

FCC RF Test Report

APPLICANT : SAMSUNG Electronics Co., LTD.
EQUIPMENT : Mobile Phone
BRAND NAME : Samsung
MODEL NAME : GT-I8258
MARKETING NAME : Vasto-i
FCC ID : A3LGTI8258
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Oct. 16, 2012 and completely tested on Nov. 12, 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



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	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Manufacturer	5
1.3 Feature of Equipment Under Test	5
1.4 Testing Site	6
1.5 Applied Standards	6
1.6 Ancillary Equipment List	6
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	7
2.1 Carrier Frequency Channel	7
2.2 Pre-Scanned RF Power	8
2.3 Test Mode	9
2.4 Connection Diagram of Test System	10
2.5 RF Utility	10
3 TEST RESULT	11
3.1 6dB Bandwidth Measurement	11
3.2 Output Power Measurement	22
3.3 Power Spectral Density Measurement	25
3.4 Conducted Band Edges and Spurious Emission Measurement	46
3.5 Radiated Emission Measurement	71
3.6 AC Conducted Emission Measurement	92
3.7 Antenna Requirements	98
4 LIST OF MEASURING EQUIPMENT	99
5 UNCERTAINTY OF EVALUATION	100



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR2O1607B	Rev. 01	Initial issue of report	Dec. 05, 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	$\geq 0.5\text{MHz}$	Pass	-
0	15.247(b)	A8.4	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	A8.5	Conducted Band Edges	$\leq 20\text{dBc}$	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 3.36 dB at 2483.580 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 9.10 dB at 0.366 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

SAMSUNG Electronics Co., LTD.

IT center, 416, Maetan-3dong, Yeongtong-gu, Suwon-city, Gyeonggi-do, Korea

1.2 Manufacturer

SAMSUNG Electronics Co., LTD.

IT center, 416, Maetan-3dong, Yeongtong-gu, Suwon-city, Gyeonggi-do, Korea

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Samsung
Model Name	GT-I8258
Marketing Name	Vasto-i
FCC ID	A3LGTI8258
EUT supports Radios application	GSM/EGPRS WLAN 11bgn / Bluetooth
HW Version	REV1.0
SW Version	I8258.01
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 Frequency Range	2412 MHz ~ 2462 MHz
Number of Channels	11
Carrier Frequency of Each Channel	$2412+(n-1)*5$ MHz; $n=1\sim11$
Maximum Output Power to Antenna	802.11b : 17.85 dBm (0.0610 W) 802.11g : 22.59 dBm (0.1816 W) 802.11n HT20 : 21.81 dBm (0.1517 W)
Antenna Type	PIFA Antenna type with gain -5.20 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 1 st 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.

1.6 Ancillary Equipment List

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

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)	17.85	17.84	17.84	17.82

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)	22.59	22.56	22	22.01	21.95	22.56	22.21	21.89

2.4GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	21.81	21.62	21.67	21.79	21.61	21.54	21.69	21.72

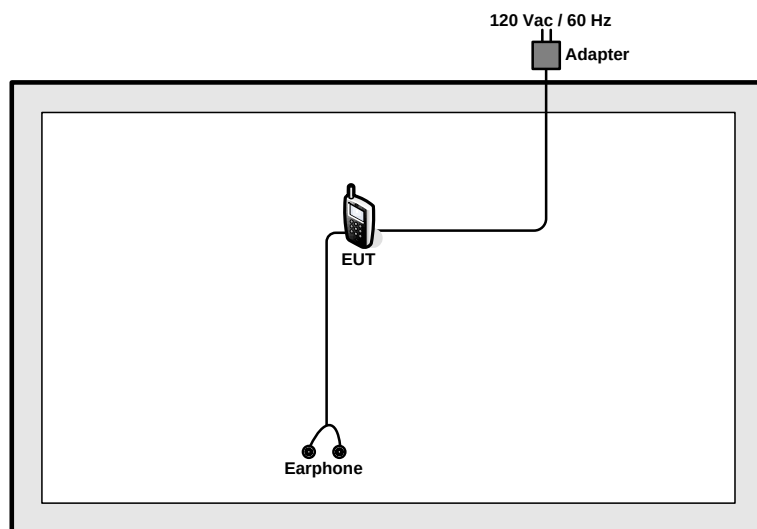
2.3 Test Mode

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

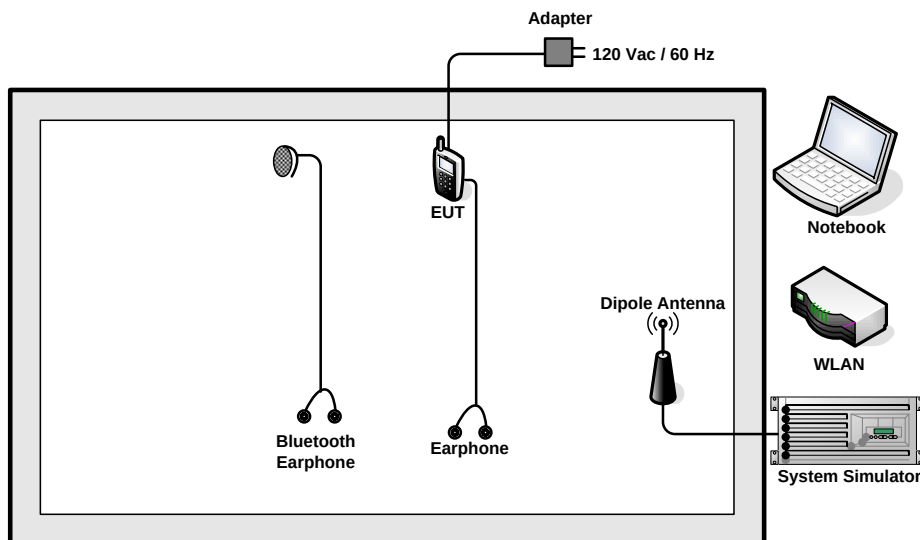
Test Cases				
Conducted TCs	Test Items	Mode	Data Rate	Test Channel
	6dB and 99% BW Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
	Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
	Conducted Band Edge	802.11b	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 : GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + MP3 + 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, key in “* # 232339 #” on the EUT directly. Then, the EUT will get into the engineering modes to 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.

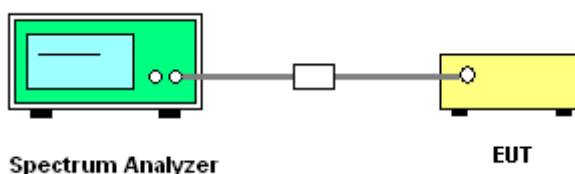
3.1.2 Measuring Instruments

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 a low loss cable. 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) $\geq 3 * RBW$. In order to make an accurate measurement.
5. Measure and record the results in the test report.

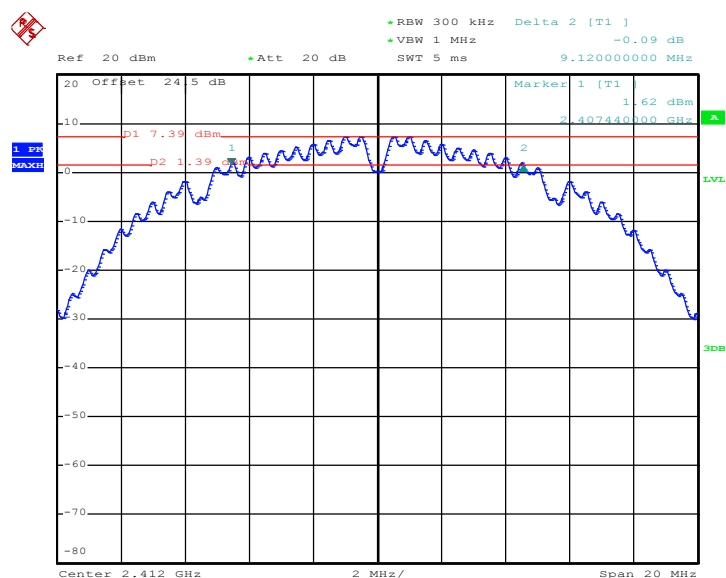
3.1.4 Test Setup





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

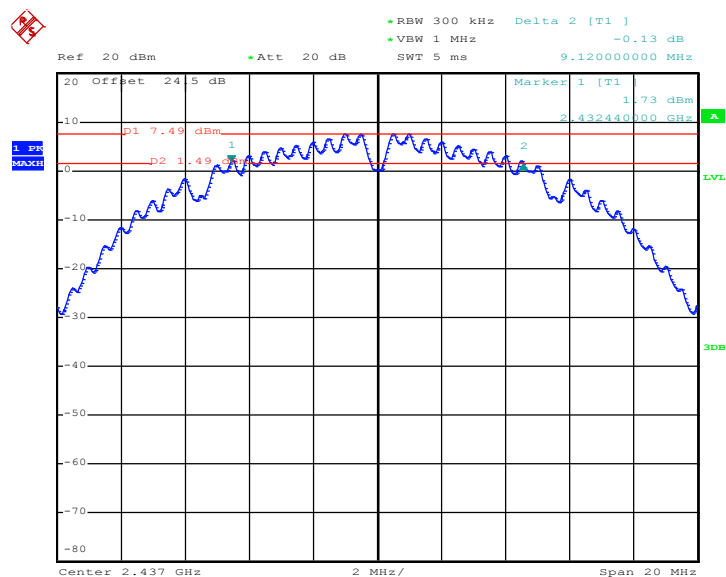
Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.12	0.5	Pass
06	2437	9.12	0.5	Pass
11	2462	9.12	0.5	Pass



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.



Example: the 6dB bandwidth test item, the peak point of fundamental signal is 7.39dBm, has added (offset) with the total loss = attenuator factor + cable loss = 24.5dB, where, cable loss = 4.5dB and 20dB 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.

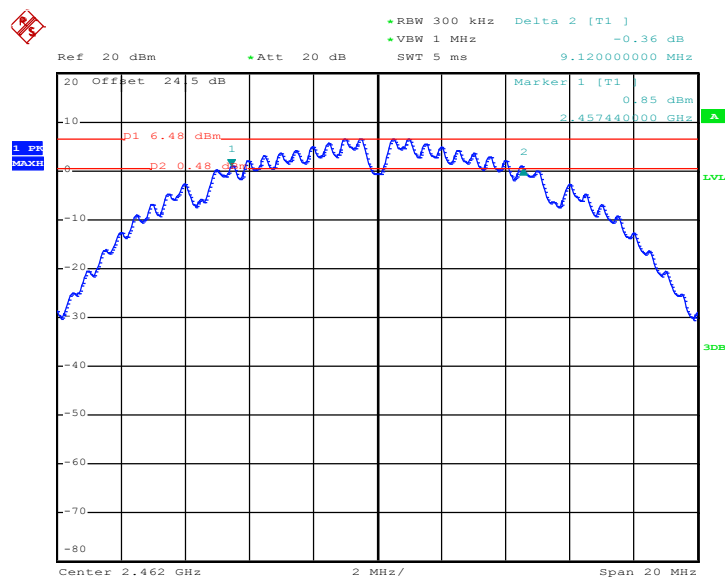
6 dB Bandwidth Plot on 802.11b Channel 06


Date: 18.OCT.2012 00:40:45

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.

6 dB Bandwidth Plot on 802.11b Channel 11



Date: 18.OCT.2012 00:44:44

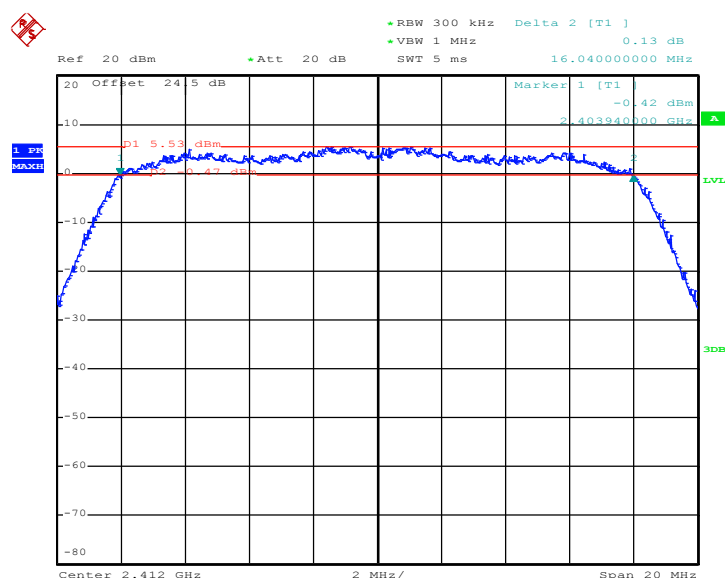
Note:

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 Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.04	0.5	Pass
06	2437	15.92	0.5	Pass
11	2462	15.88	0.5	Pass

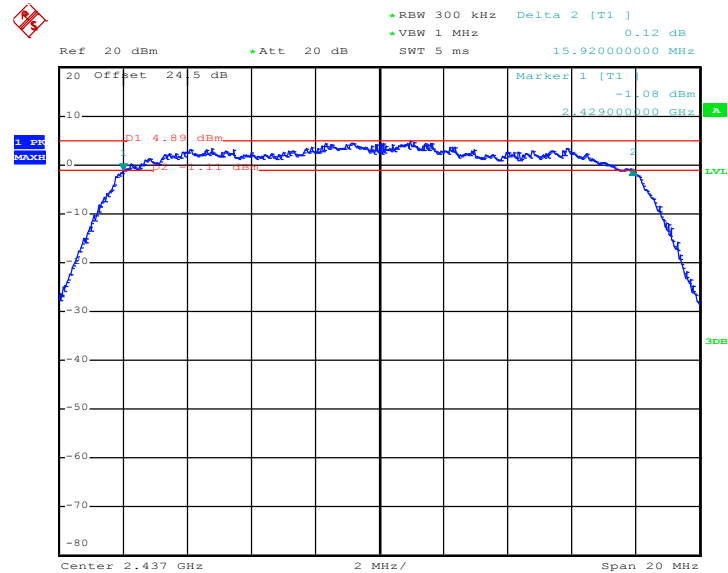
6 dB Bandwidth Plot on 802.11g Channel 01



Date: 18.OCT.2012 01:05:46

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.

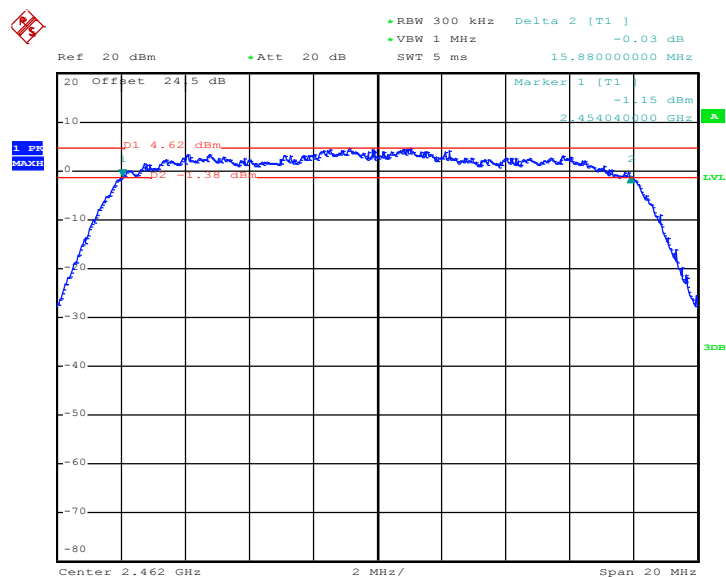
6 dB Bandwidth Plot on 802.11g Channel 06


Date: 18.OCT.2012 01:01:46

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.

6 dB Bandwidth Plot on 802.11g Channel 11



Date: 18.OCT.2012 00:55:12

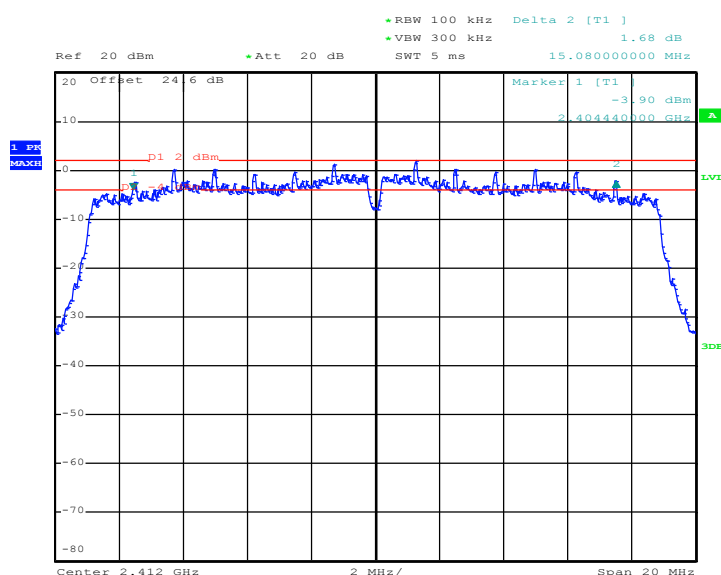
Note:

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°C
Test Engineer :	Book Lin	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	15.08	0.5	Pass

6 dB Bandwidth Plot on 802.11n HT20 Channel 01

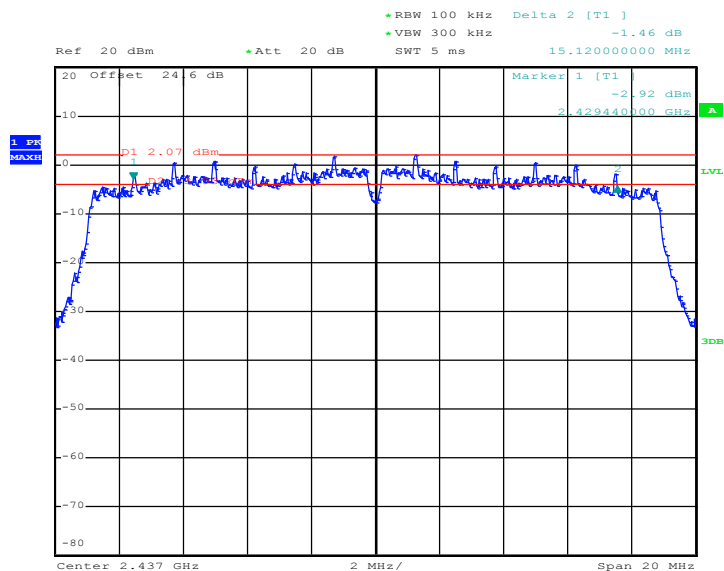


Date: 12.NOV.2012 16:43:51

Note:

The total loss is 24.6dB 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.

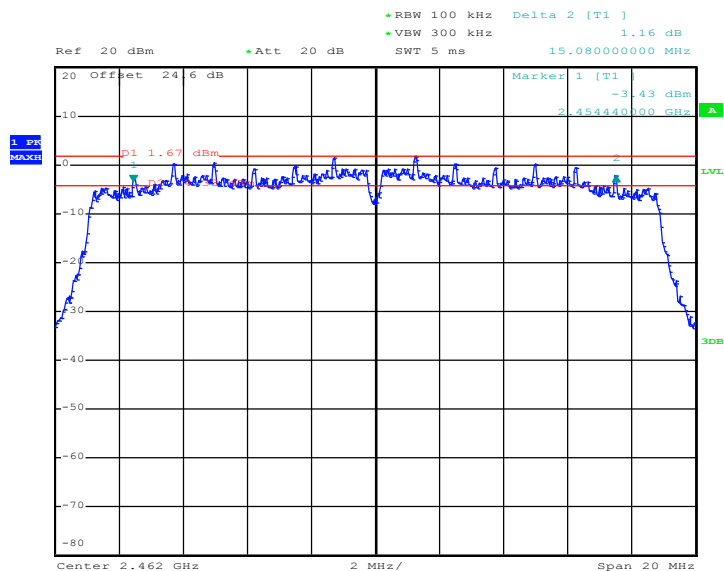
6 dB Bandwidth Plot on 802.11n HT20 Channel 06



Date: 12.NOV.2012 16:39:31

Note:

The total loss is 24.6dB 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


Date: 12.NOV.2012 15:51:12

Note:

The total loss is 24.6dB 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 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.

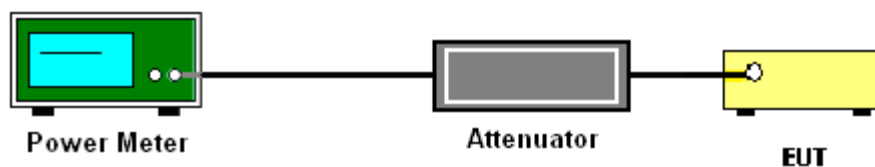
3.2.2 Measuring Instruments

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 power meter by a low loss cable
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 :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.51	30	Pass
06	2437	17.85	30	Pass
11	2462	16.96	30	Pass

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

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.59	30	Pass
06	2437	22.19	30	Pass
11	2462	21.68	30	Pass

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

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.69	30	Pass
06	2437	21.81	30	Pass
11	2462	21.72	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	24~26
Test Engineer :	Book Lin	Relative Humidity :	50~53
Duty Cycle:	99.08%	Duty Factor:	0.04dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	15.11
06	2437	15.46
11	2462	14.61

Test Mode :	802.11g	Temperature :	24~26
Test Engineer :	Book Lin	Relative Humidity :	50~53
Duty Cycle:	93.23%	Duty Factor:	0.30dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	12.40
06	2437	11.36
11	2462	11.64

Test Mode :	802.11n HT20	Temperature :	24~26
Test Engineer :	Book Lin	Relative Humidity :	50~53
Duty Cycle:	93.06%	Duty Factor:	0.31dB

Channel	Frequency (MHz)	802.11n HT20 Average Output Power (dBm)
01	2412	11.95
06	2437	12.14
11	2462	12.06

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.

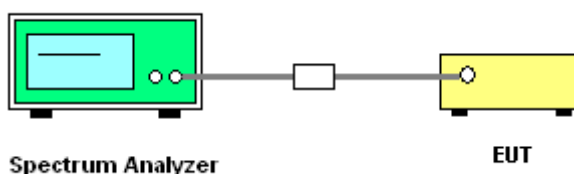
3.3.2 Measuring Instruments

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 a low loss cable. 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. Record the measurement data derived from spectrum analyzer.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Book Lin	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	6.42	-6.97	8	Pass
06	2437	6.23	-6.86	8	Pass
11	2462	5.46	-8.27	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.

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

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	0.73	-12.80	8	Pass
06	2437	-1.22	-13.39	8	Pass
11	2462	0.40	-13.20	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.

Test Mode :	802.11n HT20	Temperature :	24~26
Test Engineer :	Book Lin	Relative Humidity :	50~53

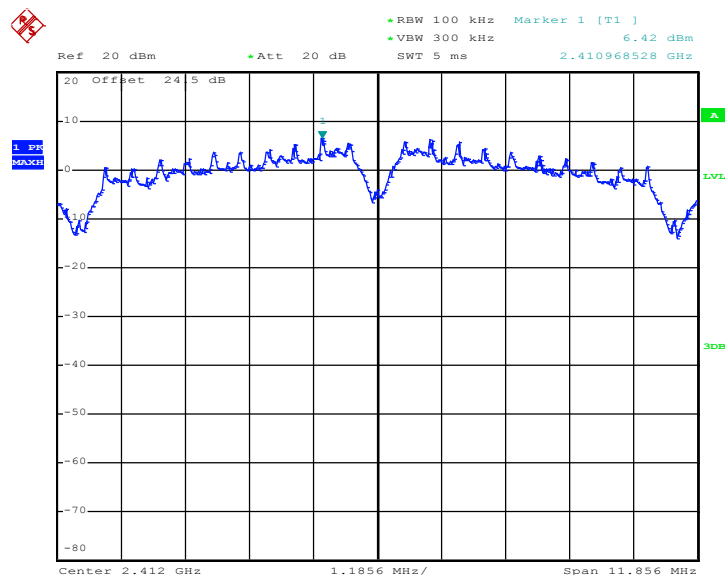
Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Power Density		Max. Limits (dBm)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.27	-12.29	8	Pass
06	2437	1.80	-11.60	8	Pass
11	2462	0.33	-12.61	8	Pass

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: 18.OCT.2012 00:29:52

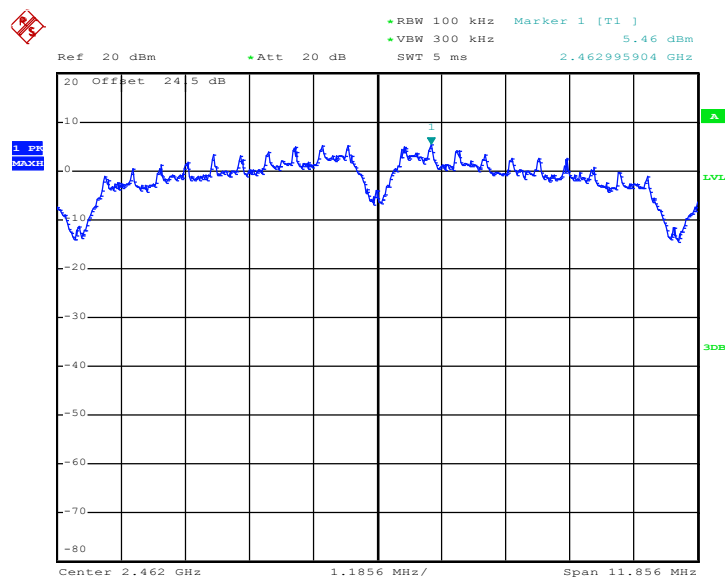
Note:

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.



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.

PSD 100kHz Plot on 802.11b Channel 11

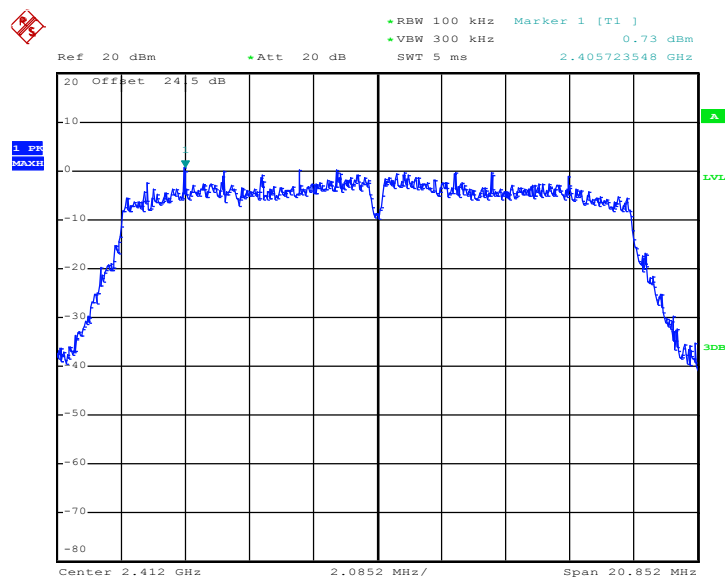


Date: 18.OCT.2012 00:45:22

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.

PSD 100kHz Plot on 802.11g Channel 01

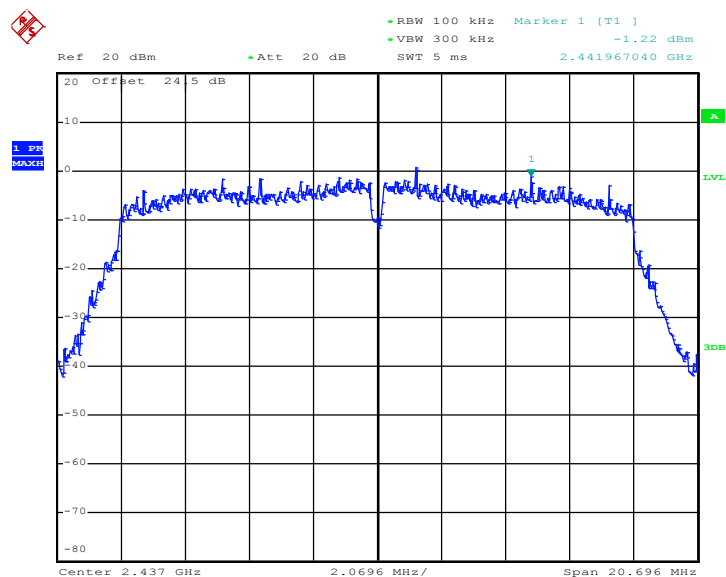


Date: 18.OCT.2012 01:06:18

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.

PSD 100kHz Plot on 802.11g Channel 06



Date: 18.OCT.2012 01:02:20

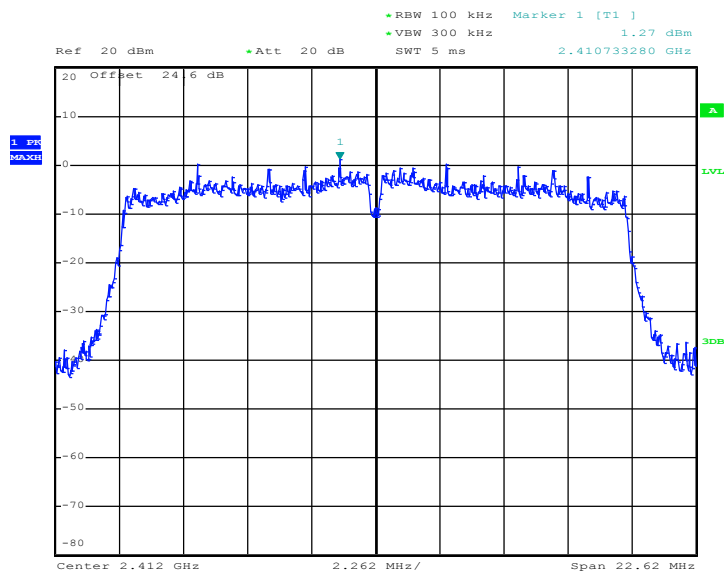
Note:

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.



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.

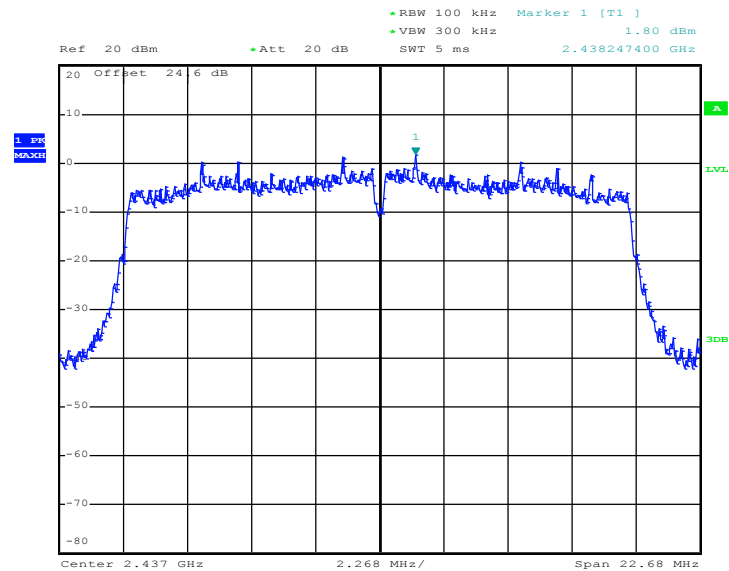
PSD 100kHz Plot on 802.11n HT20 Channel 01



Date: 12.NOV.2012 16:44:21

Note:

The total loss is 24.6dB 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.

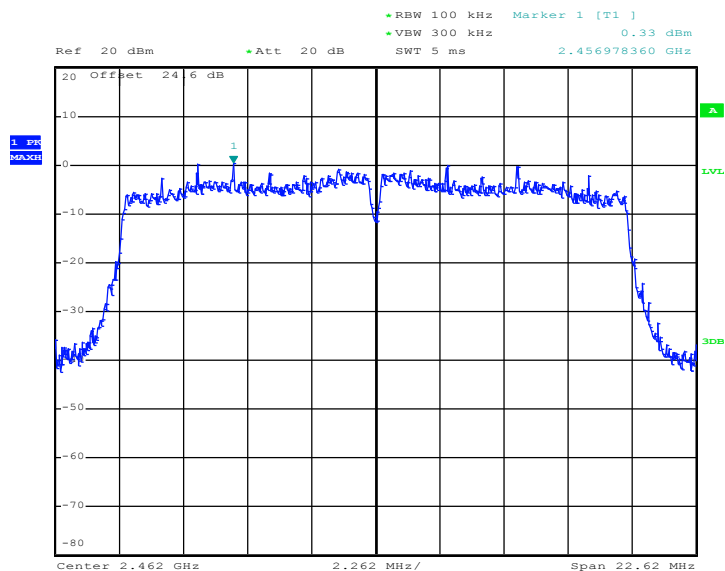
PSD 100kHz Plot on 802.11n HT20 Channel 06


Date: 12.NOV.2012 16:40:52

Note:

The total loss is 24.6dB 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



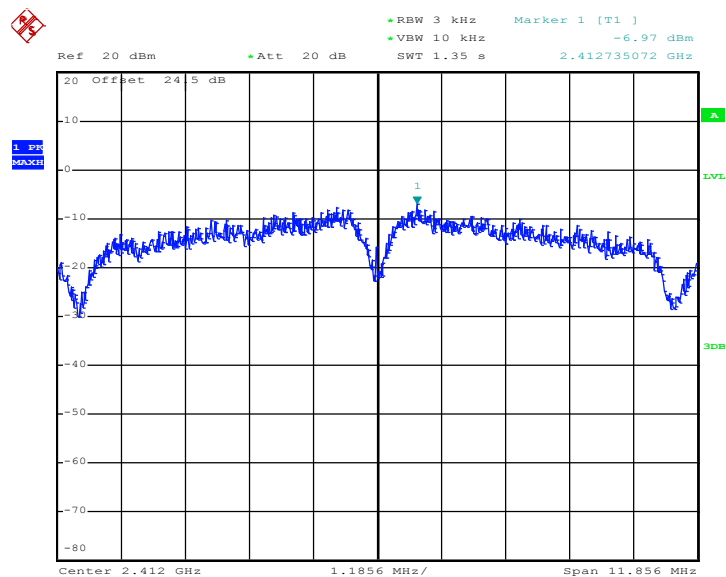
Date: 12.NOV.2012 16:36:11

Note:

The total loss is 24.6dB 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

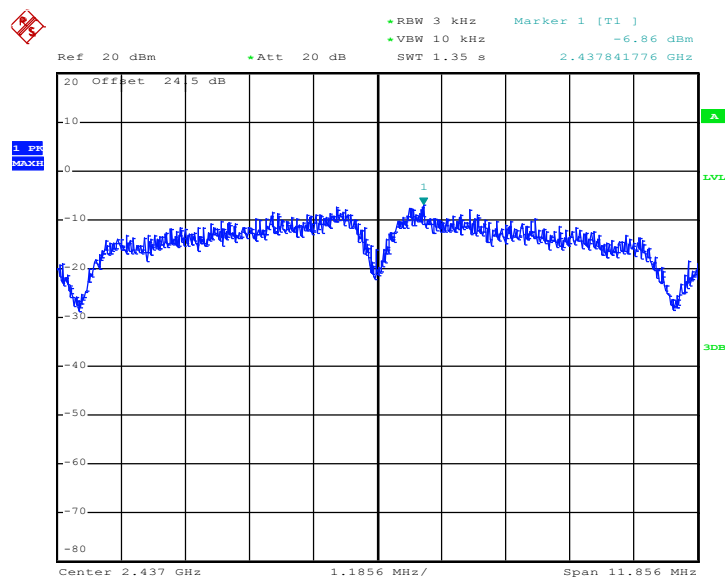


Date: 18.OCT.2012 00:29:47

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.

PSD 3kHz Plot on 802.11b Channel 06

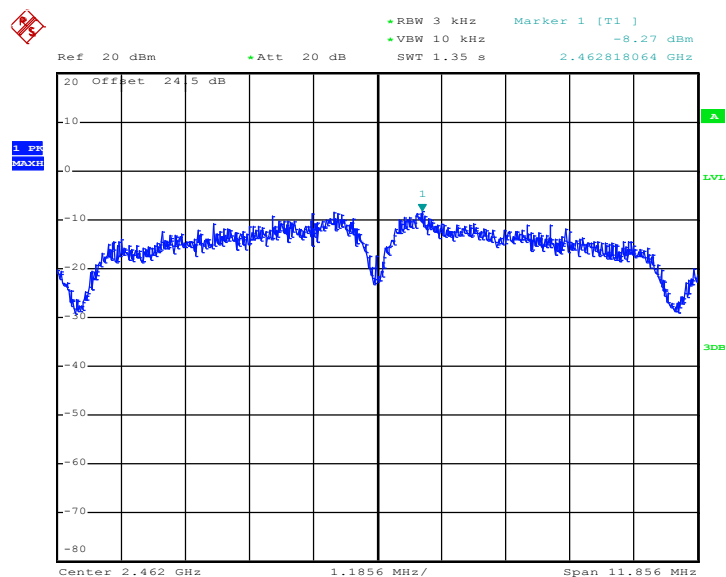


Date: 18.OCT.2012 00:41:04

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.

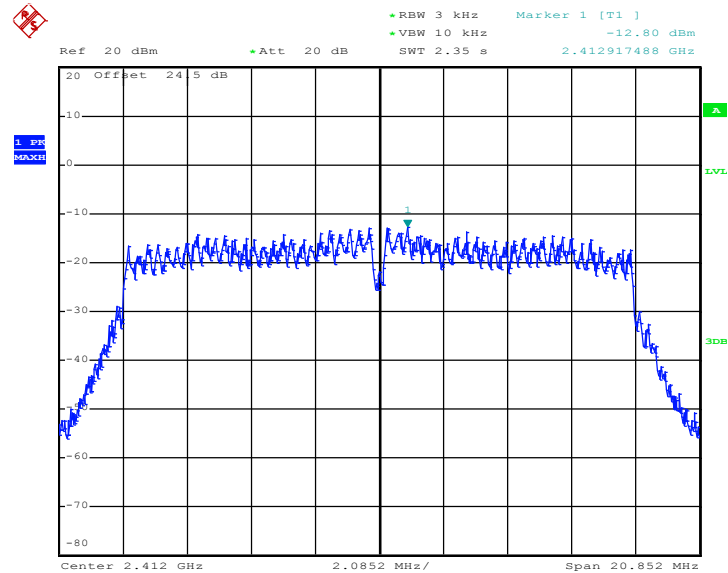
PSD 3kHz Plot on 802.11b Channel 11



Date: 18.OCT.2012 00:45:15

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.

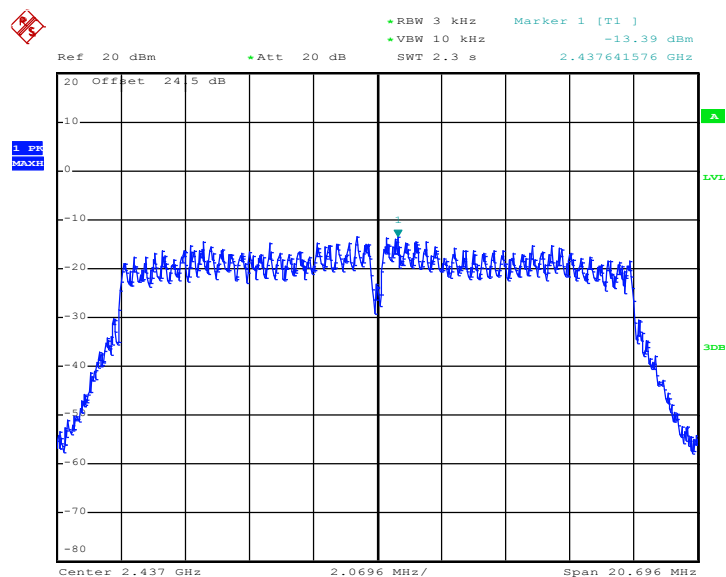
PSD 3kHz Plot on 802.11g Channel 01


Date: 18.OCT.2012 01:06:13

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.

PSD 3kHz Plot on 802.11g Channel 06

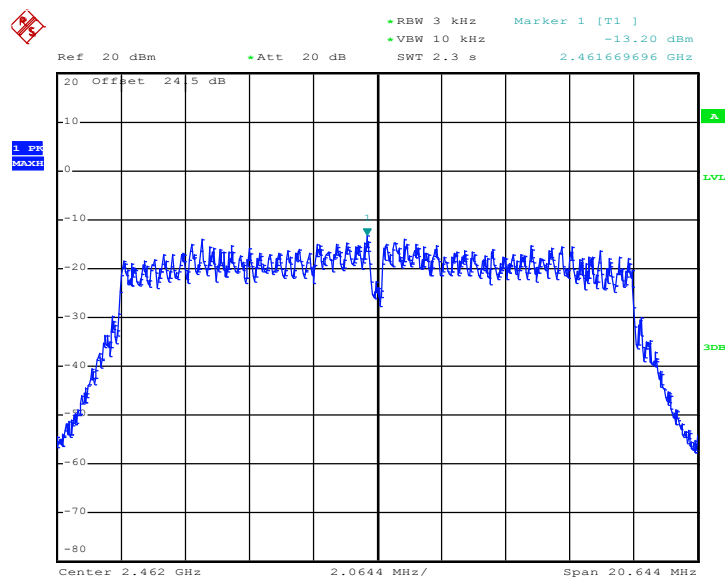


Date: 18.OCT.2012 01:02:11

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.

PSD 3kHz Plot on 802.11g Channel 11

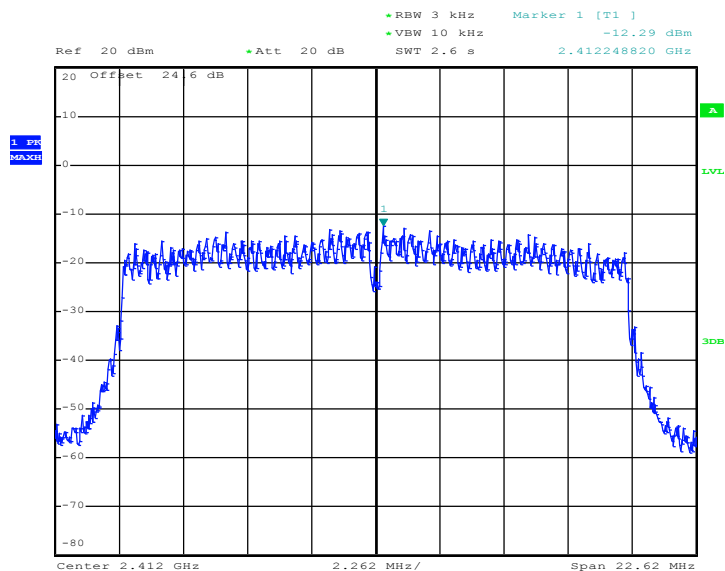


Date: 18.OCT.2012 00:55:39

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.

PSD 3kHz Plot on 802.11n HT20 Channel 01

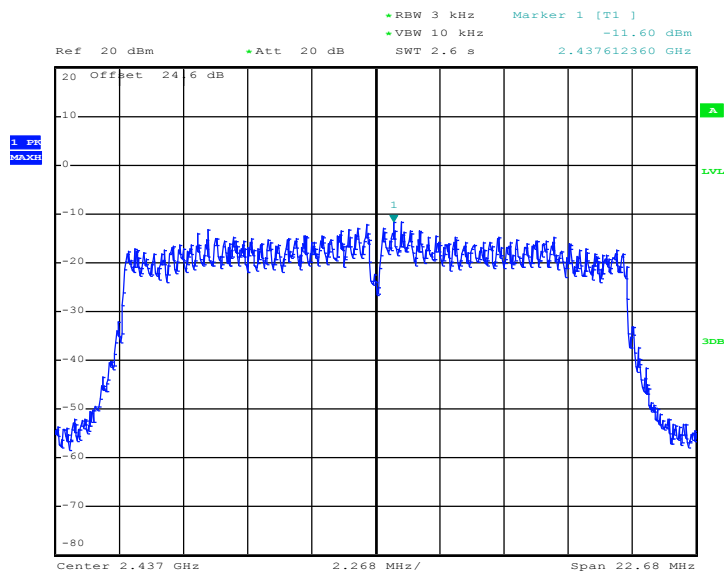


Date: 12.NOV.2012 16:44:12

Note:

The total loss is 24.6dB 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

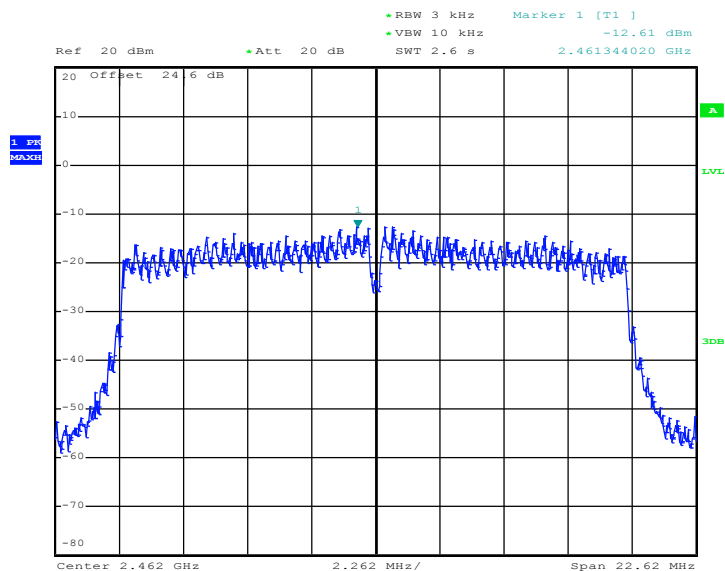


Date: 12.NOV.2012 16:40:31

Note:

The total loss is 24.6dB 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



Date: 12.NOV.2012 16:35:51

Note:

The total loss is 24.6dB 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).

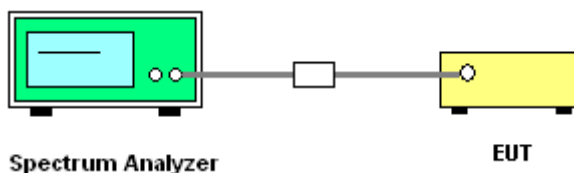
3.4.2 Measuring Instruments

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. Set to the maximum power setting and enable the EUT transmit continuously.
3. 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.
4. Measure and record the results in the test report.

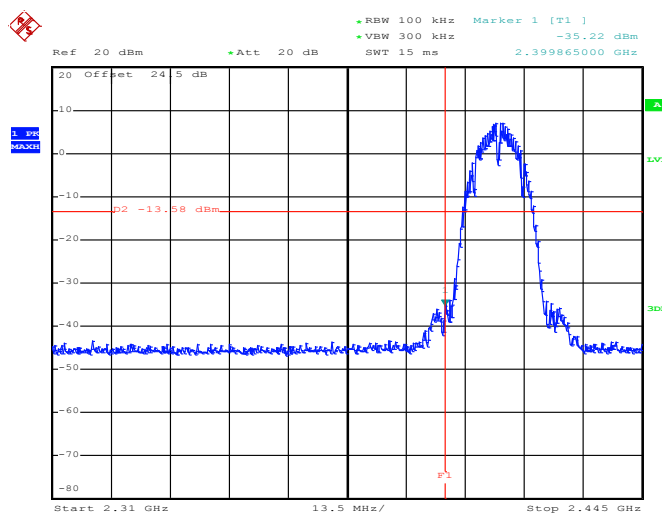
3.4.4 Test Setup



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 :	Book Lin

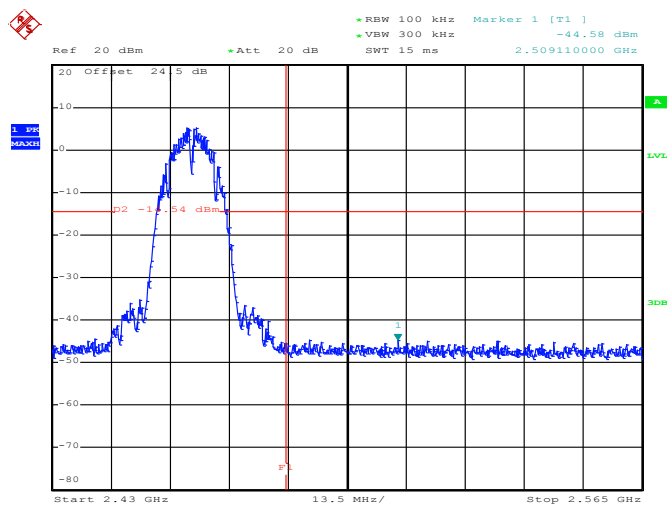
Low Band Edge Plot on 802.11b Channel 01



Date: 18.OCT.2012 01:22:53

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.

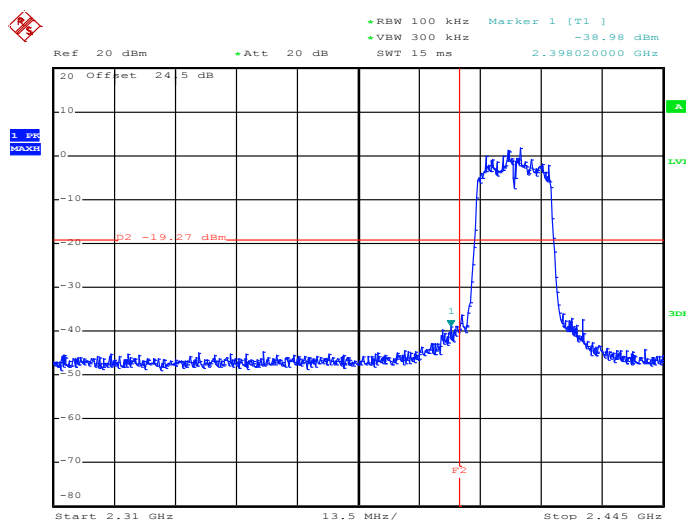
High Band Edge Plot on 802.11b Channel 11


Date: 18.OCT.2012 00:45:37

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°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Book Lin

Low Band Edge Plot on 802.11g Channel 01


Date: 18.OCT.2012 01:10:24

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.

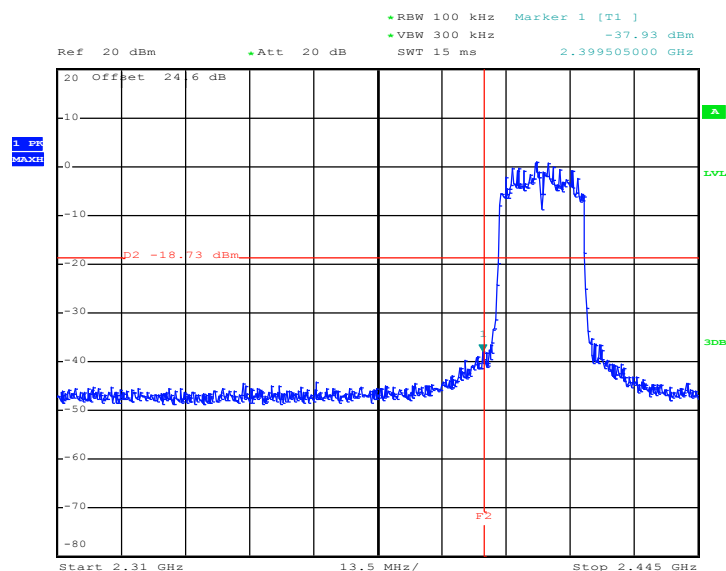


The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Book Lin

Low Band Edge Plot on 802.11n HT20 Channel 01

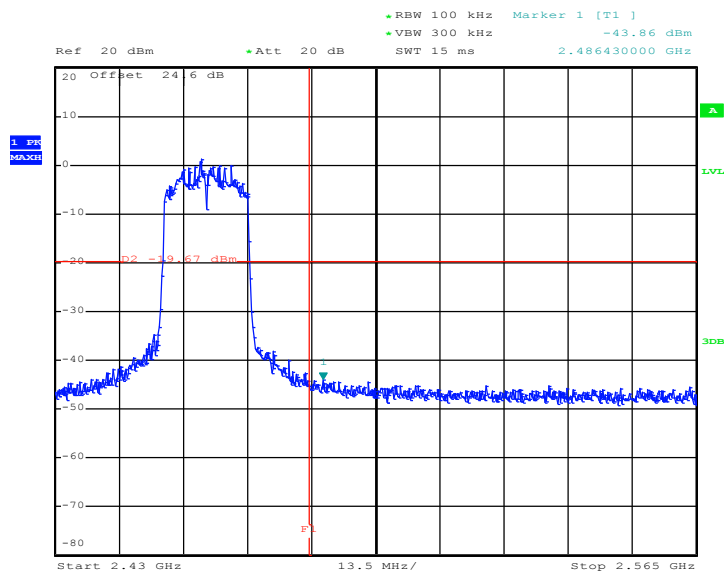


Date: 12.NOV.2012 16:45:10

Note:

The total loss is 24.6dB 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: 12.NOV.2012 16:36:28

Note:

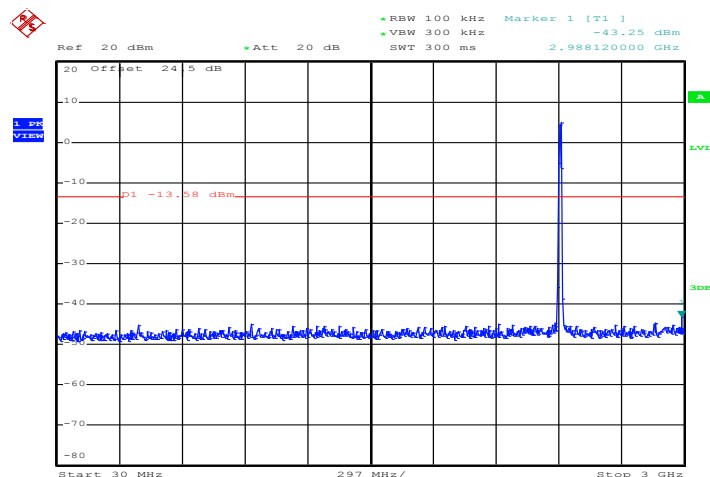
The total loss is 24.6dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

3.4.6 Test Plots of Spurious Emission

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

802.11b 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 01



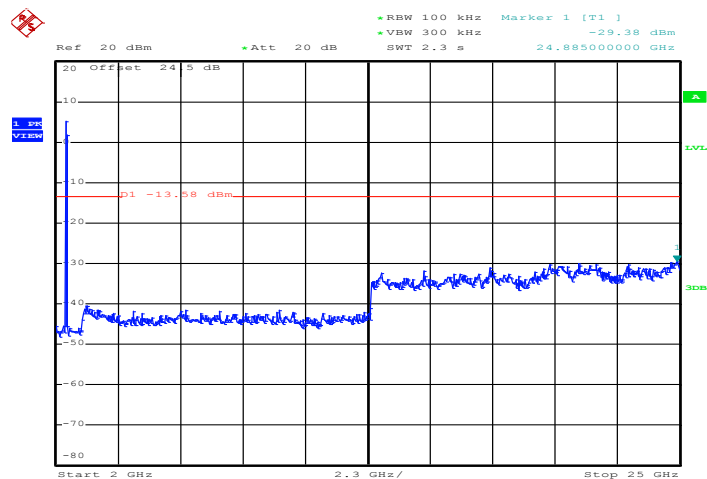
Date: 18.OCT.2012 00:30:26

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 2 GHz~25 GHz

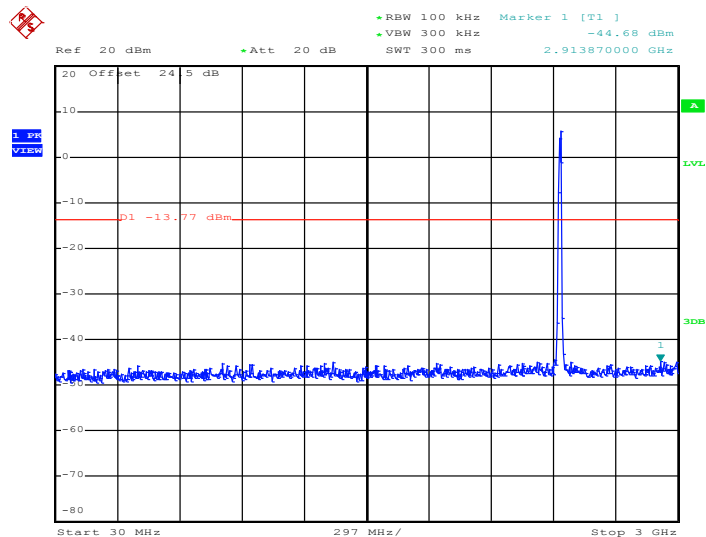
Conducted Spurious Emission Plot on Channel 01



Date: 18.OCT.2012 00:30:43

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


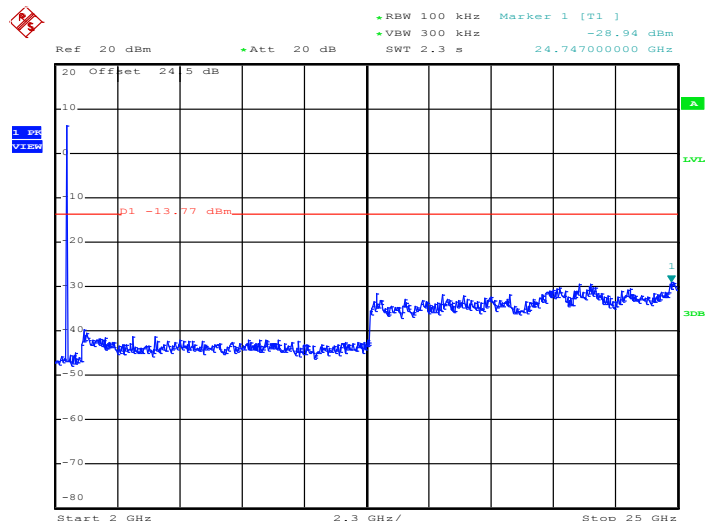
Date: 18.OCT.2012 00:41:53

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 2 GHz~25 GHz

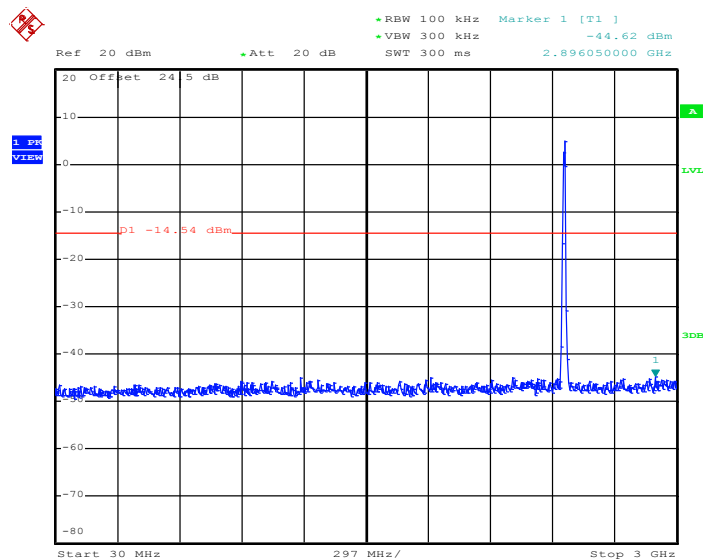
Conducted Spurious Emission Plot on Channel 06



Date: 18.OCT.2012 00:42:11

Note:

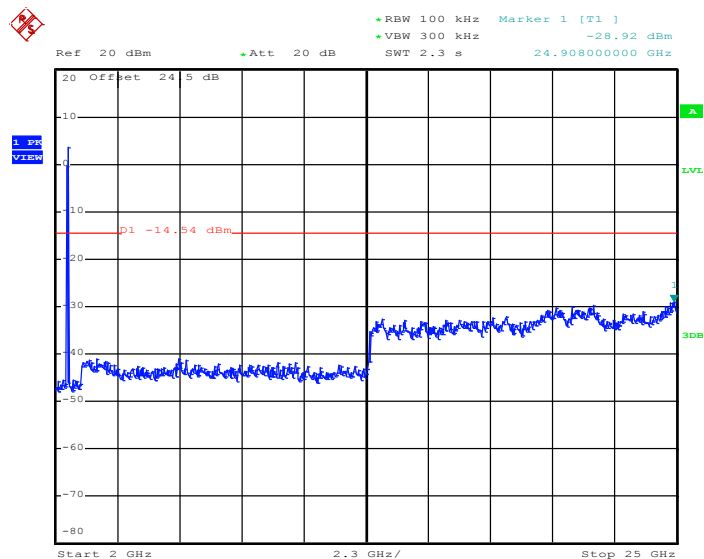
The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11b 30 MHz~3 GHz
Conducted Spurious Emission Plot on Channel 11


Date: 18.OCT.2012 00:52:24

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.

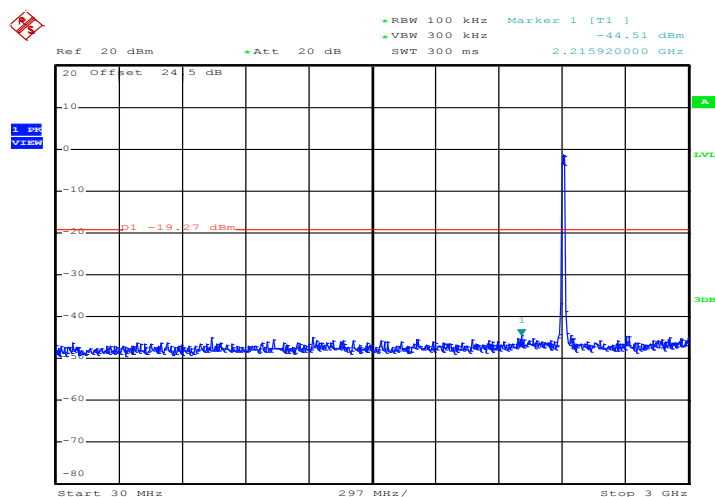
802.11b 2 GHz~25 GHz
Conducted Spurious Emission Plot on Channel 11


Date: 18.OCT.2012 00:52:42

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.

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 :	Book Lin

802.11g 30 MHz~3 GHz
Conducted Spurious Emission Plot on Channel 01


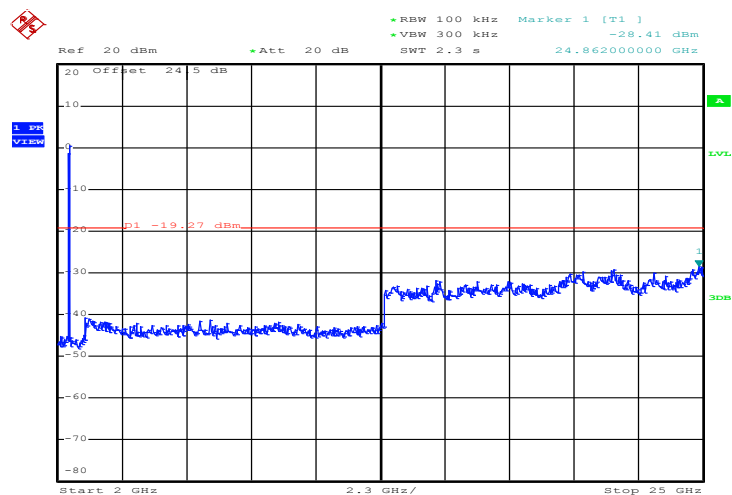
Date: 18.OCT.2012 01:07:00

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 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01



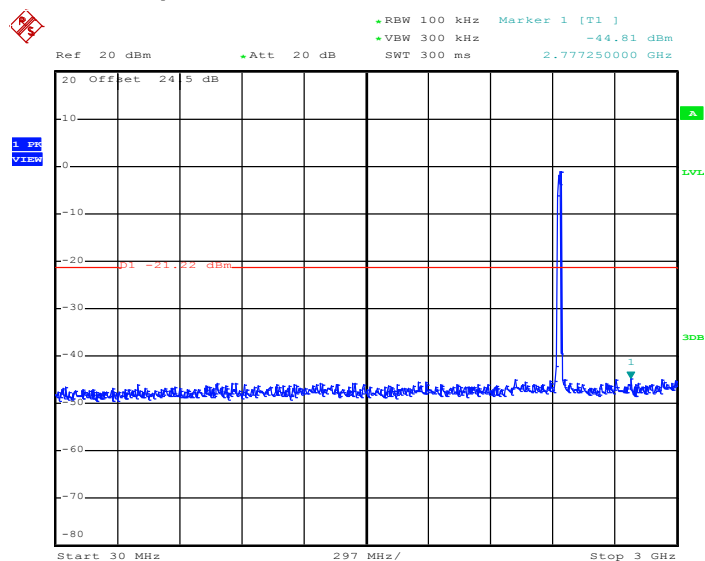
Date: 18.OCT.2012 01:07:17

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



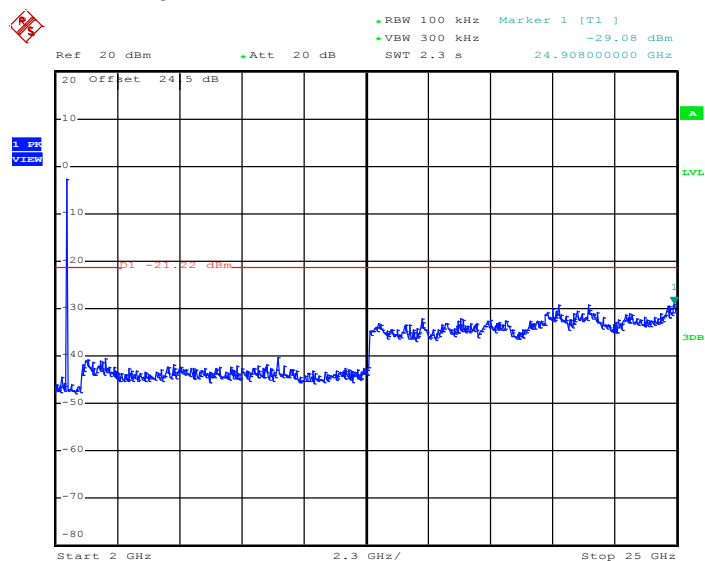
Date: 18.OCT.2012 01:02:46

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 2 GHz~25 GHz

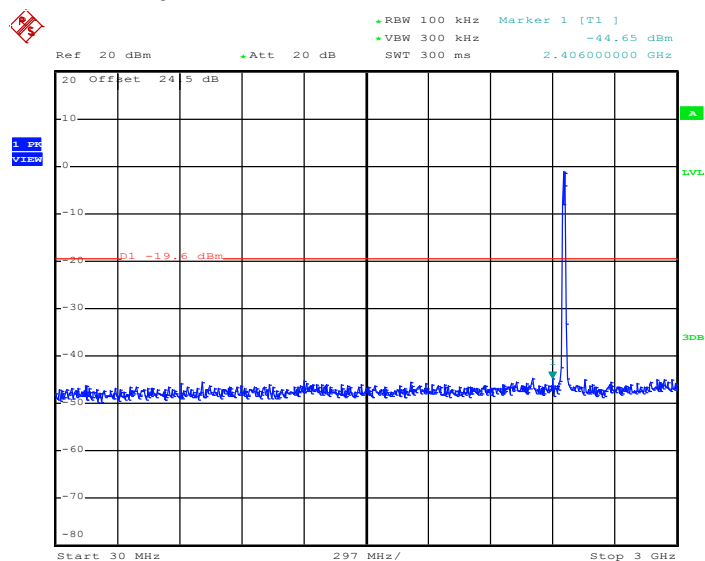
Conducted Spurious Emission Plot on Channel 06



Date: 18.OCT.2012 01:03:04

Note:

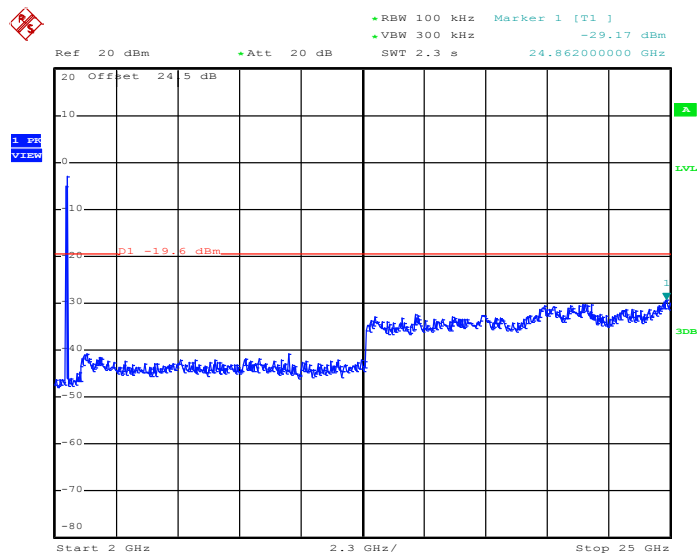
The total loss is 24.5dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11g 30 MHz~3 GHz
Conducted Spurious Emission Plot on Channel 11


Date: 18.OCT.2012 00:56:23

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.

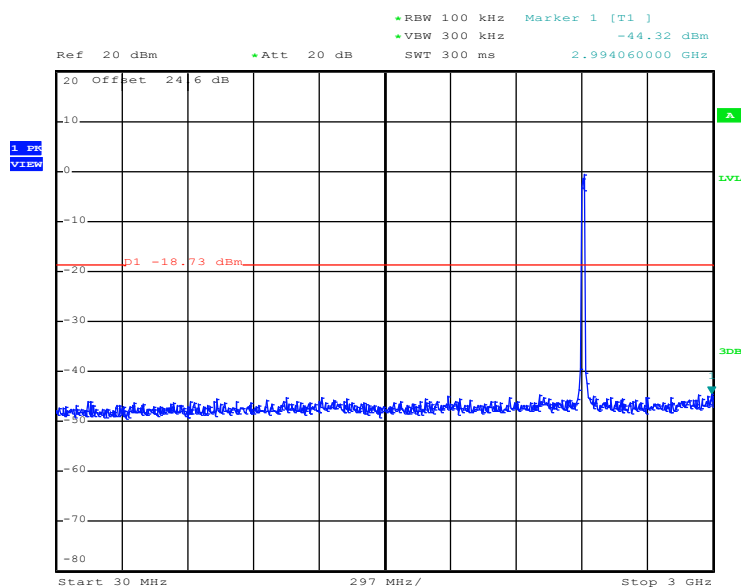
802.11g 2 GHz~25 GHz
Conducted Spurious Emission Plot on Channel 11


Date: 18.OCT.2012 00:56:41

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°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Book Lin

802.11n HT20 30 MHz~3 GHz
Conducted Spurious Emission Plot on Channel 01


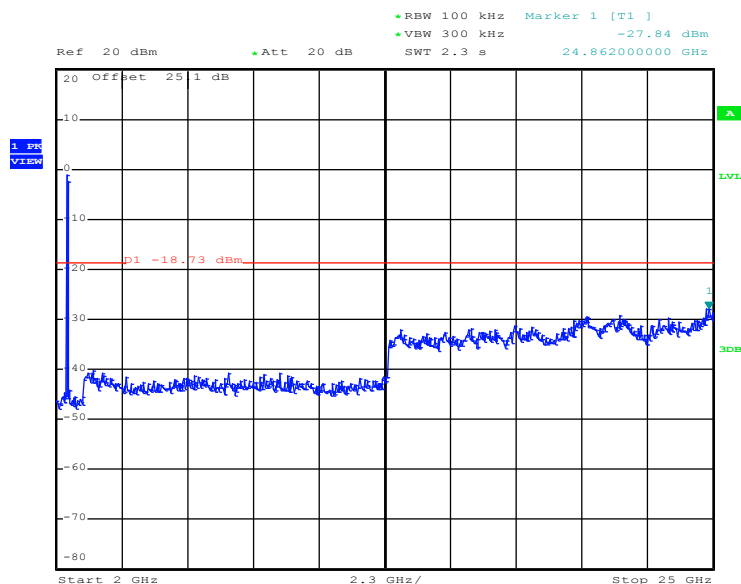
Date: 12.NOV.2012 16:46:07

Note:

The total loss is 24.6dB 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

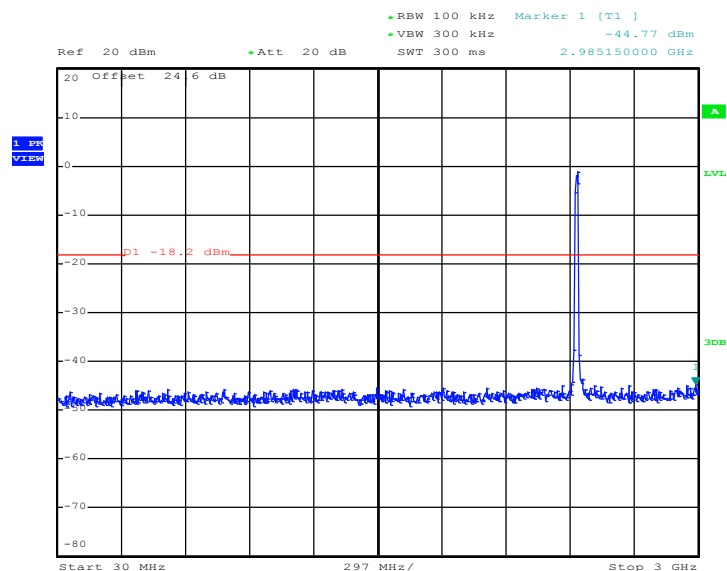
Conducted Spurious Emission Plot on Channel 01



Date: 12.NOV.2012 16:46:25

Note:

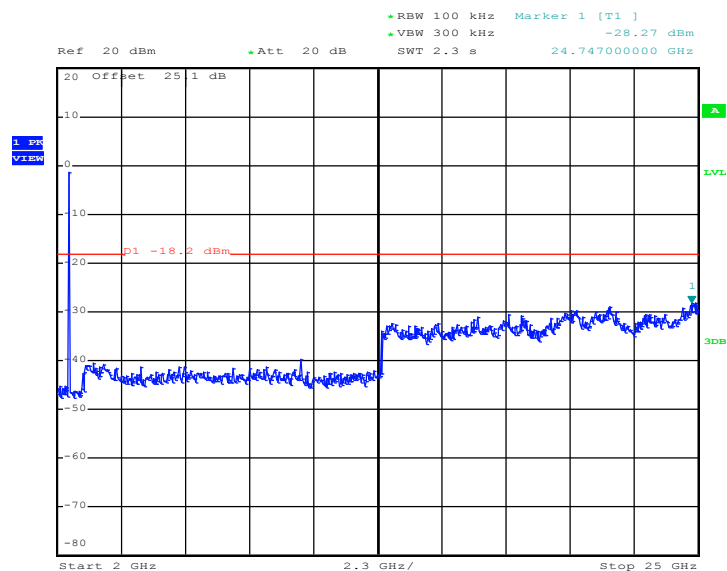
The total loss is 25.1dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11n HT20 30 MHz~3 GHz
Conducted Spurious Emission Plot on Channel 06


Date: 12.NOV.2012 16:41:16

Note:

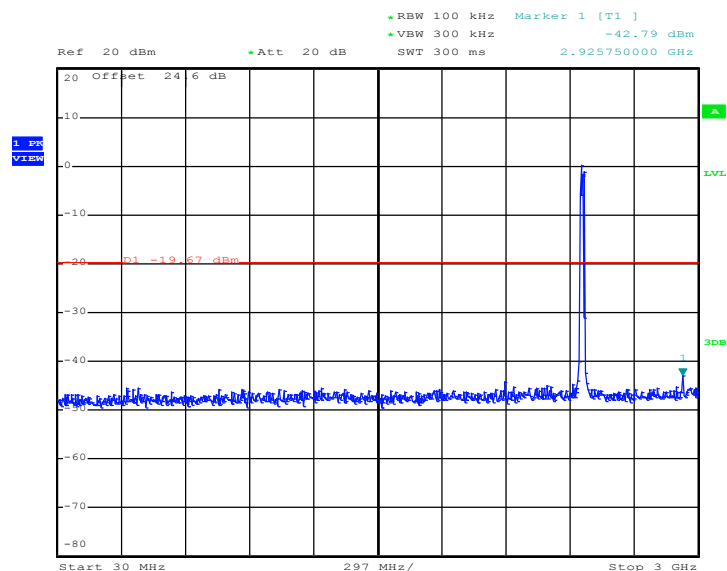
The total loss is 24.6dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11n HT20 2 GHz~25 GHz
Conducted Spurious Emission Plot on Channel 06


Date: 12.NOV.2012 16:41:33

Note:

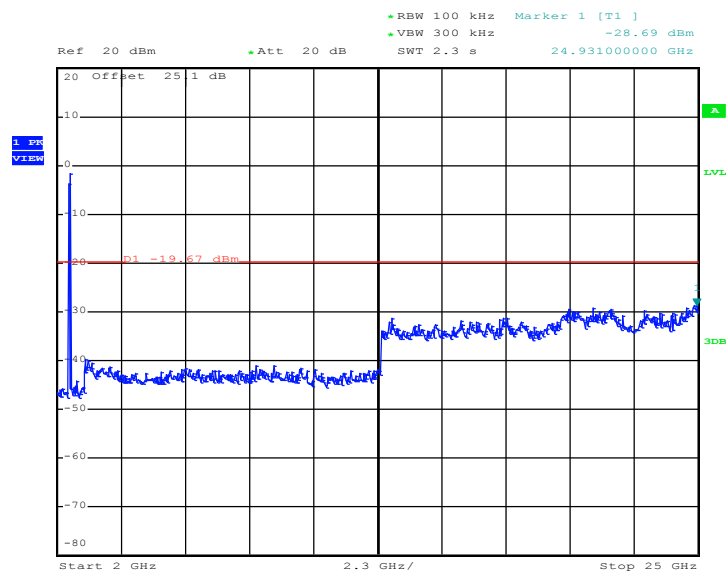
The total loss is 25.1dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

802.11n HT20 30 MHz~3 GHz
Conducted Spurious Emission Plot on Channel 11


Date: 12.NOV.2012 16:36:49

Note:

The total loss is 24.6dB 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: 12.NOV.2012 16:37:07

Note:

The total loss is 25.1dB 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

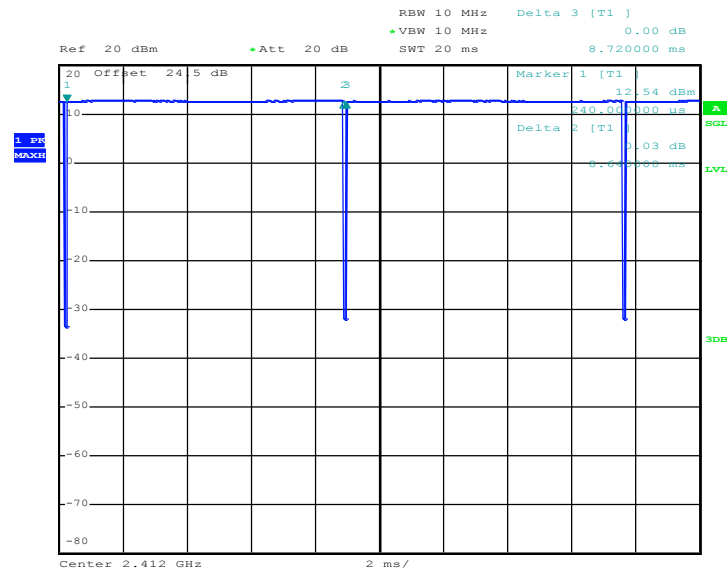
1. The testing follows the guidelines in ANSI C63.10-2009
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better 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; $VBW \geq RBW$; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, $VBW = 3$ MHz for $f \geq 1$ GHz for peak measurement.

For average measurement:

 - $VBW = 10$ Hz, when duty cycle is no less than 98 percent.
 - $VBW \geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(us)	1/T(KHz)	VBW Setting
802.11b	99.08	-	-	10Hz
802.11g	93.23	1432.00	0.698	1KHz
2.4G 802.11n HT20	93.06	1340.00	0.745	1KHz

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

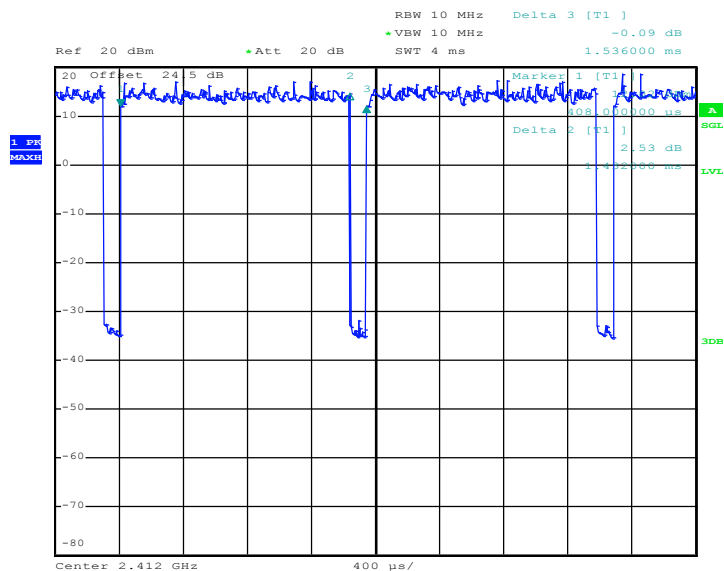
802.11b Duty Cycle


Date: 16.OCT.2012 23:09:01

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 Duty Cycle

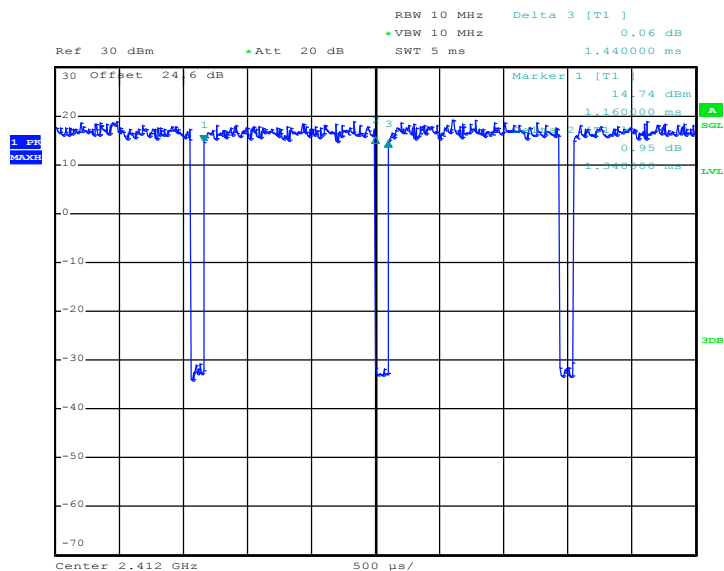


Date: 16.OCT.2012 23:14:07

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.

2.4GHz 802.11n HT20 Duty Cycle



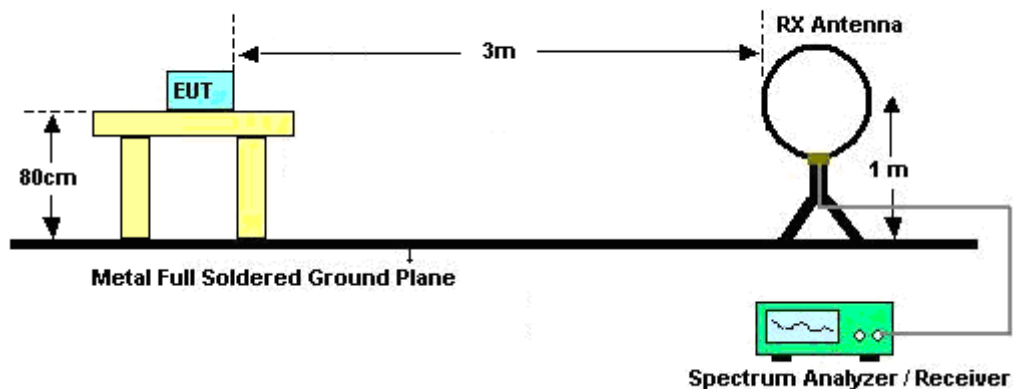
1. 10 NOV 2012 15:15:54

Note:

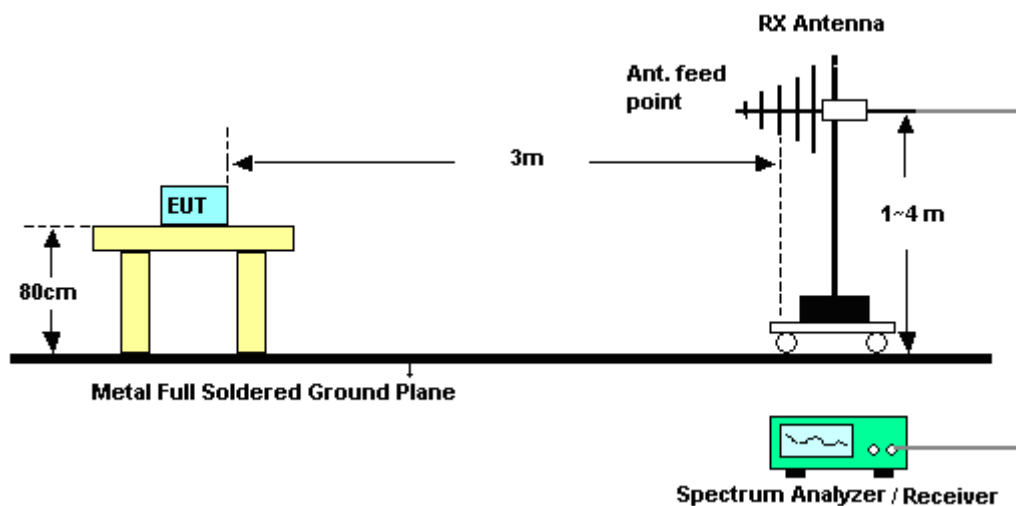
The total loss is 24.6dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer by setting into the amplitude level offset. That means the measured result shown on the spectrum analyzer has added the total loss and been compliance with the limit line.

3.5.4 Test Setup

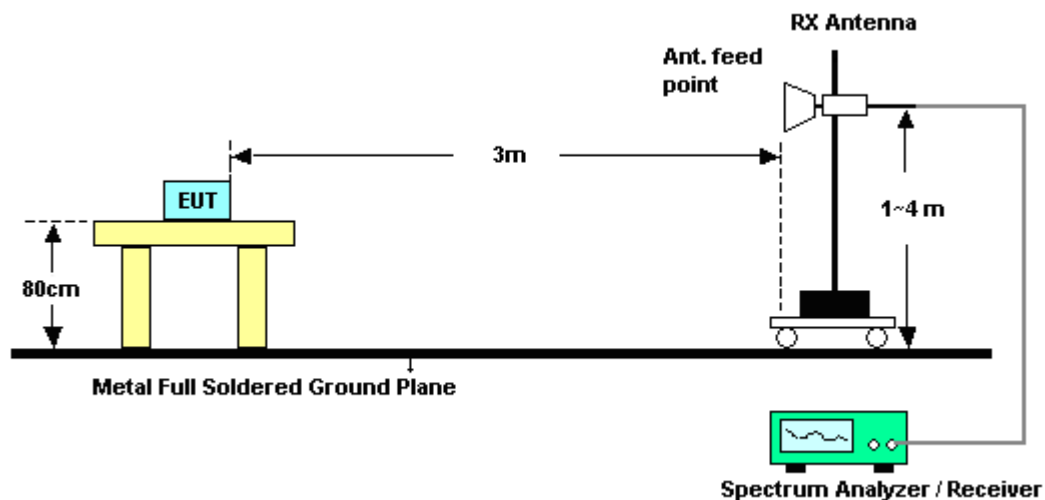
For radiated emissions below 30MHz



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 :	23~24℃
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Timberland Lin

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	57.4	-16.6	74	53.18	32.33	6.45	34.56	110	37	Peak
2384.97	46.03	-7.97	54	41.81	32.33	6.45	34.56	110	37	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
2383.35	50.01	-23.99	74	45.79	32.33	6.45	34.56	130	46	Peak
2385.42	38.05	-15.95	54	33.83	32.33	6.45	34.56	130	46	Average

Test Mode :	802.11b	Temperature :	23~24℃
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Timberland Lin

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.14	59.32	-14.68	74	54.8	32.48	6.59	34.55	104	38	Peak
2488.76	48.39	-5.61	54	43.85	32.5	6.59	34.55	104	38	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
2489.72	52.42	-21.58	74	47.88	32.5	6.59	34.55	100	86	Peak
2489.94	40.26	-13.74	54	35.72	32.5	6.59	34.55	100	86	Average

Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Timberland Lin

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.2	64.01	-9.99	74	59.76	32.36	6.45	34.56	108	38	Peak
2390	49.46	-4.54	54	45.21	32.36	6.45	34.56	108	38	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
2389.74	58.42	-15.58	74	54.17	32.36	6.45	34.56	100	88	Peak
2390	41.87	-12.13	54	37.62	32.36	6.45	34.56	100	88	Average

Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Timberland Lin

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
2483.64	64.85	-9.15	74	60.33	32.48	6.59	34.55	102	36	Peak
2483.8	49.02	-4.98	54	44.5	32.48	6.59	34.55	102	36	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
2484.28	58.69	-15.31	74	54.17	32.48	6.59	34.55	100	62	Peak
2483.54	42.15	-11.85	54	37.63	32.48	6.59	34.55	100	62	Average



Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Timberland Lin

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.56	65.37	-8.63	74	61.12	32.36	6.45	34.56	107	38	Peak
2389.92	48.63	-5.37	54	44.38	32.36	6.45	34.56	107	38	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	57.23	-16.77	74	52.98	32.36	6.45	34.56	100	60	Peak
2390	43.11	-10.89	54	38.86	32.36	6.45	34.56	100	60	Average

Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Timberland Lin

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
2483.74	67.84	-6.16	74	63.32	32.48	6.59	34.55	102	34	Peak
2483.58	50.64	-3.36	54	46.12	32.48	6.59	34.55	102	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
2483.72	63.44	-10.56	74	58.92	32.48	6.59	34.55	100	58	Peak
2483.5	45.89	-8.11	54	41.37	32.48	6.59	34.55	100	58	Average

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

Test Mode :	802.11b	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	105.51	-	-	101.2	32.38	6.49	34.56	110	37	Average
2412	110.6	-	-	106.29	32.38	6.49	34.56	110	37	Peak
4824	48.81	-25.19	74	59.36	34.87	10.17	55.59	200	0	Peak

Test Mode :	802.11b	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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	97.75	-	-	93.44	32.38	6.49	34.56	130	46	Average
2412	102.82	-	-	98.51	32.38	6.49	34.56	130	46	Peak
4824	49.87	-24.13	74	60.42	34.87	10.17	55.59	100	0	Peak

Test Mode :	802.11b	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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	106.61	-	-	102.22	32.43	6.52	34.56	105	38	Average
2437	111.87	-	-	107.48	32.43	6.52	34.56	105	38	Peak
4874	49.43	-24.57	74	60.08	34.85	10.18	55.68	200	0	Peak

Test Mode :	802.11b	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	98.62	-	-	94.23	32.43	6.52	34.56	100	88	Average
2437	103.51	-	-	99.12	32.43	6.52	34.56	100	88	Peak
4874	49.67	-24.33	74	60.32	34.85	10.18	55.68	100	0	Peak

Test Mode :	802.11b	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	106.11	-	-	101.66	32.45	6.56	34.56	104	38	Average
2462	111.19	-	-	106.74	32.45	6.56	34.56	104	38	Peak
4924	49.57	-24.43	74	60.31	34.83	10.21	55.78	200	0	Peak

Test Mode :	802.11b	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	98.16	-	-	93.71	32.45	6.56	34.56	100	86	Average
2462	103.25	-	-	98.8	32.45	6.56	34.56	100	86	Peak
4924	47.88	-26.12	74	58.63	34.83	10.2	55.78	138	0	Peak

Test Mode :	802.11g	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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
38.64	28.66	-11.34	40	46.73	13.14	0.49	31.7	100	252	Peak
176.34	17.75	-25.75	43.5	38.15	9.3	1.98	31.68	-	-	Peak
260.85	16.26	-29.74	46	32.18	13.62	2.18	31.72	-	-	Peak
399.4	24.12	-21.88	46	37.64	15.9	2.37	31.79	-	-	Peak
632.5	22.33	-23.67	46	31.88	19.2	3.28	32.03	-	-	Peak
800.5	25.55	-20.45	46	34.08	20	3.44	31.97	-	-	Peak
2412	100.17	-	-	95.86	32.38	6.49	34.56	108	38	Average
2412	109.68	-	-	105.37	32.38	6.49	34.56	108	38	Peak
4824	47.73	-26.27	74	58.28	34.87	10.17	55.59	200	0	Peak

Test Mode :	802.11g	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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
42.15	26.79	-13.21	40	46.98	10.96	0.55	31.7	-	-	Peak
61.86	21.41	-18.59	40	46.17	6.26	0.67	31.69	-	-	Peak
289.2	21.2	-24.8	46	37.68	12.99	2.17	31.64	-	-	Peak
315.4	28.46	-17.54	46	44.19	13.55	2.34	31.62	-	-	Peak
525.4	33.34	-12.66	46	44.33	17.88	2.96	31.83	100	341	Peak
945.4	24.79	-21.21	46	31.28	20.86	3.82	31.17	-	-	Peak
2412	91.13	-	-	86.82	32.38	6.49	34.56	100	88	Average
2412	101.98	-	-	97.67	32.38	6.49	34.56	100	88	Peak
4824	48.16	-25.84	74	58.71	34.87	10.17	55.59	100	0	Peak

Test Mode :	802.11g	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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	100.69	-	-	96.3	32.43	6.52	34.56	105	38	Average
2437	110.41	-	-	106.02	32.43	6.52	34.56	105	38	Peak
4874	48.65	-25.35	74	59.29	34.85	10.19	55.68	200	0	Peak

Test Mode :	802.11g	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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	92.22	-	-	87.83	32.43	6.52	34.56	100	87	Average
2437	101.99	-	-	97.6	32.43	6.52	34.56	100	87	Peak
4874	48.29	-25.71	74	58.94	34.85	10.18	55.68	100	0	Peak

Test Mode :	802.11g	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	100.29	-	-	95.84	32.45	6.56	34.56	102	36	Average
2462	110.13	-	-	105.68	32.45	6.56	34.56	102	36	Peak
4924	47.08	-26.92	74	57.83	34.83	10.2	55.78	200	0	Peak

Test Mode :	802.11g	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	92.91	-	-	88.45	32.45	6.56	34.55	100	62	Average
2462	101.93	-	-	97.47	32.45	6.56	34.55	100	62	Peak
4924	48.65	-25.35	74	59.39	34.83	10.21	55.78	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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	99.83	-	-	95.52	32.38	6.49	34.56	107	38	Average
2412	109.92	-	-	105.61	32.38	6.49	34.56	107	38	Peak
4824	48.21	-25.79	74	58.76	34.87	10.17	55.59	200	0	Peak

Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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	92.25	-	-	87.94	32.38	6.49	34.56	100	60	Average
2412	102.47	-	-	98.16	32.38	6.49	34.56	100	60	Peak
4824	48.86	-25.14	74	59.41	34.87	10.17	55.59	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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	100.02	-	-	95.63	32.43	6.52	34.56	105	35	Average
2437	110.5	-	-	106.11	32.43	6.52	34.56	105	35	Peak
4875	50.08	-23.92	74	60.73	34.85	10.18	55.68	200	0	Peak

Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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	92.66	-	-	88.3	32.4	6.52	34.56	100	59	Average
2437	102.98	-	-	98.62	32.4	6.52	34.56	100	59	Peak
4875	49.05	-24.95	74	59.7	34.85	10.18	55.68	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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
38.64	28.66	-11.34	40	46.73	13.14	0.49	31.7	100	252	Peak
176.34	17.75	-25.75	43.5	38.15	9.3	1.98	31.68	-	-	Peak
260.85	16.26	-29.74	46	32.18	13.62	2.18	31.72	-	-	Peak
399.4	24.12	-21.88	46	37.64	15.9	2.37	31.79	-	-	Peak
632.5	22.33	-23.67	46	31.88	19.2	3.28	32.03	-	-	Peak
800.5	25.55	-20.45	46	34.08	20	3.44	31.97	-	-	Peak
2462	99.77	-	-	95.32	32.45	6.56	34.56	102	34	Average
2462	109.79	-	-	105.34	32.45	6.56	34.56	102	34	Peak

Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Timberland Lin	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
42.15	26.79	-13.21	40	46.98	10.96	0.55	31.7	-	-	Peak
61.86	21.41	-18.59	40	46.17	6.26	0.67	31.69	-	-	Peak
289.2	21.2	-24.8	46	37.68	12.99	2.17	31.64	-	-	Peak
315.4	28.46	-17.54	46	44.19	13.55	2.34	31.62	-	-	Peak
525.4	33.34	-12.66	46	44.33	17.88	2.96	31.83	100	341	Peak
945.4	24.79	-21.21	46	31.28	20.86	3.82	31.17	-	-	Peak
2462	93.6	-	-	89.15	32.45	6.56	34.56	100	58	Average
2462	103.83	-	-	99.38	32.45	6.56	34.56	100	58	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.

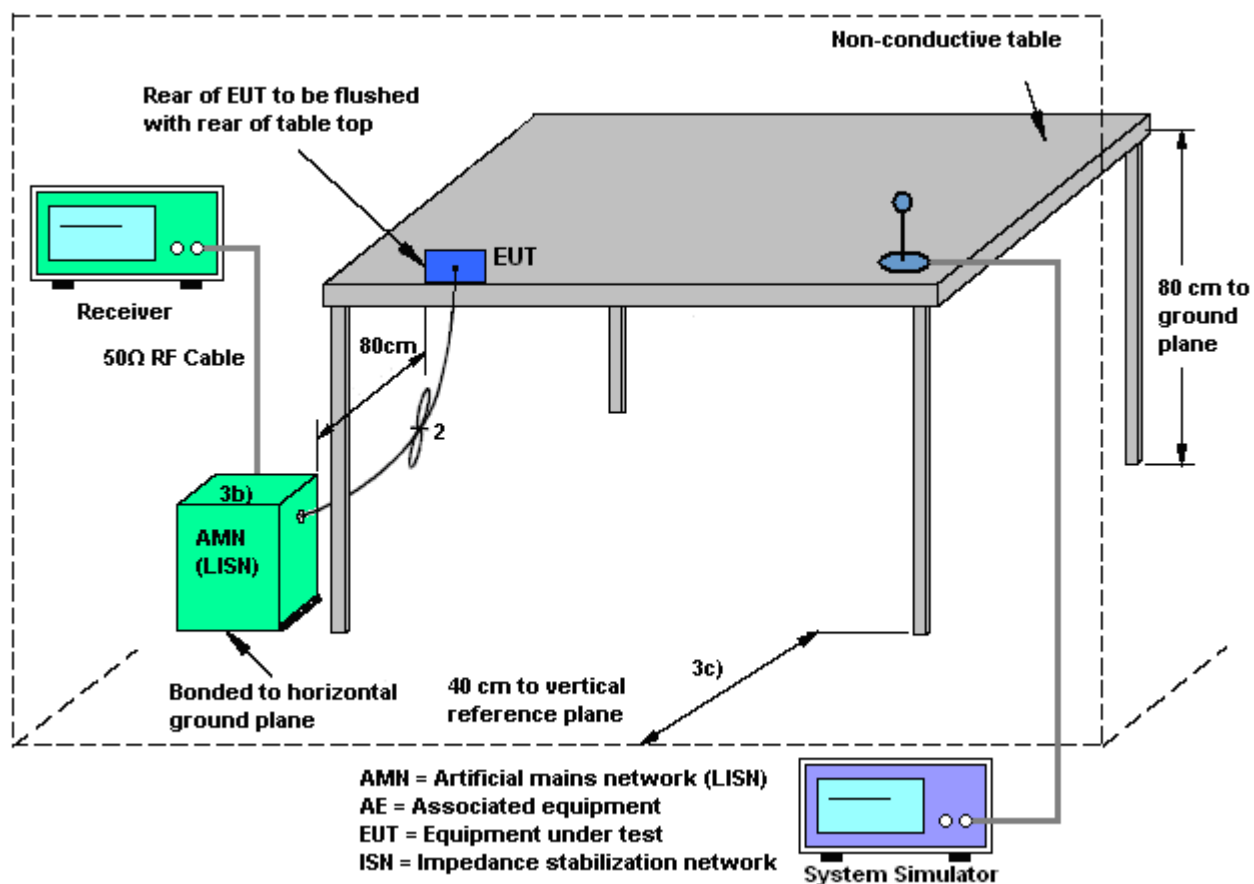
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

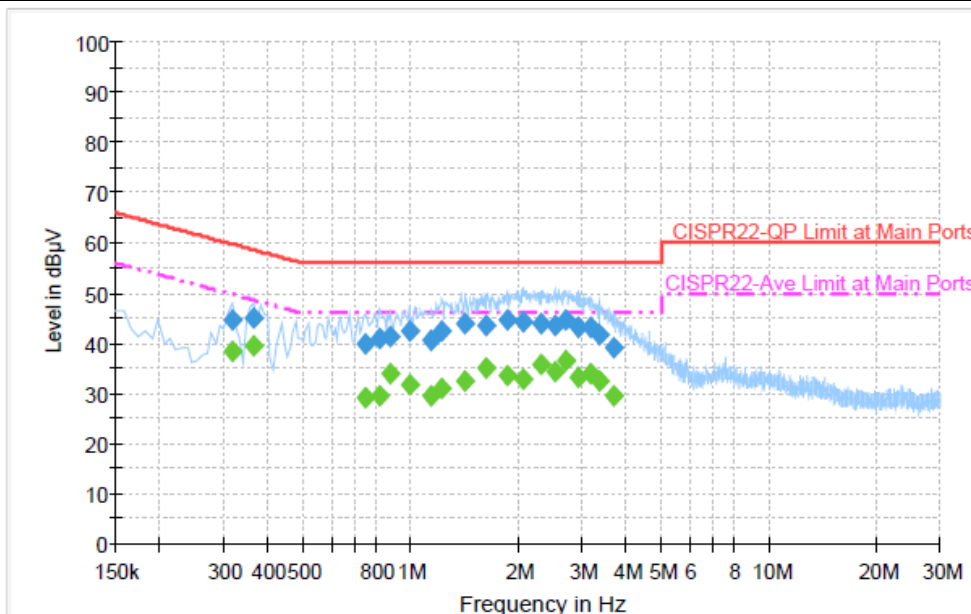
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance 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

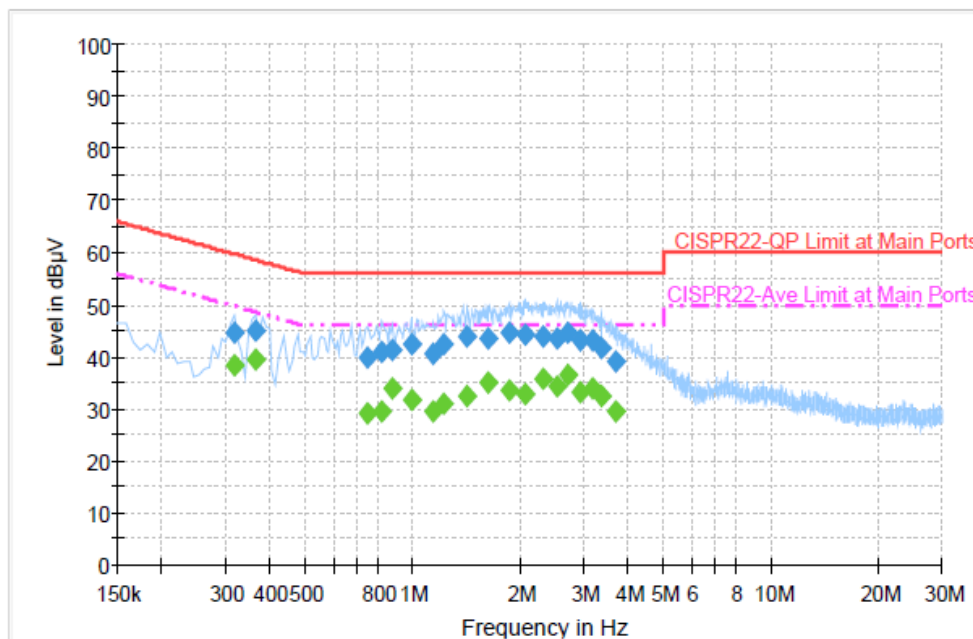
Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + MP3 + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Quasi-Peak

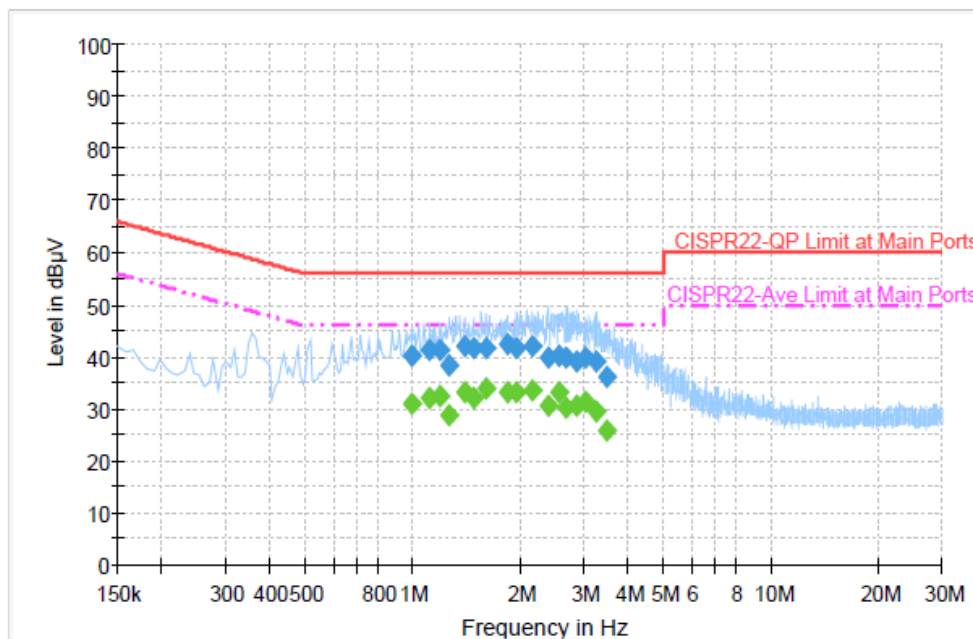
Frequency (MHz)	Quasi-Peak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.318000	44.8	Off	L1	19.4	15.0	59.8
0.366000	45.2	Off	L1	19.4	13.4	58.6
0.750000	39.8	Off	L1	19.4	16.2	56.0
0.822000	41.0	Off	L1	19.5	15.0	56.0
0.878000	41.4	Off	L1	19.4	14.6	56.0
0.990000	42.5	Off	L1	19.4	13.5	56.0
1.142000	40.5	Off	L1	19.4	15.5	56.0
1.222000	42.3	Off	L1	19.5	13.7	56.0
1.422000	44.0	Off	L1	19.4	12.0	56.0
1.630000	43.6	Off	L1	19.4	12.4	56.0
1.854000	44.5	Off	L1	19.5	11.5	56.0
2.054000	44.3	Off	L1	19.6	11.7	56.0
2.310000	43.9	Off	L1	19.6	12.1	56.0
2.518000	43.5	Off	L1	19.6	12.5	56.0
2.710000	44.5	Off	L1	19.6	11.5	56.0
2.934000	43.1	Off	L1	19.6	12.9	56.0
3.190000	43.0	Off	L1	19.6	13.0	56.0
3.350000	41.6	Off	L1	19.6	14.4	56.0
3.670000	39.1	Off	L1	19.6	16.9	56.0

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + MP3 + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result : Average

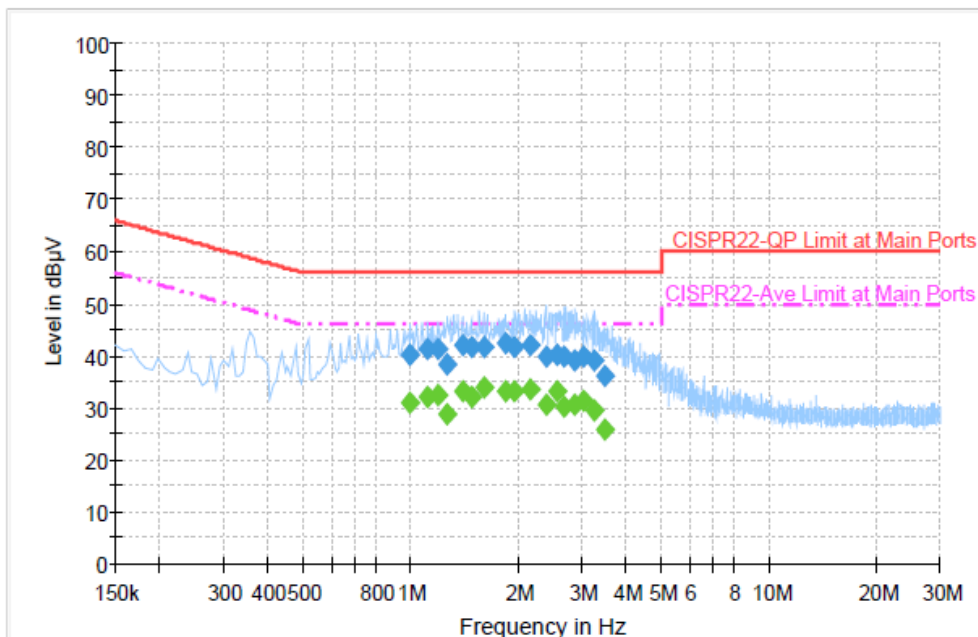
Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.318000	38.4	Off	L1	19.4	11.4	49.8
0.366000	39.5	Off	L1	19.4	9.1	48.6
0.750000	29.1	Off	L1	19.4	16.9	46.0
0.822000	29.6	Off	L1	19.5	16.4	46.0
0.878000	33.8	Off	L1	19.4	12.2	46.0
0.990000	31.8	Off	L1	19.4	14.2	46.0
1.142000	29.4	Off	L1	19.4	16.6	46.0
1.222000	30.9	Off	L1	19.5	15.1	46.0
1.422000	32.4	Off	L1	19.4	13.6	46.0
1.630000	34.9	Off	L1	19.4	11.1	46.0
1.854000	33.5	Off	L1	19.5	12.5	46.0
2.054000	32.7	Off	L1	19.6	13.3	46.0
2.310000	35.8	Off	L1	19.6	10.2	46.0
2.518000	34.5	Off	L1	19.6	11.5	46.0
2.710000	36.6	Off	L1	19.6	9.4	46.0
2.934000	33.1	Off	L1	19.6	12.9	46.0
3.190000	34.0	Off	L1	19.6	12.0	46.0
3.350000	32.3	Off	L1	19.6	13.7	46.0
3.670000	29.6	Off	L1	19.6	16.4	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + MP3 + 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)
0.998000	40.2	Off	N	19.4	15.8	56.0
1.118000	41.2	Off	N	19.5	14.8	56.0
1.198000	41.4	Off	N	19.5	14.6	56.0
1.270000	38.4	Off	N	19.5	17.6	56.0
1.398000	42.1	Off	N	19.5	13.9	56.0
1.478000	41.5	Off	N	19.4	14.5	56.0
1.598000	41.8	Off	N	19.5	14.2	56.0
1.838000	42.4	Off	N	19.5	13.6	56.0
1.958000	41.6	Off	N	19.5	14.4	56.0
2.158000	41.9	Off	N	19.6	14.1	56.0
2.382000	39.9	Off	N	19.7	16.1	56.0
2.558000	40.3	Off	N	19.6	15.7	56.0
2.686000	40.0	Off	N	19.6	16.0	56.0
2.870000	39.1	Off	N	19.6	16.9	56.0
3.030000	40.0	Off	N	19.6	16.0	56.0
3.270000	39.0	Off	N	19.7	17.0	56.0
3.486000	36.0	Off	N	19.6	20.0	56.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + MP3 + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.998000	31.1	Off	N	19.4	14.9	46.0
1.118000	32.0	Off	N	19.5	14.0	46.0
1.198000	32.5	Off	N	19.5	13.5	46.0
1.270000	28.6	Off	N	19.5	17.4	46.0
1.398000	33.0	Off	N	19.5	13.0	46.0
1.478000	32.1	Off	N	19.4	13.9	46.0
1.598000	33.8	Off	N	19.5	12.2	46.0
1.838000	33.3	Off	N	19.5	12.7	46.0
1.958000	33.3	Off	N	19.5	12.7	46.0
2.158000	33.7	Off	N	19.6	12.3	46.0
2.382000	30.6	Off	N	19.7	15.4	46.0
2.558000	33.2	Off	N	19.6	12.8	46.0
2.686000	30.3	Off	N	19.6	15.7	46.0
2.870000	30.5	Off	N	19.6	15.5	46.0
3.030000	31.2	Off	N	19.6	14.8	46.0
3.270000	29.4	Off	N	19.7	16.6	46.0
3.486000	25.9	Off	N	19.6	20.1	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	Oct. 16, 2012 ~ Nov. 12, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Oct. 16, 2012 ~ Nov. 12, 2012	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Oct. 16, 2012 ~ Nov. 12, 2012	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Oct. 17, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Oct. 17, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Oct. 17, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Oct. 17, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	112403	N/A	Feb. 22, 2011	Oct. 17, 2012	Feb. 21, 2013	Conduction (CO05-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9KHz ~ 26.5GHz	Nov. 23, 2011	Oct. 19, 2012 ~ Nov. 12, 2012	Nov. 22, 2012	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz ~ 1000MHz	May 04, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	May. 03, 2013	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz ~ 2GHz	Oct. 06, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	Oct. 05, 2013	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Aug. 01, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	Jul. 31, 2013	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Sep. 28, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	Sep. 27, 2013	Radiation (03CH06-HY)
Preamplifier	Agilent	8449B	3008A01917	1GHz ~ 26.5GHz	Apr. 13, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	Apr. 12, 2013	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz ~ 1GHz	Apr. 11, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	Apr. 10, 2013	Radiation (03CH06-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 21, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	Jul. 20, 2013	Radiation (03CH06-HY)
Pre Amplifier	MITEQ	AMF-7D-00101800-30-10P	159087	1GHz~18GHz	Feb. 27, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	Feb. 26, 2013	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	Jul. 02, 2014	Radiation (03CH06-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Oct. 19, 2012 ~ Nov. 12, 2012	Sep. 02, 2013	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
---	------