



# FCC RF Test Report

APPLICANT : HTC Corporation  
EQUIPMENT : Windows Phone  
MODEL NAME : PM59110  
FCC ID : NM8PM59110  
STANDARD : FCC Part 15 Subpart C §15.247  
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Sep. 20, 2012 and completely tested on Nov. 05, 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.

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FCC ID : NM8PM59110

Page Number : 1 of 74

Report Issued Date : Nov. 06, 2012

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### 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	-
3.2	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 0.93 dB at 2483.960 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 11.60 dB at 2.198 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

# 1 General Description

## 1.1 Applicant

**HTC Corporation**

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

## 1.2 Manufacturer

**HTC Corporation**

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

## 1.3 Feature of Equipment Under Test

Product Feature	
<b>Equipment</b>	Windows PHONE
<b>Model Name</b>	PM59110
<b>Sample 1</b>	EUT with LCM, Main Camera 1 and Battery 1
<b>Sample 2</b>	EUT with LCM, Main Camera 2 and Battery 2
<b>FCC ID</b>	NM8PM59110
<b>EUT supports Radios application</b>	GSM/EGPRS/WCDMA/HSPA/ WLAN 11bgn / Bluetooth
<b>EUT Stage</b>	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	
<b>Tx/Rx Frequency Range</b>	2412 MHz ~ 2462 MHz
<b>Number of Channels</b>	11
<b>Carrier Frequency of Each Channel</b>	2412+(n-1)*5 MHz; n=1~11
<b>Maximum Output Power to Antenna</b>	802.11b : 20.78 dBm (0.1197 W) 802.11g : 21.48 dBm (0.1406 W) 802.11n HT20 : 21.56 dBm (0.1432 W)
<b>Antenna Type</b>	PIFA Antenna type with gain -0.50 dBi
<b>Type of Modulation</b>	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

## 1.4 Testing Site

<b>Test Site</b>	SPORTON INTERNATIONAL INC.			
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
<b>Test Site No.</b>	<b>Sporton Site No.</b>			<b>FCC/IC Registration No.</b>
	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.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	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 for Sample 1 and Y plane for Sample 2) 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)	20.78	20.77	20.76	20.73

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)	21.48	21.38	21.37	21.41	21.44	21.36	21.33	21.23

2.4GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	21.56	21.46	21.5	21.45	21.35	21.31	21.23	21.29

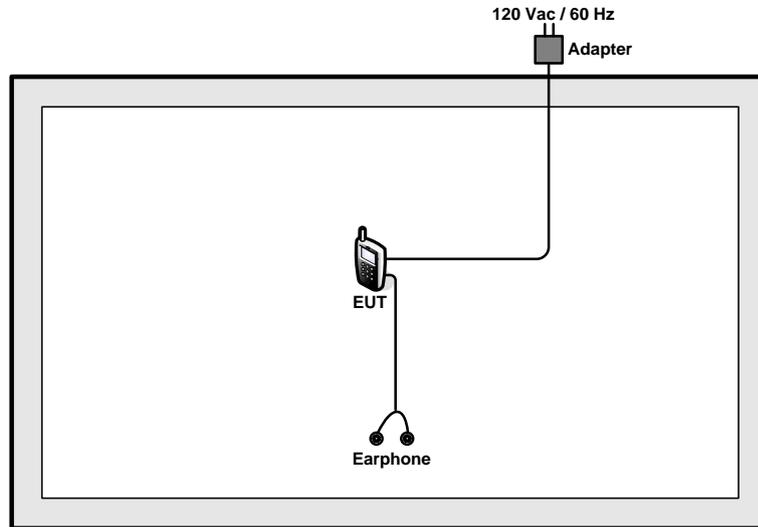
### 2.3 Test Mode

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

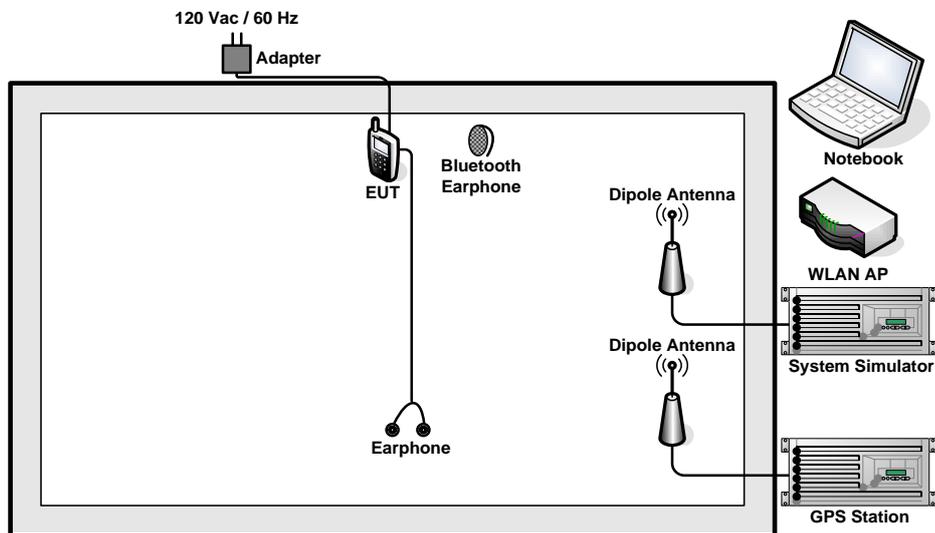
Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
	Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
	Conducted Band Edge	802.11b	1 Mbps	1/11
		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 : WCDMA Band V Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone 2 + USB Cable 1 (Charging from Adapter 2) for Sample 1 Mode 2 : WCDMA Band V Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone 2 + USB Cable 1 (Charging from Adapter 2) for Sample 2			
<b>Remark:</b> 1. For Radiated TCs, the test was performance with earphone 1, adaptor 1, and USB cable 1 2. For conducted emission, the worst case is mode 2; only the test data of this mode was reported.				

## 2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



## 2.5 RF Utility

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

### 3 Test Result

#### 3.1 6dB Bandwidth Measurement

##### 3.1.1 Limit of 6dB Bandwidth

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

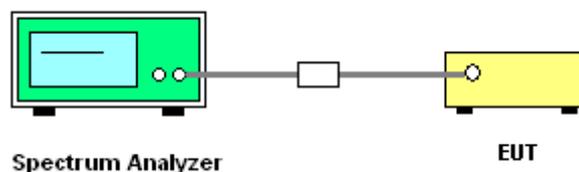
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

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

##### 3.1.4 Test Setup



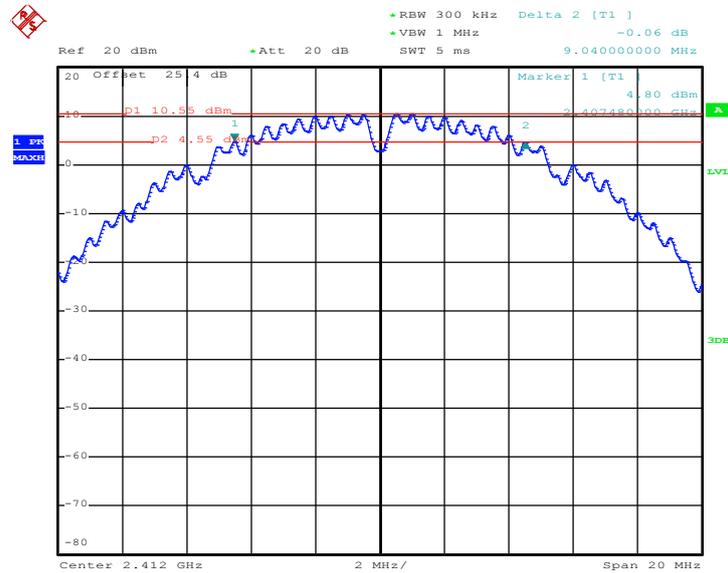


3.1.5 Test Result of 6dB Bandwidth

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

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

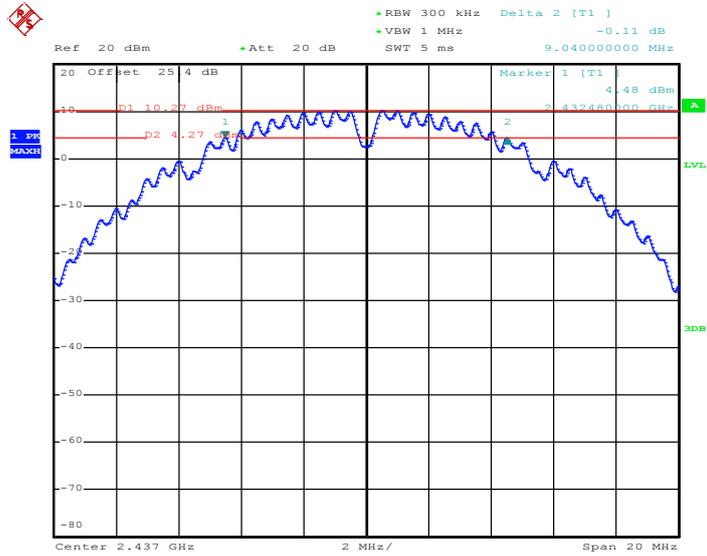
6 dB Bandwidth Plot on 802.11b Channel 01



292016 15C 6dB.11b 2412 (ch01)  
 Date: 29.SEP.2012 17:09:33

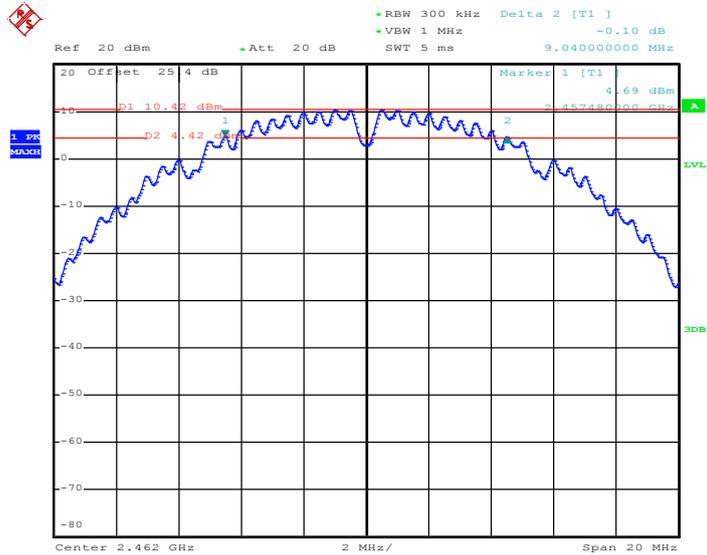


### 6 dB Bandwidth Plot on 802.11b Channel 06



292016 15C 6dB.11b 2437 (ch06)  
Date: 29.SEP.2012 17:13:10

### 6 dB Bandwidth Plot on 802.11b Channel 11



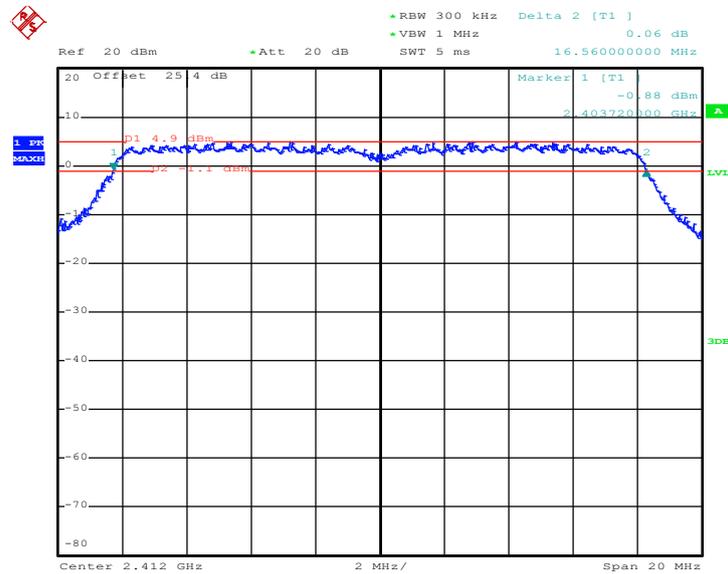
292016 15C 6dB.11b 2462 (ch11)  
Date: 29.SEP.2012 17:15:28



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

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.56	0.5	Pass
06	2437	16.52	0.5	Pass
11	2462	16.52	0.5	Pass

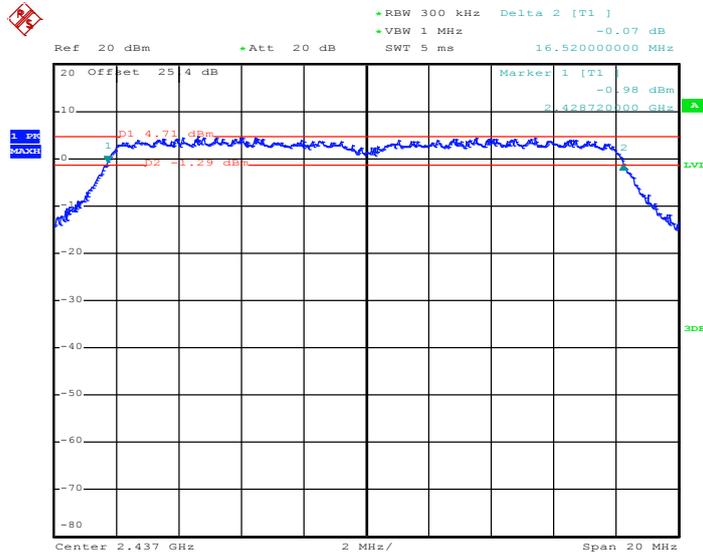
6 dB Bandwidth Plot on 802.11g Channel 01



292016 15C 6dB.11g 2412 (ch01)  
 Date: 29.SEP.2012 17:25:26

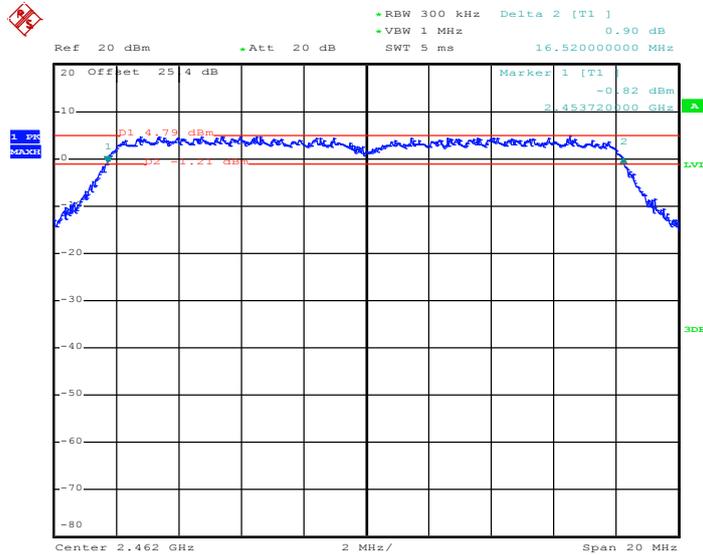


### 6 dB Bandwidth Plot on 802.11g Channel 06



292016 15C 6dB.11g 2437 (ch06)  
Date: 29.SEP.2012 17:22:24

### 6 dB Bandwidth Plot on 802.11g Channel 11



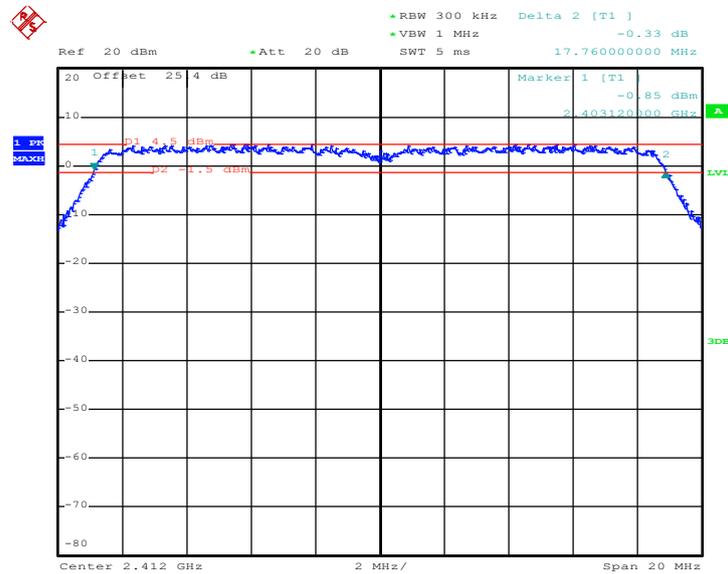
292016 15C 6dB.11g 2462 (ch11)  
Date: 29.SEP.2012 17:18:57



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

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.76	0.5	Pass
06	2437	17.72	0.5	Pass
11	2462	17.72	0.5	Pass

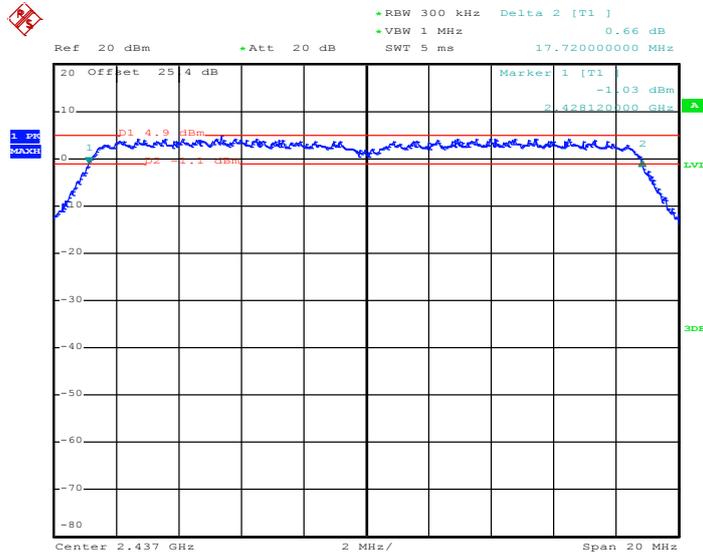
6 dB Bandwidth Plot on 802.11n HT20 Channel 01



292016 15C 6dB.11g\_N20 2412 (ch01)  
 Date: 29.SEP.2012 17:29:19

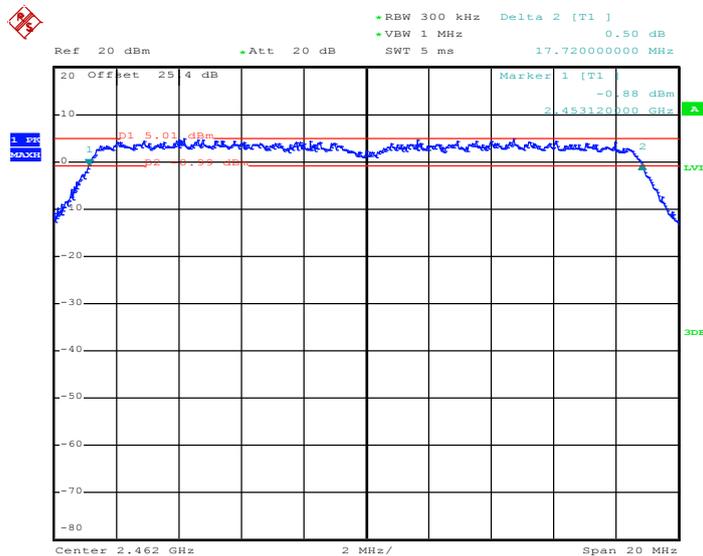


6 dB Bandwidth Plot on 802.11n HT20 Channel 06



292016 15C 6dB.11g\_N20 2437 (ch06)  
Date: 29.SEP.2012 17:33:02

6 dB Bandwidth Plot on 802.11n HT20 Channel 11



292016 15C 6dB.11g\_N20 2462 (ch11)  
Date: 29.SEP.2012 17:36:25

## 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.

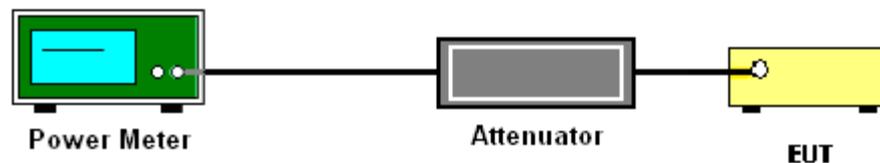
### 3.2.2 Measuring Instruments

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**

<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Bill Kuo	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.72	30	Pass
06	2437	20.59	30	Pass
11	2462	20.78	30	Pass

<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Bill Kuo	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.48	30	Pass
06	2437	21.34	30	Pass
11	2462	21.42	30	Pass

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Bill Kuo	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.56	30	Pass
06	2437	21.33	30	Pass
11	2462	21.41	30	Pass



3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	24~26
Test Engineer :	Bill Kuo	Relative Humidity :	50~53
Duty Cycle:	97.72%	Duty Factor:	0.10dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	18.33
06	2437	18.21
11	2462	18.38

Test Mode :	802.11g	Temperature :	24~26
Test Engineer :	Bill Kuo	Relative Humidity :	50~53
Duty Cycle:	86.99%	Duty Factor:	0.61dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	12.32
06	2437	12.10
11	2462	12.30

Test Mode :	802.11n HT20	Temperature :	24~26
Test Engineer :	Bill Kuo	Relative Humidity :	50~53
Duty Cycle:	86.49%	Duty Factor:	0.63dB

Channel	Frequency (MHz)	802.11n HT20 Average Output Power (dBm)
01	2412	12.41
06	2437	12.11
11	2462	12.37

### 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.

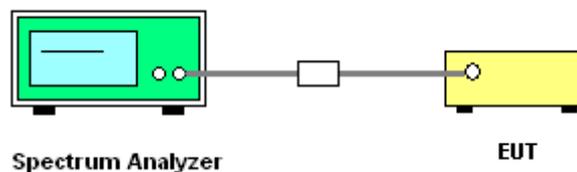
#### 3.3.2 Measuring Instruments

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°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	10.23	-3.96	8	Pass
06	2437	9.61	-3.80	8	Pass
11	2462	9.91	-4.20	8	Pass

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

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	0.96	-12.52	8	Pass
06	2437	0.64	-12.96	8	Pass
11	2462	1.06	-12.47	8	Pass

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

Channel	Frequency (MHz)	802.11n HT20 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	0.90	-11.97	8	Pass
06	2437	0.70	-13.44	8	Pass
11	2462	1.07	-12.87	8	Pass

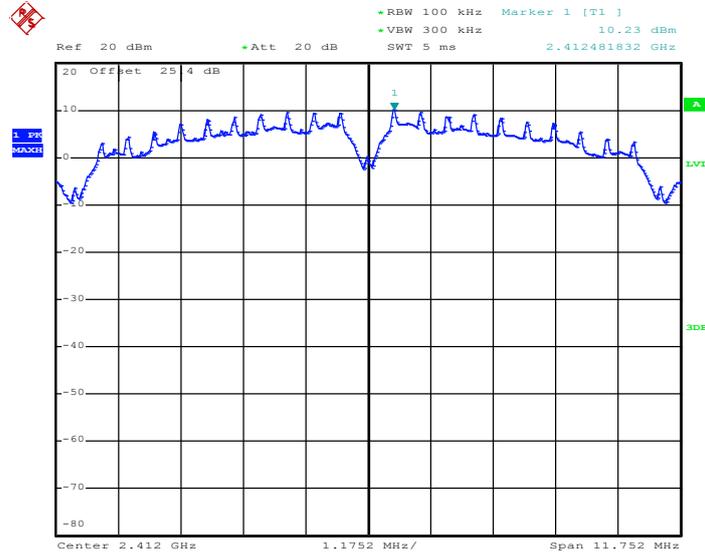
**Note:**

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.



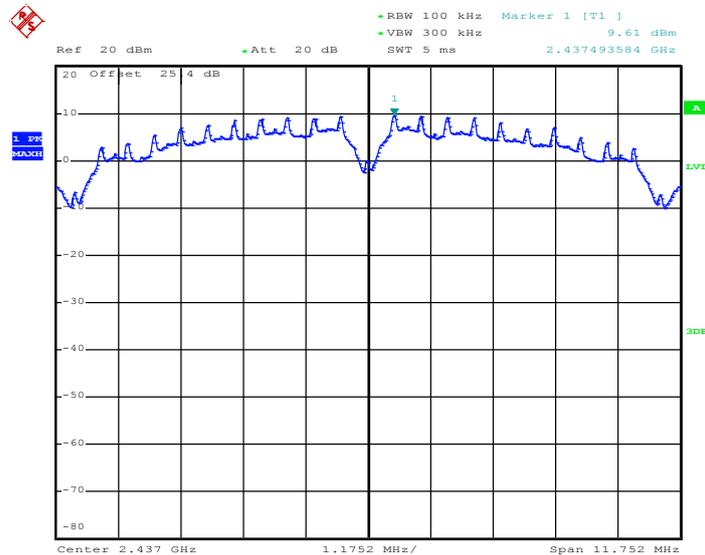
### 3.3.6 Test Result of Power Spectral Density Plots (100kHz)

PSD 100kHz Plot on 802.11b Channel 01



292016 15C PSD 802.11b 2412 (ch01)  
Date: 29.SEP.2012 17:09:54

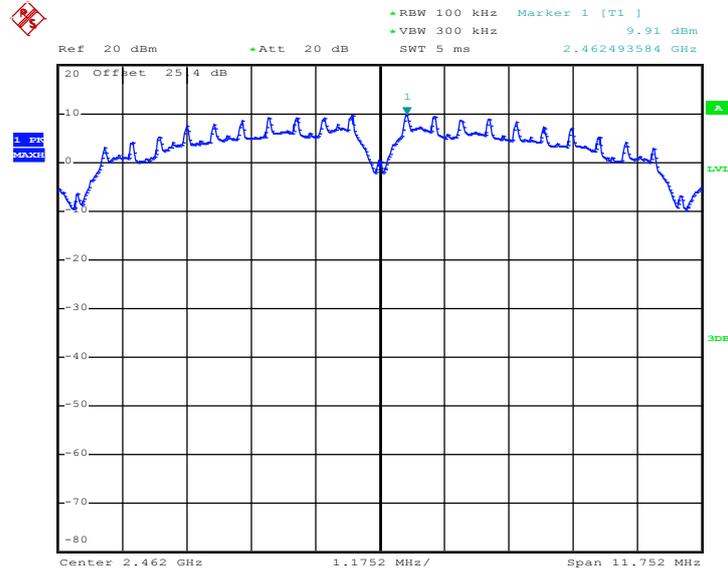
PSD 100kHz Plot on 802.11b Channel 06



292016 15C PSD 802.11b 2437 (ch06)  
Date: 29.SEP.2012 17:13:29

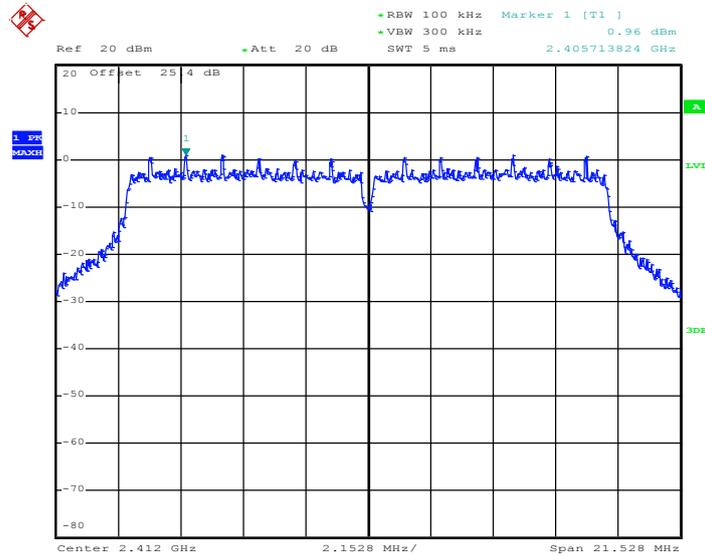


PSD 100kHz Plot on 802.11b Channel 11



292016 15C PSD 802.11b 2462 (ch11)  
Date: 29.SEP.2012 17:15:47

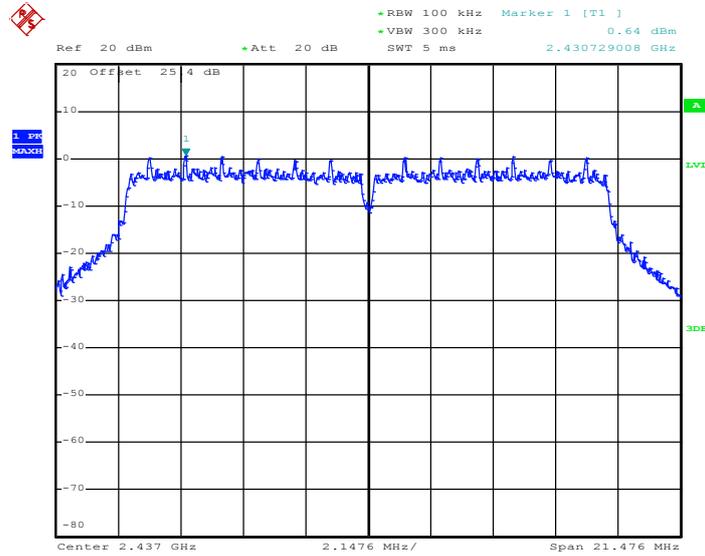
PSD 100kHz Plot on 802.11g Channel 01



292016 15C PSD 802.11g 2412 (ch01)  
Date: 29.SEP.2012 17:25:47

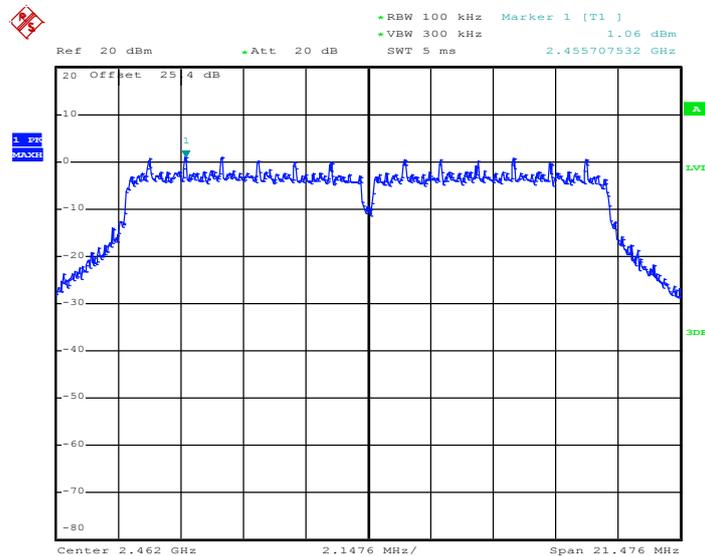


PSD 100kHz Plot on 802.11g Channel 06



292016 15C PSD 802.11g 2437 (ch06)  
Date: 29.SEP.2012 17:22:44

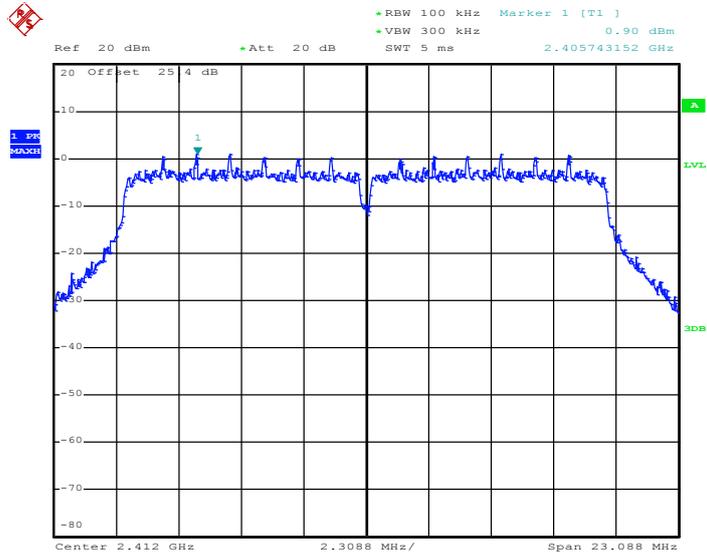
PSD 100kHz Plot on 802.11g Channel 11



292016 15C PSD 802.11g 2462 (ch11)  
Date: 29.SEP.2012 17:19:16

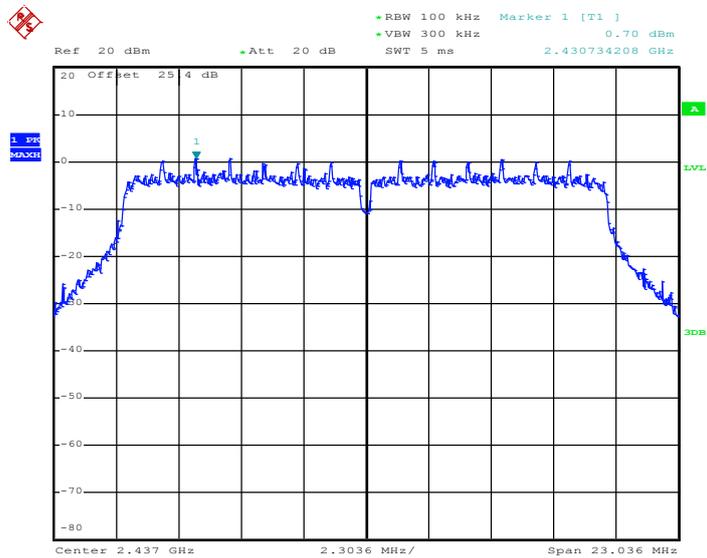


PSD 100kHz Plot on 802.11n HT20 Channel 01



292016 15C PSD 802.11g\_N20 2412 (ch01)  
Date: 29.SEP.2012 17:29:42

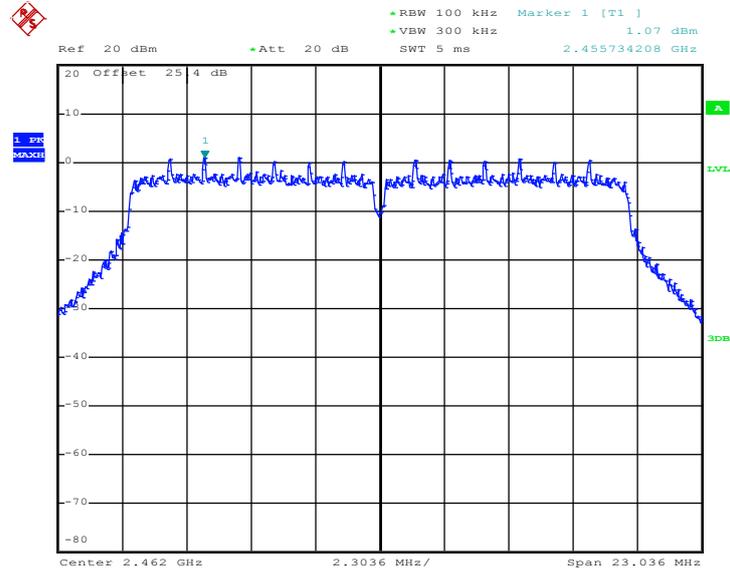
PSD 100kHz Plot on 802.11n HT20 Channel 06



292016 15C PSD 802.11g\_N20 2437 (ch06)  
Date: 29.SEP.2012 17:33:33



PSD 100kHz Plot on 802.11n HT20 Channel 11

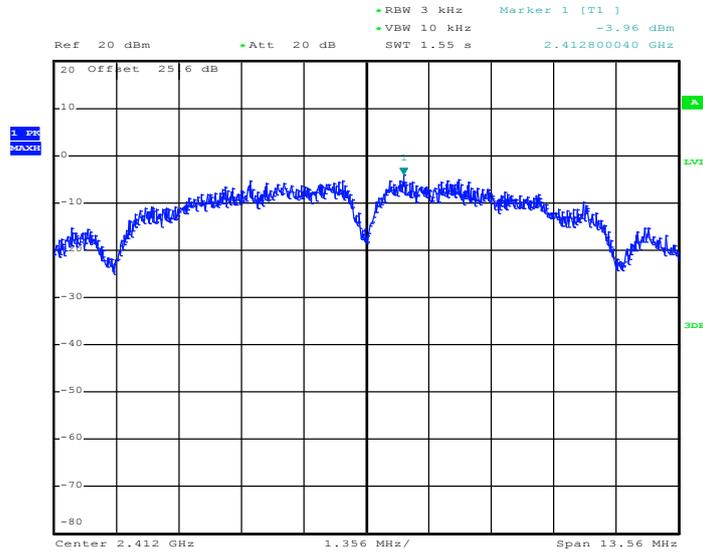


292016 15C PSD 802.11g\_N20 2462 (ch11)  
Date: 29.SEP.2012 17:36:45



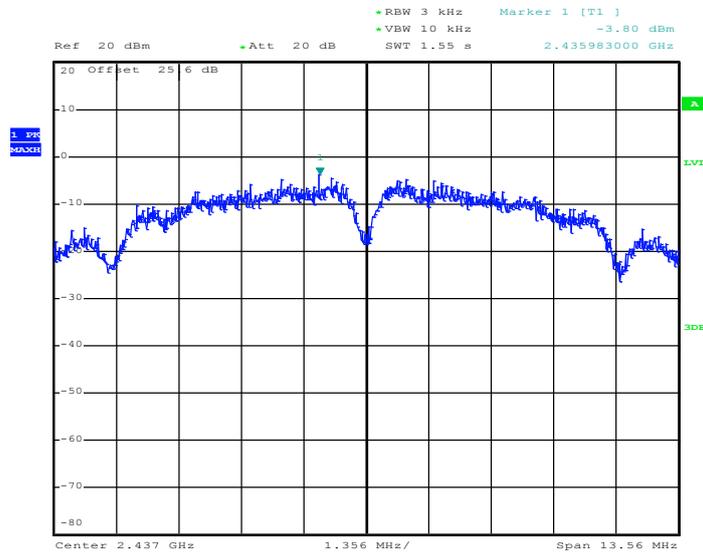
### 3.3.7 Test Result of Power Spectral Density Plots (3kHz)

PSD 3kHz Plot on 802.11b Channel 01



Date: 5.NOV.2012 10:34:44

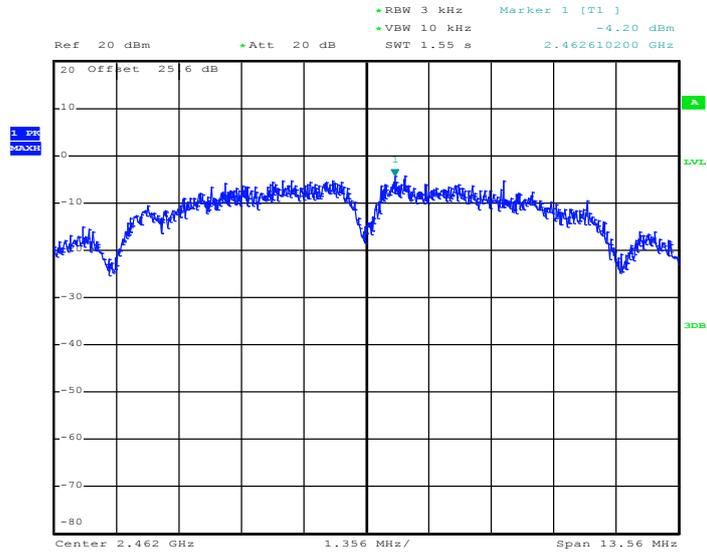
PSD 3kHz Plot on 802.11b Channel 06



Date: 5.NOV.2012 10:37:34

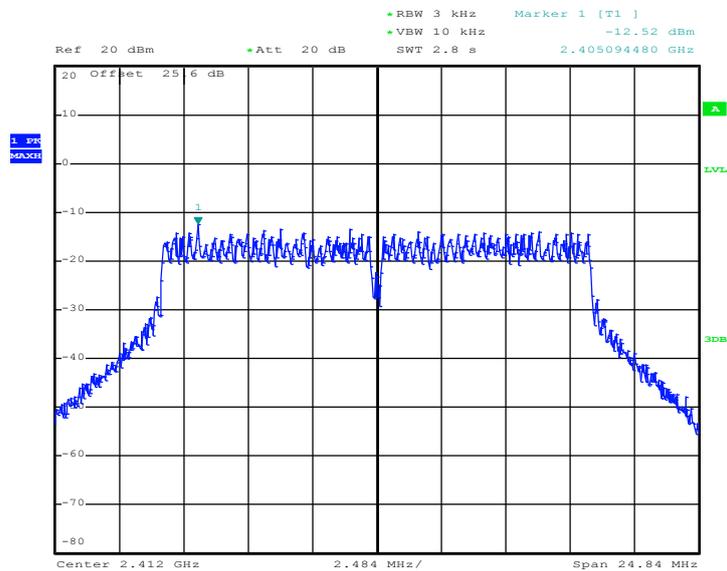


PSD 3kHz Plot on 802.11b Channel 11



Date: 5.NOV.2012 10:38:40

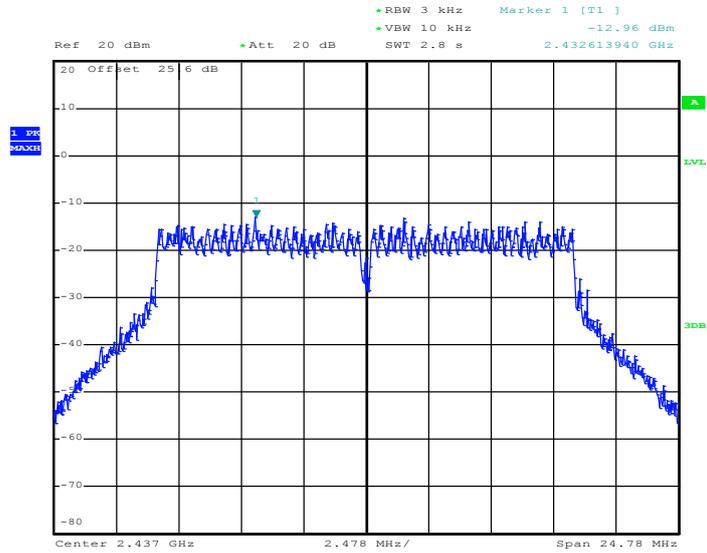
PSD 3kHz Plot on 802.11g Channel 01



Date: 5.NOV.2012 10:43:43

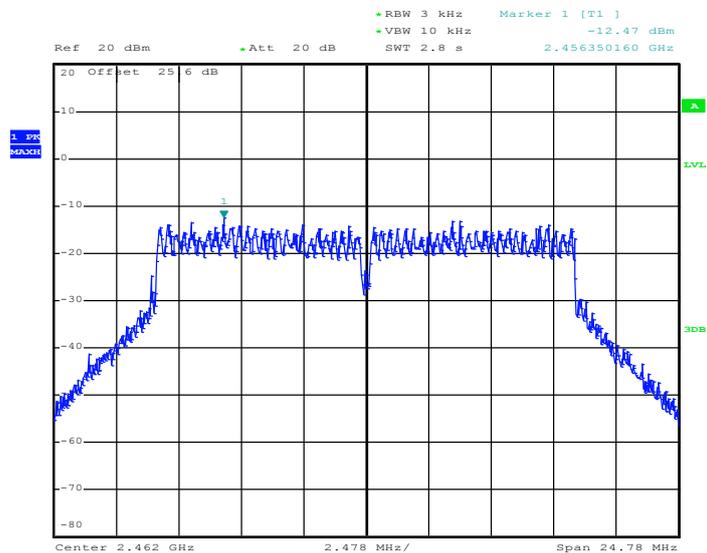


PSD 3kHz Plot on 802.11g Channel 06



Date: 5.NOV.2012 10:40:59

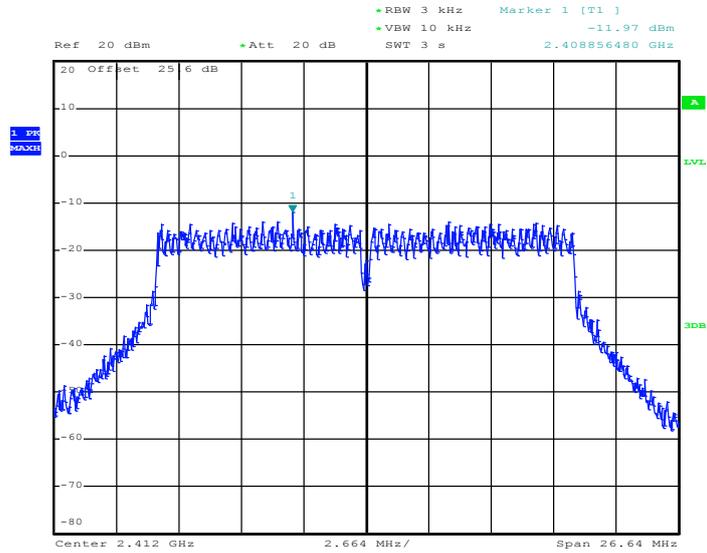
PSD 3kHz Plot on 802.11g Channel 11



Date: 5.NOV.2012 10:42:05

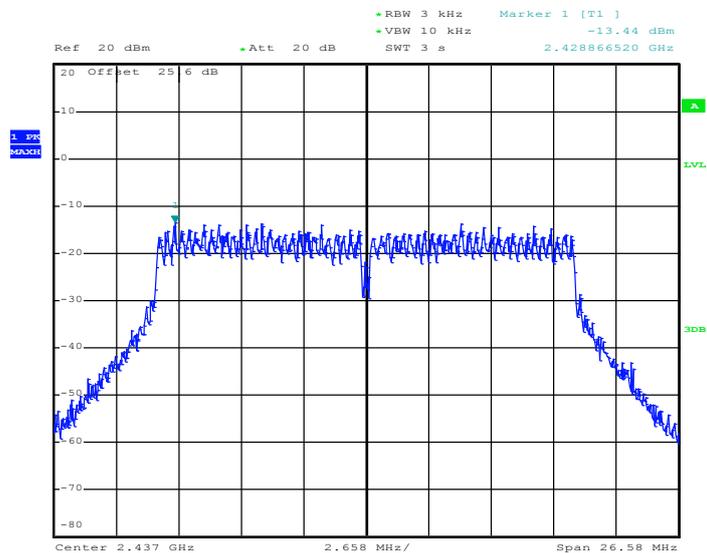


PSD 3kHz Plot on 802.11n HT20 Channel 01



Date: 5.NOV.2012 10:44:58

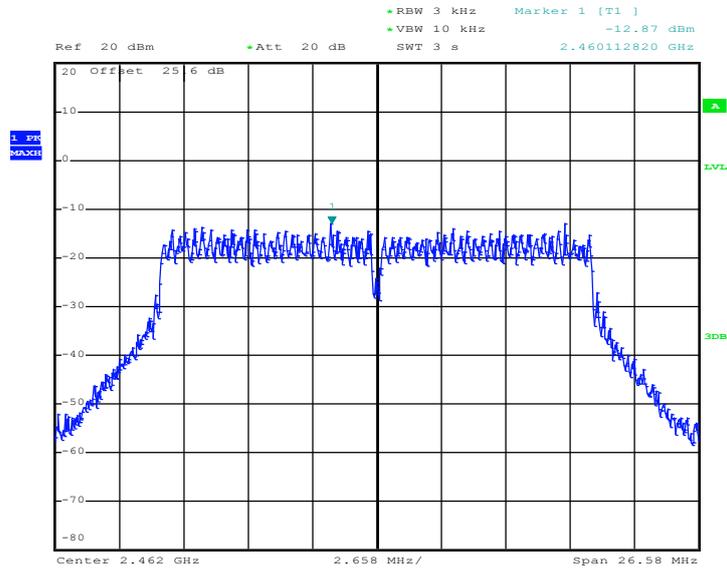
PSD 3kHz Plot on 802.11n HT20 Channel 06



Date: 5.NOV.2012 10:47:47



PSD 3kHz Plot on 802.11n HT20 Channel 11



Date: 5.NOV.2012 10:49:20

## 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).

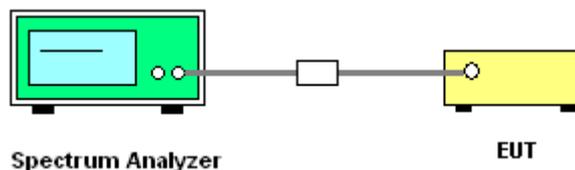
### 3.4.2 Measuring Instruments

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.

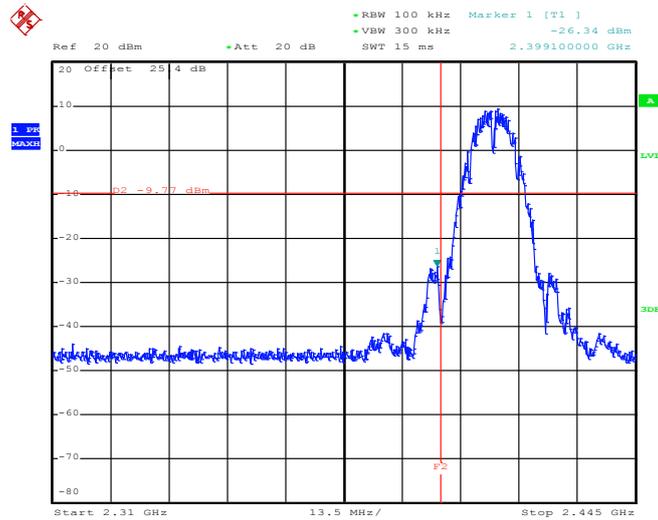
### 3.4.4 Test Setup



### 3.4.5 Test Plots of Conducted Band Edges

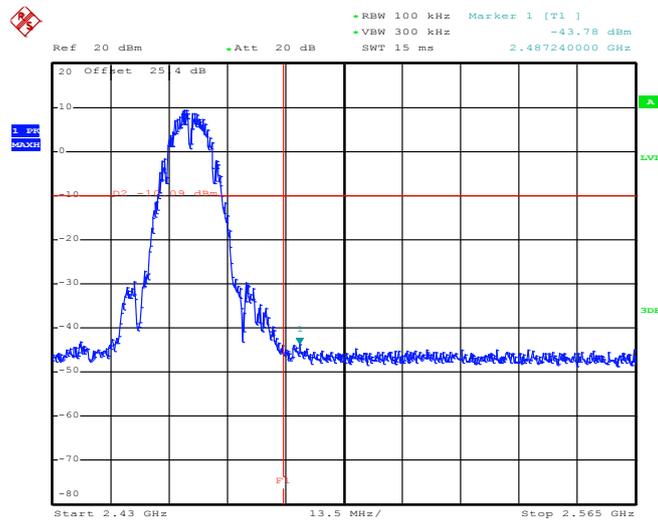
Test Mode :	802.11b	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

Low Band Edge Plot on 802.11b Channel 01



292016 15C BandEdge 802.11b 2412 (ch01)  
 Date: 29.SEP.2012 17:10:38

High Band Edge Plot on 802.11b Channel 11

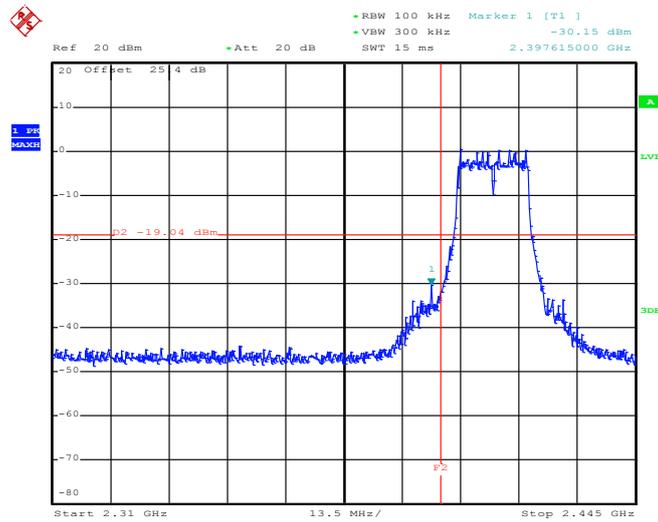


292016 15C BandEdge 802.11b 2462 (ch11)  
 Date: 29.SEP.2012 17:16:04



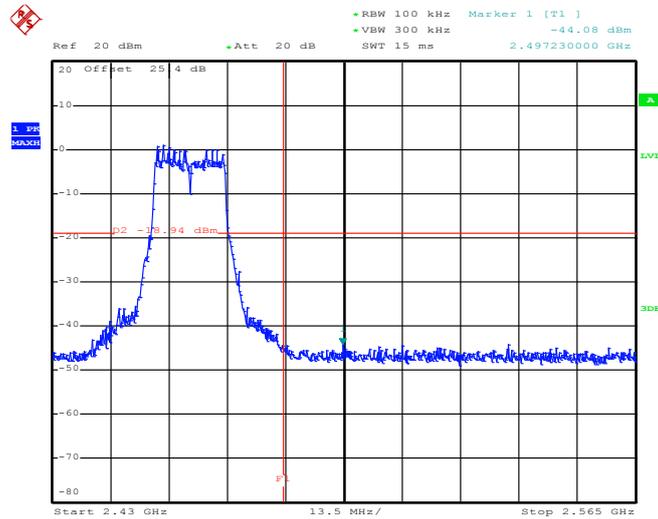
Test Mode :	802.11g	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

Low Band Edge Plot on 802.11g Channel 01



292016 15C BandEdge 802.11g 2412 (ch01)  
Date: 29.SEP.2012 17:26:03

High Band Edge Plot on 802.11g Channel 11

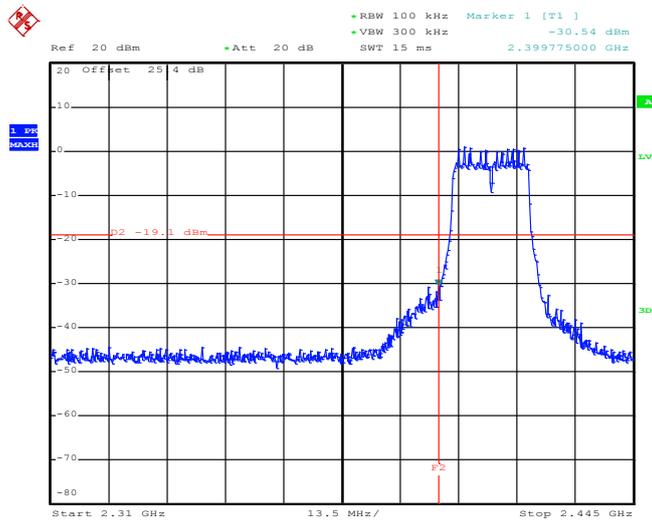


292016 15C BandEdge 802.11g 2462 (ch11)  
Date: 29.SEP.2012 17:19:32



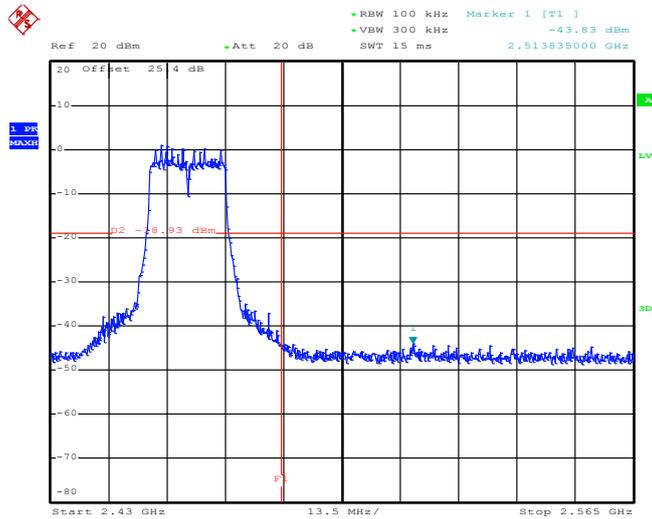
Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

Low Band Edge Plot on 802.11n HT20 Channel 01



292016 15C BandEdge 802.11g\_N20 2412 (ch01)  
Date: 29.SEP.2012 17:30:03

High Band Edge Plot on 802.11n HT20 Channel 11



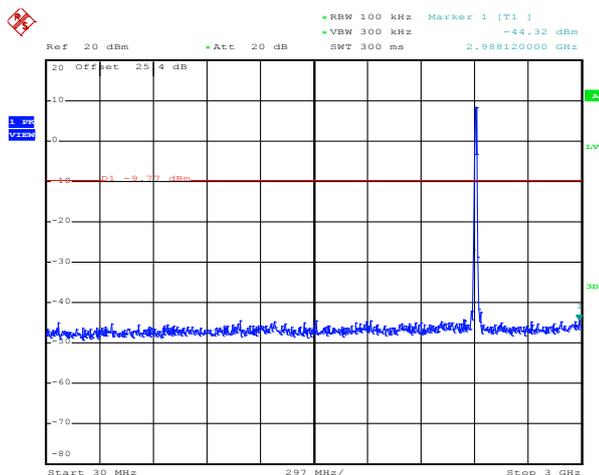
292016 15C BandEdge 802.11g\_N20 2462 (ch11)  
Date: 29.SEP.2012 17:37:02

### 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 :	Bill Kuo

#### 802.11b 30 MHz~3 GHz

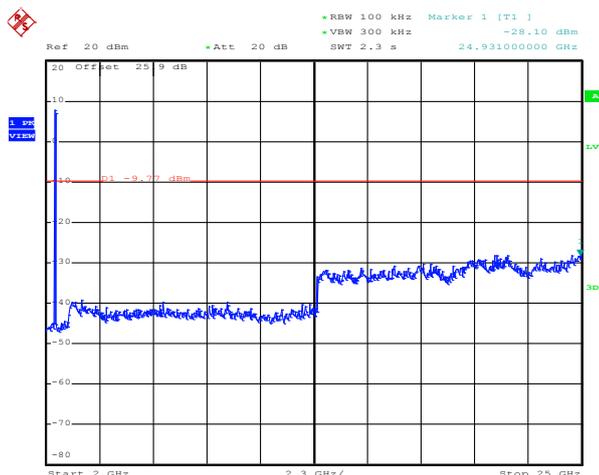
#### Conducted Spurious Emission Plot on Channel 01



292016 15C Spurious 802.11b 2412 (ch01)  
Date: 29.SEP.2012 17:11:14

#### 802.11b 2 GHz~25 GHz

#### Conducted Spurious Emission Plot on Channel 01

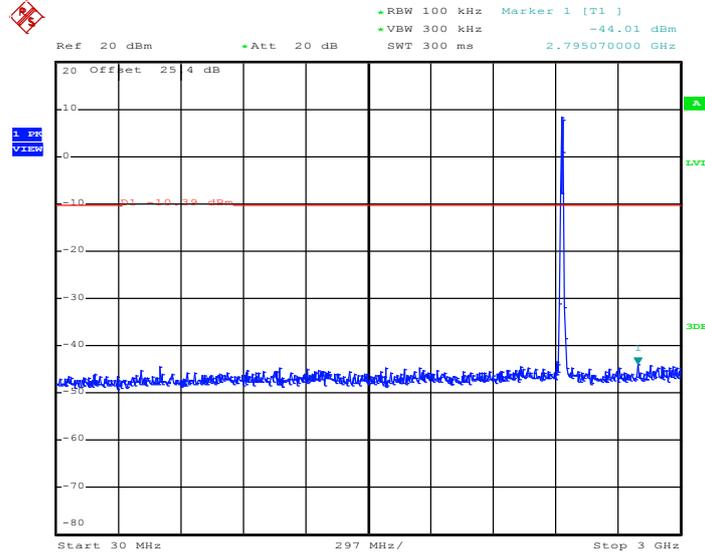


292016 15C Spurious 802.11b 2412 (ch01)  
Date: 29.SEP.2012 17:11:32



802.11b 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 06

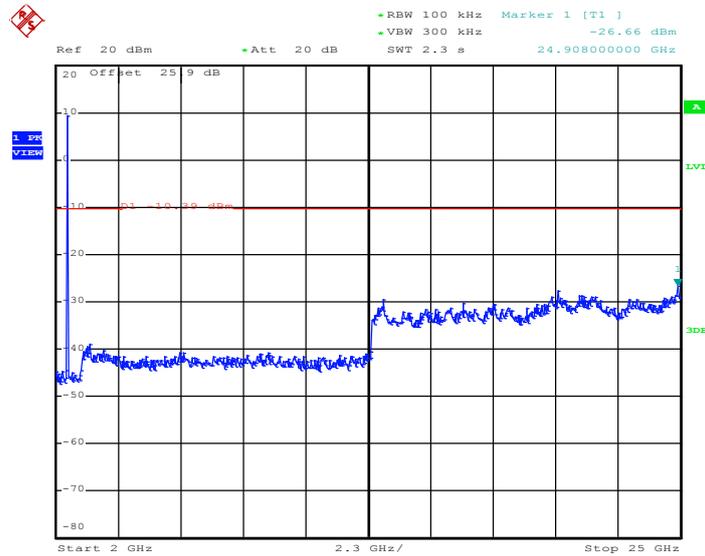


292016 15C Spurious 802.11b 2437 (ch06)

Date: 29.SEP.2012 17:13:51

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06



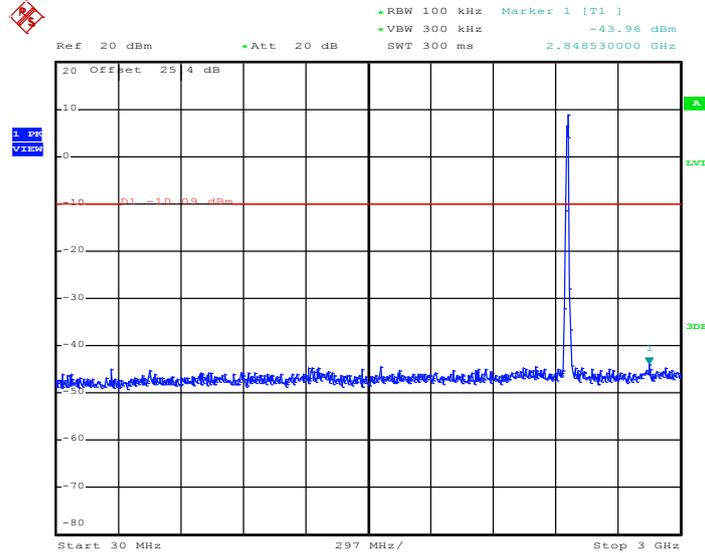
292016 15C Spurious 802.11b 2437 (ch06)

Date: 29.SEP.2012 17:14:09



802.11b 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 11

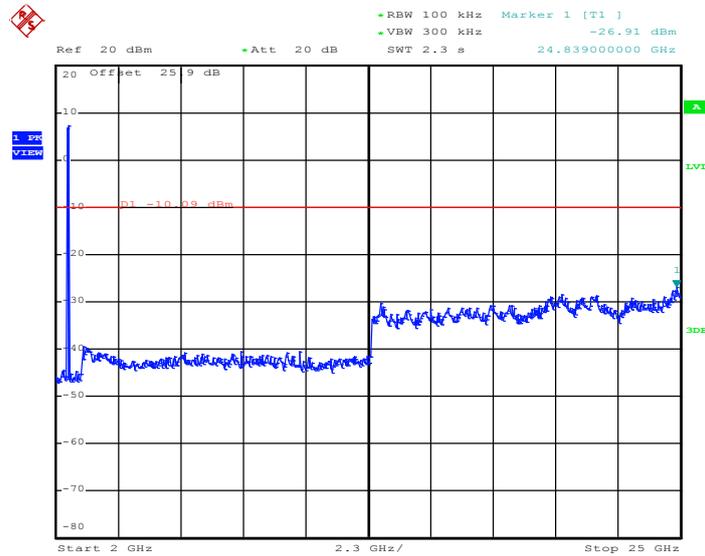


292016 15C Spurious 802.11b 2462 (ch11)

Date: 29.SEP.2012 17:16:23

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



292016 15C Spurious 802.11b 2462 (ch11)

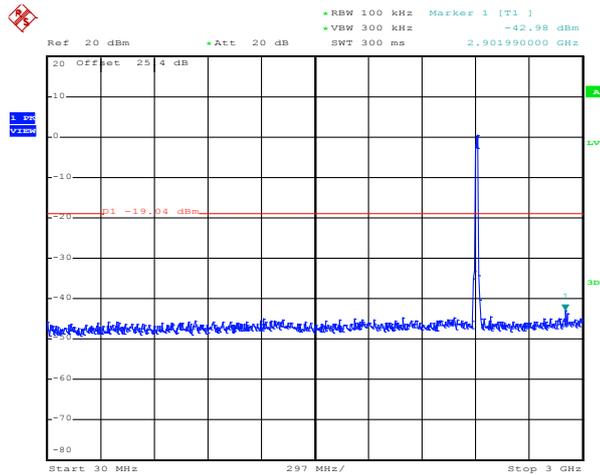
Date: 29.SEP.2012 17:16:41



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

802.11g 30 MHz~3 GHz

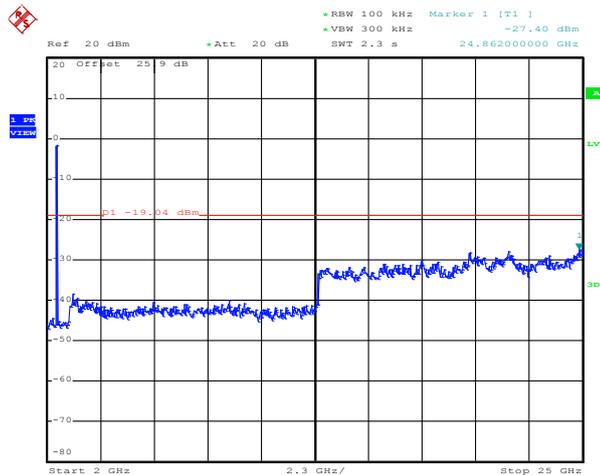
Conducted Spurious Emission Plot on Channel 01



292016 15C Spurious 802.11g 2412 (ch01)  
Date: 29.SEP.2012 17:26:30

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

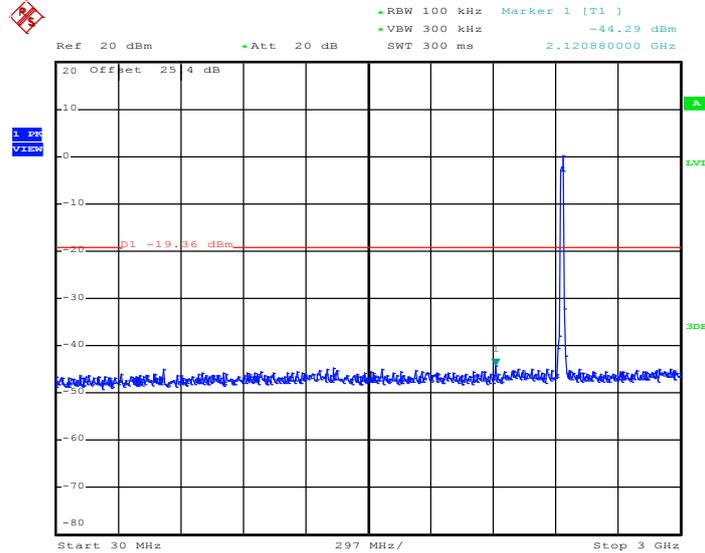


292016 15C Spurious 802.11g 2412 (ch01)  
Date: 29.SEP.2012 17:26:48



802.11g 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 06

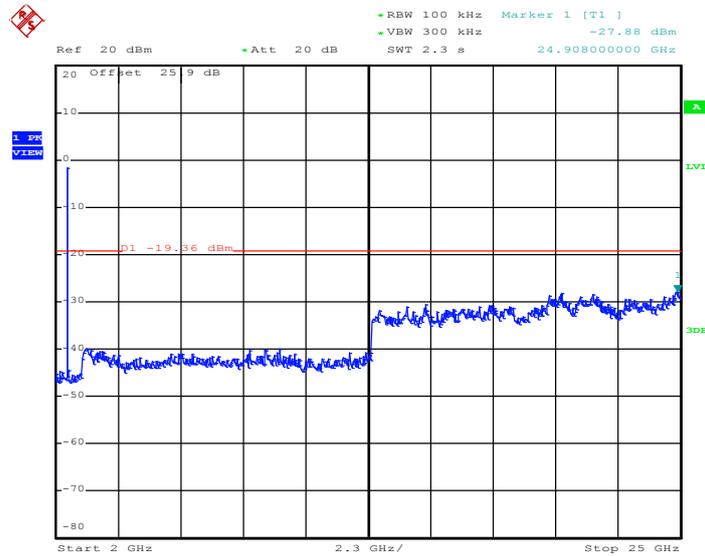


292016 15C Spurious 802.11g 2437 (ch06)

Date: 29.SEP.2012 17:23:15

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06



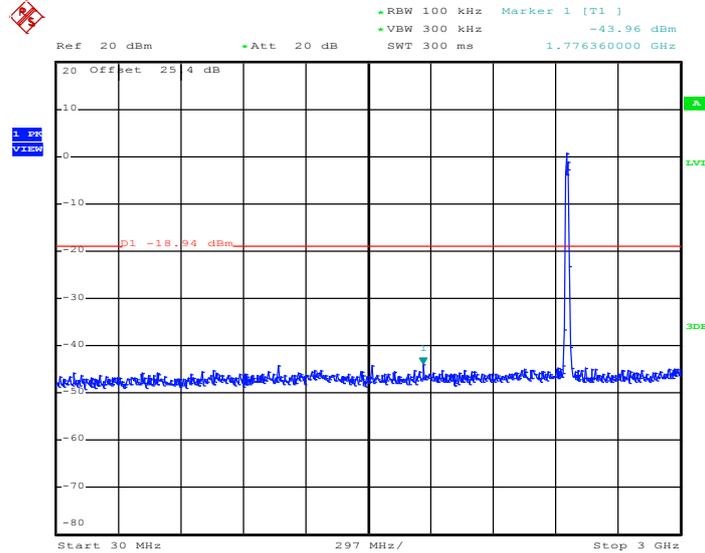
292016 15C Spurious 802.11g 2437 (ch06)

Date: 29.SEP.2012 17:23:33



802.11g 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 11

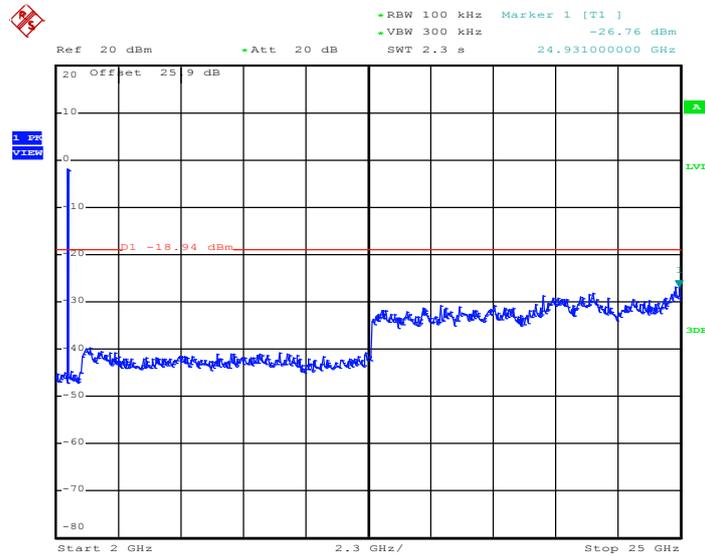


292016 15C Spurious 802.11g 2462 (ch11)

Date: 29.SEP.2012 17:19:56

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



292016 15C Spurious 802.11g 2462 (ch11)

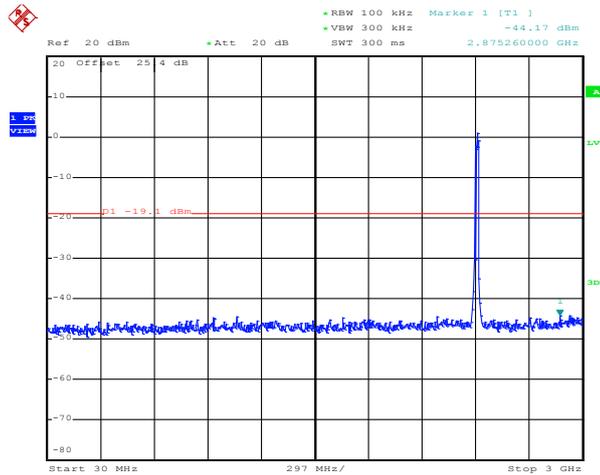
Date: 29.SEP.2012 17:20:14



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 :	Bill Kuo

802.11n HT20 30 MHz~3 GHz

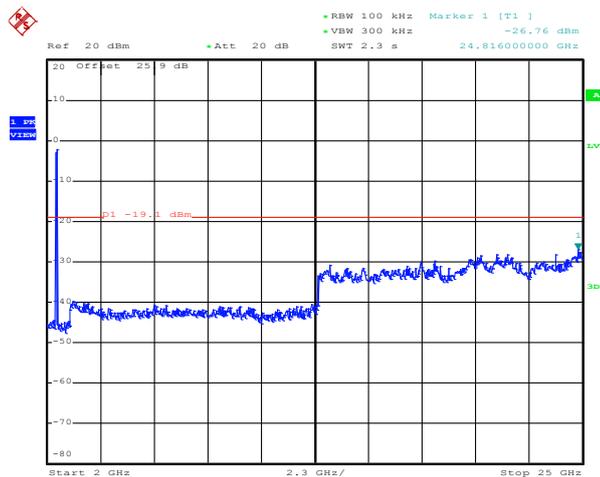
Conducted Spurious Emission Plot on Channel 01



292016 15C Spurious 802.11g\_N20 2412 (ch01)  
Date: 29.SEP.2012 17:30:30

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

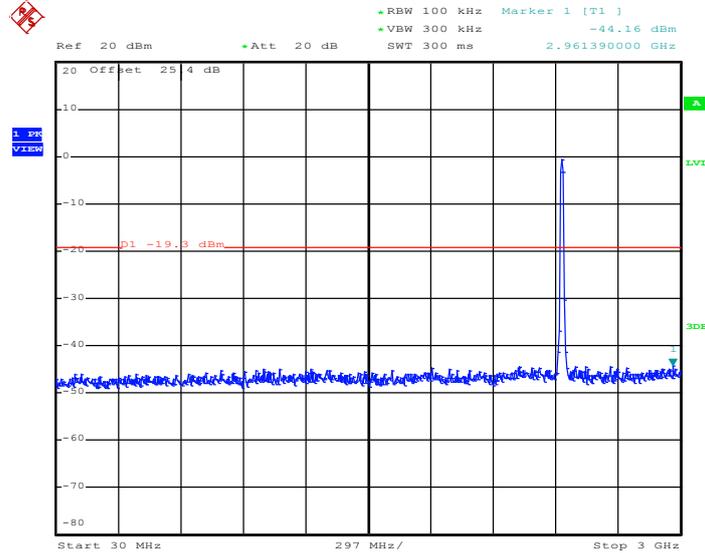


292016 15C Spurious 802.11g\_N20 2412 (ch01)  
Date: 29.SEP.2012 17:30:48



802.11n HT20 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 06

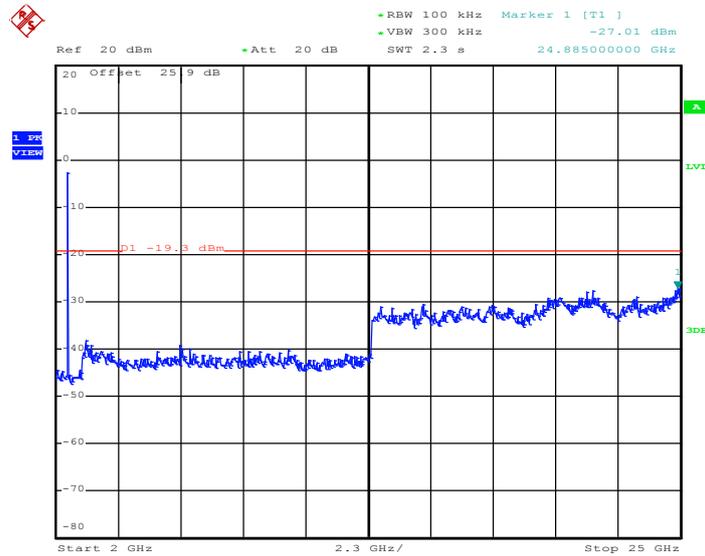


292016 15C Spurious 802.11g\_N20 2437 (ch06)

Date: 29.SEP.2012 17:34:00

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06



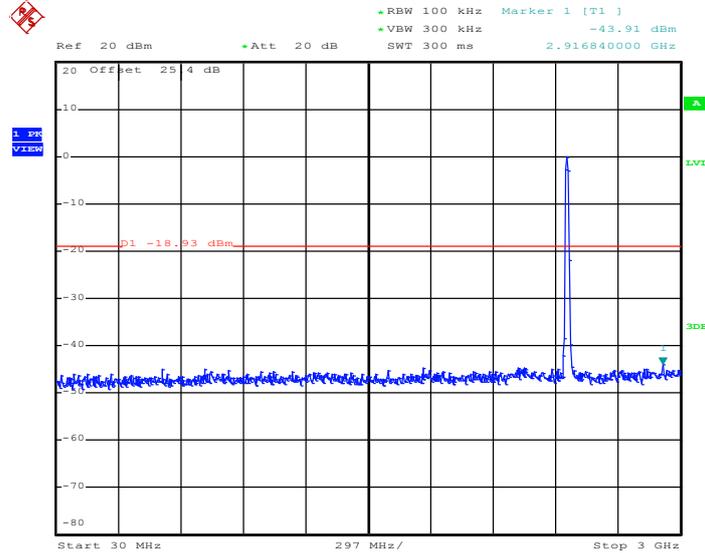
292016 15C Spurious 802.11g\_N20 2437 (ch06)

Date: 29.SEP.2012 17:34:18



802.11n HT20 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 11

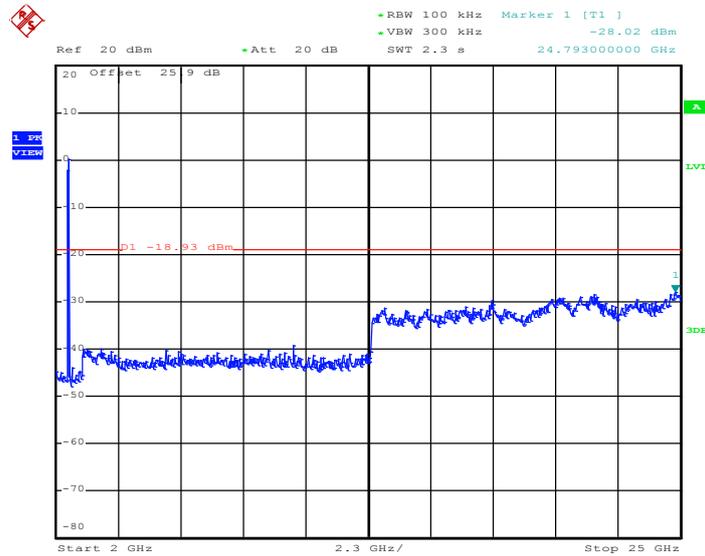


292016 15C Spurious 802.11g\_N20 2462 (ch11)

Date: 29.SEP.2012 17:37:23

802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



292016 15C Spurious 802.11g\_N20 2462 (ch11)

Date: 29.SEP.2012 17:37:40



### 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

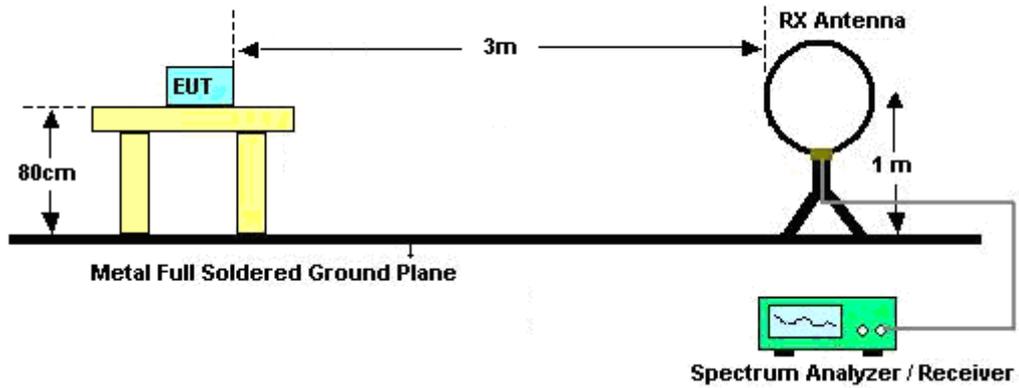
1. The testing follows the guidelines in ANSI C63. 10-2009
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better 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	97.72	8250.000	0.12	300Hz
802.11g	86.99	1360.577	0.73	1KHz
802.11n HT20	86.49	1280.000	0.78	1KHz

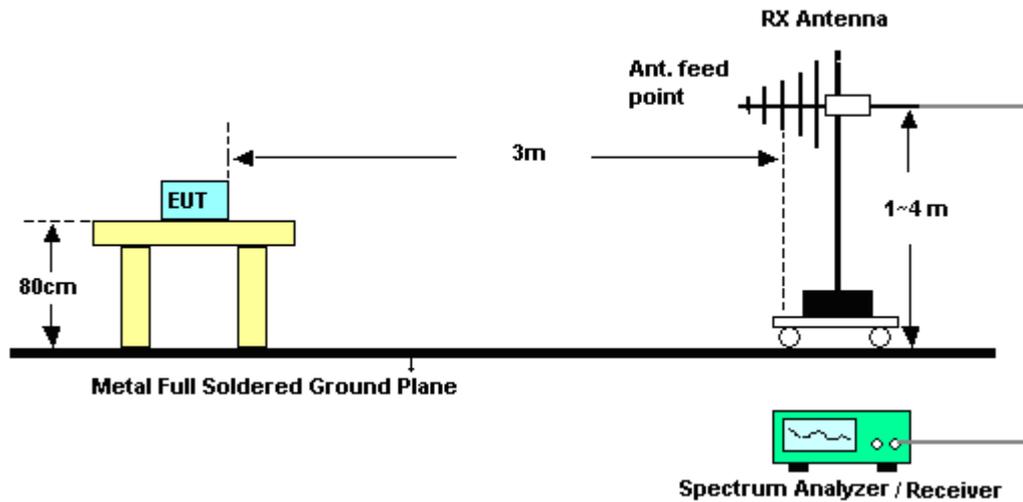
**Note:** For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

### 3.5.4 Test Setup

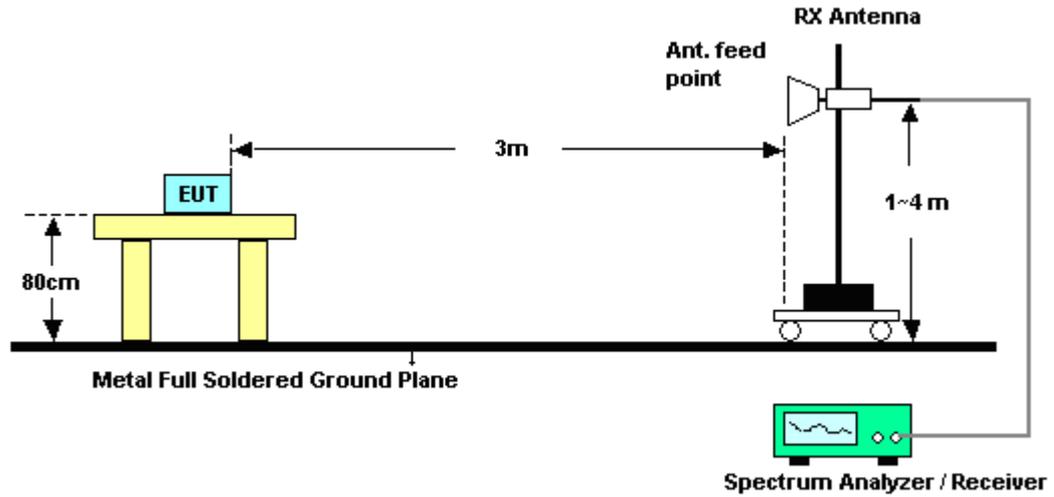
For radiated emissions below 30MHz



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

<Sample 1>

Test Mode :	802.11b	Temperature :	23~25°C
Test Band :	Low	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang, Kyle Jhuang, and Gavin Wu

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
2339.7	50.73	-23.27	74	46.48	32.24	5.95	33.94	193	263	Peak
2390	38.39	-15.61	54	34.02	32.3	6.03	33.96	193	263	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
2339.61	53.12	-20.88	74	48.87	32.24	5.95	33.94	102	354	Peak
2356.53	37.03	-16.97	54	32.73	32.26	5.99	33.95	102	354	Average

Test Mode :	802.11b	Temperature :	23~25°C
Test Band :	High	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang, Kyle Jhuang, and Gavin Wu

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
2486.96	52.36	-21.64	74	47.8	32.38	6.18	34	194	248	Peak
2486.78	39.77	-14.23	54	35.21	32.38	6.18	34	194	248	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
2487.14	49.11	-24.89	74	44.55	32.38	6.18	34	100	344	Peak
2486.9	36.25	-17.75	54	31.69	32.38	6.18	34	100	344	Average



Test Mode :	802.11g	Temperature :	23~25°C
Test Band :	Low	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang, Kyle Jhuang, and Gavin Wu

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
2341.41	56.22	-17.78	74	51.97	32.24	5.95	33.94	109	243	Peak
2359.59	40.71	-13.29	54	36.41	32.26	5.99	33.95	109	243	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
2340.15	49.36	-24.64	74	45.11	32.24	5.95	33.94	100	328	Peak
2359.68	34.9	-19.1	54	30.6	32.26	5.99	33.95	100	328	Average

Test Mode :	802.11g	Temperature :	23~25°C
Test Band :	High	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang, Kyle Jhuang, and Gavin Wu

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
2483.94	59.39	-14.61	74	54.83	32.38	6.18	34	159	257	Peak
2483.54	39.94	-14.06	54	35.38	32.38	6.18	34	159	257	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
2483.64	53.56	-20.44	74	49	32.38	6.18	34	100	41	Peak
2483.5	36.82	-17.18	54	32.26	32.38	6.18	34	100	41	Average



Test Mode :	802.11n HT20	Temperature :	23~25°C
Test Band :	Low	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang, Kyle Jhuang, and Gavin Wu

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
2389.47	56.91	-17.09	74	52.54	32.3	6.03	33.96	136	245	Peak
2390	39.41	-14.59	54	35.04	32.3	6.03	33.96	136	245	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
2339.52	52.16	-21.84	74	47.91	32.24	5.95	33.94	100	47	Peak
2389.92	35.78	-18.22	54	31.41	32.3	6.03	33.96	100	47	Average

Test Mode :	802.11n HT20	Temperature :	23~25°C
Test Band :	High	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang, Kyle Jhuang, and Gavin Wu

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
2483.72	62.38	-11.62	74	57.82	32.38	6.18	34	192	243	Peak
2483.6	40.03	-13.97	54	35.47	32.38	6.18	34	192	243	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
2484.24	54.83	-19.17	74	50.27	32.38	6.18	34	122	290	Peak
2483.5	37.13	-16.87	54	32.57	32.38	6.18	34	122	290	Average



<Sample 2>

Test Mode :	802.11n HT20	Temperature :	23~25°C
Test Band :	High	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang, Kyle Jhuang, and Gavin Wu

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
2483.96	73.07	-0.93	74	68.51	32.38	6.18	34	100	10	Peak
2483.58	49.48	-4.52	54	44.92	32.38	6.18	34	100	10	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
2483.8	59.35	-14.65	74	54.79	32.38	6.18	34	133	63	Peak
2483.58	38.45	-15.55	54	33.89	32.38	6.18	34	133	63	Average

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

<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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	103.28	-	-	98.87	32.31	6.07	33.97	193	263	Average
2412	107.84	-	-	103.43	32.31	6.07	33.97	193	263	Peak
4824	43.7	-30.3	74	58.08	33.97	9.12	57.47	100	0	Peak

<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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	99.46	-	-	95.05	32.31	6.07	33.97	102	354	Average
2412	103.88	-	-	99.47	32.31	6.07	33.97	102	354	Peak
4824	40.11	-33.89	74	57.01	33.97	9.12	59.99	100	0	Peak



<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2437	101.97	-	-	97.49	32.35	6.11	33.98	164	289	Average
2437	106.53	-	-	102.05	32.35	6.11	33.98	164	289	Peak
4875	42.63	-31.37	74	57.03	33.95	9.13	57.48	100	0	Peak

<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2437	97.46	-	-	92.98	32.35	6.11	33.98	198	300	Average
2437	101.93	-	-	97.45	32.35	6.11	33.98	198	300	Peak
4875	39.34	-34.66	74	56.04	33.95	9.13	59.78	100	0	Peak



<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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	104.43	-	-	99.91	32.37	6.14	33.99	194	248	Average
2462	108.84	-	-	104.32	32.37	6.14	33.99	194	248	Peak
4923	42.37	-31.63	74	56.78	33.93	9.14	57.48	100	0	Peak

<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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	98.98	-	-	94.46	32.37	6.14	33.99	100	344	Average
2462	103.35	-	-	98.83	32.37	6.14	33.99	100	344	Peak
4923	41.15	-32.85	74	57.66	33.93	9.14	59.58	100	0	Peak



<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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	92.95	-	-	88.54	32.31	6.07	33.97	109	243	Average
2412	103.31	-	-	98.9	32.31	6.07	33.97	109	243	Peak
4824	41.89	-32.11	74	56.27	33.97	9.12	57.47	100	0	Peak

<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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	87.98	-	-	83.57	32.31	6.07	33.97	100	328	Average
2412	98.13	-	-	93.72	32.31	6.07	33.97	100	328	Peak
4824	39.62	-34.38	74	56.52	33.97	9.12	59.99	100	0	Peak



<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	<ol style="list-style-type: none"> <li>2437 MHz is fundamental signal which can be ignored.</li> <li>2522 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 103.84 dBuV/m - 20dB = 83.84 dBuV/m.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2437	93.33	-	-	88.85	32.35	6.11	33.98	166	247	Average
2437	103.84	-	-	99.36	32.35	6.11	33.98	166	247	Peak
2522	49.71	-34.13	83.84	45.07	32.43	6.21	34	100	0	Peak
4875	41.82	-32.18	74	56.22	33.95	9.13	57.48	100	0	Peak

<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	<ol style="list-style-type: none"> <li>2437 MHz is fundamental signal which can be ignored.</li> <li>Average measurement was not performed if peak level went lower than the average limit.</li> </ol>		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2437	87.39	-	-	82.91	32.35	6.11	33.98	100	272	Average
2437	97.84	-	-	93.36	32.35	6.11	33.98	100	272	Peak
4875	42.02	-31.98	74	56.42	33.95	9.13	57.48	100	0	Peak



<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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	93.93	-	-	89.41	32.37	6.14	33.99	159	257	Average
2462	104.45	-	-	99.93	32.37	6.14	33.99	159	257	Peak
4923	42.58	-31.42	74	56.99	33.93	9.14	57.48	100	0	Peak

<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2462	88.98	-	-	84.46	32.37	6.14	33.99	100	41	Average
2462	99.28	-	-	94.76	32.37	6.14	33.99	100	41	Peak
4923	41.28	-32.72	74	57.79	33.93	9.14	59.58	100	0	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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	92.78	-	-	88.37	32.31	6.07	33.97	136	245	Average
2412	103.21	-	-	98.8	32.31	6.07	33.97	136	245	Peak
4824	42.49	-31.51	74	56.87	33.97	9.12	57.47	100	0	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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	86.71	-	-	82.3	32.31	6.07	33.97	100	47	Average
2412	98.37	-	-	93.96	32.31	6.07	33.97	100	47	Peak
4824	39.77	-34.23	74	56.67	33.97	9.12	59.99	100	0	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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	94.03	-	-	89.55	32.35	6.11	33.98	108	272	Average
2437	103.97	-	-	99.49	32.35	6.11	33.98	108	272	Peak
7311	40.63	-33.37	74	53.05	35.54	10.06	58.02	100	0	Peak

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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	87.01	-	-	82.53	32.35	6.11	33.98	100	45	Average
2437	98.36	-	-	93.88	32.35	6.11	33.98	100	45	Peak
7311	39.54	-34.46	74	53.39	35.54	10.06	59.45	100	0	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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
35.67	31.3	-8.7	40	46.75	15.82	0.59	31.86	100	185	Peak
40.26	28.48	-11.52	40	46.74	12.9	0.63	31.79	-	-	Peak
157.44	29.37	-14.13	43.5	48.83	10.71	1.22	31.39	-	-	Peak
353.2	22.33	-23.67	46	37	14.74	2	31.41	-	-	Peak
435.1	20.4	-25.6	46	32.55	16.75	2.26	31.16	-	-	Peak
596.8	21.55	-24.45	46	29.72	19.73	2.68	30.58	-	-	Peak
2462	93.27	-	-	88.75	32.37	6.14	33.99	192	243	Average
2462	104.7	-	-	100.18	32.37	6.14	33.99	192	243	Peak
4923	42.38	-31.62	74	56.79	33.93	9.14	57.48	100	0	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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
30	32.83	-7.17	40	44.17	20	0.53	31.87	105	236	Peak
55.38	28.33	-11.67	40	52.21	7.1	0.73	31.71	-	-	Peak
224.94	28.98	-17.02	46	47.9	10.85	1.45	31.22	-	-	Peak
371.4	23.17	-22.83	46	37.2	15.24	2.08	31.35	-	-	Peak
380.5	22.41	-23.59	46	36.13	15.48	2.1	31.3	-	-	Peak
503.7	20.05	-25.95	46	30.36	18.15	2.46	30.92	-	-	Peak
2462	90.13	-	-	85.61	32.37	6.14	33.99	122	290	Average
2462	100.23	-	-	95.71	32.37	6.14	33.99	122	290	Peak
4923	42.39	-31.61	74	56.8	33.93	9.14	57.48	100	0	Peak



**<Sample 2>**

<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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
49.17	30.95	-9.05	40	53.39	8.5	0.69	31.63	100	23	Peak
158.52	28.49	-15.01	43.5	48.02	10.64	1.22	31.39	-	-	Peak
212.52	28.28	-15.22	43.5	48.29	9.98	1.37	31.36	-	-	Peak
339.2	21.07	-24.93	46	36.21	14.37	1.89	31.4	-	-	Peak
642.3	21.87	-24.13	46	29.3	20.13	2.82	30.38	-	-	Peak
875.4	24.09	-21.91	46	28.61	22.86	3.31	30.69	-	-	Peak
2462	96.74	-	-	92.22	32.37	6.14	33.99	100	10	Average
2462	107.31	-	-	102.79	32.37	6.14	33.99	100	10	Peak



<b>Test Mode :</b>	802.11n HT20	<b>Temperature :</b>	23~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~50%
<b>Test Engineer :</b>	Ivan Chiang, Kyle Jhuang, and Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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
33.51	32.96	-7.04	40	47.15	17.12	0.57	31.88	100	56	Peak
49.17	32.21	-7.79	40	54.65	8.5	0.69	31.63	-	-	Peak
225.48	28.35	-17.65	46	47.19	10.92	1.46	31.22	-	-	Peak
372.8	22.36	-23.64	46	36.35	15.27	2.08	31.34	-	-	Peak
612.9	21.77	-24.23	46	29.63	19.9	2.73	30.49	-	-	Peak
813.1	24.99	-21.01	46	29.85	22.23	3.17	30.26	-	-	Peak
2462	87.87	-	-	83.35	32.37	6.14	33.99	133	63	Average
2462	97.92	-	-	93.4	32.37	6.14	33.99	133	63	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.

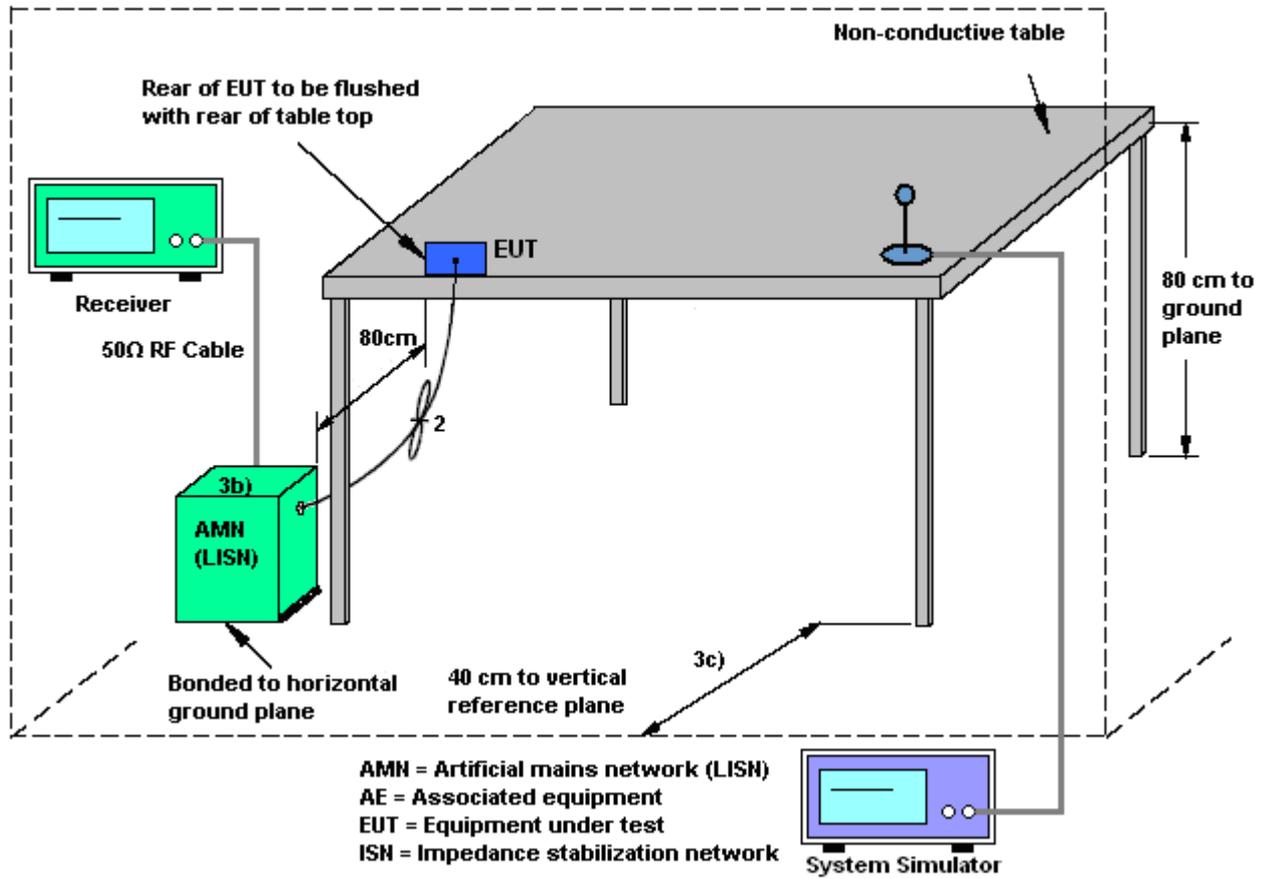
### 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.6.3 Test Procedures

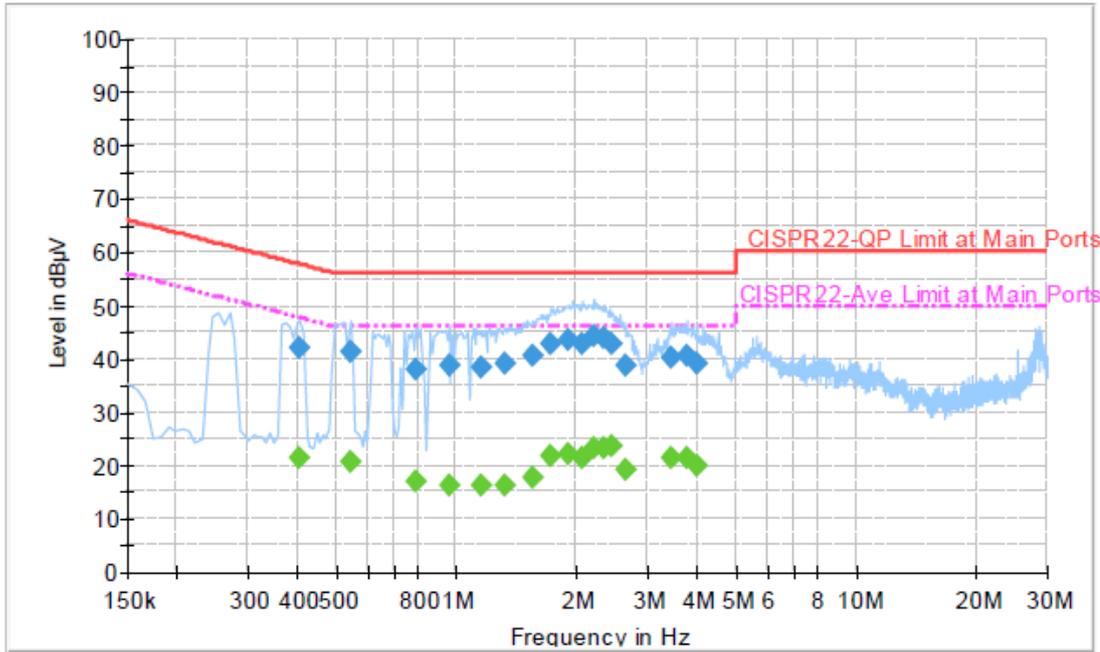
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance 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 2	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone 2 + USB Cable 1 (Charging from Adapter 2) for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

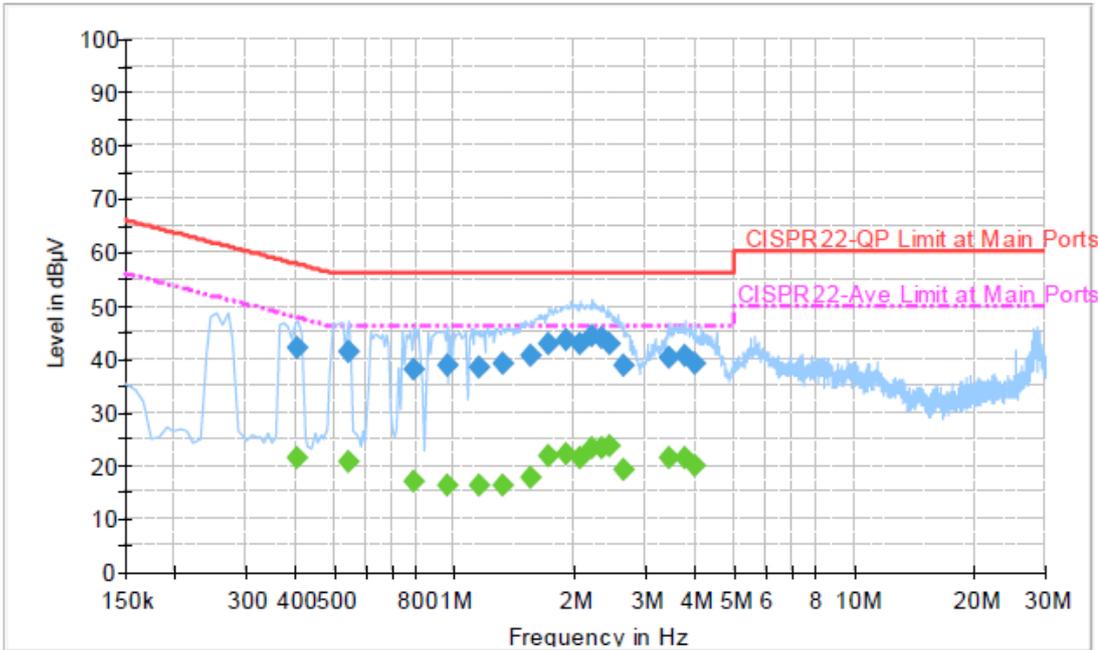


Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.406000	42.0	Off	L1	19.4	15.7	57.7
0.542000	41.2	Off	L1	19.4	14.8	56.0
0.790000	38.1	Off	L1	19.5	17.9	56.0
0.958000	38.9	Off	L1	19.4	17.1	56.0
1.158000	38.5	Off	L1	19.5	17.5	56.0
1.318000	39.1	Off	L1	19.5	16.9	56.0
1.542000	40.5	Off	L1	19.4	15.5	56.0
1.718000	42.9	Off	L1	19.5	13.1	56.0
1.902000	43.4	Off	L1	19.5	12.6	56.0
2.062000	42.7	Off	L1	19.6	13.3	56.0
2.198000	44.4	Off	L1	19.6	11.6	56.0
2.334000	43.8	Off	L1	19.6	12.2	56.0
2.454000	42.7	Off	L1	19.6	13.3	56.0
2.654000	38.6	Off	L1	19.5	17.4	56.0
3.430000	40.2	Off	L1	19.6	15.8	56.0
3.774000	40.5	Off	L1	19.6	15.5	56.0
3.982000	39.1	Off	L1	19.6	16.9	56.0



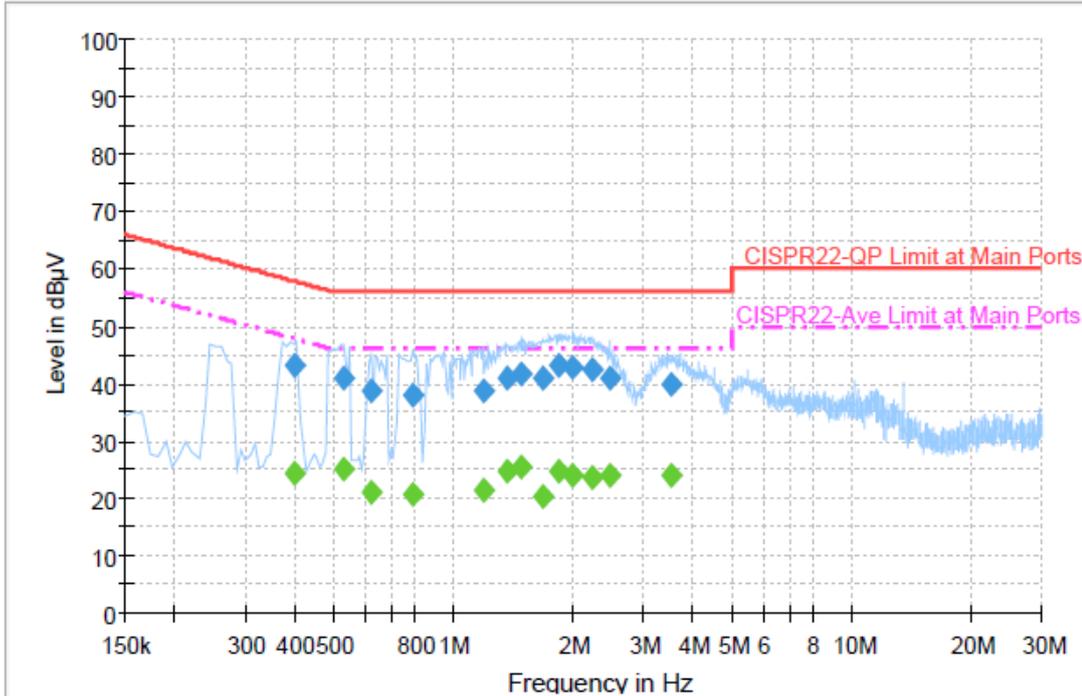
Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone 2 + USB Cable 1 (Charging from Adapter 2) for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Average

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.406000	21.4	Off	L1	19.4	26.3	47.7
0.542000	20.7	Off	L1	19.4	25.3	46.0
0.790000	17.1	Off	L1	19.5	28.9	46.0
0.958000	16.2	Off	L1	19.4	29.8	46.0
1.158000	16.1	Off	L1	19.5	29.9	46.0
1.318000	16.2	Off	L1	19.5	29.8	46.0
1.542000	17.8	Off	L1	19.4	28.2	46.0
1.718000	21.6	Off	L1	19.5	24.4	46.0
1.902000	22.0	Off	L1	19.5	24.0	46.0
2.062000	21.3	Off	L1	19.6	24.7	46.0
2.198000	23.3	Off	L1	19.6	22.7	46.0
2.334000	23.4	Off	L1	19.6	22.6	46.0
2.454000	23.8	Off	L1	19.6	22.2	46.0
2.654000	19.0	Off	L1	19.5	27.0	46.0
3.430000	21.5	Off	L1	19.6	24.5	46.0
3.774000	21.4	Off	L1	19.6	24.6	46.0
3.982000	19.9	Off	L1	19.6	26.1	46.0

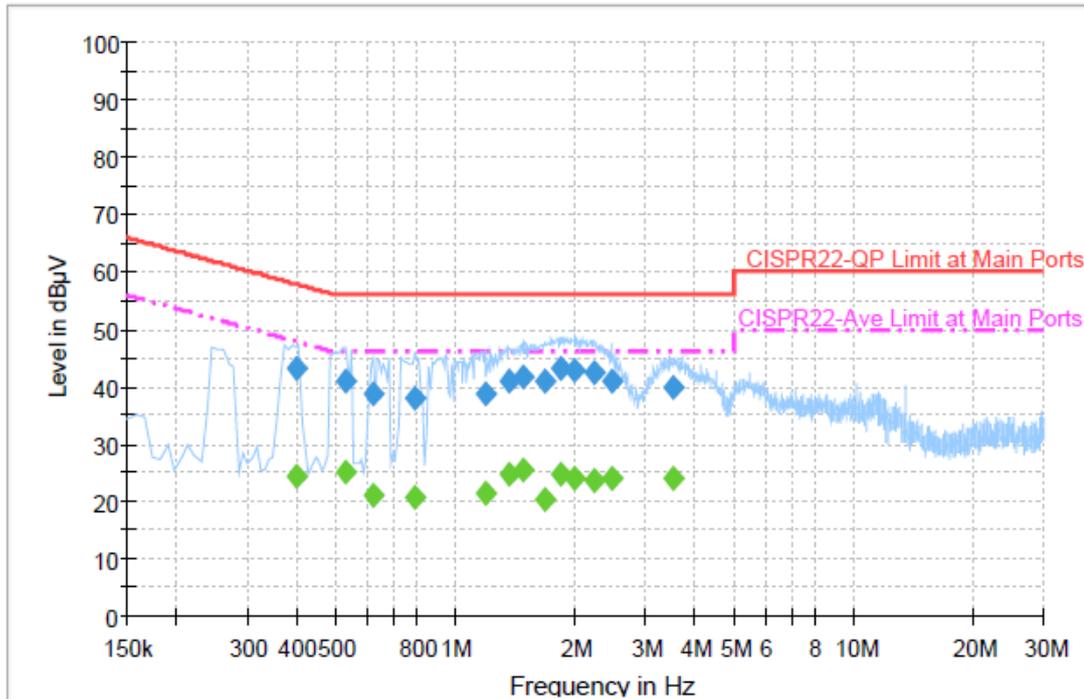
Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone 2 + USB Cable 1 (Charging from Adapter 2) for Sample 2		
Remark :	All emissions 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)
0.398000	43.0	Off	N	19.5	14.9	57.9
0.534000	41.0	Off	N	19.4	15.0	56.0
0.622000	38.6	Off	N	19.4	17.4	56.0
0.790000	38.0	Off	N	19.5	18.0	56.0
1.190000	38.7	Off	N	19.5	17.3	56.0
1.366000	41.0	Off	N	19.5	15.0	56.0
1.478000	41.7	Off	N	19.4	14.3	56.0
1.670000	40.9	Off	N	19.5	15.1	56.0
1.838000	43.2	Off	N	19.5	12.8	56.0
1.998000	42.9	Off	N	19.5	13.1	56.0
2.222000	42.3	Off	N	19.6	13.7	56.0
2.470000	40.9	Off	N	19.6	15.1	56.0
3.534000	40.0	Off	N	19.6	16.0	56.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone 2 + USB Cable 1 (Charging from Adapter 2) for Sample 2		
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)
0.398000	24.5	Off	N	19.5	23.4	47.9
0.534000	25.0	Off	N	19.4	21.0	46.0
0.622000	21.0	Off	N	19.4	25.0	46.0
0.790000	20.8	Off	N	19.5	25.2	46.0
1.190000	21.3	Off	N	19.5	24.7	46.0
1.366000	24.8	Off	N	19.5	21.2	46.0
1.478000	25.3	Off	N	19.4	20.7	46.0
1.670000	20.2	Off	N	19.5	25.8	46.0
1.838000	24.7	Off	N	19.5	21.3	46.0
1.998000	24.2	Off	N	19.5	21.8	46.0
2.222000	23.5	Off	N	19.6	22.5	46.0
2.470000	23.9	Off	N	19.6	22.1	46.0
3.534000	23.8	Off	N	19.6	22.2	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	Sep. 26, 2012 ~ Nov. 05, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Sep. 26, 2012 ~ Nov. 05, 2012	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Sep. 26, 2012 ~ Nov. 05, 2012	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Sep. 29, 2012 ~ Oct. 24, 2012	Sep. 02, 2013	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Sep. 29, 2012 ~ Oct. 24, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Sep. 29, 2012 ~ Oct. 24, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Sep. 29, 2012 ~ Oct. 24, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	Sep. 29, 2012 ~ Oct. 24, 2012	Jul. 27, 2013	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	Sep. 29, 2012 ~ Oct. 24, 2012	N/A	Conduction (CO05-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 06, 2012	Oct. 17, 2012 ~ Oct. 26, 2012	Oct. 05, 2013	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Oct. 17, 2012 ~ Oct. 26, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 22, 2012	Oct. 17, 2012 ~ Oct. 26, 2012	Aug. 21, 2013	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Oct. 17, 2012 ~ Oct. 26, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Oct. 17, 2012 ~ Oct. 26, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32dB.GAIN	Feb. 27, 2012	Oct. 17, 2012 ~ Oct. 26, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Oct. 17, 2012 ~ Oct. 26, 2012	Sep. 02, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Sep. 28, 2012	Oct. 17, 2012 ~ Oct. 26, 2012	Sep. 27, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Oct. 17, 2012 ~ Oct. 26, 2012	Jul. 02, 2014	Radiation (03CH07-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
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

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

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