

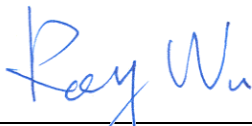
# FCC RF Test Report

**APPLICANT** : NetComm Limited  
**EQUIPMENT** : 3G8WV HSPA Wi-Fi Router  
**BRAND NAME** : NetComm  
**MODEL NAME** : 3G8WV-TS  
**FCC ID** : XIA-3G8WV  
**STANDARD** : FCC Part 15 Subpart C §15.247  
**CLASSIFICATION** : Digital Transmission System (DTS)

The product was received on Feb. 27, 2010 and completely tested on Mar. 11, 2010. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 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:



Roy Wu / Manager



## **SPORTON INTERNATIONAL INC.**

No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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**APPENDIX A. PHOTOGRAPHS OF EUT**

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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	-
3.1	-	Gen 4.4.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 10.9 dB at 3.158 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.91 dB at 2388.09 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

# 1 General Description

## 1.1 Applicant

**NetComm Limited**

2-6 Orion Road, Lane Cove, Sydney, NSW, Australia

## 1.2 Manufacturer

**Senao Networks, Inc.**

No. 500, Fusing 3Rd., Hwa-Ya Technology Park Kuei-Shan Hsiang, Taoyuan County 333, Taiwan

## 1.3 Feature of Equipment Under Test

Product Feature & Specification	
<b>Equipment</b>	3G8WV HSPA Wi-Fi Router
<b>Brand Name</b>	NetComm
<b>Model Name</b>	3G8WV-TS
<b>FCC ID</b>	XIA-3G8WV
<b>Tx/Rx Frequency Range</b>	2400 MHz ~ 2483.5 MHz
<b>Number of Channels</b>	11
<b>Carrier Frequency of Each Channel</b>	2412+(n-1)*5 MHz; n=1~11
<b>Channel Spacing</b>	5 MHz
<b>Maximum Output Power to Antenna</b>	802.11b : 18.84 dBm (76.56 mW) 802.11g : 18.82 dBm (76.21 mW) 802.11n (BW 20MHz) : 20.13 dBm (102.95 mW) 802.11n (BW 40MHz) : 19.91 dBm (97.96 mW)
<b>Antenna Type</b>	PIFA Antenna
<b>Antenna Gain</b>	Antenna A : 4.10 dBi Antenna B : 4.35 dBi
<b>HW Version</b>	1
<b>SW Version</b>	1.0.19.4
<b>Type of Modulation</b>	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
<b>EUT Stage</b>	Production Unit

**Remark:**

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 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>
	CO05-HY	03CH07-HY	TW1022/4086B-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 (Measurement Guidelines of DTS)
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issue 7

### 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 (DoC), 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.	Handset	HTT	HTT198	N/A	N/A	N/A
3.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

## 2 Test Configuration of Equipment Under Test

### 2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

Channel	Frequency	Chain	2.4GHz 802.11b RF Power (dBm)			
			At DSSS Data Rate			
			1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	A	18.57	18.58	18.39	18.67
CH 06	2437 MHz	A	18.55	18.79	18.61	<b>18.84</b>
CH 11	2462 MHz	A	18.06	18.38	18.13	18.35
CH 01	2412 MHz	B	17.79	18.17	17.89	18.22
CH 06	2437 MHz	B	17.90	18.21	18.04	18.29
CH 11	2462 MHz	B	18.24	18.71	18.56	18.67

Channel	Frequency	Chain	2.4GHz 802.11g RF Power (dBm)							
			At OFDM Data Rate							
			6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	A	18.27	17.86	17.69	17.17	17.23	16.94	16.92	16.81
CH 06	2437 MHz	A	18.79	18.23	18.03	17.24	17.38	16.88	16.59	16.69
CH 11	2462 MHz	A	18.70	18.20	17.97	16.84	17.22	16.70	16.76	16.86
CH 01	2412 MHz	B	<b>18.82</b>	18.48	17.92	16.97	17.33	16.86	16.65	17.00
CH 06	2437 MHz	B	17.58	17.40	17.32	16.96	16.39	16.53	15.41	16.77
CH 11	2462 MHz	B	18.40	17.91	17.71	16.65	16.78	16.67	16.62	16.74



Channel	Frequency	Chain	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
			At OFDM Data Rate							
			MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
			6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 01	2412 MHz	A	18.55	19.00	18.39	18.37	17.39	16.98	17.05	16.61
CH 06	2437 MHz	A	19.16	19.04	18.24	18.47	17.52	17.03	17.37	16.80
CH 11	2462 MHz	A	18.82	18.80	17.88	18.19	17.44	17.38	16.95	16.73
CH 01	2412 MHz	B	19.16	19.06	18.78	18.93	17.52	17.53	16.96	17.05
CH 06	2437 MHz	B	18.48	18.43	18.14	18.04	17.10	17.03	16.55	16.04
CH 11	2462 MHz	B	19.24	19.25	18.58	18.99	18.06	17.82	17.71	17.34
CH 01	2412 MHz	A+B	19.60	18.96	18.26	18.48	16.85	16.97	17.33	16.29
CH 06	2437 MHz	A+B	20.04	20.00	19.27	19.41	18.42	17.73	17.42	17.40
CH 11	2462 MHz	A+B	19.81	19.69	19.33	19.83	18.71	18.37	18.01	17.72
Channel	Frequency	Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
			13 Mbps	26 Mbps	39 Mbps	52 Mbps	78 Mbps	104 Mbps	117 Mbps	130 Mbps
CH 01	2412 MHz	A	19.03	18.59	17.45	17.90	17.38	17.39	16.86	16.72
CH 06	2437 MHz	A	19.02	18.64	18.24	18.18	17.34	17.44	16.72	16.45
CH 11	2462 MHz	A	18.74	18.34	17.37	17.79	16.92	16.86	16.24	15.66
CH 01	2412 MHz	B	18.81	19.22	18.53	18.59	18.94	17.54	17.26	16.99
CH 06	2437 MHz	B	17.98	18.07	17.59	17.78	17.81	16.73	16.72	16.59
CH 11	2462 MHz	B	18.76	19.16	18.34	18.63	18.90	17.59	17.42	17.71
CH 01	2412 MHz	A+B	18.86	18.57	18.28	18.32	17.49	17.26	16.67	16.59
CH 06	2437 MHz	A+B	19.24	19.51	18.71	18.62	17.60	18.20	17.38	17.58
CH 11	2462 MHz	A+B	19.90	<b>20.13</b>	19.19	19.18	18.73	18.34	17.57	18.15





Channel	Frequency	Chain	2.4GHz 802.11n (BW 40MHz) RF Power (dBm)							
			At OFDM Data Rate							
			MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
			6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 03	2422 MHz	A	19.13	19.55	18.68	18.82	18.33	18.50	18.51	17.22
CH 06	2437 MHz	A	19.33	19.61	18.63	18.89	18.11	18.30	18.01	17.45
CH 09	2452 MHz	A	18.74	19.21	18.35	18.31	17.83	17.97	17.42	16.53
CH 03	2422 MHz	B	19.31	19.25	18.63	18.41	17.92	17.78	17.42	16.66
CH 06	2437 MHz	B	17.88	17.61	16.97	17.24	16.66	16.93	16.43	15.91
CH 09	2452 MHz	B	17.79	17.75	17.09	17.15	16.62	17.17	16.85	15.53
CH 03	2422 MHz	A+B	18.95	19.02	18.01	18.55	18.21	18.44	17.55	17.04
CH 06	2437 MHz	A+B	19.44	19.66	18.30	18.99	18.38	18.53	18.37	17.26
CH 09	2452 MHz	A+B	<b>19.91</b>	19.57	18.73	18.80	18.35	18.54	18.28	17.86
Channel	Frequency	Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
			13 Mbps	26 Mbps	39 Mbps	52 Mbps	78 Mbps	104 Mbps	117 Mbps	130 Mbps
CH 03	2422 MHz	A	19.19	19.30	18.24	19.54	18.99	18.25	17.69	17.66
CH 06	2437 MHz	A	19.33	19.49	18.22	18.91	19.07	18.18	17.78	17.54
CH 09	2452 MHz	A	18.90	18.81	17.69	18.38	18.29	17.50	17.04	16.93
CH 03	2422 MHz	B	18.89	19.52	18.11	18.50	18.33	17.94	16.86	17.03
CH 06	2437 MHz	B	17.48	17.75	17.02	17.36	16.82	16.66	16.10	16.04
CH 09	2452 MHz	B	17.50	17.69	16.80	17.25	16.75	16.23	15.73	16.43
CH 03	2422 MHz	A+B	19.04	19.55	18.77	18.80	18.48	17.69	16.76	16.67
CH 06	2437 MHz	A+B	19.73	19.59	18.56	19.49	18.73	18.09	17.56	17.19
CH 09	2452 MHz	A+B	19.67	19.31	18.61	19.40	17.99	18.17	17.26	17.45

**Remark:**

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 6Mbps for 802.11g, 26Mbps for 802.11n (BW 20MHz), and 6.5Mbps for 802.11n (BW 40MHz) for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.



## 2.2 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 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), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

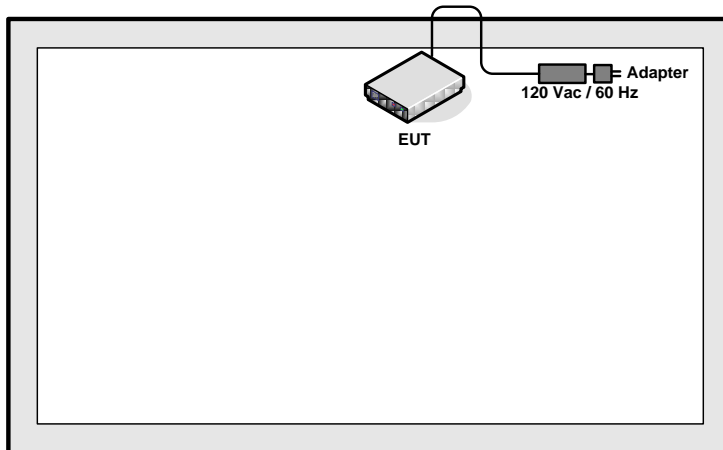
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

The following tables are showing the test modes as the worst cases and recorded in this report.

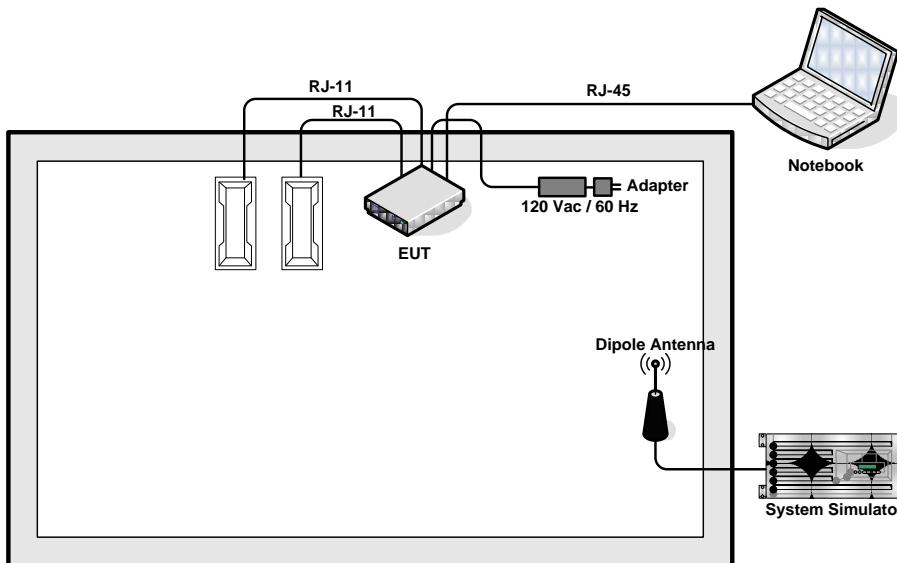
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz Mode 10: 802.11n (BW 40M)_CH03_2422 MHz Mode 11: 802.11n (BW 40M)_CH06_2437 MHz Mode 12: 802.11n (BW 40M)_CH09_2452 MHz
Radiated TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz Mode 10: 802.11n (BW 40M)_CH03_2422 MHz Mode 11: 802.11n (BW 40M)_CH06_2437 MHz Mode 12: 802.11n (BW 40M)_CH09_2452 MHz
AC Conducted Emission	Mode 1 : GSM850 Idle + WLAN Link + RJ-11 Link + RJ-45 Link + Handset + Adapter 1	

## 2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<EUT with RJ-11 Link and RJ-45 Link Mode>



## 2.4 RF Utility

The programmed RF utility "RT3052QA.exe" is installed in Notebook to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

### 3 Test Result

#### 3.1 6dB and 99% Bandwidth Measurement

##### 3.1.1 Limit of 6dB Bandwidth

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

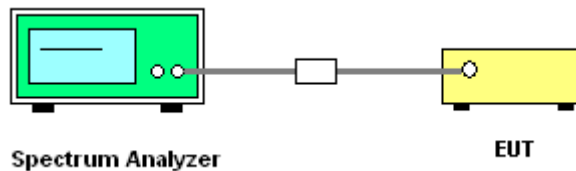
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz.  
In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

##### 3.1.4 Test Setup



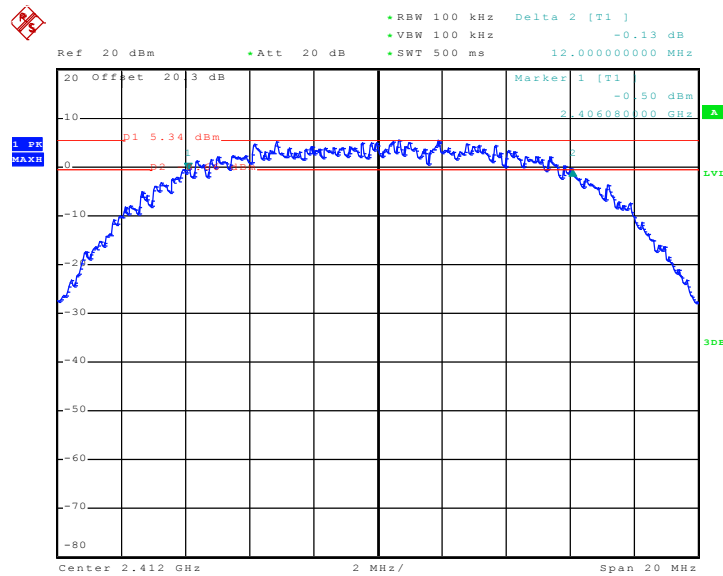


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	12.00	0.5	Pass
06	2437	11.96	0.5	Pass
11	2462	12.08	0.5	Pass

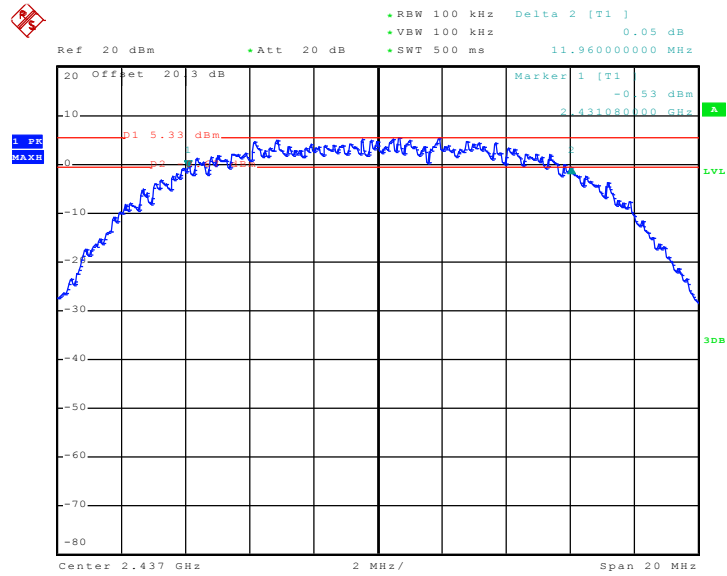
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 8.MAR.2010 04:10:45

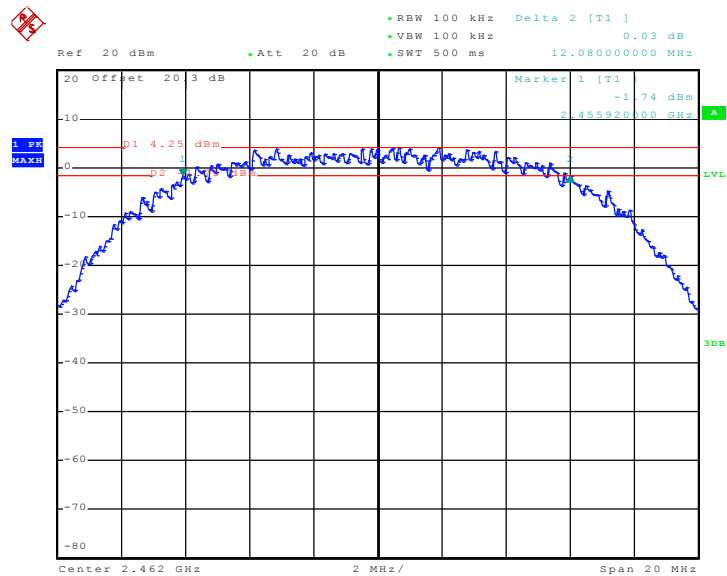


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 8.MAR.2010 04:13:28

Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



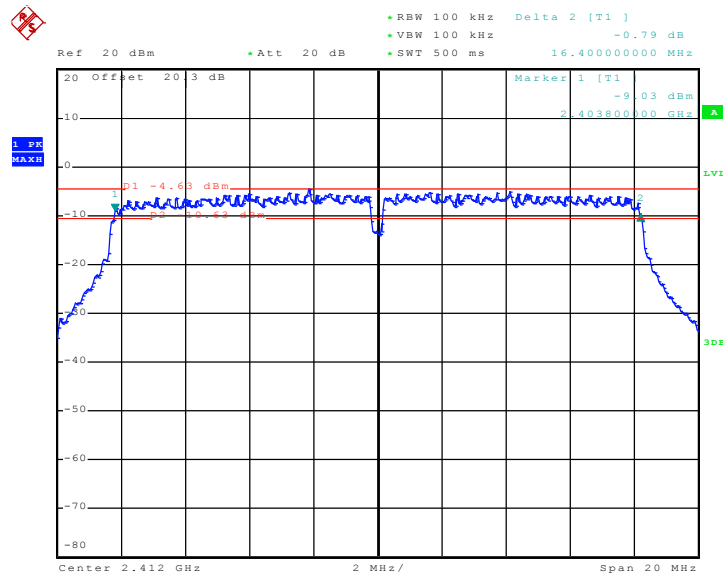
Date: 8.MAR.2010 04:15:37



Test Mode :	Mode 4, 5, 6	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

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

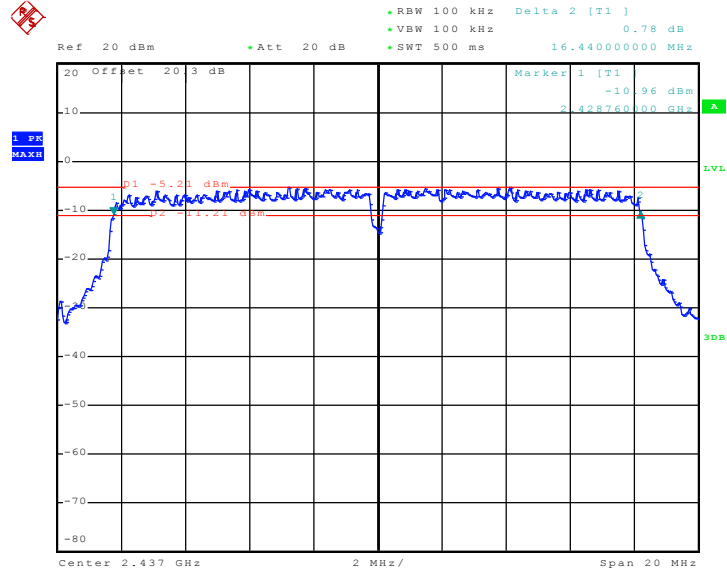
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 8.MAR.2010 04:24:26

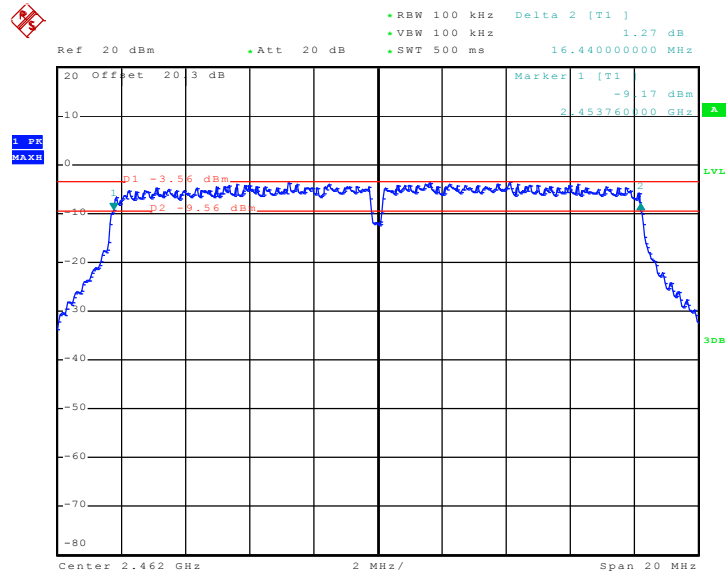


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 8.MAR.2010 04:22:35

Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



Date: 8.MAR.2010 04:20:48

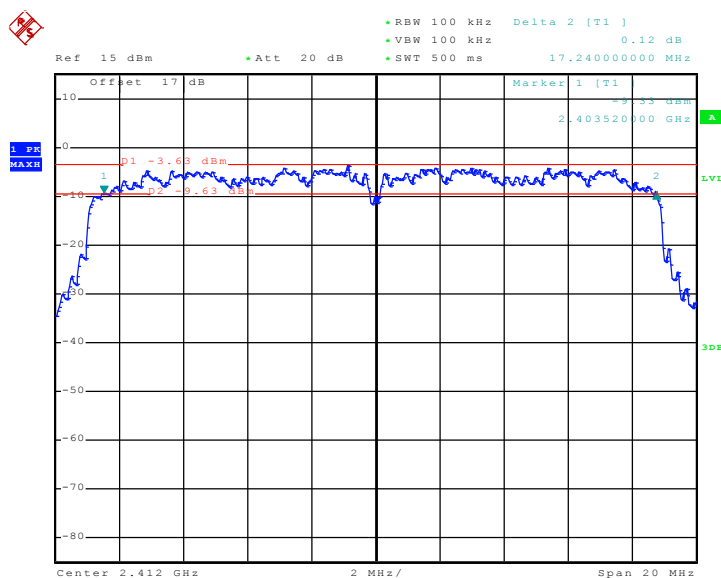




Test Mode :	Mode 7, 8, 9	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.24	0.5	Pass
06	2437	17.52	0.5	Pass
11	2462	17.16	0.5	Pass

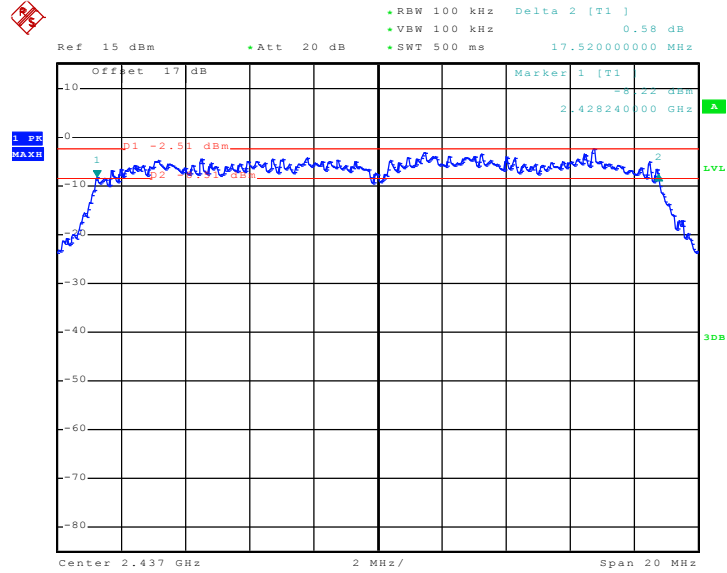
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 8.MAR.2010 23:42:18

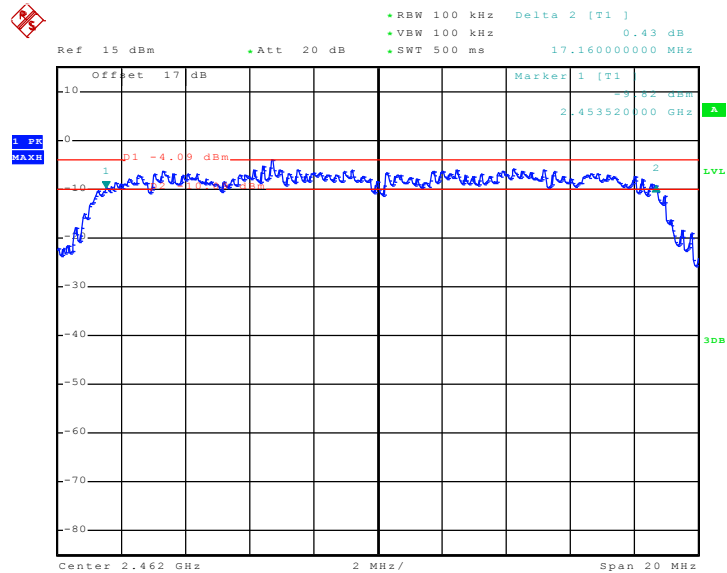


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 8.MAR.2010 23:45:01

Mode 9 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 11



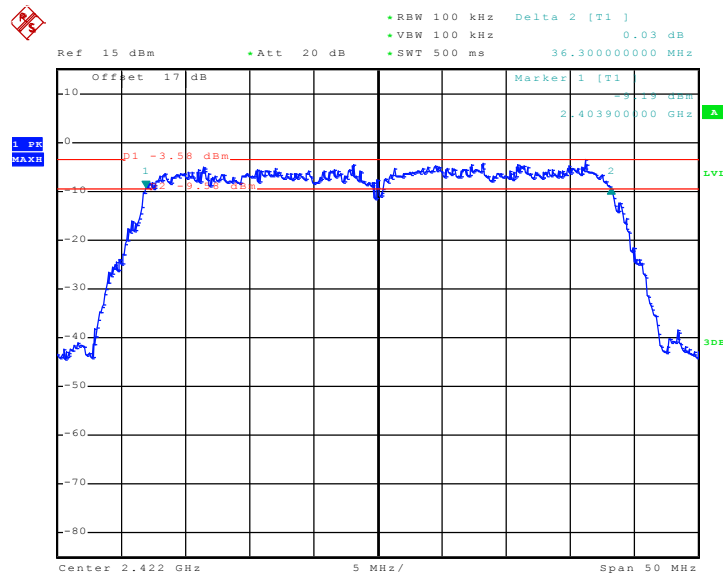
Date: 8.MAR.2010 23:37:04



Test Mode :	Mode 10, 11, 12	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11n (BW 40MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	36.30	0.5	Pass
06	2437	35.40	0.5	Pass
09	2452	36.20	0.5	Pass

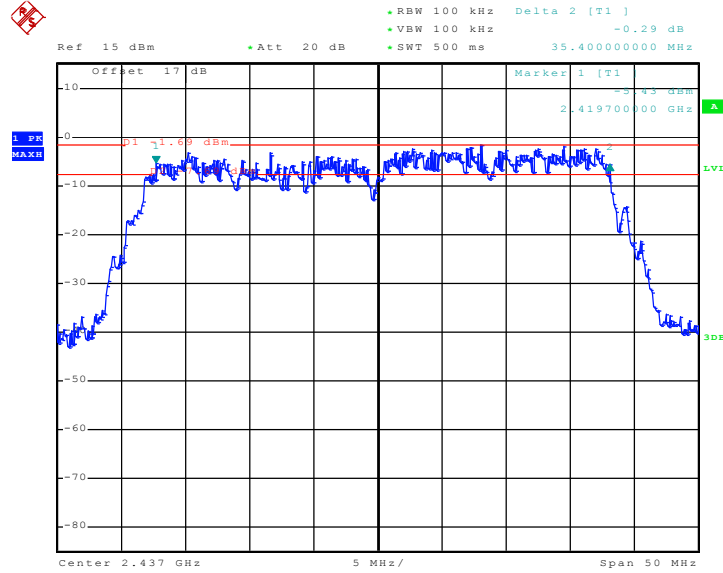
Mode 10 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 03



Date: 9.MAR.2010 00:02:32

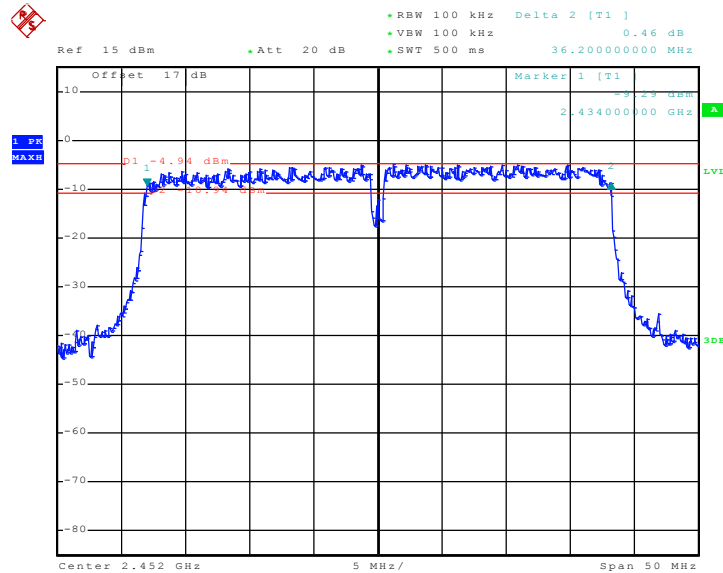


Mode 11 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 06



Date: 9.MAR.2010 00:10:43

Mode 12 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 09



Date: 9.MAR.2010 00:17:48

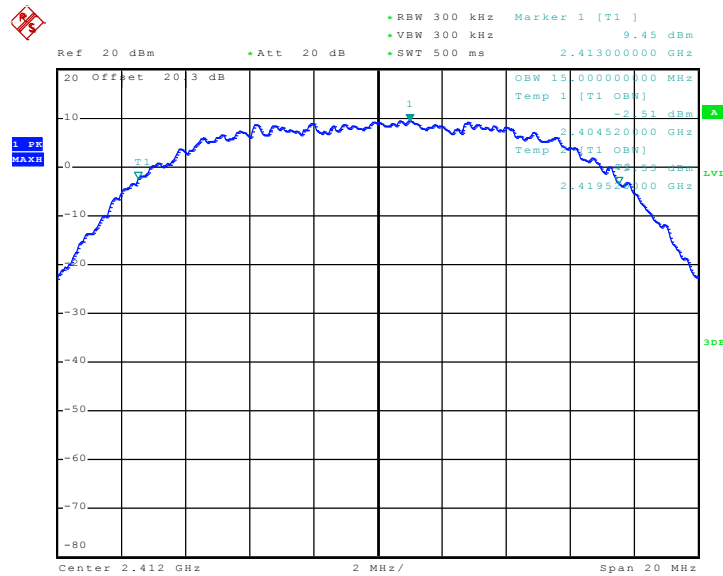


3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	15.00	Pass
06	2437	15.12	Pass
11	2462	14.96	Pass

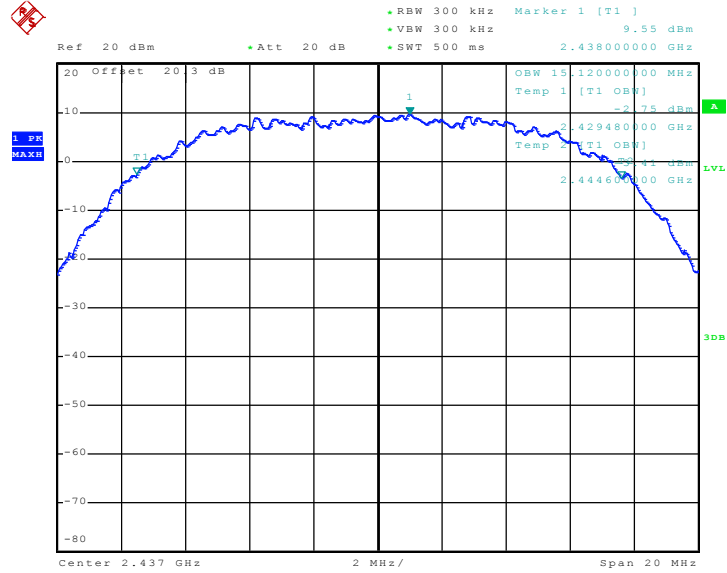
Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



Date: 8.MAR.2010 04:51:19

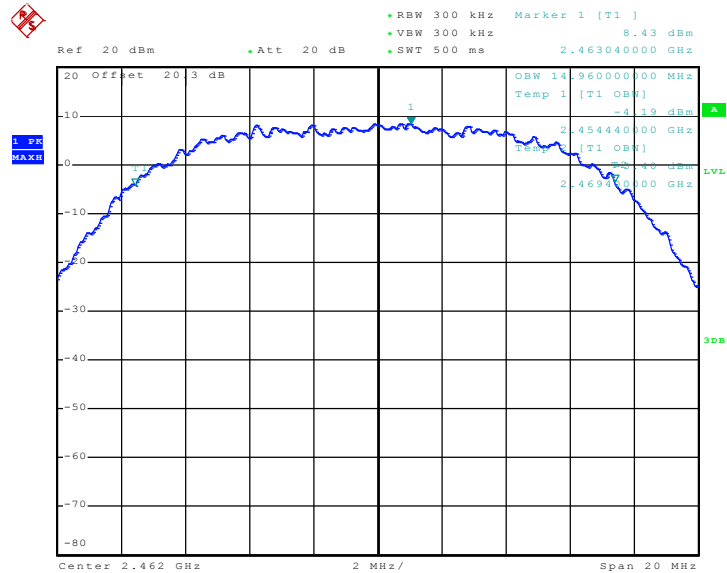


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 8.MAR.2010 04:58:31

Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11



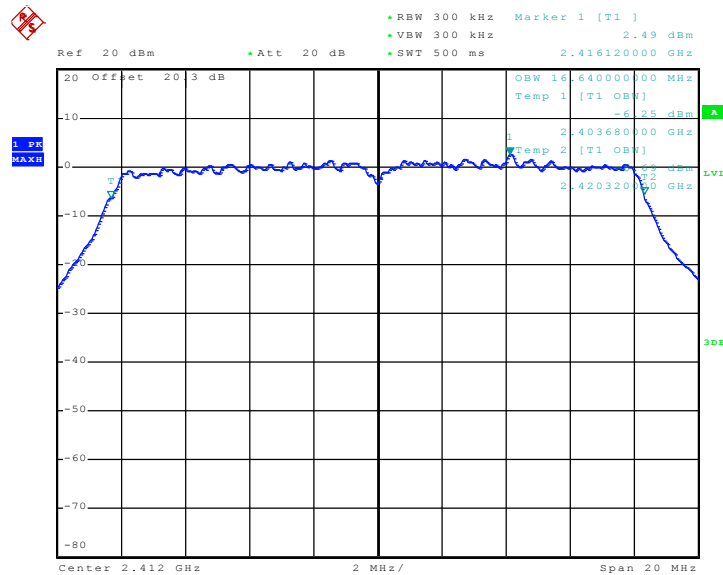
Date: 8.MAR.2010 04:59:22



Test Mode :	Mode 4, 5, 6	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	16.64	Pass
06	2437	16.68	Pass
11	2462	16.64	Pass

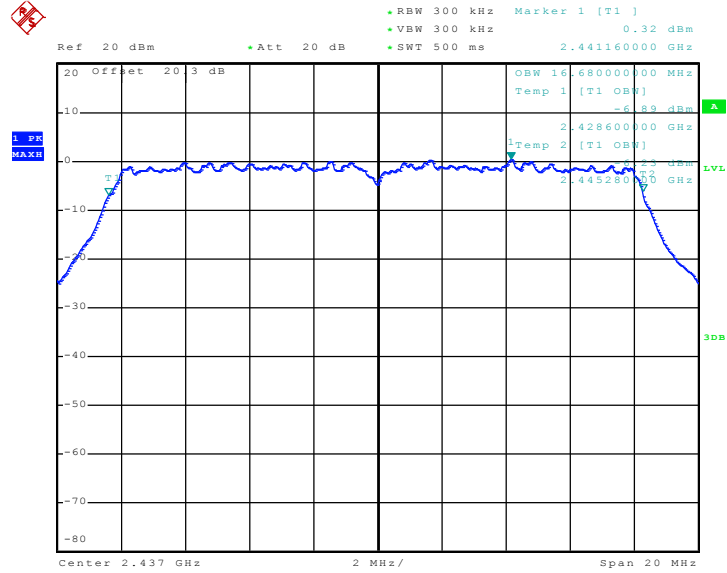
Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 8.MAR.2010 05:03:04

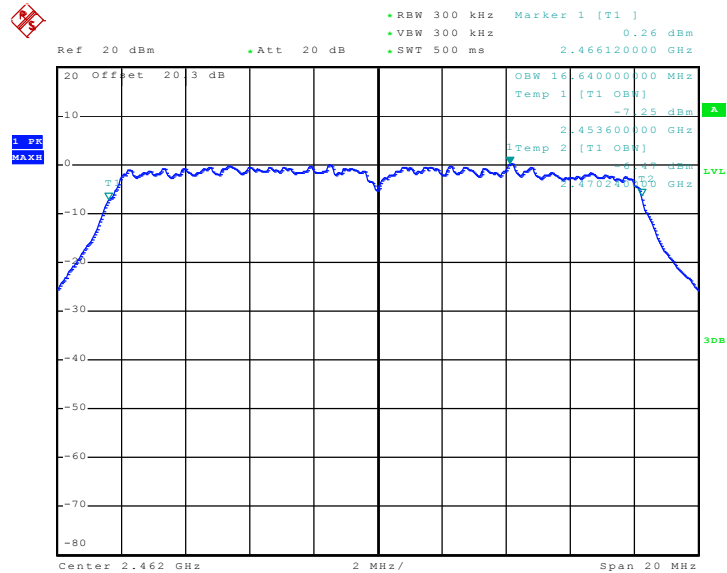


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 8.MAR.2010 05:02:14

Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



Date: 8.MAR.2010 05:01:05

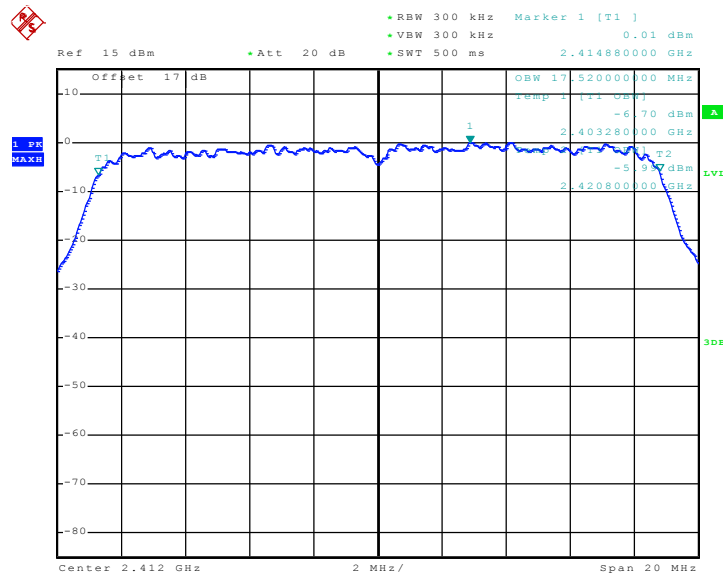




Test Mode :	Mode 7, 8, 9	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.52	Pass
06	2437	17.60	Pass
11	2462	17.52	Pass

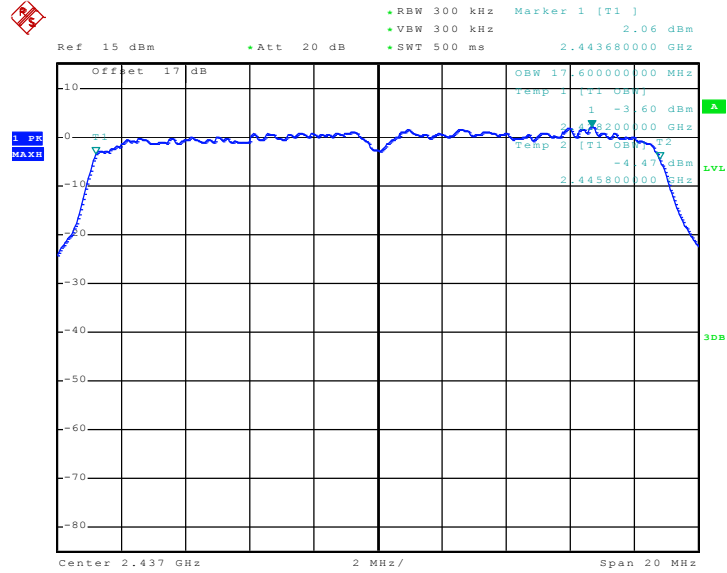
Mode 7 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 9.MAR.2010 04:32:31

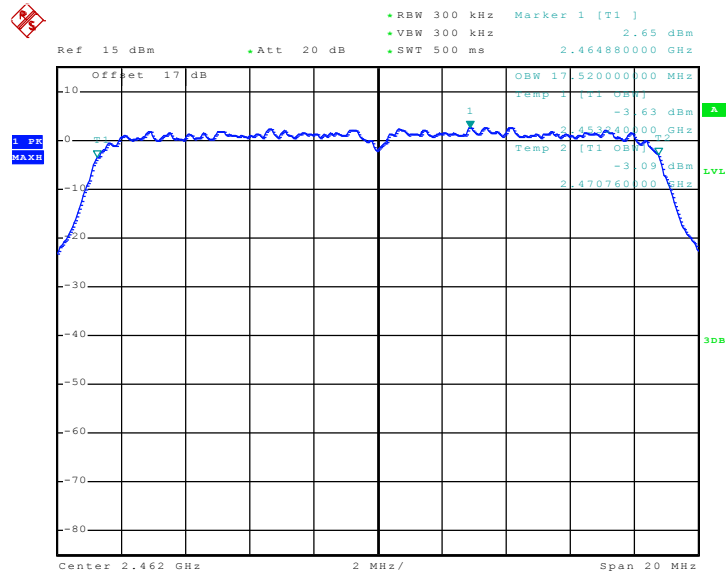


Mode 8 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 9.MAR.2010 04:31:23

Mode 9 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 11



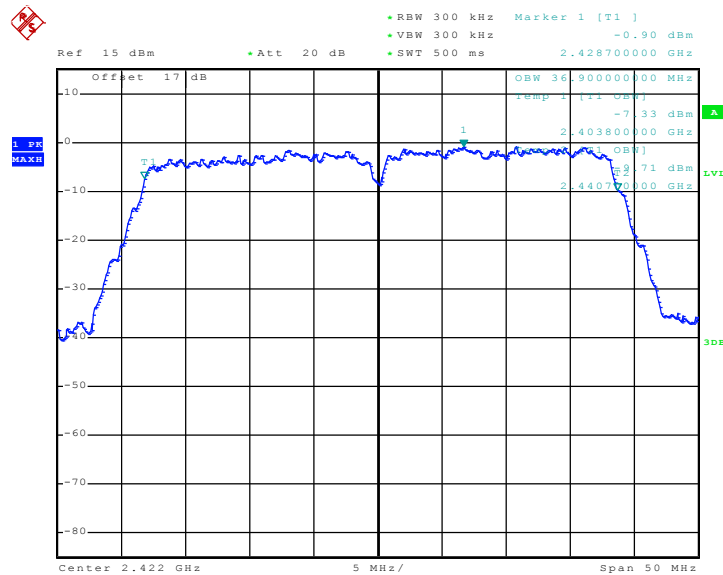
Date: 9.MAR.2010 04:27:58



Test Mode :	Mode 10, 11, 12	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
03	2422	36.90	Pass
06	2437	36.80	Pass
09	2452	36.70	Pass

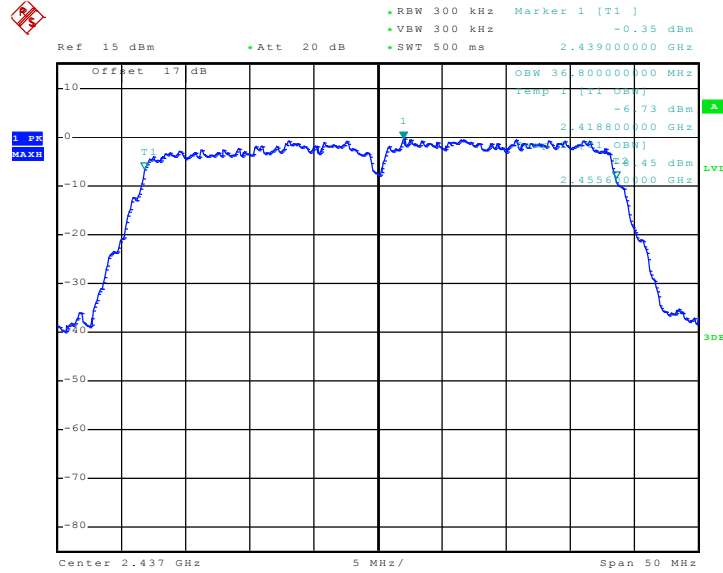
Mode 10 : 99% Occupied Bandwidth Plot on 802.11n(BW 40MHz) Channel 03



Date: 9.MAR.2010 04:34:08

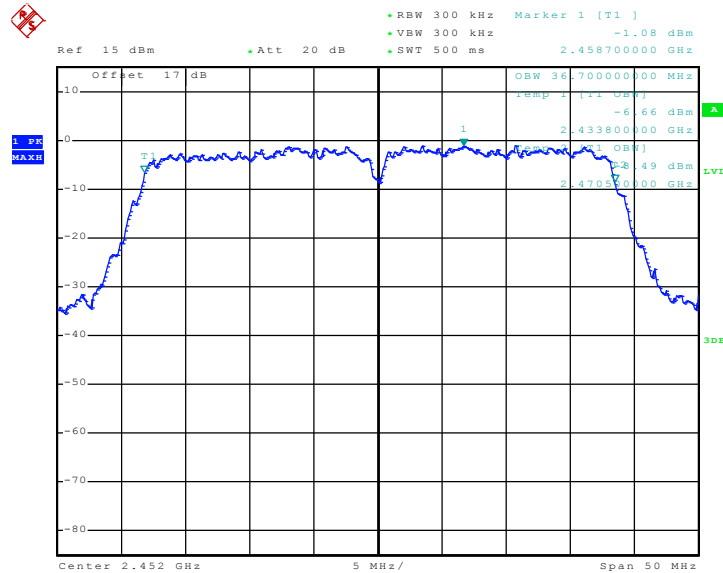


Mode 11 : 99% Occupied Bandwidth Plot on 802.11n(BW 40MHz) Channel 06



Date: 9.MAR.2010 04:35:20

Mode 12 : 99% Occupied Bandwidth Plot on 802.11n(BW 40MHz) Channel 09



Date: 9.MAR.2010 04:36:24

## 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.

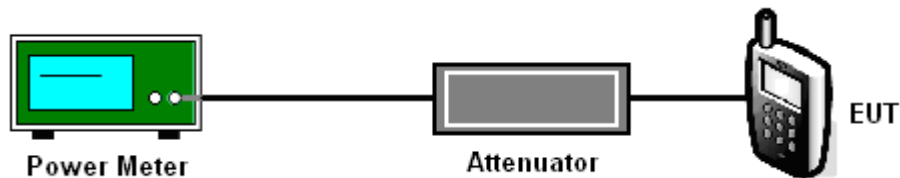
### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the power meter by a low loss cable.
3. Measure the power by power meter.

### 3.2.4 Test Setup





3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.67	30	Pass
06	2437	18.84	30	Pass
11	2462	18.35	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.82	30	Pass
06	2437	17.58	30	Pass
11	2462	18.40	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.57	30	Pass
06	2437	19.51	30	Pass
11	2462	20.13	30	Pass

Test Mode :	Mode 10, 11, 12	Temperature :	21~22
Test Engineer :	Andy Yeh	Relative Humidity :	54~57

Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
03	2422	18.95	30	Pass
06	2437	19.44	30	Pass
09	2452	19.91	30	Pass

### 3.3 Band Edges Measurement

#### 3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. 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.

#### 3.3.2 Measuring Instruments

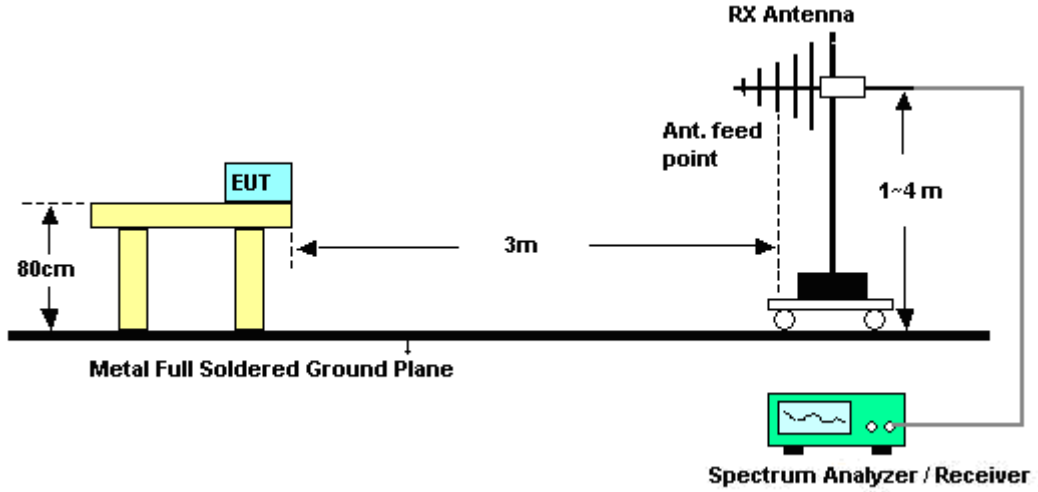
See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

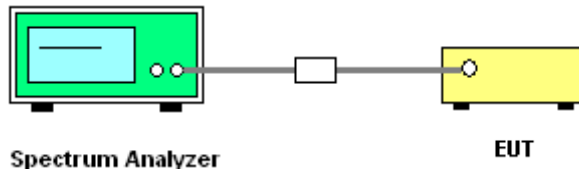
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW)  $\geq$  RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

### 3.3.4 Test Setup

#### <Radiated Band Edges>



#### <Conducted Band Edges>







3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	48~51%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	58.04	-15.96	74	54.61	32.13	5.46	34.16	111	15	Peak
2389.99	44.1	-9.9	54	40.67	32.13	5.46	34.16	111	15	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2388.85	56.78	-17.22	74	53.34	32.13	5.46	34.15	103	256	Peak
2388.85	44.78	-9.22	54	41.34	32.13	5.46	34.15	103	256	Average

Test Mode :	Mode 3	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	48~51%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.66	53.77	-20.23	74	50.31	32.27	5.38	34.19	189	22	Peak
2483.66	42.94	-11.06	54	39.48	32.27	5.38	34.19	189	22	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	55.19	-18.81	74	51.73	32.27	5.38	34.19	165	141	Peak
2483.5	44.6	-9.4	54	41.14	32.27	5.38	34.19	165	141	Average



Test Mode :	Mode 4	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	48~51%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	55.74	-18.26	74	52.31	32.13	5.46	34.16	135	312	Peak
2389.99	43.1	-10.9	54	39.67	32.13	5.46	34.16	135	312	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.61	53.5	-20.5	74	50.06	32.13	5.46	34.15	100	307	Peak
2389.61	39.31	-14.69	54	35.87	32.13	5.46	34.15	100	307	Average

Test Mode :	Mode 6	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	48~51%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	61.49	-12.51	74	58.03	32.27	5.38	34.19	131	310	Peak
2483.5	43.82	-10.18	54	40.36	32.27	5.38	34.19	131	310	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.85	57.65	-16.35	74	54.19	32.27	5.38	34.19	100	312	Peak
2483.85	40.13	-13.87	54	36.67	32.27	5.38	34.19	100	312	Average



Test Mode :	Mode 7	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~51%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	68.5	-5.5	74	65.07	32.13	5.46	34.16	135	312	Peak
2389.99	47.83	-6.17	54	44.4	32.13	5.46	34.16	135	312	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	66.98	-7.02	74	63.55	32.13	5.46	34.16	120	307	Peak
2389.99	46.79	-7.21	54	43.36	32.13	5.46	34.16	120	307	Average

Test Mode :	Mode 9	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~51%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	69.15	-4.85	74	65.69	32.27	5.38	34.19	102	311	Peak
2483.5	48.13	-5.87	54	44.67	32.27	5.38	34.19	102	311	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	65.24	-8.76	74	61.78	32.27	5.38	34.19	100	313	Peak
2483.5	45.69	-8.31	54	42.23	32.27	5.38	34.19	100	313	Average



Test Mode :	Mode 10	Temperature :	24~25°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	48~51%
Test Channel :	03	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2388.66	63.68	-10.32	74	60.24	32.13	5.46	34.15	140	313	Peak
2388.66	50.67	-3.33	54	47.23	32.13	5.46	34.15	140	313	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2388.09	67.45	-6.55	74	64.01	32.13	5.46	34.15	123	304	Peak
2388.09	52.09	-1.91	54	48.65	32.13	5.46	34.15	123	304	Average

Test Mode :	Mode 12	Temperature :	24~25°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	48~51%
Test Channel :	09	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	62.43	-11.57	74	58.97	32.27	5.38	34.19	138	310	Peak
2483.5	50.15	-3.85	54	46.69	32.27	5.38	34.19	138	310	Average

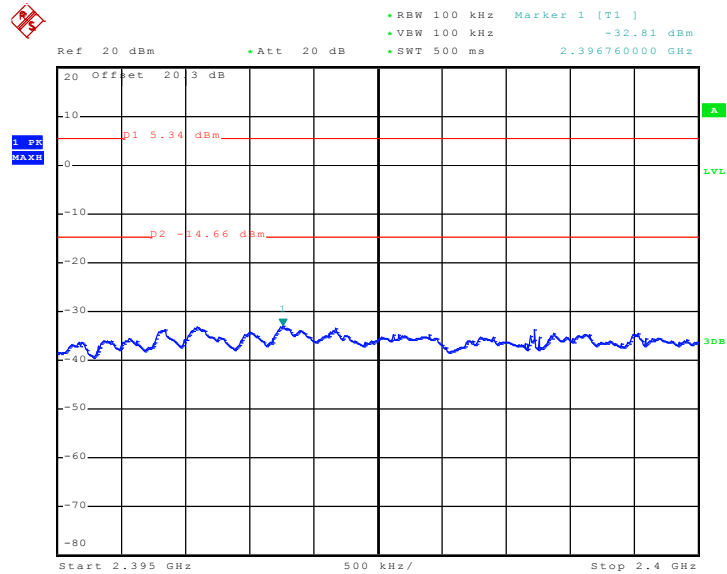
ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2485.18	59.85	-14.15	74	56.39	32.27	5.38	34.19	148	302	Peak
2485.18	47.31	-6.69	54	43.85	32.27	5.38	34.19	148	302	Average



### 3.3.6 Test Plots of Conducted Band Edges

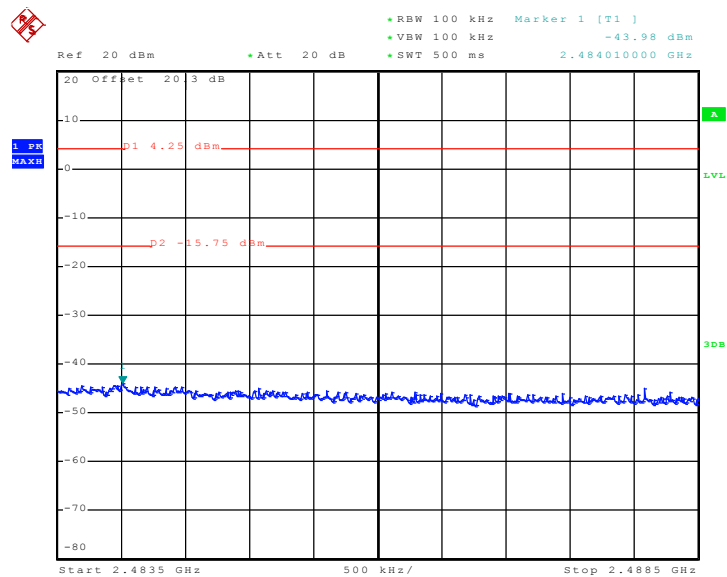
Test Mode :	Mode 1 and 3	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	54~57%
Test Channel :	01 and 11	Test Engineer :	Andy Yeh

Low Band Edge Plot on 802.11b Channel 01



Date: 8.MAR.2010 04:49:28

High Band Edge Plot on 802.11b Channel 11

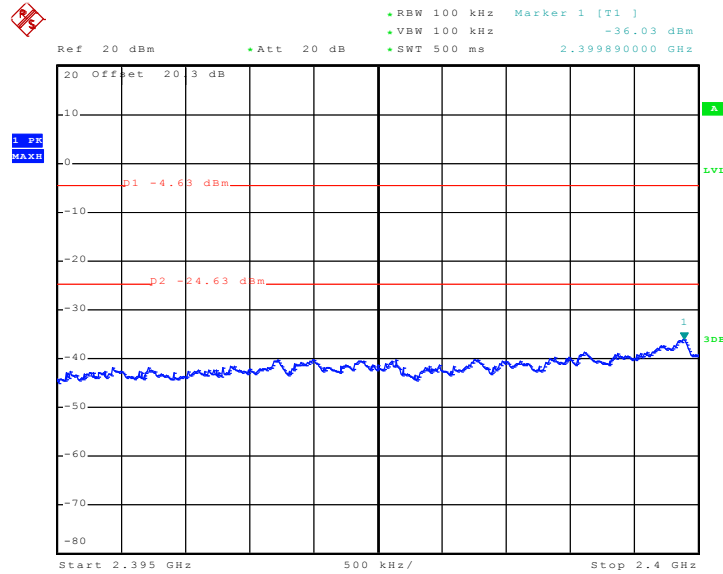


Date: 8.MAR.2010 04:47:30



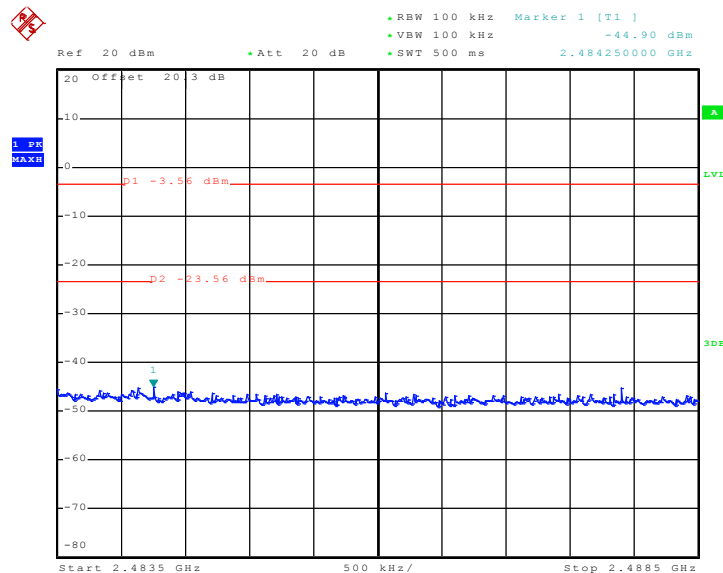
Test Mode :	Mode 4 and 6	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	54~57%
Test Channel :	01 and 11	Test Engineer :	Andy Yeh

Low Band Edge Plot on 802.11g Channel 01



Date: 8.MAR.2010 04:39:26

High Band Edge Plot on 802.11g Channel 11

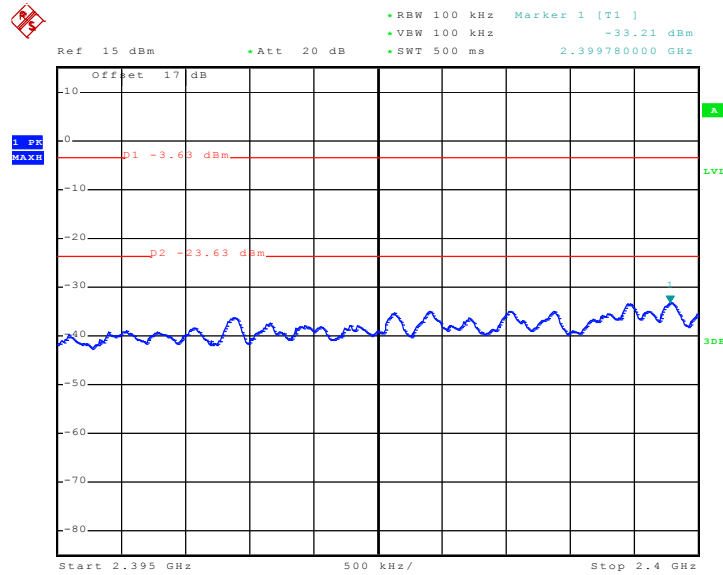


Date: 8.MAR.2010 04:43:06



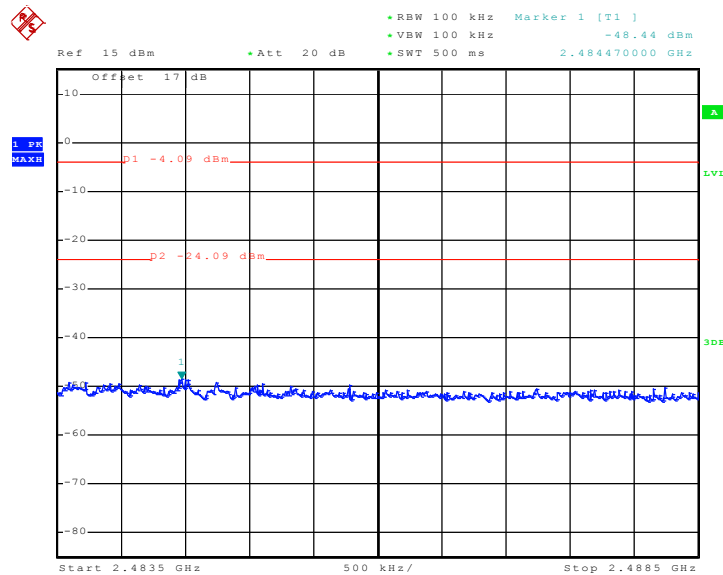
Test Mode :	Mode 7 and 9	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	54~57%
Test Channel :	01 and 11	Test Engineer :	Andy Yeh

Low Band Edge Plot on 802.11n (BW 20MHz) Channel 01



Date: 8.MAR.2010 23:55:32

High Band Edge Plot on 802.11n (BW 20MHz) Channel 11

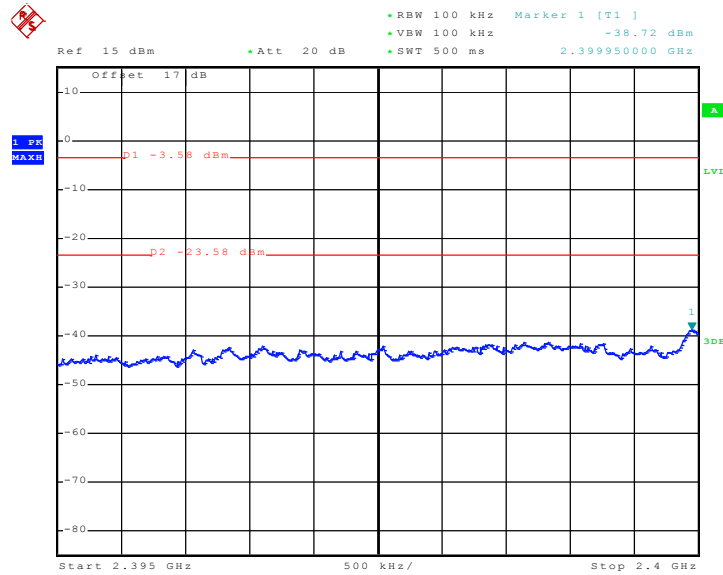


Date: 8.MAR.2010 23:52:22



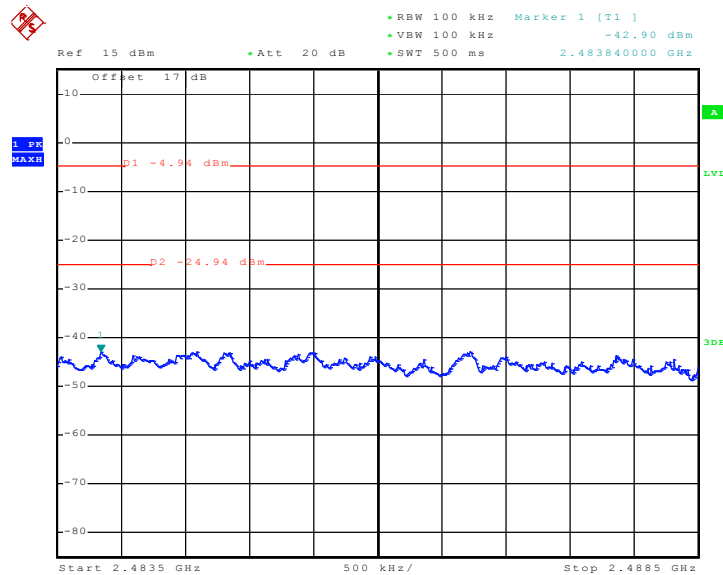
Test Mode :	Mode 10 and 12	Temperature :	21~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	54~57%
Test Channel :	03 and 09	Test Engineer :	Andy Yeh

Low Band Edge Plot on 802.11n (BW 40MHz) Channel 03



Date: 9.MAR.2010 00:03:28

High Band Edge Plot on 802.11n (BW 40MHz) Channel 09



Date: 9.MAR.2010 00:18:32



## 3.4 Spurious Emission Measurement

### 3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

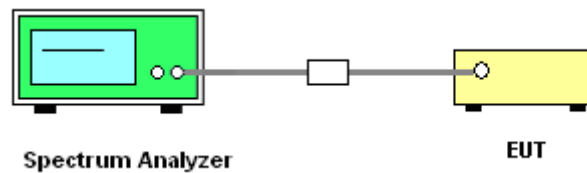
### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW)  $\geq$  RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

### 3.4.4 Test Setup

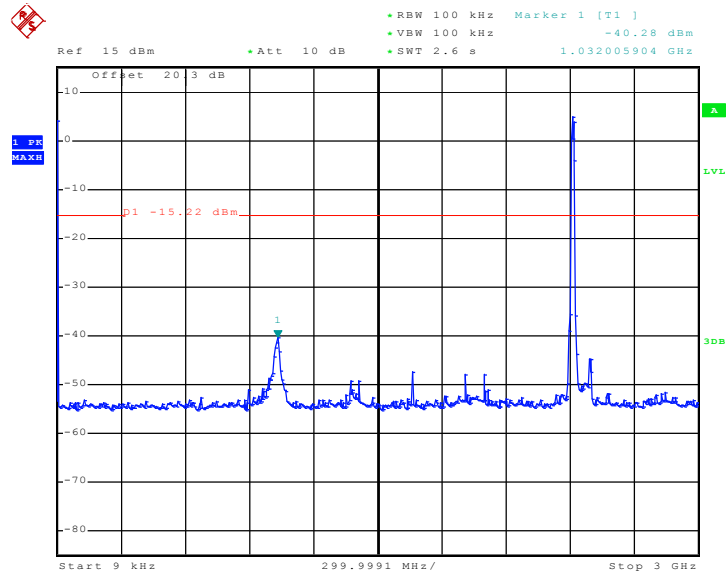




### 3.4.5 Test Plots of Spurious Emission

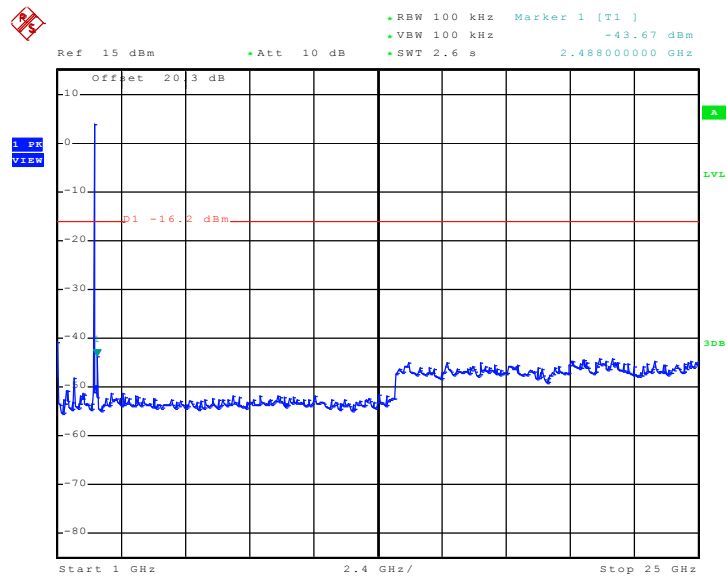
Test Mode :	Mode 1	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	54~57%
Test Channel :	01	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 8.MAR.2010 06:59:57

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

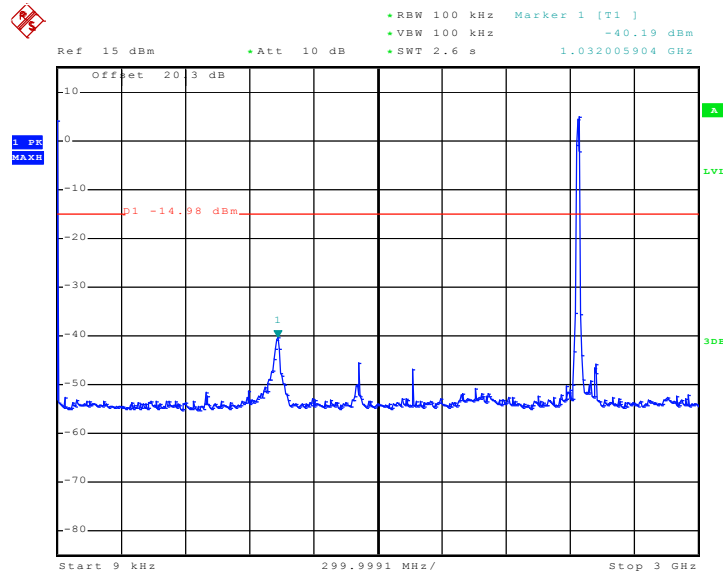


Date: 8.MAR.2010 06:40:23



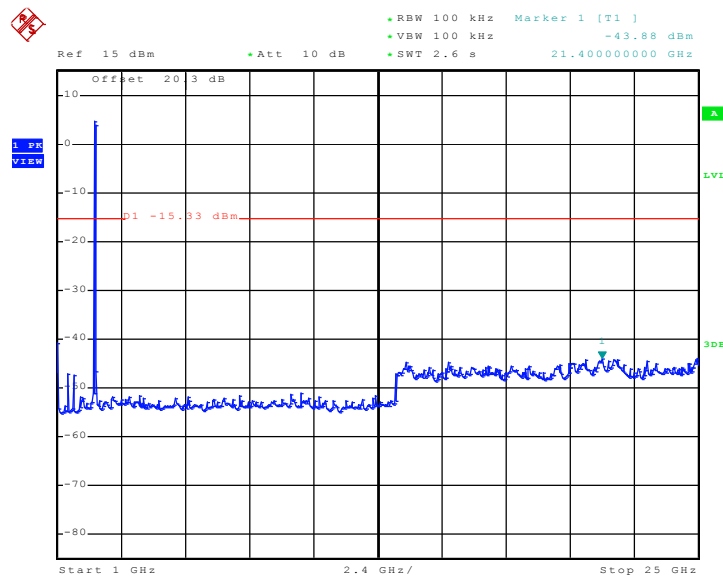
Test Mode :	Mode 2	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	54~57%
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 8.MAR.2010 07:01:32

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

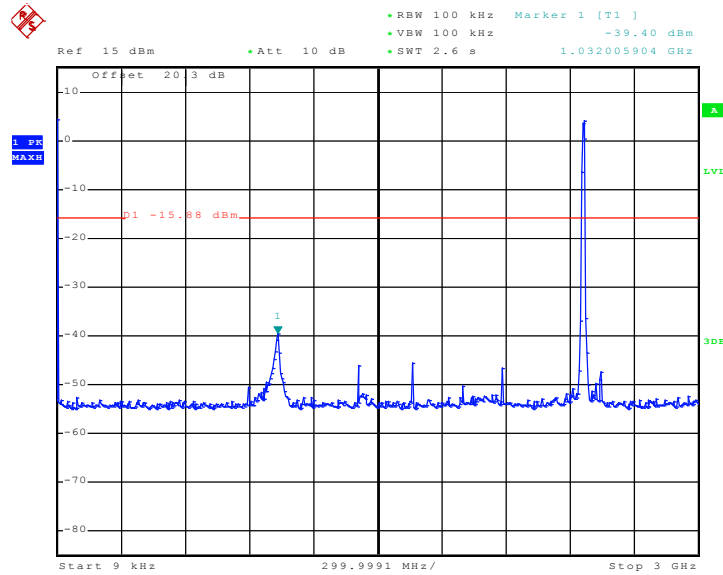


Date: 8.MAR.2010 06:42:34



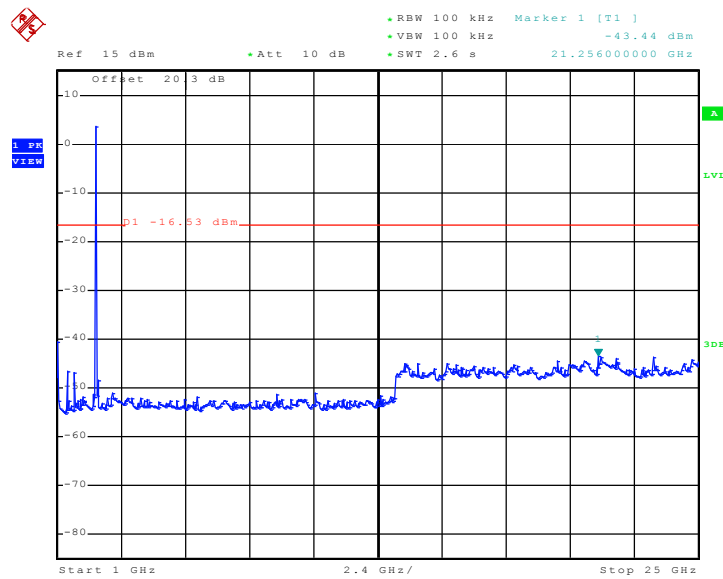
Test Mode :	Mode 3	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	54~57%
Test Channel :	11	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 8.MAR.2010 07:02:57

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

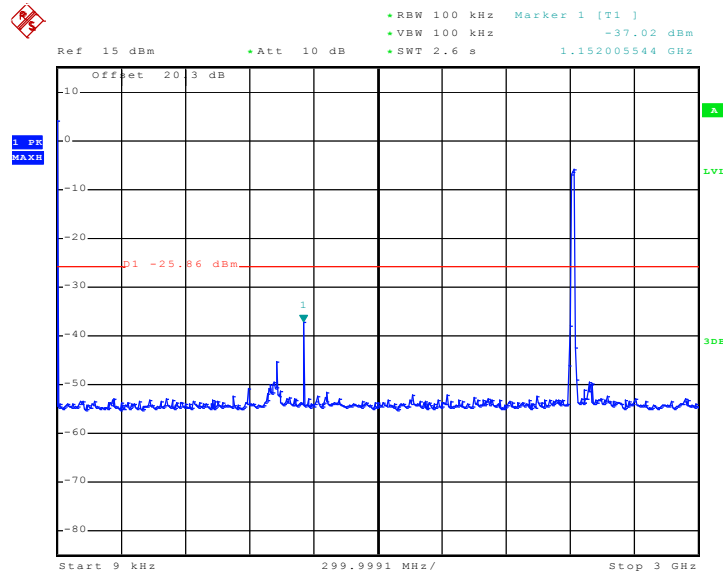


Date: 8.MAR.2010 06:44:12



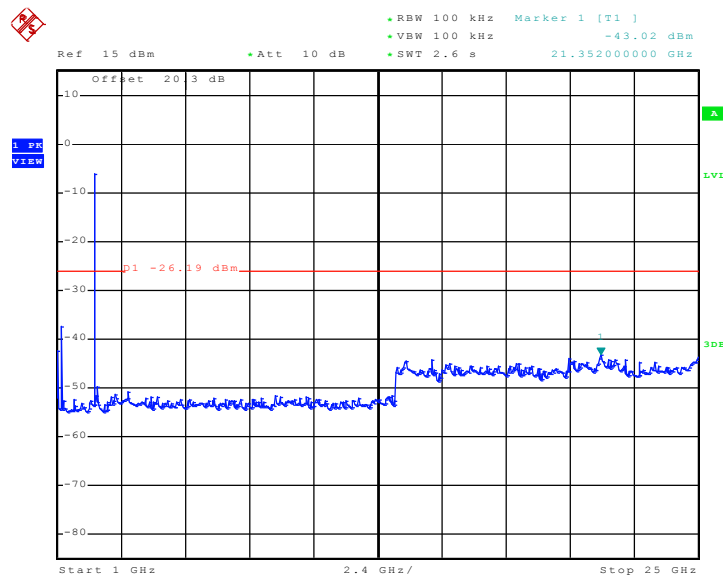
Test Mode :	Mode 4	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	54~57%
Test Channel :	01	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 8.MAR.2010 06:58:14

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

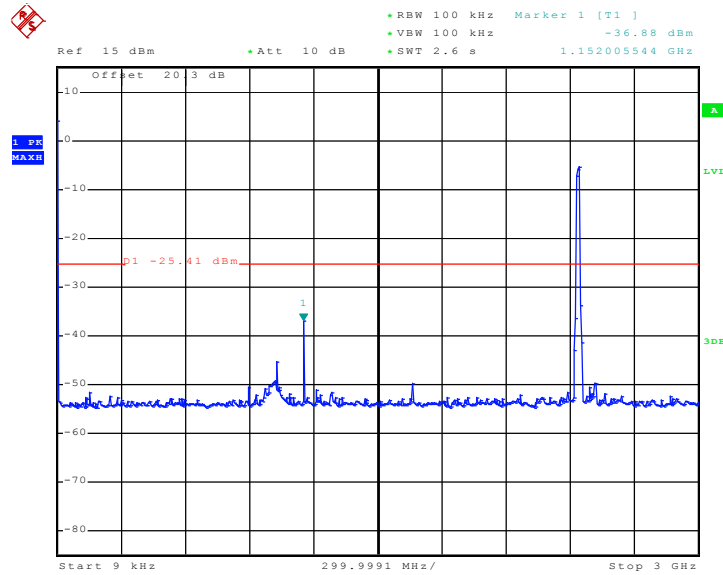


Date: 8.MAR.2010 06:46:28



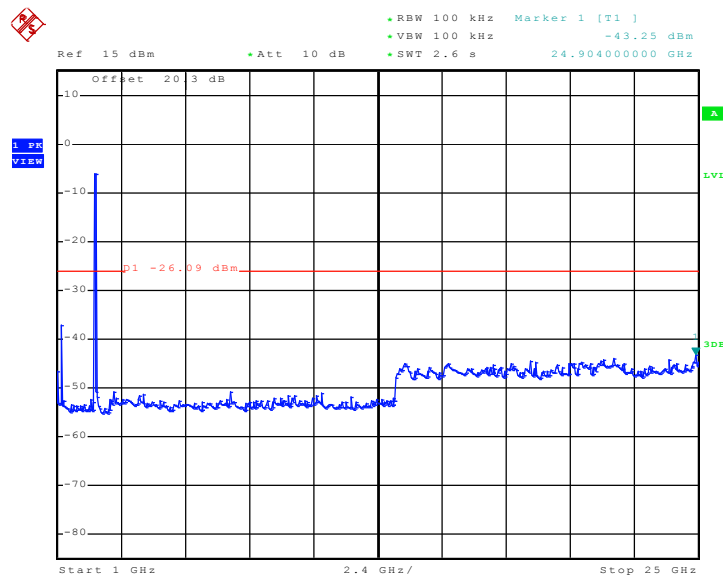
Test Mode :	Mode 5	Temperature :	21~22
Test Band :	802.11g	Relative Humidity :	54~57
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 8.MAR.2010 06:57:00

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

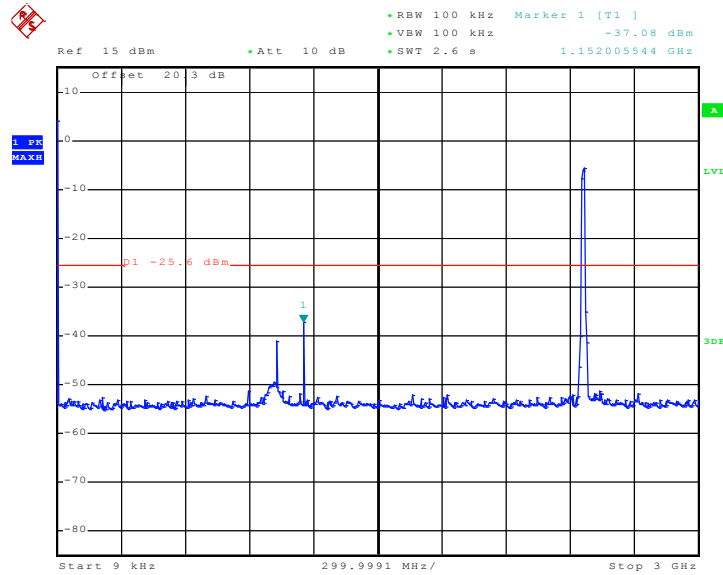


Date: 8.MAR.2010 06:47:56



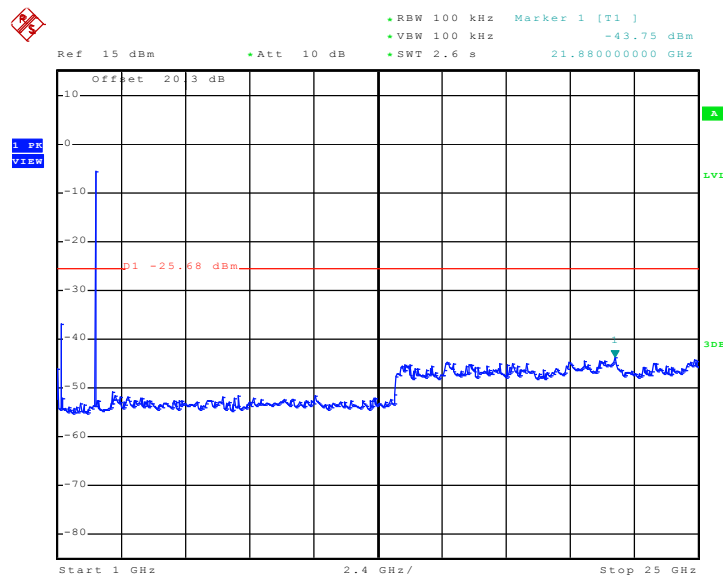
Test Mode :	Mode 6	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	54~57%
Test Channel :	11	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 8.MAR.2010 06:54:19

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

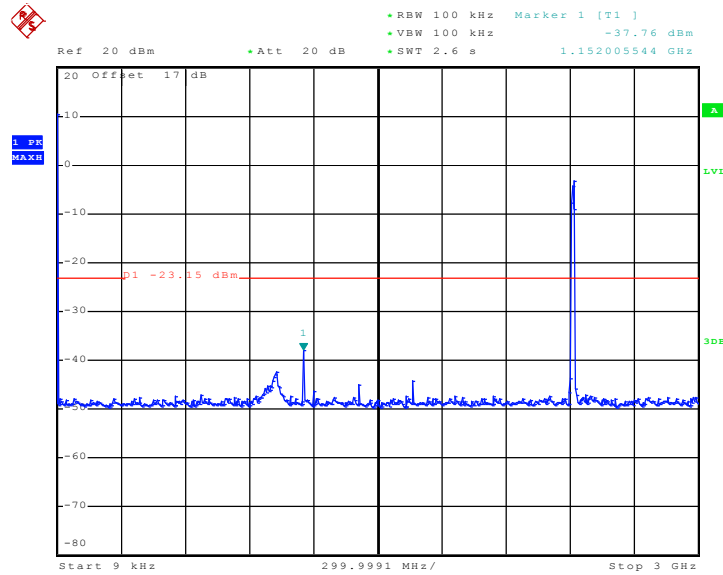


Date: 8.MAR.2010 06:49:53



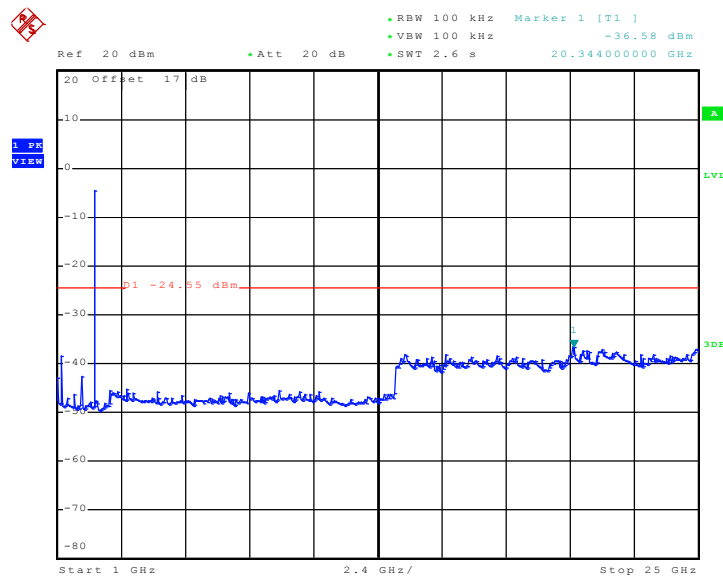
Test Mode :	Mode 7	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	54~57%
Test Channel :	01	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 11.MAR.2010 23:13:36

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



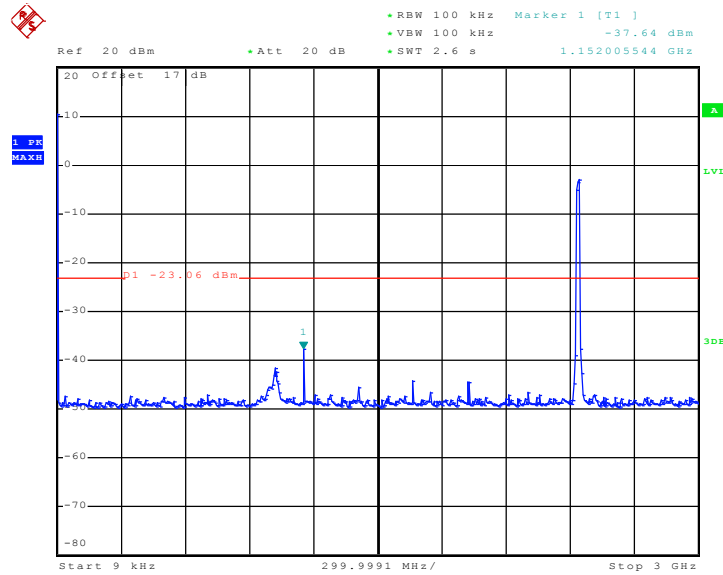
Date: 11.MAR.2010 22:59:17





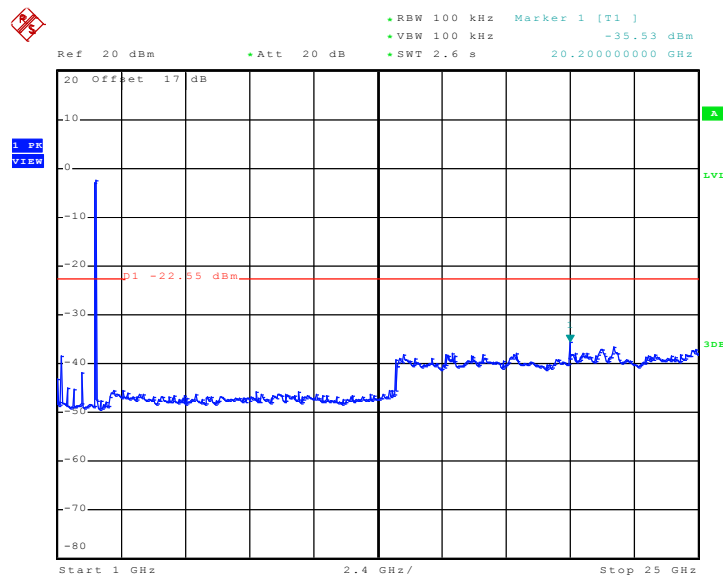
Test Mode :	Mode 8	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	54~57%
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 11.MAR.2010 23:11:27

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

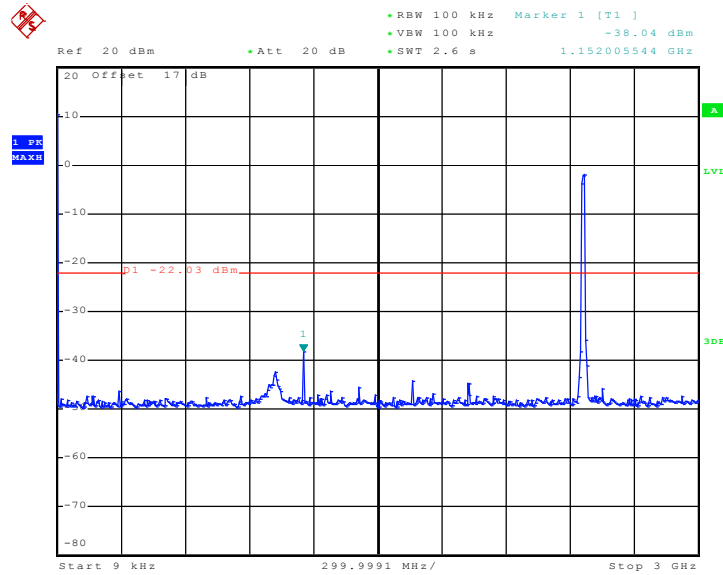


Date: 11.MAR.2010 23:02:11



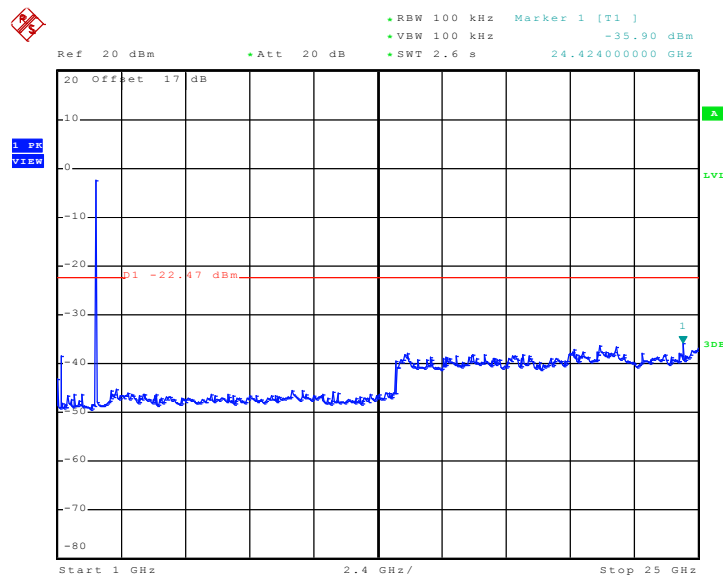
Test Mode :	Mode 9	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	54~57%
Test Channel :	11	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 11.MAR.2010 23:09:52

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

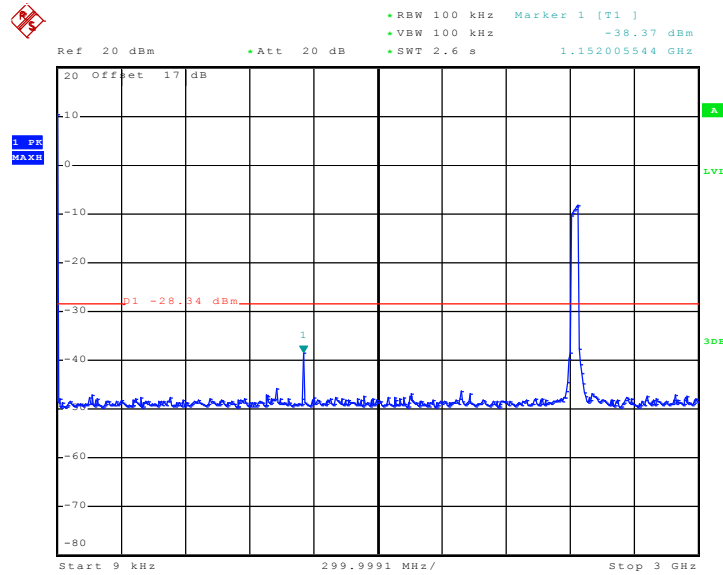


Date: 11.MAR.2010 23:05:06



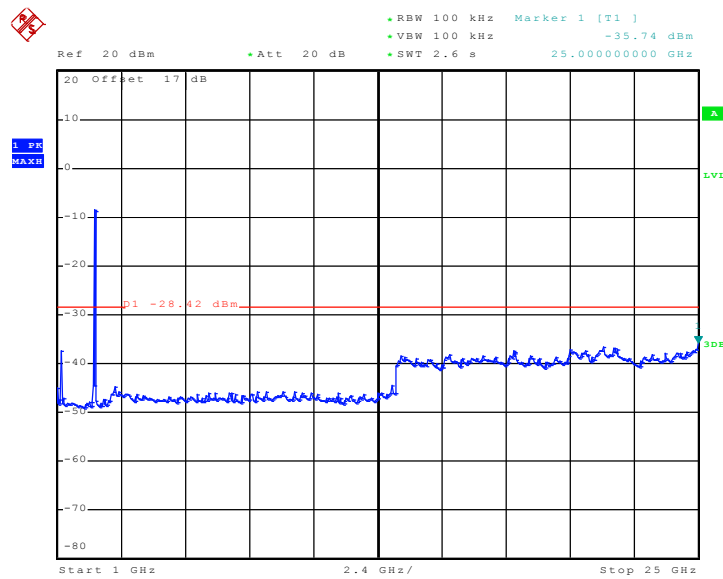
Test Mode :	Mode 10	Temperature :	21~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	54~57%
Test Channel :	03	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 11.MAR.2010 23:29:19

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

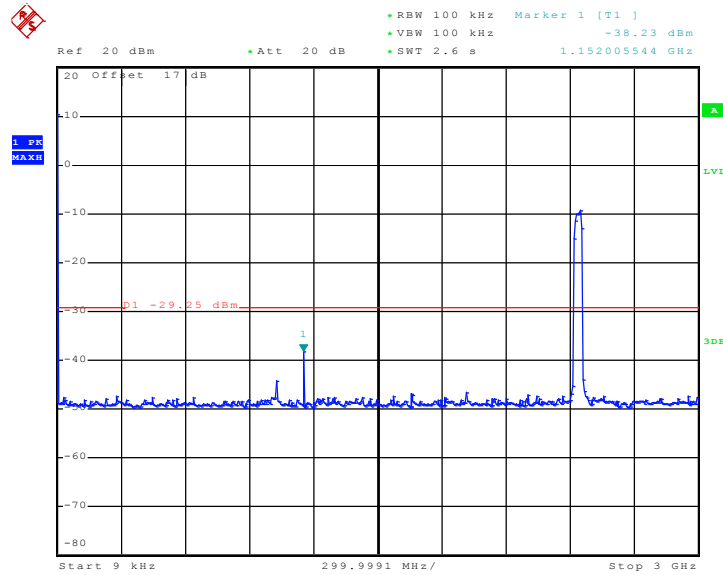


Date: 11.MAR.2010 23:31:09



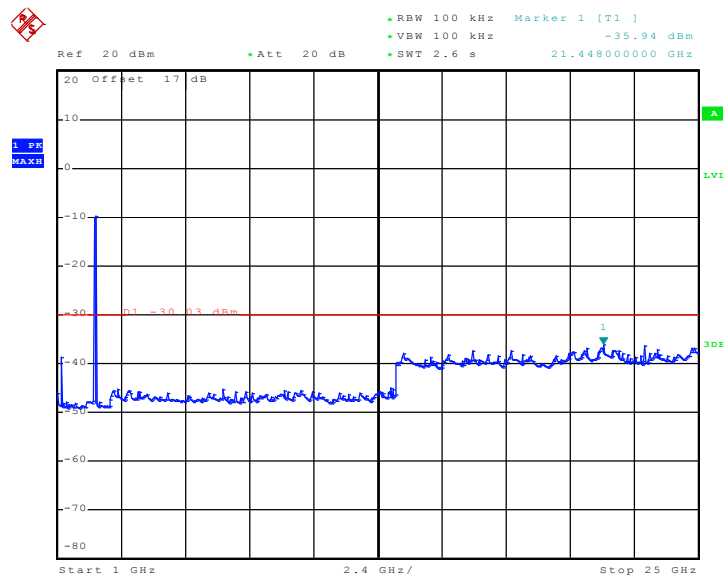
Test Mode :	Mode 11	Temperature :	21~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	54~57%
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 11.MAR.2010 23:33:11

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

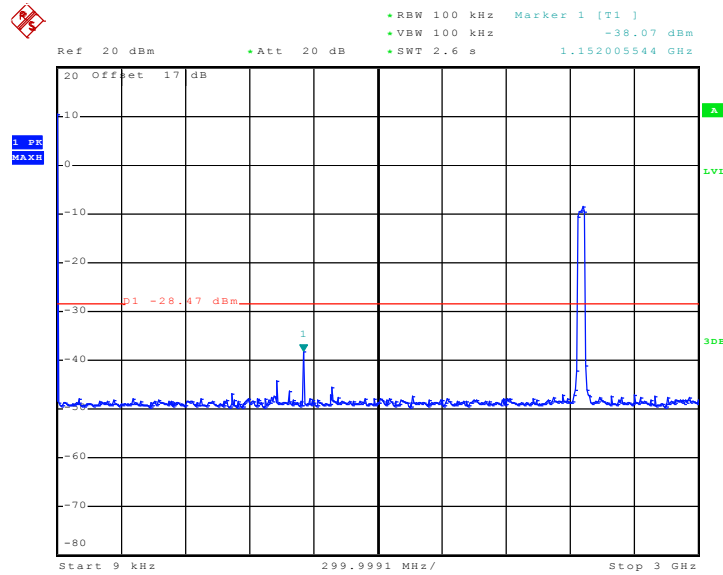


Date: 11.MAR.2010 23:34:43



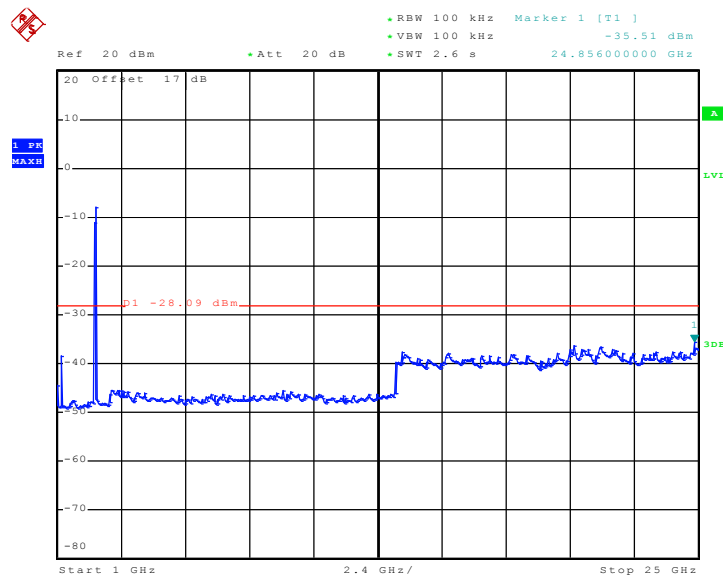
Test Mode :	Mode 12	Temperature :	21~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	54~57%
Test Channel :	09	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 11.MAR.2010 23:36:56

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 11.MAR.2010 23:38:56

## 3.5 Power Spectral Density Measurement

### 3.5.1 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.

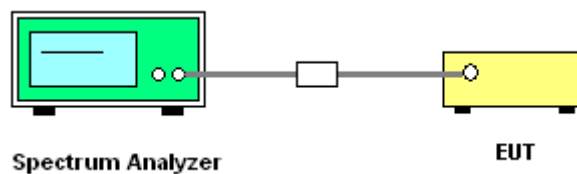
### 3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

### 3.5.4 Test Setup



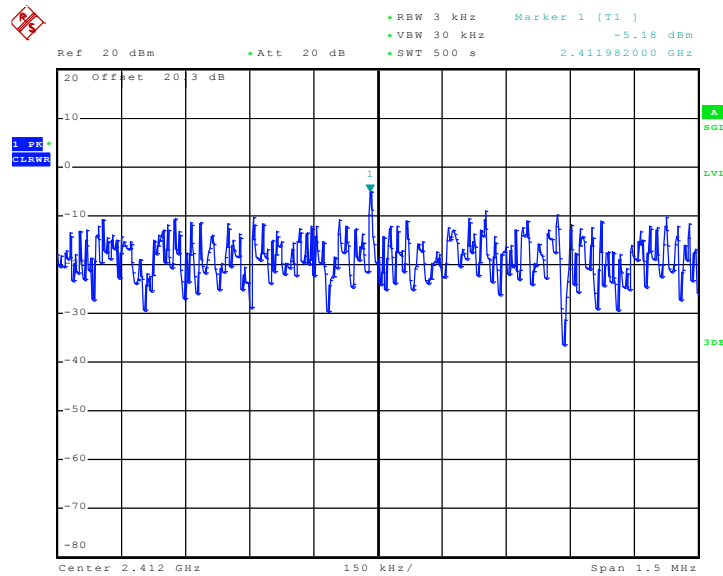


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-5.18	8	Pass
06	2437	-4.72	8	Pass
11	2462	-5.70	8	Pass

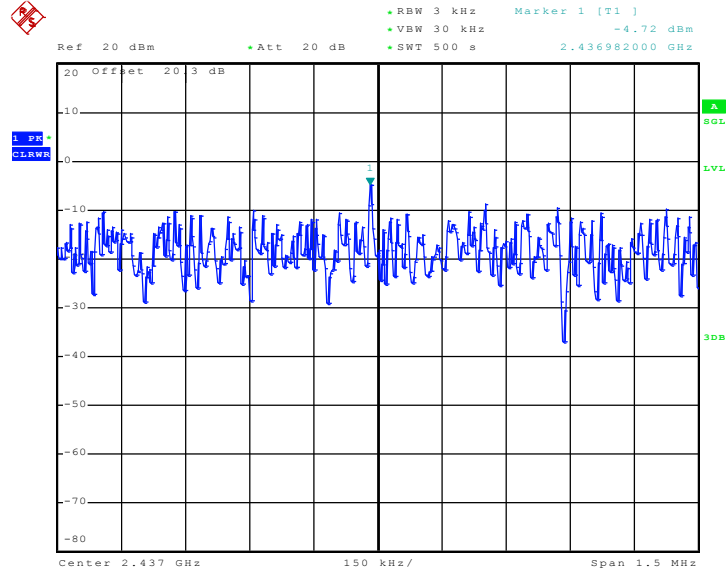
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 8.MAR.2010 06:11:48

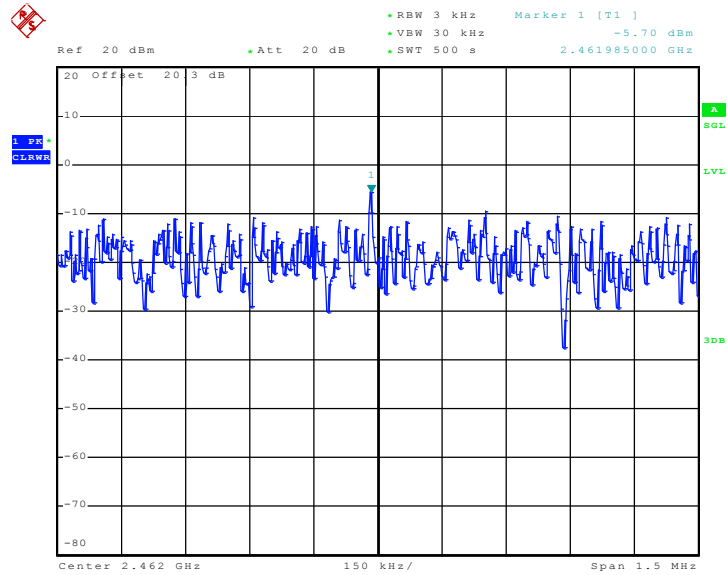


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 8.MAR.2010 05:58:01

Mode 3 : PSD Plot on 802.11b Channel 11



Date: 8.MAR.2010 05:47:43

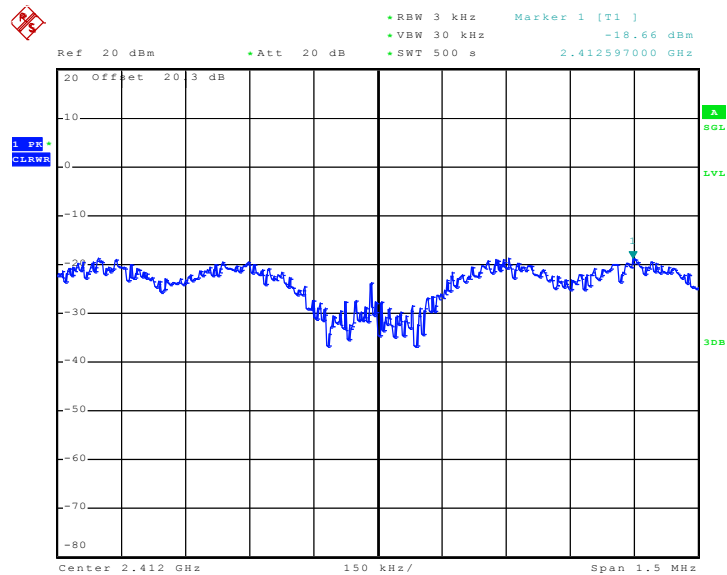




Test Mode :	Mode 4, 5, 6	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-18.66	8	Pass
06	2437	-20.25	8	Pass
11	2462	-20.68	8	Pass

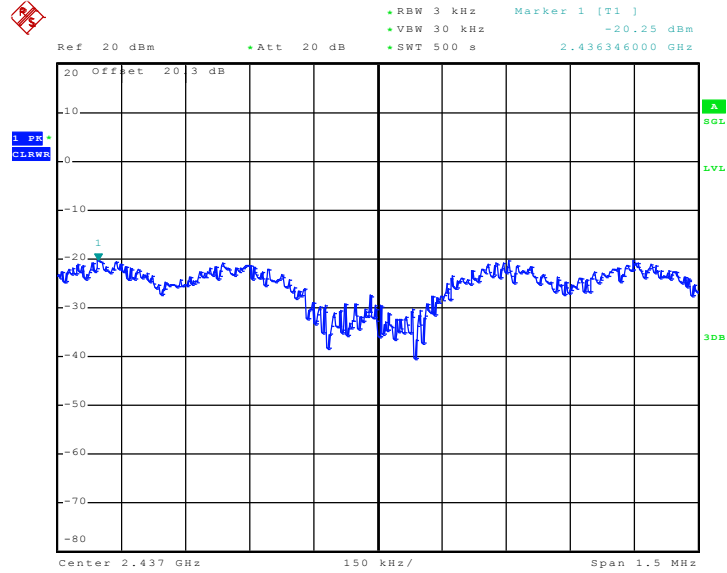
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 8.MAR.2010 05:14:20

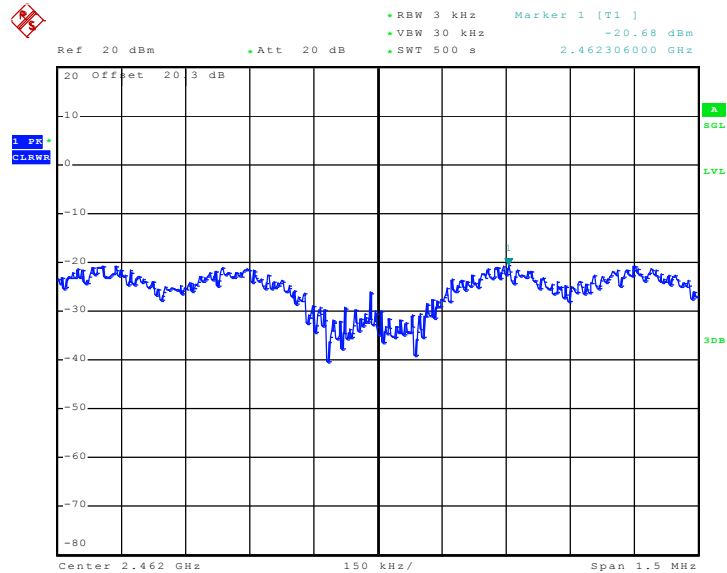


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 8.MAR.2010 05:23:55

Mode 6 : PSD Plot on 802.11g Channel 11



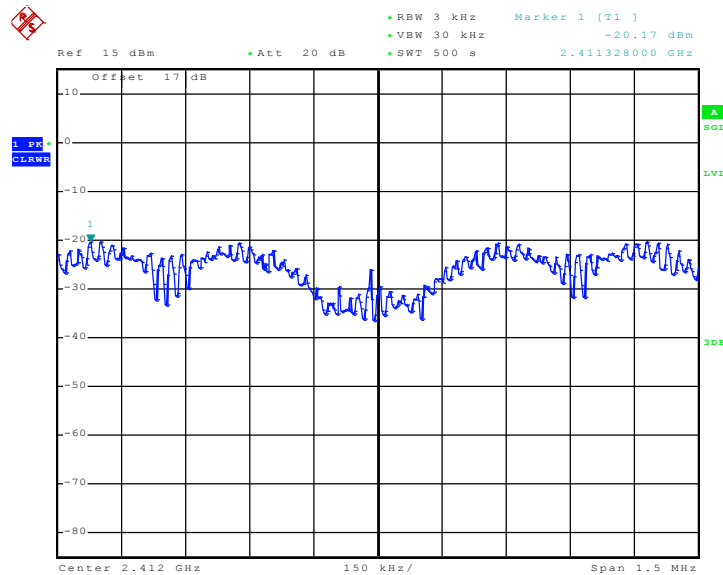
Date: 8.MAR.2010 05:35:01



Test Mode :	Mode 7, 8, 9	Temperature :	21~22°C
Test Engineer :	Andy Yeh	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-20.17	8	Pass
06	2437	-18.10	8	Pass
11	2462	-17.10	8	Pass

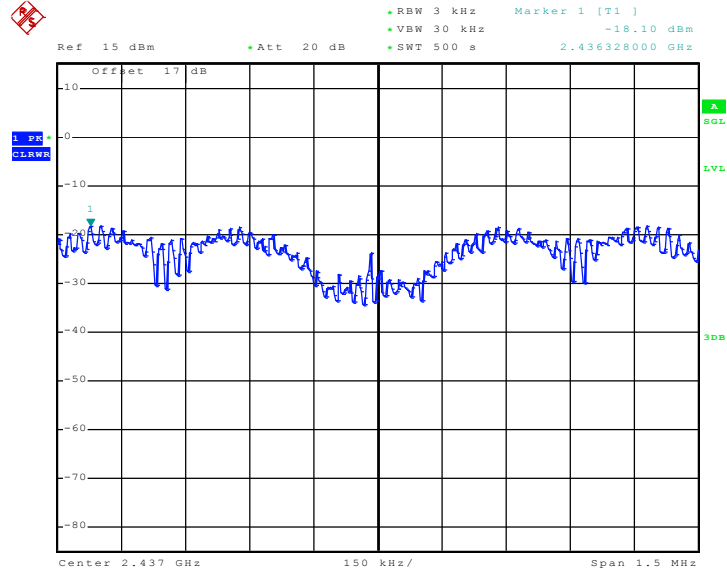
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 9.MAR.2010 03:49:05

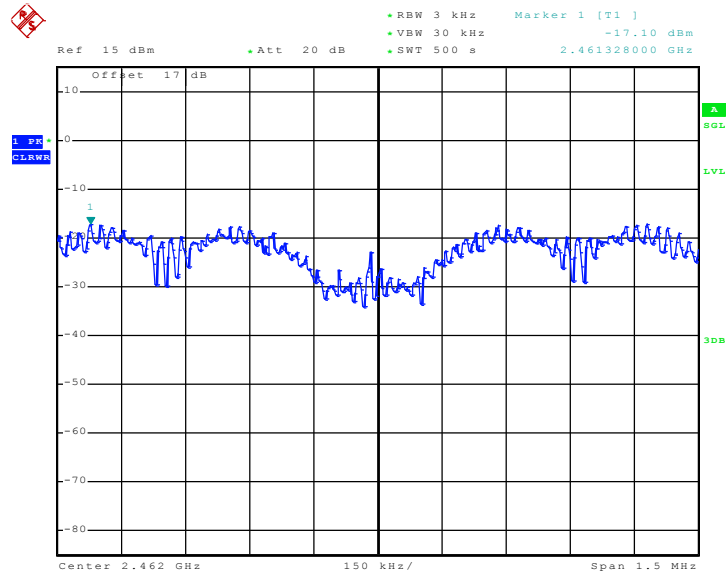


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 9.MAR.2010 04:04:33

Mode 9 : PSD Plot on 802.11n (BW 20MHz) Channel 11



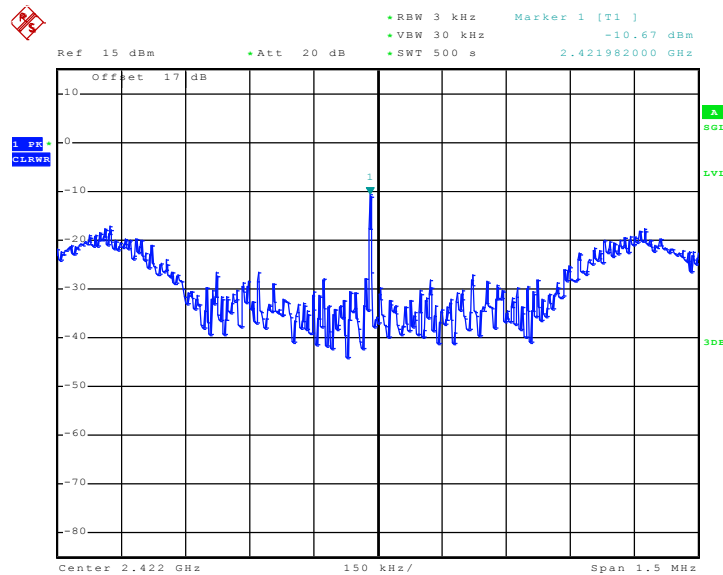
Date: 9.MAR.2010 04:19:31



Test Mode :	Mode 10, 11, 12	Temperature :	21~22
Test Engineer :	Andy Yeh	Relative Humidity :	54~57

Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
03	2422	-10.67	8	Pass
06	2437	-13.43	8	Pass
09	2452	-16.56	8	Pass

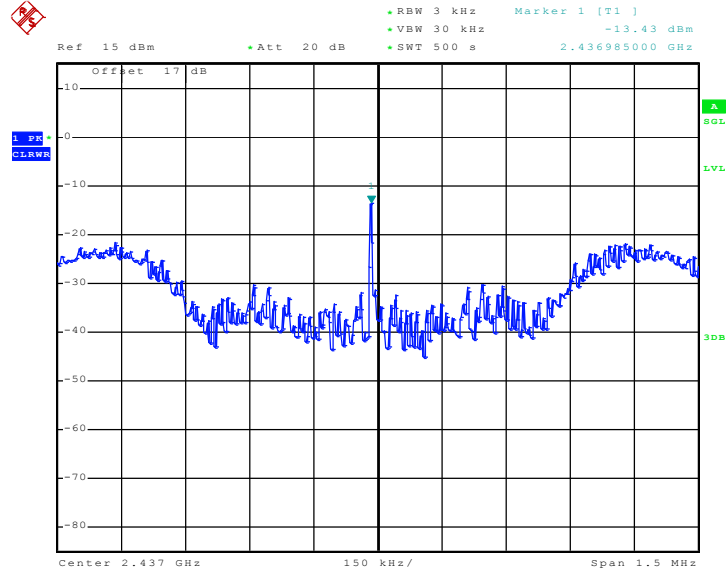
Mode 10 : PSD Plot on 802.11n (BW 40MHz) Channel 03



Date: 9.MAR.2010 03:33:47

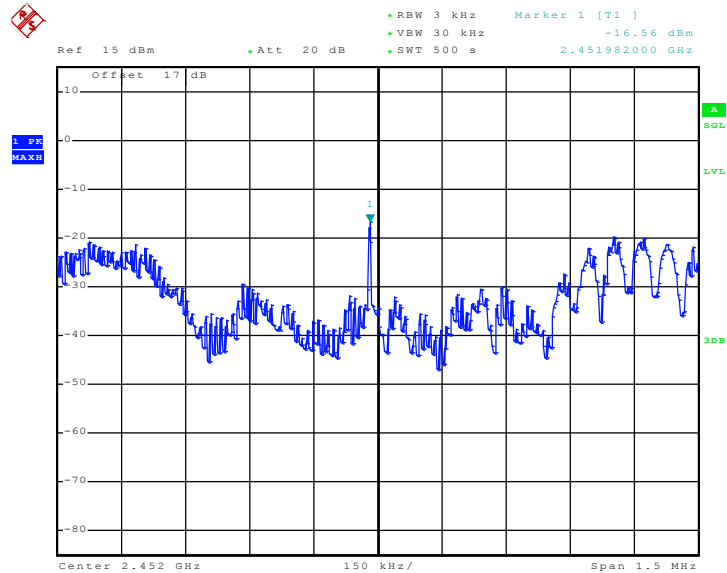


Mode 11 : PSD Plot on 802.11n (BW 40MHz) Channel 06



Date: 9.MAR.2010 03:20:47

Mode 12 : PSD Plot on 802.11n (BW 40MHz) Channel 09



Date: 9.MAR.2010 00:32:55

### 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.

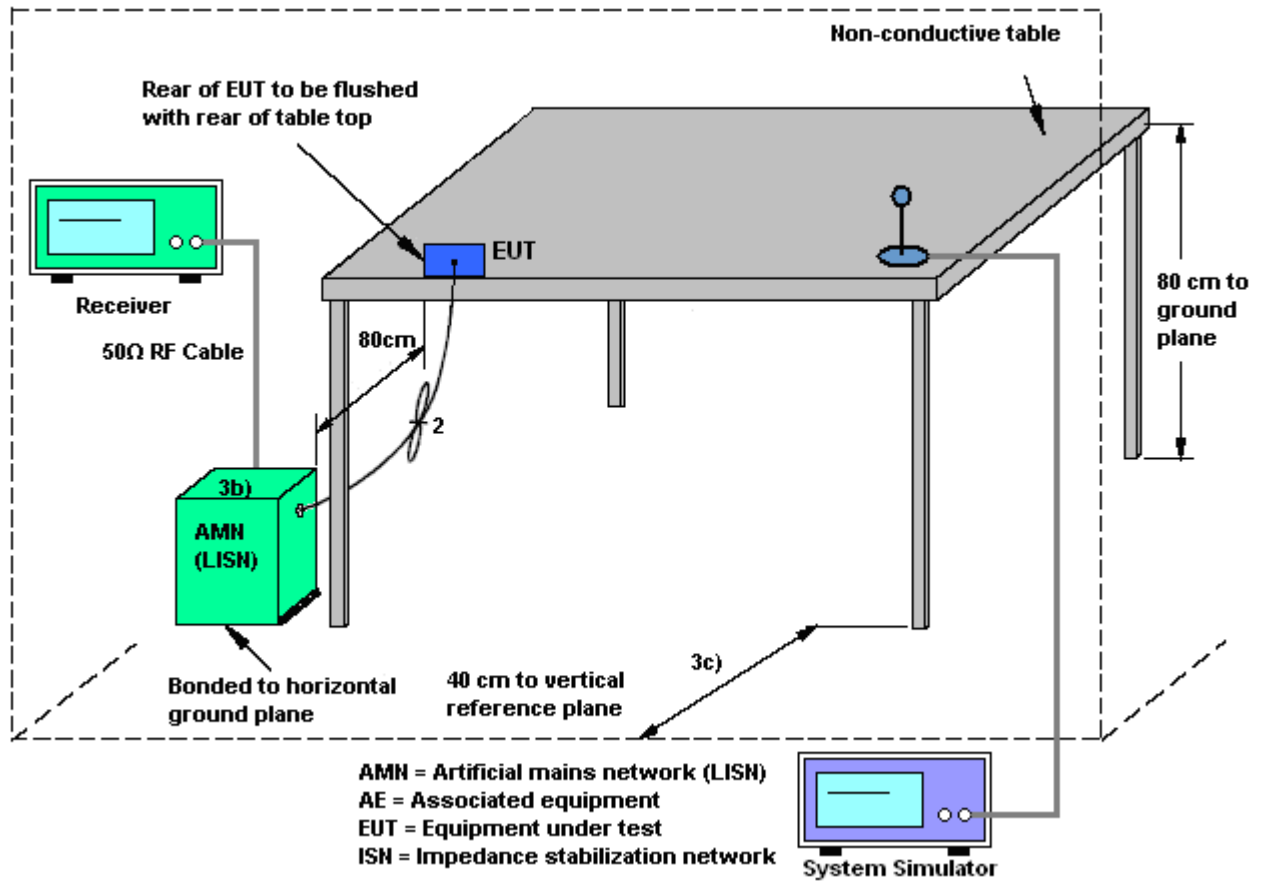
#### 3.6.2 Measuring Instruments

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.
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.

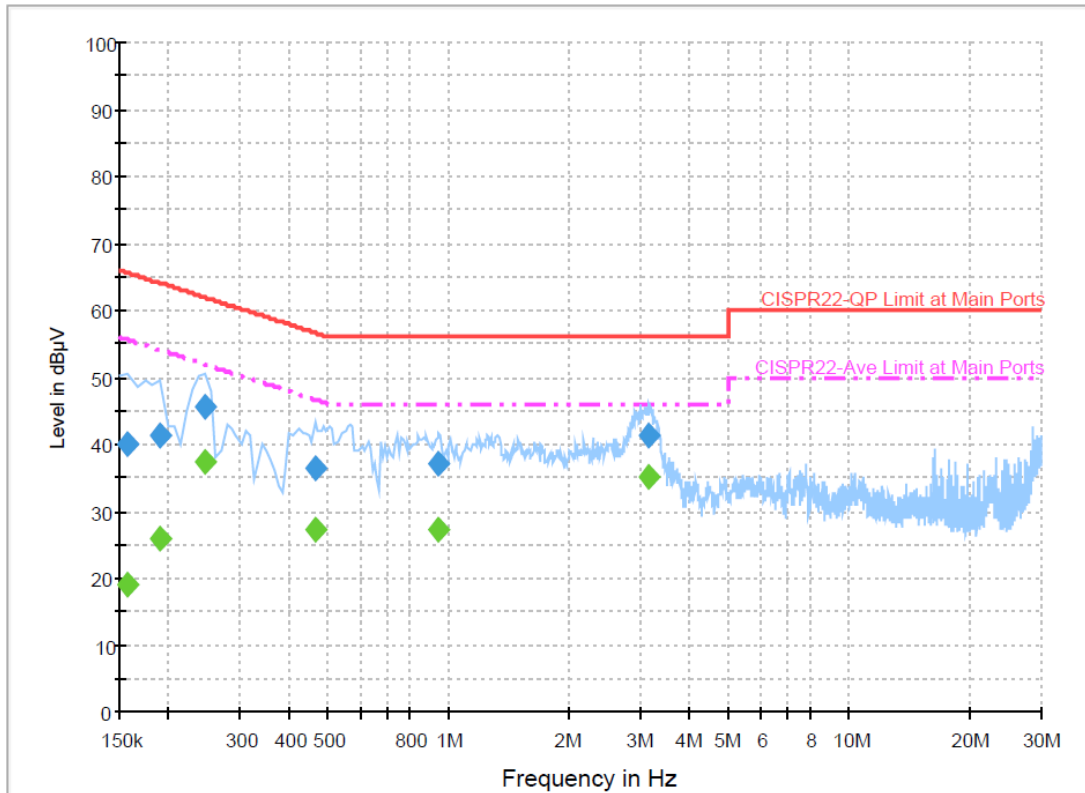
### 3.6.4 Test Setup





### 3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	54~57%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN Link + RJ-11 Link + RJ-45 Link + Handset + Adapter 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



#### Final Result 1

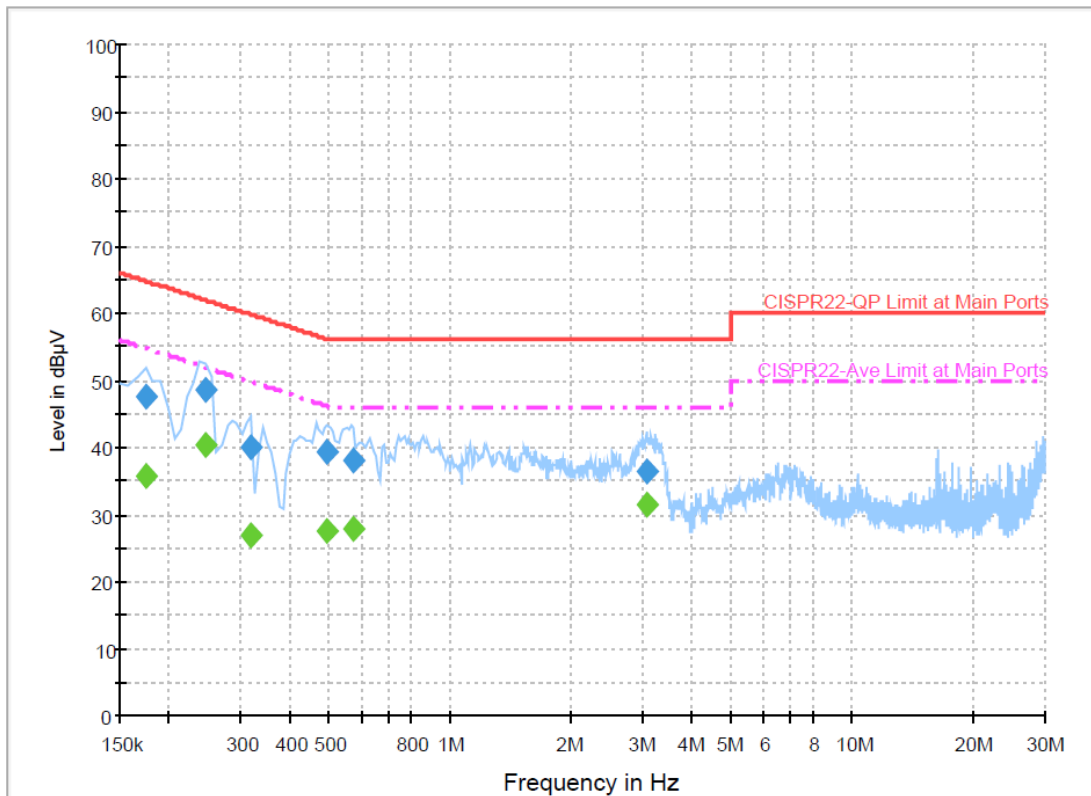
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	40.0	Off	L1	19.5	25.6	65.6
0.190000	41.3	Off	L1	19.6	22.7	64.0
0.246000	45.7	Off	L1	19.5	16.2	61.9
0.462000	36.5	Off	L1	19.4	20.2	56.7
0.942000	36.9	Off	L1	19.4	19.1	56.0
3.158000	41.2	Off	L1	19.5	14.8	56.0

#### Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	19.0	Off	L1	19.5	36.6	55.6
0.190000	26.0	Off	L1	19.6	28.0	54.0
0.246000	37.2	Off	L1	19.5	14.7	51.9
0.462000	27.1	Off	L1	19.4	19.6	46.7
0.942000	27.1	Off	L1	19.4	18.9	46.0
3.158000	35.1	Off	L1	19.5	10.9	46.0



Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	54~57%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN Link + RJ-11 Link + RJ-45 Link + Handset + Adapter 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	47.6	Off	N	19.5	17.2	64.8
0.246000	48.6	Off	N	19.5	13.3	61.9
0.318000	40.0	Off	N	19.5	19.8	59.8
0.494000	39.4	Off	N	19.4	16.7	56.1
0.574000	37.9	Off	N	19.5	18.1	56.0
3.054000	36.5	Off	N	19.5	19.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	35.8	Off	N	19.5	19.0	54.8
0.246000	40.4	Off	N	19.5	11.5	51.9
0.318000	27.0	Off	N	19.5	22.8	49.8
0.494000	27.6	Off	N	19.4	18.5	46.1
0.574000	27.8	Off	N	19.5	18.2	46.0
3.054000	31.6	Off	N	19.5	14.4	46.0

### 3.7 Radiated Emission Measurement

#### 3.7.1 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

#### 3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

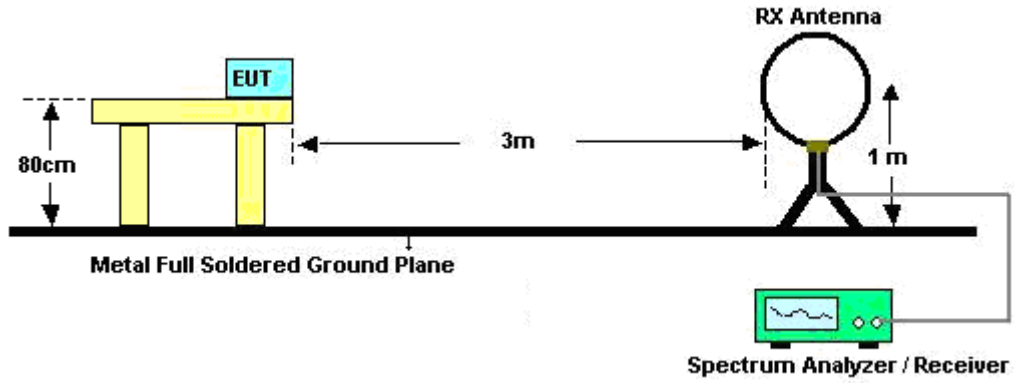
#### 3.7.3

#### 3.7.4 Test Procedures

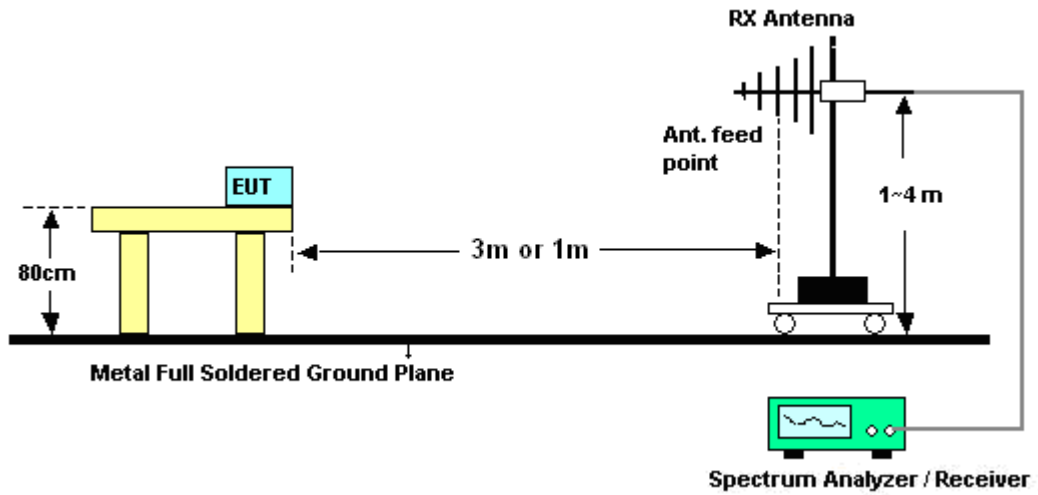
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
  - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold.
  - Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.  
Distance extrapolation factor =  $20 \log(\text{specific distance [3m]} / \text{test distance [1m]})$  (dB)
- Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

### 3.7.5 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz





3.7.6 Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

Test Engineer :	Cona Huang	Temperature :	24~25°C	
		Relative Humidity :	48~51%	
Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $40 \log(\text{specific distance} / \text{test distance})$  (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.



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

Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	48~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	25.68	-14.32	40	48.77	7.77	0.84	31.7	-	-	Peak
151.5	23.25	-20.25	43.5	42.31	11.12	1.47	31.65	-	-	Peak
250.05	34.25	-11.75	46	51.06	12.77	1.92	31.5	-	-	Peak
383.3	32.53	-13.47	46	45.6	15.67	2.49	31.23	-	-	Peak
500.2	32.78	-13.22	46	42.76	18.18	2.94	31.1	-	-	Peak
895.7	35.91	-10.09	46	39.34	23.13	4.14	30.7	100	287	Peak
2389.99	58.04	-15.96	74	54.61	32.13	5.46	34.16	111	15	Peak
2389.99	44.1	-9.9	54	40.67	32.13	5.46	34.16	111	15	Average
2412	109.16	-	-	105.72	32.16	5.44	34.16	111	15	Peak
2412	101.06	-	-	97.62	32.16	5.44	34.16	111	15	Average
2492	44.14	-9.86	54	40.67	32.3	5.37	34.2	111	15	Average
2492	56.79	-17.21	74	53.32	32.3	5.37	34.2	111	15	Peak
8328	53.68	-20.32	74	42.72	36	10.06	35.1	128	228	Peak
8328	40.29	-13.71	54	29.33	36	10.06	35.1	128	228	Average
9648	48.42	-40.74	89.16	83.07	-10.09	10.74	35.3	100	0	Peak



<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	36.57	-3.43	40	51.91	15.66	0.7	31.7	105	251	Peak
51.33	36.4	-3.6	40	59.49	7.77	0.84	31.7	-	-	Peak
106.41	36.44	-7.06	43.5	55.96	10.97	1.2	31.69	-	-	Peak
374.2	31.74	-14.26	46	45.08	15.44	2.47	31.25	-	-	Peak
640.2	29.74	-16.26	46	36.94	20.38	3.38	30.96	-	-	Peak
895.7	32.97	-13.03	46	36.4	23.13	4.14	30.7	-	-	Peak
2388.85	44.78	-9.22	54	41.34	32.13	5.46	34.15	103	256	Average
2388.85	56.78	-17.22	74	53.34	32.13	5.46	34.15	103	256	Peak
2412	109.91	-	-	106.47	32.16	5.44	34.16	103	256	Peak
2412	102.35	-	-	98.91	32.16	5.44	34.16	103	256	Average
2494	44.81	-9.19	54	41.34	32.3	5.37	34.2	103	256	Average
2494	56.47	-17.53	74	53	32.3	5.37	34.2	103	256	Peak
8409	54.87	-19.13	74	43.85	36	10.12	35.1	138	237	Peak
8409	39.57	-14.43	54	28.55	36	10.12	35.1	138	237	Average
9648	45.68	-44.23	89.91	80.33	-10.09	10.74	35.3	100	0	Peak



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 9748 MHz is not within a restricted band.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	24.69	-15.31	40	47.78	7.77	0.84	31.7	-	-	Peak
151.5	23.38	-20.12	43.5	42.44	11.12	1.47	31.65	-	-	Peak
250.05	35.12	-10.88	46	51.93	12.77	1.92	31.5	-	-	Peak
383.3	33.17	-12.83	46	46.24	15.67	2.49	31.23	-	-	Peak
500.2	33.61	-12.39	46	43.59	18.18	2.94	31.1	-	-	Peak
895.7	35.47	-10.53	46	38.9	23.13	4.14	30.7	146	110	Peak
2358	54.4	-19.6	74	50.97	32.08	5.49	34.14	105	24	Peak
2358	41.46	-12.54	54	38.03	32.08	5.49	34.14	105	24	Average
2437	107.71	-	-	104.25	32.22	5.41	34.17	105	24	Peak
2437	101.89	-	-	98.43	32.22	5.41	34.17	105	24	Average
2492	40.13	-13.87	54	36.66	32.3	5.37	34.2	105	24	Average
2492	50.79	-23.21	74	47.32	32.3	5.37	34.2	105	24	Peak
8430	54.48	-19.52	74	43.45	36	10.13	35.1	135	246	Peak
8430	39.41	-14.59	54	28.38	36	10.13	35.1	135	246	Average
9748	42.42	-45.29	87.71	76.78	-9.87	10.81	35.3	100	0	Peak





<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 9748 MHz is not within a restricted band.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	36.57	-3.43	40	51.91	15.66	0.7	31.7	107	209	Peak
51.33	36.13	-3.87	40	59.22	7.77	0.84	31.7	-	-	Peak
106.41	36.48	-7.02	43.5	56	10.97	1.2	31.69	-	-	Peak
374.2	31.66	-14.34	46	45	15.44	2.47	31.25	-	-	Peak
500.2	27.14	-18.86	46	37.12	18.18	2.94	31.1	-	-	Peak
640.2	29.93	-16.07	46	37.13	20.38	3.38	30.96	-	-	Peak
2356	55.74	-18.26	74	52.31	32.08	5.49	34.14	102	254	Peak
2356	42.69	-11.31	54	39.26	32.08	5.49	34.14	102	254	Average
2437	107.56	-	-	104.11	32.19	5.43	34.17	102	254	Peak
2437	99.79	-	-	96.33	32.22	5.41	34.17	102	254	Average
2492	38.58	-15.42	54	35.11	32.3	5.37	34.2	102	254	Average
2492	51.83	-22.17	74	48.36	32.3	5.37	34.2	102	254	Peak
8304	54.14	-19.86	74	43.19	36	10.05	35.1	128	222	Peak
8304	40.07	-13.93	54	29.12	36	10.05	35.1	128	222	Average
9748	39.99	-47.57	87.56	74.35	-9.87	10.81	35.3	100	0	Peak



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	25.63	-14.37	40	48.72	7.77	0.84	31.7	-	-	Peak
151.5	23.42	-20.08	43.5	42.48	11.12	1.47	31.65	-	-	Peak
250.05	34.76	-11.24	46	51.57	12.77	1.92	31.5	-	-	Peak
383.3	33.23	-12.77	46	46.3	15.67	2.49	31.23	-	-	Peak
500.2	33.09	-12.91	46	43.07	18.18	2.94	31.1	-	-	Peak
895.7	36.51	-9.49	46	39.94	23.13	4.14	30.7	100	182	Peak
2382	54.01	-19.99	74	50.58	32.11	5.47	34.15	189	22	Peak
2382	42.61	-11.39	54	39.18	32.11	5.47	34.15	189	22	Average
2462	106.63	-	-	103.17	32.24	5.4	34.18	189	22	Peak
2462	98.92	-	-	95.46	32.24	5.4	34.18	189	22	Average
2483.66	42.94	-11.06	54	39.48	32.27	5.38	34.19	189	22	Average
2483.66	53.77	-20.23	74	50.31	32.27	5.38	34.19	189	22	Peak
8325	53.48	-20.52	74	42.52	36	10.06	35.1	157	143	Peak
8325	39.7	-14.3	54	28.74	36	10.06	35.1	157	143	Average



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	35.49	-4.51	40	50.83	15.66	0.7	31.7	-	-	Peak
51.33	36.01	-3.99	40	59.1	7.77	0.84	31.7	100	167	Peak
106.41	36.35	-7.15	43.5	55.87	10.97	1.2	31.69	-	-	Peak
374.2	31.67	-14.33	46	45.01	15.44	2.47	31.25	-	-	Peak
640.2	29.46	-16.54	46	36.66	20.38	3.38	30.96	-	-	Peak
895.7	32.53	-13.47	46	35.96	23.13	4.14	30.7	-	-	Peak
2380	54.78	-19.22	74	51.35	32.11	5.47	34.15	165	141	Peak
2380	40.23	-13.77	54	36.8	32.11	5.47	34.15	165	141	Average
2462	104.97	-	-	101.52	32.24	5.4	34.19	165	141	Peak
2462	99.24	-	-	95.78	32.24	5.4	34.18	165	141	Average
2483.5	44.6	-9.4	54	41.14	32.27	5.38	34.19	165	141	Average
2483.5	55.19	-18.81	74	51.73	32.27	5.38	34.19	165	141	Peak
8364	53.43	-20.57	74	42.44	36	10.09	35.1	109	207	Peak
8364	39.61	-14.39	54	28.62	36	10.09	35.1	109	207	Average



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
53.49	25.92	-14.08	40	49.41	7.36	0.85	31.7	-	-	Peak
151.5	23.61	-19.89	43.5	42.67	11.12	1.47	31.65	-	-	Peak
250.05	34.26	-11.74	46	51.07	12.77	1.92	31.5	-	-	Peak
383.3	32.8	-13.2	46	45.87	15.67	2.49	31.23	-	-	Peak
500.2	33.47	-12.53	46	43.45	18.18	2.94	31.1	-	-	Peak
895.7	35.64	-10.36	46	39.07	23.13	4.14	30.7	115	240	Peak
2389.99	43.1	-10.9	54	39.67	32.13	5.46	34.16	135	312	Average
2389.99	55.74	-18.26	74	52.31	32.13	5.46	34.16	135	312	Peak
2412	105.53	-	-	102.09	32.16	5.44	34.16	135	312	Peak
2412	95.24	-	-	91.8	32.16	5.44	34.16	135	312	Average
2494	42.69	-11.31	54	39.22	32.3	5.37	34.2	135	312	Average
2494	56.15	-17.85	74	52.68	32.3	5.37	34.2	135	312	Peak
8325	53.21	-20.79	74	42.25	36	10.06	35.1	100	172	Peak
8325	38.95	-15.05	54	27.99	36	10.06	35.1	100	172	Average
9648	40.46	-45.07	85.53	75.11	-10.09	10.74	35.3	100	0	Peak



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	35.77	-4.23	40	51.11	15.66	0.7	31.7	138	24	Peak
51.33	34.91	-5.09	40	58	7.77	0.84	31.7	-	-	Peak
106.41	35.83	-7.67	43.5	55.35	10.97	1.2	31.69	-	-	Peak
374.2	32.07	-13.93	46	45.41	15.44	2.47	31.25	-	-	Peak
640.2	30.17	-15.83	46	37.37	20.38	3.38	30.96	-	-	Peak
895.7	32.83	-13.17	46	36.26	23.13	4.14	30.7	-	-	Peak
2389.61	39.31	-14.69	54	35.87	32.13	5.46	34.15	100	307	Average
2389.61	53.5	-20.5	74	50.06	32.13	5.46	34.15	100	307	Peak
2412	100.81	-	-	97.37	32.16	5.44	34.16	100	307	Peak
2412	91.49	-	-	88.05	32.16	5.44	34.16	100	307	Average
2492	41.19	-12.81	54	37.72	32.3	5.37	34.2	100	307	Average
2492	53.45	-20.55	74	49.98	32.3	5.37	34.2	100	307	Peak
8337	53.2	-20.8	74	42.23	36	10.07	35.1	100	171	Peak
8337	39.06	-14.94	54	28.09	36	10.07	35.1	100	171	Average
9648	38.34	-42.47	80.81	72.99	-10.09	10.74	35.3	100	0	Peak



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	25.29	-14.71	40	48.38	7.77	0.84	31.7	-	-	Peak
151.5	23.65	-19.85	43.5	42.71	11.12	1.47	31.65	-	-	Peak
250.05	34.9	-11.1	46	51.71	12.77	1.92	31.5	-	-	Peak
383.3	32.85	-13.15	46	45.92	15.67	2.49	31.23	-	-	Peak
500.2	33.16	-12.84	46	43.14	18.18	2.94	31.1	-	-	Peak
895.7	36.14	-9.86	46	39.57	23.13	4.14	30.7	124	122	Peak
2382	50.83	-23.17	74	47.4	32.11	5.47	34.15	131	318	Peak
2382	39.35	-14.65	54	35.92	32.11	5.47	34.15	131	318	Average
2437	102.68	-	-	99.23	32.22	5.41	34.18	131	318	Peak
2437	93.16	-	-	89.7	32.22	5.41	34.17	131	318	Average
2492	42.56	-11.44	54	39.09	32.3	5.37	34.2	131	318	Average
2492	52.8	-21.2	74	49.33	32.3	5.37	34.2	131	318	Peak
8229	53.71	-20.29	74	42.82	36	9.99	35.1	120	149	Peak
8229	39.18	-14.82	54	28.29	36	9.99	35.1	120	149	Average



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	36.64	-3.36	40	51.98	15.66	0.7	31.7	100	344	Peak
51.33	36.13	-3.87	40	59.22	7.77	0.84	31.7	-	-	Peak
106.41	37.49	-6.01	43.5	57.01	10.97	1.2	31.69	-	-	Peak
374.2	31.84	-14.16	46	45.18	15.44	2.47	31.25	-	-	Peak
640.2	30.09	-15.91	46	37.29	20.38	3.38	30.96	-	-	Peak
895.7	33.2	-12.8	46	36.63	23.13	4.14	30.7	-	-	Peak
2382	49.5	-24.5	74	46.07	32.11	5.47	34.15	100	315	Peak
2382	38.79	-15.21	54	35.36	32.11	5.47	34.15	100	315	Average
2437	100.74	-	-	97.28	32.22	5.41	34.17	100	315	Peak
2437	91.02	-	-	87.56	32.22	5.41	34.17	100	315	Average
2492	38.22	-15.78	54	34.75	32.3	5.37	34.2	100	315	Average
2492	49.91	-24.09	74	46.44	32.3	5.37	34.2	100	315	Peak
8346	53.43	-20.57	74	42.46	36	10.07	35.1	182	296	Peak
8346	40	-14	54	29.03	36	10.07	35.1	182	296	Average



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	25.01	-14.99	40	48.1	7.77	0.84	31.7	-	-	Peak
151.5	23.69	-19.81	43.5	42.75	11.12	1.47	31.65	-	-	Peak
250.05	35.06	-10.94	46	51.87	12.77	1.92	31.5	-	-	Peak
383.3	32.7	-13.3	46	45.77	15.67	2.49	31.23	-	-	Peak
500.2	33.49	-12.51	46	43.47	18.18	2.94	31.1	-	-	Peak
895.7	36.23	-9.77	46	39.66	23.13	4.14	30.7	141	326	Peak
2382	51.36	-22.64	74	47.93	32.11	5.47	34.15	131	310	Peak
2382	40.08	-13.92	54	36.65	32.11	5.47	34.15	131	310	Average
2462	96.09	-	-	92.63	32.24	5.4	34.18	131	310	Average
2462	103.54	-	-	100.08	32.24	5.4	34.18	131	310	Peak
2483.5	43.82	-10.18	54	40.36	32.27	5.38	34.19	131	310	Average
2483.5	61.49	-12.51	74	58.03	32.27	5.38	34.19	131	310	Peak
8409	53.81	-20.19	74	42.79	36	10.12	35.1	103	201	Peak
8409	39.68	-14.32	54	28.66	36	10.12	35.1	103	201	Average





<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	36.1	-3.9	40	51.44	15.66	0.7	31.7	-	-	Peak
51.33	36.23	-3.77	40	59.32	7.77	0.84	31.7	100	163	Peak
106.41	36.47	-7.03	43.5	55.99	10.97	1.2	31.69	-	-	Peak
374.2	31.92	-14.08	46	45.26	15.44	2.47	31.25	-	-	Peak
640.2	30.39	-15.61	46	37.59	20.38	3.38	30.96	-	-	Peak
895.7	32.7	-13.3	46	36.13	23.13	4.14	30.7	-	-	Peak
2374	49.18	-24.82	74	45.75	32.11	5.47	34.15	100	312	Peak
2374	37.23	-16.77	54	33.8	32.11	5.47	34.15	100	312	Average
2462	101.66	-	-	98.2	32.24	5.4	34.18	100	312	Peak
2462	92.67	-	-	89.21	32.24	5.4	34.18	100	312	Average
2483.85	40.13	-13.87	54	36.67	32.27	5.38	34.19	100	312	Average
2483.85	57.65	-16.35	74	54.19	32.27	5.38	34.19	100	312	Peak
8349	52.96	-21.04	74	41.99	36	10.07	35.1	106	118	Peak
8349	38.82	-15.18	54	27.85	36	10.07	35.1	106	118	Average



<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	24.45	-15.55	40	47.54	7.77	0.84	31.7	-	-	Peak
151.5	23.51	-19.99	43.5	42.57	11.12	1.47	31.65	-	-	Peak
250.05	34.28	-11.72	46	51.09	12.77	1.92	31.5	-	-	Peak
383.3	32.81	-13.19	46	45.88	15.67	2.49	31.23	-	-	Peak
500.2	32.66	-13.34	46	42.64	18.18	2.94	31.1	-	-	Peak
895.7	35.66	-10.34	46	39.09	23.13	4.14	30.7	100	125	Peak
2389.99	47.83	-6.17	54	44.4	32.13	5.46	34.16	135	312	Average
2389.99	68.5	-5.5	74	65.07	32.13	5.46	34.16	135	312	Peak
2412	108.38	-	-	104.94	32.16	5.44	34.16	135	312	Peak
2412	99.07	-	-	95.63	32.16	5.44	34.16	135	312	Average
2494	46.37	-7.63	54	42.9	32.3	5.37	34.2	135	312	Average
2494	57.67	-16.33	74	54.2	32.3	5.37	34.2	135	312	Peak
8283	53.54	-20.46	74	42.61	36	10.03	35.1	100	48	Peak
8283	39.6	-14.4	54	28.67	36	10.03	35.1	100	48	Average
9648	41.06	-47.32	88.38	75.71	-10.09	10.74	35.3	100	0	Peak



<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	35.3	-4.7	40	50.64	15.66	0.7	31.7	-	-	Peak
51.33	36.78	-3.22	40	59.87	7.77	0.84	31.7	105	265	Peak
106.41	36.25	-7.25	43.5	55.77	10.97	1.2	31.69	-	-	Peak
374.2	32.14	-13.86	46	45.48	15.44	2.47	31.25	-	-	Peak
640.2	30.06	-15.94	46	37.26	20.38	3.38	30.96	-	-	Peak
895.7	33.47	-12.53	46	36.9	23.13	4.14	30.7	-	-	Peak
2389.99	46.79	-7.21	54	43.36	32.13	5.46	34.16	120	307	Average
2389.99	66.98	-7.02	74	63.55	32.13	5.46	34.16	120	307	Peak
2412	106.6	-	-	103.16	32.16	5.44	34.16	120	307	Peak
2412	98.73	-	-	95.29	32.16	5.44	34.16	120	307	Average
2500	43.91	-10.09	54	40.44	32.3	5.37	34.2	120	307	Average
2500	56.34	-17.66	74	52.87	32.3	5.37	34.2	120	307	Peak
8322	53.39	-20.61	74	42.43	36	10.06	35.1	100	333	Peak
8322	39.98	-14.02	54	29.02	36	10.06	35.1	100	333	Average
9648	39.48	-47.12	86.6	74.13	-10.09	10.74	35.3	100	0	Peak



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	23.96	-16.04	40	47.05	7.77	0.84	31.7	-	-	Peak
106.41	24.9	-18.6	43.5	44.42	10.97	1.2	31.69	-	-	Peak
250.05	34.87	-11.13	46	51.68	12.77	1.92	31.5	-	-	Peak
383.3	32.7	-13.3	46	45.77	15.67	2.49	31.23	-	-	Peak
500.2	33.39	-12.61	46	43.37	18.18	2.94	31.1	-	-	Peak
895.7	35.81	-10.19	46	39.24	23.13	4.14	30.7	118	129	Peak
2382	54.82	-19.18	74	51.39	32.11	5.47	34.15	131	310	Peak
2382	41.41	-12.59	54	37.98	32.11	5.47	34.15	131	310	Average
2437	106.36	-	-	102.91	32.19	5.43	34.17	130	310	Peak
2437	96.34	-	-	92.88	32.22	5.41	34.17	131	310	Average
2492	46.21	-7.79	54	42.74	32.3	5.37	34.2	131	310	Average
2492	56.13	-17.87	74	52.66	32.3	5.37	34.2	131	310	Peak
8412	53.6	-20.4	74	42.58	36	10.12	35.1	143	231	Peak
8412	39.26	-14.74	54	28.24	36	10.12	35.1	143	231	Average



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	35.41	-4.59	40	50.75	15.66	0.7	31.7	-	-	Peak
51.33	35.47	-4.53	40	58.56	7.77	0.84	31.7	103	89	Peak
106.41	35.89	-7.61	43.5	55.41	10.97	1.2	31.69	-	-	Peak
374.2	31.96	-14.04	46	45.3	15.44	2.47	31.25	-	-	Peak
640.2	29.68	-16.32	46	36.88	20.38	3.38	30.96	-	-	Peak
895.7	33.01	-12.99	46	36.44	23.13	4.14	30.7	-	-	Peak
2356	53.73	-20.27	74	50.3	32.08	5.49	34.14	100	315	Peak
2356	41.1	-12.9	54	37.67	32.08	5.49	34.14	100	315	Average
2437	106.02	-	-	102.57	32.19	5.43	34.17	100	315	Peak
2437	97.54	-	-	94.08	32.22	5.41	34.17	100	315	Average
2486	39.53	-14.47	54	36.07	32.27	5.38	34.19	100	315	Average
2486	52.25	-21.75	74	48.79	32.27	5.38	34.19	100	315	Peak
8370	53.03	-20.97	74	42.03	36	10.1	35.1	100	157	Peak
8370	39.52	-14.48	54	28.52	36	10.1	35.1	100	157	Average



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	25.65	-14.35	40	48.74	7.77	0.84	31.7	-	-	Peak
151.5	23.18	-20.32	43.5	42.24	11.12	1.47	31.65	-	-	Peak
250.05	34.71	-11.29	46	51.52	12.77	1.92	31.5	-	-	Peak
383.3	32.73	-13.27	46	45.8	15.67	2.49	31.23	-	-	Peak
500.2	33.63	-12.37	46	43.61	18.18	2.94	31.1	-	-	Peak
895.7	35.67	-10.33	46	39.1	23.13	4.14	30.7	100	147	Peak
2374	52.01	-21.99	74	48.58	32.11	5.47	34.15	102	311	Peak
2374	38.59	-15.41	54	35.16	32.11	5.47	34.15	102	311	Average
2462	106.67	-	-	103.21	32.24	5.4	34.18	102	311	Peak
2462	97.9	-	-	94.44	32.24	5.4	34.18	102	311	Average
2483.5	48.13	-5.87	54	44.67	32.27	5.38	34.19	102	311	Average
2483.5	69.15	-4.85	74	65.69	32.27	5.38	34.19	102	311	Peak
8286	52.63	-21.37	74	41.69	36	10.04	35.1	132	147	Peak
8286	39.38	-14.62	54	28.44	36	10.04	35.1	132	147	Average



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	34.77	-5.23	40	50.11	15.66	0.7	31.7	-	-	Peak
51.33	35.86	-4.14	40	58.95	7.77	0.84	31.7	100	236	Peak
106.41	35.89	-7.61	43.5	55.41	10.97	1.2	31.69	-	-	Peak
374.2	31.92	-14.08	46	45.26	15.44	2.47	31.25	-	-	Peak
640.2	30.04	-15.96	46	37.24	20.38	3.38	30.96	-	-	Peak
895.7	33.17	-12.83	46	36.6	23.13	4.14	30.7	-	-	Peak
2388	51.75	-22.25	74	48.31	32.13	5.46	34.15	100	313	Peak
2388	38.39	-15.61	54	34.95	32.13	5.46	34.15	100	313	Average
2462	104.3	-	-	100.85	32.24	5.4	34.19	100	313	Peak
2462	95.67	-	-	92.21	32.24	5.4	34.18	100	313	Average
2483.5	45.69	-8.31	54	42.23	32.27	5.38	34.19	100	313	Average
2483.5	65.24	-8.76	74	61.78	32.27	5.38	34.19	100	313	Peak
8313	53.02	-20.98	74	42.07	36	10.05	35.1	100	182	Peak
8313	39.58	-14.42	54	28.63	36	10.05	35.1	100	182	Average



<b>Test Mode :</b>	Mode 10	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2422 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	27.56	-12.44	40	50.65	7.77	0.84	31.7	-	-	Peak
106.41	25.8	-17.7	43.5	45.32	10.97	1.2	31.69	-	-	Peak
250.05	33.98	-12.02	46	50.79	12.77	1.92	31.5	-	-	Peak
383.3	33.08	-12.92	46	46.15	15.67	2.49	31.23	-	-	Peak
500.2	32.99	-13.01	46	42.97	18.18	2.94	31.1	-	-	Peak
895.7	35.73	-10.27	46	39.16	23.13	4.14	30.7	135	130	Peak
2388.66	50.67	-3.33	54	47.23	32.13	5.46	34.15	140	313	Average
2388.66	63.68	-10.32	74	60.24	32.13	5.46	34.15	140	313	Peak
2422	91.07	-	-	87.62	32.19	5.43	34.17	140	313	Average
2422	101.68	-	-	98.23	32.19	5.43	34.17	140	313	Peak
2494	52.15	-21.85	74	48.68	32.3	5.37	34.2	140	313	Peak
2494	41.94	-12.06	54	38.47	32.3	5.37	34.2	140	313	Average
8379	53.9	-20.1	74	42.9	36	10.1	35.1	100	310	Peak
8379	38.96	-15.04	54	27.96	36	10.1	35.1	100	310	Average





<b>Test Mode :</b>	Mode 10	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2422 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	34.94	-5.06	40	50.28	15.66	0.7	31.7	-	-	Peak
51.33	35.47	-4.53	40	58.56	7.77	0.84	31.7	100	39	Peak
106.41	35.51	-7.99	43.5	55.03	10.97	1.2	31.69	-	-	Peak
374.2	31.78	-14.22	46	45.12	15.44	2.47	31.25	-	-	Peak
640.2	29.94	-16.06	46	37.14	20.38	3.38	30.96	-	-	Peak
895.7	33.31	-12.69	46	36.74	23.13	4.14	30.7	-	-	Peak
2388.09	67.45	-6.55	74	64.01	32.13	5.46	34.15	123	304	Peak
2388.09	52.09	-1.91	54	48.65	32.13	5.46	34.15	123	304	Average
2422	91.66	-	-	88.22	32.13	5.46	34.15	123	304	Average
2422	101.94	-	-	98.49	32.19	5.43	34.17	123	304	Peak
2500	50.05	-23.95	74	46.58	32.3	5.37	34.2	123	304	Peak
2500	39.97	-14.03	54	36.5	32.3	5.37	34.2	123	304	Average
8226	52.59	-21.41	74	41.7	36	9.99	35.1	124	248	Peak
8226	39.42	-14.58	54	28.53	36	9.99	35.1	124	248	Average



<b>Test Mode :</b>	Mode 11	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	26.65	-13.35	40	49.74	7.77	0.84	31.7	-	-	Peak
151.5	23.2	-20.3	43.5	42.26	11.12	1.47	31.65	-	-	Peak
250.05	34.68	-11.32	46	51.49	12.77	1.92	31.5	-	-	Peak
383.3	33.06	-12.94	46	46.13	15.67	2.49	31.23	-	-	Peak
500.2	33.43	-12.57	46	43.41	18.18	2.94	31.1	-	-	Peak
895.7	35.67	-10.33	46	39.1	23.13	4.14	30.7	100	234	Peak
2390	59.04	-14.96	74	55.61	32.13	5.46	34.16	137	314	Peak
2390	40.18	-13.82	54	36.75	32.13	5.46	34.16	137	314	Average
2437	103.01	-	-	99.56	32.22	5.41	34.18	137	314	Peak
2437	92.64	-	-	89.18	32.22	5.41	34.17	137	314	Average
2484	42.16	-11.84	54	38.7	32.22	5.41	34.17	137	314	Average
2484	58.61	-15.39	74	55.15	32.27	5.38	34.19	137	314	Peak
8340	54.3	-19.7	74	43.33	36	10.07	35.1	114	74	Peak
8340	39.38	-14.62	54	28.41	36	10.07	35.1	114	74	Average



<b>Test Mode :</b>	Mode 11	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	35.87	-4.13	40	51.21	15.66	0.7	31.7	-	-	Peak
51.33	36.36	-3.64	40	59.45	7.77	0.84	31.7	100	326	Peak
106.41	36.37	-7.13	43.5	55.89	10.97	1.2	31.69	-	-	Peak
374.2	31.82	-14.18	46	45.16	15.44	2.47	31.25	-	-	Peak
640.2	33.68	-12.32	46	40.88	20.38	3.38	30.96	-	-	Peak
895.7	32.35	-13.65	46	35.78	23.13	4.14	30.7	-	-	Peak
2390	56.33	-17.67	74	52.9	32.13	5.46	34.16	119	3	Peak
2390	39.99	-14.01	54	36.56	32.13	5.46	34.16	119	3	Average
2437	100.58	-	-	97.13	32.19	5.43	34.17	119	3	Peak
2437	90.37	-	-	86.91	32.22	5.41	34.17	119	3	Average
2484	52.13	-21.87	74	48.67	32.27	5.38	34.19	119	3	Peak
2484	37.59	-16.41	54	34.13	32.27	5.38	34.19	119	3	Average
8238	52.55	-21.45	74	41.65	36	10	35.1	100	245	Peak
8238	39.42	-14.58	54	28.52	36	10	35.1	100	245	Average



<b>Test Mode :</b>	Mode 12	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2452 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	29	-11	40	52.09	7.77	0.84	31.7	-	-	Peak
106.41	26.89	-16.61	43.5	46.41	10.97	1.2	31.69	-	-	Peak
250.05	35.73	-10.27	46	52.54	12.77	1.92	31.5	107	81	Peak
318.9	29.68	-16.32	46	44.86	13.97	2.21	31.36	-	-	Peak
383.3	32.72	-13.28	46	45.79	15.67	2.49	31.23	-	-	Peak
511.4	33.13	-12.87	46	42.87	18.38	2.97	31.09	-	-	Peak
2348	48.36	-25.64	74	44.95	32.05	5.5	34.14	138	310	Peak
2348	36.86	-17.14	54	33.45	32.05	5.5	34.14	138	310	Average
2452	103.43	-	-	99.97	32.24	5.4	34.18	138	310	Peak
2452	92.83	-	-	89.38	32.22	5.41	34.18	138	310	Average
2483.5	62.43	-11.57	74	58.97	32.27	5.38	34.19	138	310	Peak
2483.5	50.15	-3.85	54	46.69	32.27	5.38	34.19	138	310	Average
8292	53.71	-20.29	74	42.77	36	10.04	35.1	100	114	Peak
8292	39.7	-14.3	54	28.76	36	10.04	35.1	100	114	Average



<b>Test Mode :</b>	Mode 12	<b>Temperature :</b>	24~25°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2452 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
51.33	35.02	-4.98	40	58.11	7.77	0.84	31.7	149	241	Peak
64.29	32.16	-7.84	40	56.74	6.19	0.93	31.7	-	-	Peak
106.41	30.92	-12.58	43.5	50.44	10.97	1.2	31.69	-	-	Peak
374.2	32.11	-13.89	46	45.45	15.44	2.47	31.25	-	-	Peak
500.2	29.5	-16.5	46	39.48	18.18	2.94	31.1	-	-	Peak
640.2	29.94	-16.06	46	37.14	20.38	3.38	30.96	-	-	Peak
2358	46.09	-27.91	74	42.66	32.08	5.49	34.14	148	302	Peak
2358	36.65	-17.35	54	33.22	32.08	5.49	34.14	148	302	Average
2452	100.13	-	-	96.68	32.22	5.41	34.18	148	302	Peak
2452	90.08	-	-	86.63	32.22	5.41	34.18	148	302	Average
2485.18	47.31	-6.69	54	43.85	32.27	5.38	34.19	148	302	Average
2485.18	59.85	-14.15	74	56.39	32.27	5.38	34.19	148	302	Peak
8304	53.06	-20.94	74	42.11	36	10.05	35.1	100	165	Peak
8304	38.91	-15.09	54	27.96	36	10.05	35.1	100	165	Average



## **3.8 Antenna Requirements**

### **3.8.1 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.

### **3.8.2 Antenna Connected Construction**

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

### **3.8.3 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	Due Date	Remark
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 05, 2009	Aug. 04, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz-30MHz	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz-30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2009	Oct. 30, 2010	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 04, 2009	Dec. 03, 2010	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 20, 2009	Aug. 19, 2010	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	15GHz- 40GHz	Oct. 14, 2009	Oct. 13, 2010	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec.09,2009	Dec. 08, 2010	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 27, 2009	Mar. 26, 2010	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 KHz~30 MHz	May 22, 2008	May 21, 2010	Radiation (03CH07-HY)
System Simulator	R&S	CMU200	117997	N/A	May 14, 2009	May 13, 2011	-

## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.13</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.26</b>		

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

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.27</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.54</b>		





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

Contribution	Uncertainty of $X_i$		$u(X_i)$	$C_i$	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>2.36</b>				
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>4.72</b>				



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP022705 as below.