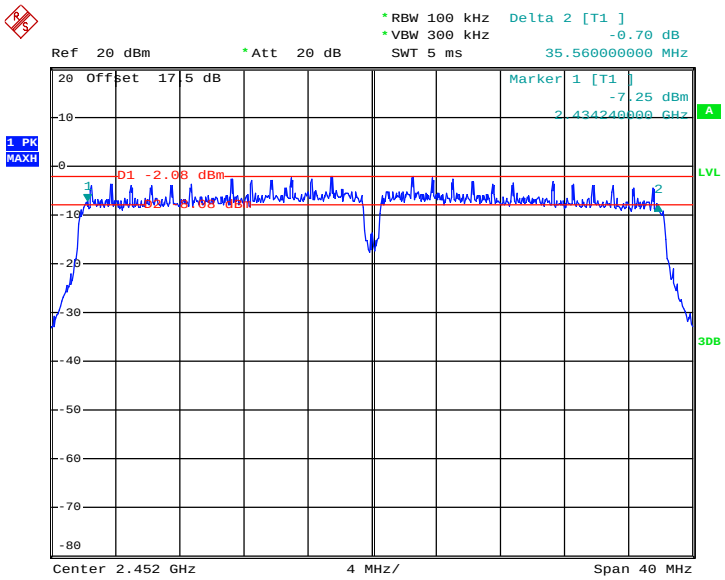
6 dB Bandwidth Plot on 802.11n HT40Channel 09



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3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

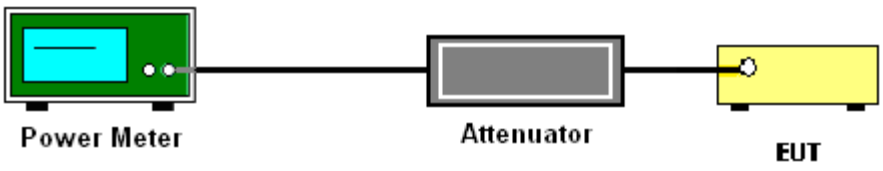
3.2.2 Measuring Instruments

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 D01 DTS Meas. Guidance v03r01.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.56	30	Pass
06	2437	18.66	30	Pass
11	2462	18.77	30	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.71	30	Pass
06	2437	21.86	30	Pass
11	2462	22.21	30	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.73	30	Pass
06	2437	22.78	30	Pass
11	2462	22.84	30	Pass

Test Mode :	2.4GHz 802.11n HT40	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT40 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
03	2422	22.78	30	Pass
06	2437	22.86	30	Pass
09	2452	22.91	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%
Duty Cycle:	98.98%	Duty Factor:	0.04dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	15.30
06	2437	15.37
11	2462	15.46

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%
Duty Cycle:	92.74%	Duty Factor:	0.33dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	12.11
06	2437	12.17
11	2462	12.20

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%
Duty Cycle:	92.80%	Duty Factor:	0.32dB

Channel	Frequency (MHz)	802.11n HT20 Average Output Power (dBm)
01	2412	11.88
06	2437	12.44
11	2462	12.72

Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%
Duty Cycle:	85.61%	Duty Factor:	0.67dB

Channel	Frequency (MHz)	802.11n HT40 Average Output Power (dBm)
03	2422	12.20
06	2437	12.51
09	2452	12.73

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.

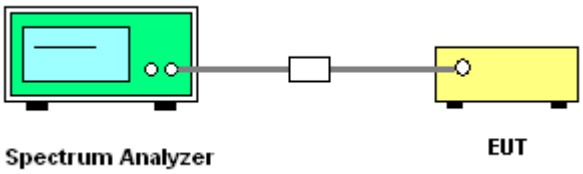
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

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

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.98	-11.66	8	Pass
06	2437	1.93	-5.66	8	Pass
11	2462	1.99	-11.65	8	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	0.70	-13.58	8	Pass
06	2437	0.64	-13.01	8	Pass
11	2462	0.50	-13.03	8	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n HT20 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-0.30	-13.32	8	Pass
06	2437	0.94	-13.43	8	Pass
11	2462	0.93	-12.18	8	Pass

Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Engineer :	Fly Chen	Relative Humidity :	50~53%

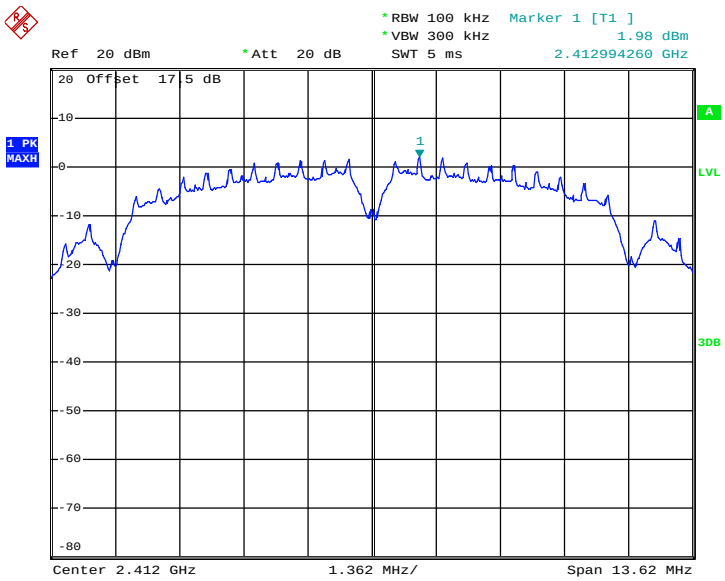
Channel	Frequency (MHz)	802.11n HT40 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
03	2422	-1.79	-15.96	8	Pass
06	2437	-2.05	-17.21	8	Pass
09	2452	-2.17	-16.57	8	Pass

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.*

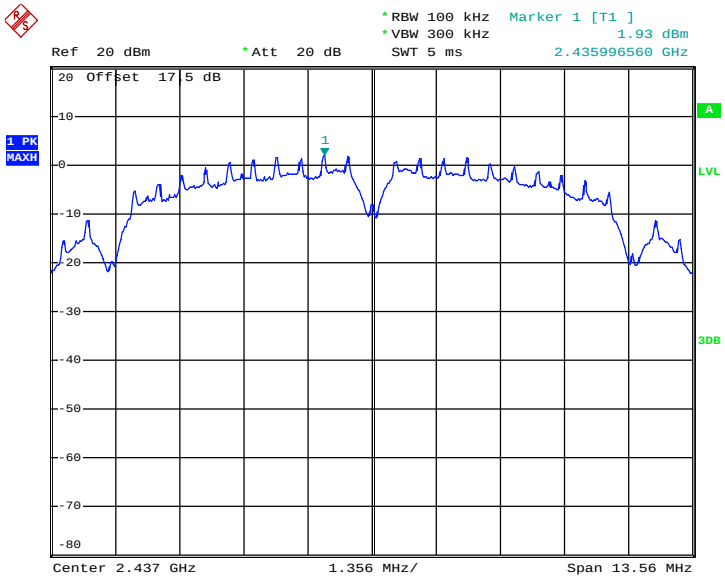
3.3.6 Test Result of Power Spectral Density Plots (100kHz)

PSD 100kHz Plot on 802.11b Channel 01



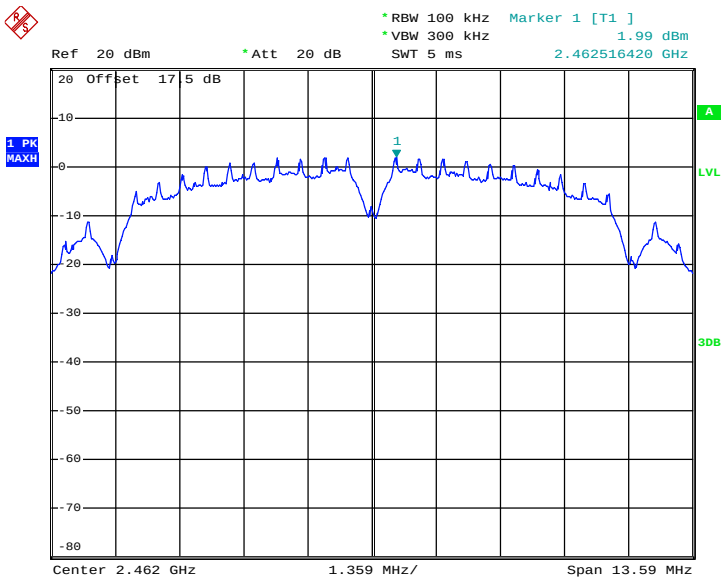
Date: 13.MAY.2013 12:17:41

PSD 100kHz Plot on 802.11b Channel 06



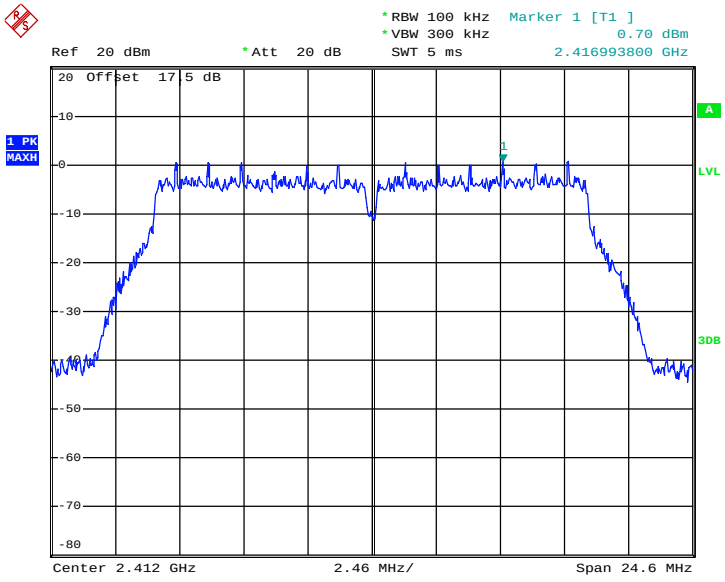
Date: 13.MAY.2013 12:26:22

PSD 100kHz Plot on 802.11b Channel 11



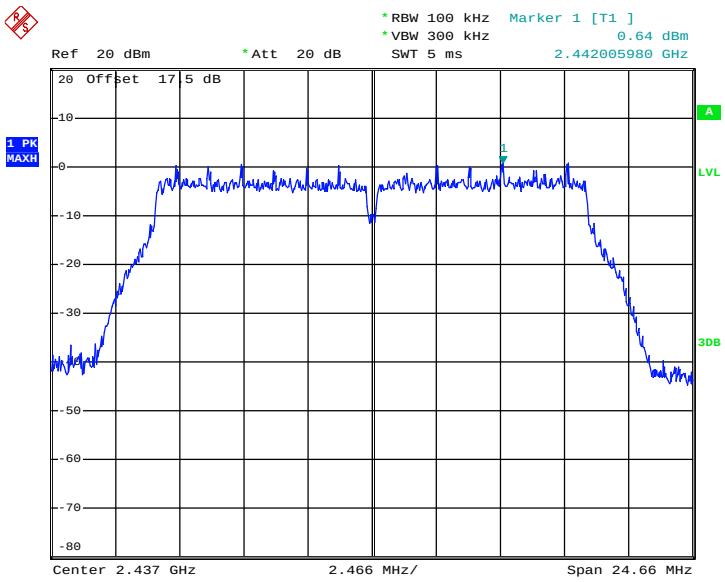
Date: 13.MAY.2013 12:32:46

PSD 100kHz Plot on 802.11g Channel 01



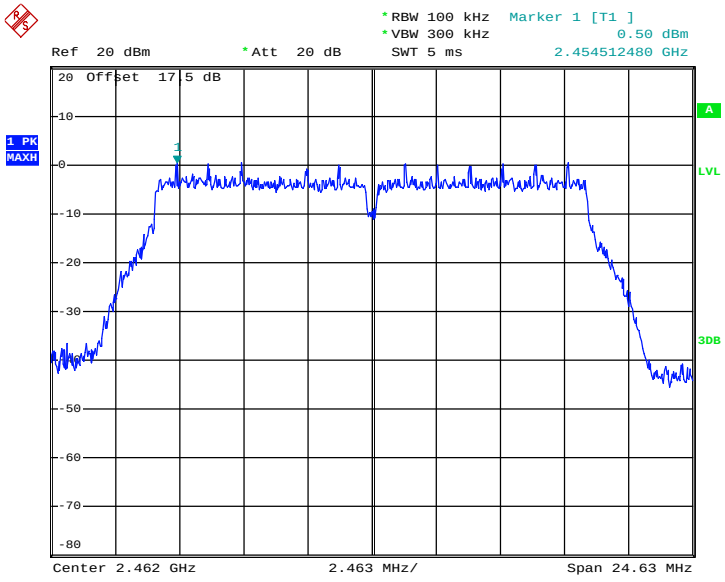
Date: 13.MAY.2013 16:55:41

PSD 100kHz Plot on 802.11g Channel 06



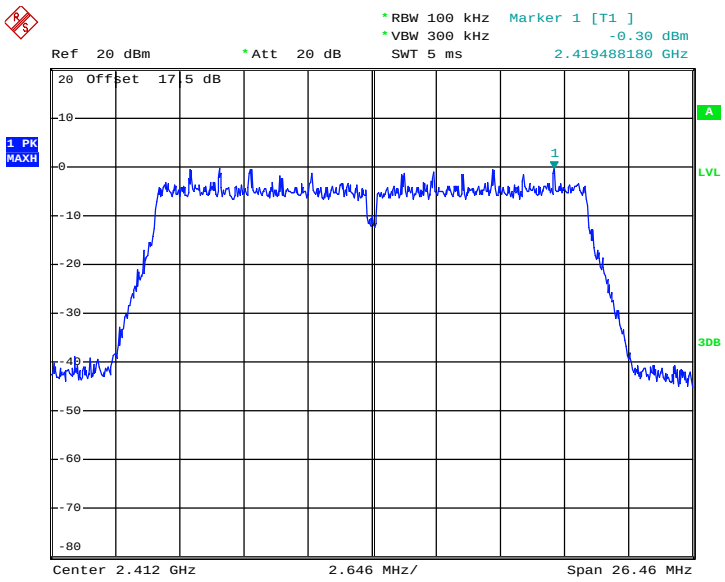
Date: 13.MAY.2013 17:00:08

PSD 100kHz Plot on 802.11g Channel 11



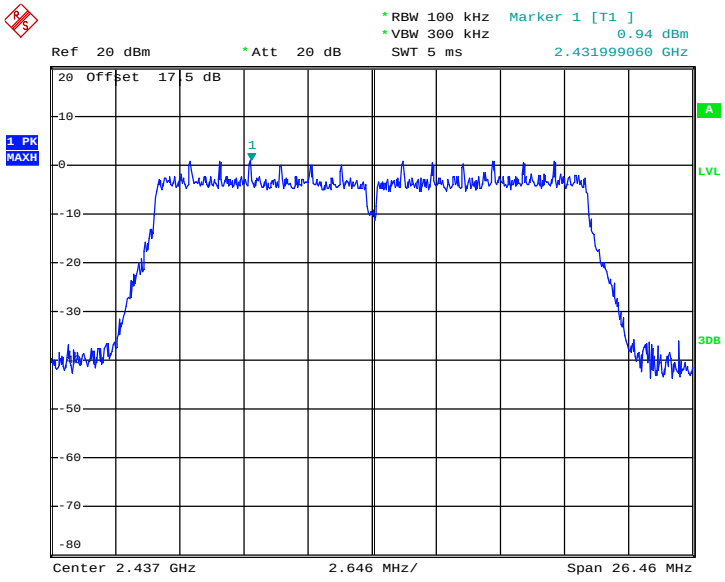
Date: 13.MAY.2013 17:04:16

PSD 100kHz Plot on 802.11n HT20 Channel 01



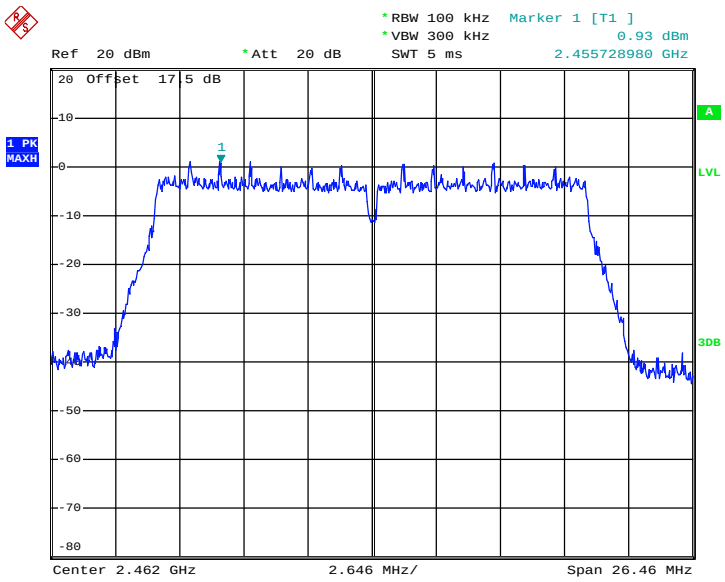
Date: 13.MAY.2013 17:10:01

PSD 100kHz Plot on 802.11n HT20 Channel 06



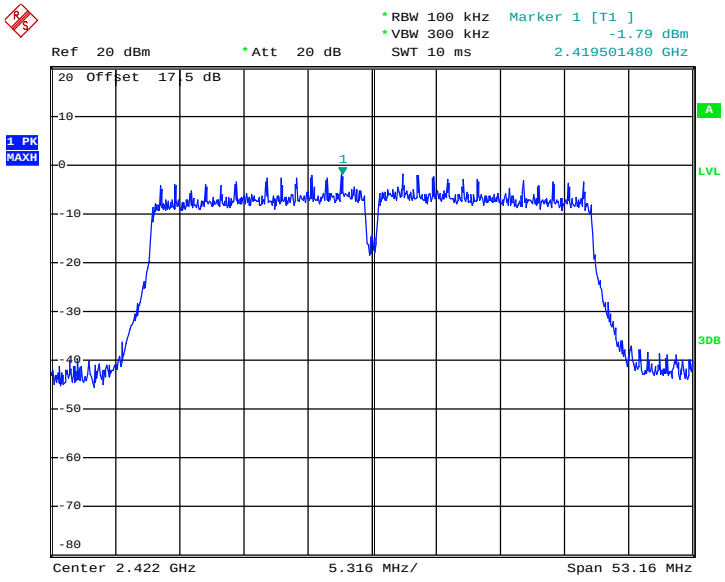
Date: 13.MAY.2013 17:16:49

PSD 100kHz Plot on 802.11n HT20 Channel 11



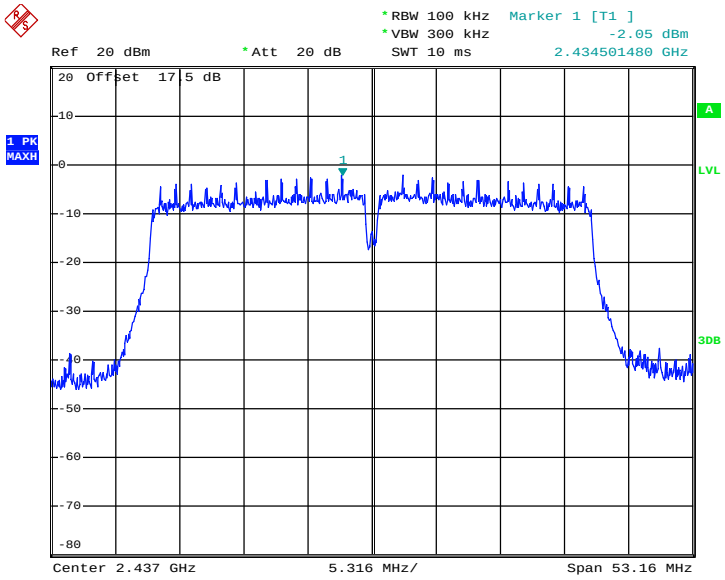
Date: 13.MAY.2013 17:20:06

PSD 100kHz Plot on 802.11n HT40 Channel 03



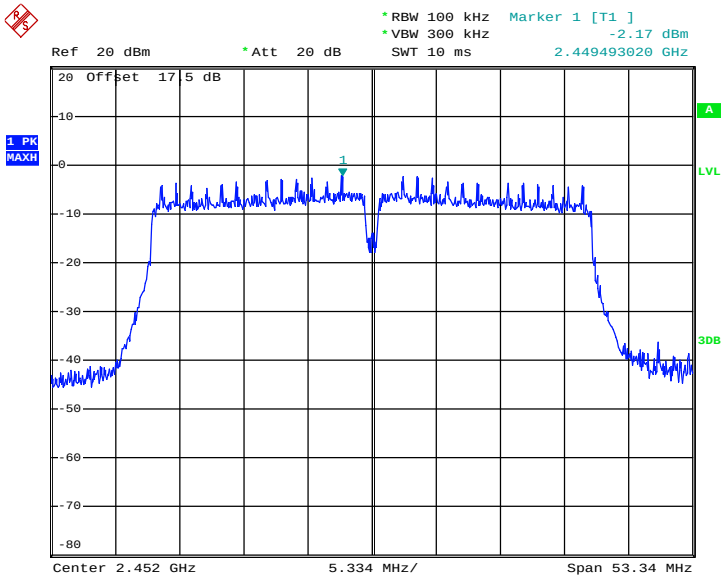
Date: 13.MAY.2013 17:23:30

PSD 100kHz Plot on 802.11n HT40 Channel 06



Date: 13.MAY.2013 17:29:24

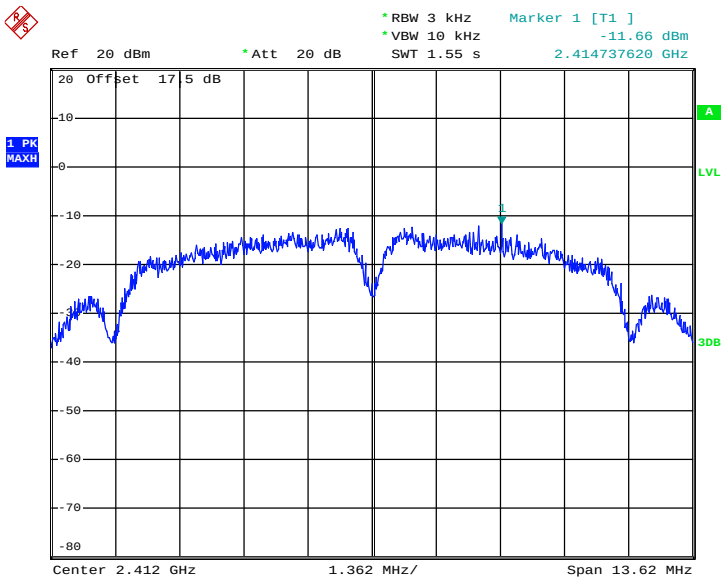
PSD 100kHz Plot on 802.11n HT40 Channel 09



Date: 13.MAY.2013 17:34:53

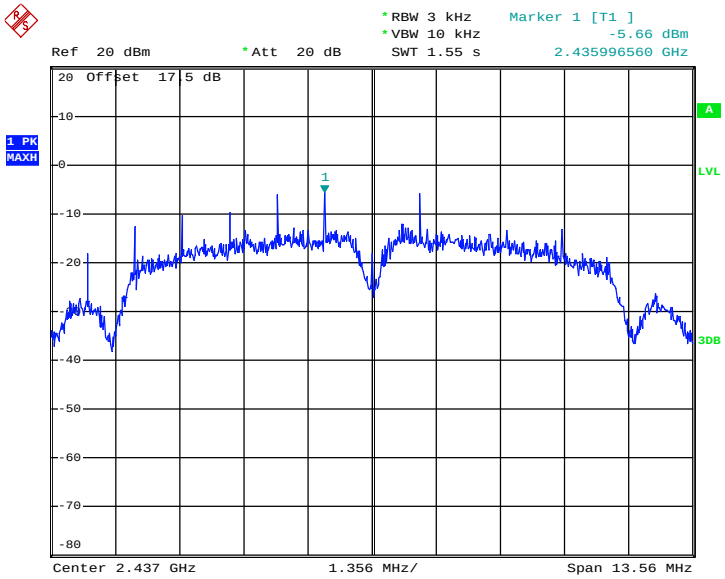
3.3.7 Test Result of Power Spectral Density Plots (3kHz)

PSD 3kHz Plot on 802.11b Channel 01



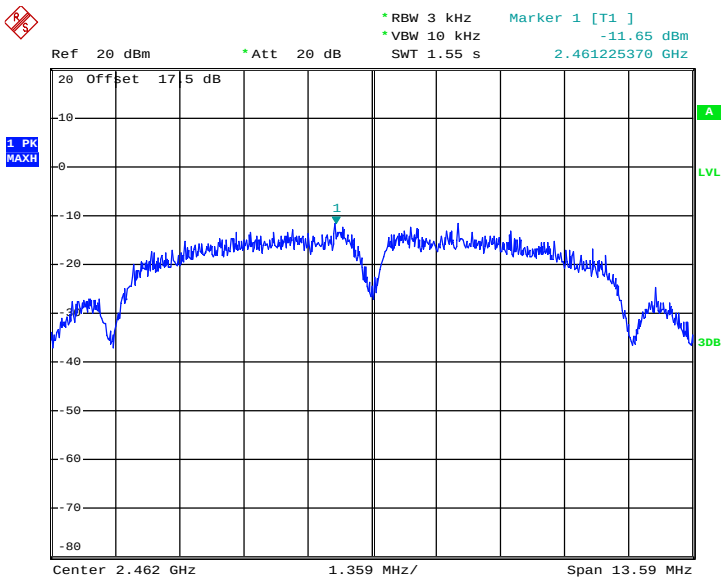
Date: 13.MAY.2013 12:16:25

PSD 3kHz Plot on 802.11b Channel 06



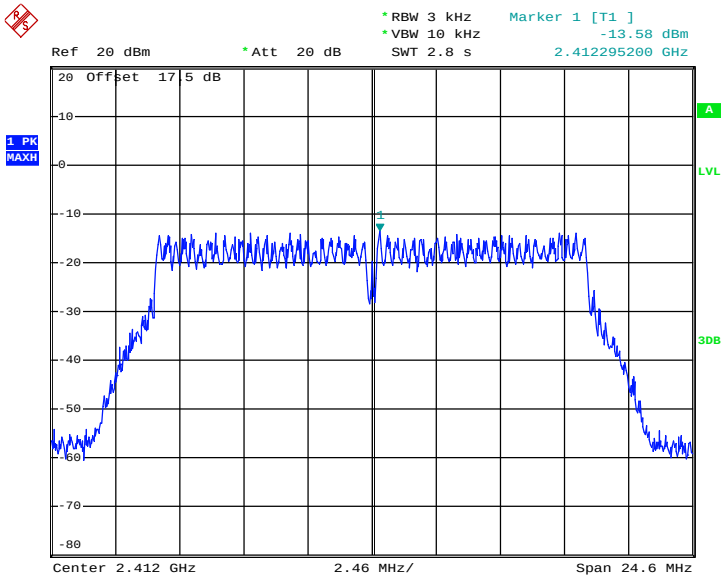
Date: 13.MAY.2013 12:26:10

PSD 3kHz Plot on 802.11b Channel 11



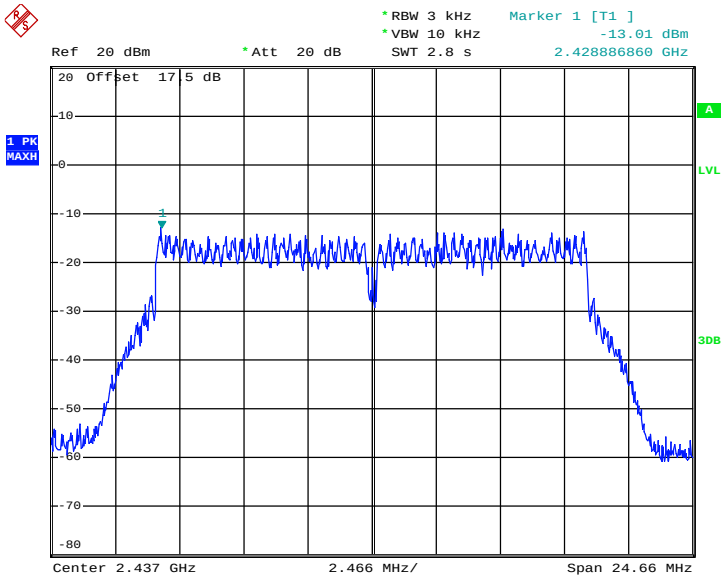
Date: 13.MAY.2013 12:32:28

PSD 3kHz Plot on 802.11g Channel 01



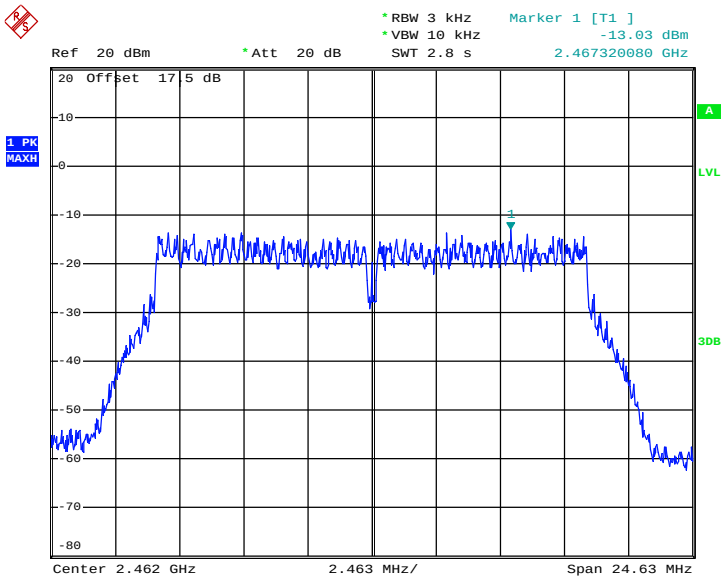
Date: 13.MAY.2013 16:55:29

PSD 3kHz Plot on 802.11g Channel 06



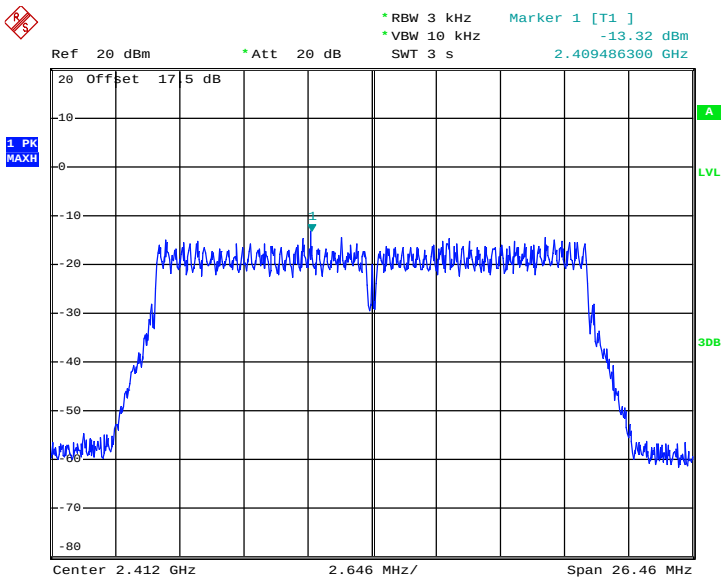
Date: 13.MAY.2013 16:59:54

PSD 3kHz Plot on 802.11g Channel 11



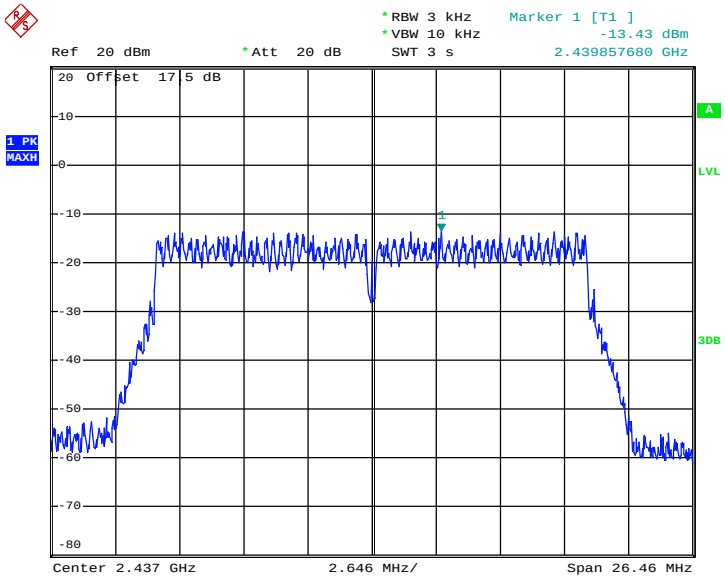
Date: 13.MAY.2013 17:03:52

PSD 3kHz Plot on 802.11n HT20 Channel 01



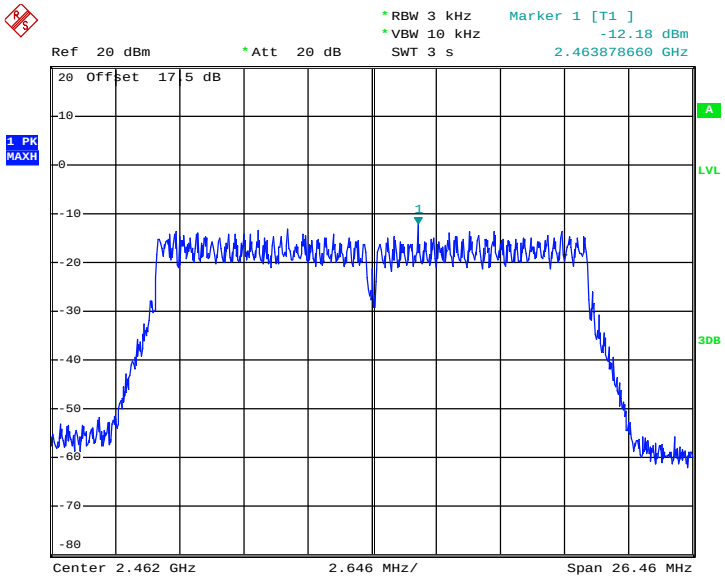
Date: 13.MAY.2013 17:09:47

PSD 3kHz Plot on 802.11n HT20 Channel 06



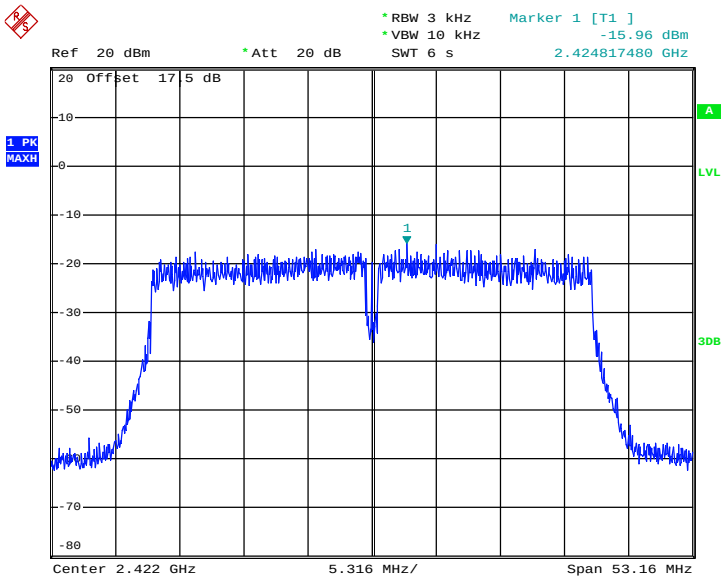
Date: 13.MAY.2013 17:16:36

PSD 3kHz Plot on 802.11n HT20 Channel 11



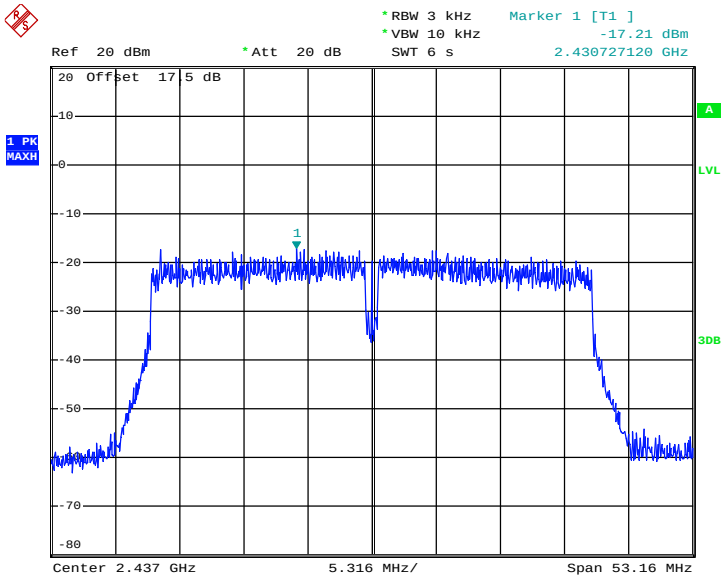
Date: 13.MAY.2013 17:19:53

PSD 3kHz Plot on 802.11n HT40 Channel 03



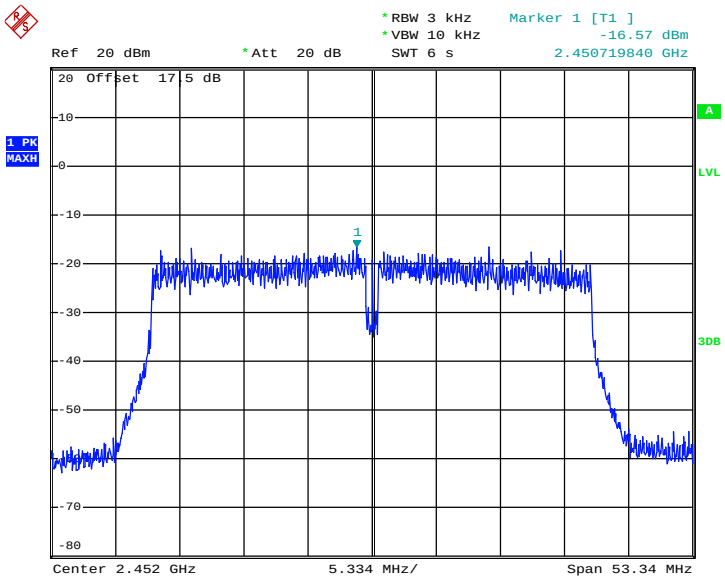
Date: 13.MAY.2013 17:23:17

PSD 3kHz Plot on 802.11n HT40 Channel 06



Date: 13.MAY.2013 17:29:11

PSD 3kHz Plot on 802.11n HT40 Channel 09



Date: 13.MAY.2013 17:34:40

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).

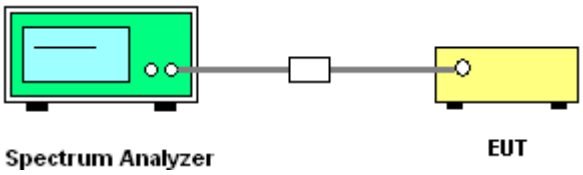
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 D01 DTS Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 KHz, VBW=300 KHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz, when maximum peak conducted output power procedure is used. The attenuation is set to 30dB, when maximum conducted output power procedure is used.
5. Measure and record the results in the test report.

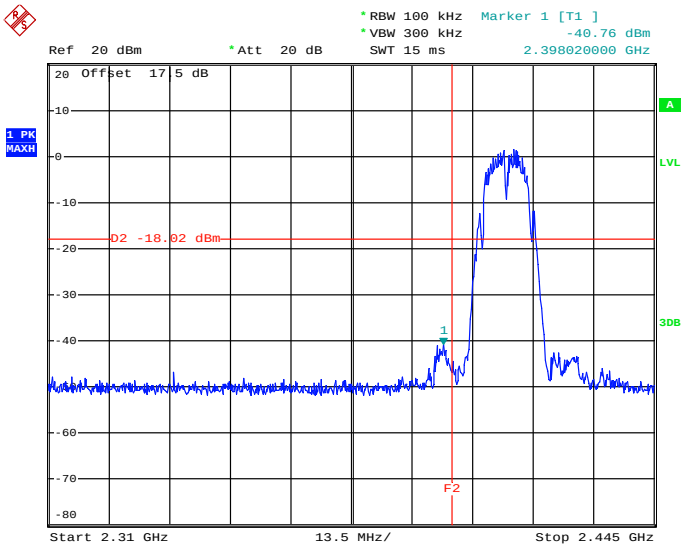
3.4.4 Test Setup



3.4.5 Test Plots of Conducted Band Edges

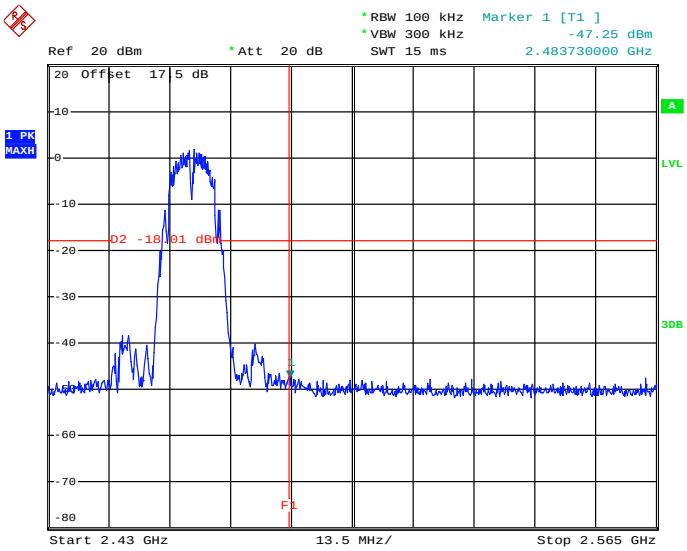
Test Mode :	802.11b	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

Low Band Edge Plot on 802.11b Channel 01



Date: 13.MAY.2013 12:21:35

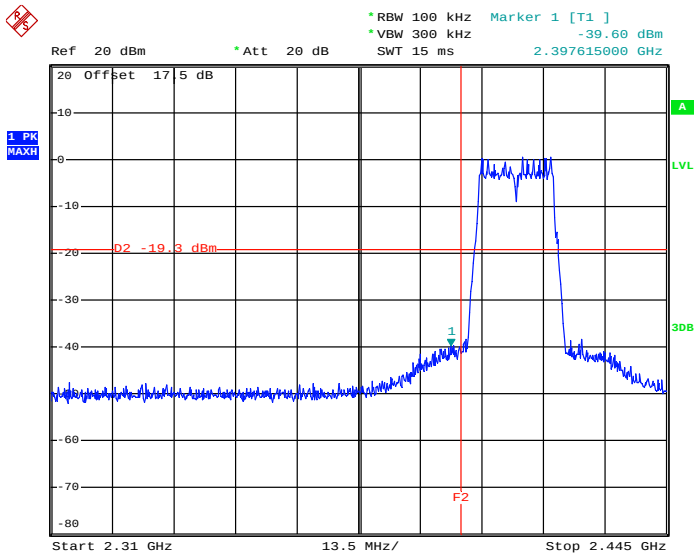
High Band Edge Plot on 802.11b Channel 11



Date: 13.MAY.2013 12:40:10

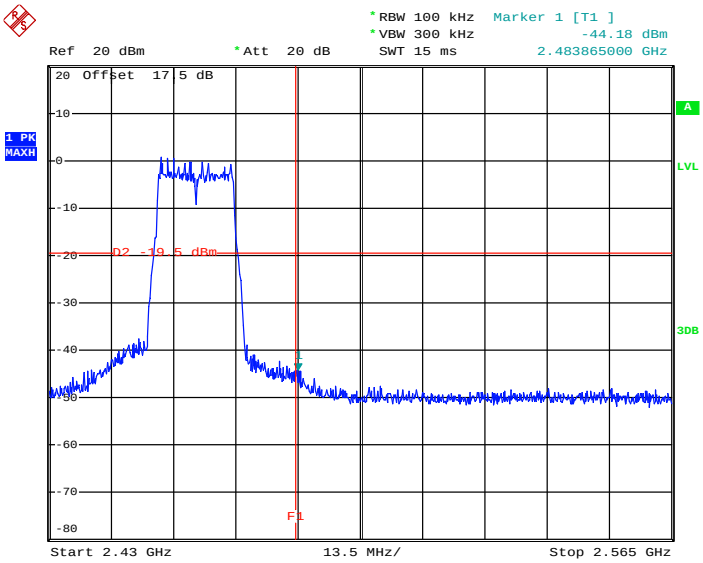
Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

Low Band Edge Plot on 802.11g Channel 01



Date: 13.MAY.2013 16:56:02

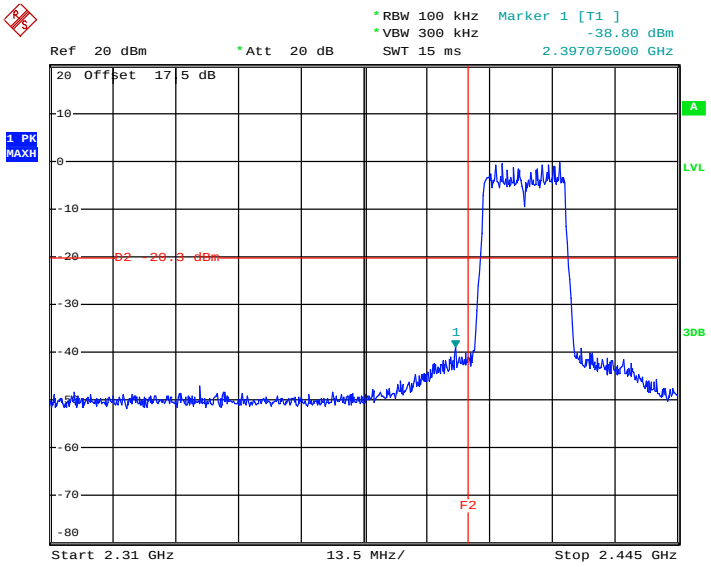
High Band Edge Plot on 802.11g Channel 11



Date: 13.MAY.2013 17:04:37

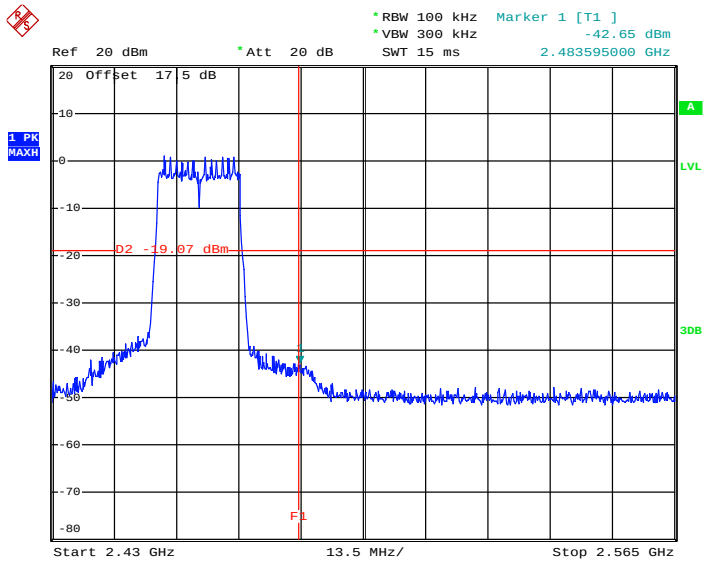
Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

Low Band Edge Plot on 802.11n HT20 Channel 01



Date: 13.MAY.2013 17:10:22

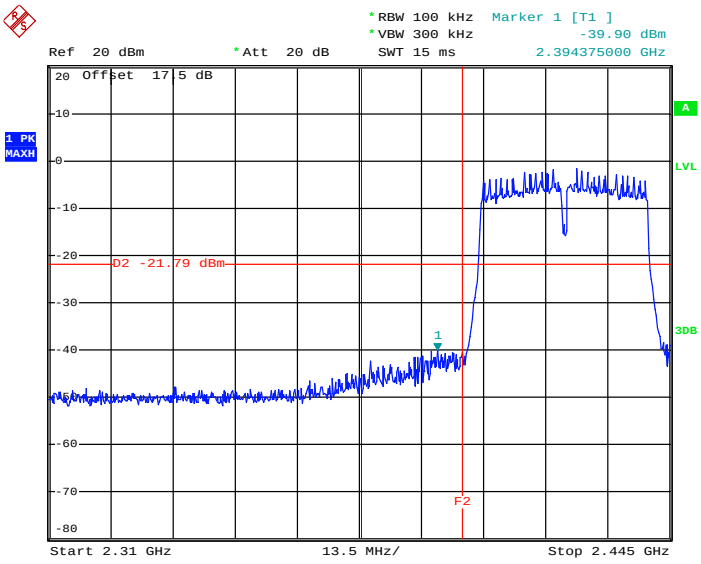
High Band Edge Plot on 802.11n HT20 Channel 11



Date: 13.MAY.2013 17:20:24

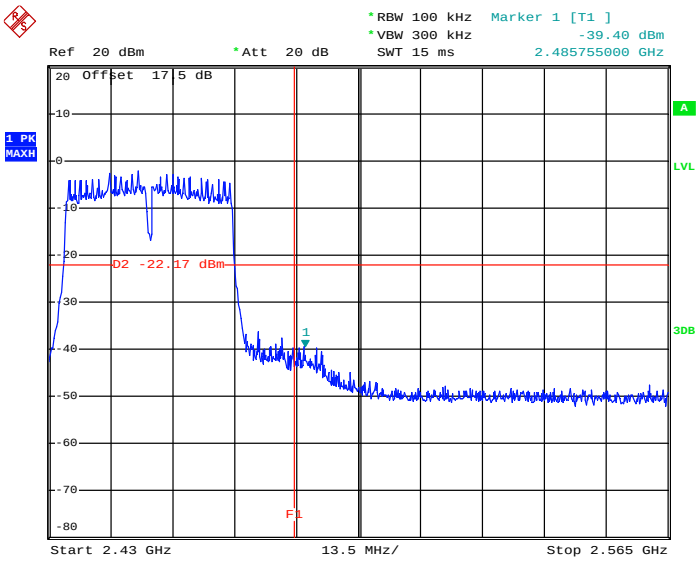
Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	03 and 09	Test Engineer :	Fly Chen

Low Band Edge Plot on 802.11n HT40 Channel 03



Date: 13.MAY.2013 17:23:48

High Band Edge Plot on 802.11n HT40 Channel 09



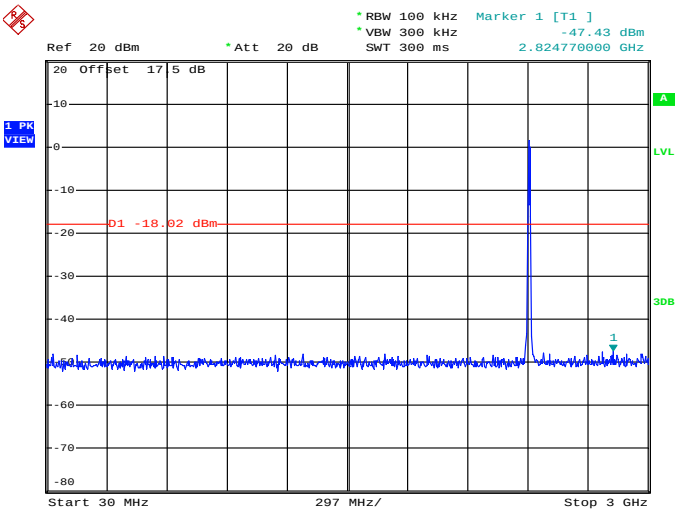
Date: 13.MAY.2013 17:35:20

3.4.6 Test Plots of Spurious Emission

Test Mode :	802.11b	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Fly Chen

802.11b 30 MHz~3 GHz

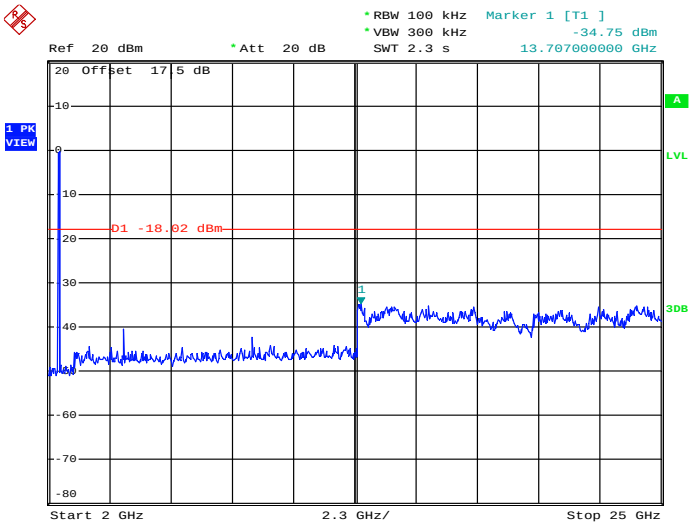
Conducted Spurious Emission Plot on Channel 01



Date: 13.MAY.2013 12:22:42

802.11b 2 GHz~25 GHz

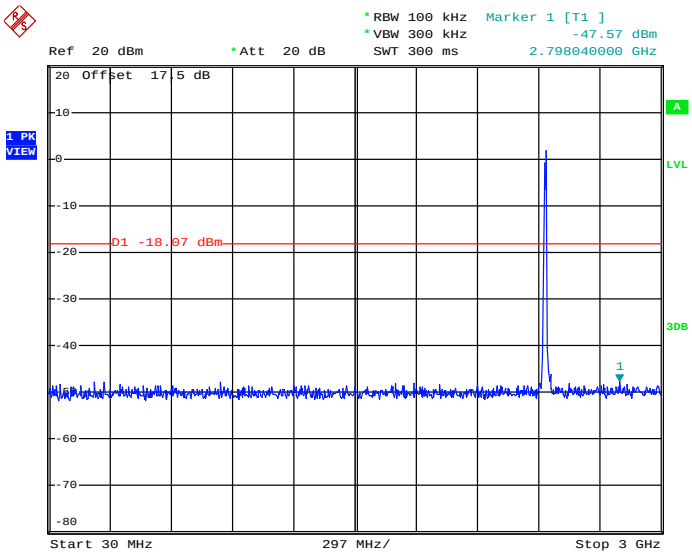
Conducted Spurious Emission Plot on Channel 01



Date: 13.MAY.2013 12:23:00

802.11b 30 MHz~3 GHz

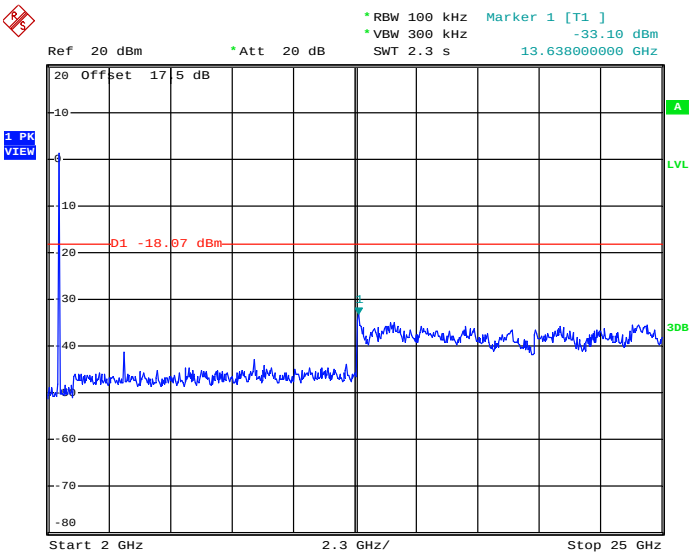
Conducted Spurious Emission Plot on Channel 06



Date: 13.MAY.2013 12:26:44

802.11b 2 GHz~25 GHz

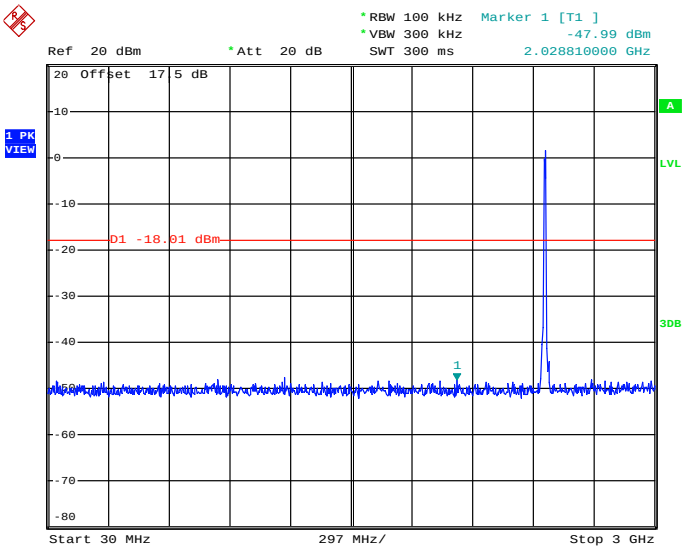
Conducted Spurious Emission Plot on Channel 06



Date: 13.MAY.2013 12:27:03

802.11b 30 MHz~3 GHz

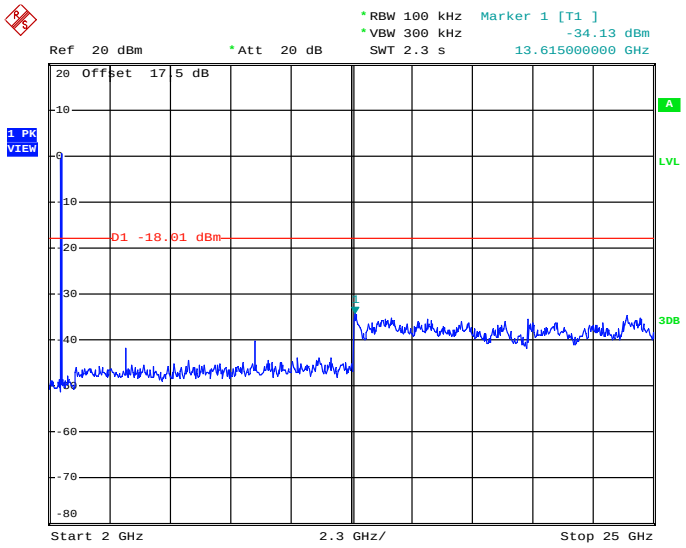
Conducted Spurious Emission Plot on Channel 11



Date: 13.MAY.2013 12:46:54

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

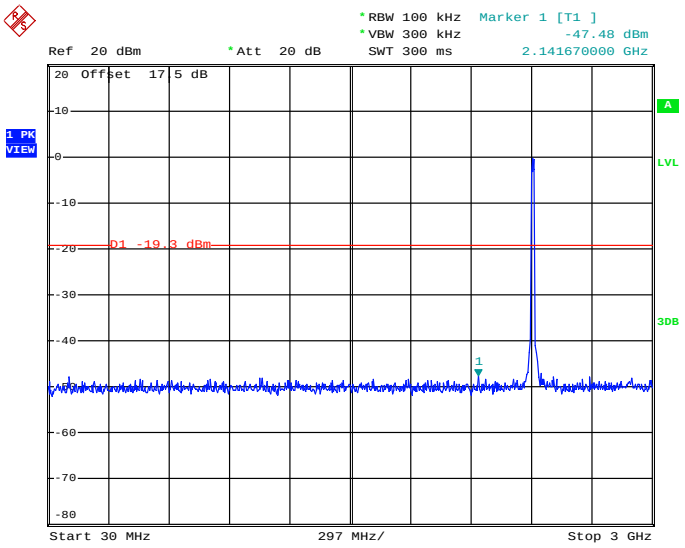


Date: 13.MAY.2013 12:45:27

Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Fly Chen

802.11g 30 MHz~3 GHz

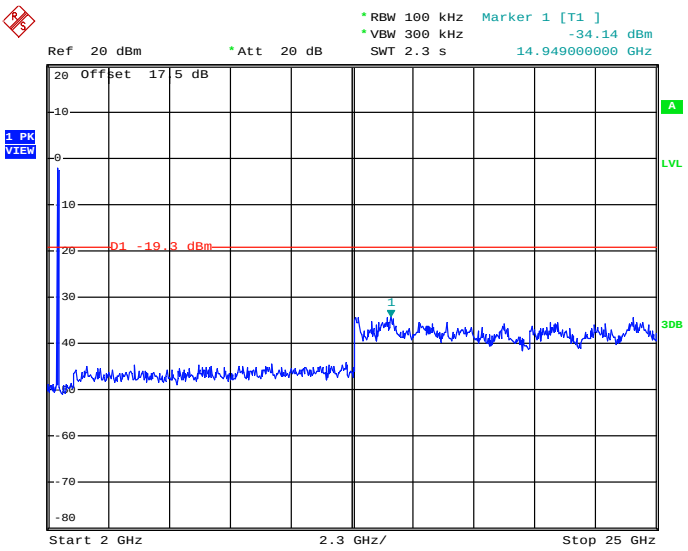
Conducted Spurious Emission Plot on Channel 01



Date: 13.MAY.2013 16:56:26

802.11g 2 GHz~25 GHz

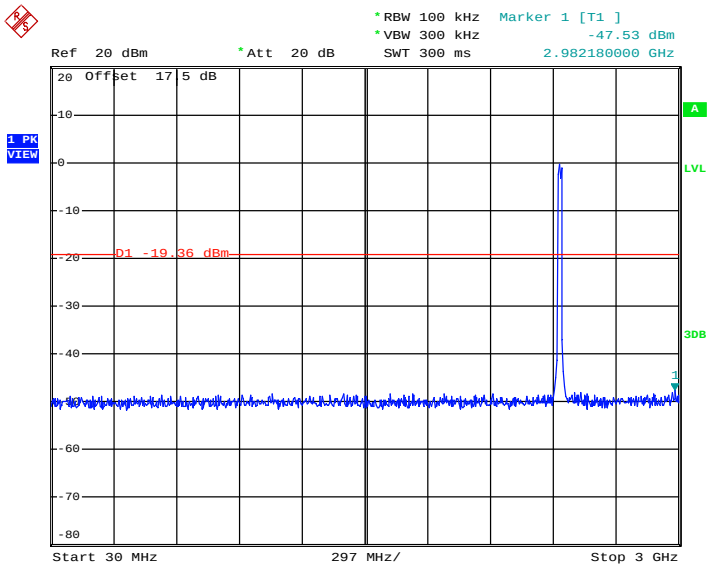
Conducted Spurious Emission Plot on Channel 01



Date: 13.MAY.2013 16:56:44

802.11g 30 MHz~3 GHz

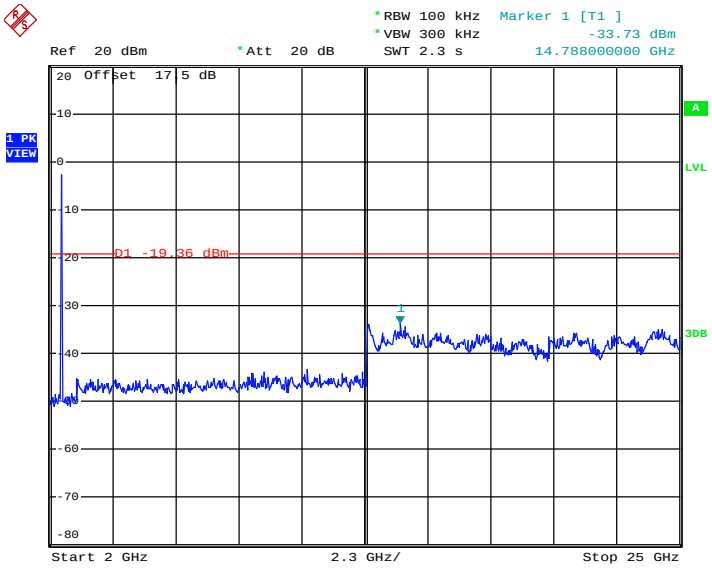
Conducted Spurious Emission Plot on Channel 06



Date: 13.MAY.2013 17:00:32

802.11g 2 GHz~25 GHz

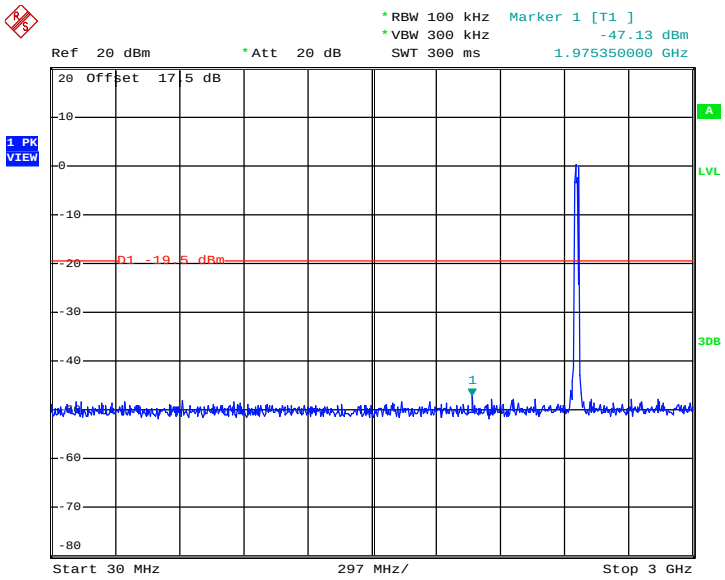
Conducted Spurious Emission Plot on Channel 06



Date: 13.MAY.2013 17:00:50

802.11g 30 MHz~3 GHz

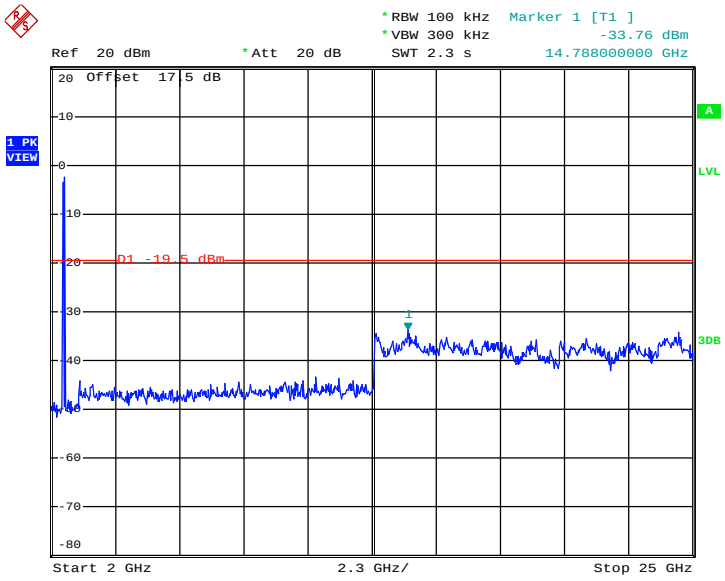
Conducted Spurious Emission Plot on Channel 11



Date: 13.MAY.2013 17:05:04

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

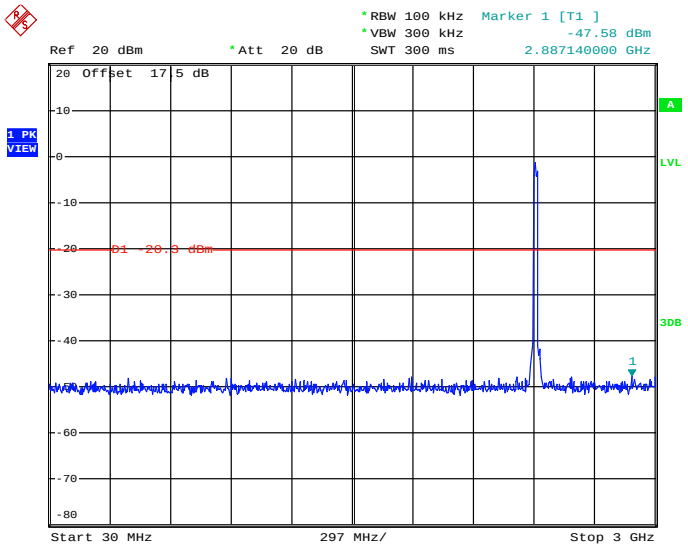


Date: 13.MAY.2013 17:05:23

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Fly Chen

802.11n HT20 30 MHz~3 GHz

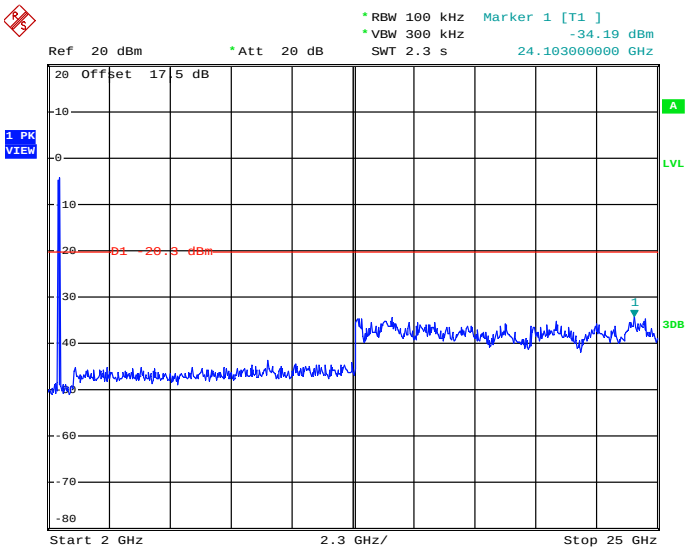
Conducted Spurious Emission Plot on Channel 01



Date: 13.MAY.2013 17:12:16

802.11n HT20 2 GHz~25 GHz

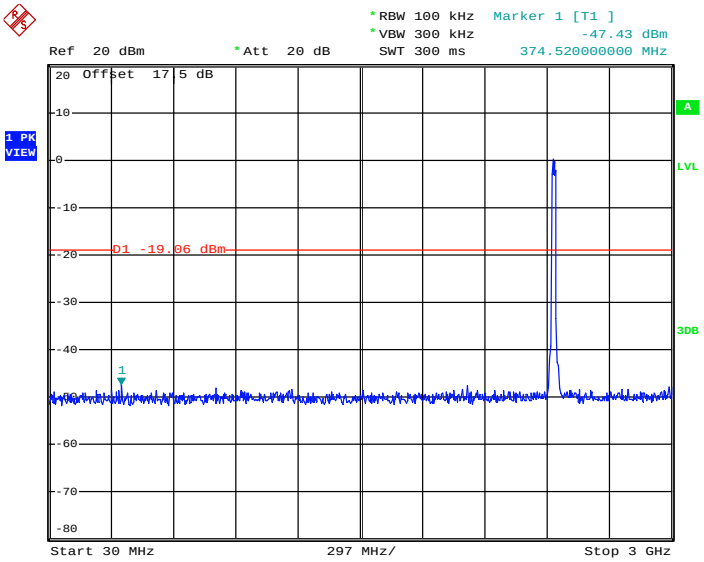
Conducted Spurious Emission Plot on Channel 01



Date: 13.MAY.2013 17:12:35

802.11n HT20 30 MHz~3 GHz

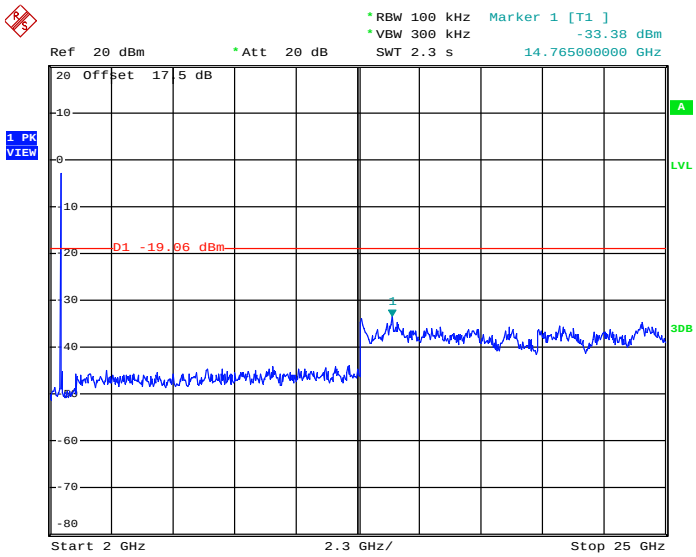
Conducted Spurious Emission Plot on Channel 06



Date: 13.MAY.2013 17:17:27

802.11n HT20 2 GHz~25 GHz

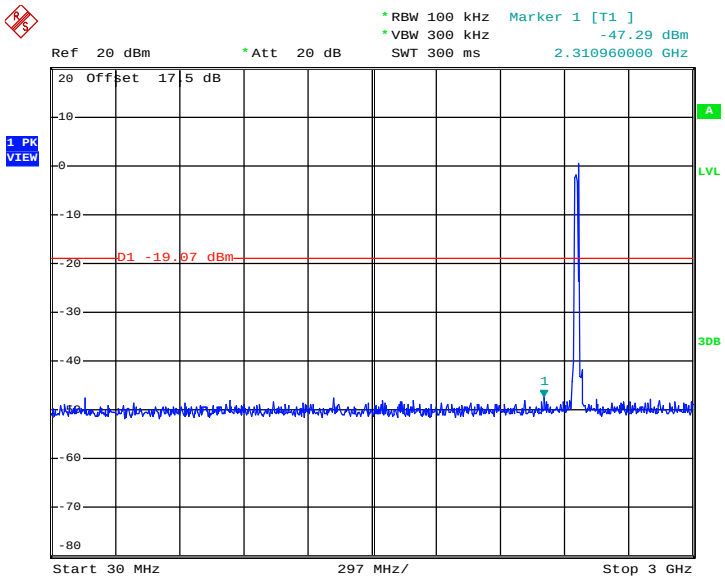
Conducted Spurious Emission Plot on Channel 06



Date: 13.MAY.2013 17:17:46

802.11n HT20 30 MHz~3 GHz

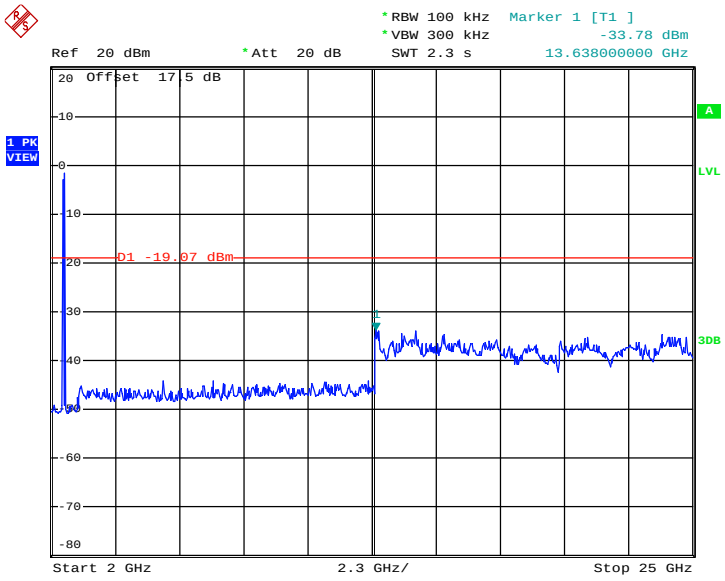
Conducted Spurious Emission Plot on Channel 11



Date: 13.MAY.2013 17:20:48

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

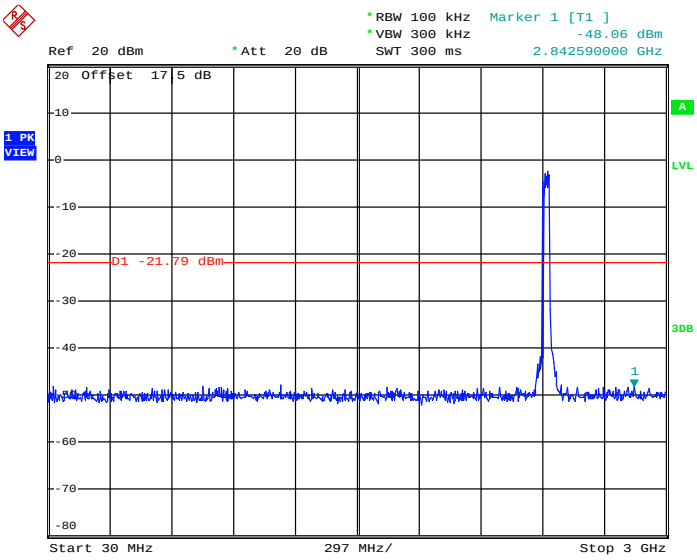


Date: 13.MAY.2013 17:21:07

Test Mode :	802.11n HT40	Temperature :	24~26
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53
Test Channel :	03, 06, 09	Test Engineer :	Fly Chen

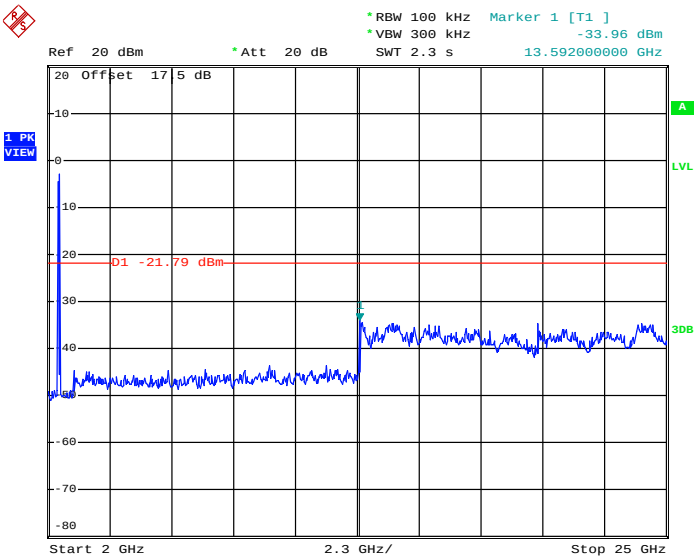
802.11n HT40 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 03



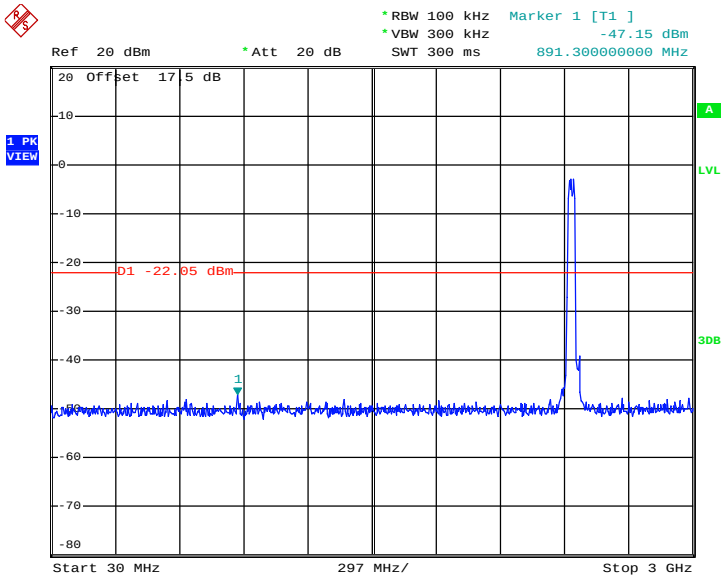
802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 03



802.11n HT40 30 MHz~3 GHz

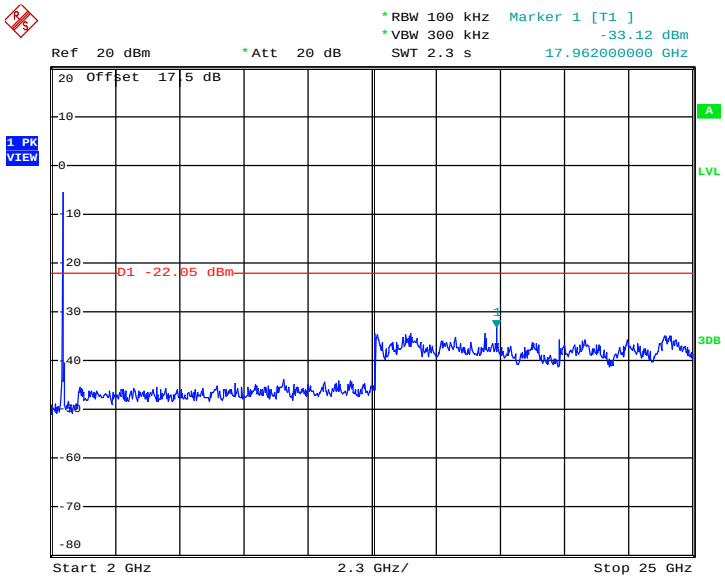
Conducted Spurious Emission Plot on Channel 06



Date: 13.MAY.2013 17:32:21

802.11n HT40 2 GHz~25 GHz

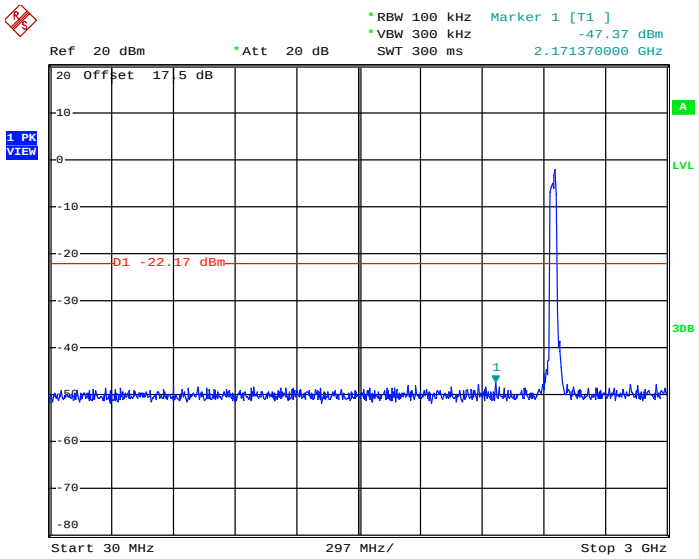
Conducted Spurious Emission Plot on Channel 06



Date: 13.MAY.2013 17:31:15

802.11n HT40 30 MHz~3 GHz

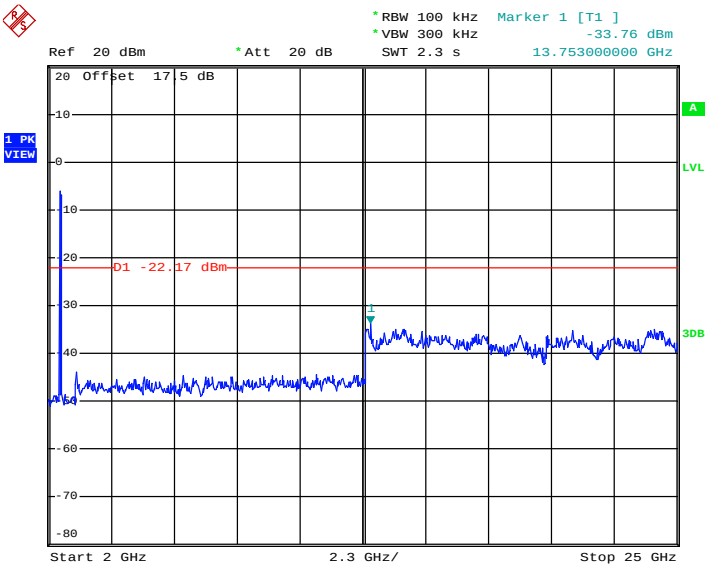
Conducted Spurious Emission Plot on Channel 09



Date: 13.MAY.2013 17:35:44

802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09



Date: 13.MAY.2013 17:36:03

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated Band Edges and Spurious Emission

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 Procedures

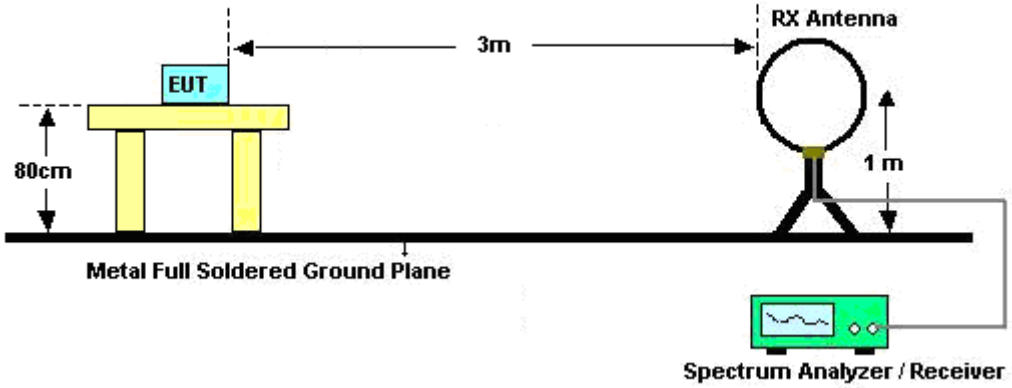
1. The testing follows the guidelines in ANSI C63. 10-2009
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better 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 ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(ms)	1/T(KHz)	VBW Setting
802.11b	98.975	-	-	10Hz
802.11g	92.740	1.388	0.720	1KHz
2.4G 802.11n HT20	92.798	1.307	0.765	1KHz
2.4G 802.11n HT40	85.605	0.646	1.547	3KHz

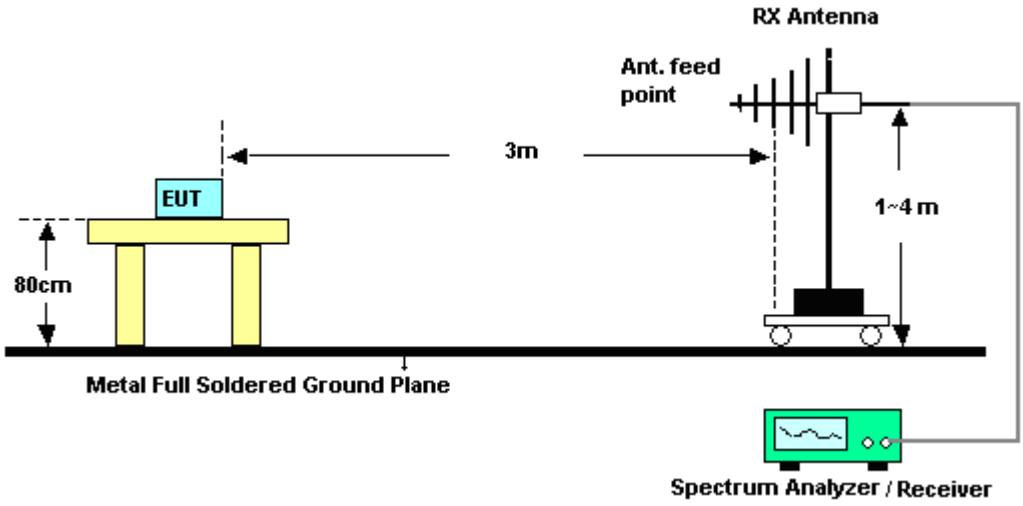
Note: For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

3.5.4 Test Setup

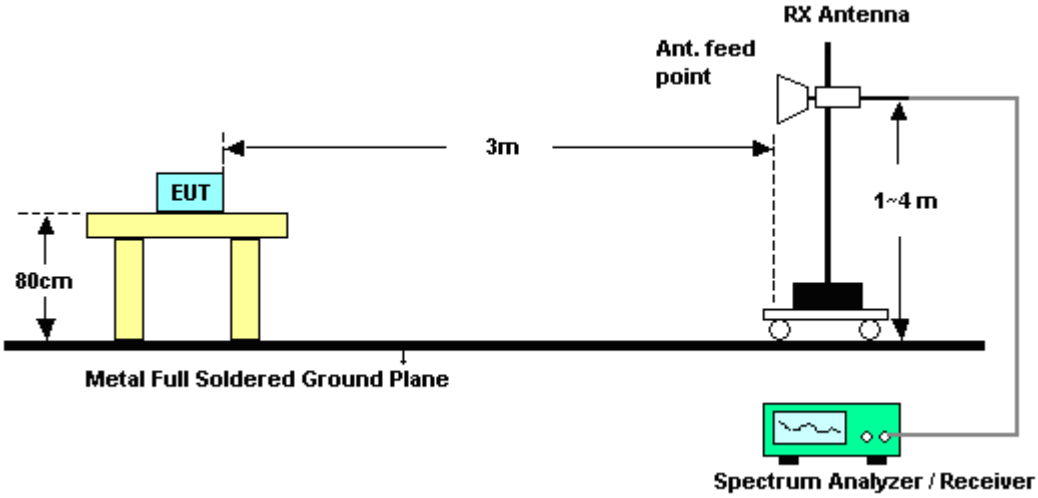
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Spurious Emission (9 KHz ~ 30 MHz)

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 Band Edges

Test Mode :	802.11b	Temperature :	24~25℃
Test Band :	Low	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Robin Luo

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
2370.57	53.71	-20.29	74	47	32.12	4.38	29.79	100	28	Peak
2339.97	41.15	-12.85	54	34.53	32.07	4.34	29.79	100	28	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
2377.59	54.58	-19.42	74	47.83	32.12	4.42	29.79	103	98	Peak
2379.57	41.64	-12.36	54	34.89	32.12	4.42	29.79	103	98	Average

Test Mode :	802.11b	Temperature :	24~25℃
Test Band :	High	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Robin Luo

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
2483.95	62.28	-11.72	74	55.3	32.27	4.47	29.76	100	43	Peak
2483.56	46.03	-7.97	54	39.05	32.27	4.47	29.76	100	43	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
2484.52	63.57	-10.43	74	56.59	32.27	4.47	29.76	100	252	Peak
2483.68	48	-6	54	41.02	32.27	4.47	29.76	100	252	Average

Test Mode :	802.11g	Temperature :	24~25℃
Test Band :	Low	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Robin Luo

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.83	65.96	-8.04	74	59.18	32.14	4.42	29.78	100	282	Peak
2389.47	50.99	-3.01	54	44.22	32.14	4.42	29.79	100	282	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.92	62.93	-11.07	74	56.15	32.14	4.42	29.78	106	248	Peak
2389.92	48.61	-5.39	54	41.83	32.14	4.42	29.78	106	248	Average

Test Mode :	802.11g	Temperature :	24~25℃
Test Band :	High	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Robin Luo

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
2484.49	60.67	-13.33	74	53.69	32.27	4.47	29.76	100	352	Peak
2483.83	45.82	-8.18	54	38.84	32.27	4.47	29.76	100	352	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
2483.95	61.49	-12.51	74	54.51	32.27	4.47	29.76	106	241	Peak
2483.68	47.53	-6.47	54	40.55	32.27	4.47	29.76	106	241	Average

Test Mode :	802.11n HT20	Temperature :	24~25℃
Test Band :	Low	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Robin Luo

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.2	56.56	-17.44	74	49.79	32.14	4.42	29.79	100	141	Peak
2390	39.48	-14.52	54	32.7	32.14	4.42	29.78	100	141	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.92	53.05	-20.95	74	46.27	32.14	4.42	29.78	159	301	Peak
2390	36.85	-17.15	54	30.07	32.14	4.42	29.78	159	301	Average

Test Mode :	802.11n HT20	Temperature :	24~25℃
Test Band :	High	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Robin Luo

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485	50.47	-23.53	74	43.49	32.27	4.47	29.76	144	131	Peak
2483.83	34.96	-19.04	54	27.98	32.27	4.47	29.76	144	131	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.21	50.98	-23.02	74	44	32.27	4.47	29.76	105	246	Peak
2483.83	34.67	-19.33	54	27.69	32.27	4.47	29.76	105	246	Average

Test Mode :	802.11n HT40	Temperature :	24~25℃
Test Band :	Low	Relative Humidity :	49~50%
Test Channel :	03	Test Engineer :	Robin Luo

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.56	68.1	-5.9	74	61.33	32.14	4.42	29.79	100	118	Peak
2389.65	46.87	-7.13	54	40.1	32.14	4.42	29.79	100	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
2389.65	63.45	-10.55	74	56.68	32.14	4.42	29.79	190	264	Peak
2389.65	42.31	-11.69	54	35.54	32.14	4.42	29.79	190	264	Average

Test Mode :	802.11n HT40	Temperature :	24~25℃
Test Band :	High	Relative Humidity :	49~50%
Test Channel :	09	Test Engineer :	Robin Luo

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
2483.83	55.72	-18.28	74	48.74	32.27	4.47	29.76	100	128	Peak
2483.59	38.83	-15.17	54	31.85	32.27	4.47	29.76	100	128	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
2483.71	56.18	-17.82	74	49.2	32.27	4.47	29.76	100	264	Peak
2483.77	39.09	-14.91	54	32.11	32.27	4.47	29.76	100	264	Average

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

Note: Below 1GHz for radiated emission measurement, pre-scanned all test modes and only choose the worst case mode was recorded in the report.

Test Mode :	802.11b	**Temperature :**	24~25℃
Test Channel :	01	**Relative Humidity :**	49~50%
Test Engineer :	Robin Luo	**Polarization :**	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2399MHz and 7236MHz are not within a restricted band, and their limit line is 20dB below the highest emission level. For example, 97.01dBuV/m - 20dB = 77.01dBuV/m. 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
2399	53.08	-23.93	77.01	46.3	32.14	4.42	29.78	100	28	Peak
2412	97.01	-	-	90.18	32.17	4.44	29.78	100	28	Peak
2412	91.13	-	-	84.3	32.17	4.44	29.78	100	28	Average
4824	46.73	-27.27	74	64.71	33.68	5.95	57.61	100	196	Peak
7236	44.2	-32.81	77.01	59.31	35.29	7.58	57.98	100	228	Peak

Test Mode :	802.11b	Temperature :	24~25℃
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2399MHz and 7236MHz are not within a restricted band, and their 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
2399	52.85	-27.84	80.69	46.07	32.14	4.42	29.78	103	98	Peak
2412	100.69	-	-	93.86	32.17	4.44	29.78	103	98	Peak
2412	95.28	-	-	88.45	32.17	4.44	29.78	103	98	Average
4824	41.35	-32.65	74	59.33	33.68	5.95	57.61	100	96	Peak
7236	47.97	-32.72	80.69	63.08	35.29	7.58	57.98	100	229	Peak

Test Mode :	802.11b	Temperature :	24~25℃
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	101.24	-	-	94.34	32.22	4.45	29.77	100	146	Peak
2437	89.99	-	-	83.09	32.22	4.45	29.77	100	146	Average
4874	53.45	-20.55	74	42.97	33.8	6.02	29.34	100	114	Peak
4874	42.11	-11.89	54	31.63	33.8	6.02	29.34	100	114	Average
7311	50.31	-23.69	74	35.18	35.31	7.8	27.98	122	36	Peak

Test Mode :	802.11b	Temperature :	24~25℃
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	100.29	-	-	93.39	32.22	4.45	29.77	100	10	Peak
2437	89.55	-	-	82.65	32.22	4.45	29.77	100	10	Average
4874	54.2	-19.8	74	43.72	33.8	6.02	29.34	200	58	Peak
4874	41.46	-12.54	54	30.98	33.8	6.02	29.34	200	58	Average
7311	50.26	-23.74	74	35.13	35.31	7.8	27.98	100	122	Peak

Test Mode :	802.11b	Temperature :	24~25℃
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	99.07	-	-	92.12	32.24	4.47	29.76	100	43	Peak
2462	89.69	-	-	82.74	32.24	4.47	29.76	100	43	Average
4924	50.87	-23.13	74	40.2	33.92	6.1	29.35	100	236	Peak
4924	40.77	-13.23	54	30.1	33.92	6.1	29.35	100	236	Average
7386	50.93	-23.07	74	35.36	35.35	8.12	27.9	100	245	Peak

Test Mode :	802.11b	Temperature :	24~25℃
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	98.91	-	-	91.96	32.24	4.47	29.76	100	252	Peak
2462	89.52	-	-	82.57	32.24	4.47	29.76	100	252	Average
4924	51.67	-22.33	74	41	33.92	6.1	29.35	110	236	Peak
4924	42.77	-11.23	54	32.1	33.92	6.1	29.35	110	236	Average
7386	51.02	-22.98	74	35.45	35.35	8.12	27.9	200	221	Peak

Test Mode :	802.11g	Temperature :	24~25℃
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2399MHz and 7236MHz are not within a restricted band, and their 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
2399	64.67	-12.66	77.33	57.89	32.14	4.42	29.78	100	59	Peak
2412	97.33	-	-	90.5	32.17	4.44	29.78	100	59	Peak
2412	87.25	-	-	80.42	32.17	4.44	29.78	100	59	Average
4824	42.21	-31.79	74	60.19	33.68	5.95	57.61	100	166	Peak
7236	45.08	-32.25	77.33	60.19	35.29	7.58	57.98	100	224	Peak

Test Mode :	802.11g	Temperature :	24~25℃
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2399MHz and 7236MHz are not within a restricted band, and their 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
2399	62.08	-16.75	78.83	55.3	32.14	4.42	29.78	102	78	Peak
2412	98.83	-	-	92	32.17	4.44	29.78	102	78	Peak
2412	88.77	-	-	81.94	32.17	4.44	29.78	102	78	Average
4824	40.28	-33.72	74	29.99	33.68	5.95	29.34	100	256	Peak
7236	52.85	-25.98	78.83	67.96	35.29	7.58	57.98	124	360	Peak

Test Mode :	802.11g	Temperature :	24~25℃
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	98.23	-	-	91.33	32.22	4.45	29.77	100	0	Peak
2437	88.9	-	-	82	32.22	4.45	29.77	100	0	Average
4874	49.51	-24.49	74	39.03	33.8	6.02	29.34	100	215	Peak
7311	50.31	-23.69	74	35.18	35.31	7.8	27.98	122	36	Peak

Test Mode :	802.11g	Temperature :	24~25℃
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	97.79	-	-	90.89	32.22	4.45	29.77	104	255	Peak
2437	88.19	-	-	81.29	32.22	4.45	29.77	104	255	Average
4874	52.12	-21.88	74	41.64	33.8	6.02	29.34	117	360	Peak
4874	43.64	-10.36	54	33.16	33.8	6.02	29.34	117	360	Average
7311	50.26	-23.74	74	35.13	35.31	7.8	27.98	100	122	Peak

Test Mode :	802.11g	Temperature :	24~25℃
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	95.49	-	-	88.54	32.24	4.47	29.76	100	352	Peak
2462	85.64	-	-	78.69	32.24	4.47	29.76	100	352	Average
4924	49.3	-24.7	74	38.63	33.92	6.1	29.35	100	169	Peak
7386	51.81	-22.19	74	36.24	35.35	8.12	27.9	100	226	Peak

Test Mode :	802.11g	Temperature :	24~25℃
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	96.47	-	-	89.52	32.24	4.47	29.76	106	241	Peak
2462	86.74	-	-	79.79	32.24	4.47	29.76	106	241	Average
4924	50.59	-23.41	74	39.92	33.92	6.1	29.35	100	128	Peak
7386	51.02	-22.98	74	35.45	35.35	8.12	27.9	200	221	Peak

Test Mode :	802.11n HT20	Temperature :	24~25℃
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2399MHz and 7236MHz are not within a restricted band, and their 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
2399	60.76	-13.73	74.49	53.98	32.14	4.42	29.78	100	141	Peak
2412	94.49	-	-	87.66	32.17	4.44	29.78	100	141	Peak
2412	83.34	-	-	76.51	32.17	4.44	29.78	100	141	Average
4824	39.02	-34.98	74	57	33.68	5.95	57.61	100	245	Peak
7236	44.97	-29.52	74.49	60.08	35.29	7.58	57.98	100	210	Peak

Test Mode :	802.11n HT20	Temperature :	24~25℃
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2399MHz and 7236MHz are not within a restricted band, and their 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
2399	66.36	-6.42	72.78	59.58	32.14	4.42	29.78	159	301	Peak
2412	92.78	-	-	85.95	32.17	4.44	29.78	159	301	Peak
2412	81	-	-	74.17	32.17	4.44	29.78	159	301	Average
4824	39.15	-34.85	74	57.13	33.68	5.95	57.61	100	321	Peak
7236	47.88	-24.9	72.78	62.99	35.29	7.58	57.98	100	231	Peak

Test Mode :	802.11n HT20	Temperature :	24~25℃
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	93.97	-	-	87.07	32.22	4.45	29.77	174	268	Peak
2437	83.29	-	-	76.39	32.22	4.45	29.77	174	268	Average
4874	39.83	-34.17	74	57.41	33.8	6.02	57.4	100	247	Peak
7311	44.85	-29.15	74	59.71	35.31	7.8	57.97	200	145	Peak

Test Mode :	802.11n HT20	Temperature :	24~25℃
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	91.59	-	-	84.69	32.22	4.45	29.77	154	223	Peak
2437	80.57	-	-	73.67	32.22	4.45	29.77	154	223	Average
4874	39.71	-34.29	74	57.29	33.8	6.02	57.4	100	110	Peak
7311	50.09	-23.91	74	64.95	35.31	7.8	57.97	100	111	Peak

Test Mode :	802.11n HT20	Temperature :	24~25℃
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	90.53	-	-	83.58	32.24	4.47	29.76	144	131	Peak
2462	80.1	-	-	73.15	32.24	4.47	29.76	144	131	Average
4924	42.24	-31.76	74	59.41	33.92	6.1	57.19	100	236	Peak
7386	40.69	-33.31	74	55.16	35.35	8.12	57.94	200	360	Peak

Test Mode :	802.11n HT20	Temperature :	24~25℃
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	88.58	-	-	81.63	32.24	4.47	29.76	105	246	Peak
2462	77.57	-	-	70.62	32.24	4.47	29.76	105	246	Average
4924	37.77	-36.23	74	27.1	33.92	6.1	29.35	100	321	Peak
7386	40.32	-33.68	74	54.79	35.35	8.12	57.94	200	321	Peak

Test Mode :	802.11n HT40	Temperature :	24~25℃
Test Channel :	03	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. 2399MHz 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
2399	60.9	-12.48	73.38	54.12	32.14	4.42	29.78	100	118	Peak
2422	93.38	-	-	86.52	32.19	4.44	29.77	100	118	Peak
2422	82.86	-	-	76	32.19	4.44	29.77	100	118	Average
4844	36.78	-37.22	74	54.62	33.72	5.98	57.54	100	200	Peak
7266	48.18	-25.82	74	63.16	35.3	7.69	57.97	100	230	Peak

Test Mode :	802.11n HT40	Temperature :	24~25℃
Test Channel :	03	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. 2399MHz 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
2399	60.63	-9.97	70.6	53.85	32.14	4.42	29.78	190	264	Peak
2422	90.6	-	-	83.74	32.19	4.44	29.77	190	264	Peak
2422	80.48	-	-	73.62	32.19	4.44	29.77	190	264	Average
4844	38.42	-35.58	74	56.26	33.72	5.98	57.54	100	365	Peak
7266	54.16	-19.84	74	39.18	35.3	7.69	28.01	110	230	Peak
7266	40.01	-13.99	54	25.03	35.3	7.69	28.01	110	230	Average

Test Mode :	802.11n HT40	Temperature :	24~25℃
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	91.1	-	-	84.2	32.22	4.45	29.77	100	360	Peak
2437	81.7	-	-	74.8	32.22	4.45	29.77	100	360	Average
4874	38.8	-35.2	74	56.38	33.8	6.02	57.4	100	360	Peak
7311	44.24	-29.76	74	59.1	35.31	7.8	57.97	100	234	Peak

Test Mode :	802.11n HT40	Temperature :	24~25℃
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	90	-	-	83.1	32.22	4.45	29.77	100	250	Peak
2437	79.4	-	-	72.5	32.22	4.45	29.77	100	250	Average
4874	38.05	-35.95	74	55.63	33.8	6.02	57.4	100	200	Peak
7311	48.23	-25.77	74	63.09	35.31	7.8	57.97	100	222	Peak

Test Mode :	802.11n HT40	Temperature :	24~25℃
Test Channel :	09	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Horizontal
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2452	89.36	-	-	82.45	32.22	4.45	29.76	100	128	Peak
2452	78.77	-	-	71.86	32.22	4.45	29.76	100	128	Average
4904	38.58	-35.42	74	55.9	33.88	6.06	57.26	100	321	Peak
7356	41.07	-32.93	74	55.68	35.33	8.01	57.95	200	321	Peak

Test Mode :	802.11n HT40	Temperature :	24~25℃
Test Channel :	09	Relative Humidity :	49~50%
Test Engineer :	Robin Luo	Polarization :	Vertical
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2452	87.67	-	-	80.76	32.22	4.45	29.76	100	264	Peak
2452	77.96	-	-	71.05	32.22	4.45	29.76	100	264	Average
4904	38.32	-35.68	74	55.64	33.88	6.06	57.26	100	258	Peak
7356	44.37	-29.63	74	58.98	35.33	8.01	57.95	100	200	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.

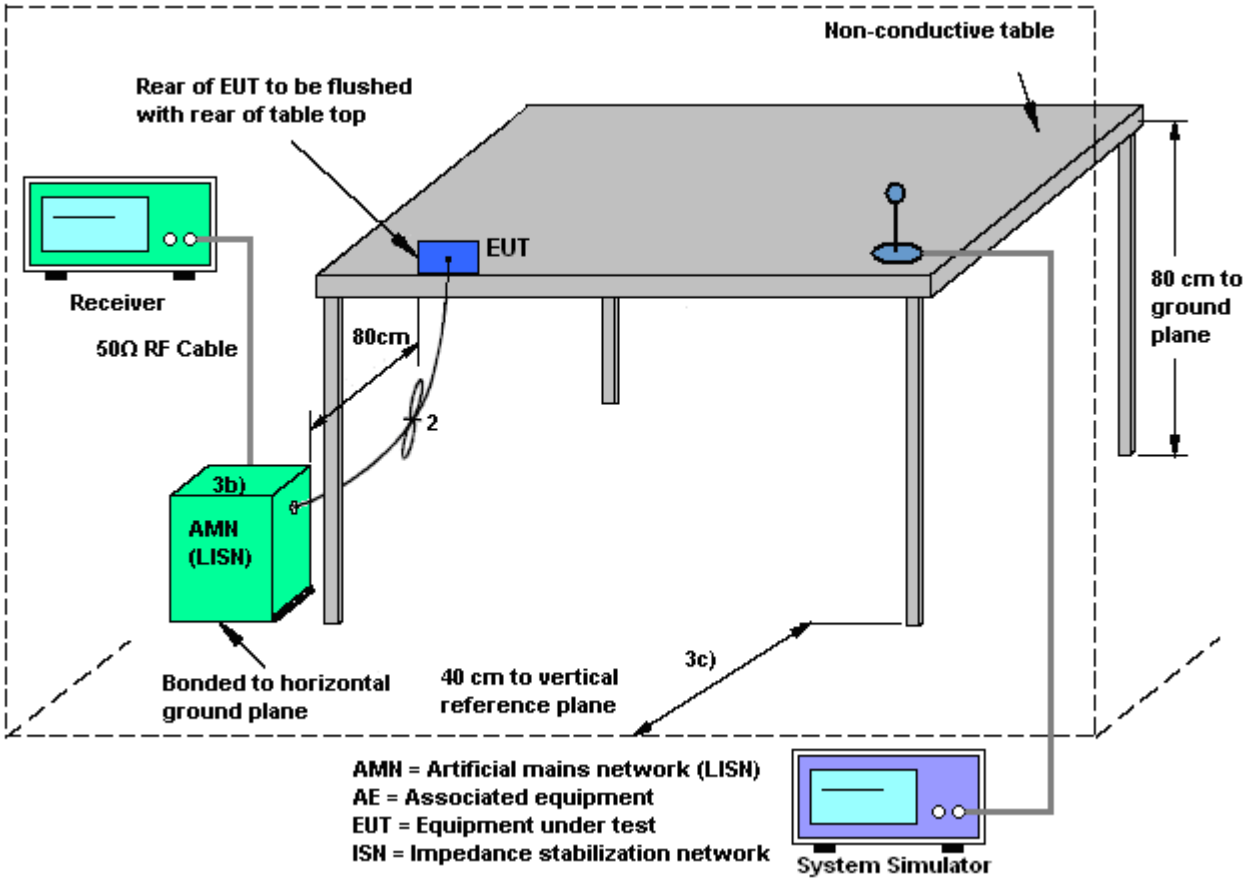
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

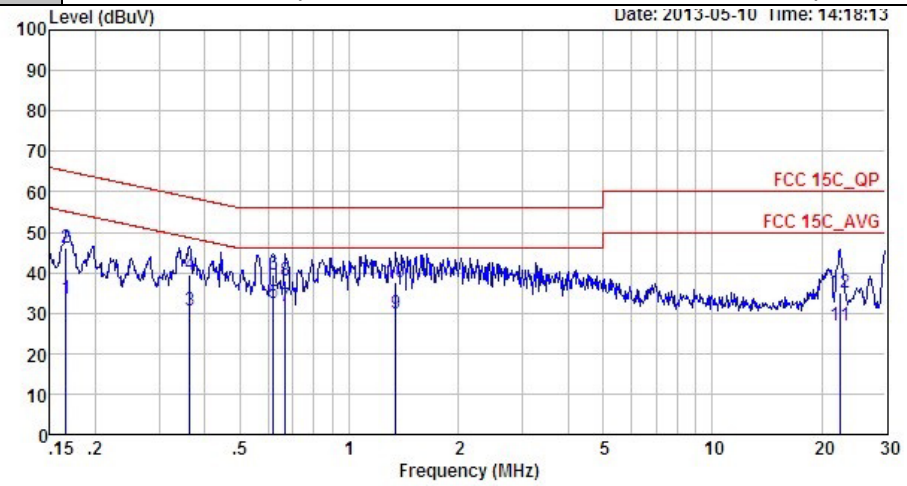
1. The testing follows the guidelines in ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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

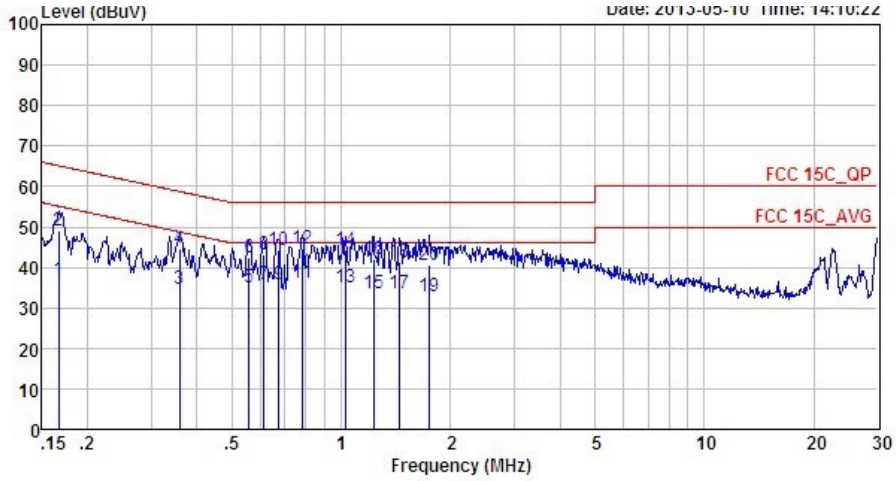
Test Mode :	Mode 1	**Temperature :**	24~25℃
Test Engineer :	Leo Liao	**Relative Humidity :**	49~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Earphone		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
Condition: FCC 15C_QP LISN_L_2000601 LINE

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.17	33.48	-21.68	55.16	23.40	0.03	10.05	Average
2		0.17	46.28	-18.88	65.16	36.20	0.03	10.05	QP
3		0.36	30.49	-18.16	48.65	20.40	0.02	10.07	Average
4		0.36	39.59	-19.06	58.65	29.50	0.02	10.07	QP
5	*	0.62	32.32	-13.68	46.00	22.20	0.02	10.10	Average
6		0.62	39.62	-16.38	56.00	29.50	0.02	10.10	QP
7		0.67	31.72	-14.28	46.00	21.60	0.02	10.10	Average
8		0.67	38.12	-17.88	56.00	28.00	0.02	10.10	QP
9		1.34	29.95	-16.05	46.00	19.80	0.03	10.12	Average
10		1.34	37.75	-18.25	56.00	27.60	0.03	10.12	QP
11		22.42	26.89	-23.11	50.00	16.00	0.43	10.46	Average
12		22.42	35.09	-24.91	60.00	24.20	0.43	10.46	QP

Test Mode :	Mode 1	Temperature :	24~25℃
Test Engineer :	Leo Liao	Relative Humidity :	49~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Earphone		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
Condition: FCC 15C QP LISN_N_2000601 NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.17	37.08	-18.04	55.12	27.01	0.02	10.05	Average
2		0.17	48.98	-16.14	65.12	38.91	0.02	10.05	QP
3		0.36	34.79	-13.95	48.74	24.70	0.02	10.07	Average
4		0.36	44.49	-14.25	58.74	34.40	0.02	10.07	QP
5		0.56	35.21	-10.79	46.00	25.10	0.02	10.09	Average
6		0.56	42.31	-13.69	56.00	32.20	0.02	10.09	QP
7		0.61	35.91	-10.09	46.00	25.79	0.02	10.10	Average
8		0.61	43.11	-12.89	56.00	32.99	0.02	10.10	QP
9		0.67	35.92	-10.08	46.00	25.80	0.02	10.10	Average
10		0.67	44.42	-11.58	56.00	34.30	0.02	10.10	QP
11	*	0.78	36.32	-9.68	46.00	26.20	0.02	10.10	Average
12		0.78	44.82	-11.18	56.00	34.70	0.02	10.10	QP
13		1.03	34.94	-11.06	46.00	24.81	0.02	10.11	Average
14		1.03	44.14	-11.86	56.00	34.01	0.02	10.11	QP
15		1.23	33.65	-12.35	46.00	23.51	0.02	10.12	Average
16		1.23	42.05	-13.95	56.00	31.91	0.02	10.12	QP
17		1.45	33.45	-12.55	46.00	23.29	0.03	10.13	Average
18		1.45	41.25	-14.75	56.00	31.09	0.03	10.13	QP
19		1.75	32.97	-13.03	46.00	22.80	0.03	10.14	Average
20		1.75	40.77	-15.23	56.00	30.60	0.03	10.14	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 used.

3.7.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP30	101400	9kHz~30GHz	Mar. 28, 2013	May 13, 2013~ May 27, 2013	Mar. 27, 2014	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	N/A	Mar. 28, 2013	May 13, 2013~ May 27, 2013	Mar. 27, 2014	Conducted (TH01-SZ)
Power Sensor	Anritsu	MA2411B	1207253	N/A	Mar. 28, 2013	May 13, 2013~ May 27, 2013	Mar. 27, 2014	Conducted (TH01-SZ)
DC Power Supply	TOPWORD	3303DR	N/A714621	N/A	Mar. 28, 2013	May 13, 2013~ May 27, 2013	Mar. 27, 2014	Conducted (TH01-SZ)
Thermal Chamber	Hongzhan	LP-150U	HD20120425	N/A	Mar. 28, 2013	May 13, 2013~ May 27, 2013	Mar. 27, 2014	Conducted (TH01-SZ)
ESCI TEST Receiver	R&S	ESCI	100724	9K-3GHz	Mar. 28, 2013	May 23, 2013	Mar. 27, 2014	Radiation (03CH01-SZ)
Spectrum Analyzer	R&S	FSP30	101362	9kHz~30GHz	Oct. 11, 2012	May 23, 2013	Oct. 10, 2013	Radiation (03CH01-SZ)
Double Ridge Horn Amtenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 12, 2012	May 23, 2013	Oct. 11, 2013	Radiation (03CH01-SZ)
Bilog Antenna	SCHAFFNER	CBL6112B	2614	30Mhz~2Ghz	Nov. 03, 2012	May 23, 2013	Nov. 02, 2013	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9K-3000MHz GAIN 30db	Mar. 28, 2013	May 23, 2013	Mar. 27, 2014	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	Mar. 28, 2013	May 23, 2013	Mar. 27, 2014	Radiation (03CH01-SZ)
SHF-EHF-Horn	Schwarzbeck	BBHA9170	BBHA9170249	14Ghz~40Ghz	Nov. 23, 2012	May 23, 2013	Nov. 22, 2013	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100321	9KHZ-30MHZ	Oct. 22, 2012	May 23, 2013	Oct. 21, 2013	Radiation (03CH01-SZ)
ESCI TEST Receiver	R&S	ESCI	100724	9K-3GHz	Mar. 28, 2013	May 23, 2013	Mar. 27, 2014	Radiation (03CH01-SZ)
ESCIO TEST Receiver	R&S	1142.8007.03	100724	9K-3GHz	Mar. 28, 2013	May 10, 2013	Mar. 27, 2014	Conduction (CO01-SZ)
AC LISN	ETS-LINDGREN	3816/2SH	00103912	9KHz~30MHz	Mar. 28, 2013	May 10, 2013	Mar. 27, 2014	Conduction (CO01-SZ)
AC LISN	ETS-LINDGREN	3816/2SH	00103892	9KHz~30MHz	Mar. 28, 2013	May 10, 2013	Mar. 27, 2014	Conduction (CO01-SZ)
AC Source	Chroma	61602	616020000891	N/A	Nov.20, 2012	May 10, 2013	Nov. 19, 2013	Conduction (CO01-SZ)
System Simulator	Agilent	E5515C	MY50264168	GSM/WCDMA /CDMA2000	Oct. 09, 2012	May 10, 2013	Oct. 08, 2013	Conduction (CO01-SZ)

5 Uncertainty of Evaluation

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.54

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.72

Appendix A. Photographs of EUT

Please refer to Sporton report number EP350312 as below.