

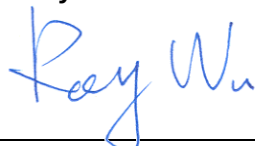
FCC RF Test Report

APPLICANT : ASUSTek Computer Inc.
EQUIPMENT : Eee Pad
BRAND NAME : ASUS
MODEL NAME : TF101; TF101G
FCC ID : MSQTF101AW
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Apr. 14, 2011 and completely tested on May 02, 2011. 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 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR120821-01B	Rev. 01	Initial issue of report	May 06, 2011
FR120821-01B	Rev. 02	Revise the report of FCC ID	May 13, 2011

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 6.4 dB at 0.54 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.95 dB at 2483.5 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

ASUSTek Computer Inc.

No. 15, Li-Te Rd., Peitou, Taipei 112, Taiwan

1.2 Manufacturer

1. PEGATRON CORPORATION Taoyuan Mfg.

No. 5, Shing Yeh St., Kwei Shan Hsiang, Taoyuan 333, Taiwan

2. Protek (Shanghai) Limited.

No. 3768, Xiu Yan Rd., Nanhui District, Shanghai, China

3. NorthTec Asis (Shanghai) Limited.

No. 3768, Xiuyan Rd., Kangqiao Town, Nanhui District, Shanghai 201319, China

4. Unihan Maitek Computer

No. 233, jinfeng Rd., Suzhou New District, Jiangsu Province 215011, China

5. ASKEY TECHNOLOGY (JIANGSU) LTD.

No. 1388, JiaoTong Road, WuJiang Economic-Technological Development Area, Jiangsu Province, P.R.C.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Eee Pad
Brand Name	ASUS
Model Name	TF101; TF101G
FCC ID	MSQTF101AW
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 17.81 dBm (0.06 W) 802.11g : 23.05 dBm (0.20 W) 802.11n (BW 20MHz) : 22.57 dBm (0.18 W)
Antenna Type	PIFA Antenna with gain 2.06 dBi
HW Version	1.2G
SW Version	ventana-img-20110121.092845
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark:

1. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
2. 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

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH05-HY	722060/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issue 8

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.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	LCD Monitor	DELL	U2410	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A

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	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	17.19	17.18	17.31	17.81
CH 06	2437 MHz	16.92	-	-	17.42
CH 11	2462 MHz	16.57	-	-	17.11

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	21.81	-	-	-	-	-	-	22.15
CH 06	2437 MHz	22.74	22.64	22.67	22.71	23.01	22.92	23.04	23.05
CH 11	2462 MHz	21.64	-	-	-	-	-	-	21.95

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		M0	M1	M2	M3	M4	M5	M6	M7
CH 01	2412 MHz	21.60	-	-	-	-	-	-	-
CH 06	2437 MHz	22.57	22.42	22.45	22.41	22.53	22.45	22.51	22.55
CH 11	2462 MHz	21.31	-	-	-	-	-	-	-

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 54Mbps for 802.11g, M0 for 802.11n (BW 20MHz) 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).

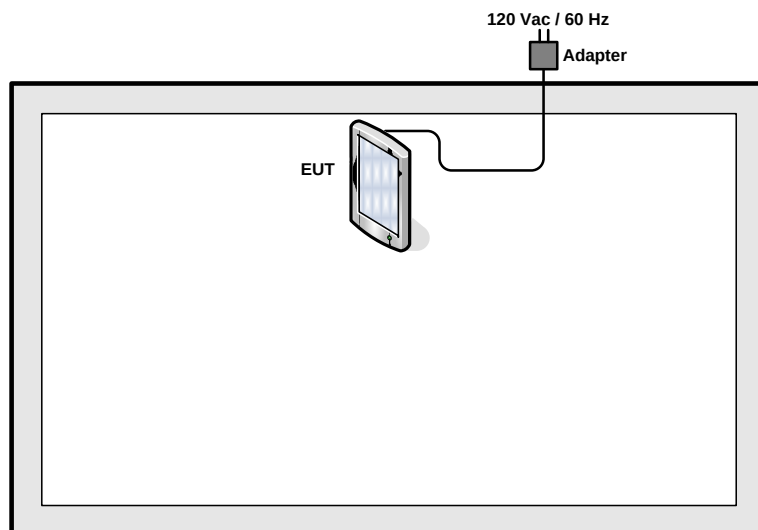
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

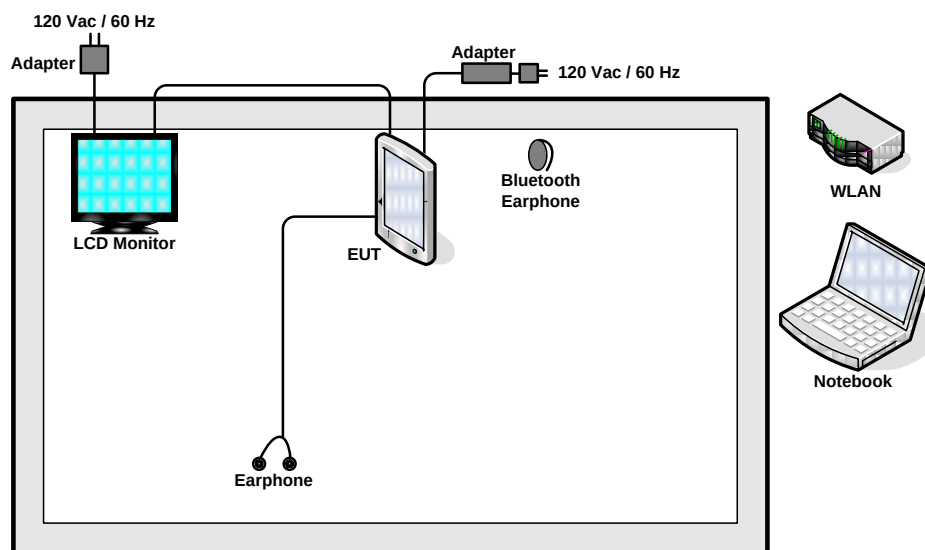
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
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
AC Conducted Emission	Mode 1 : WLAN Link + Bluetooth Link + TC + Adapter	
Remark: TC stands for Test Configuration, and consists of monitor, and earphone.		

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

The programmed RF utility “WLAN RF Test” is installed in EUT 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.

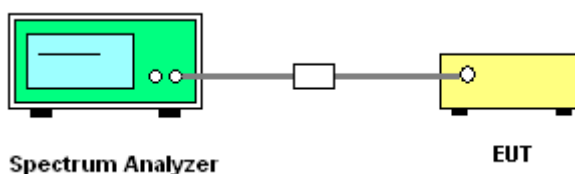
3.1.2 Measuring Instruments

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

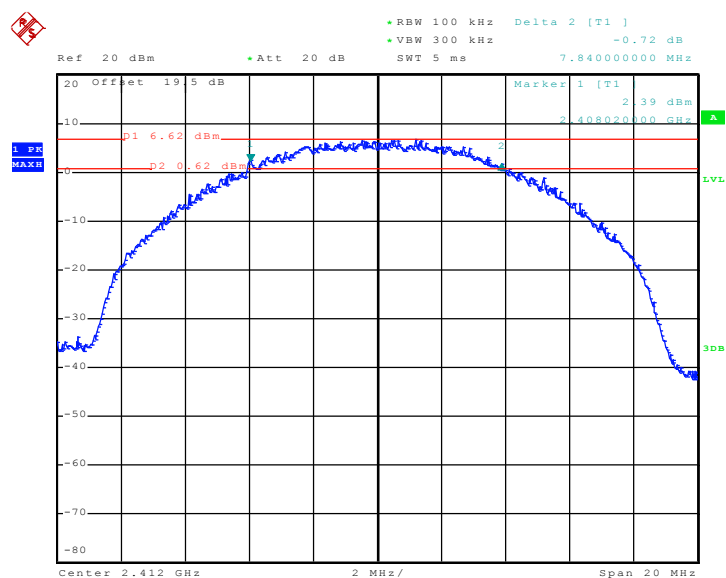


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.84	0.5	Pass
06	2437	8.08	0.5	Pass
11	2462	8.36	0.5	Pass

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



Date: 29.APR.2011 18:34:55



Date: 29.APR.2011 18:43:52

• RBW 100 kHz Delta 2 [T1]
• VBW 300 kHz -1.15 dB

Ref 20 dBm • Att 20 dB SWT 5 ms 8.360000000 MHz

20 Offset 19.5 dB

Marker 1 0 81 dBm
2 4.57980000 GHz

p1 5.58 dBm
p2 5.43 dBm

1. PR
MAX

Center 2.462 GHz 2 MHz/ Span 20 MHz

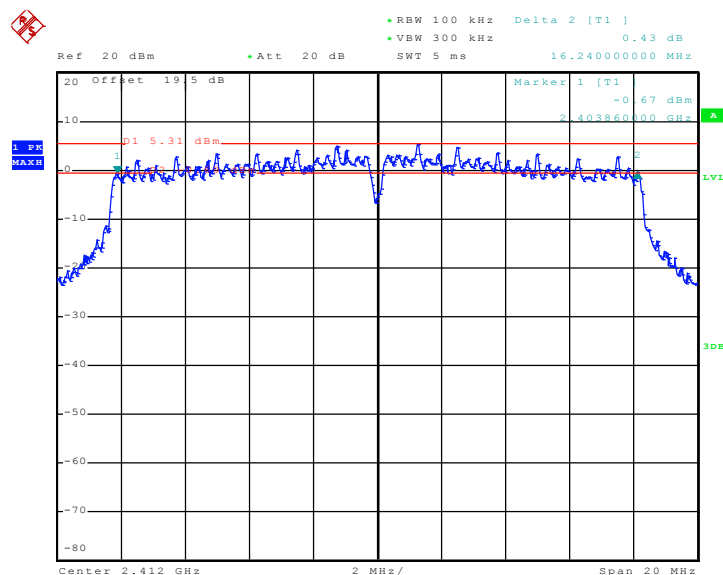
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Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.24	0.5	Pass
06	2437	15.98	0.5	Pass
11	2462	15.98	0.5	Pass

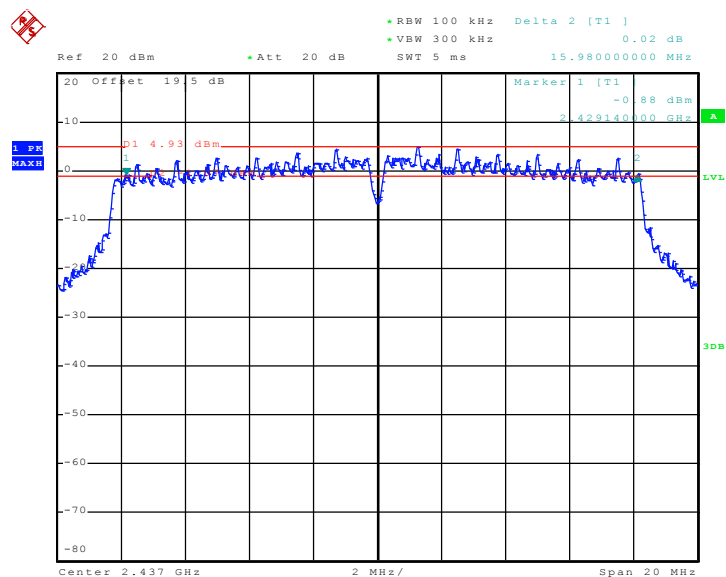
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



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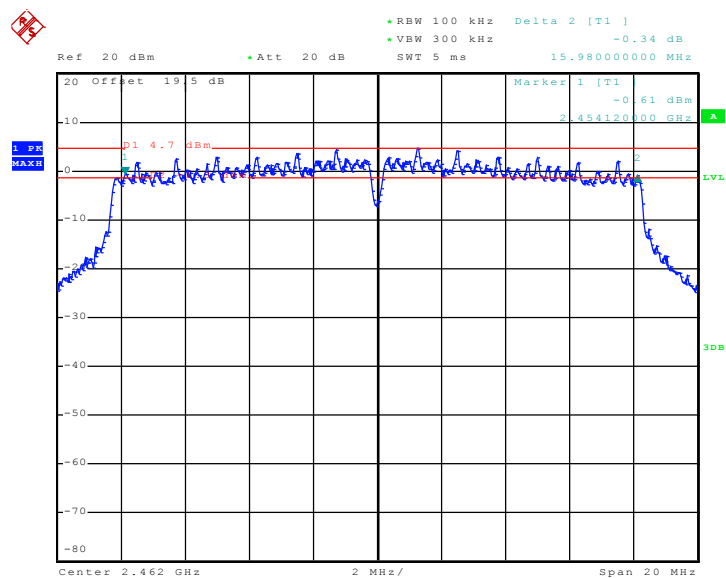


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



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



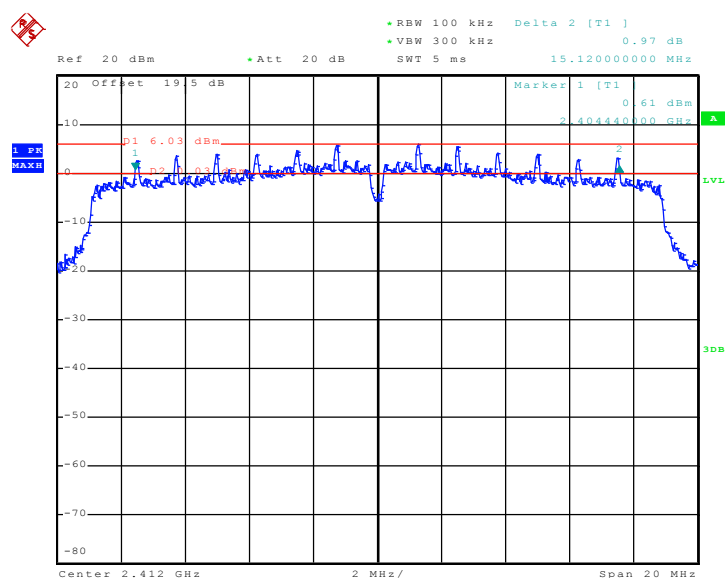
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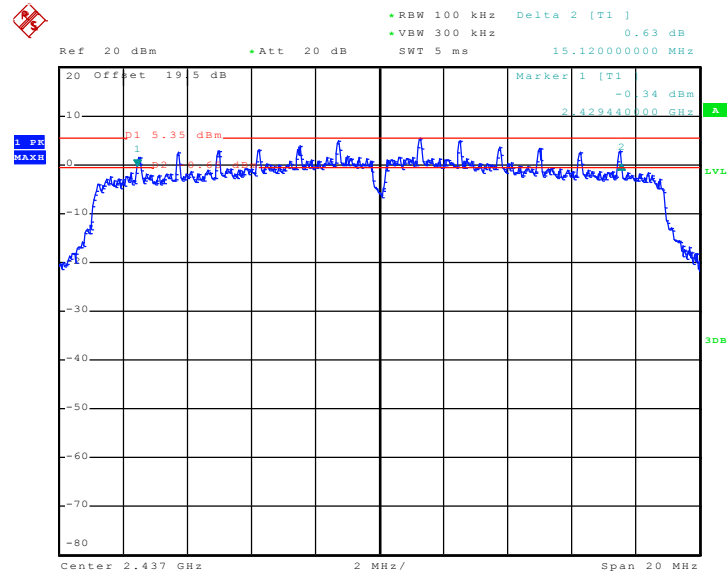
Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.12	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	15.10	0.5	Pass

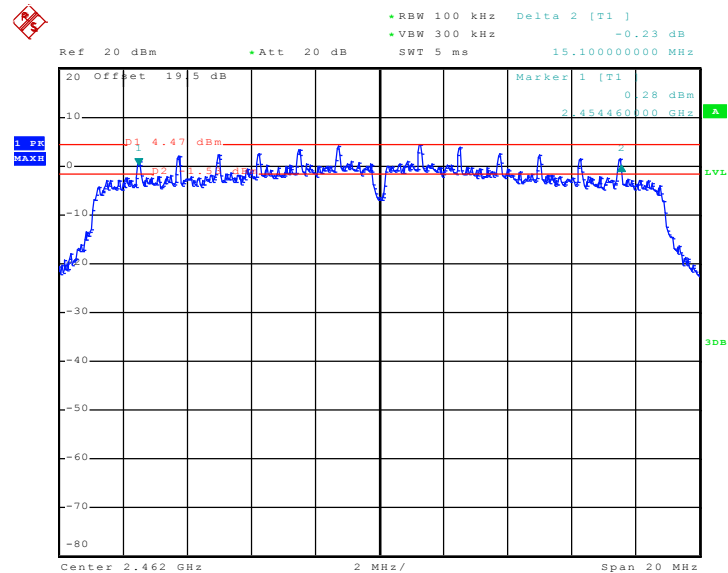
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 29.APR.2011 19:01:38

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


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


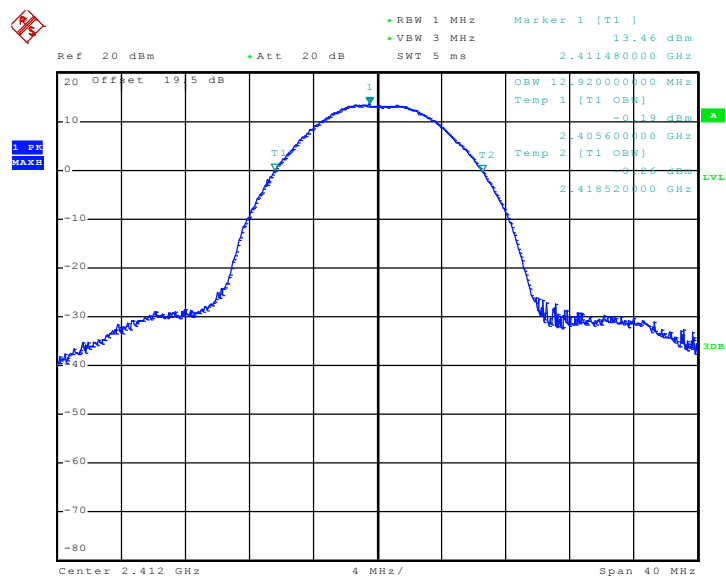
Date: 29.APR.2011 19:05:13

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	12.92	Pass
06	2437	12.88	Pass
11	2462	12.88	Pass

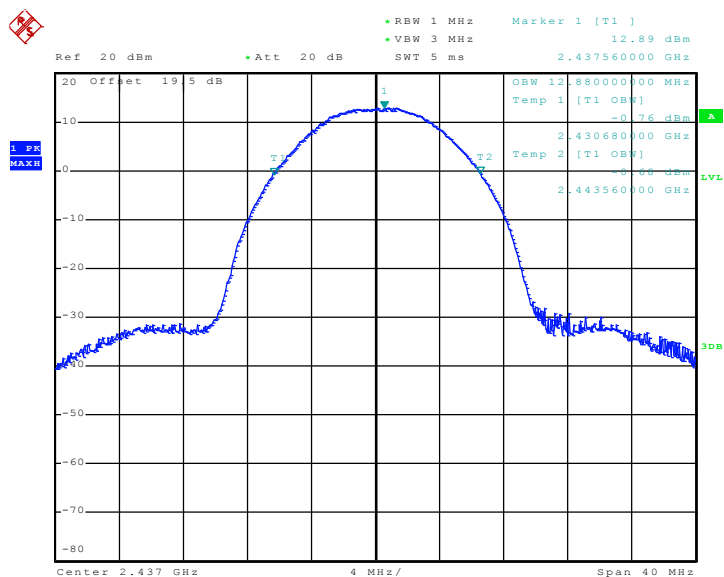
Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



Date: 29.APR.2011 18:36:30

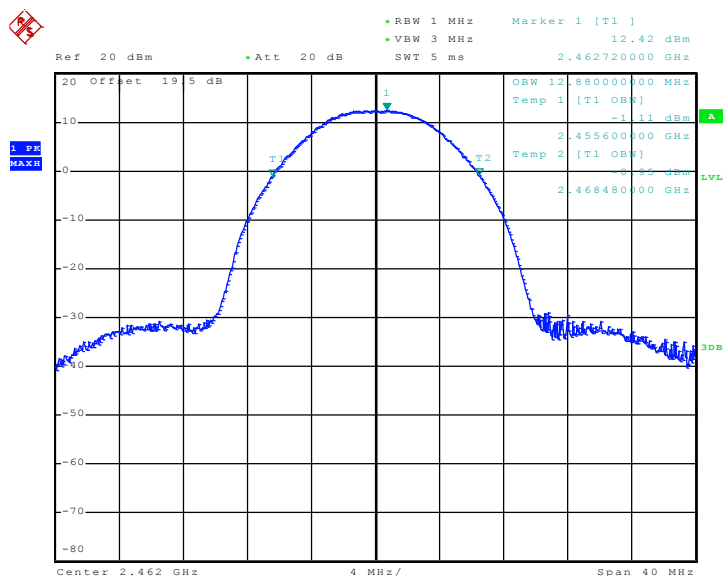


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



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



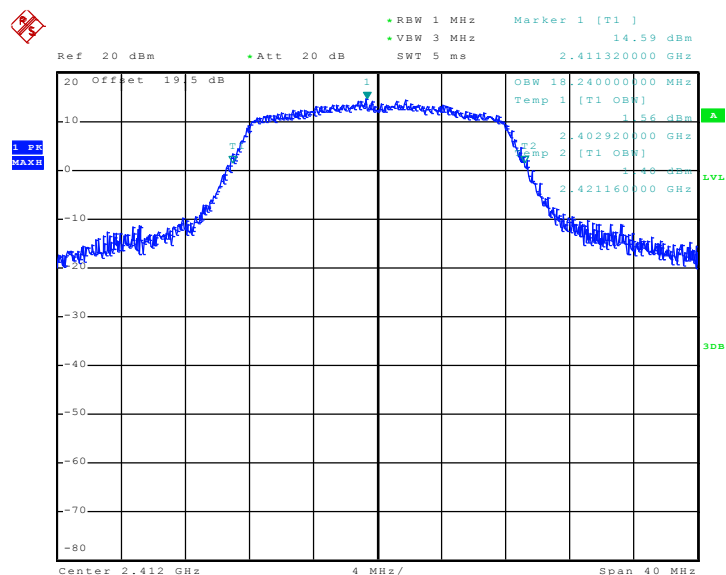
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Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.24	Pass
06	2437	18.08	Pass
11	2462	18.16	Pass

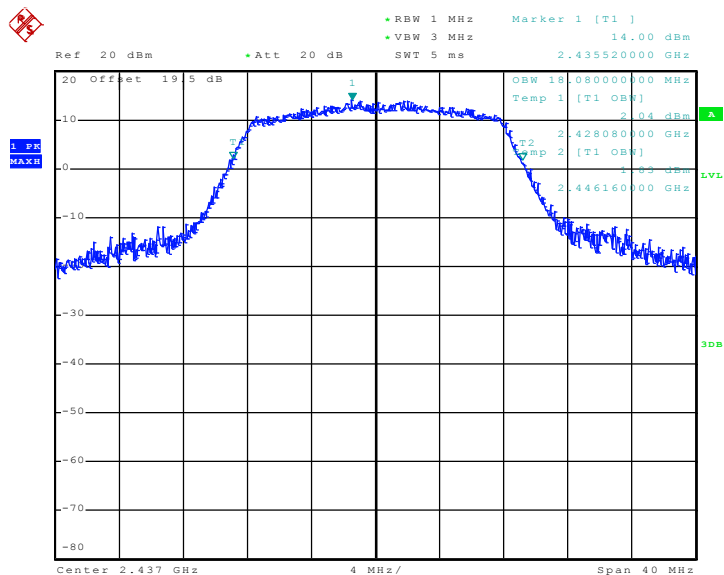
Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 29.APR.2011 18:59:53

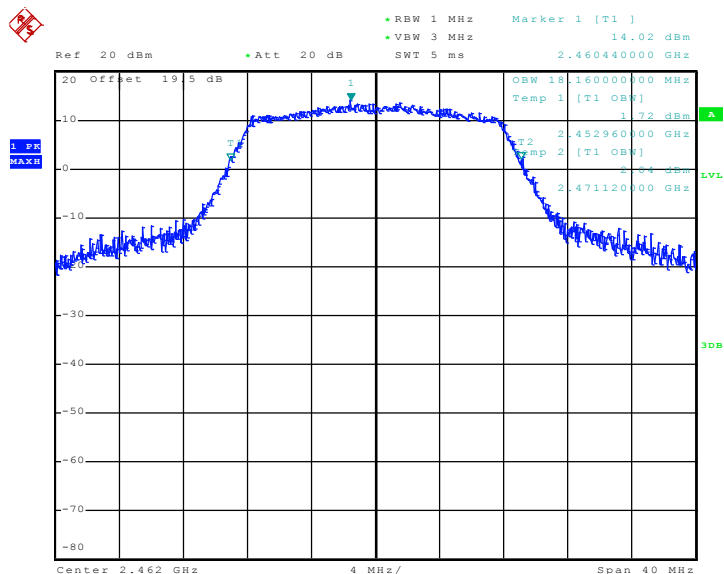


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



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



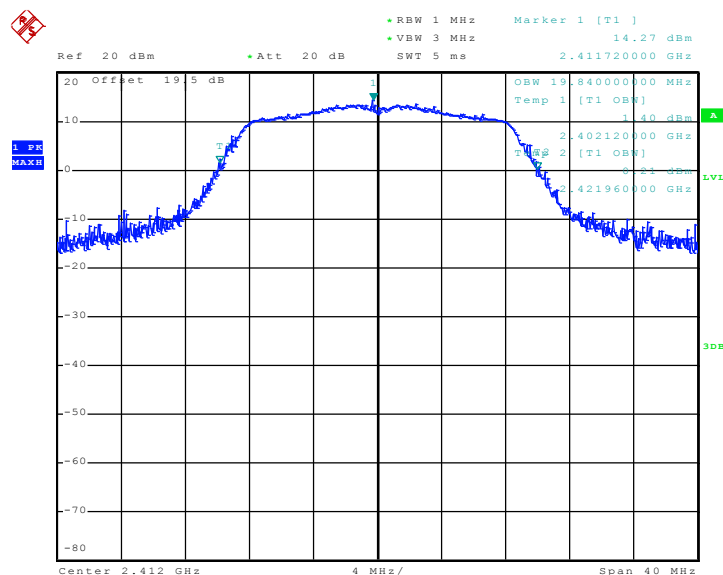
Date: 29.APR.2011 18:55:30



Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.84	Pass
06	2437	19.68	Pass
11	2462	19.72	Pass

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



Date: 29.APR.2011 19:03:13



Ref 20 dBm Att 20 dB RBW 1 MHz VBW 3 MHz SWT 5 ms Marker 1 [T1] 13.69 dBm 2.43448000 GHz

Offset 19.5 dB

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Date: 29.APR.2011 19:09:14

• RBW 1 MHz
 • VBW 3 MHz
 • SWT 5 ms

Marker 1 [T1]
 12.63 dBm
 2.46184000 GHz

Ref 20 dBm
 Att 20 dB

20 Off set 19.5 dB
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70
 -80

OBW 19.72000000 MHz
 Temp 1 [T1 OBW]
 0.57 dBm
 2.452120000 GHz
 Temp 2 [T1 OBW]
 0.47 dBm
 2.471840000 GHz

1 VPK
 MAXH

Center 2.462 GHz
 4 MHz/
 Span 40 MHz

Date: 29.APR.2011 19:06:26

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.

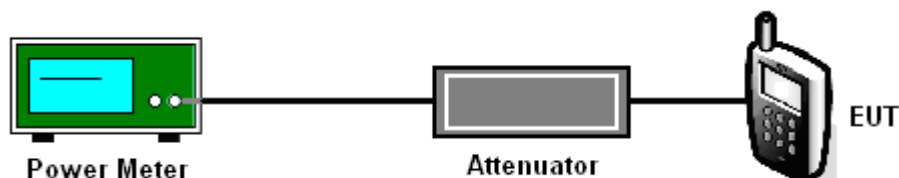
3.2.2 Measuring Instruments

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 :	24~26℃
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.81	30	Pass
06	2437	17.42	30	Pass
11	2462	17.11	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.15	30	Pass
06	2437	23.05	30	Pass
11	2462	21.95	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.60	30	Pass
06	2437	22.57	30	Pass
11	2462	21.31	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

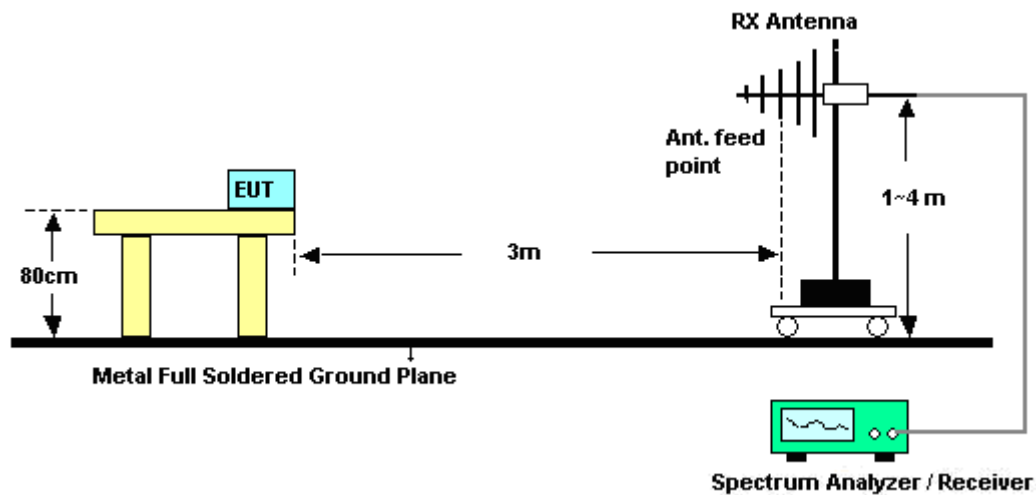
See list of measuring instruments of this test report.

3.3.3 Test Procedures

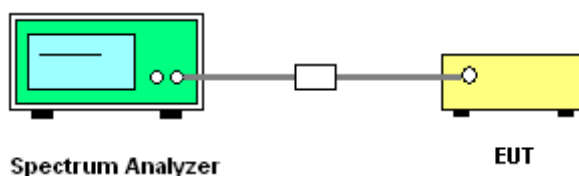
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	22~24℃
Test Band :	802.11b	Relative Humidity :	45~51%
Test Channel :	01	Test Engineer :	David Yang

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
2389.8	48.15	-25.85	74	46.03	31.7	4.5	34.08	100	329	Peak
2389.8	35.18	-18.82	54	33.06	31.7	4.5	34.08	100	329	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	53.72	-20.28	74	51.6	31.7	4.5	34.08	102	351	Peak
2389.99	39.87	-14.13	54	37.75	31.7	4.5	34.08	102	351	Average

Test Mode :	Mode 3	Temperature :	22~24℃
Test Band :	802.11b	Relative Humidity :	45~51%
Test Channel :	11	Test Engineer :	David Yang

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
2486.89	45.7	-28.3	74	43.41	31.78	4.59	34.08	119	334	Peak
2486.89	33.36	-20.64	54	31.07	31.78	4.59	34.08	119	334	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	54.48	-19.52	74	52.19	31.78	4.59	34.08	100	355	Peak
2483.5	37.81	-16.19	54	35.52	31.78	4.59	34.08	100	355	Average



Test Mode :	Mode 4	Temperature :	22~24℃
Test Band :	802.11g	Relative Humidity :	45~51%
Test Channel :	01	Test Engineer :	David Yang

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
2385.81	63.65	-10.35	74	61.56	31.7	4.47	34.08	100	329	Peak
2385.81	37.49	-16.51	54	35.4	31.7	4.47	34.08	100	329	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
2389.8	70.25	-3.75	74	68.13	31.7	4.5	34.08	100	353	Peak
2389.8	40.41	-13.59	54	38.29	31.7	4.5	34.08	100	353	Average

Test Mode :	Mode 6	Temperature :	22~24℃
Test Band :	802.11g	Relative Humidity :	45~51%
Test Channel :	11	Test Engineer :	David Yang

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	60.83	-13.17	74	58.54	31.78	4.59	34.08	146	52	Peak
2483.66	35.75	-18.25	54	33.46	31.78	4.59	34.08	146	52	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	73.05	-0.95	74	70.76	31.78	4.59	34.08	100	352	Peak
2483.5	41	-13	54	38.71	31.78	4.59	34.08	100	352	Average



Test Mode :	Mode 7	Temperature :	22~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~51%
Test Channel :	01	Test Engineer :	David Yang

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
2387.14	67.87	-6.13	74	65.78	31.7	4.47	34.08	100	333	Peak
2387.14	44	-10	54	41.91	31.7	4.47	34.08	100	333	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
2389.8	73.01	-0.99	74	70.89	31.7	4.5	34.08	100	355	Peak
2389.8	49.85	-4.15	54	47.73	31.7	4.5	34.08	100	355	Average

Test Mode :	Mode 9	Temperature :	22~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~51%
Test Channel :	11	Test Engineer :	David Yang

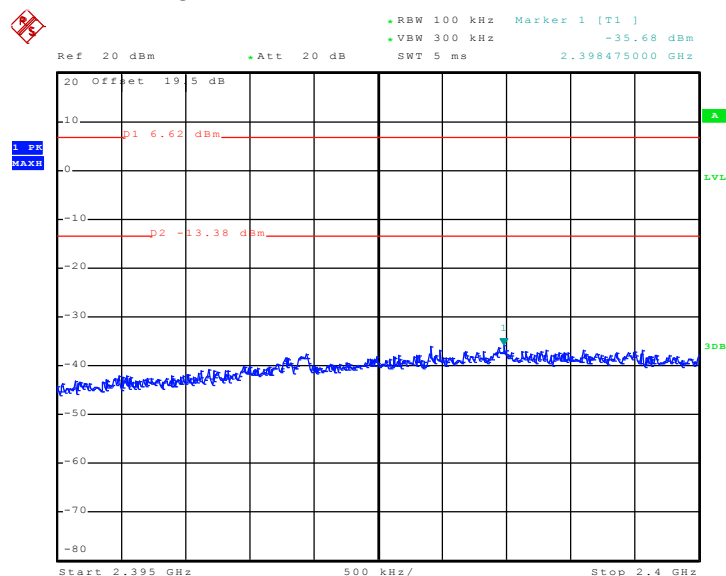
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.37	61.24	-12.76	74	58.95	31.78	4.59	34.08	146	52	Peak
2485.37	38.85	-15.15	54	36.56	31.78	4.59	34.08	146	52	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
2484.04	71.7	-2.3	74	69.41	31.78	4.59	34.08	100	352	Peak
2484.04	47.8	-6.2	54	45.51	31.78	4.59	34.08	100	352	Average

3.3.6 Test Plots of Conducted Band Edges

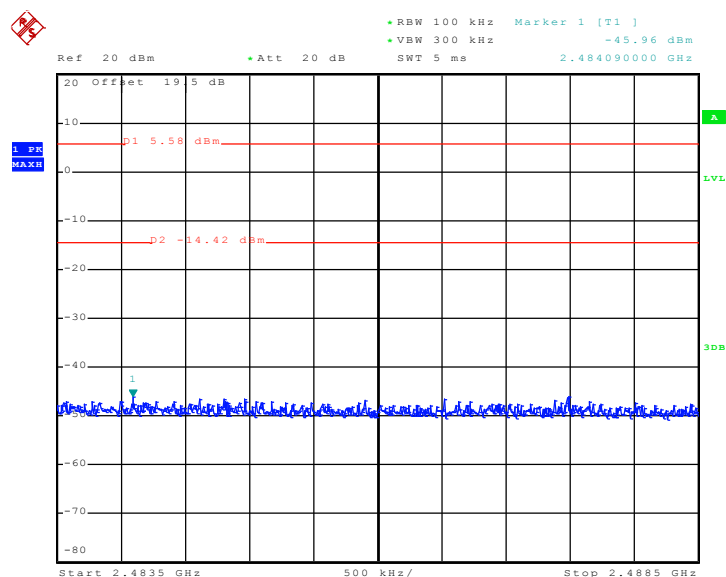
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11b Channel 01



Date: 29.APR.2011 18:36:04

High Band Edge Plot on 802.11b Channel 11

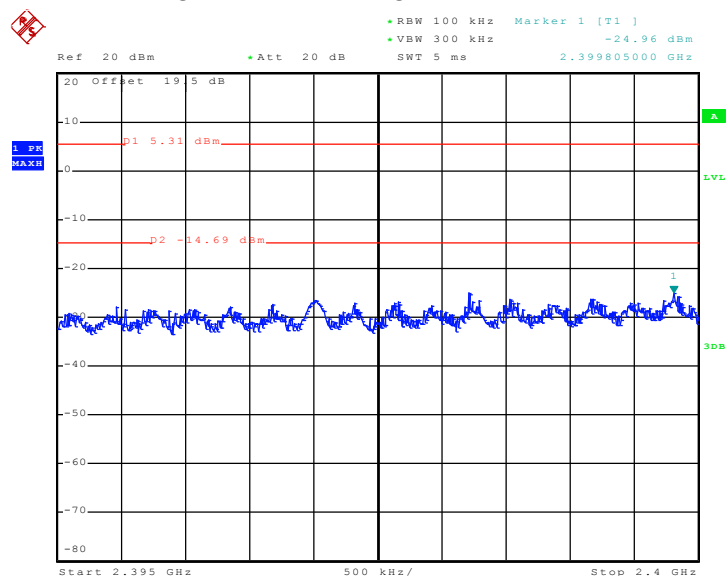


Date: 29.APR.2011 18:41:43



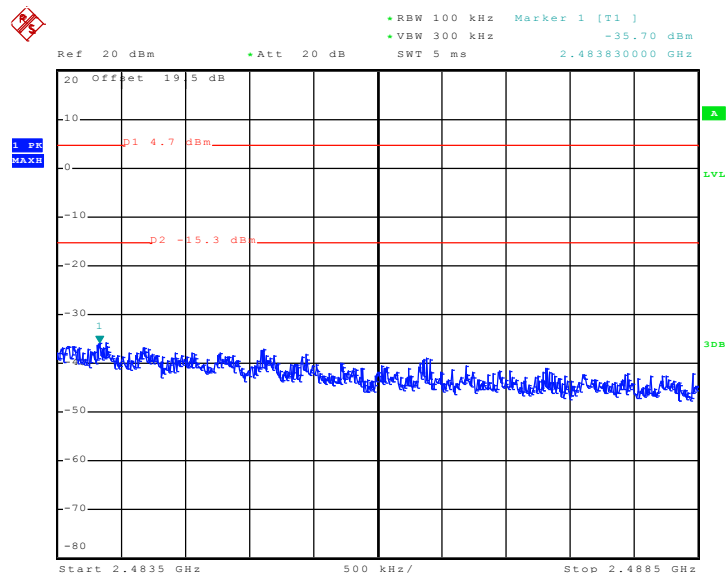
Test Mode :	Mode 4 and 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11g Channel 01



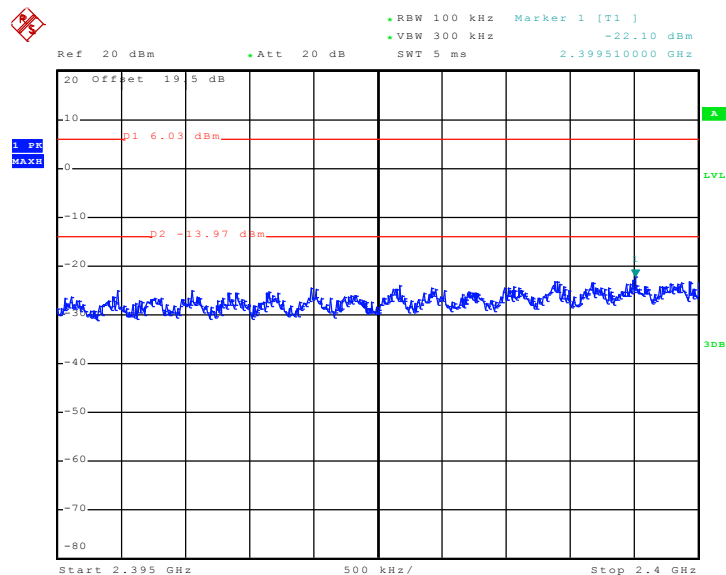
Date: 29.APR.2011 18:59:27

High Band Edge Plot on 802.11g Channel 11

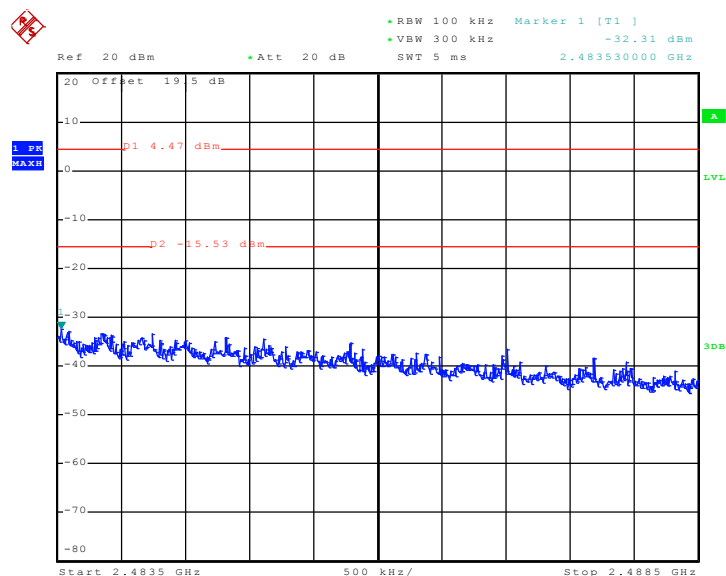


Date: 29.APR.2011 18:55:04

Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

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


Date: 29.APR.2011 19:02:47

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


Date: 29.APR.2011 19:06:00

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

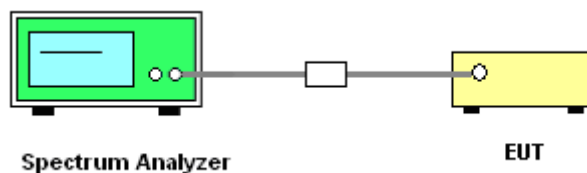
3.4.2 Measuring Instruments

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.

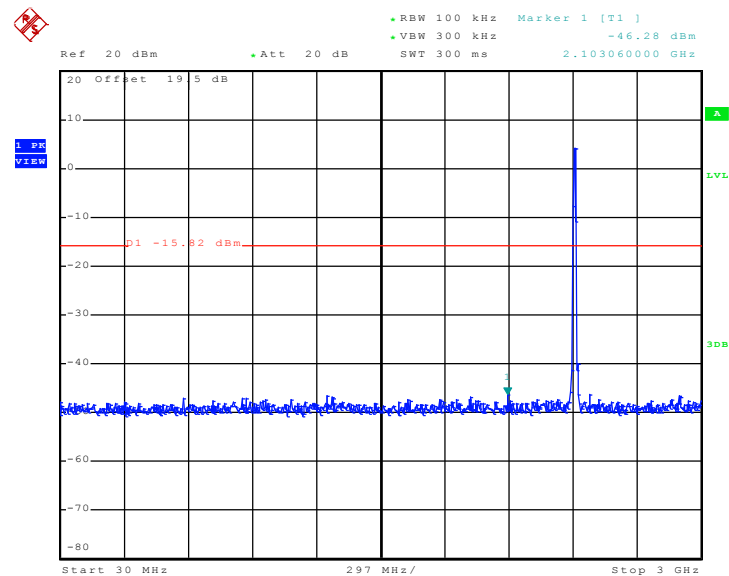
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

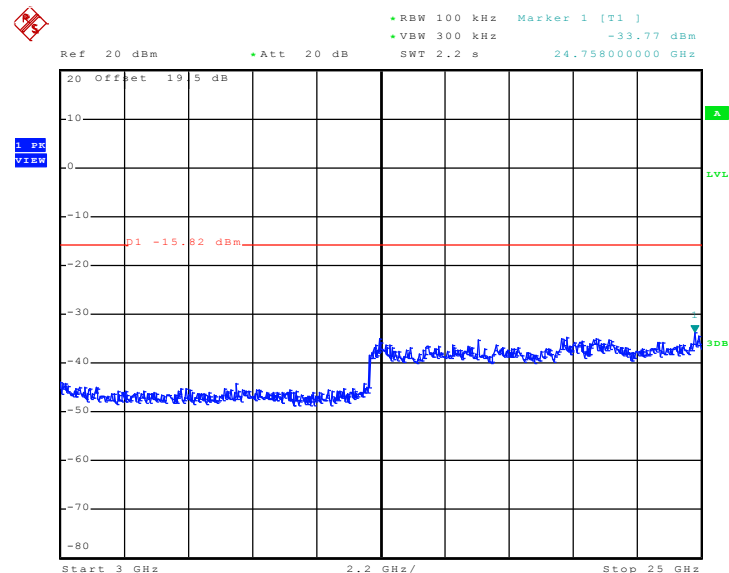
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.APR.2011 20:15:48

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

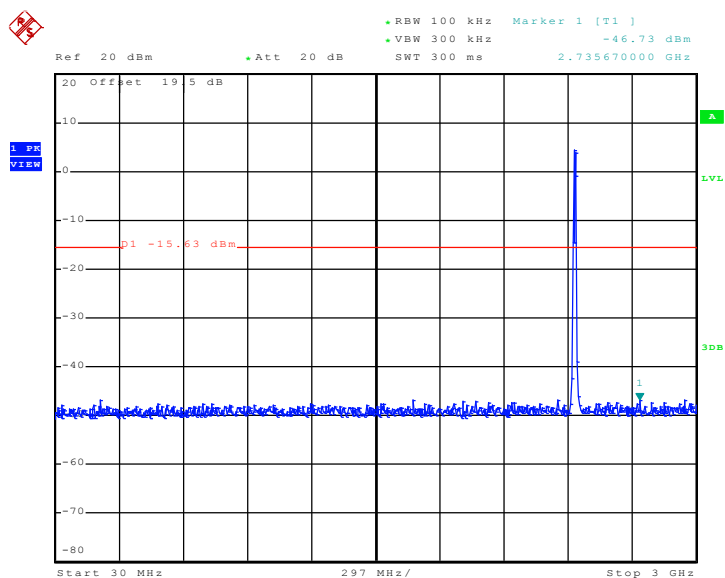


Date: 29.APR.2011 20:16:05



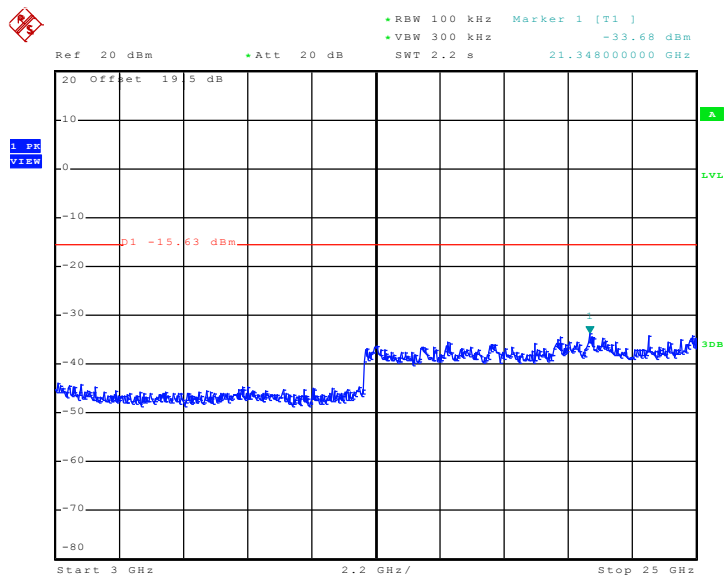
Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.APR.2011 20:11:54

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

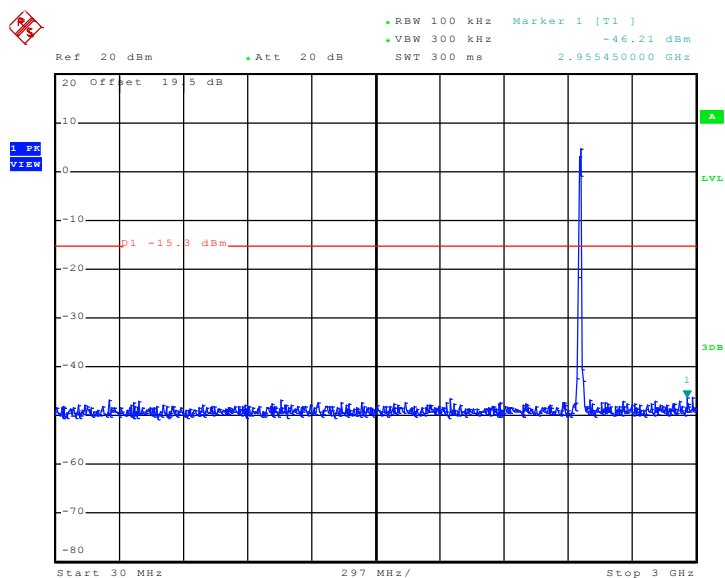


Date: 29.APR.2011 20:12:13



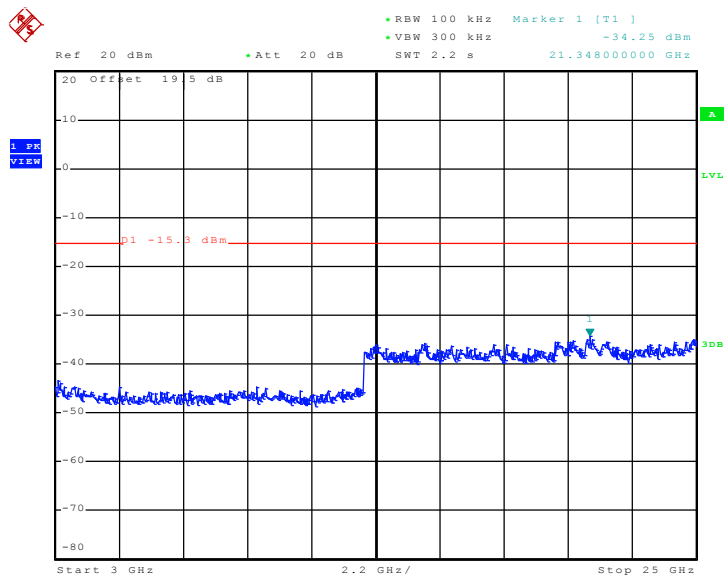
Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.APR.2011 20:05:47

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

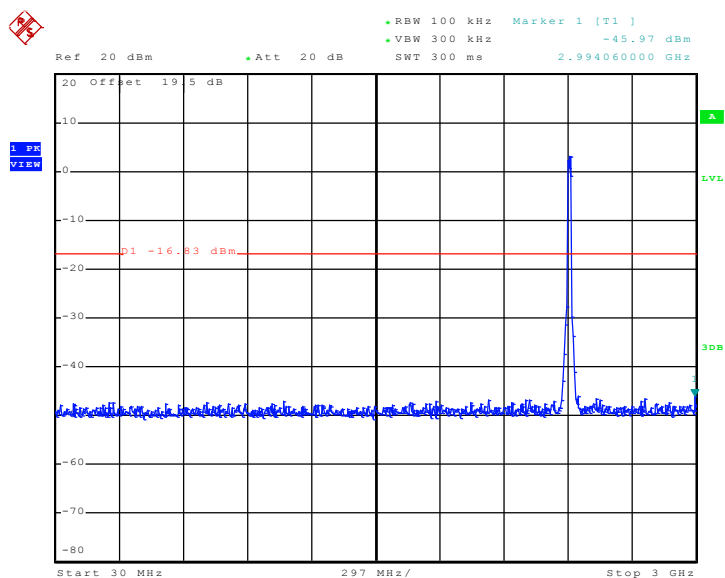


Date: 29.APR.2011 20:06:04



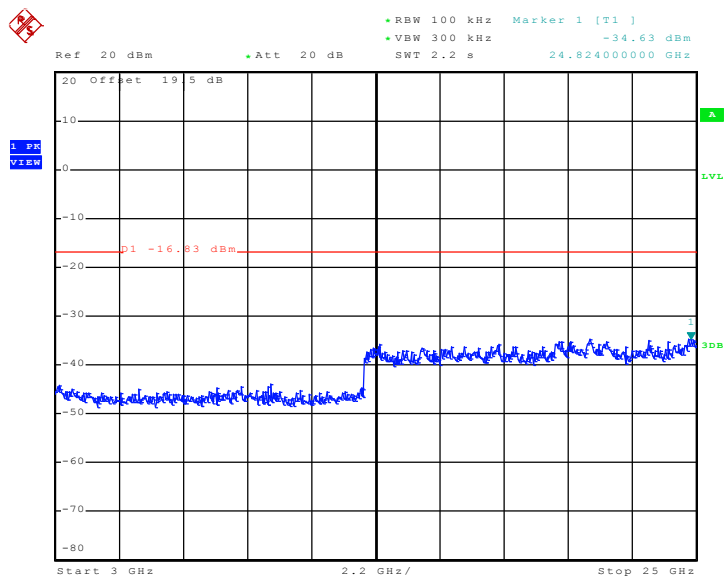
Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.APR.2011 20:17:51

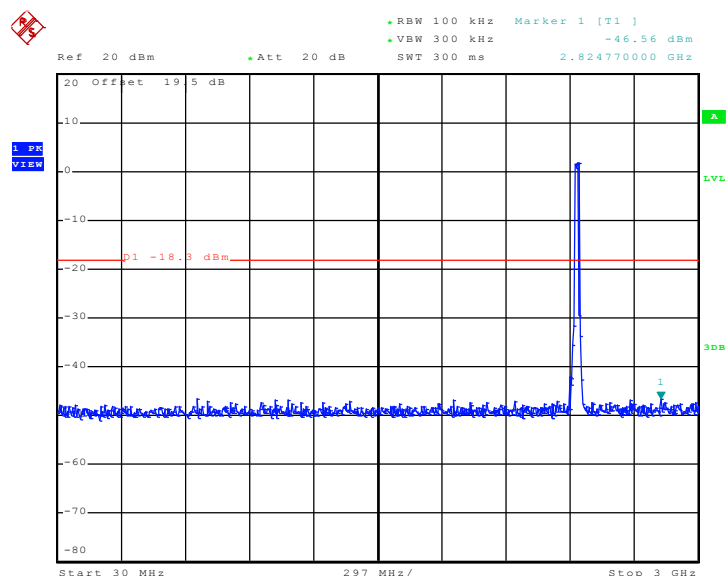
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



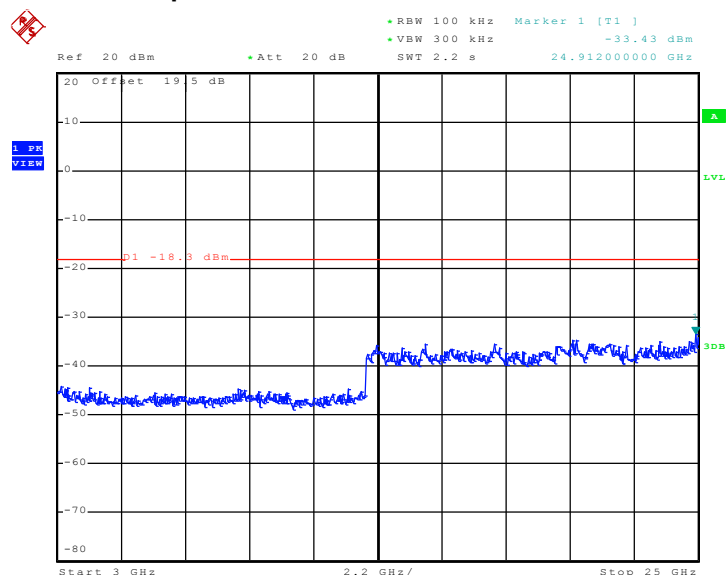
Date: 29.APR.2011 20:18:08



Test Mode :	Mode 5	Temperature :	24~26
Test Band :	802.11g	Relative Humidity :	50~53
Test Channel :	06	Test Engineer :	Hank Yu



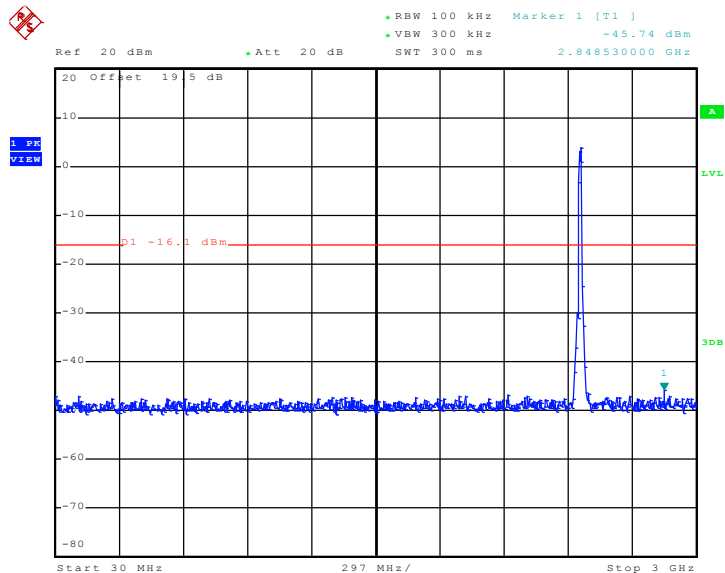
Date: 29.APR.2011 20:18:48



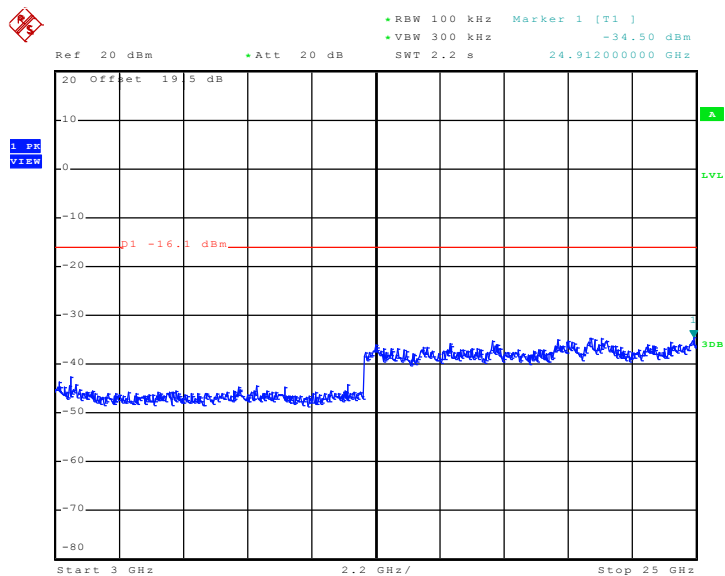
Date: 29.APR.2011 20:19:05



Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Hank Yu

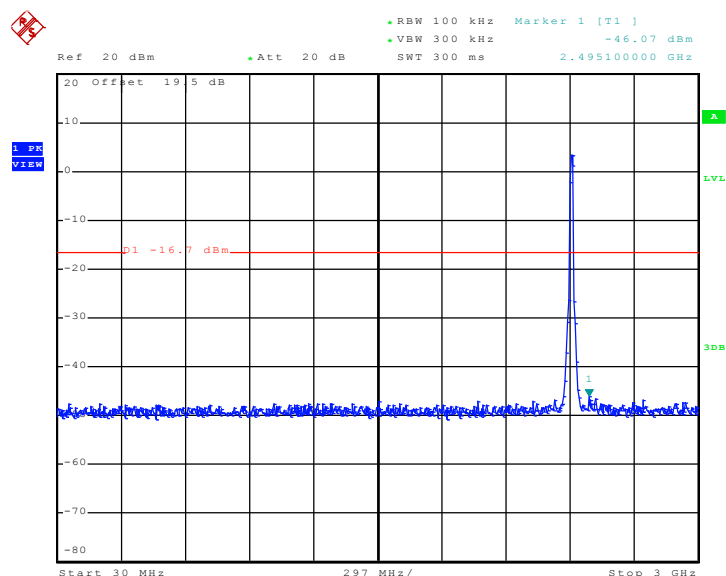
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

Date: 29.APR.2011 20:20:03

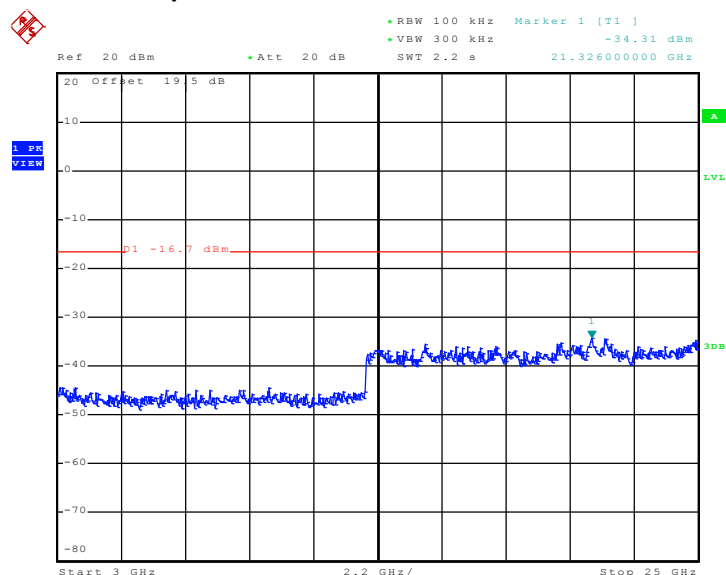
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

Date: 29.APR.2011 20:20:20

Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 29.APR.2011 20:24:28

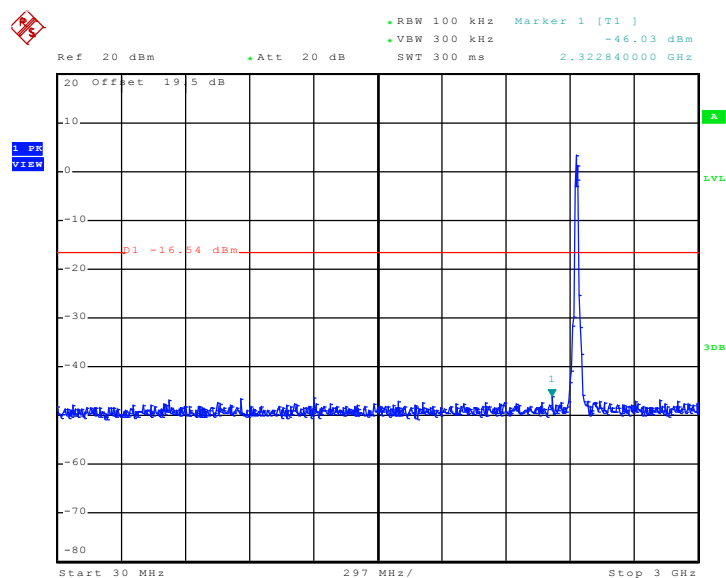
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 29.APR.2011 20:24:45



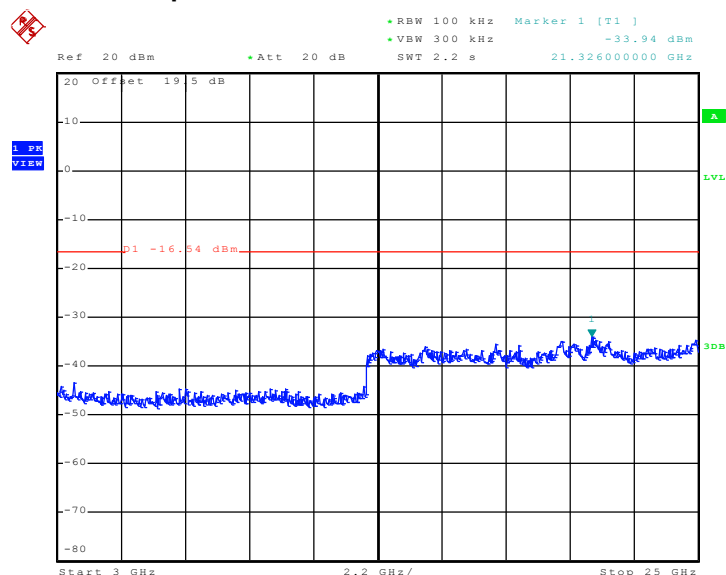
Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.APR.2011 20:23:00

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

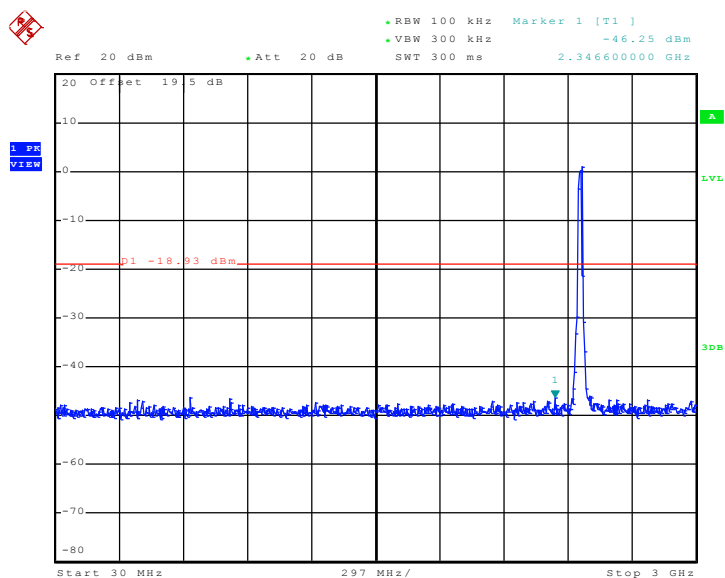


Date: 29.APR.2011 20:23:17



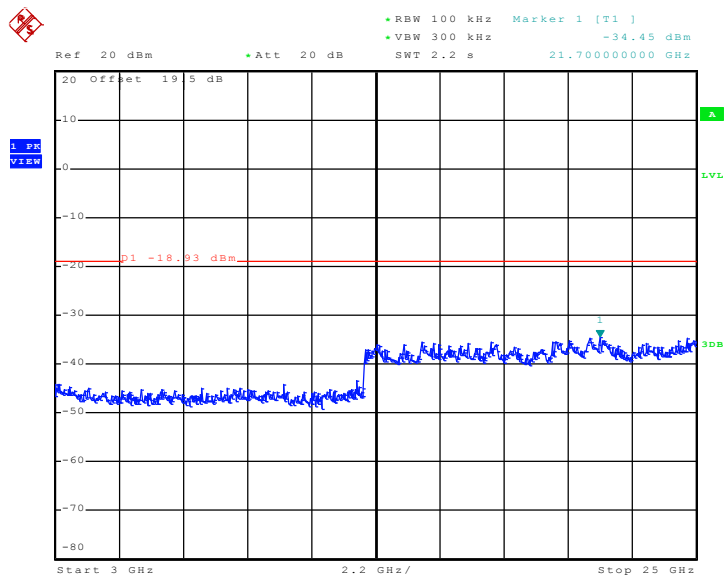
Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.APR.2011 20:21:01

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 29.APR.2011 20:21:18

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.

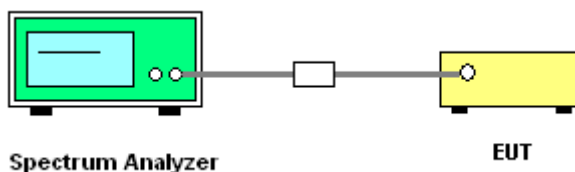
3.5.2 Measuring Instruments

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

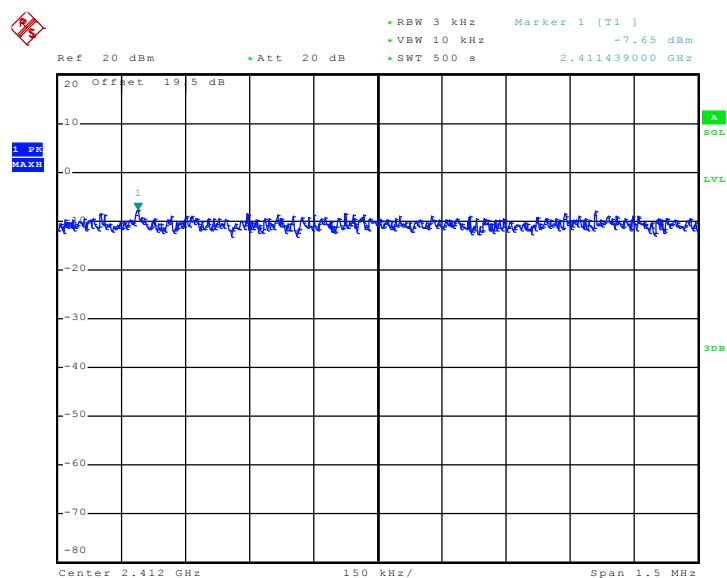


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-7.65	8	Pass
06	2437	-8.45	8	Pass
11	2462	-8.75	8	Pass

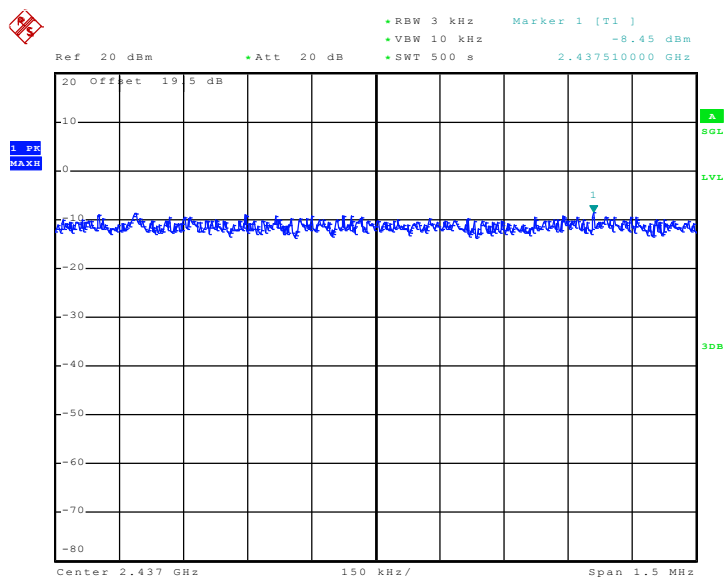
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 29.APR.2011 20:25:36

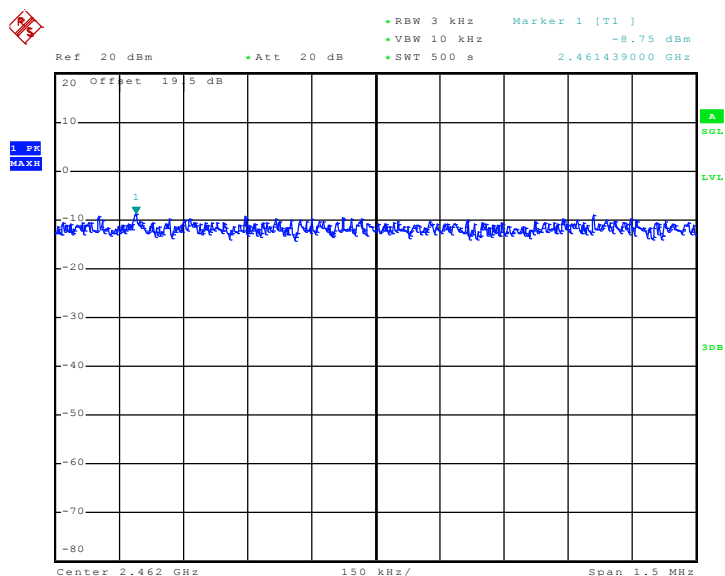


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 29.APR.2011 20:34:20

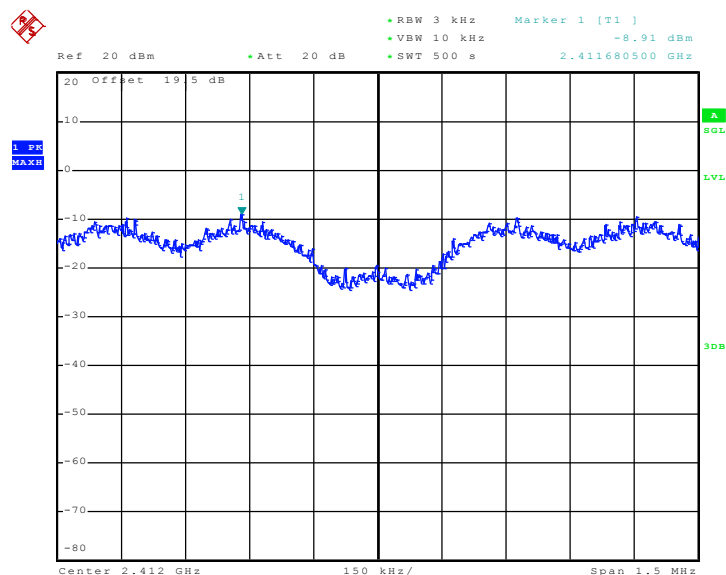
Mode 3 : PSD Plot on 802.11b Channel 11



Date: 29.APR.2011 20:44:54

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

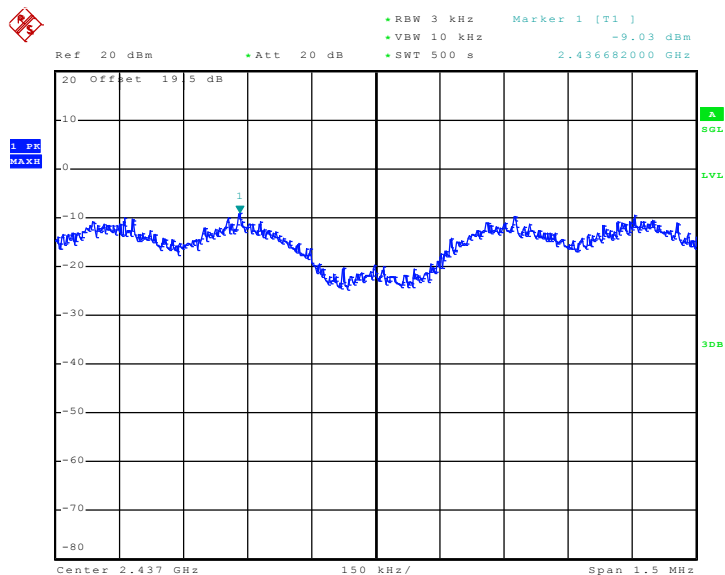
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.91	8	Pass
06	2437	-9.03	8	Pass
11	2462	-9.88	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 29.APR.2011 20:15:52

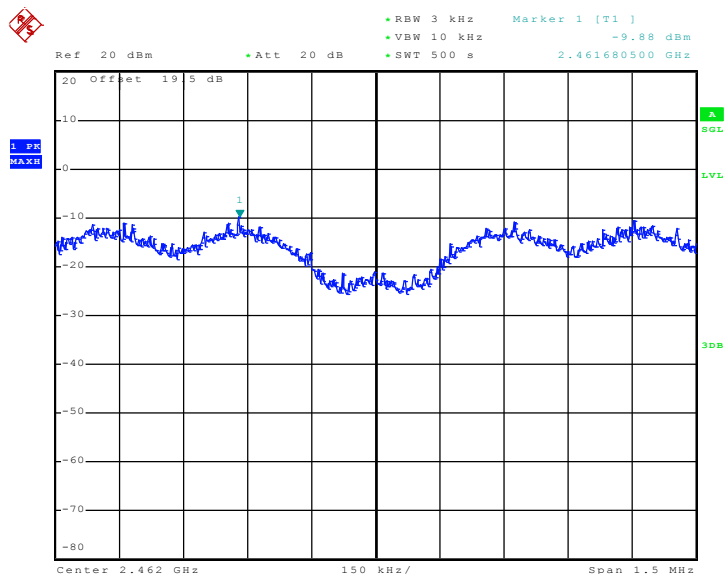


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 29.APR.2011 20:07:02

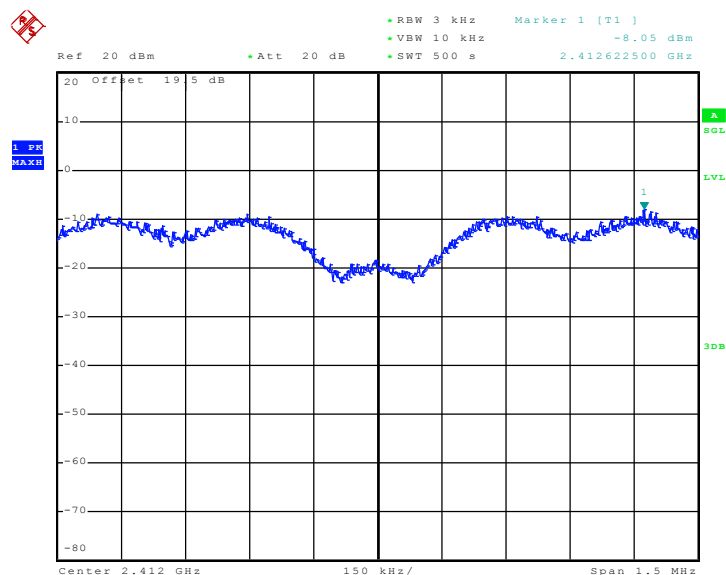
Mode 6 : PSD Plot on 802.11g Channel 11



Date: 29.APR.2011 19:57:42

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

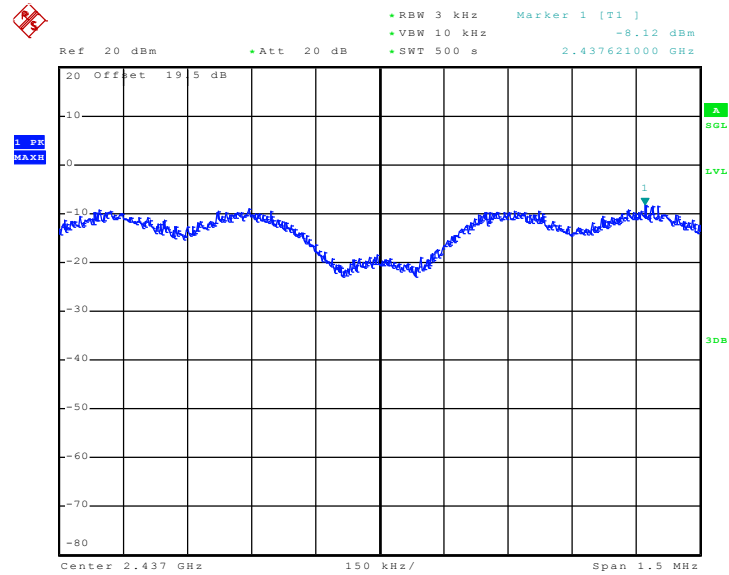
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.05	8	Pass
06	2437	-8.12	8	Pass
11	2462	-8.81	8	Pass

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


Date: 29.APR.2011 19:26:58

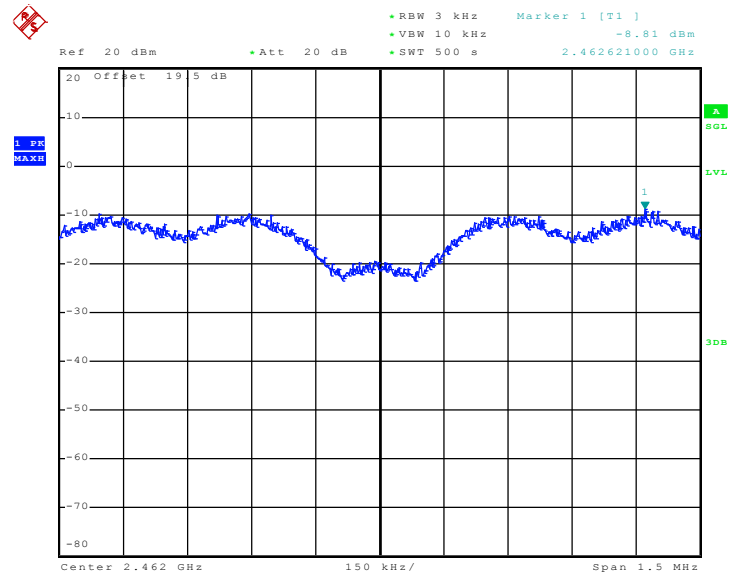


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 29.APR.2011 19:18:14

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



Date: 29.APR.2011 19:35:53

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.

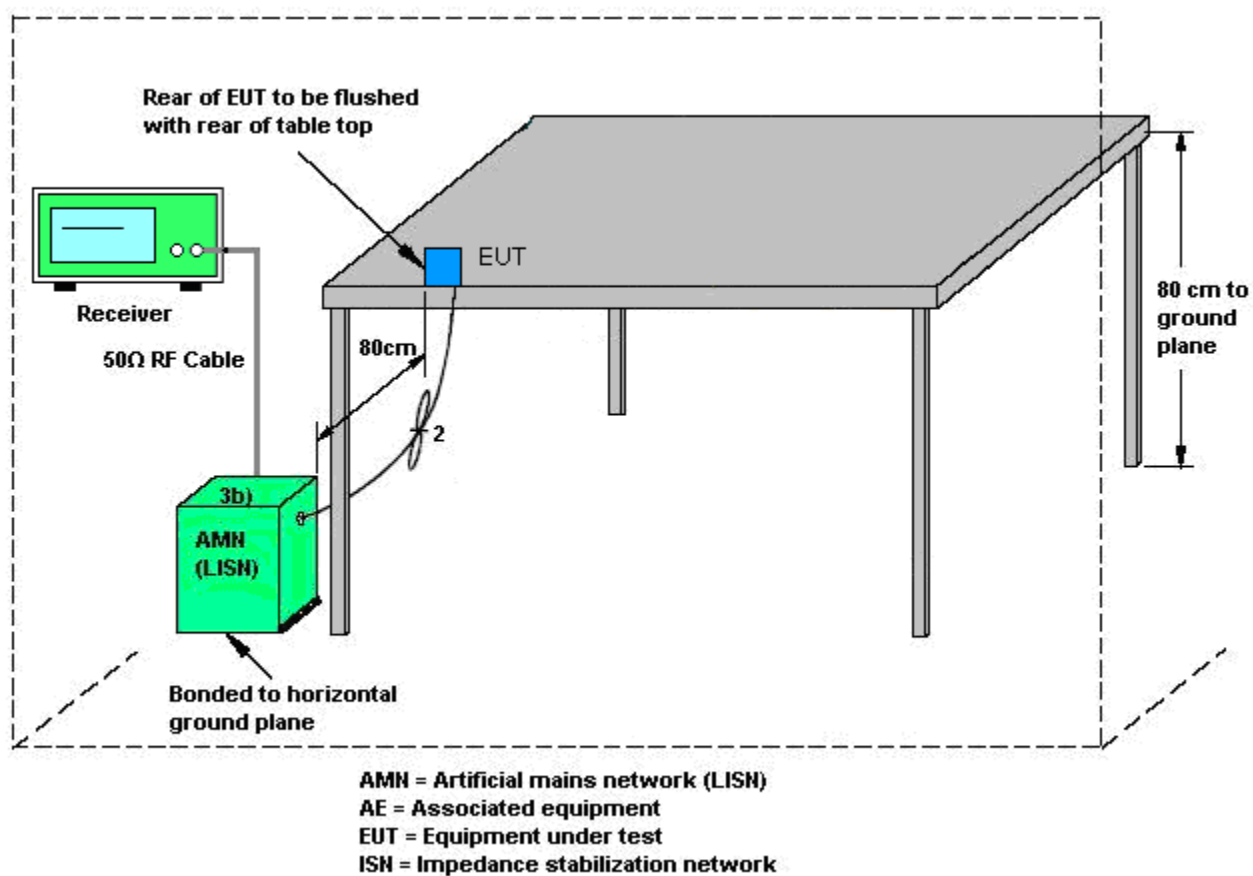
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

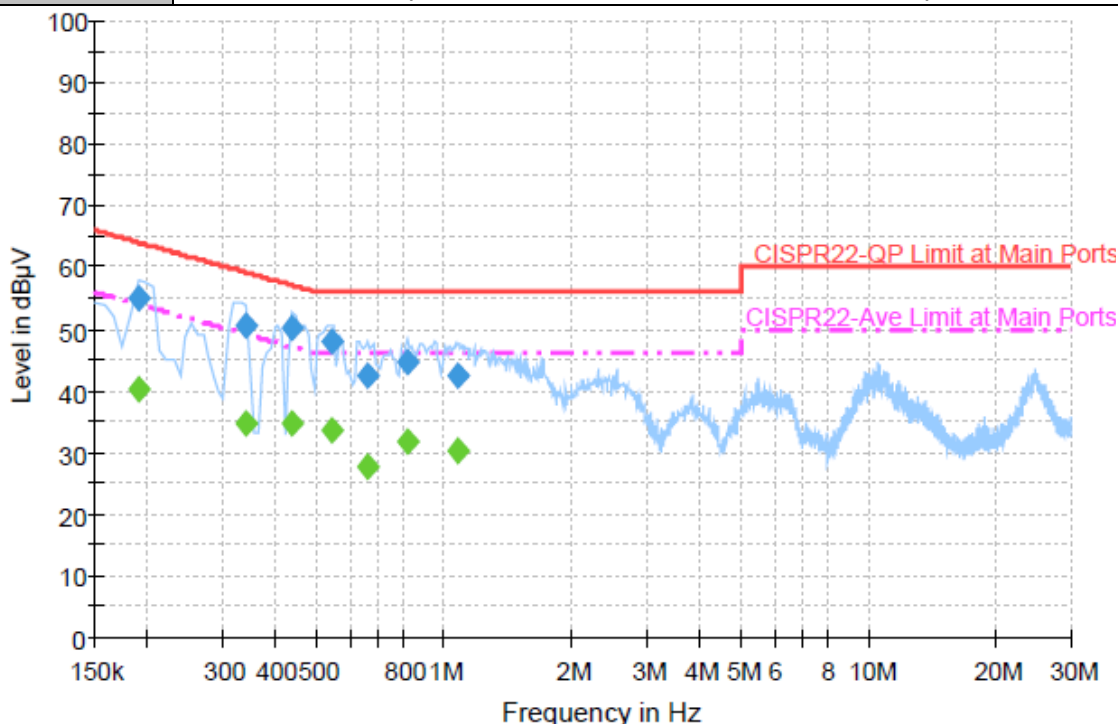
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + TC + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



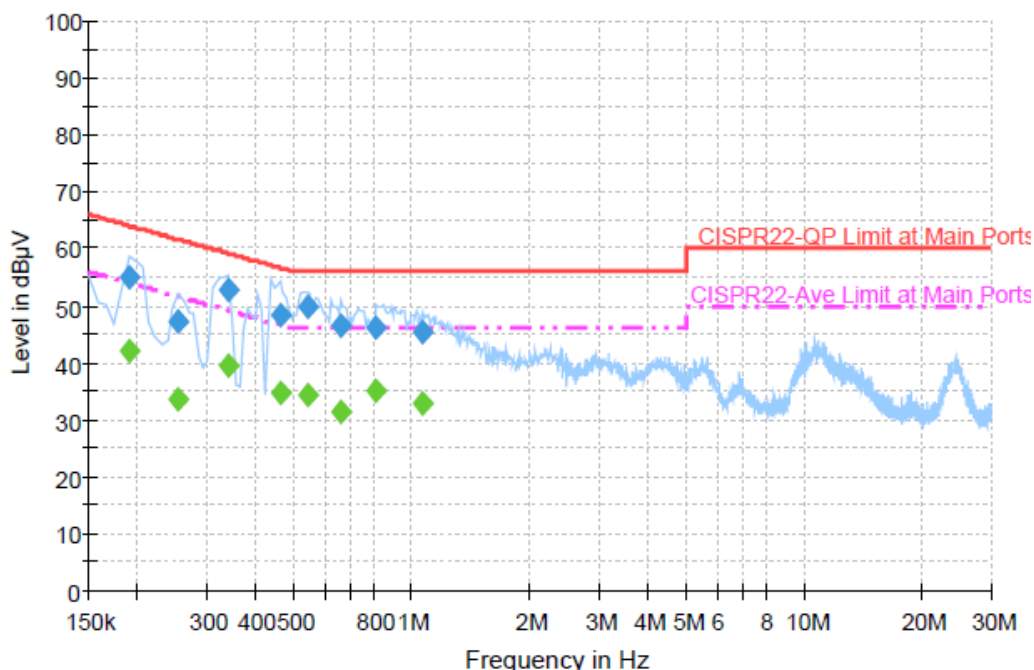
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	55.0	Off	L1	19.4	9.0	64.0
0.342000	50.6	Off	L1	19.4	8.6	59.2
0.438000	50.1	Off	L1	19.5	7.0	57.1
0.542000	47.8	Off	L1	19.4	8.2	56.0
0.662000	42.4	Off	L1	19.4	13.6	56.0
0.822000	44.8	Off	L1	19.4	11.2	56.0
1.078000	42.5	Off	L1	19.4	13.5	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	40.1	Off	L1	19.4	13.9	54.0
0.342000	34.8	Off	L1	19.4	14.4	49.2
0.438000	34.7	Off	L1	19.5	12.4	47.1
0.542000	33.5	Off	L1	19.4	12.5	46.0
0.662000	27.9	Off	L1	19.4	18.1	46.0
0.822000	31.8	Off	L1	19.4	14.2	46.0
1.078000	30.4	Off	L1	19.4	15.6	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + TC + Adapter		
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)
0.190000	55.1	Off	N	19.4	8.9	64.0
0.254000	47.4	Off	N	19.4	14.2	61.6
0.342000	52.6	Off	N	19.4	6.6	59.2
0.462000	48.3	Off	N	19.4	8.4	56.7
0.542000	49.6	Off	N	19.4	6.4	56.0
0.662000	46.4	Off	N	19.4	9.6	56.0
0.814000	46.2	Off	N	19.4	9.8	56.0
1.062000	45.4	Off	N	19.5	10.6	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	42.0	Off	N	19.4	12.0	54.0
0.254000	33.4	Off	N	19.4	18.2	51.6
0.342000	39.3	Off	N	19.4	9.9	49.2
0.462000	34.7	Off	N	19.4	12.0	46.7
0.542000	34.1	Off	N	19.4	11.9	46.0
0.662000	31.5	Off	N	19.4	14.5	46.0
0.814000	35.0	Off	N	19.4	11.0	46.0
1.062000	32.9	Off	N	19.5	13.1	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

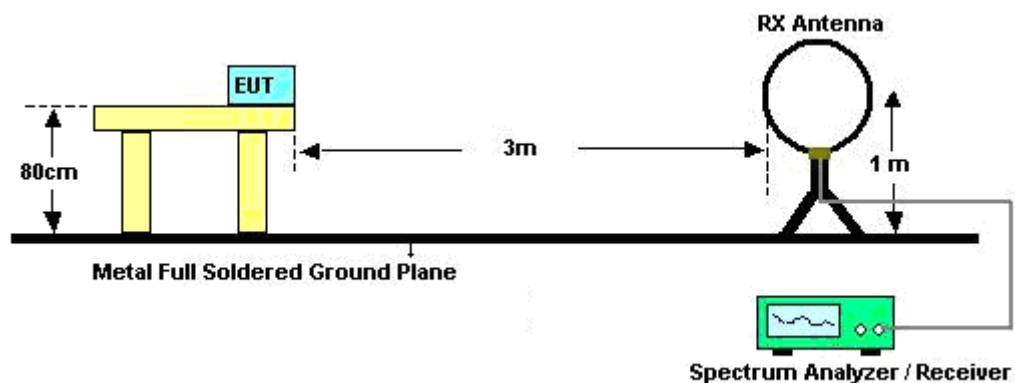
See list of measuring instruments of this test report.

3.7.3 Test Procedures

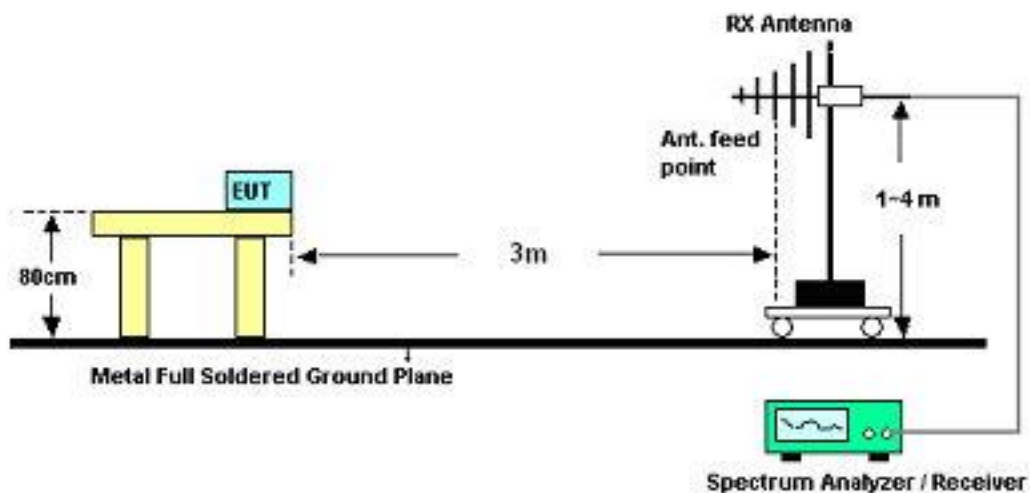
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = 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.

3.7.4 Test Setup

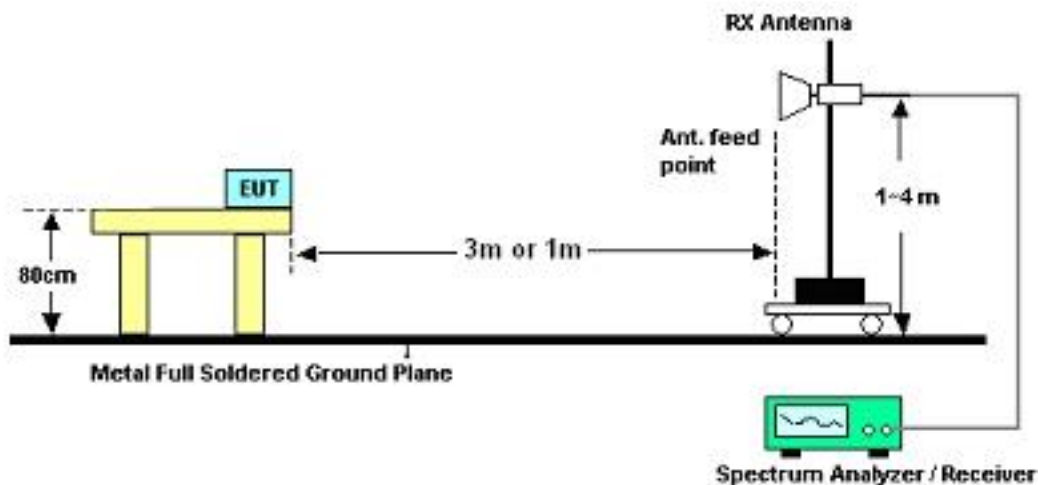
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	David Yang	Temperature :	22~24℃	
		Relative Humidity :	45~51%	

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.

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

Test Mode :	Mode 1	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2412 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
187.14	24.46	-19.04	43.5	46.32	8.4	1.23	31.49	100	341	Peak
272.19	23.8	-22.2	46	41.84	11.89	1.48	31.41	-	-	Peak
288.12	25.22	-20.78	46	43.03	12.04	1.48	31.33	-	-	Peak
540.1	18.9	-27.1	46	30.05	17.73	2.1	30.98	-	-	Peak
625.5	21.15	-24.85	46	30.89	18.83	2.25	30.82	-	-	Peak
740.3	22.25	-23.75	46	30.49	19.89	2.45	30.58	-	-	Peak
2389.8	35.18	-18.82	54	33.06	31.7	4.5	34.08	100	329	Average
2389.8	48.15	-25.85	74	46.03	31.7	4.5	34.08	100	329	Peak
2412	83.13	-	-	81	31.71	4.5	34.08	100	329	Average
2412	103.39	-	-	101.26	31.71	4.5	34.08	100	329	Peak
2494	32.05	-21.95	54	29.71	31.8	4.62	34.08	100	329	Average
2494	43.82	-30.18	74	41.48	31.8	4.62	34.08	100	329	Peak
4824	47.02	-26.98	74	65.27	33.77	6.44	58.46	100	0	Peak



Test Mode :	Mode 1	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2412 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
92.37	26.57	-16.93	43.5	48.65	8.62	0.84	31.54	123	64	Peak
133.41	23.9	-19.6	43.5	43.55	10.8	1.07	31.52	-	-	Peak
155.01	24.96	-18.54	43.5	45.38	9.94	1.14	31.5	-	-	Peak
580	21.94	-24.06	46	32.27	18.39	2.18	30.9	-	-	Peak
730.5	22.61	-23.39	46	31.06	19.71	2.45	30.61	-	-	Peak
819.4	23.52	-22.48	46	30.26	21.17	2.61	30.52	-	-	Peak
2389.99	39.87	-14.13	54	37.75	31.7	4.5	34.08	102	351	Average
2389.99	53.72	-20.28	74	51.6	31.7	4.5	34.08	102	351	Peak
2412	88.97	-	-	86.84	31.71	4.5	34.08	102	351	Average
2412	110.5	-	-	108.37	31.71	4.5	34.08	102	351	Peak
2492	33.78	-20.22	54	31.44	31.8	4.62	34.08	102	351	Average
2492	46.97	-27.03	74	44.63	31.8	4.62	34.08	102	351	Peak
4824	47.41	-26.59	74	65.66	33.77	6.44	58.46	100	0	Peak



Test Mode :	Mode 2	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	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
189.03	24.48	-19.02	43.5	46.37	8.36	1.23	31.48	141	209	Peak
271.92	24.13	-21.87	46	42.19	11.88	1.48	31.42	-	-	Peak
288.12	25.24	-20.76	46	43.05	12.04	1.48	31.33	-	-	Peak
629.7	20.34	-25.66	46	30.06	18.84	2.25	30.81	-	-	Peak
783.7	22.68	-23.32	46	29.97	20.71	2.54	30.54	-	-	Peak
846.7	23.86	-22.14	46	30.34	21.37	2.65	30.5	-	-	Peak
2354	33.23	-20.77	54	31.22	31.66	4.44	34.09	145	51	Average
2354	45.14	-28.86	74	43.13	31.66	4.44	34.09	145	51	Peak
2437	82.16	-	-	79.96	31.75	4.53	34.08	145	51	Average
2437	102.37	-	-	100.19	31.73	4.53	34.08	145	51	Peak
2484	31.99	-22.01	54	29.7	31.78	4.59	34.08	145	51	Average
2484	44.15	-29.85	74	41.86	31.78	4.59	34.08	145	51	Peak
4874	45.85	-28.15	74	63.94	33.78	6.49	58.36	100	0	Peak



Test Mode :	Mode 2	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	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
89.4	25.84	-17.66	43.5	48.29	8.25	0.84	31.54	101	318	Peak
133.68	24.62	-18.88	43.5	44.27	10.8	1.07	31.52	-	-	Peak
159.33	25.74	-17.76	43.5	46.41	9.69	1.14	31.5	-	-	Peak
528.2	19.94	-26.06	46	31.31	17.54	2.1	31.01	-	-	Peak
673.8	20.93	-25.07	46	30.3	19.03	2.35	30.75	-	-	Peak
779.5	22.41	-23.59	46	29.77	20.64	2.54	30.54	-	-	Peak
2356	37.52	-16.48	54	35.51	31.66	4.44	34.09	100	355	Average
2356	49.37	-24.63	74	47.36	31.66	4.44	34.09	100	355	Peak
2437	87.85	-	-	85.65	31.75	4.53	34.08	100	355	Average
2437	109.12	-	-	106.94	31.73	4.53	34.08	100	355	Peak
2484	33.22	-20.78	54	30.93	31.78	4.59	34.08	100	355	Average
2484	46.12	-27.88	74	43.83	31.78	4.59	34.08	100	355	Peak
4874	44.49	-29.51	74	62.58	33.78	6.49	58.36	100	0	Peak



Test Mode :	Mode 3	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	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
187.68	24.59	-18.91	43.5	46.47	8.38	1.23	31.49	107	112	Peak
267.87	24.72	-21.28	46	42.84	11.84	1.48	31.44	-	-	Peak
288.12	24.95	-21.05	46	42.76	12.04	1.48	31.33	-	-	Peak
675.9	21.46	-24.54	46	30.81	19.04	2.35	30.74	-	-	Peak
839	24.17	-21.83	46	30.75	21.32	2.61	30.51	-	-	Peak
932.1	24.59	-21.41	46	29.72	22.52	2.78	30.43	-	-	Peak
2388	33.9	-20.1	54	31.81	31.7	4.47	34.08	119	334	Average
2388	45.63	-28.37	74	43.54	31.7	4.47	34.08	119	334	Peak
2462	79.78	-	-	77.53	31.77	4.56	34.08	119	334	Average
2462	101.41	-	-	99.16	31.77	4.56	34.08	119	334	Peak
2486.89	33.36	-20.64	54	31.07	31.78	4.59	34.08	119	334	Average
2486.89	45.7	-28.3	74	43.41	31.78	4.59	34.08	119	334	Peak
4924	44.7	-29.3	74	62.63	33.79	6.54	58.26	100	0	Peak



Test Mode :	Mode 3	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	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
89.13	24.89	-18.61	43.5	47.34	8.25	0.84	31.54	-	-	Peak
133.95	24.78	-18.72	43.5	44.43	10.8	1.07	31.52	-	-	Peak
157.17	25.45	-18.05	43.5	45.99	9.82	1.14	31.5	130	283	Peak
528.9	21.18	-24.82	46	32.55	17.54	2.1	31.01	-	-	Peak
612.9	21.17	-24.83	46	31.04	18.77	2.2	30.84	-	-	Peak
810.3	23.44	-22.56	46	30.31	21.09	2.57	30.53	-	-	Peak
2380	38.79	-15.21	54	36.72	31.68	4.47	34.08	100	355	Average
2380	50.11	-23.89	74	48.04	31.68	4.47	34.08	100	355	Peak
2462	86.98	-	-	84.73	31.77	4.56	34.08	100	355	Average
2462	109.24	-	-	106.99	31.77	4.56	34.08	100	355	Peak
2483.5	37.81	-16.19	54	35.52	31.78	4.59	34.08	100	355	Average
2483.5	54.48	-19.52	74	52.19	31.78	4.59	34.08	100	355	Peak
4924	42.77	-31.23	74	60.7	33.79	6.54	58.26	100	0	Peak



Test Mode :	Mode 4	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2412 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
185.79	24.21	-19.29	43.5	46.05	8.42	1.23	31.49	122	341	Peak
268.95	24.3	-21.7	46	42.4	11.85	1.48	31.43	-	-	Peak
288.12	25.12	-20.88	46	42.93	12.04	1.48	31.33	-	-	Peak
384	22.17	-23.83	46	37.26	14.36	1.77	31.22	-	-	Peak
629	21.29	-24.71	46	31.01	18.84	2.25	30.81	-	-	Peak
766.9	23.04	-22.96	46	30.64	20.4	2.54	30.54	-	-	Peak
2385.81	37.49	-16.51	54	35.4	31.7	4.47	34.08	100	329	Average
2385.81	63.65	-10.35	74	61.56	31.7	4.47	34.08	100	329	Peak
2412	58.65	-	-	56.52	31.71	4.5	34.08	100	329	Average
2412	102.89	-	-	100.76	31.71	4.5	34.08	100	329	Peak
2484	32.07	-21.93	54	29.78	31.78	4.59	34.08	100	329	Average
2484	44.28	-29.72	74	41.99	31.78	4.59	34.08	100	329	Peak
4824	44.43	-29.57	74	62.68	33.77	6.44	58.46	100	0	Peak
7236	44.39	-38.5	82.89	58.79	35.21	8.05	57.66	100	0	Peak



Test Mode :	Mode 4	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2412 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
89.4	25.83	-17.67	43.5	48.28	8.25	0.84	31.54	-	-	Peak
150.15	25.66	-17.84	43.5	45.77	10.25	1.14	31.5	-	-	Peak
159.06	26.53	-16.97	43.5	47.2	9.69	1.14	31.5	110	303	Peak
660.5	21.71	-24.29	46	31.2	18.97	2.3	30.76	-	-	Peak
769	22.13	-23.87	46	29.69	20.44	2.54	30.54	-	-	Peak
857.9	24.06	-21.94	46	30.45	21.46	2.65	30.5	-	-	Peak
2389.8	40.41	-13.59	54	38.29	31.7	4.5	34.08	100	353	Average
2389.8	70.25	-3.75	74	68.13	31.7	4.5	34.08	100	353	Peak
2412	61.46	-	-	59.33	31.71	4.5	34.08	100	353	Average
2412	108.3	-	-	106.17	31.71	4.5	34.08	100	353	Peak
2498	34.06	-19.94	54	31.72	31.8	4.62	34.08	100	353	Average
2498	48.79	-25.21	74	46.45	31.8	4.62	34.08	100	353	Peak
4824	45.86	-28.14	74	64.11	33.77	6.44	58.46	100	0	Peak
7236	48.52	-39.78	88.3	62.92	35.21	8.05	57.66	100	0	Peak
12060	32.58	-21.42	54	38.44	38.86	10.86	55.58	115	204	Average
12060	53.6	-20.4	74	59.46	38.86	10.86	55.58	115	204	Peak



Test Mode :	Mode 5	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	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
186.33	24.26	-19.24	43.5	46.1	8.42	1.23	31.49	100	41	Peak
267.87	23.8	-22.2	46	41.92	11.84	1.48	31.44	-	-	Peak
288.12	25.31	-20.69	46	43.12	12.04	1.48	31.33	-	-	Peak
383.3	20.72	-25.28	46	35.84	14.33	1.77	31.22	-	-	Peak
570.2	20.32	-25.68	46	30.83	18.23	2.18	30.92	-	-	Peak
783.7	23.36	-22.64	46	30.65	20.71	2.54	30.54	-	-	Peak
2384	32.62	-21.38	54	30.55	31.68	4.47	34.08	139	336	Average
2384	45.72	-28.28	74	43.65	31.68	4.47	34.08	139	336	Peak
2437	58.82	-	-	56.62	31.75	4.53	34.08	139	336	Average
2437	101.18	-	-	98.95	31.75	4.56	34.08	139	336	Peak
2488	32.89	-21.11	54	30.58	31.8	4.59	34.08	139	336	Average
2488	46.09	-27.91	74	43.78	31.8	4.59	34.08	139	336	Peak
4874	45.09	-28.91	74	63.18	33.78	6.49	58.36	100	0	Peak
7311	46.01	-27.99	74	60.46	35.15	8.1	57.7	100	0	Peak



Test Mode :	Mode 5	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	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
89.4	26.56	-16.94	43.5	49.01	8.25	0.84	31.54	105	99	Peak
133.68	24.67	-18.83	43.5	44.32	10.8	1.07	31.52	-	-	Peak
160.95	25.32	-18.18	43.5	46.11	9.57	1.14	31.5	-	-	Peak
415.5	20.65	-25.35	46	34.88	15.12	1.82	31.17	-	-	Peak
700.4	21.61	-24.39	46	30.79	19.14	2.4	30.72	-	-	Peak
819.4	24.52	-21.48	46	31.26	21.17	2.61	30.52	-	-	Peak
2390	35.6	-18.4	54	33.48	31.7	4.5	34.08	100	354	Average
2390	54.19	-19.81	74	52.07	31.7	4.5	34.08	100	354	Peak
2437	62.09	-	-	59.89	31.75	4.53	34.08	100	354	Average
2437	108.84	-	-	106.66	31.73	4.53	34.08	100	354	Peak
2484	34.7	-19.3	54	32.41	31.78	4.59	34.08	100	354	Average
2484	50.8	-23.2	74	48.51	31.78	4.59	34.08	100	354	Peak
4874	44.38	-29.62	74	62.47	33.78	6.49	58.36	100	0	Peak
7311	47.47	-26.53	74	61.94	35.15	8.08	57.7	100	0	Peak
12185	34.28	-19.72	54	40.05	38.95	10.85	55.57	100	352	Average
12185	55.57	-18.43	74	61.34	38.95	10.85	55.57	100	352	Peak



Test Mode :	Mode 6	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	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
185.52	24.52	-18.98	43.5	46.34	8.44	1.23	31.49	121	318	Peak
271.92	23.95	-22.05	46	42.01	11.88	1.48	31.42	-	-	Peak
288.12	25.46	-20.54	46	43.27	12.04	1.48	31.33	-	-	Peak
636	21.45	-24.55	46	31.13	18.87	2.25	30.8	-	-	Peak
839	24.35	-21.65	46	30.93	21.32	2.61	30.51	-	-	Peak
889.4	23.89	-22.11	46	29.99	21.7	2.68	30.48	-	-	Peak
2382	34.09	-19.91	54	32.02	31.68	4.47	34.08	146	52	Average
2382	48.6	-25.4	74	46.53	31.68	4.47	34.08	146	52	Peak
2462	58.48	-	-	56.23	31.77	4.56	34.08	146	52	Average
2462	100.97	-	-	98.72	31.77	4.56	34.08	146	52	Peak
2483.66	35.75	-18.25	54	33.46	31.78	4.59	34.08	146	52	Average
2483.66	60.83	-13.17	74	58.54	31.78	4.59	34.08	146	52	Peak
4924	45.15	-28.85	74	63.08	33.79	6.54	58.26	100	0	Peak



Test Mode :	Mode 6	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	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
89.67	25.2	-18.3	43.5	47.47	8.43	0.84	31.54	-	-	Peak
133.95	26.2	-17.3	43.5	45.85	10.8	1.07	31.52	108	45	Peak
155.28	26.04	-17.46	43.5	46.46	9.94	1.14	31.5	-	-	Peak
413.4	21.16	-24.84	46	35.44	15.07	1.82	31.17	-	-	Peak
666.1	20.61	-25.39	46	30.06	19	2.3	30.75	-	-	Peak
835.5	23.27	-22.73	46	29.88	21.29	2.61	30.51	-	-	Peak
2382	36.4	-17.6	54	34.33	31.68	4.47	34.08	100	352	Average
2382	52.89	-21.11	74	50.82	31.68	4.47	34.08	100	352	Peak
2462	61.76	-	-	59.51	31.77	4.56	34.08	100	352	Average
2462	108.31	-	-	106.06	31.77	4.56	34.08	100	352	Peak
2483.5	41	-13	54	38.71	31.78	4.59	34.08	100	352	Average
2483.5	73.05	-0.95	74	70.76	31.78	4.59	34.08	100	352	Peak
4924	43.89	-30.11	74	61.82	33.79	6.54	58.26	100	0	Peak
7386	46.47	-27.53	74	61	35.08	8.15	57.76	100	0	Peak
12310	34	-20	54	39.67	39.05	10.83	55.55	112	355	Average
12310	53.2	-20.8	74	58.87	39.05	10.83	55.55	112	355	Peak

Test Mode :	Mode 7	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2412 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
2387.14	44	-10	54	41.91	31.7	4.47	34.08	100	333	Average
2387.14	67.87	-6.13	74	65.78	31.7	4.47	34.08	100	333	Peak
2412	82.83	-	-	80.7	31.71	4.5	34.08	100	333	Average
2412	100.4	-	-	98.27	31.71	4.5	34.08	100	333	Peak
2484	32.34	-21.66	54	30.05	31.78	4.59	34.08	100	333	Average
2484	45.02	-28.98	74	42.73	31.78	4.59	34.08	100	333	Peak

Test Mode :	Mode 7	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2412 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
2389.8	49.85	-4.15	54	47.73	31.7	4.5	34.08	100	355	Average
2389.8	73.01	-0.99	74	70.89	31.7	4.5	34.08	100	355	Peak
2412	88.14	-	-	86.01	31.71	4.5	34.08	100	355	Average
2412	106.93	-	-	104.8	31.71	4.5	34.08	100	355	Peak
2492	36.81	-17.19	54	34.47	31.8	4.62	34.08	100	355	Average
2492	49.44	-24.56	74	47.1	31.8	4.62	34.08	100	355	Peak

Test Mode :	Mode 8	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	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
2390	34.07	-19.93	54	31.95	31.7	4.5	34.08	147	53	Average
2390	49.36	-24.64	74	47.24	31.7	4.5	34.08	147	53	Peak
2437	84.46	-	-	82.26	31.75	4.53	34.08	147	53	Average
2437	102.43	-	-	100.25	31.73	4.53	34.08	147	53	Peak
2486	33.1	-20.9	54	30.81	31.78	4.59	34.08	147	53	Average
2486	46.37	-27.63	74	44.08	31.78	4.59	34.08	147	53	Peak

Test Mode :	Mode 8	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	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
2390	38.93	-15.07	54	36.81	31.7	4.5	34.08	100	356	Average
2390	55.56	-18.44	74	53.44	31.7	4.5	34.08	100	356	Peak
2437	89.64	-	-	87.44	31.75	4.53	34.08	100	356	Average
2437	109.13	-	-	106.93	31.75	4.53	34.08	100	356	Peak
2484	38.47	-15.53	54	36.18	31.78	4.59	34.08	100	356	Average
2484	53.84	-20.16	74	51.55	31.78	4.59	34.08	100	356	Peak



Test Mode :	Mode 9	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	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
2380	34.55	-19.45	54	32.48	31.68	4.47	34.08	146	52	Average
2380	46.27	-27.73	74	44.2	31.68	4.47	34.08	146	52	Peak
2462	79.52	-	-	77.27	31.77	4.56	34.08	146	52	Average
2462	96.75	-	-	94.5	31.77	4.56	34.08	146	52	Peak
2485.37	38.85	-15.15	54	36.56	31.78	4.59	34.08	146	52	Average
2485.37	61.24	-12.76	74	58.95	31.78	4.59	34.08	146	52	Peak

Test Mode :	Mode 9	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	45~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	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
2378	38.81	-15.19	54	36.74	31.68	4.47	34.08	100	352	Average
2378	50.55	-23.45	74	48.48	31.68	4.47	34.08	100	352	Peak
2462	85.9	-	-	83.65	31.77	4.56	34.08	100	352	Average
2462	104.29	-	-	102.04	31.77	4.56	34.08	100	352	Peak
2484.04	47.8	-6.2	54	45.51	31.78	4.59	34.08	100	352	Average
2484.04	71.7	-2.3	74	69.41	31.78	4.59	34.08	100	352	Peak

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
System Simulator	R&S	CMU200	117995	N/A	Jun. 08, 2009	Jun. 07, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 11, 2010	Jun. 10, 2011	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 13, 2010	Sep. 12, 2011	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 14, 2010	Sep. 13, 2011	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 30, 2010	Jul. 29, 2011	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP30	101352	9KHz-40GHz	Nov. 03, 2010	Nov. 02, 2011	Radiation (03CH05-HY)
Amplifier	COM-POWER	PA-103	161075	1KHz - 1GHz	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz ~ 1GHz	Nov. 06, 2010	Nov. 05, 2011	Radiation (03CH05-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 - 360 degree	N/A	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m - 4 m	N/A	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	00066584	1GHz ~ 18GHz	Aug. 05, 2010	Aug. 04, 2011	Radiation (03CH05-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH05-HY)

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
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

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
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		

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
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP120821-01 as below.