FCC RF Test Report

APPLICANT	:	HTC Corporation
EQUIPMENT	:	Smartphone
MODEL NAME	:	PL80100
FCC ID	:	NM8PL80100
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Sep. 24, 2012 and completely tested on Nov. 09, 2012. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai / Manager

Testing Laboratory 1190

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

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR281611-02C	Rev. 01	Initial issue of report	Nov. 14, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	A8.5	Conducted Band Edges	≤ 20dBc	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	A8.5	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	-
			Radiated Spurious Emission		Pass	Under limit 1.68 dB at 2390.000 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 4.60 dB at 13.558 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

HTC Corporation
No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan

1.2 Manufacturer

HTC Corporation
No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Smartphone
Model Name	PL80100
FCC ID	NM8PL80100
Sample 1	EUT with LCD Panel 1, Main Camera 1, and Front Camera 1
Sample 2	EUT with LCD Panel 2, Main Camera 2, and Front Camera 2
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA WLAN 11abgn / Bluetooth / NFC
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.

Product Specification subjective to this standard	
Tx/Rx Channel 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 : 20.93 dBm (0.1239 W) 802.11g : 22.42 dBm (0.1746 W) 802.11n HT20 : 22.15 dBm (0.1641 W) 802.11n HT40 : 22.29 dBm (0.1694 W)
Antenna Type	PIFA Antenna type with gain -0.20 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.			
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
Test Site No.	Sporton Site No.			FCC/IC Registration No.
	TH02-HY	CO05-HY	03CH06-HY	722060/4086B-1

1.5 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
- ANSI C63.4-2003 and ANSI C63.10-2009
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 3

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.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
4.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

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 (X 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. Final Output Power equals to Measured Output Power adds the duty factor.

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	20.93	20.92	20.9	20.91

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	22.42	22.4	22.03	21.88	22.12	22.15	22.06	22.02

2.4GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	22.15	21.93	22.04	22.06	22.1	22.06	22.13	22.07

2.4GHz 802.11n HT40 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	22.29	21.98	21.61	21.99	21.64	21.57	21.33	21.42

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 and 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

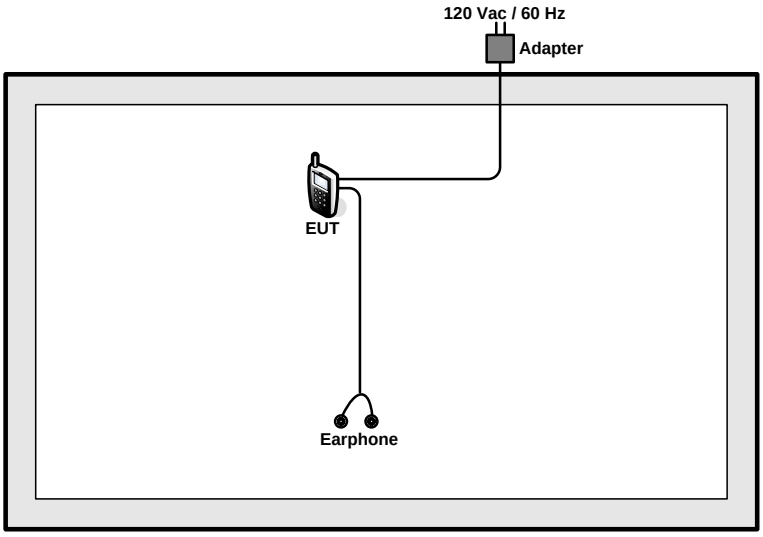
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN (2.4G) Link + Earphone 1 + Battery 1 + USB Cable 1 (Charging from Adapter 1) + NFC On for Sample 1 Mode 2 GSM850 Idle + Bluetooth Link + WLAN (2.4G) Link + Earphone 1 + Battery 1 + USB Cable 1 (Charging from Adapter 1) + NFC On for Sample 2

Remark:

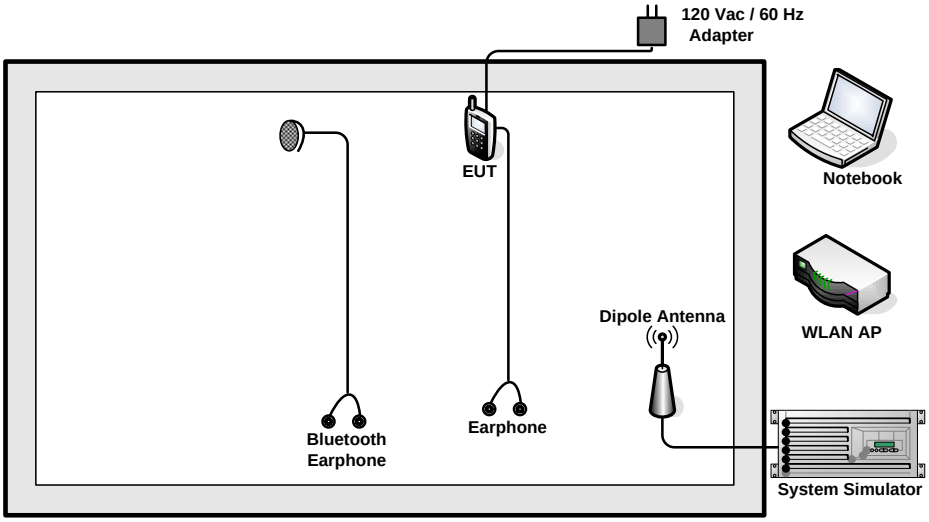
1. The worst case of conducted emission is mode 1; only the test data of it was reported.
2. For Radiated TCs, the test was performed with Earphone, Battery 2, USB Cable 2, and Adapter 2.

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

For WLAN function, programmed RF utility, “Remote 432X controller (P2.01).exe” installed in the notebook make the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.

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 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) = 1-5% of the emission bandwidth (EBW).Set the Video bandwidth (VBW) ≥ 3 * RBW. 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.

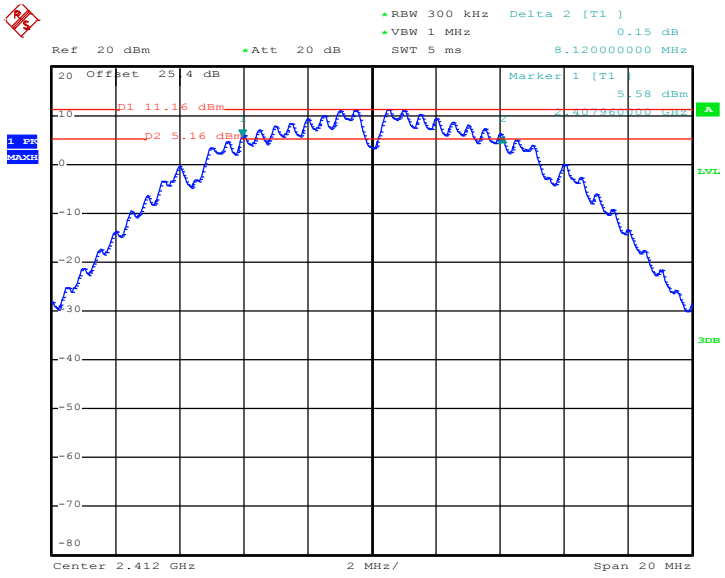
3.1.4 Test Setup

3.1.5 Test Result of 6dB Bandwidth

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

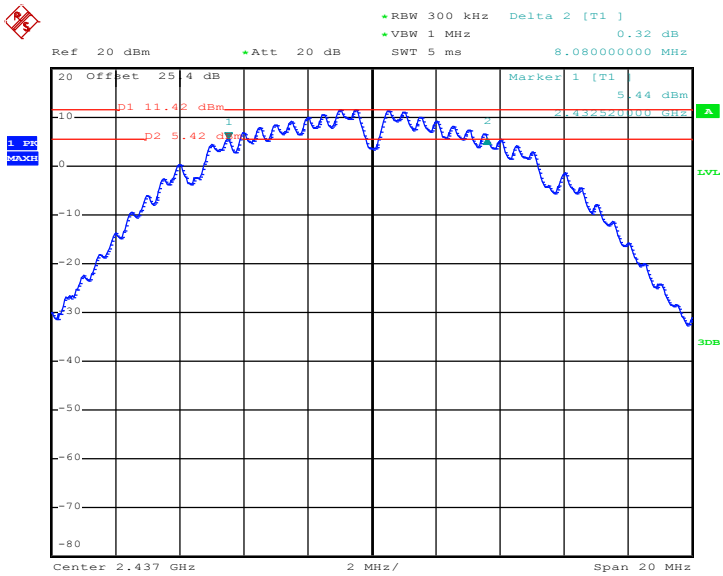
Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	8.12	0.5	Pass
06	2437	8.08	0.5	Pass
11	2462	8.08	0.5	Pass

6 dB Bandwidth Plot on 802.11b Channel 01



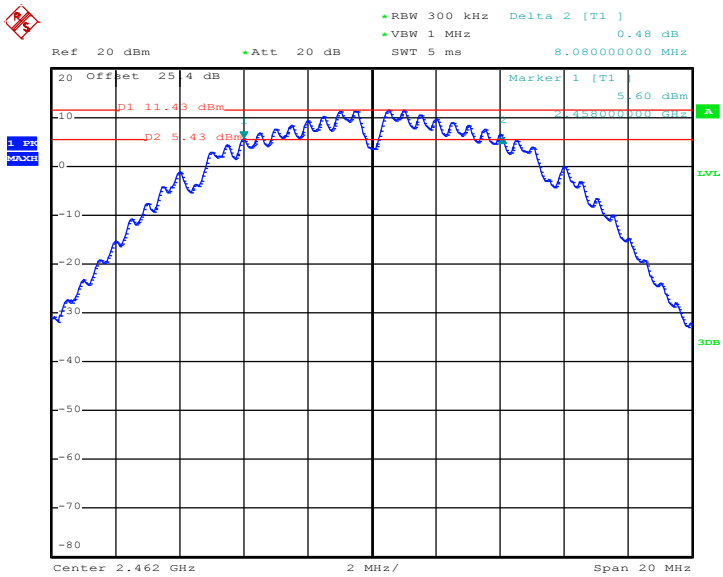
Date: 4.OCT.2012 01:10:31

6 dB Bandwidth Plot on 802.11b Channel 06



Date: 4.OCT.2012 01:15:36

6 dB Bandwidth Plot on 802.11b Channel 11

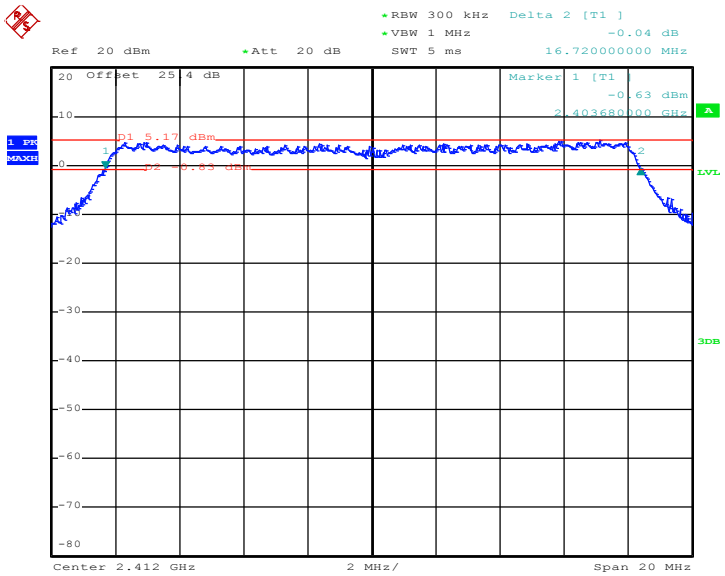


Date: 4.OCT.2012 01:17:40

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

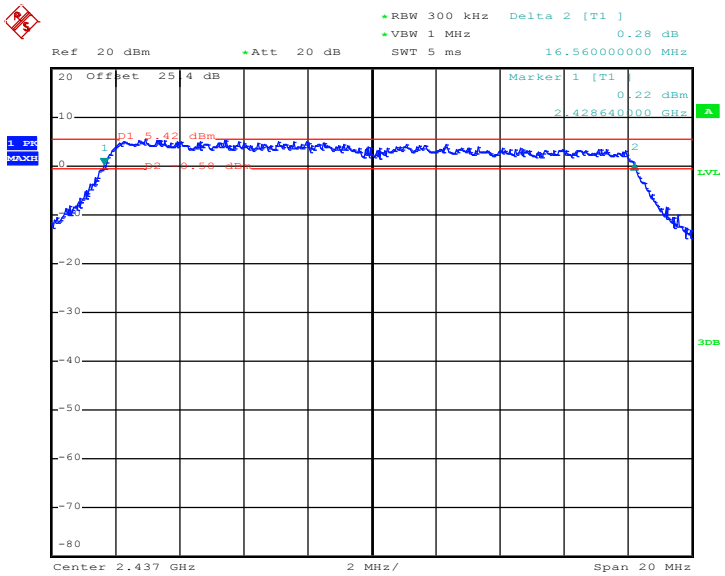
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.72	0.5	Pass
06	2437	16.56	0.5	Pass
11	2462	16.60	0.5	Pass

6 dB Bandwidth Plot on 802.11g Channel 01



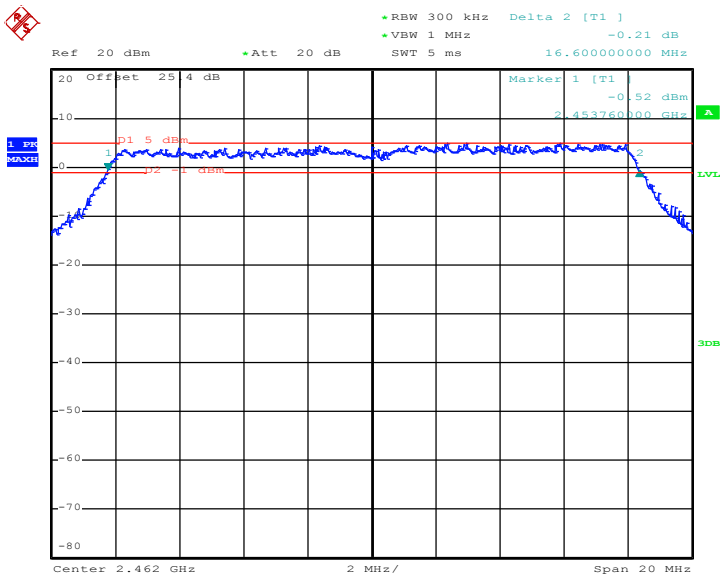
Date: 4.OCT.2012 01:28:44

6 dB Bandwidth Plot on 802.11g Channel 06



Date: 4.OCT.2012 01:25:23

6 dB Bandwidth Plot on 802.11g Channel 11

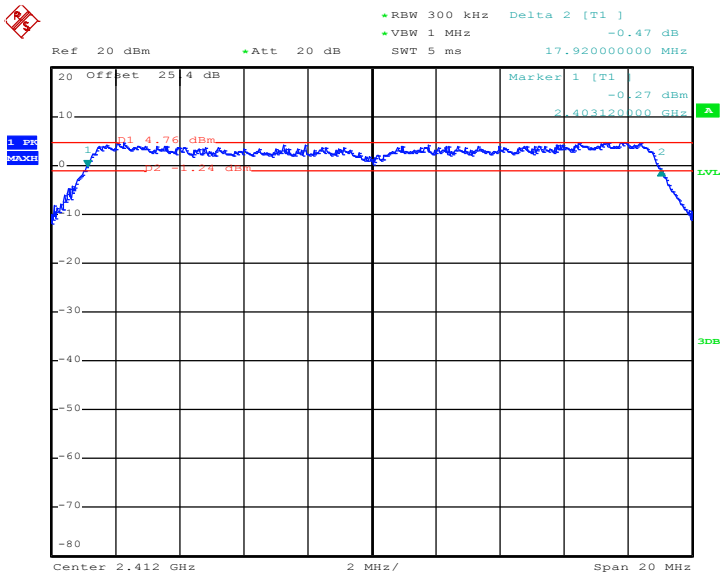


Date: 4.OCT.2012 01:22:32

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

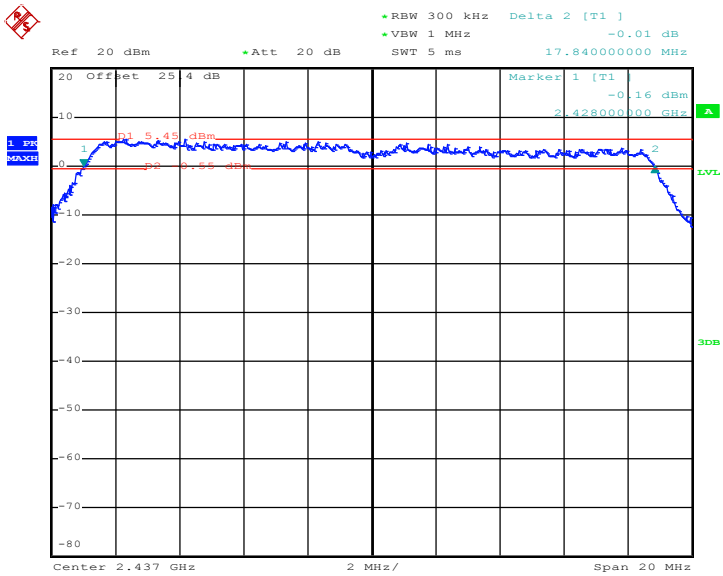
Channel	Frequency (MHz)	2.4GHz 802.11n HT20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.92	0.5	Pass
06	2437	17.84	0.5	Pass
11	2462	17.84	0.5	Pass

6 dB Bandwidth Plot on 2.4GHz 802.11n HT20 Channel 01



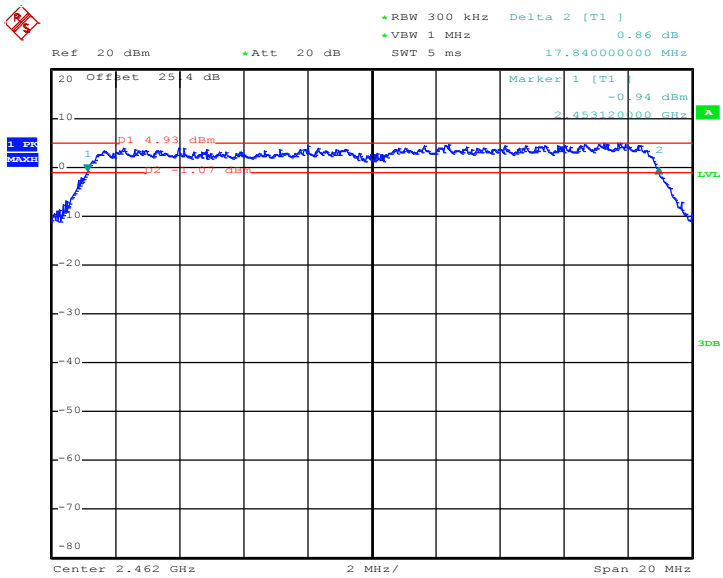
Date: 4.OCT.2012 01:32:01

6 dB Bandwidth Plot on 2.4GHz 802.11n HT20 Channel 06



Date: 4.OCT.2012 01:35:56

6 dB Bandwidth Plot on 2.4GHz 802.11n HT20 Channel 11

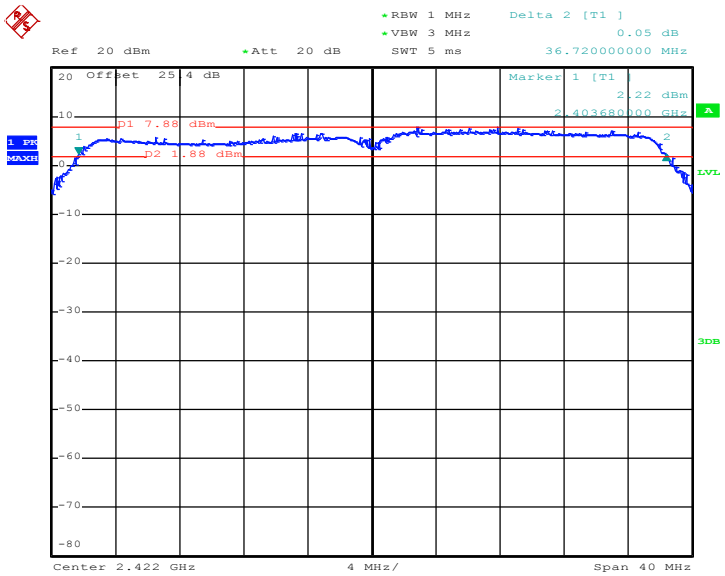


Date: 4.OCT.2012 01:40:09

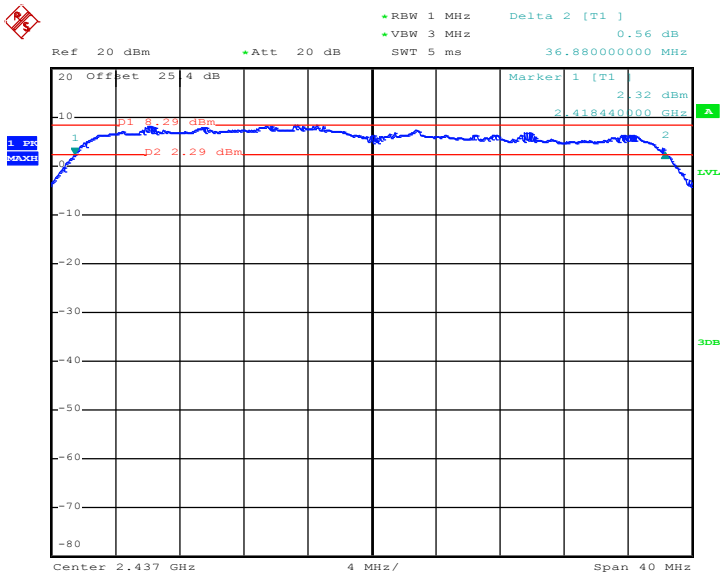
Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT40 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	36.72	0.5	Pass
06	2437	36.88	0.5	Pass
09	2452	37.36	0.5	Pass

6 dB Bandwidth Plot on 2.4GHz 802.11n HT40 Channel 03

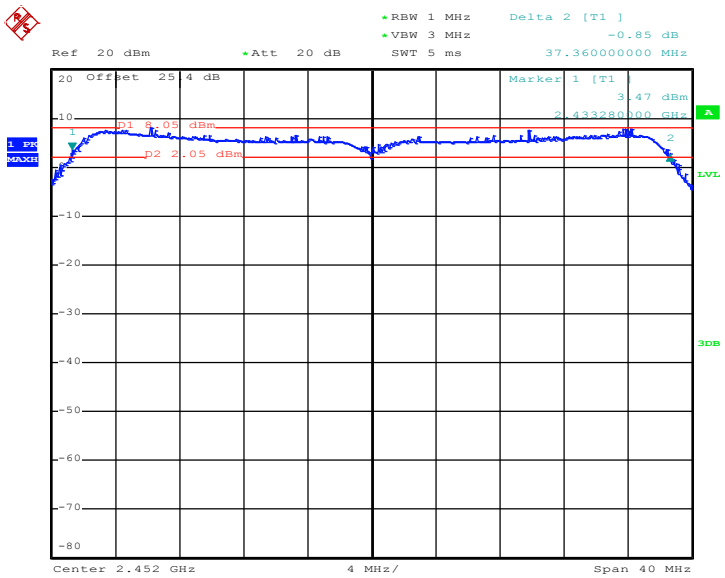


6 dB Bandwidth Plot on 2.4GHz 802.11n HT40 Channel 06



Date: 4.OCT.2012 01:57:43

6 dB Bandwidth Plot on 2.4GHz 802.11n HT40 Channel 09



Date: 4.OCT.2012 01:46:07

3.2 Output Power Measurement

3.2.1 Limit of 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 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.

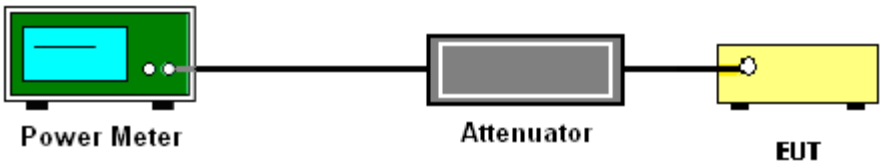
3.2.2 Measuring Instruments

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 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.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

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

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.64	30	Pass
06	2437	20.75	30	Pass
11	2462	20.93	30	Pass

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

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.22	30	Pass
06	2437	22.42	30	Pass
11	2462	22.16	30	Pass

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

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.88	30	Pass
06	2437	22.15	30	Pass
11	2462	21.99	30	Pass

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

Channel	Frequency (MHz)	2.4GHz 802.11n HT40 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
03	2422	20.38	30	Pass
06	2437	22.29	30	Pass
09	2452	21.87	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%
Duty Cycle:	99.17%	Duty Factor:	0.04dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	17.98
06	2437	18.02
11	2462	18.13

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%
Duty Cycle:	94.95%	Duty Factor:	0.23dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	12.19
06	2437	12.28
11	2462	12.04

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%
Duty Cycle:	94.58%	Duty Factor:	0.24dB

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Average Output Power (dBm)
01	2412	12.23
06	2437	12.26
11	2462	12.16

Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%
Duty Cycle:	86.98%	Duty Factor:	0.61dB

Channel	Frequency (MHz)	2.4GHz 802.11n HT40 Average Output Power (dBm)
03	2422	9.86
06	2437	12.09
09	2452	11.83

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.

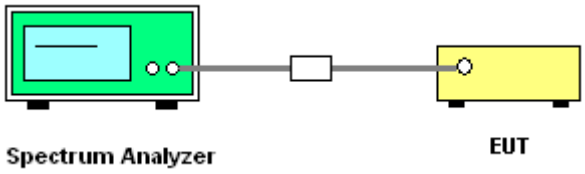
3.3.2 Measuring Instruments

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) = 100 kHz. Video bandwidth VBW = 300 kHz. Set the span to 1.5 times DTS Channel Bandwidth.
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. If result of step 4. is fail to comply with PSD limit (dBm/3kHz)., repeat 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). Compare the result with the PSD limit line.
7. 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 :	Bill Kuo	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	10.42	-4.25	8	Pass
06	2437	10.80	-4.69	8	Pass
11	2462	10.88	-4.89	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. *Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Video bandwidth VBW =300 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)*
4. *When above step result is Pass limit, 8dBm/100KHz, and then the PSD is not required to re-test by RBW=3KHz. Otherwise, the PSD shall be re-measured by RBW=3KHz, and compare to the limit line.*

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Bill Kuo	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	1.64	-	8	Pass
06	2437	1.64	-	8	Pass
11	2462	1.44	-	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. *Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Video bandwidth VBW =300 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)*
4. *When above step result is Pass limit, 8dBm/100KHz, and then the PSD is not required to re-test by RBW=3KHz. Otherwise, the PSD shall be re-measured by RBW=3KHz, and compare to the limit line.*

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

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.64	-	8	Pass
06	2437	1.91	-	8	Pass
11	2462	1.44	-	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. *Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Video bandwidth VBW =300 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)*
4. *When above step result is Pass limit, 8dBm/100KHz, and then the PSD is not required to re-test by RBW=3KHz. Otherwise, the PSD shall be re-measured by RBW=3KHz, and compare to the limit line.*

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

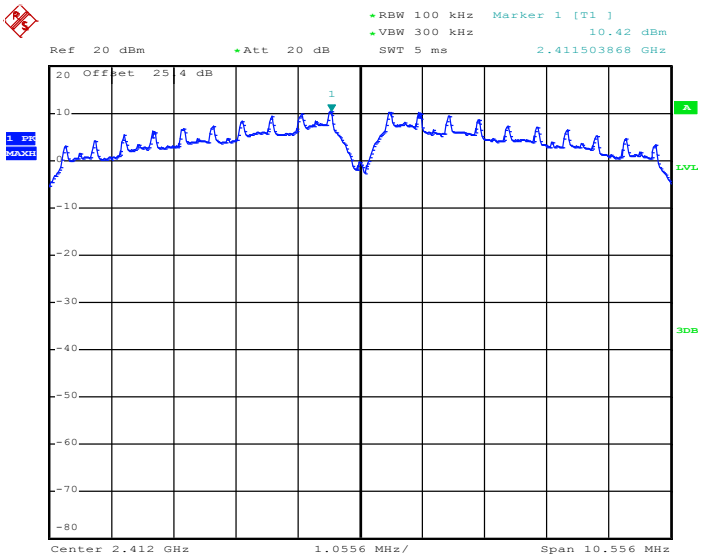
Channel	Frequency (MHz)	2.4GHz 802.11n HT40 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
03	2422	-1.99	-	8	Pass
06	2437	-1.52	-	8	Pass
09	2452	-1.40	-	8	Pass

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. *Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Video bandwidth VBW =300 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)*
4. *When above step result is Pass limit, 8dBm/100KHz, and then the PSD is not required to re-test by RBW=3KHz. Otherwise, the PSD shall be re-measured by RBW=3KHz, and compare to the limit line.*

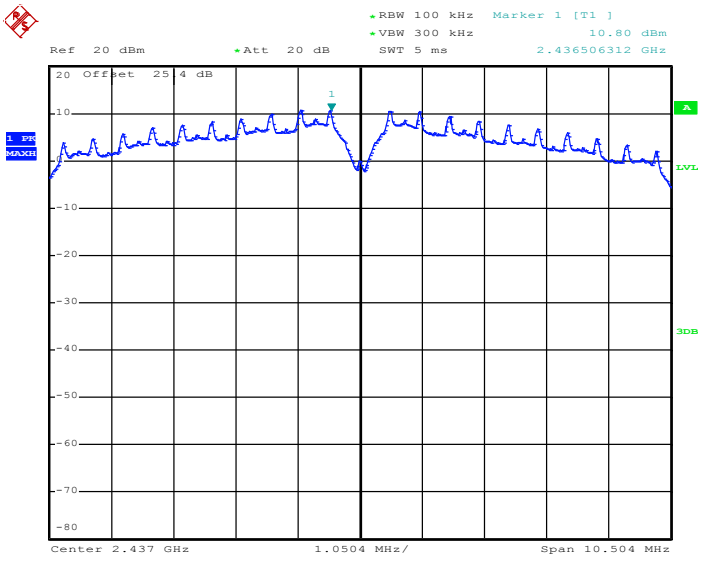
3.3.6 Test Result of Power Spectral Density Plots (100kHz)

PSD 100kHz Plot on 802.11b Channel 01



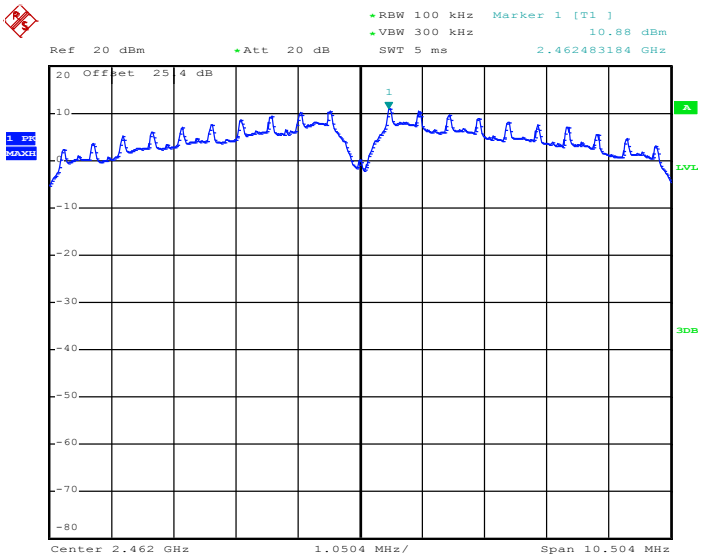
Date: 4.OCT.2012 01:10:50

PSD 100kHz Plot on 802.11b Channel 06



Date: 4.OCT.2012 01:15:55

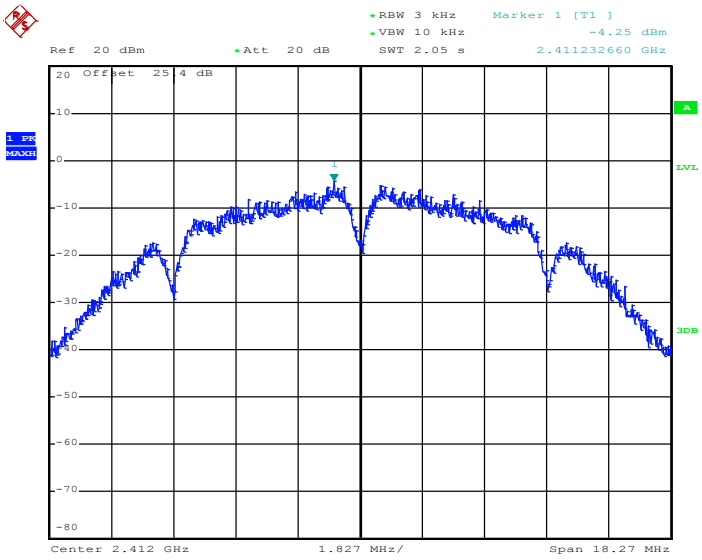
PSD 100kHz Plot on 802.11b Channel 11



Date: 4.OCT.2012 01:17:58

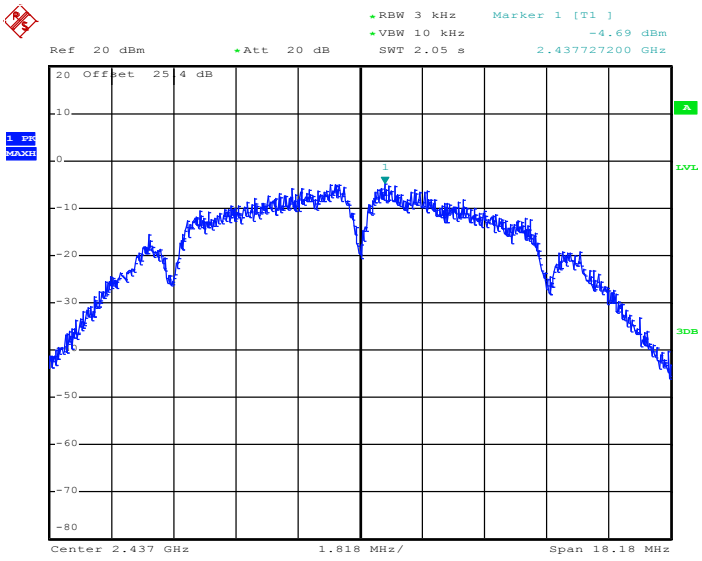
3.3.7 Test Result of Power Spectral Density Plots (3kHz)

PSD 3kHz Plot on 802.11b Channel 01



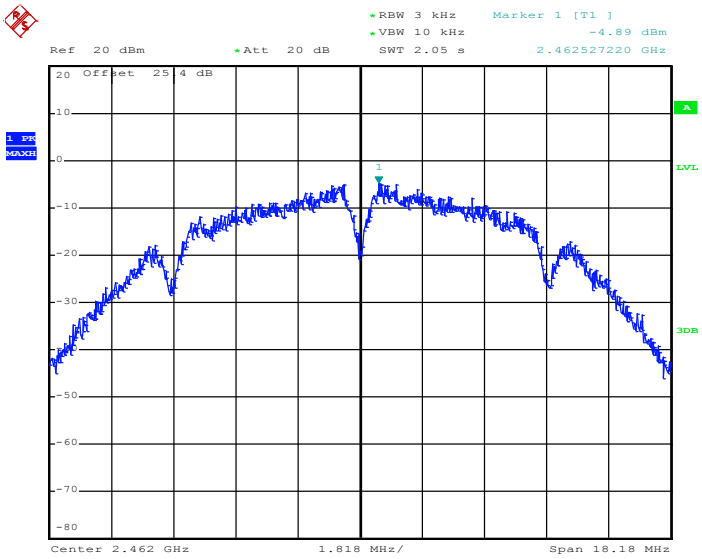
Date: 25.SEP.2012 14:42:56

PSD 3kHz Plot on 802.11b Channel 06



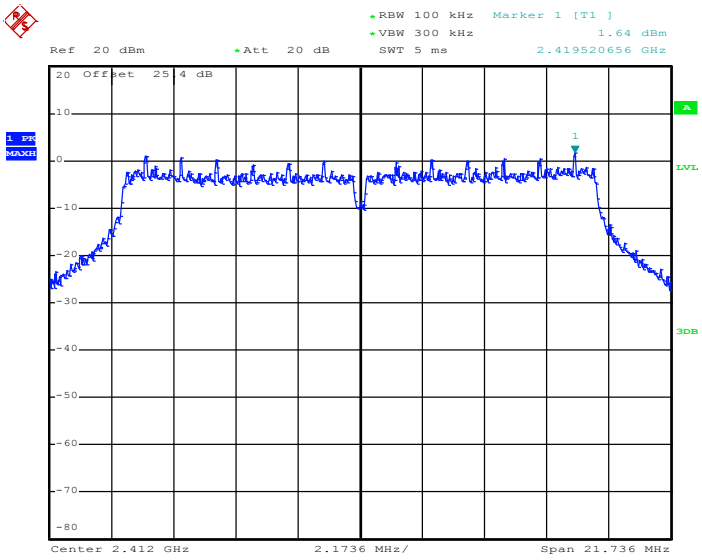
Date: 25.SEP.2012 14:44:16

PSD 3kHz Plot on 802.11b Channel 11



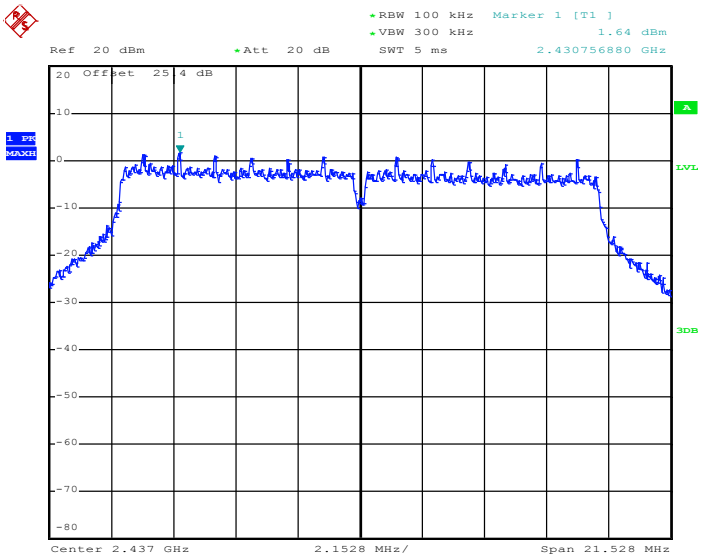
Date: 25.SEP.2012 14:45:00

PSD 100kHz Plot on 802.11g Channel 01



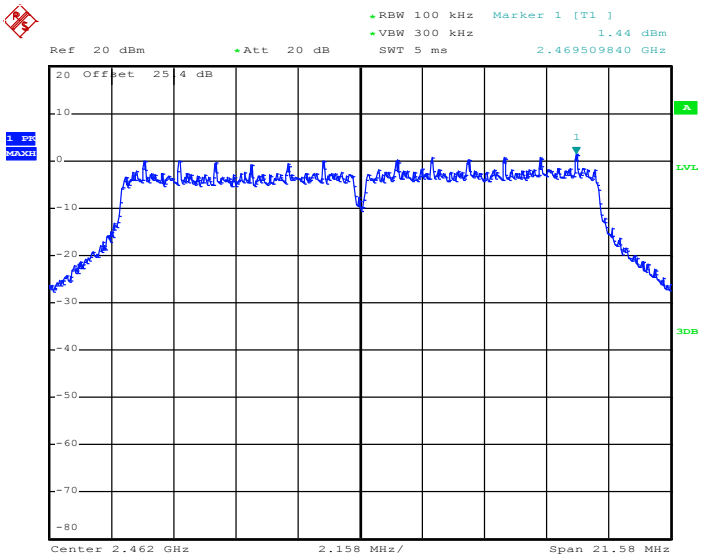
Date: 4.OCT.2012 01:29:04

PSD 100kHz Plot 802.11g Channel 06



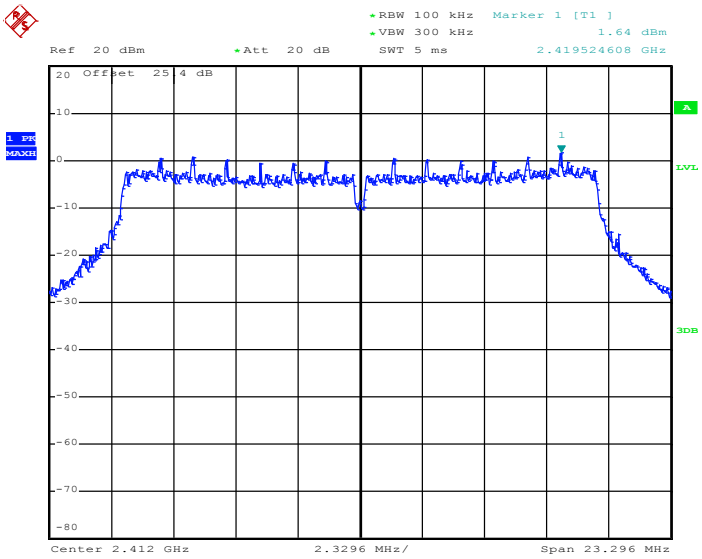
Date: 4.OCT.2012 01:25:41

PSD 100kHz Plot 802.11g Channel 11



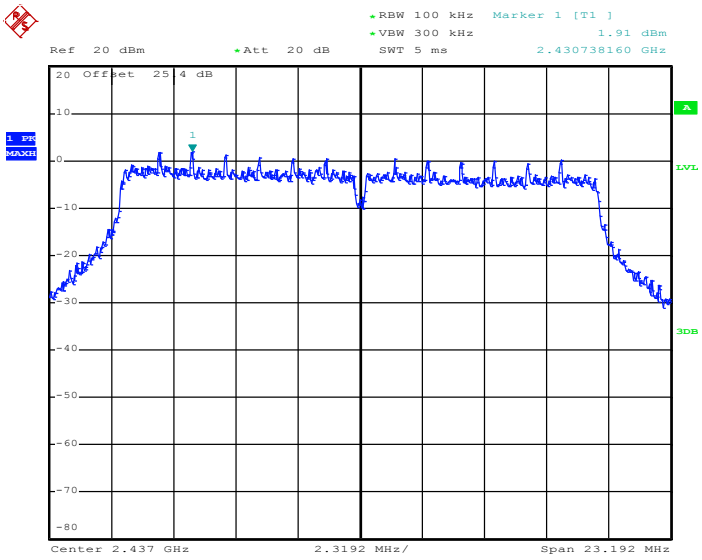
Date: 4.OCT.2012 01:22:50

PSD 100kHz Plot on 2.4GHz 802.11n HT20 Channel 01



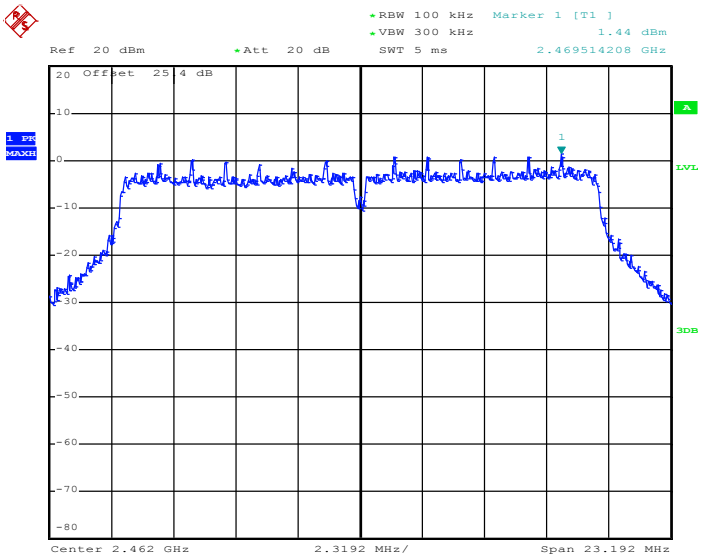
Date: 4.OCT.2012 01:32:24

PSD 100kHz Plot on 2.4GHz 802.11n HT20 Channel 06



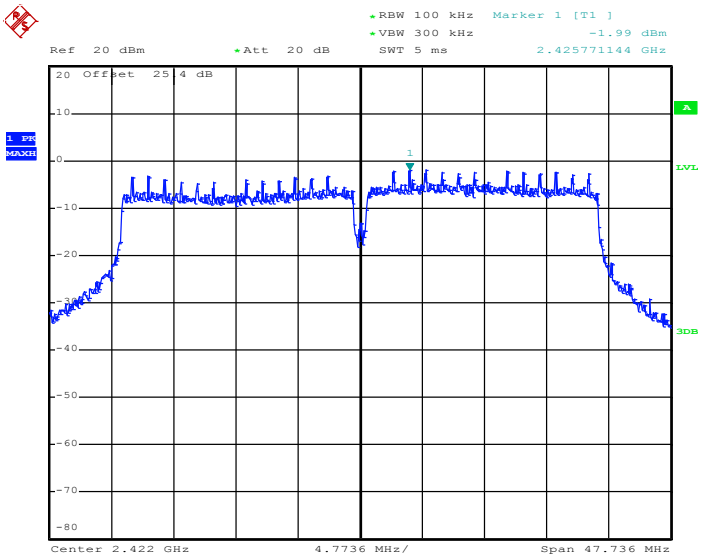
Date: 4.OCT.2012 01:36:15

PSD 100kHz Plot on 2.4GHz 802.11n HT20 Channel 11



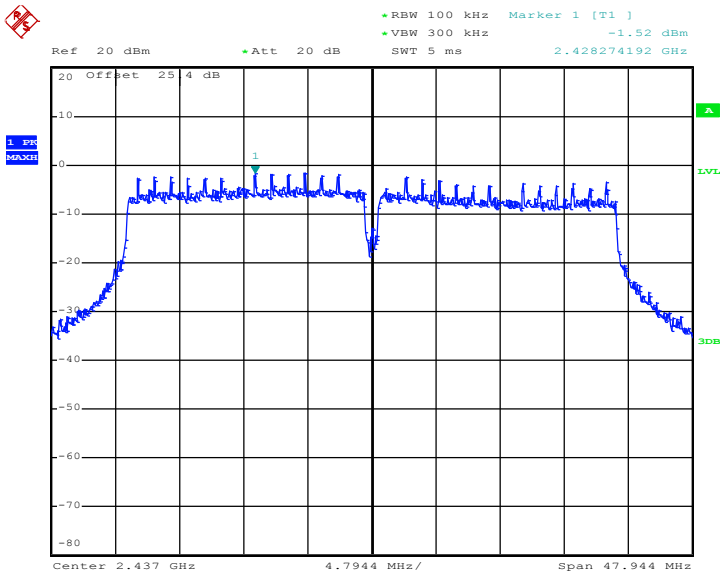
Date: 4.OCT.2012 01:40:44

PSD 100kHz Plot on 2.4GHz 802.11n HT40 Channel 03



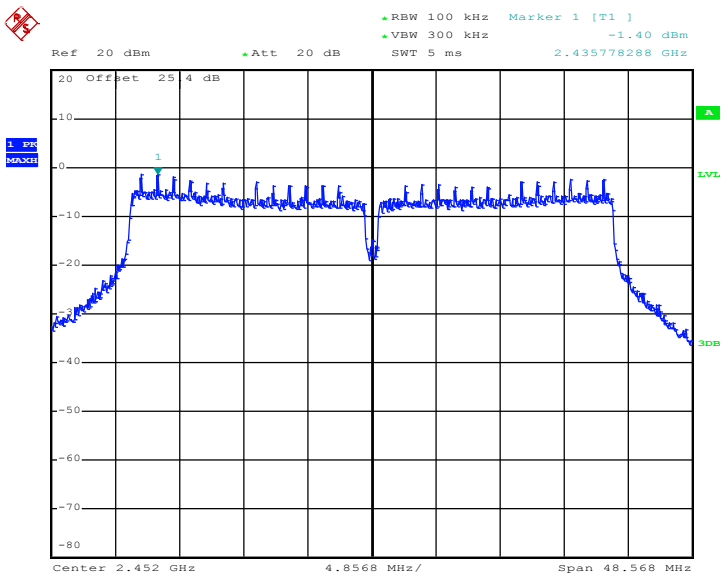
Date: 4.OCT.2012 02:03:22

PSD 100kHz Plot on 2.4GHz 802.11n HT40 Channel 06



Date: 4.OCT.2012 01:58:04

PSD 100kHz Plot on 2.4GHz 802.11n HT40 Channel 09



Date: 4.OCT.2012 01:46:26

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).

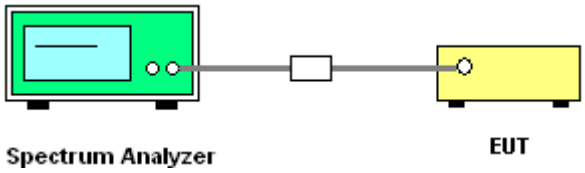
3.4.2 Measuring Instruments

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 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. 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.

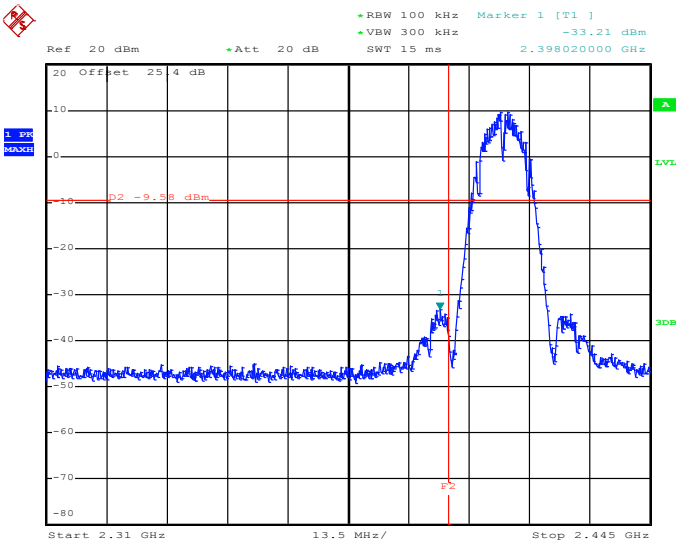
3.4.4 Test Setup



3.4.5 Test Result of Conducted Spurious at Band Edges

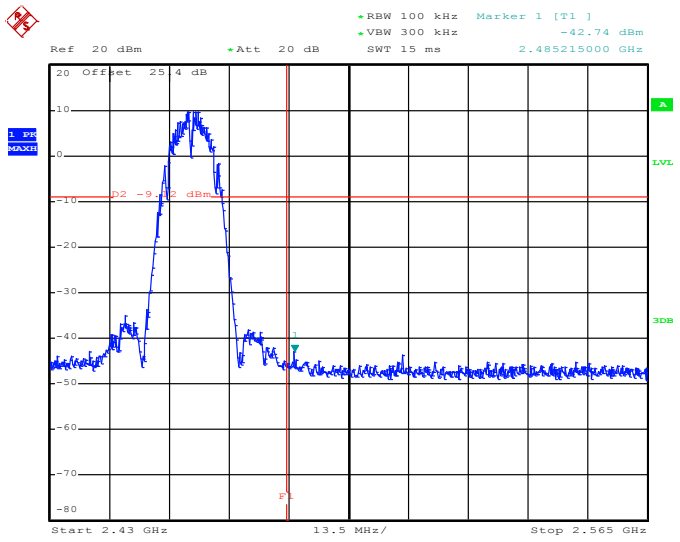
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	Low and High	**Relative Humidity :**	50~53%
Test Channel :	01 and 11	**Test Engineer :**	Bill Kuo

Low Band Edge Plot on 802.11b Channel 01



Date: 4.OCT.2012 01:11:14

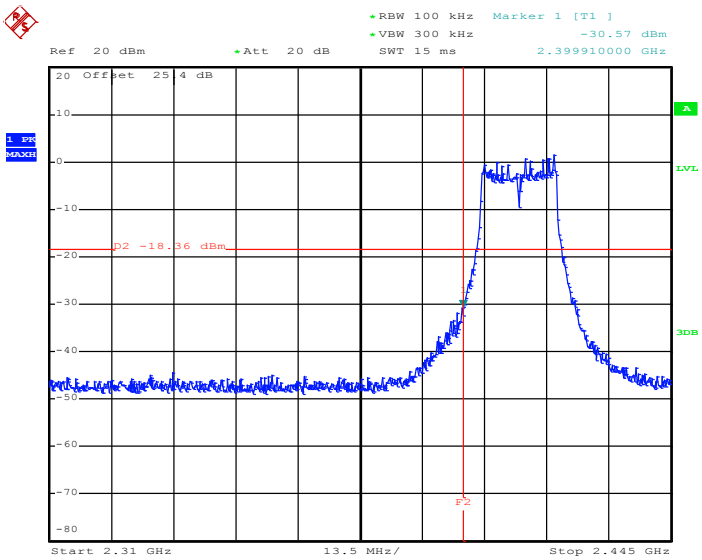
High Band Edge Plot on 802.11b Channel 11



Date: 4.OCT.2012 01:18:12

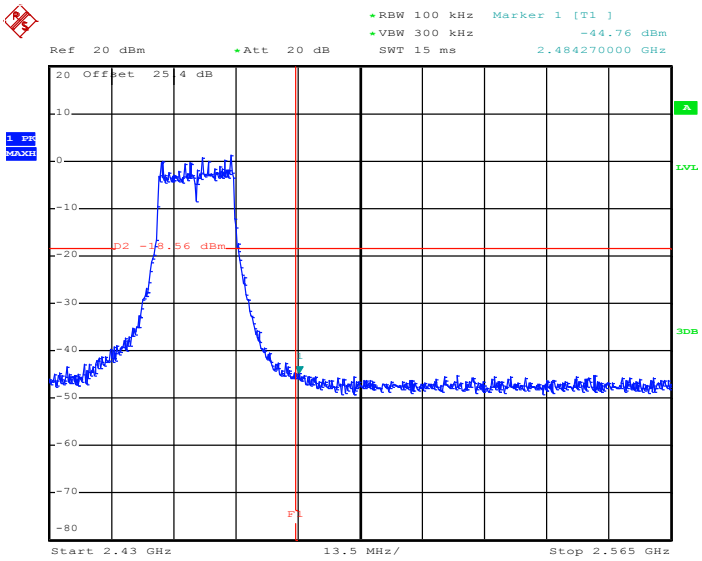
Test Mode :	802.11g	**Temperature :**	24~26℃
Test Band :	Low and High	**Relative Humidity :**	50~53%
Test Channel :	01 and 11	**Test Engineer :**	Bill Kuo

Low Band Edge Plot on 802.11g Channel 01



Date: 4.OCT.2012 01:29:35

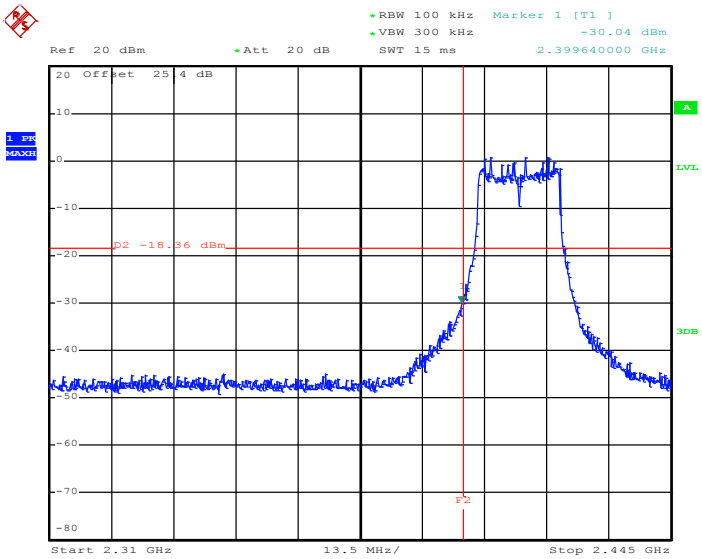
High Band Edge Plot on 802.11g Channel 11



Date: 4.OCT.2012 01:23:04

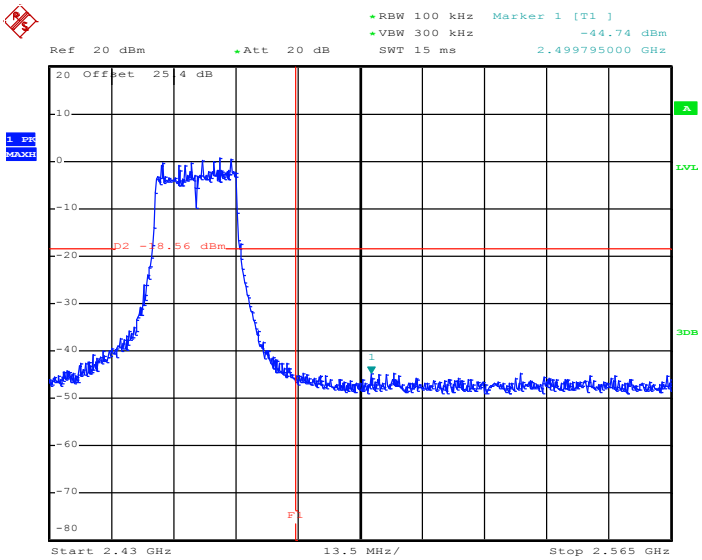
Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

Low Band Edge Plot on 2.4GHz 802.11n HT20 Channel 01



Date: 4.OCT.2012 01:32:38

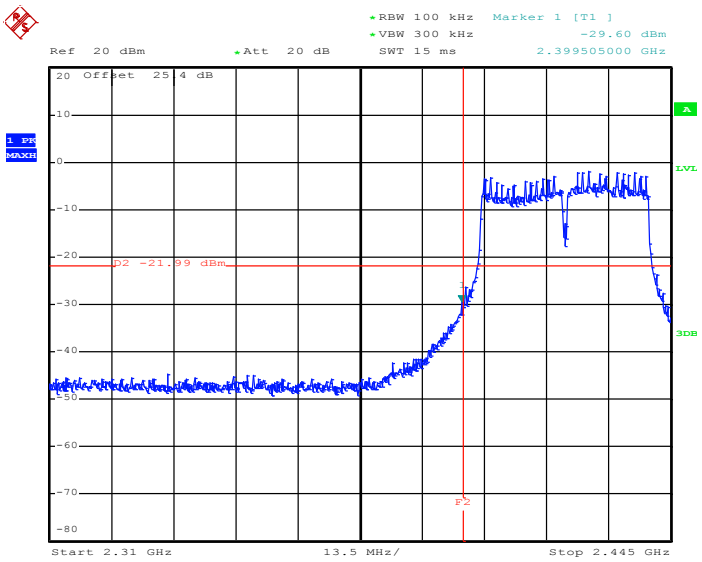
High Band Edge Plot on 2.4GHz 802.11n HT20 Channel 11



Date: 4.OCT.2012 01:41:00

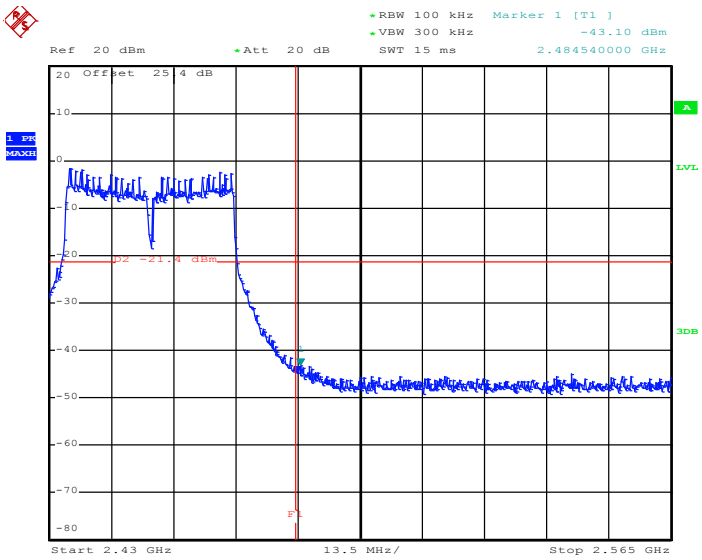
Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	03 and 09	Test Engineer :	Bill Kuo

Low Band Edge Plot on 2.4GHz 802.11n HT40 Channel 03



Date: 4.OCT.2012 02:03:38

High Band Edge Plot on 2.4GHz 802.11n HT40 Channel 09



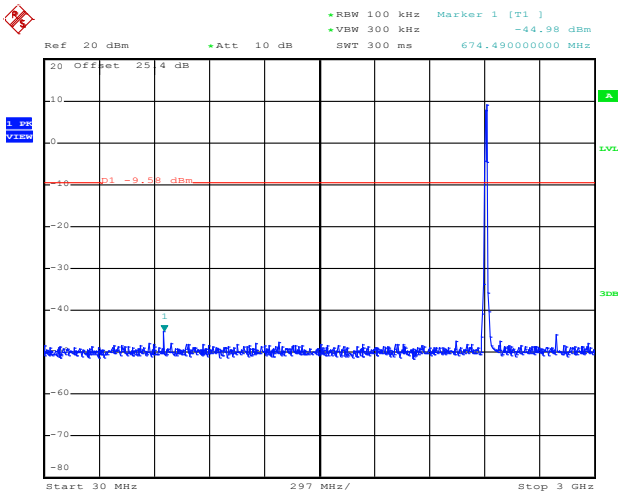
Date: 4.OCT.2012 01:46:50

3.4.6 Test Result of Conducted 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 :	Bill Kuo

802.11b 30 MHz~3 GHz

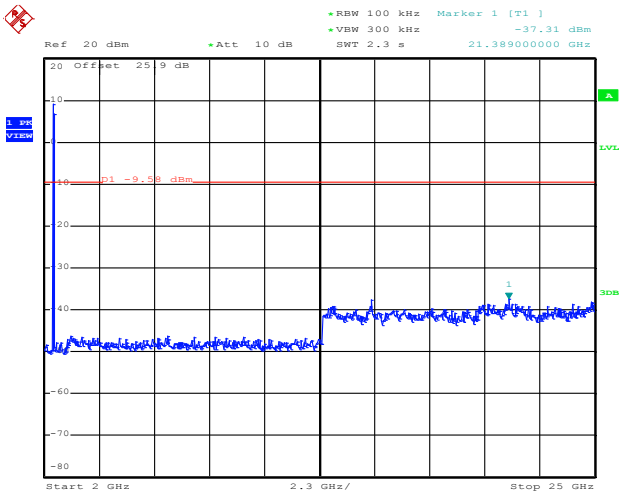
Conducted Spurious Emission Plot on Channel 01



Date: 4.OCT.2012 01:11:42

802.11b 2 GHz~25 GHz

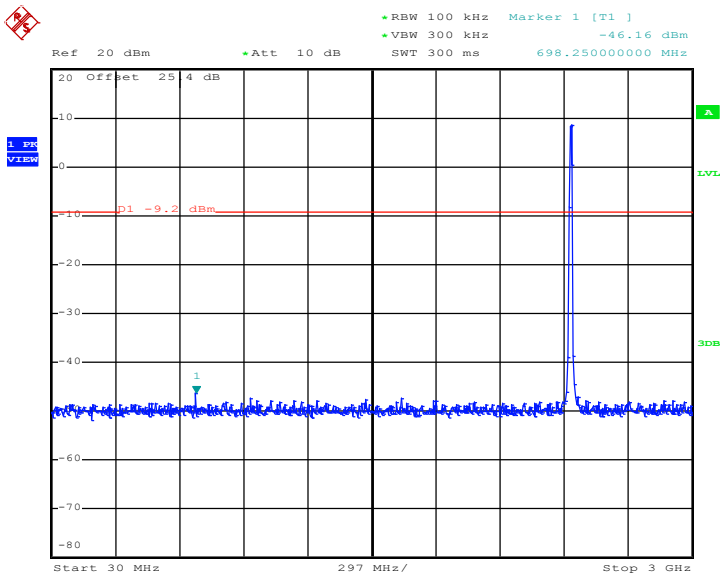
Conducted Spurious Emission Plot on Channel 01



Date: 4.OCT.2012 01:11:59

802.11b 30 MHz~3 GHz

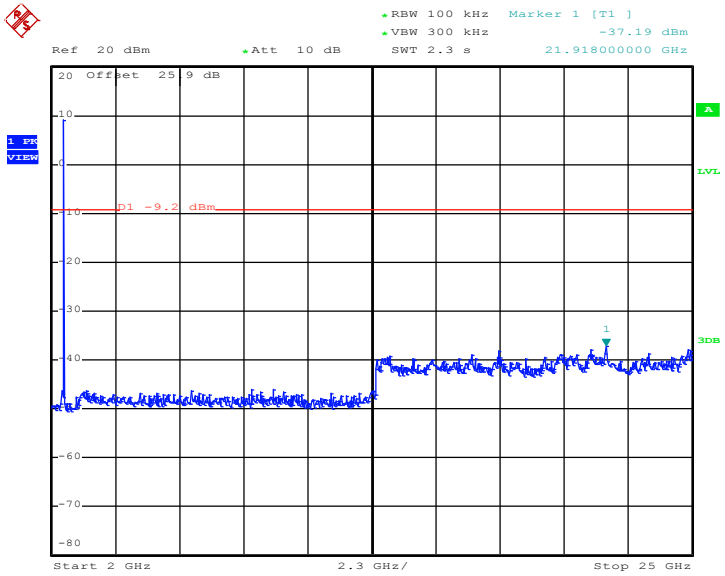
Conducted Spurious Emission Plot on Channel 06



Date: 4.OCT.2012 01:16:15

802.11b 2 GHz~25 GHz

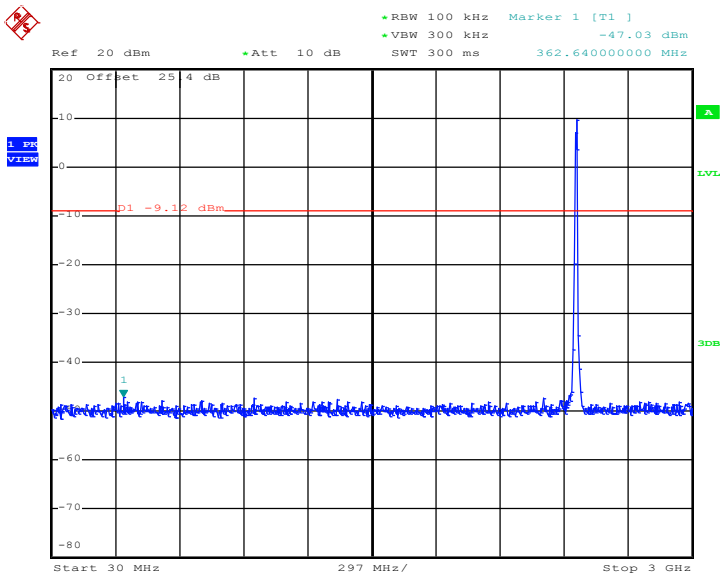
Conducted Spurious Emission Plot on Channel 06



Date: 4.OCT.2012 01:16:32

802.11b 30 MHz~3 GHz

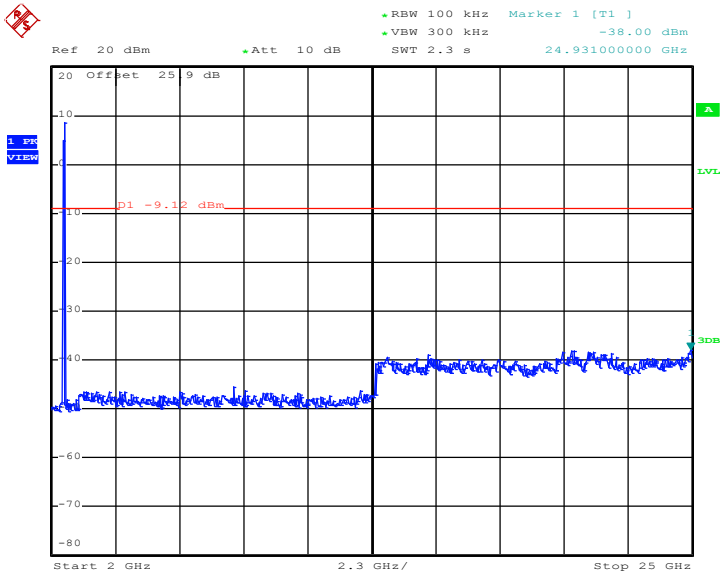
Conducted Spurious Emission Plot on Channel 11



Date: 4.OCT.2012 01:18:33

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

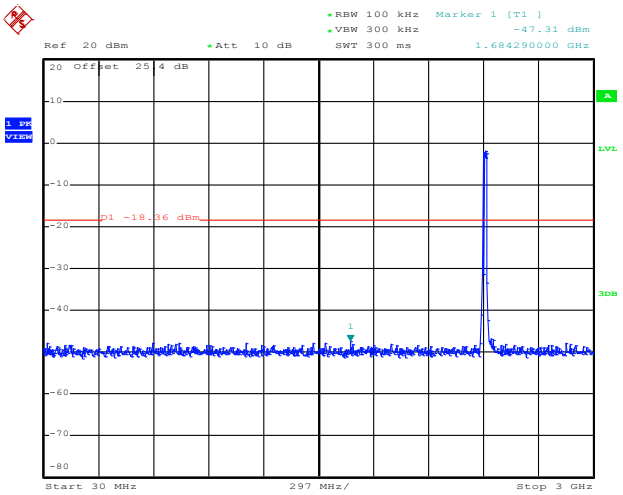


Date: 4.OCT.2012 01:18:50

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 :	Bill Kuo

802.11g 30 MHz~3 GHz

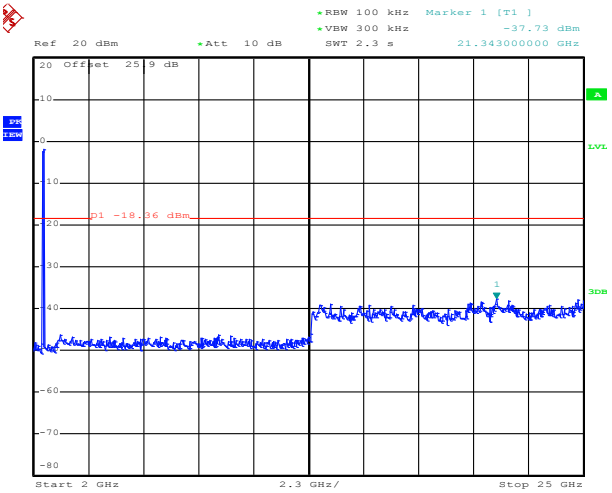
Conducted Spurious Emission Plot on Channel 01



Date: 4.OCT.2012 01:29:55

802.11g 2 GHz~25 GHz

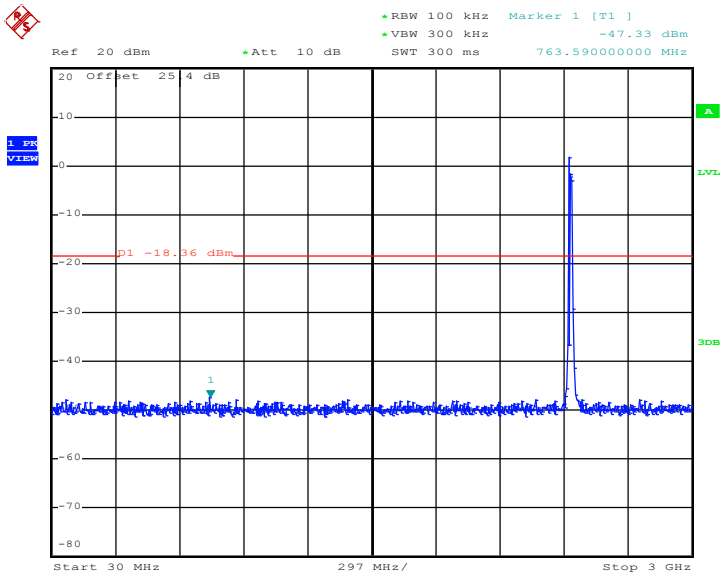
Conducted Spurious Emission Plot on Channel 01



ate: 4.OCT.2012 01:30:13

802.11g 30 MHz~3 GHz

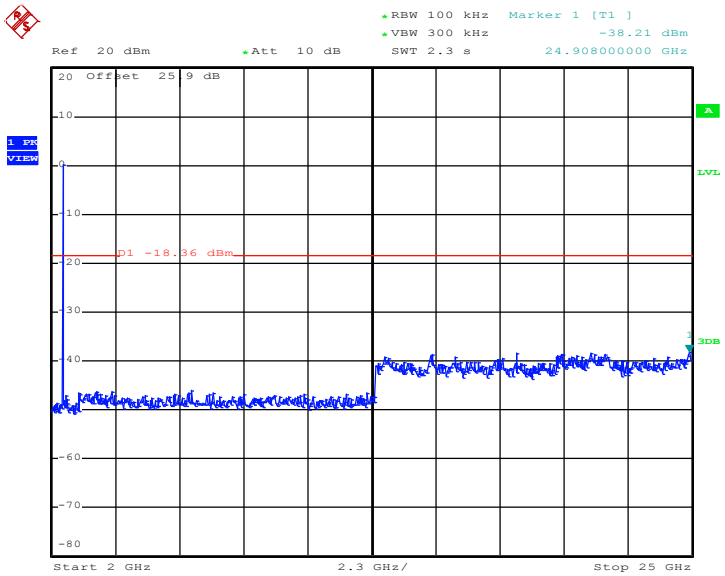
Conducted Spurious Emission Plot on Channel 06



Date: 4.OCT.2012 01:26:01

802.11g 2 GHz~25 GHz

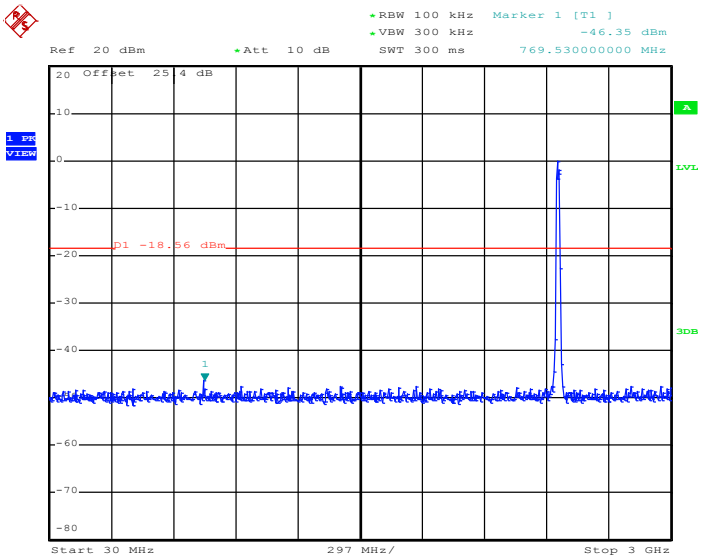
Conducted Spurious Emission Plot on Channel 06



Date: 4.OCT.2012 01:26:18

802.11g 30 MHz~3 GHz

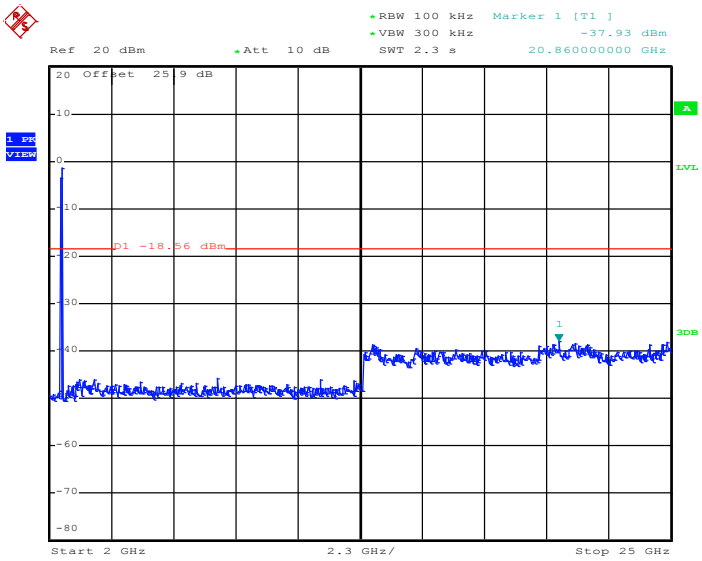
Conducted Spurious Emission Plot on Channel 11



Date: 4.OCT.2012 01:23:26

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

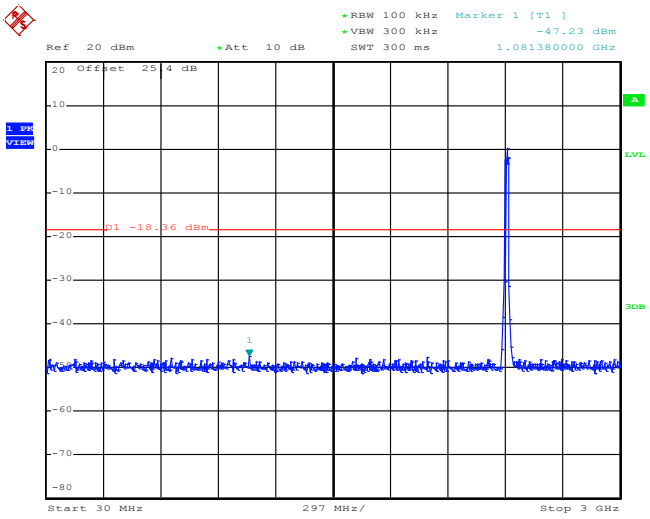


Date: 4.OCT.2012 01:23:43

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 :**	Bill Kuo

2.4GHz 802.11n HT20 30 MHz~3 GHz

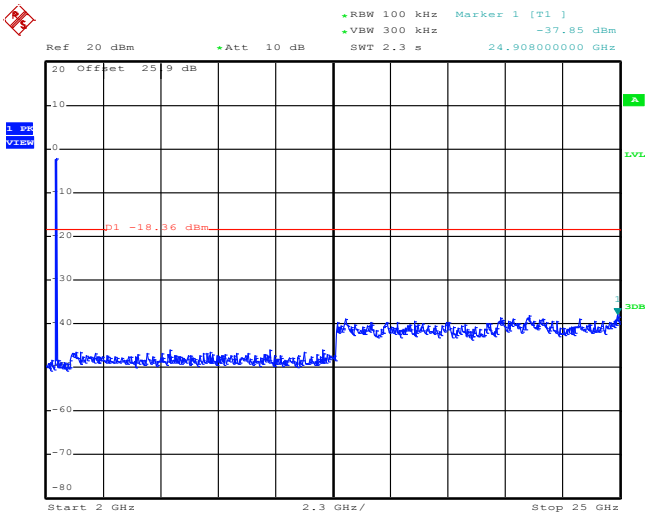
Conducted Spurious Emission Plot on Channel 01



Date: 4.OCT.2012 01:32:57

2.4GHz 802.11n HT20 2 GHz~25 GHz

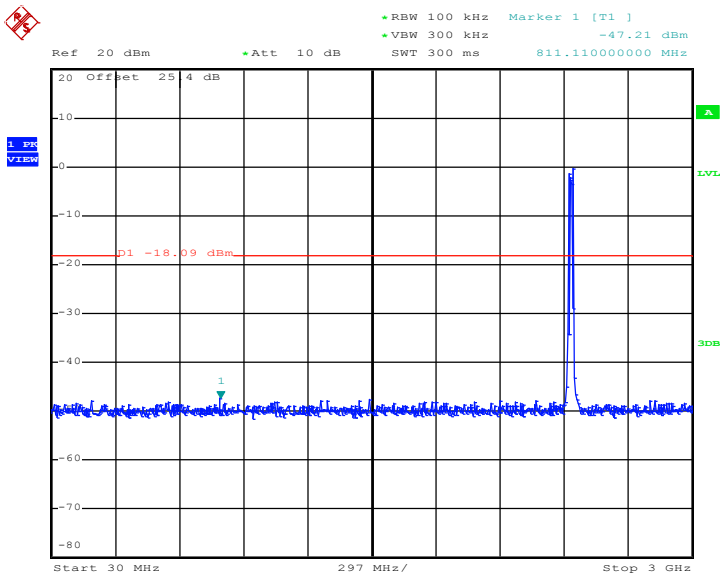
Conducted Spurious Emission Plot on Channel 01



Date: 4.OCT.2012 01:33:15

2.4GHz 802.11n HT20 30 MHz~3 GHz

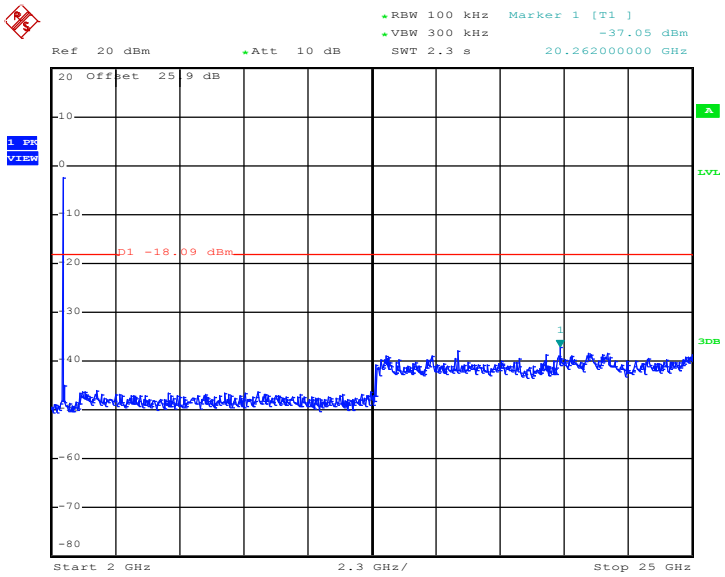
Conducted Spurious Emission Plot on Channel 06



Date: 4.OCT.2012 01:37:14

2.4GHz 802.11n HT20 2 GHz~25 GHz

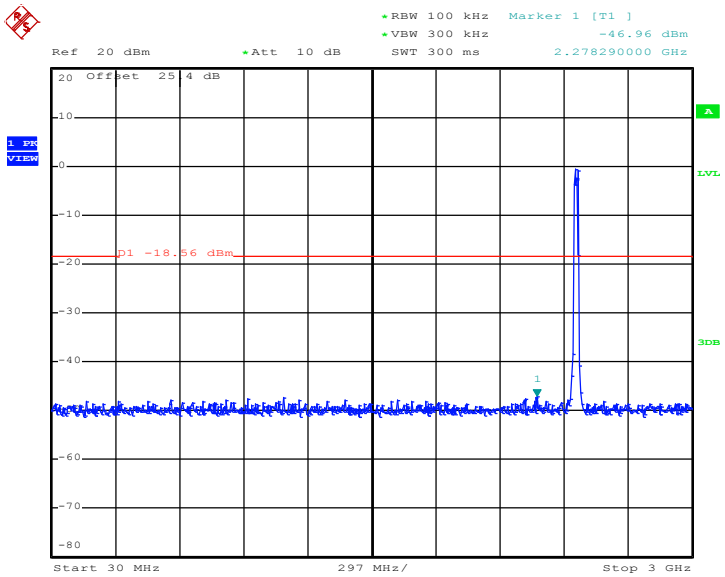
Conducted Spurious Emission Plot on Channel 06



Date: 4.OCT.2012 01:37:32

2.4GHz 802.11n HT20 30 MHz~3 GHz

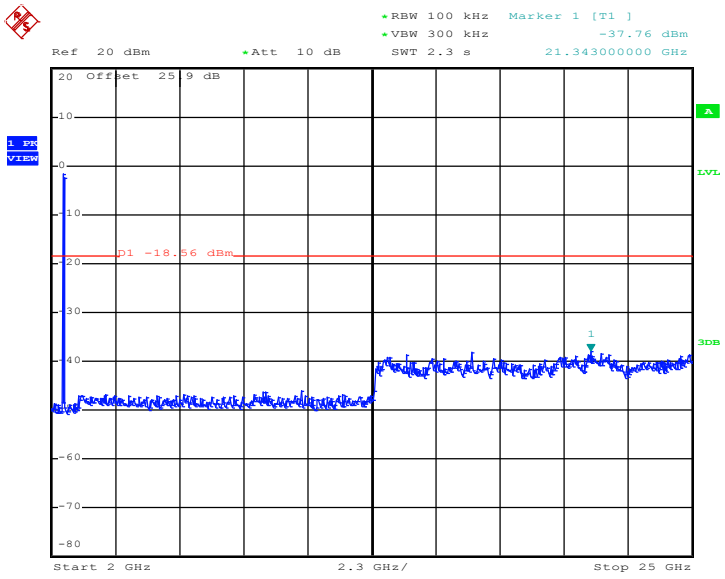
Conducted Spurious Emission Plot on Channel 11



Date: 4.OCT.2012 01:41:58

2.4GHz 802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

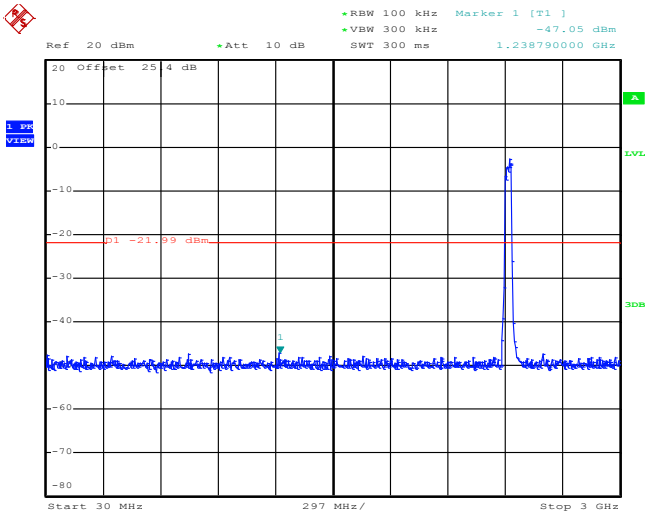


Date: 4.OCT.2012 01:42:16

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 :**	Bill Kuo

2.4GHz 802.11n HT40 30 MHz~3 GHz

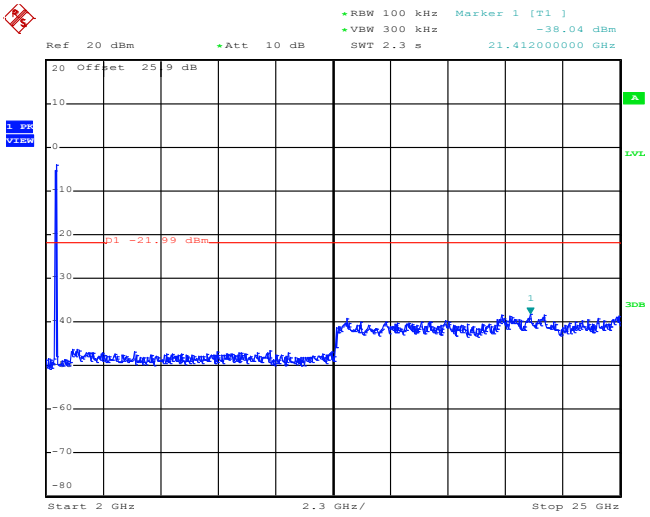
Conducted Spurious Emission Plot on Channel 03



Date: 4.OCT.2012 02:05:17

2.4GHz 802.11n HT40 2 GHz~25 GHz

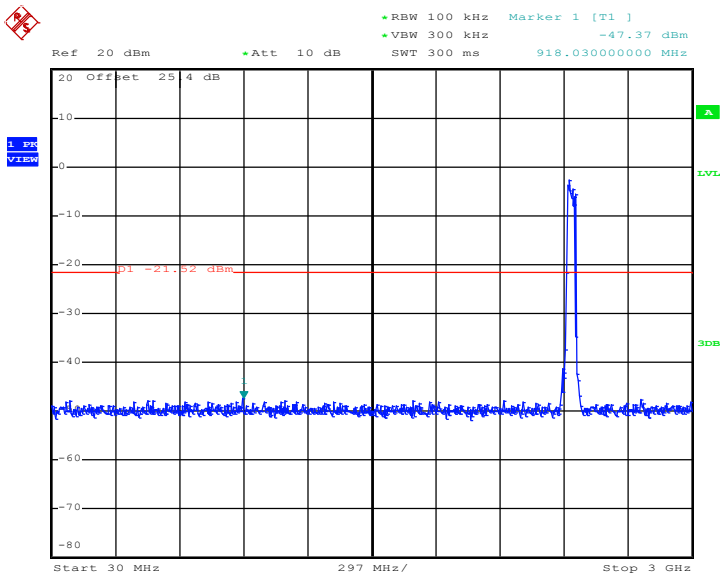
Conducted Spurious Emission Plot on Channel 03



Date: 4.OCT.2012 02:05:34

2.4GHz 802.11n HT40 30 MHz~3 GHz

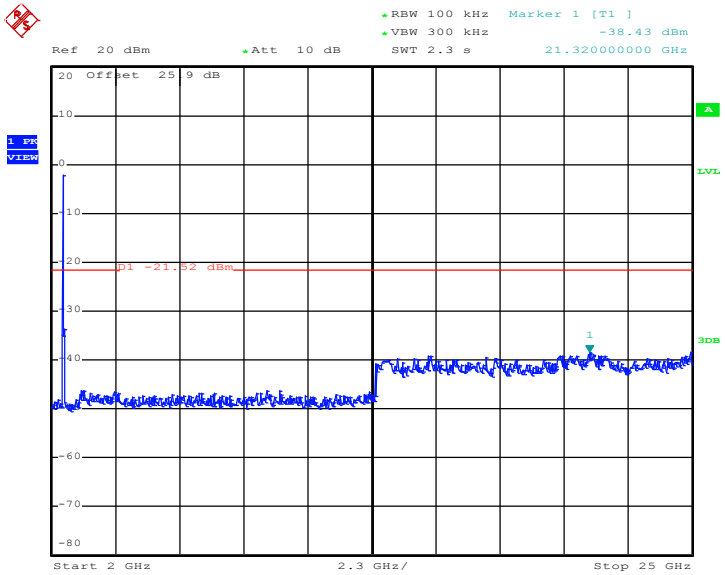
Conducted Spurious Emission Plot on Channel 06



Date: 4.OCT.2012 02:01:09

2.4GHz 802.11n HT40 2 GHz~25 GHz

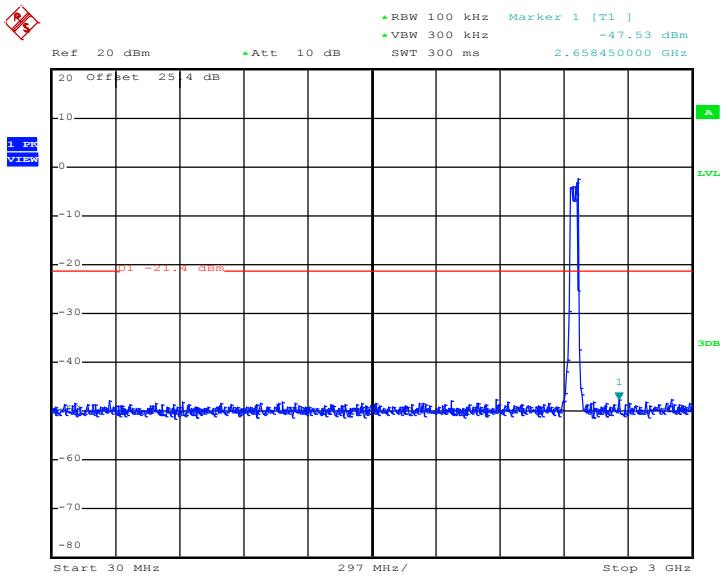
Conducted Spurious Emission Plot on Channel 06



Date: 4.OCT.2012 02:01:26

2.4GHz 802.11n HT40 30 MHz~3 GHz

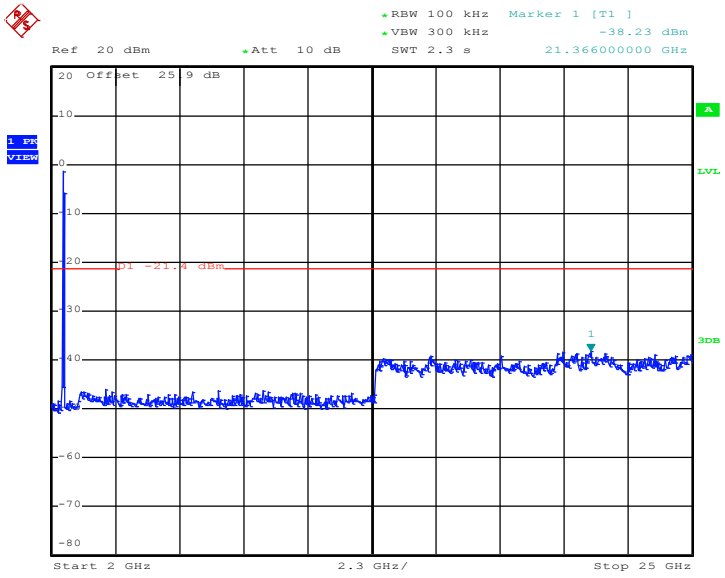
Conducted Spurious Emission Plot on Channel 09



Date: 4.OCT.2012 01:47:13

2.4GHz 802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09



Date: 4.OCT.2012 01:47:31

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 Procedures

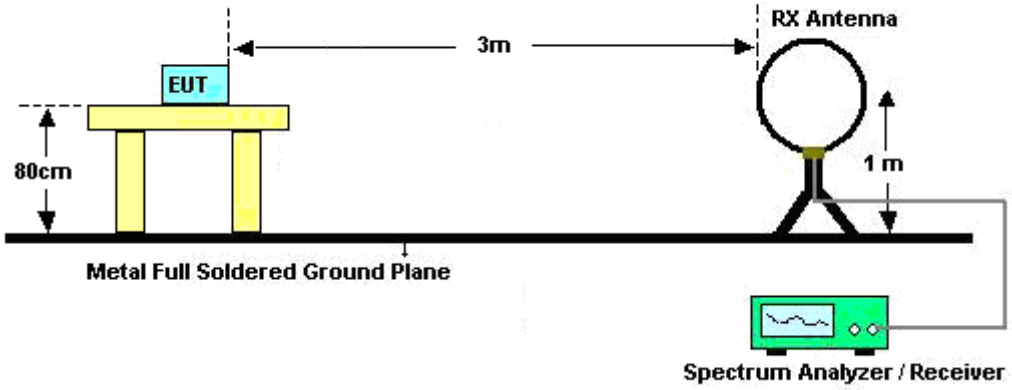
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in 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 ≥ 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(us)	1/T(KHz)	VBW Setting
802.11b	99.17	-	-	10Hz
802.11g	94.95	2070.00	0.483	1KHz
802.11n HT20	94.58	1920.00	0.521	1KHz
802.11n HT40	86.98	668.00	1.497	3KHz

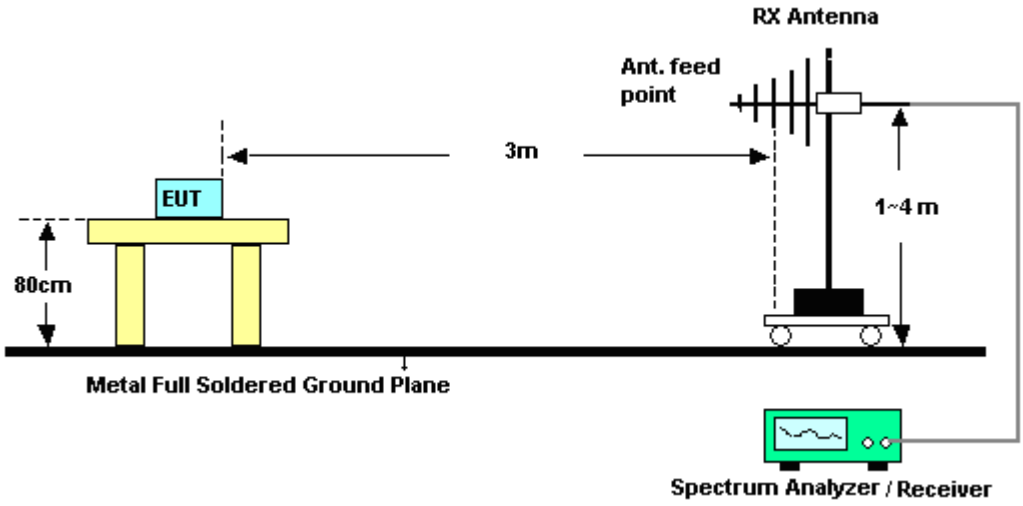
Note: For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

3.5.4 Test Setup

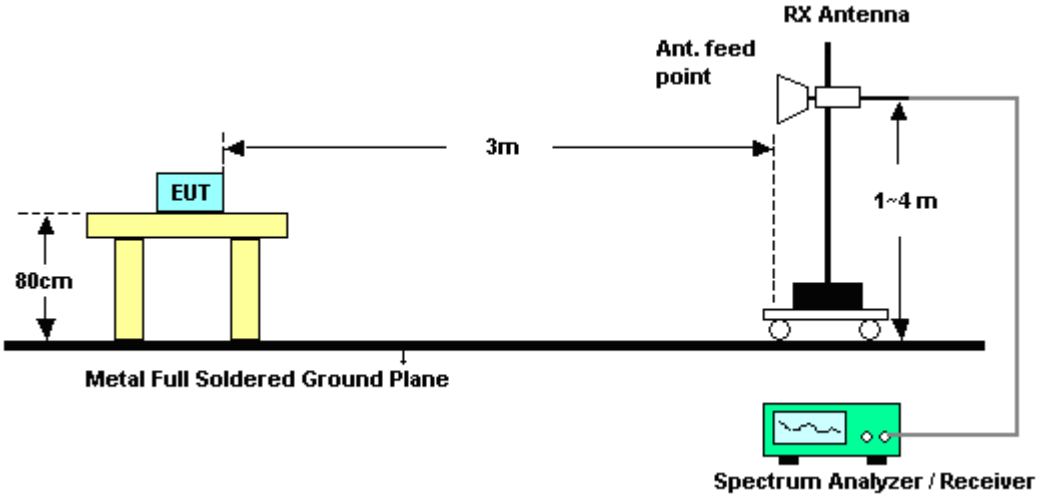
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated 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 Band Edges

<Sample 1>

Test Mode :	802.11b	**Temperature :**	30~31°C
Test Band :	Low	**Relative Humidity :**	42~43%
Test Channel :	01	**Test Engineer :**	Kai Wang, Timberland Lin and Ivan Chiang

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
2385.69	59.37	-14.63	74	55.12	32.36	6.45	34.56	200	94	Peak
2388.66	48.02	-5.98	54	43.77	32.36	6.45	34.56	200	94	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
2389.2	52.24	-21.76	74	47.99	32.36	6.45	34.56	102	69	Peak
2388.84	38.98	-15.02	54	34.73	32.36	6.45	34.56	102	69	Average

Test Mode :	802.11b	**Temperature :**	30~31°C
Test Band :	High	**Relative Humidity :**	42~43%
Test Channel :	11	**Test Engineer :**	Kai Wang, Timberland Lin and Ivan Chiang

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
2484.06	56.15	-17.85	74	51.63	32.48	6.59	34.55	103	13	Peak
2483.5	42.65	-11.35	54	38.13	32.48	6.59	34.55	103	13	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
2485.6	50.83	-23.17	74	46.31	32.48	6.59	34.55	100	242	Peak
2483.5	36.3	-17.7	54	31.78	32.48	6.59	34.55	100	242	Average

Test Mode :	802.11g	Temperature :	30~31°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang

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
2389.38	70.43	-3.57	74	66.18	32.36	6.45	34.56	106	13	Peak
2390	50.05	-3.95	54	45.8	32.36	6.45	34.56	106	13	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
2389.2	60.85	-13.15	74	56.6	32.36	6.45	34.56	100	234	Peak
2390	43.16	-10.84	54	38.91	32.36	6.45	34.56	100	234	Average

Test Mode :	802.11g	Temperature :	30~31°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang

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
2483.84	64.65	-9.35	74	60.13	32.48	6.59	34.55	107	42	Peak
2483.5	46.82	-7.18	54	42.3	32.48	6.59	34.55	107	42	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
2483.98	55.76	-18.24	74	51.24	32.48	6.59	34.55	100	60	Peak
2483.5	39.34	-14.66	54	34.82	32.48	6.59	34.55	100	60	Average

Test Mode :	802.11n HT20	Temperature :	30~31°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang

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
2388.21	69.5	-4.5	74	65.25	32.36	6.45	34.56	200	90	Peak
2390	50.41	-3.59	54	46.16	32.36	6.45	34.56	200	90	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	59.34	-14.66	74	55.09	32.36	6.45	34.56	100	237	Peak
2390	43.39	-10.61	54	39.14	32.36	6.45	34.56	100	237	Average

Test Mode :	802.11n HT20	Temperature :	30~31°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang

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
2483.84	65.28	-8.72	74	60.76	32.48	6.59	34.55	108	34	Peak
2483.5	48.38	-5.62	54	43.86	32.48	6.59	34.55	108	34	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.6	53.28	-20.72	74	48.76	32.48	6.59	34.55	100	231	Peak
2483.5	39.05	-14.95	54	34.53	32.48	6.59	34.55	100	231	Average

Test Mode :	802.11n HT40	Temperature :	30~31°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	03	Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.74	68.75	-5.25	74	64.5	32.36	6.45	34.56	108	32	Peak
2390	52.32	-1.68	54	48.07	32.36	6.45	34.56	108	32	Average
2485.86	51.58	-22.42	74	47.06	32.48	6.59	34.55	108	32	Peak
2484.98	38.04	-15.96	54	33.52	32.48	6.59	34.55	108	32	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	56.62	-17.38	74	52.37	32.36	6.45	34.56	100	241	Peak
2390	42.22	-11.78	54	37.97	32.36	6.45	34.56	100	241	Average
2496.1	50.67	-23.33	74	46.13	32.5	6.59	34.55	100	241	Peak
2484.42	35.63	-18.37	54	31.11	32.48	6.59	34.55	100	241	Average

Test Mode :	802.11n HT40	Temperature :	30~31°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	09	Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2387.22	50.81	-23.19	74	46.56	32.36	6.45	34.56	196	35	Peak
2388.93	37.39	-16.61	54	33.14	32.36	6.45	34.56	196	35	Average
2483.5	67.37	-6.63	74	62.85	32.48	6.59	34.55	196	35	Peak
2483.5	49.89	-4.11	54	45.37	32.48	6.59	34.55	196	35	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
2358.06	49.78	-24.22	74	45.61	32.31	6.42	34.56	100	64	Peak
2388.57	35.71	-18.29	54	31.46	32.36	6.45	34.56	100	64	Average
2483.5	57.45	-16.55	74	52.93	32.48	6.59	34.55	100	64	Peak
2483.5	41.13	-12.87	54	36.61	32.48	6.59	34.55	100	64	Average

<Sample 2>

Test Mode :	802.11n HT40	**Temperature :**	30~31°C
Test Band :	Low	**Relative Humidity :**	42~43%
Test Channel :	03	**Test Engineer :**	Kai Wang, Timberland Lin and Ivan Chiang

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
2388.3	65.79	-8.21	74	61.54	32.36	6.45	34.56	200	83	Peak
2390.01	48.29	-5.71	54	44.04	32.36	6.45	34.56	200	83	Average
2487.08	49.13	-24.87	74	44.61	32.48	6.59	34.55	200	83	Peak
2484.4	36.73	-17.27	54	32.21	32.48	6.59	34.55	200	83	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390.01	59.03	-14.97	74	54.78	32.36	6.45	34.56	197	142	Peak
2389.65	41.68	-12.32	54	37.43	32.36	6.45	34.56	197	142	Average
2485.3	48	-26	74	43.48	32.48	6.59	34.55	197	142	Peak
2484.14	35.8	-18.2	54	31.28	32.48	6.59	34.55	197	142	Average

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

<Sample 1>

Test Mode :	802.11b	**Temperature :**	30~31°C
Test Channel :	01	**Relative Humidity :**	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	**Polarization :**	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	107.38	-	-	103.07	32.38	6.49	34.56	200	94	Average
2412	111.76	-	-	107.45	32.38	6.49	34.56	200	94	Peak

Test Mode :	802.11b	**Temperature :**	30~31°C
Test Channel :	01	**Relative Humidity :**	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	**Polarization :**	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	99.26	-	-	94.95	32.38	6.49	34.56	102	69	Average
2412	103.81	-	-	99.5	32.38	6.49	34.56	102	69	Peak

Test Mode :	802.11b	Temperature :	30~31°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	106.43	-	-	102.04	32.43	6.52	34.56	195	88	Average
2437	110.44	-	-	106.05	32.43	6.52	34.56	195	88	Peak

Test Mode :	802.11b	Temperature :	30~31°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	99.04	-	-	94.65	32.43	6.52	34.56	100	64	Average
2437	103.43	-	-	99.04	32.43	6.52	34.56	100	64	Peak

Test Mode :	802.11b	Temperature :	30~31°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	106.53	-	-	102.08	32.45	6.56	34.56	103	13	Average
2462	110.92	-	-	106.47	32.45	6.56	34.56	103	13	Peak

Test Mode :	802.11b	Temperature :	30~31°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	98.73	-	-	94.28	32.45	6.56	34.56	100	242	Average
2462	103.61	-	-	99.16	32.45	6.56	34.56	100	242	Peak

Test Mode :	802.11g	Temperature :	30~31°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	98.39	-	-	94.08	32.38	6.49	34.56	106	13	Average
2412	108.53	-	-	104.22	32.38	6.49	34.56	106	13	Peak

Test Mode :	802.11g	Temperature :	30~31°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	91.19	-	-	86.88	32.38	6.49	34.56	100	234	Average
2412	100.82	-	-	96.51	32.38	6.49	34.56	100	234	Peak

Test Mode :	802.11g	Temperature :	30~31°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	98.73	-	-	94.34	32.43	6.52	34.56	138	45	Average
2437	107.88	-	-	103.49	32.43	6.52	34.56	138	45	Peak

Test Mode :	802.11g	Temperature :	30~31°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	90.03	-	-	85.64	32.43	6.52	34.56	100	63	Average
2437	99.81	-	-	95.42	32.43	6.52	34.56	100	63	Peak

Test Mode :	802.11g	Temperature :	30~31°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	97.97	-	-	93.52	32.45	6.56	34.56	107	42	Average
2462	107.78	-	-	103.33	32.45	6.56	34.56	107	42	Peak

Test Mode :	802.11g	Temperature :	30~31°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	88.74	-	-	84.29	32.45	6.56	34.56	100	60	Average
2462	100.53	-	-	96.08	32.45	6.56	34.56	100	60	Peak

Test Mode :	2.4GHz 802.11n-HT20	Temperature :	30~31°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	97.89	-	-	93.58	32.38	6.49	34.56	200	90	Average
2412	107.67	-	-	103.36	32.38	6.49	34.56	200	90	Peak

Test Mode :	2.4GHz 802.11n-HT20	Temperature :	30~31°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	88.51	-	-	84.2	32.38	6.49	34.56	100	237	Average
2412	98.44	-	-	94.13	32.38	6.49	34.56	100	237	Peak

Test Mode :	2.4GHz 802.11n-HT20	Temperature :	30~31°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	97.7	-	-	93.31	32.43	6.52	34.56	136	92	Average
2437	107.09	-	-	102.7	32.43	6.52	34.56	136	92	Peak

Test Mode :	2.4GHz 802.11n-HT20	Temperature :	30~31°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	88.39	-	-	84	32.43	6.52	34.56	100	231	Average
2437	98.73	-	-	94.34	32.43	6.52	34.56	100	231	Peak

Test Mode :	2.4GHz 802.11n-HT20	Temperature :	30~31°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	97.73	-	-	93.28	32.45	6.56	34.56	108	34	Average
2462	106.87	-	-	102.42	32.45	6.56	34.56	108	34	Peak

Test Mode :	2.4GHz 802.11n-HT20	Temperature :	30~31°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	88.13	-	-	83.68	32.45	6.56	34.56	100	231	Average
2462	97.88	-	-	93.43	32.45	6.56	34.56	100	231	Peak

Test Mode :	2.4GHz 802.11n-HT40	Temperature :	30~31°C
Test Channel :	03	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	19.36	-20.64	40	32.23	18.02	0.65	31.54	-	-	Peak
115.86	23.91	-19.59	43.5	42.17	11.82	1.19	31.27	-	-	Peak
224.94	22.03	-23.97	46	41.81	9.65	1.64	31.07	-	-	Peak
459.6	40.65	-5.35	46	52.27	17.1	2.33	31.05	102	166	Peak
683.6	23.74	-22.26	46	33.52	19.02	2.86	31.66	-	-	Peak
867	25.13	-20.87	46	32.32	20.47	3.28	30.94	-	-	Peak
2422	95.17	-	-	90.84	32.4	6.49	34.56	108	32	Average
2422	104.97	-	-	100.64	32.4	6.49	34.56	108	32	Peak

Test Mode :	2.4GHz 802.11n-HT40	Temperature :	30~31°C
Test Channel :	03	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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
35.94	32.8	-7.2	40	49.15	14.46	0.7	31.51	-	-	Peak
115.05	25.06	-18.44	43.5	43.33	11.8	1.19	31.26	-	-	Peak
231.96	16.27	-29.73	46	35.24	10.42	1.66	31.05	-	-	Peak
459.6	40.45	-5.55	46	52.07	17.1	2.33	31.05	114	307	Peak
552	22.51	-23.49	46	31.97	19.1	2.55	31.11	-	-	Peak
812.4	23.48	-22.52	46	31.98	20.03	3.1	31.63	-	-	Peak
2422	84.44	-	-	80.11	32.4	6.49	34.56	100	241	Average
2422	94.27	-	-	89.94	32.4	6.49	34.56	100	241	Peak

Test Mode :	2.4GHz 802.11n-HT40	Temperature :	30~31°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	95.7	-	-	91.31	32.43	6.52	34.56	200	39	Average
2437	105.38	-	-	100.99	32.43	6.52	34.56	200	39	Peak

Test Mode :	2.4GHz 802.11n-HT40	Temperature :	30~31°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	87.31	-	-	82.92	32.43	6.52	34.56	100	55	Average
2437	97.02	-	-	92.63	32.43	6.52	34.56	100	55	Peak

Test Mode :	2.4GHz 802.11n-HT40	Temperature :	30~31°C
Test Channel :	09	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	94.75	-	-	90.36	32.43	6.52	34.56	196	35	Average
2452	104.68	-	-	100.29	32.43	6.52	34.56	196	35	Peak

Test Mode :	2.4GHz 802.11n-HT40	Temperature :	30~31°C
Test Channel :	09	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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	86.39	-	-	82	32.43	6.52	34.56	100	64	Average
2452	96.06	-	-	91.67	32.43	6.52	34.56	100	64	Peak

<Sample 2>

Test Mode :	2.4GHz 802.11n-HT40	**Temperature :**	30~31°C
Test Channel :	03	**Relative Humidity :**	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	**Polarization :**	Horizontal
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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
71.04	21.93	-18.07	40	45.95	6.44	0.94	31.4	-	-	Peak
138.54	25.46	-18.04	43.5	44.26	11.18	1.31	31.29	-	-	Peak
266.52	23.14	-22.86	46	39.34	13.14	1.8	31.14	-	-	Peak
458.9	34.91	-11.09	46	46.56	17.07	2.33	31.05	100	348	Peak
560.4	22.21	-23.79	46	31.99	18.89	2.59	31.26	-	-	Peak
947.5	25.39	-20.61	46	31.25	20.88	3.35	30.09	-	-	Peak
2422	91.78	-	-	87.45	32.4	6.49	34.56	200	83	Average
2422	101.82	-	-	97.51	32.38	6.49	34.56	200	83	Peak

Test Mode :	2.4GHz 802.11n-HT40	Temperature :	30~31°C
Test Channel :	03	Relative Humidity :	42~43%
Test Engineer :	Kai Wang, Timberland Lin and Ivan Chiang	Polarization :	Vertical
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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
50.25	33.65	-6.35	40	56.24	8.4	0.8	31.79	100	139	Peak
108.3	25.57	-17.93	43.5	44	11.76	1.14	31.33	-	-	Peak
275.16	17.67	-28.33	46	34.07	12.9	1.83	31.13	-	-	Peak
458.9	36.69	-9.31	46	48.34	17.07	2.33	31.05	-	-	Peak
657	21.92	-24.08	46	31.05	19.2	2.81	31.14	-	-	Peak
819.4	22.74	-23.26	46	30.95	20.1	3.13	31.44	-	-	Peak
2422	87.58	-	-	83.25	32.4	6.49	34.56	197	142	Average
2422	97.73	-	-	93.4	32.4	6.49	34.56	197	142	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.

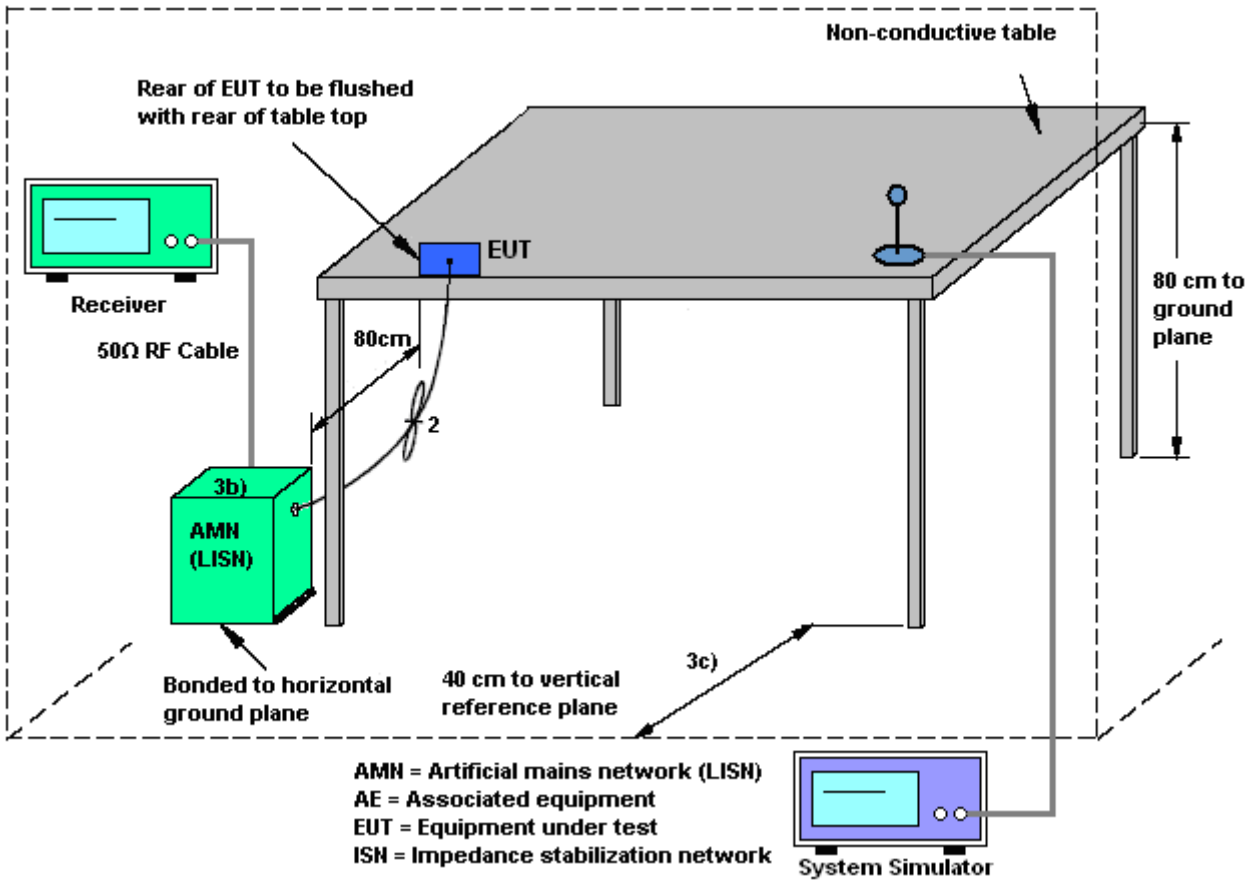
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

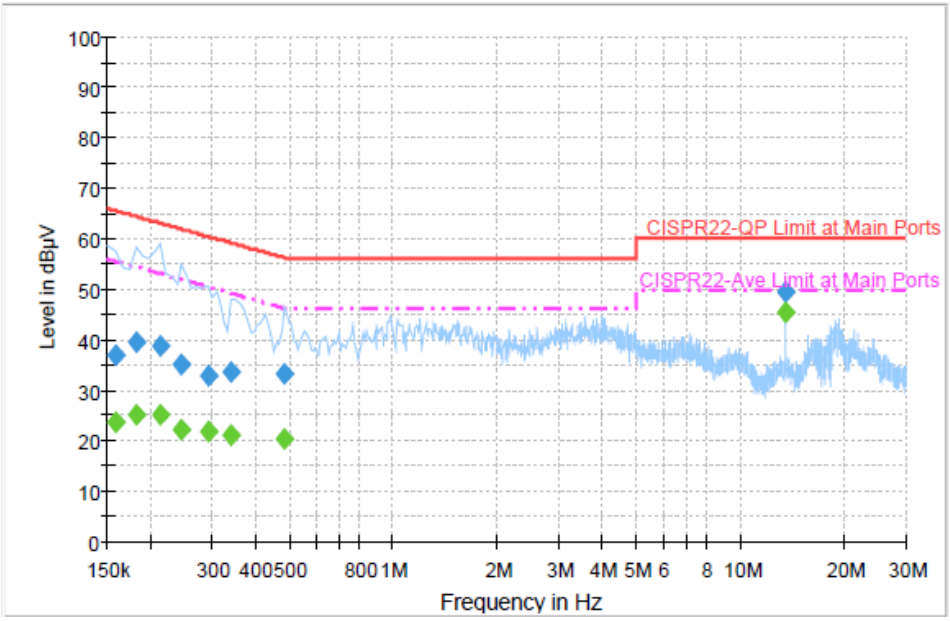
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance 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 :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	48~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4G) Link + Earphone 1 + Battery 1 + USB Cable 1 (Charging from Adapter 1) + NFC On for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



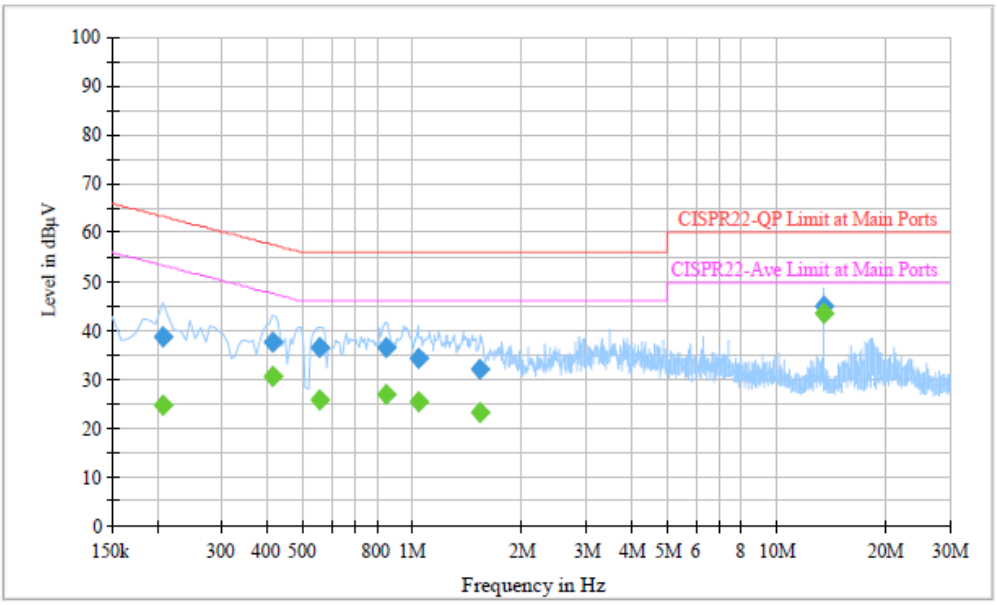
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	36.8	Off	L1	19.3	28.8	65.6
0.182000	39.4	Off	L1	19.4	25.0	64.4
0.214000	38.9	Off	L1	19.4	24.1	63.0
0.246000	35.0	Off	L1	19.4	26.9	61.9
0.294000	32.7	Off	L1	19.4	27.7	60.4
0.342000	33.5	Off	L1	19.4	25.7	59.2
0.486000	33.1	Off	L1	19.4	23.1	56.2
13.558000	49.3	Off	L1	19.8	10.7	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	23.8	Off	L1	19.3	31.8	55.6
0.182000	25.0	Off	L1	19.4	29.4	54.4
0.214000	25.1	Off	L1	19.4	27.9	53.0
0.246000	22.2	Off	L1	19.4	29.7	51.9
0.294000	21.9	Off	L1	19.4	28.5	50.4
0.342000	21.0	Off	L1	19.4	28.2	49.2
0.486000	20.3	Off	L1	19.4	25.9	46.2
13.558000	45.4	Off	L1	19.8	4.6	50.0

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	48~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4G) Link + Earphone 1 + Battery 1 + USB Cable 1 (Charging from Adapter 1) + NFC On for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.206000	38.7	Off	N	19.4	24.7	63.4
0.414000	37.6	Off	N	19.4	20.0	57.6
0.558000	36.6	Off	N	19.4	19.4	56.0
0.846000	36.7	Off	N	19.6	19.3	56.0
1.038000	34.3	Off	N	19.5	21.7	56.0
1.534000	32.2	Off	N	19.4	23.8	56.0
13.558000	45.0	Off	N	19.9	15.0	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.206000	24.6	Off	N	19.4	28.8	53.4
0.414000	30.8	Off	N	19.4	16.8	47.6
0.558000	25.9	Off	N	19.4	20.1	46.0
0.846000	27.0	Off	N	19.6	19.0	46.0
1.038000	25.6	Off	N	19.5	20.4	46.0
1.534000	23.1	Off	N	19.4	22.9	46.0
13.558000	43.5	Off	N	19.9	6.5	50.0

3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Connected Construction

Non-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	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Sep. 25, 2012 ~ Oct. 04, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Sep. 25, 2012 ~ Oct. 04, 2012	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Sep. 25, 2012 ~ Oct. 04, 2012	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Oct. 02, 2012 ~ Oct. 26, 2012	Sep. 02, 2013	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Oct. 02, 2012 ~ Oct. 26, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Oct. 02, 2012 ~ Oct. 26, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Oct. 02, 2012 ~ Oct. 26, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	Oct. 02, 2012 ~ Oct. 26, 2012	Jul. 27, 2013	Conduction (CO05-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9KHz ~ 26.5GHz	Nov. 23, 2011	Oct. 06, 2012 ~ Nov. 09, 2012	Nov. 22, 2012	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz ~ 1000MHz	May 04, 2012	Oct. 06, 2012 ~ Nov. 09, 2012	May. 03, 2013	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz ~ 2GHz	Oct. 06, 2012	Oct. 06, 2012 ~ Nov. 09, 2012	Oct. 05, 2013	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Aug. 01, 2012	Oct. 06, 2012 ~ Nov. 09, 2012	Jul. 31, 2013	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Sep. 28, 2012	Oct. 06, 2012 ~ Nov. 09, 2012	Sep. 27, 2013	Radiation (03CH06-HY)
Preamplifier	Agilent	8449B	3008A01917	1GHz ~ 26.5GHz	Apr. 13, 2012	Oct. 06, 2012 ~ Nov. 09, 2012	Apr. 12, 2013	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz ~ 1GHz	Apr. 11, 2012	Oct. 06, 2012 ~ Nov. 09, 2012	Apr. 10, 2013	Radiation (03CH06-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 21, 2012	Oct. 06, 2012 ~ Nov. 09, 2012	Jul. 20, 2013	Radiation (03CH06-HY)
Pre Amplifier	MITEQ	AMF-7D-00101800-30-10P	159087	1GHz~18GHz	Feb. 27, 2012	Oct. 06, 2012 ~ Nov. 09, 2012	Feb. 26, 2013	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Oct. 06, 2012 ~ Nov. 09, 2012	Jul. 02, 2014	Radiation (03CH06-HY)

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**

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

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

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

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