FCC RF Test Report

APPLICANT	:	Commtiva Technology Limited
EQUIPMENT	:	GSM/WCDMA Single SIM
BRAND NAME	:	SHARP
MODEL NAME	:	SH837Wi
MARKETING NAME	:	SH837Wi
FCC ID	:	X7H-SH837WI
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Nov. 09, 2012 and completely tested on Nov. 21, 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

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.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR2N0915C	Rev. 01	Initial issue of report	Dec. 10, 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 4.42 dB at 32.430 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 14.00 dB at 0.558 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Commtiva Technology Limited
4F., No. 32, Zhongcheng Rd., Tucheng District, New Taipei City 236, Taiwan

1.2 Manufacturer

Chi Mei Communication Systems, Inc.
No. 4, Minsheng St., Tucheng Dist., New Taipei City 236, Taiwan (R.O.C.)

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	GSM/WCDMA Single SIM
Brand Name	SHARP
Model Name	SH837Wi
Marketing Name	SH837Wi
FCC ID	X7H-SH837WI
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA WLAN 11bgn / Bluetooth
HW Version	PR3
SW Version	V 0.041
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.

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 : 20.84 dBm (0.1213 W) 802.11g : 20.73 dBm (0.1183 W) 802.11n HT20 : 13.96 dBm (0.0249 W)
Antenna Type	PIFA Antenna type with gain 0.81 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	03CH07-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 (Z plane) were recorded in this report.

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

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

2.1 Carrier Frequency 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)	20.84	20.82	20.51	20.65

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)	20.73	20.3	20.49	20.47	20.31	20.16	19.32	19.2

2.4GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	13.96	13.93	13.89	13.87	13.84	13.8	13.79	13.75

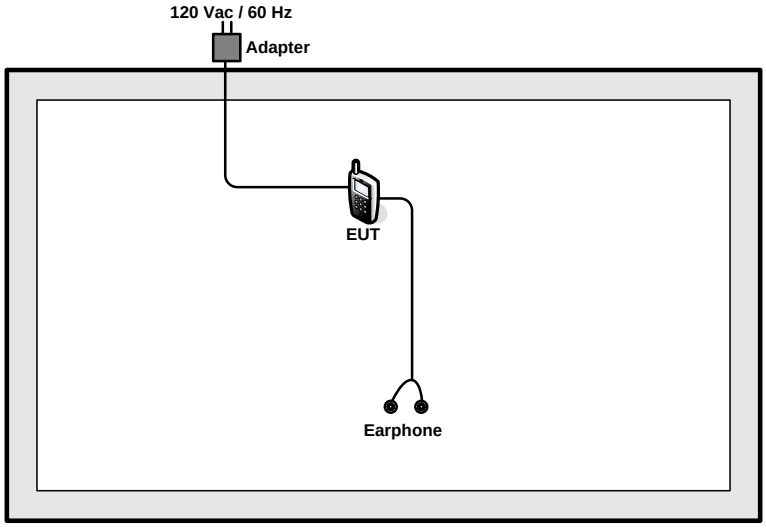
2.3 Test Mode

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

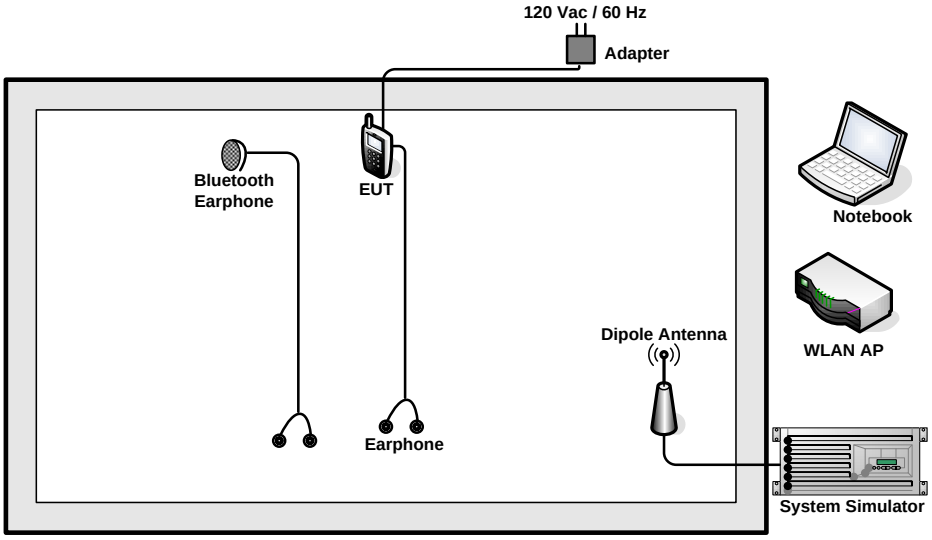
Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB BW Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
	Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
	Conducted Band Edge	802.11b	1 Mbps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

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

For WLAN function, programmed RF utility, “WiFi TX ” installed in 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.

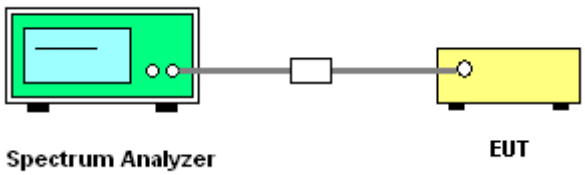
3.1.2 Measuring Instruments

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) = 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

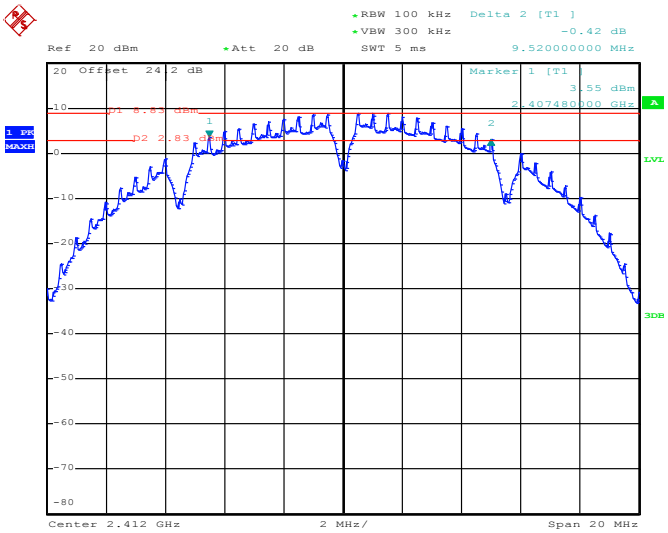


3.1.5 Test Result of 6dB Bandwidth

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

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.52	0.5	Pass
06	2437	9.04	0.5	Pass
11	2462	9.52	0.5	Pass

6 dB Bandwidth Plot on 802.11b Channel 01



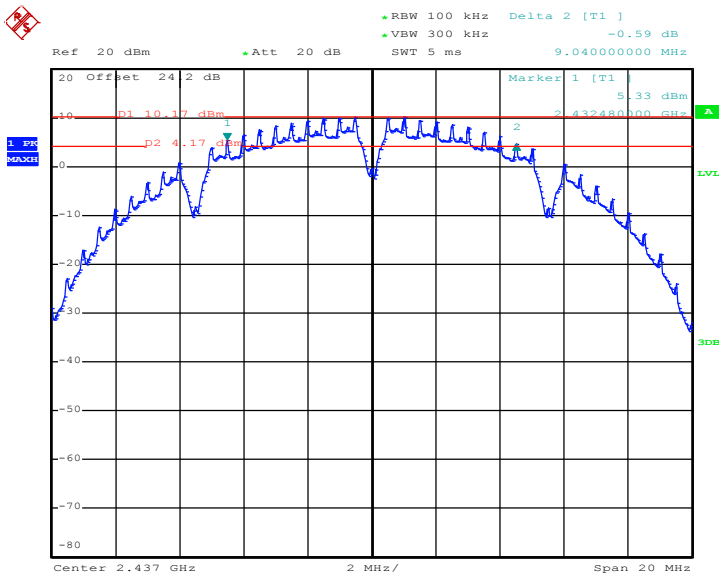
Date: 16.NOV.2012 17:59:23

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

Example: the 6dB Bandwidth test item, the peak point of fundamental signal is 3.55dBm, has added (offset) with the total loss = attenuator factor + cable loss = 24.2dB, where, cable loss = 14.2dB and 10dB attenuator, and then the 6dB Bandwidth is measured and compliance with the limit line. Hereafter, each plot of spectrum analyzer has been added the total loss respectively and to demonstrate in compliance with the limit line.

6 dB Bandwidth Plot on 802.11b Channel 06

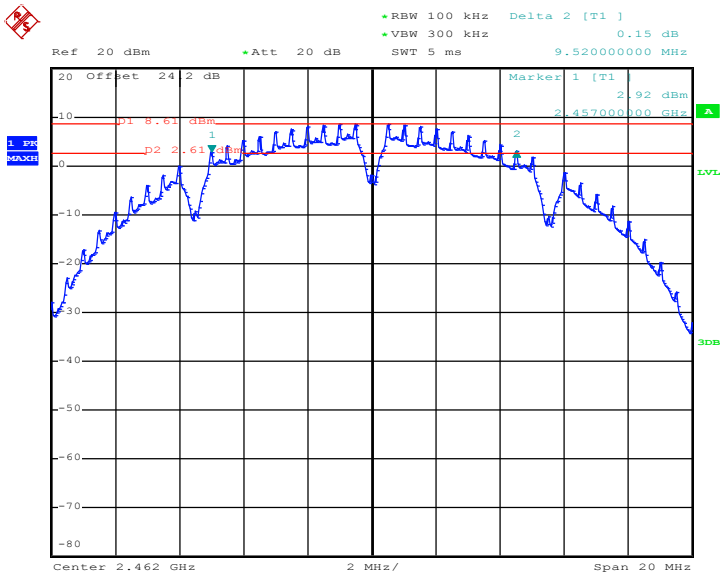


Date: 16.NOV.2012 18:03:19

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

6 dB Bandwidth Plot on 802.11b Channel 11



Date: 16.NOV.2012 18:13:10

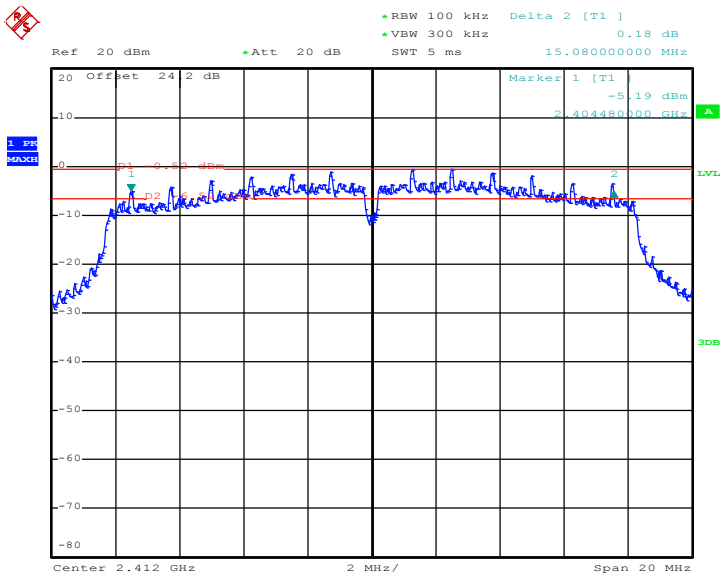
Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.40	0.5	Pass

6 dB Bandwidth Plot on 802.11g Channel 01

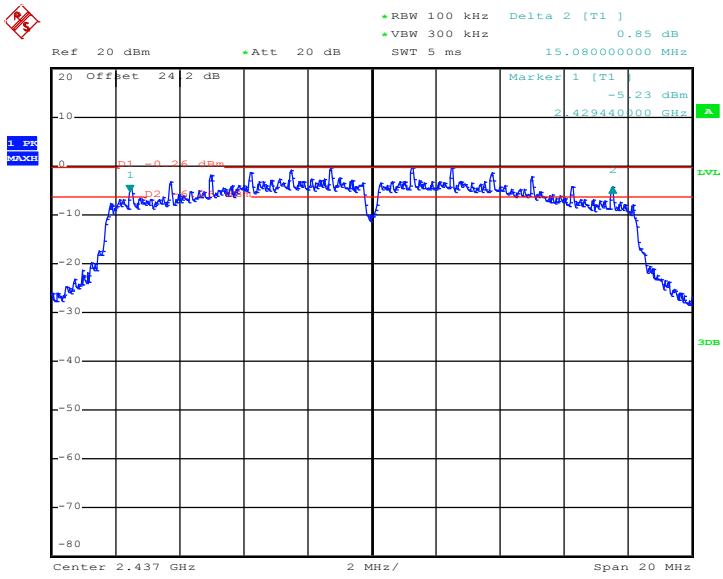


Date: 16.NOV.2012 18:26:05

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

6 dB Bandwidth Plot on 802.11g Channel 06

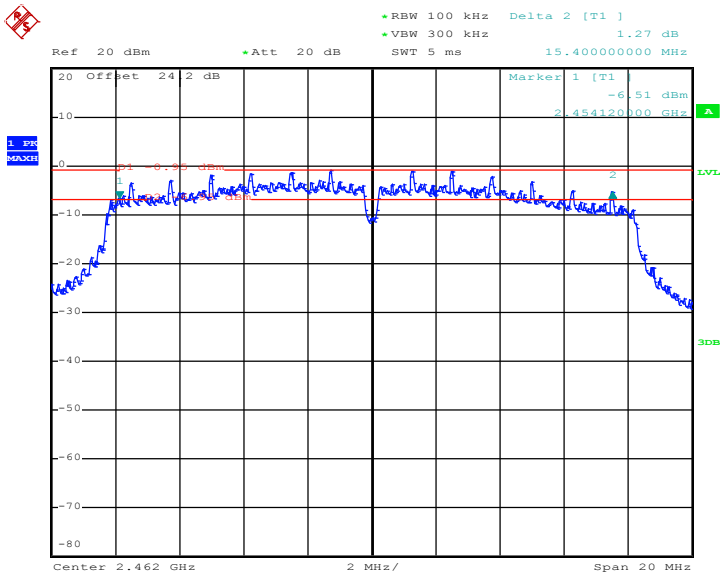


Date: 16.NOV.2012 18:21:07

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

6 dB Bandwidth Plot on 802.11g Channel 11



Date: 16.NOV.2012 18:17:39

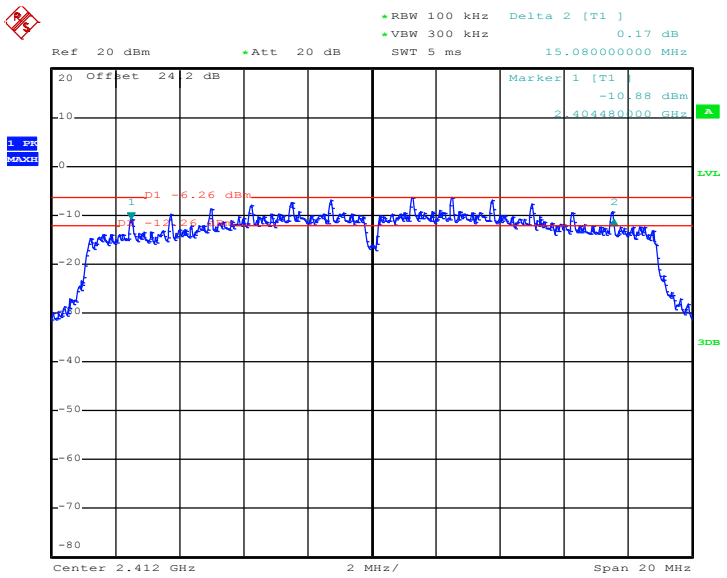
Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	16.08	0.5	Pass

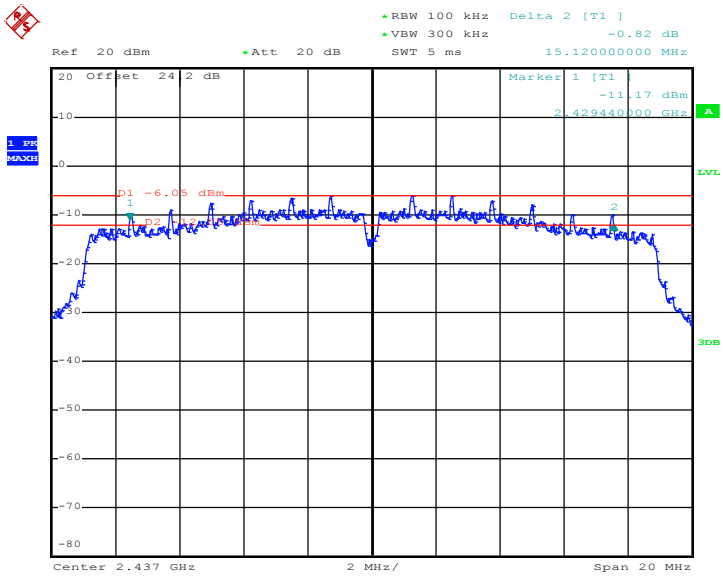
6 dB Bandwidth Plot on 802.11n HT20 Channel 01



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

6 dB Bandwidth Plot on 802.11n HT20 Channel 06

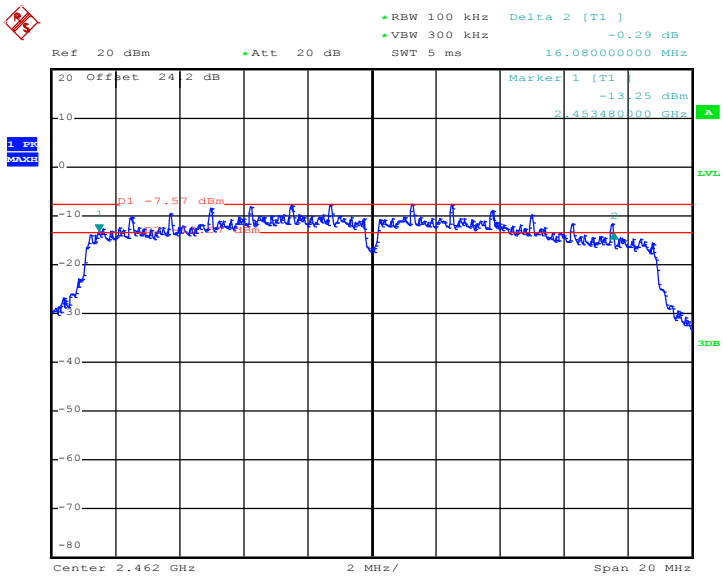


Date: 16.NOV.2012 18:34:34

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

6 dB Bandwidth Plot on 802.11n HT20 Channel 11



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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.

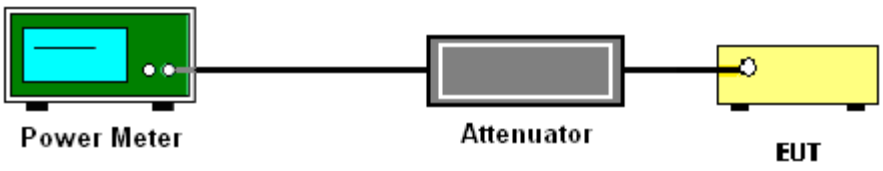
3.2.2 Measuring Instruments

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 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 :	Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.44	30	Pass
06	2437	20.84	30	Pass
11	2462	19.38	30	Pass

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

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.56	30	Pass
06	2437	20.49	30	Pass
11	2462	20.73	30	Pass

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

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	13.89	30	Pass
06	2437	13.96	30	Pass
11	2462	13.73	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	24~26
Test Engineer :	Reece Li	Relative Humidity :	50~53
Duty Cycle:	99.53%	Duty Factor:	0.02dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	17.18
06	2437	18.54
11	2462	17.14

Test Mode :	802.11g	Temperature :	24~26
Test Engineer :	Reece Li	Relative Humidity :	50~53
Duty Cycle:	97.55%	Duty Factor:	0.11dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	9.57
06	2437	9.92
11	2462	9.96

Test Mode :	802.11n HT20	Temperature :	24~26
Test Engineer :	Reece Li	Relative Humidity :	50~53
Duty Cycle:	97.75%	Duty Factor:	0.10dB

Channel	Frequency (MHz)	802.11n HT20 Average Output Power (dBm)
01	2412	3.99
06	2437	4.56
11	2462	3.26

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

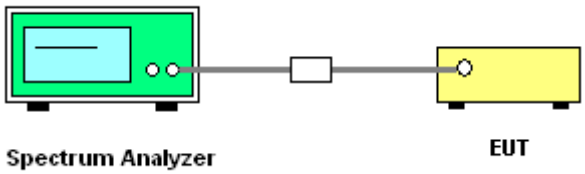
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 9.1 Option 1 of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Reece Li	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	8.52	-5.18	8	Pass
06	2437	9.45	-3.11	8	Pass
11	2462	7.86	-6.02	8	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Reece Li	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	-1.19	-14.41	8	Pass
06	2437	-0.79	-14.08	8	Pass
11	2462	-1.31	-15.56	8	Pass

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

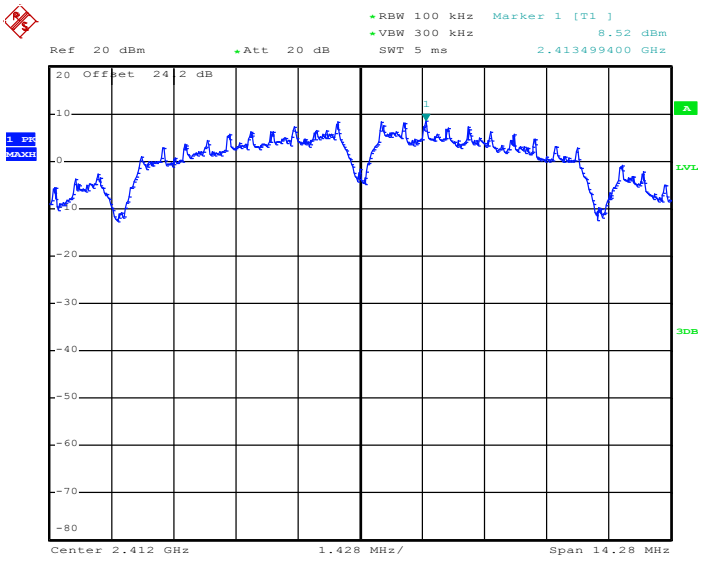
Channel	Frequency (MHz)	802.11n HT20 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-7.21	-21.47	8	Pass
06	2437	-6.26	-20.07	8	Pass
11	2462	-7.65	-21.41	8	Pass

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

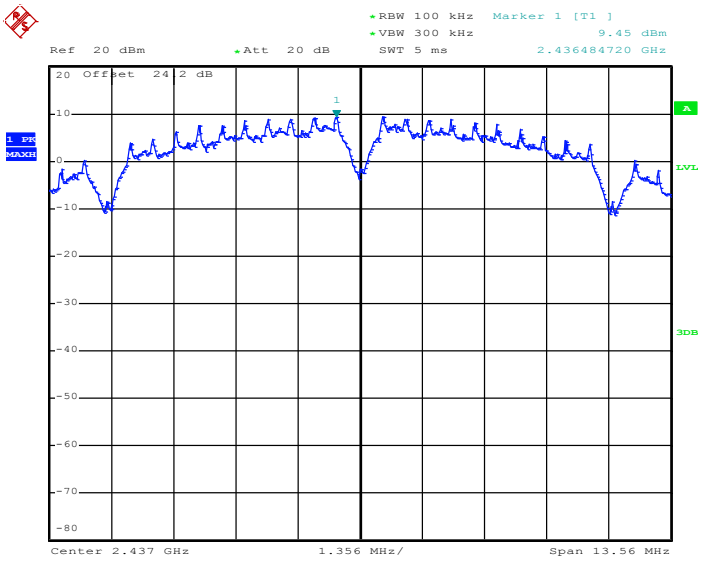


Date: 16.NOV.2012 17:59:50

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 100kHz Plot on 802.11b Channel 06

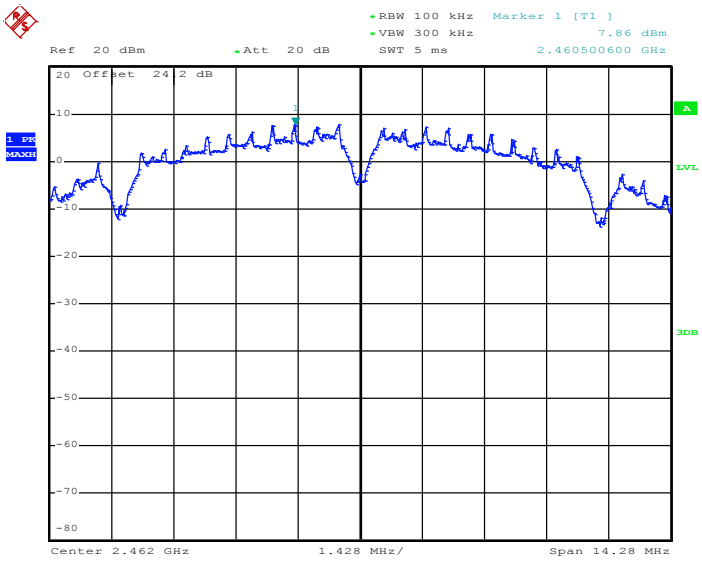


Date: 16.NOV.2012 18:03:47

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 100kHz Plot on 802.11b Channel 11

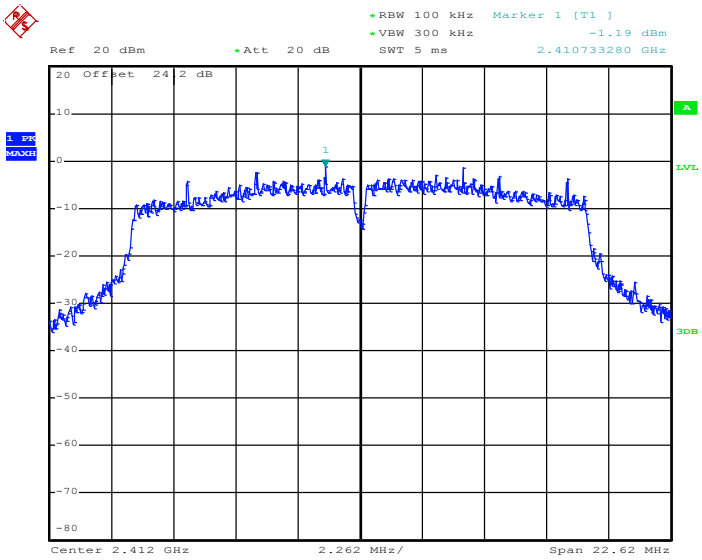


Date: 16.NOV.2012 18:13:37

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 100kHz Plot on 802.11g Channel 01

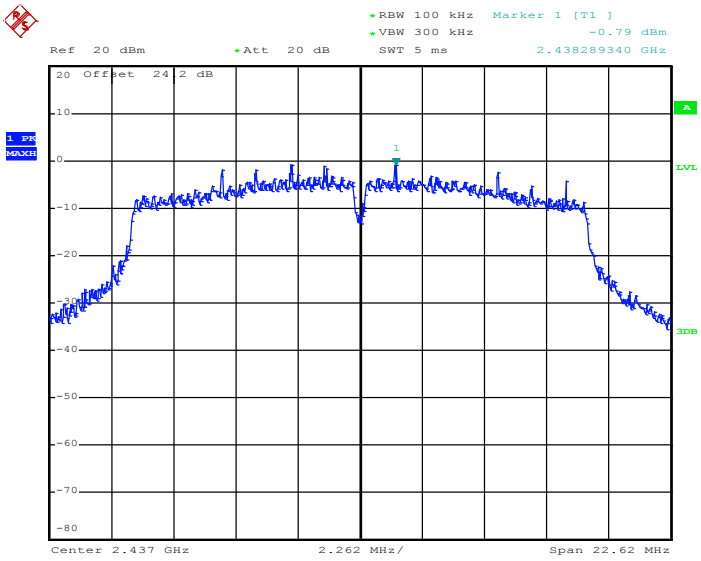


Date: 16.NOV.2012 18:27:12

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

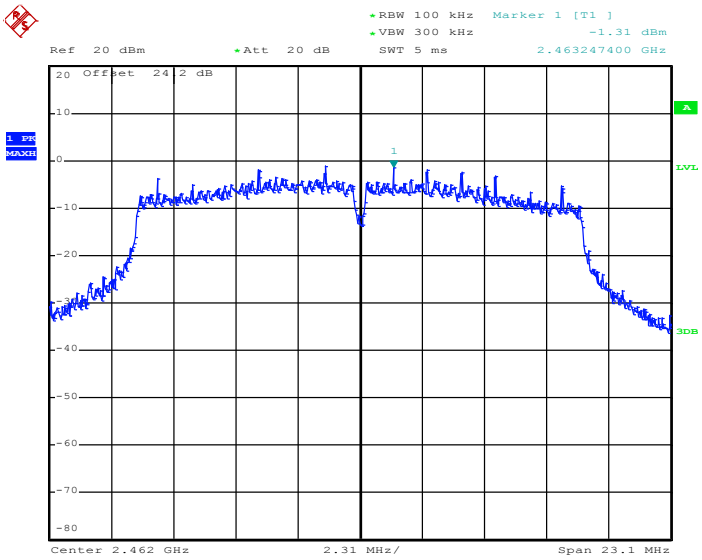
PSD 100kHz Plot on 802.11g Channel 06



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 100kHz Plot on 802.11g Channel 11

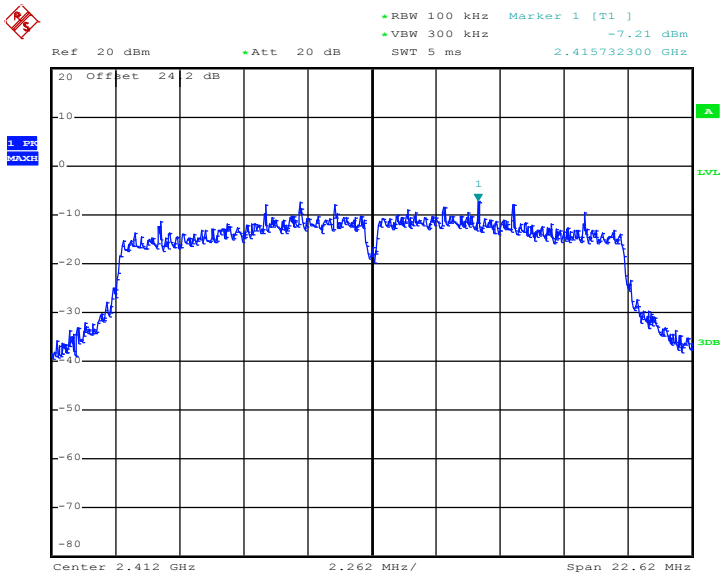


Date: 16.NOV.2012 18:18:11

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

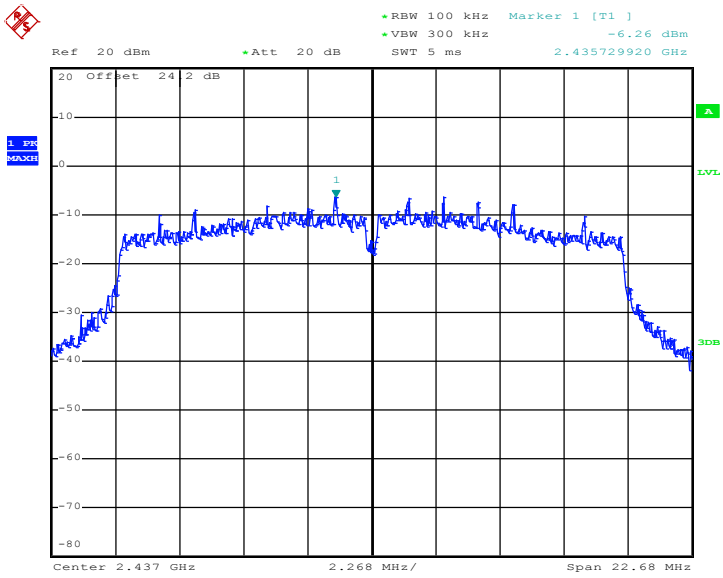
PSD 100kHz Plot on 802.11n HT20 Channel 01



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 100kHz Plot on 802.11n HT20 Channel 06

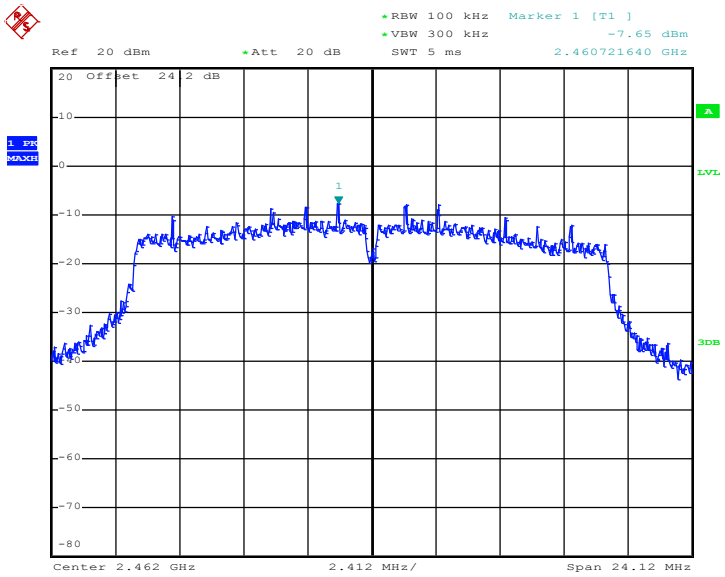


Date: 16.NOV.2012 18:35:01

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 100kHz Plot on 802.11n HT20 Channel 11



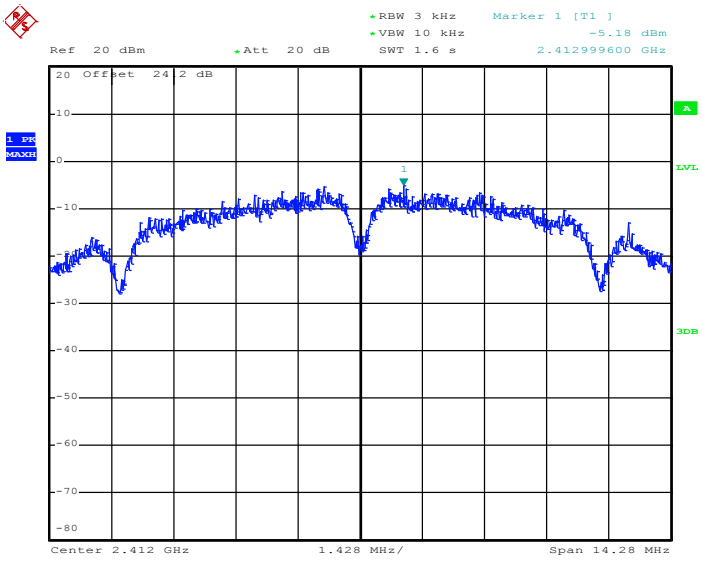
Date: 16.NOV.2012 18:42:36

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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

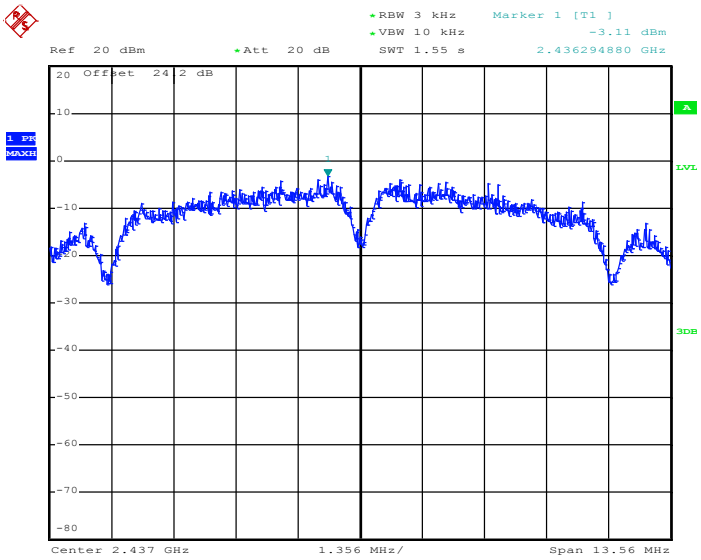
PSD 3kHz Plot on 802.11b Channel 01



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

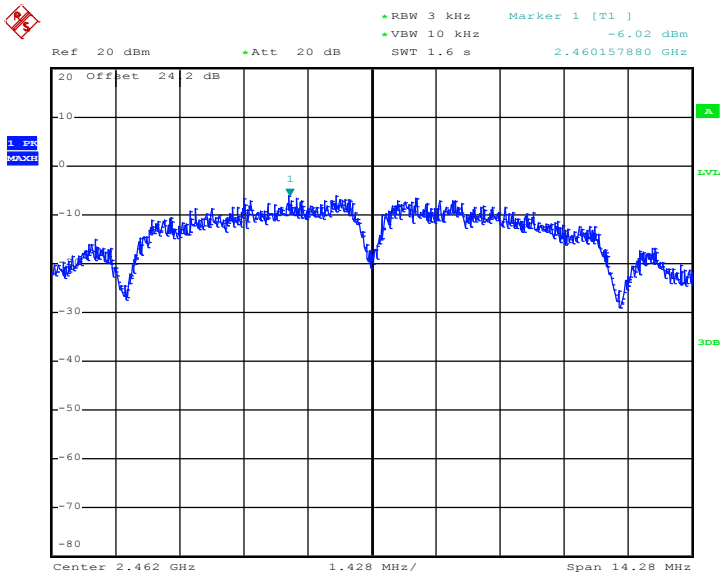
PSD 3kHz Plot on 802.11b Channel 06



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 3kHz Plot on 802.11b Channel 11

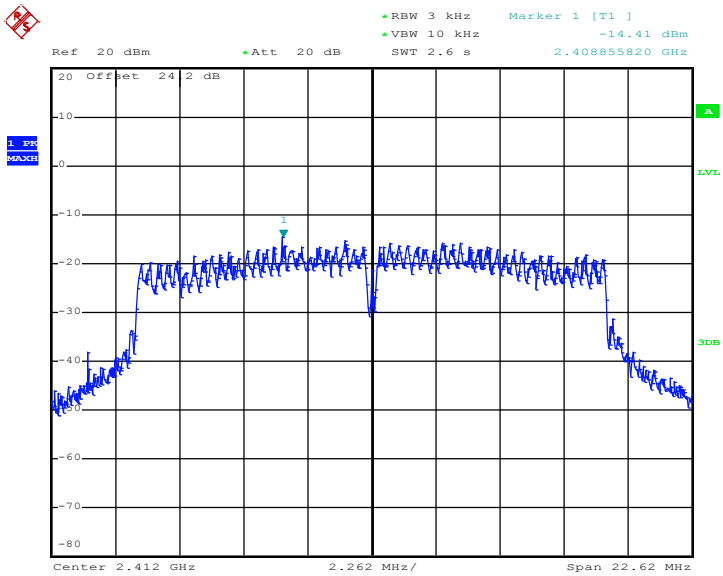


Date: 16.NOV.2012 18:13:31

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 3kHz Plot on 802.11g Channel 01

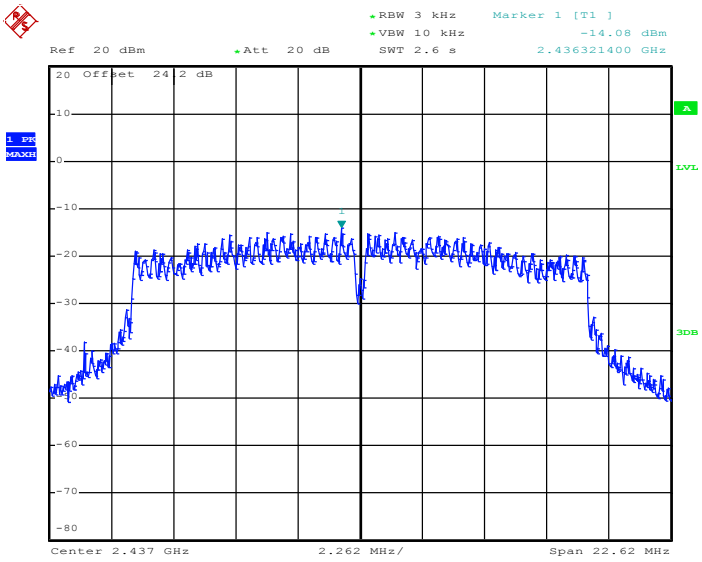


Date: 16.NOV.2012 18:27:07

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 3kHz Plot on 802.11g Channel 06

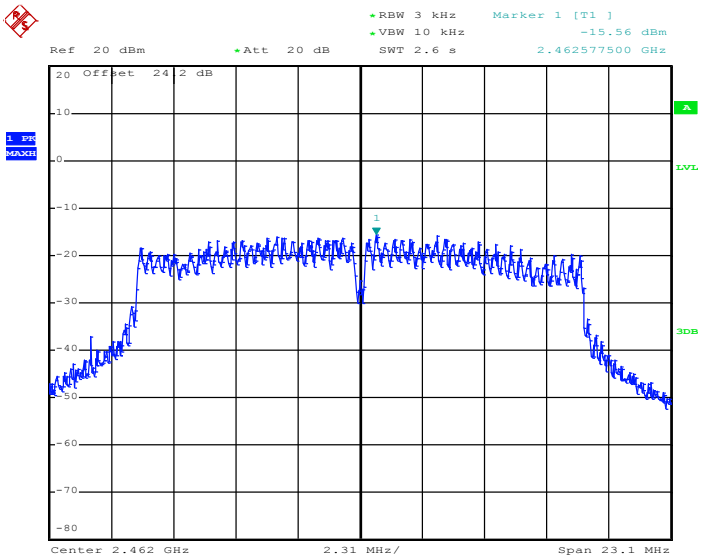


Date: 16.NOV.2012 18:21:30

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 3kHz Plot on 802.11g Channel 11

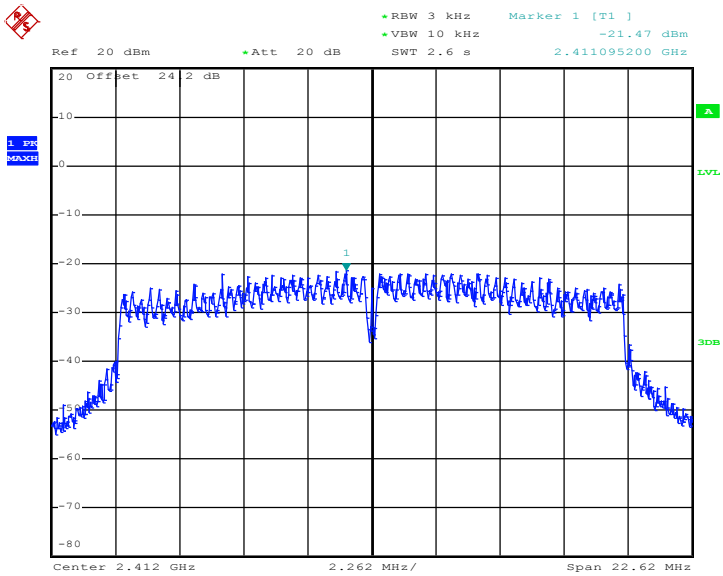


Date: 16.NOV.2012 18:18:05

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

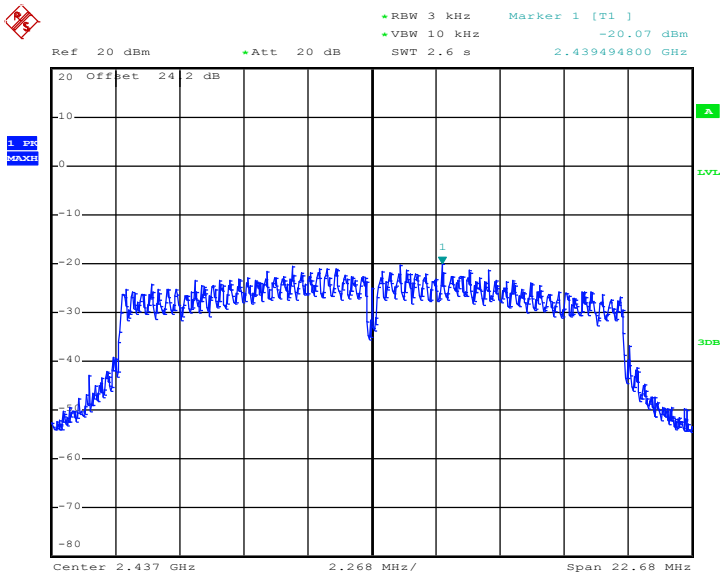
PSD 3kHz Plot on 802.11n HT20 Channel 01



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 3kHz Plot on 802.11n HT20 Channel 06

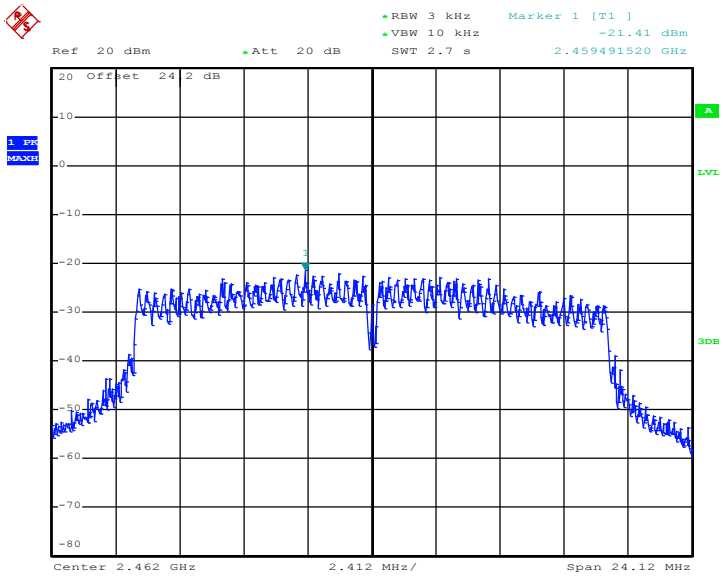


Date: 16.NOV.2012 18:34:56

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

PSD 3kHz Plot on 802.11n HT20 Channel 11



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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).

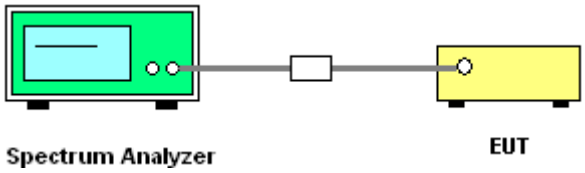
3.4.2 Measuring Instruments

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.

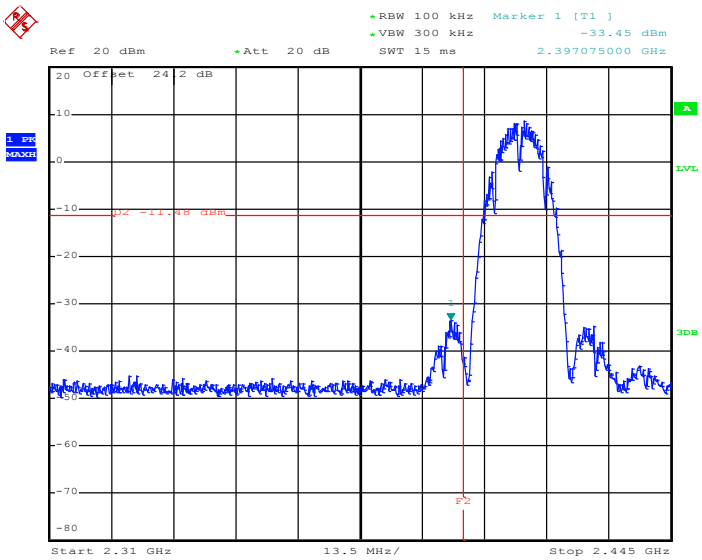
3.4.4 Test Setup



3.4.5 Test 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 :**	Reece Li

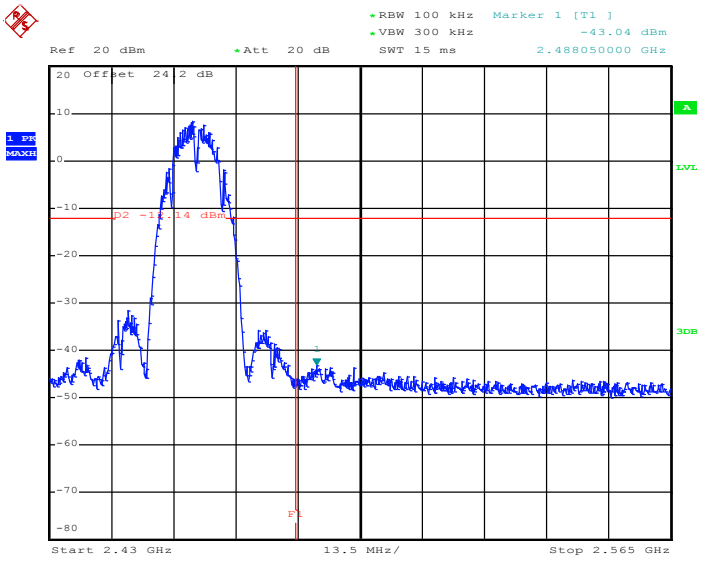
Low Band Edge Plot on 802.11b Channel 01



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

High Band Edge Plot on 802.11b Channel 11



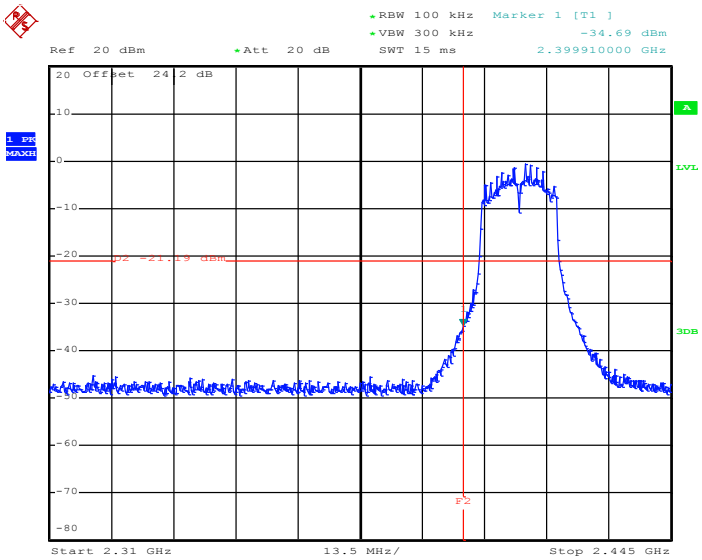
Date: 16.NOV.2012 18:13:53

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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

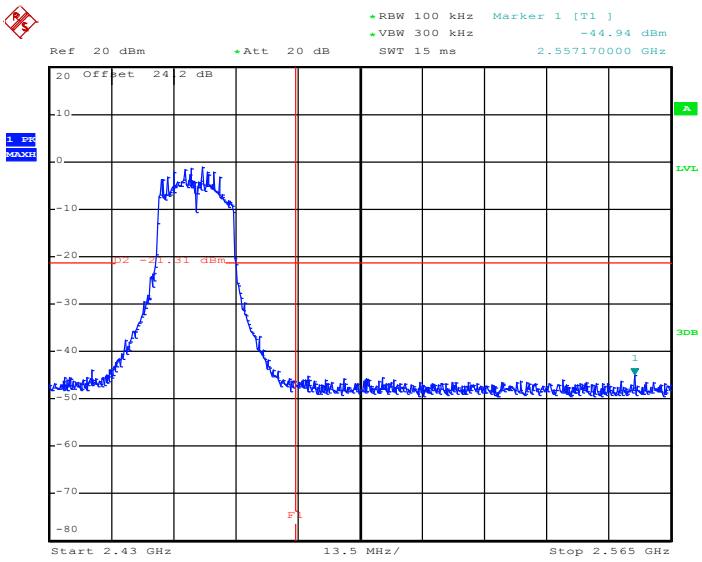
Low Band Edge Plot on 802.11g Channel 01



Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

High Band Edge Plot on 802.11g Channel 11



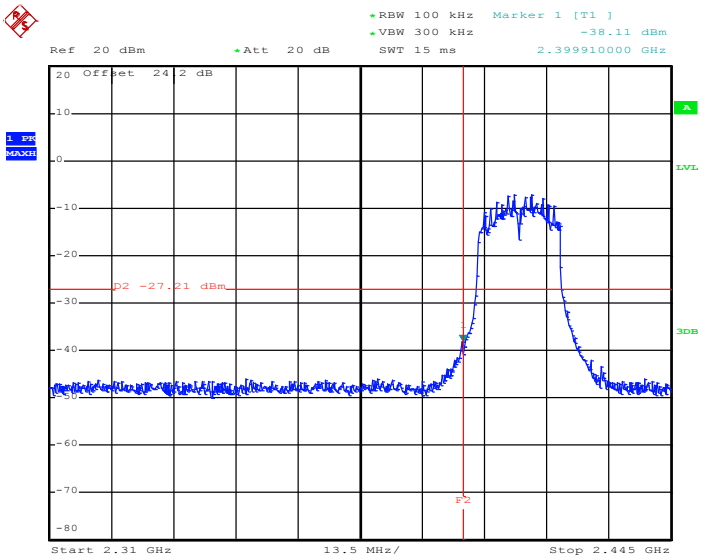
Date: 16.NOV.2012 18:18:27

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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

Low Band Edge Plot on 802.11n HT20 Channel 01

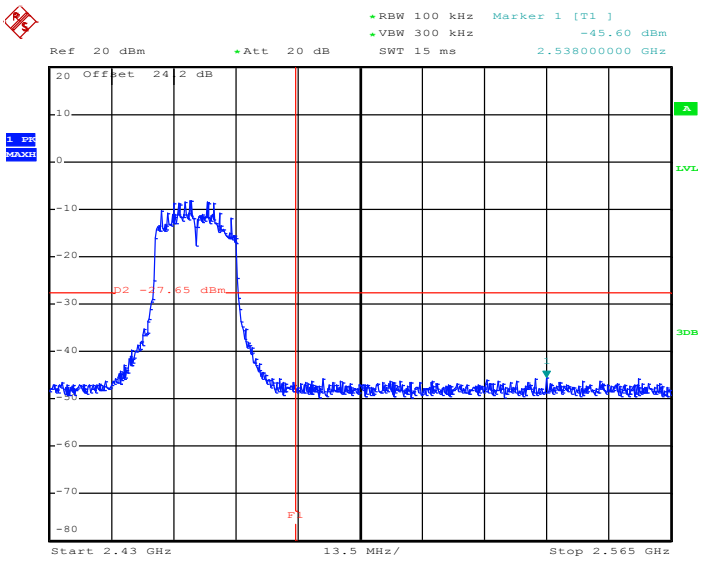


Date: 16.NOV.2012 18:31:57

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

High Band Edge Plot on 802.11n HT20 Channel 11



Date: 16.NOV.2012 18:42:51

Note:

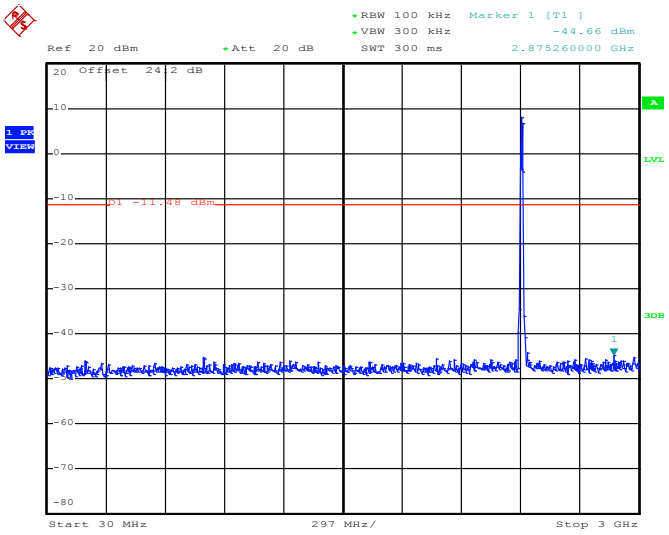
The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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 :**	Reece Li

802.11b 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 01

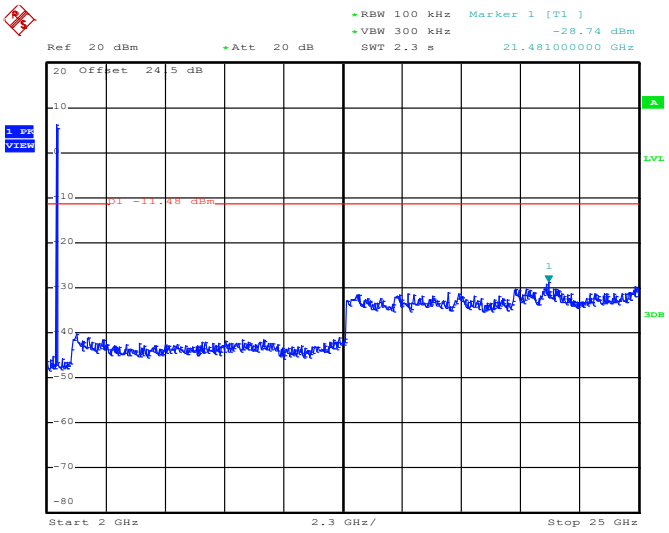


Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01



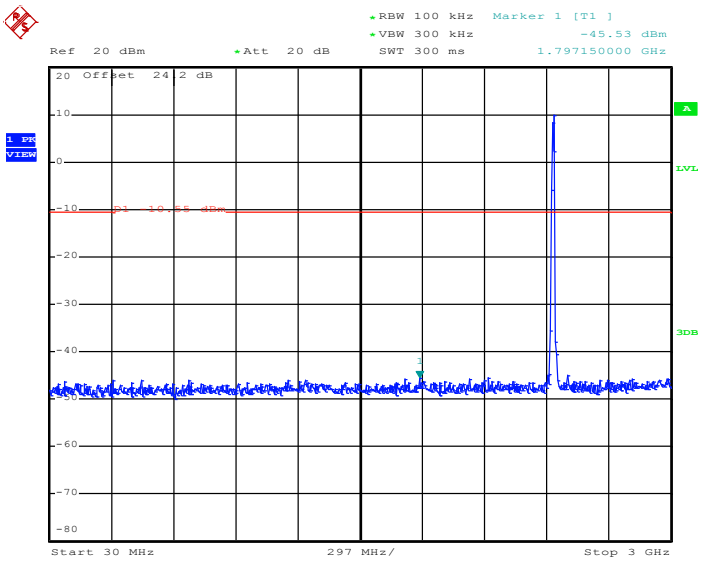
Date: 16.NOV.2012 18:00:42

Note:

The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11b 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 06



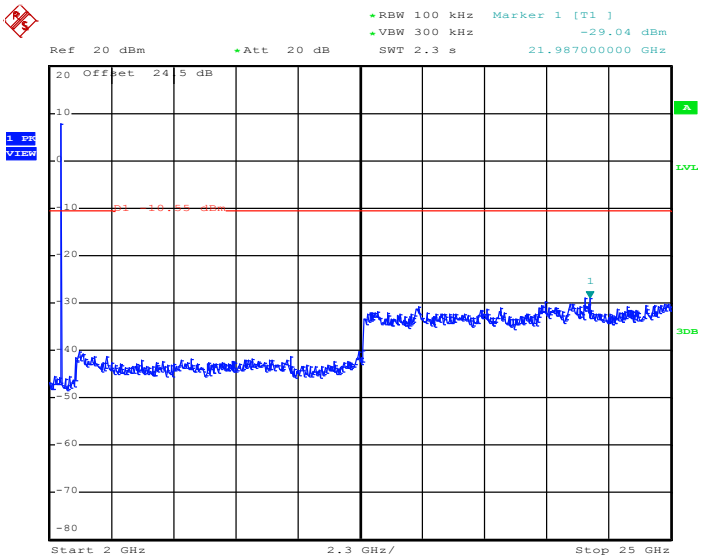
Date: 16.NOV.2012 18:04:11

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06



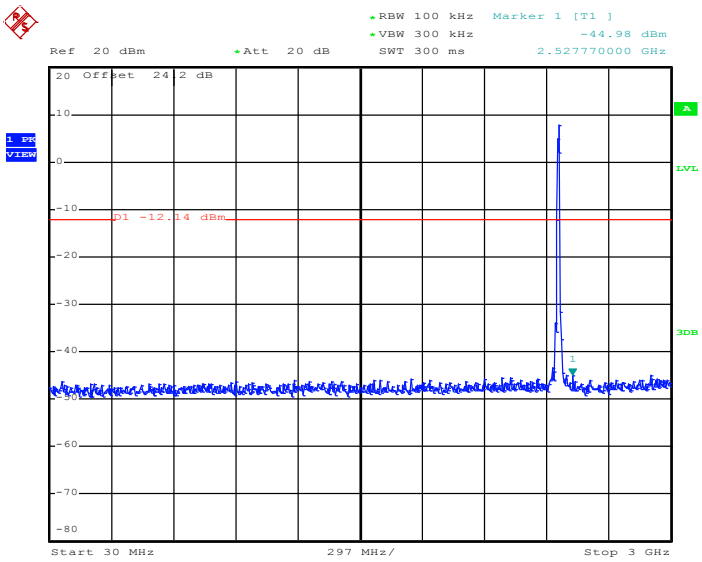
Date: 16.NOV.2012 18:04:28

Note:

The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11b 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 11



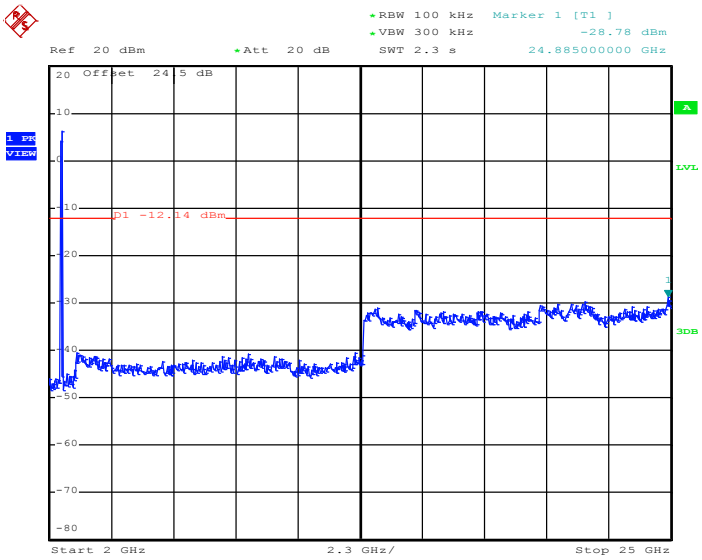
Date: 16.NOV.2012 18:14:12

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



Date: 16.NOV.2012 18:14:29

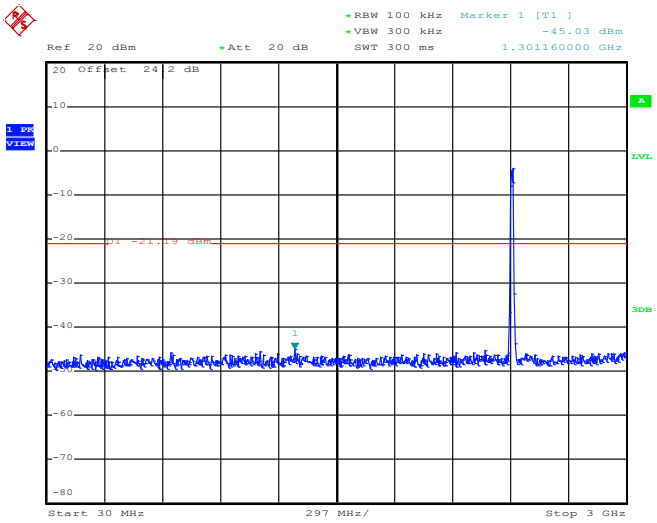
Note:

The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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 :	Reece Li

802.11g 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 01

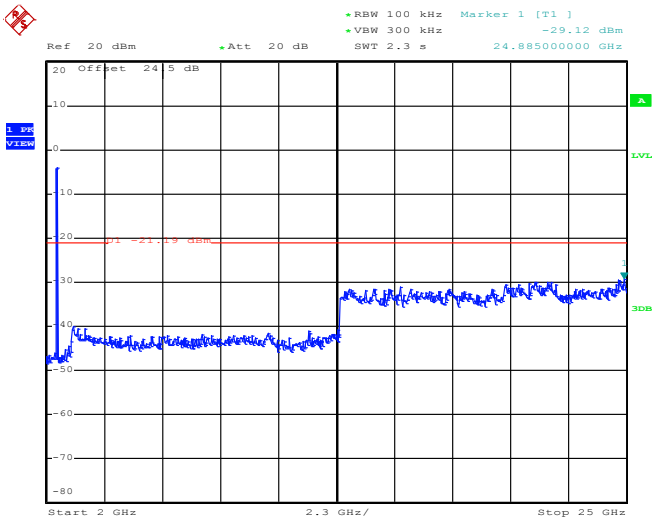


Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

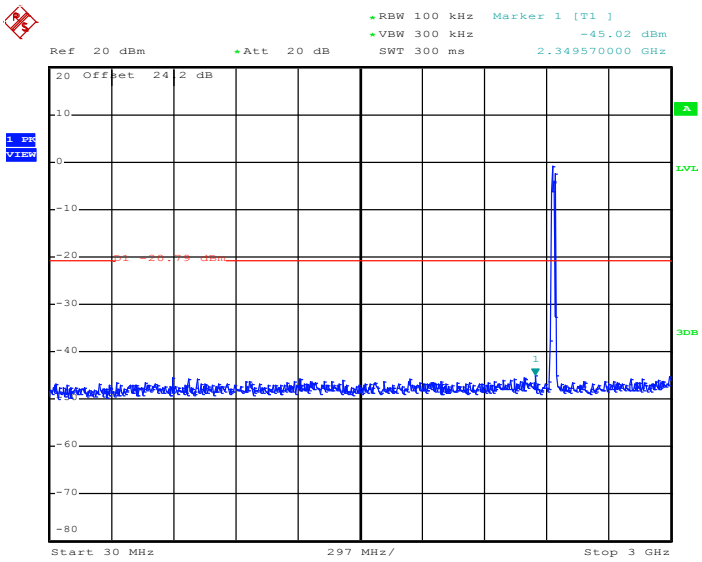


Note:

The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11g 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 06



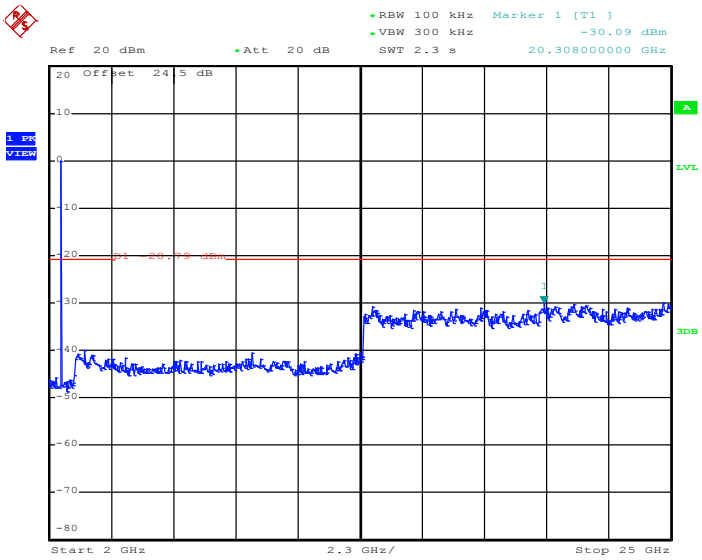
Date: 16.NOV.2012 18:22:06

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06



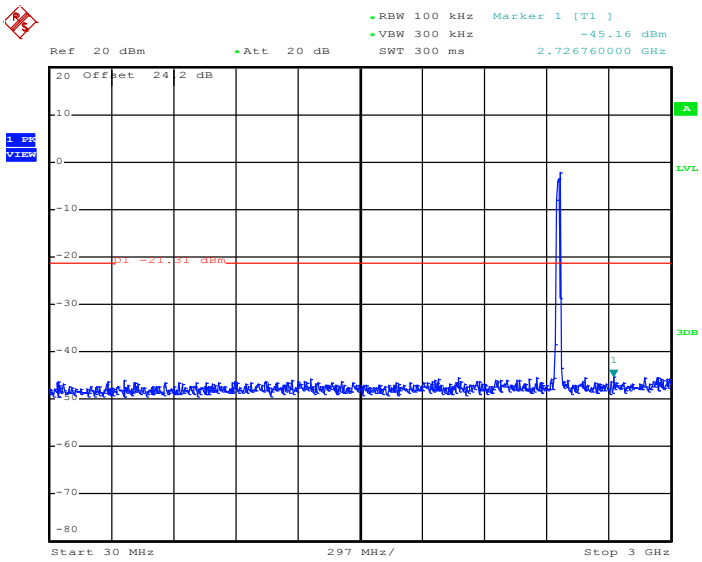
Date: 16.NOV.2012 18:22:23

Note:

The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11g 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 11



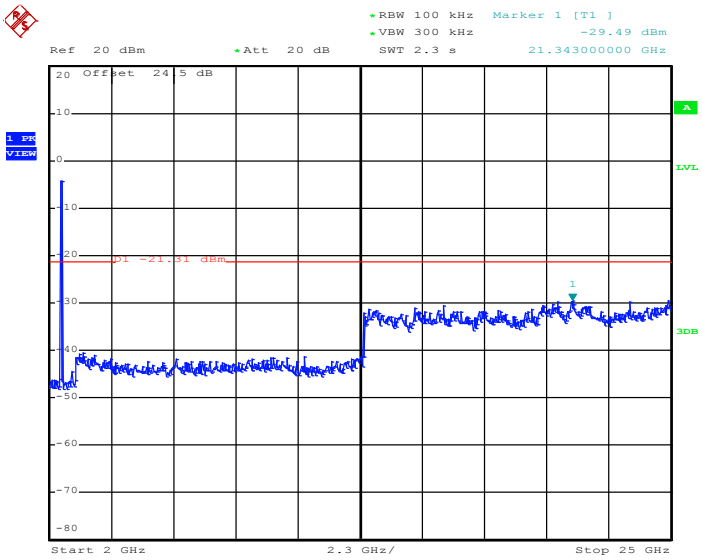
Date: 16.NOV.2012 18:18:46

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



Date: 16.NOV.2012 18:19:04

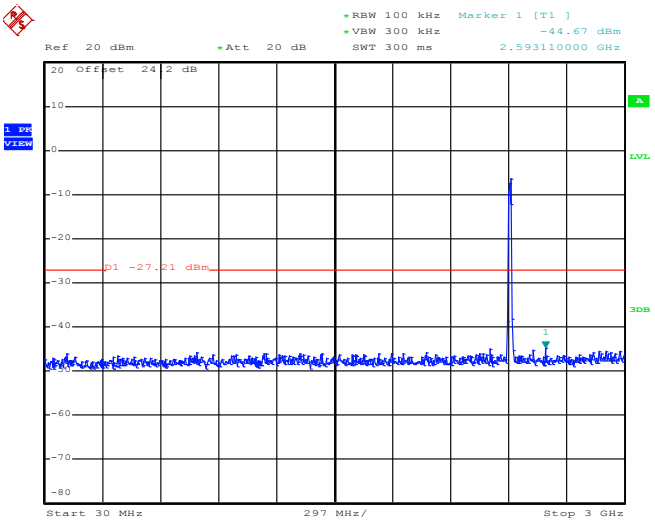
Note:

The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

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 :	Reece Li

802.11n HT20 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 01

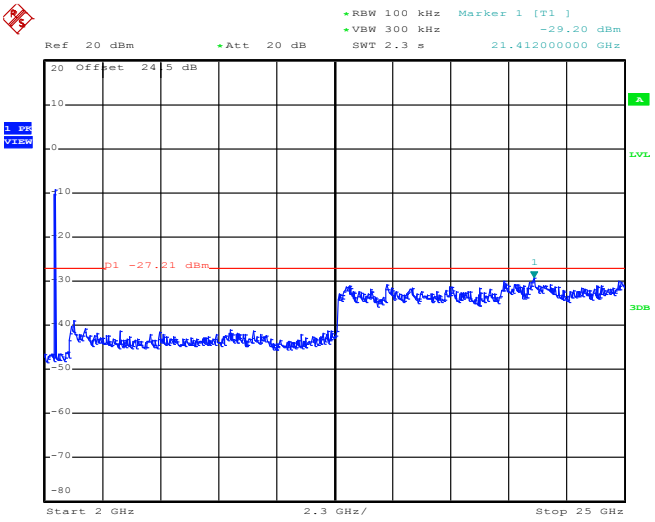


Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01



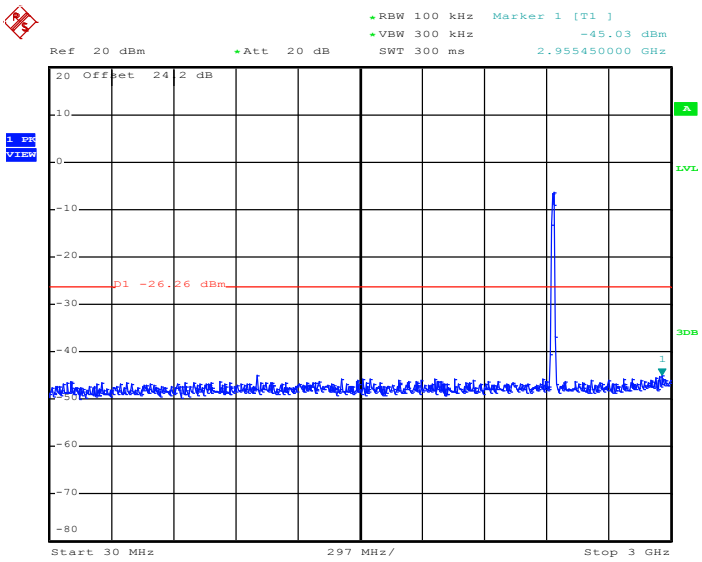
Date: 16.NOV.2012 18:32:33

Note:

The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11n HT20 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 06



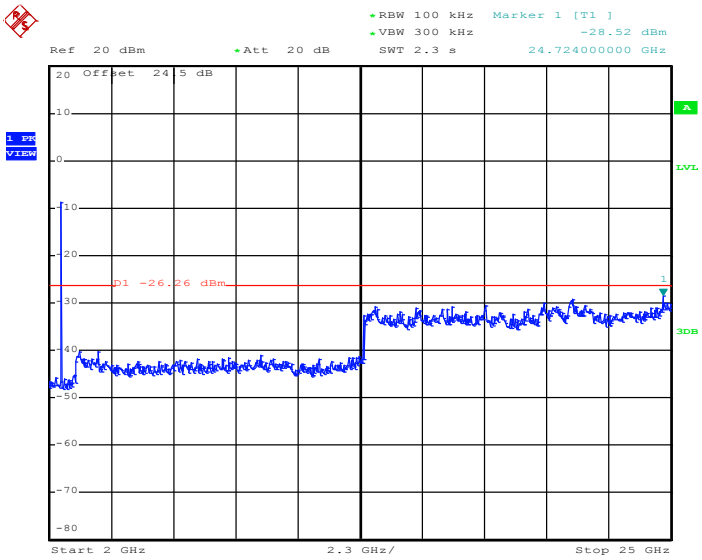
Date: 16.NOV.2012 18:35:27

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

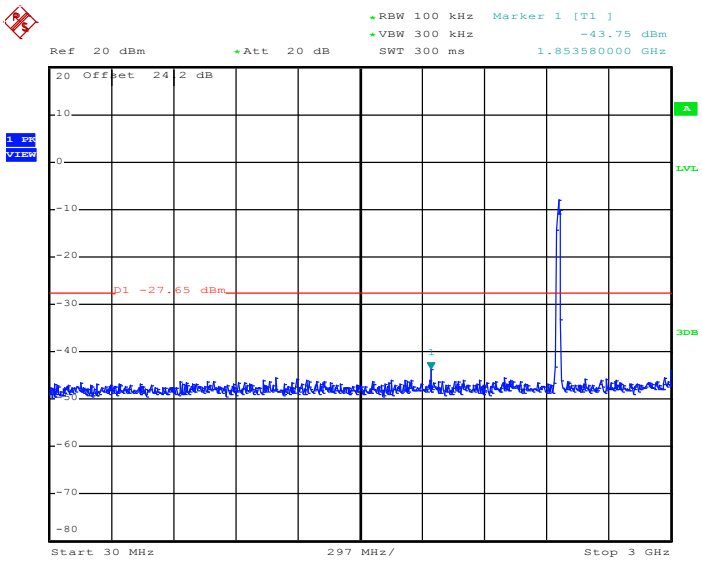


Note:

The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11n HT20 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 11



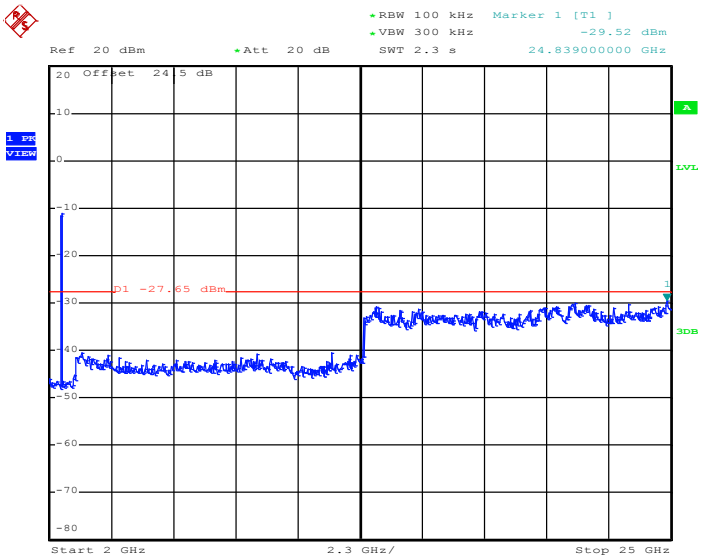
Date: 16.NOV.2012 18:43:10

Note:

The total loss is 24.2dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



Date: 16.NOV.2012 18:43:28

Note:

The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

3.5 Radiated Emission Measurement

3.5.1 Limit of Radiated 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

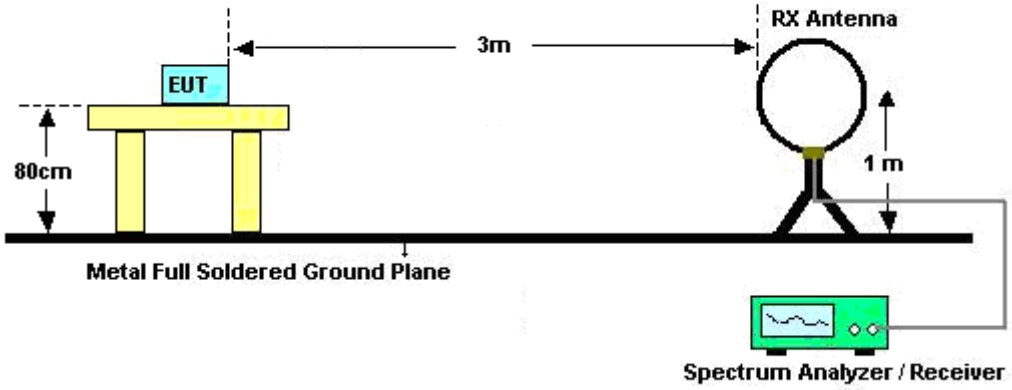
1. The testing follows the guidelines in ANSI C63. 10-2009
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better 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(us)	1/T(KHz)	VBW Setting
802.11b	99.53	-	-	10Hz
802.11g	97.55	1395	0.717	1kHz
802.11n HT20	97.75	1305	0.766	1kHz

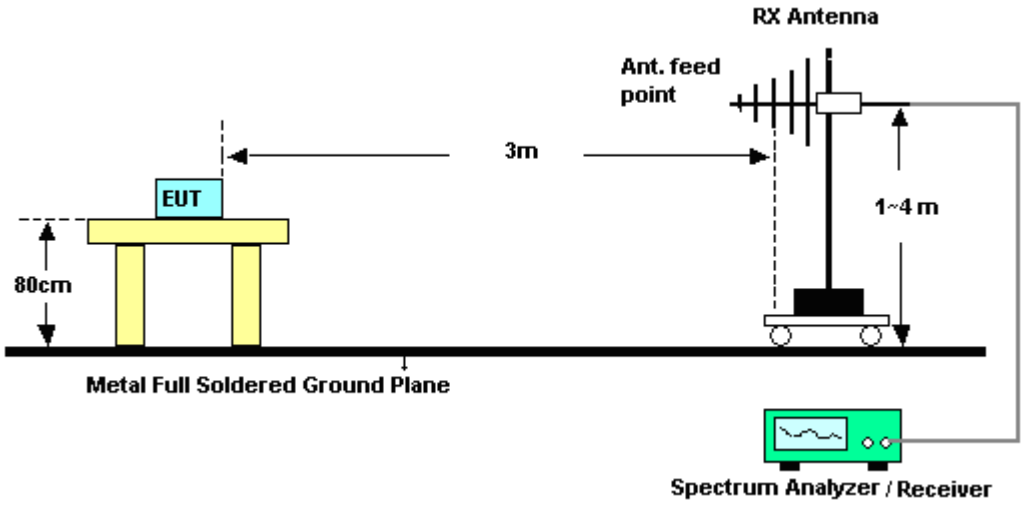
Note: For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

3.5.4 Test Setup

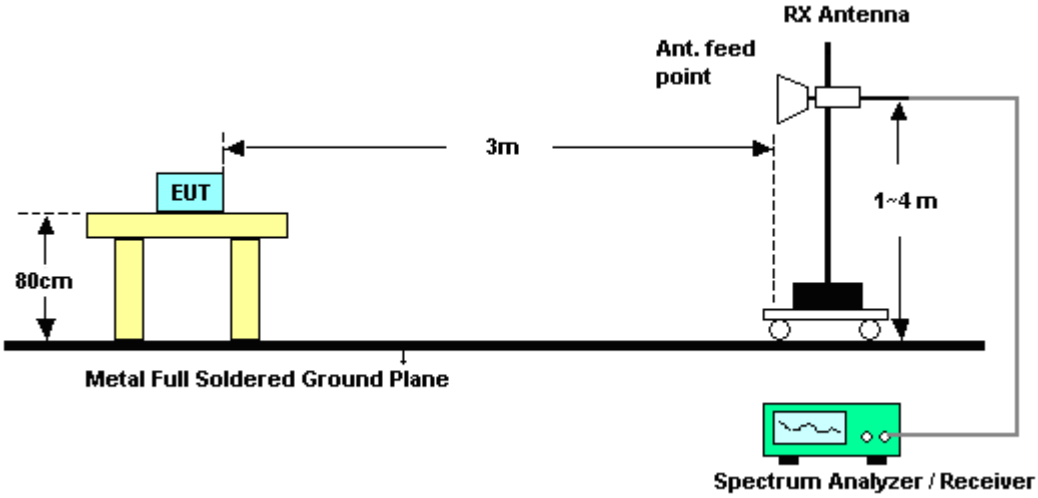
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Emissions (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 :**	22~24℃
Test Band :	Low	**Relative Humidity :**	52~54%
Test Channel :	01	**Test Engineer :**	Marlboro Hsu

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
2388.66	48.98	-25.02	74	44.61	32.3	6.03	33.96	139	306	Peak
2388.84	37.83	-16.17	54	33.46	32.3	6.03	33.96	139	306	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.84	49.1	-24.9	74	44.73	32.3	6.03	33.96	100	52	Peak
2388.66	38.42	-15.58	54	34.05	32.3	6.03	33.96	100	52	Average

Test Mode :	802.11b	**Temperature :**	22~24℃
Test Band :	High	**Relative Humidity :**	52~54%
Test Channel :	11	**Test Engineer :**	Marlboro Hsu

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
2488.08	51.8	-22.2	74	47.22	32.4	6.18	34	110	125	Peak
2488.42	41.85	-12.15	54	37.27	32.4	6.18	34	110	125	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
2488.1	55.35	-18.65	74	50.77	32.4	6.18	34	123	110	Peak
2488.26	46.33	-7.67	54	41.75	32.4	6.18	34	123	110	Average

Test Mode :	802.11g	Temperature :	22~24℃
Test Band :	Low	Relative Humidity :	52~54%
Test Channel :	01	Test Engineer :	Marlboro Hsu

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
2320.98	46.45	-27.55	74	42.23	32.23	5.92	33.93	196	149	Peak
2389.83	34.66	-19.34	54	30.29	32.3	6.03	33.96	196	149	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
2389.83	51.12	-22.88	74	46.75	32.3	6.03	33.96	100	113	Peak
2390	37.42	-16.58	54	33.05	32.3	6.03	33.96	100	113	Average

Test Mode :	802.11g	Temperature :	22~24℃
Test Band :	High	Relative Humidity :	52~54%
Test Channel :	11	Test Engineer :	Marlboro Hsu

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
2486.2	49.24	-24.76	74	44.68	32.38	6.18	34	162	219	Peak
2483.54	36.07	-17.93	54	31.51	32.38	6.18	34	162	219	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
2483.52	54.06	-19.94	74	49.5	32.38	6.18	34	122	111	Peak
2483.56	38.77	-15.23	54	34.21	32.38	6.18	34	122	111	Average

Test Mode :	802.11n HT20	Temperature :	22~24℃
Test Band :	Low	Relative Humidity :	52~54%
Test Channel :	01	Test Engineer :	Marlboro Hsu

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
2385.42	46.26	-27.74	74	41.91	32.28	6.03	33.96	196	148	Peak
2335.56	33.98	-20.02	54	29.73	32.24	5.95	33.94	196	148	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	46.24	-27.76	74	41.87	32.3	6.03	33.96	100	52	Peak
2390	34.49	-19.51	54	30.12	32.3	6.03	33.96	100	52	Average

Test Mode :	802.11n HT20	Temperature :	22~24℃
Test Band :	High	Relative Humidity :	52~54%
Test Channel :	11	Test Engineer :	Marlboro Hsu

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
2484.1	47.85	-26.15	74	43.29	32.38	6.18	34	116	328	Peak
2484.48	34.72	-19.28	54	30.16	32.38	6.18	34	116	328	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
2484.1	48.62	-25.38	74	44.06	32.38	6.18	34	121	112	Peak
2483.5	35.17	-18.83	54	30.61	32.38	6.18	34	121	112	Average

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

Test Mode :	802.11b	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	100.62	-	-	96.21	32.31	6.07	33.97	139	306	Average
2412	105.51	-	-	101.1	32.31	6.07	33.97	139	306	Peak
4824	48.14	-25.86	74	62.52	33.97	9.12	57.47	100	0	Peak

Test Mode :	802.11b	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	101.26	-	-	96.85	32.31	6.07	33.97	100	52	Average
2412	105.99	-	-	101.58	32.31	6.07	33.97	100	52	Peak
4824	41.18	-32.82	74	58.08	33.97	9.12	59.99	100	0	Peak

Test Mode :	802.11b	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	102.7	-	-	98.22	32.35	6.11	33.98	148	326	Average
2437	107.7	-	-	103.22	32.35	6.11	33.98	148	326	Peak
4875	46.99	-27.01	74	61.39	33.95	9.13	57.48	100	0	Peak

Test Mode :	802.11b	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	102.76	-	-	98.28	32.35	6.11	33.98	100	261	Average
2437	107.67	-	-	103.19	32.35	6.11	33.98	100	261	Peak
4875	40.55	-33.45	74	57.25	33.95	9.13	59.78	100	0	Peak

Test Mode :	802.11b	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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
109.65	12.75	-30.75	43.5	32.75	10.7	1.05	31.75	-	-	Peak
212.79	30.41	-13.09	43.5	50.42	9.98	1.37	31.36	-	-	Peak
270.84	34.26	-11.74	46	51.04	12.89	1.64	31.31	-	-	Peak
370	34.31	-11.69	46	48.37	15.21	2.08	31.35	100	23	Peak
634.6	27.6	-18.4	46	35.15	20.07	2.79	30.41	-	-	Peak
799.1	28.77	-17.23	46	33.71	22.09	3.14	30.17	-	-	Peak
2462	96.87	-	-	92.35	32.37	6.14	33.99	110	125	Average
2462	101.6	-	-	97.08	32.37	6.14	33.99	110	125	Peak
4926	47.95	-26.05	74	62.35	33.93	9.15	57.48	100	0	Peak

Test Mode :	802.11b	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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
32.43	26.41	-13.59	40	39.88	17.84	0.56	31.87	100	89	Peak
202.8	25.19	-18.31	43.5	45.9	9.3	1.33	31.34	-	-	Peak
270.57	30.3	-15.7	46	47.08	12.89	1.64	31.31	-	-	Peak
321.7	27.44	-18.56	46	42.87	13.9	1.82	31.15	-	-	Peak
472.9	27.59	-18.41	46	38.73	17.53	2.36	31.03	-	-	Peak
834.8	24.11	-21.89	46	28.86	22.45	3.23	30.43	-	-	Peak
2462	101.1	-	-	96.58	32.37	6.14	33.99	123	110	Average
2462	105.93	-	-	101.41	32.37	6.14	33.99	123	110	Peak
4926	46.26	-27.74	74	60.66	33.93	9.15	57.48	100	0	Peak

Test Mode :	802.11g	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	87.41	-	-	83	32.31	6.07	33.97	196	149	Average
2412	97.03	-	-	92.62	32.31	6.07	33.97	196	149	Peak
4824	41.73	-32.27	74	56.11	33.97	9.12	57.47	100	0	Peak

Test Mode :	802.11g	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	92.34	-	-	87.93	32.31	6.07	33.97	100	113	Average
2412	102.15	-	-	97.74	32.31	6.07	33.97	100	113	Peak
4824	41.31	-32.69	74	55.69	33.97	9.12	57.47	100	0	Peak

Test Mode :	802.11g	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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	88.73	-	-	84.25	32.35	6.11	33.98	146	344	Average
2437	98.17	-	-	93.69	32.35	6.11	33.98	146	344	Peak
4875	41.66	-32.34	74	56.06	33.95	9.13	57.48	100	0	Peak

Test Mode :	802.11g	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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	93.61	-	-	89.13	32.35	6.11	33.98	100	64	Average
2437	103.65	-	-	99.17	32.35	6.11	33.98	100	64	Peak
4875	41.5	-32.5	74	55.9	33.95	9.13	57.48	100	0	Peak

Test Mode :	802.11g	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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
52.14	14.76	-25.24	40	38	7.7	0.71	31.65	-	-	Peak
212.25	28.9	-14.6	43.5	48.93	9.98	1.37	31.38	-	-	Peak
270.3	33.44	-12.56	46	50.21	12.89	1.64	31.3	-	-	Peak
363.7	34.1	-11.9	46	48.39	15.03	2.07	31.39	100	231	Peak
485.5	29.34	-16.66	46	40.08	17.8	2.4	30.94	-	-	Peak
624.1	27.38	-18.62	46	35.08	19.99	2.76	30.45	-	-	Peak
2462	86.4	-	-	81.88	32.37	6.14	33.99	162	219	Average
2462	96.7	-	-	92.18	32.37	6.14	33.99	162	219	Peak
4923	41.62	-32.38	74	56.03	33.93	9.14	57.48	100	0	Peak

Test Mode :	802.11g	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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
109.38	13.32	-30.18	43.5	33.31	10.7	1.05	31.74	-	-	Peak
202.8	24.99	-18.51	43.5	45.7	9.3	1.33	31.34	-	-	Peak
270.57	30.48	-15.52	46	47.26	12.89	1.64	31.31	100	98	Peak
321.7	29.05	-16.95	46	44.48	13.9	1.82	31.15	-	-	Peak
466.6	27.87	-18.13	46	39.23	17.39	2.34	31.09	-	-	Peak
624.1	25.06	-20.94	46	32.76	19.99	2.76	30.45	-	-	Peak
2462	91.63	-	-	87.11	32.37	6.14	33.99	122	111	Average
2462	101.33	-	-	96.81	32.37	6.14	33.99	122	111	Peak
4923	41.37	-32.63	74	55.78	33.93	9.14	57.48	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	82.43	-	-	78.02	32.31	6.07	33.97	196	148	Average
2412	91.67	-	-	87.26	32.31	6.07	33.97	196	148	Peak
4824	41.15	-32.85	74	55.53	33.97	9.12	57.47	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	85.16	-	-	80.75	32.31	6.07	33.97	100	52	Average
2412	95.02	-	-	90.61	32.31	6.07	33.97	100	52	Peak
4824	41.44	-32.56	74	55.82	33.97	9.12	57.47	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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	86.69	-	-	82.21	32.35	6.11	33.98	146	308	Average
2437	96.52	-	-	92.04	32.35	6.11	33.98	146	308	Peak
4875	41.4	-32.6	74	55.8	33.95	9.13	57.48	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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	85.78	-	-	81.3	32.35	6.11	33.98	100	93	Average
2437	96.01	-	-	91.53	32.35	6.11	33.98	100	93	Peak
4875	41.67	-32.33	74	56.07	33.95	9.13	57.48	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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
154.47	13.74	-29.76	43.5	33	10.92	1.21	31.39	-	-	Peak
212.25	30.14	-13.36	43.5	50.17	9.98	1.37	31.38	-	-	Peak
270.3	34.95	-11.05	46	51.72	12.89	1.64	31.3	100	98	Peak
370	32.18	-13.82	46	46.24	15.21	2.08	31.35	-	-	Peak
466.6	29.31	-16.69	46	40.67	17.39	2.34	31.09	-	-	Peak
630.4	27.42	-18.58	46	35.03	20.04	2.78	30.43	-	-	Peak
2462	82.53	-	-	78.01	32.37	6.14	33.99	116	328	Average
2462	92.13	-	-	87.61	32.37	6.14	33.99	116	328	Peak
4923	41.93	-32.07	74	56.34	33.93	9.14	57.48	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Marlboro Hsu	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
32.43	35.58	-4.42	40	49.05	17.84	0.56	31.87	100	23	Peak
202.8	26.29	-17.21	43.5	47	9.3	1.33	31.34	-	-	Peak
270.3	31.4	-14.6	46	48.17	12.89	1.64	31.3	-	-	Peak
321.7	29.07	-16.93	46	44.5	13.9	1.82	31.15	-	-	Peak
469.4	28.2	-17.8	46	39.47	17.45	2.35	31.07	-	-	Peak
728.4	22.93	-23.07	46	29.41	21.02	3.01	30.51	-	-	Peak
2462	84.59	-	-	80.07	32.37	6.14	33.99	121	112	Average
2462	94.37	-	-	89.85	32.37	6.14	33.99	121	112	Peak
4923	41.4	-32.6	74	55.81	33.93	9.14	57.48	100	0	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

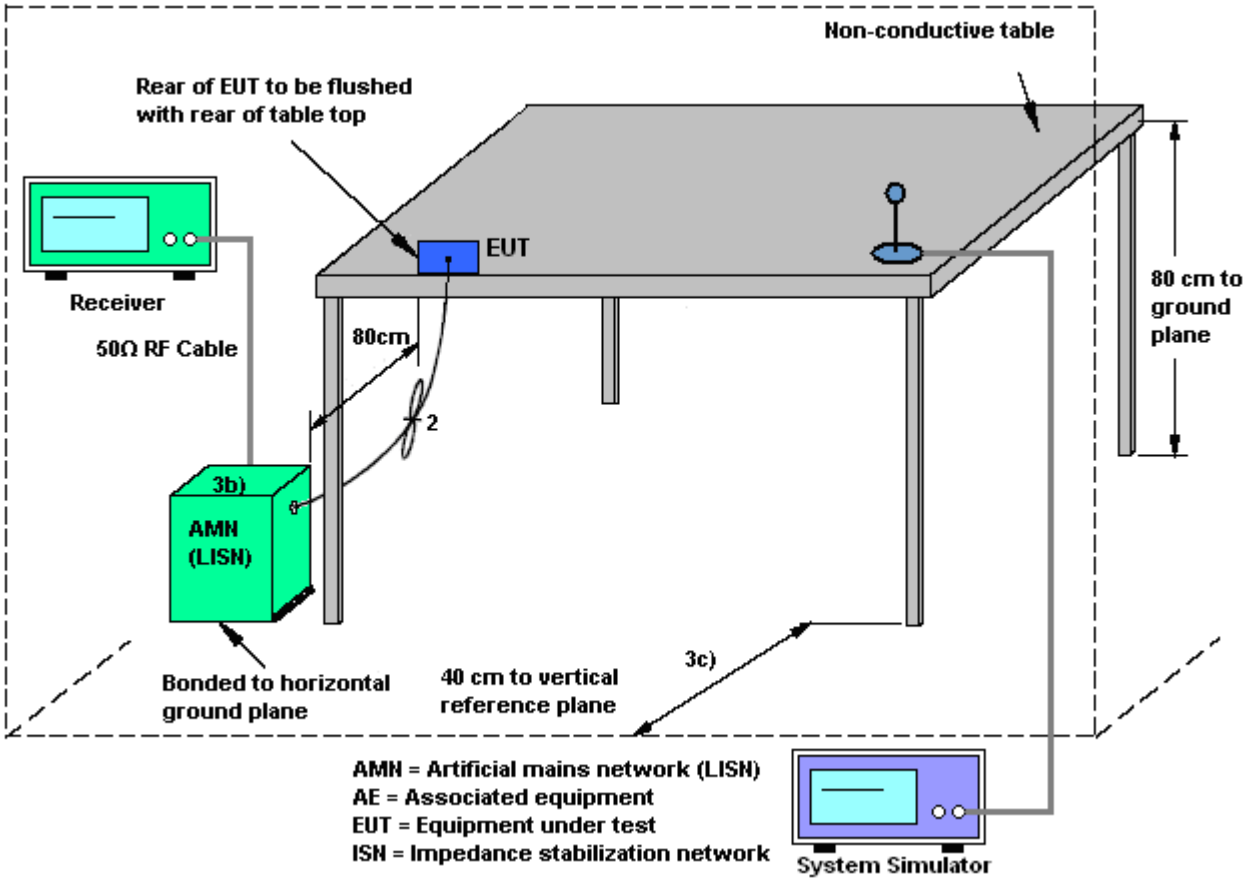
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

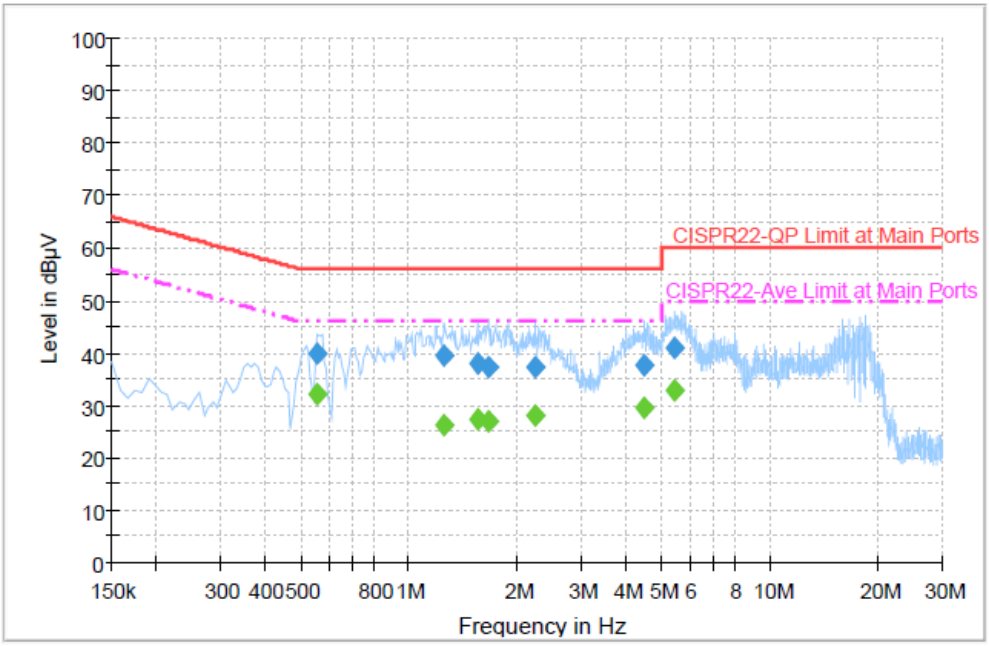
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance 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 :	Slash Huang	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + Camera + Earphone + Battery + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



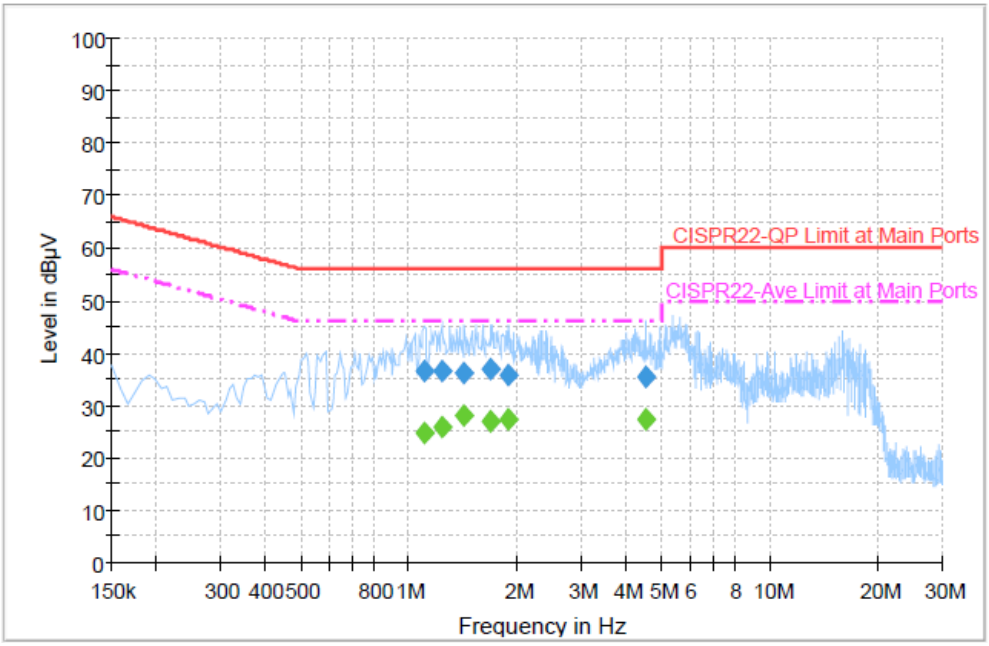
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.558000	40.0	Off	L1	19.4	16.0	56.0
1.254000	39.4	Off	L1	19.4	16.6	56.0
1.542000	38.1	Off	L1	19.4	17.9	56.0
1.662000	37.4	Off	L1	19.4	18.6	56.0
2.230000	37.3	Off	L1	19.5	18.7	56.0
4.478000	37.8	Off	L1	19.5	18.2	56.0
5.414000	40.9	Off	L1	19.5	19.1	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.558000	32.0	Off	L1	19.4	14.0	46.0
1.254000	26.1	Off	L1	19.4	19.9	46.0
1.542000	27.2	Off	L1	19.4	18.8	46.0
1.662000	27.1	Off	L1	19.4	18.9	46.0
2.230000	27.9	Off	L1	19.5	18.1	46.0
4.478000	29.4	Off	L1	19.5	16.6	46.0
5.414000	32.7	Off	L1	19.5	17.3	50.0

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + Camera + Earphone + Battery + USB Cable (Charging from Adapter)		
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)
1.102000	36.4	Off	N	19.5	19.6	56.0
1.230000	36.4	Off	N	19.5	19.6	56.0
1.422000	36.1	Off	N	19.5	19.9	56.0
1.678000	36.9	Off	N	19.5	19.1	56.0
1.886000	35.9	Off	N	19.5	20.1	56.0
4.526000	35.3	Off	N	19.5	20.7	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.102000	24.6	Off	N	19.5	21.4	46.0
1.230000	25.8	Off	N	19.5	20.2	46.0
1.422000	27.9	Off	N	19.5	18.1	46.0
1.678000	26.8	Off	N	19.5	19.2	46.0
1.886000	27.4	Off	N	19.5	18.6	46.0
4.526000	27.3	Off	N	19.5	18.7	46.0

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	Nov. 14, 2012 ~ Nov. 16, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Nov. 14, 2012 ~ Nov. 16, 2012	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Nov. 14, 2012 ~ Nov. 16, 2012	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Nov. 17, 2012	Sep. 02, 2013	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Nov. 17, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Nov. 17, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Nov. 17, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	Nov. 17, 2012	Jul. 27, 2013	Conduction (CO05-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 06, 2012	Nov. 20, 2012 ~ Nov. 21, 2012	Oct. 05, 2013	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Nov. 20, 2012 ~ Nov. 21, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 22, 2012	Nov. 20, 2012 ~ Nov. 21, 2012	Aug. 21, 2013	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Nov. 20, 2012 ~ Nov. 21, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-00101800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Nov. 20, 2012 ~ Nov. 21, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32dB.GAIN	Feb. 27, 2012	Nov. 20, 2012 ~ Nov. 21, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Nov. 20, 2012 ~ Nov. 21, 2012	Sep. 02, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Sep. 28, 2012	Nov. 20, 2012 ~ Nov. 21, 2012	Sep. 27, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Nov. 20, 2012 ~ Nov. 21, 2012	Jul. 02, 2014	Radiation (03CH06-HY)

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 EP2N0915 as below.