



FCC RF Test Report

APPLICANT : Brightstar Corporation
EQUIPMENT : Mobile phone
BRAND NAME : Avvio
MODEL NAME : Avvio 710
FCC ID : WVBA710
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Mar. 16, 2012 and completely tested on Apr. 26, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.



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**SUMMARY OF TEST RESULT**

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 3.54 dB at 0.31 MHz
3.7	15.247(d)	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.32 dB at 4923 MHz for peak Under limit 3.15 dB at 30 MHz for Quasi-Peak
3.8	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Brightstar Corporation
 9725 NW 117th Ave., Miami, Florida, United States

1.2 Manufacturer

Konka Telecommunications Techenology co., LTD.
 Overseas Chinese Town, Nanshan District, Shenzhen, China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Mobile phone
Brand Name	Avvio
Model Name	Avvio 710
FCC ID	WVBA710
Tx/Rx Frequency Range	2412 MHz ~ 2462 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 8.74 dBm (0.007 W) 802.11g : 21.11 dBm (0.129 W) 802.11g/n (BW 20MHz) : 21.15 dBm (0.130 W) 802.11g/n (BW 40MHz) : 21.94 dBm (0.156 W)
Duty Cycle	802.11b : 98.82% 802.11g : 91.50% 802.11g/n (BW 20MHz) : 92.20% 802.11g/n (BW 40MHz) : 85.83%
Antenna Type	Dipole Antenna with gain -1.00 dBi
HW Version	V1.0
SW Version	KAAT519_INA_EN_HI_0_01_603
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		
	TH01-KS	CO01-KS	03CH01-KS

1.5 Applied Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01
- ♦ ANSI C63.4-2003

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Agilent	E5515C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW	GPS-30300	N/A	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Nokia	BH-108	N/A	N/A	N/A
4.	Router	Hometek	NW616	N/A	N/A	Unshielded, 1.8 m
5.	Notebook	DELL	VOSTRO 1440	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 Pre-Scanned RF Power

Preliminary tests were performed in different data rate as below table and the highest power data rates (11b, 11g, 11g/n (BW 20MHz), 11g/n (BW 40MHz) modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line.

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	8.74	8.71	8.70	8.72

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	21.11	20.95	20.94	20.96	20.98	20.92	20.97	21.03

2.4GHz 802.11g/n (BW 20MHz) mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	21.15	20.98	20.86	20.69	20.62	20.56	20.45	20.35

2.4GHz 802.11g/n (BW 40MHz) mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	21.94	20.91	20.84	20.73	20.63	20.52	20.39	20.53

2.2 Maximum Peak Conducted Output Power:

Band	2.4GHz 802.11b Peak Power (dBm)			2.4GHz 802.11g Peak Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	4.97	5.95	8.74	18.32	19.03	21.11

Band	2.4GHz 802.11g/n (BW 20MHz) Peak Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Peak Power	20.65	20.87	21.15

Band	2.4GHz 802.11g/n (BW 40MHz) Peak Power (dBm)		
Channel	3	6	09
Frequency (MHz)	2422	2437	2452
Peak Power	20.97	21.28	21.94

Remark:

The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, MCS0 for 802.11g/n (BW 20MHz), MCS0 for 802.11g/n (BW 40MHz) for all the test cases due to the highest RF output power.

2.3 Maximum Average Conducted Output Power:

Band	2.4GHz 802.11b Average Power (dBm)			2.4GHz 802.11g Average Power (dBm)		
	1	6	11	1	6	11
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Average Power	1.95	2.87	5.77	7.28	8.56	10.78

Band	2.4GHz 802.11g/n (BW 20MHz) Average Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Average Power	9.78	9.82	10.32

Band	2.4GHz 802.11g/n (BW 40MHz) Average Power (dBm)		
Channel	3	6	09
Frequency (MHz)	2422	2437	2452
Average Power	9.60	9.81	10.47

Remark:

1. The average power, which is used by the test method, AVG2, in DTS Meas. Guidance v01, is reporting only.
2. The EUT is programmed to transmit signals continuously.

2.4 Test Mode

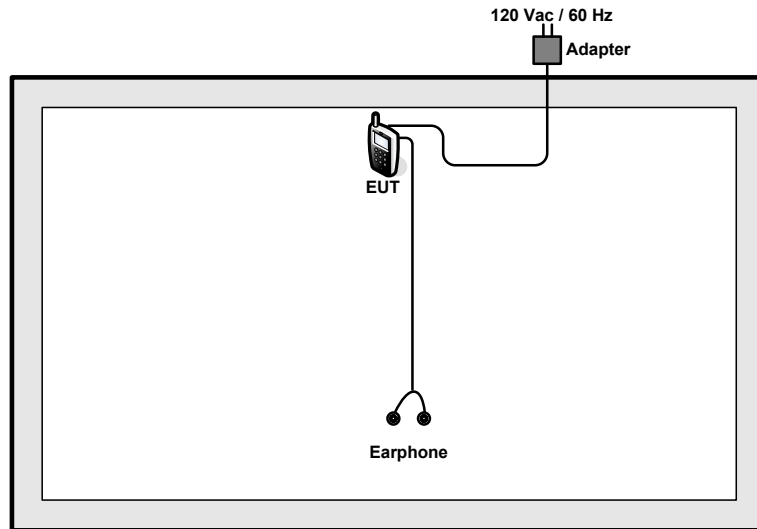
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic 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 (H plane) and recorded in this report.

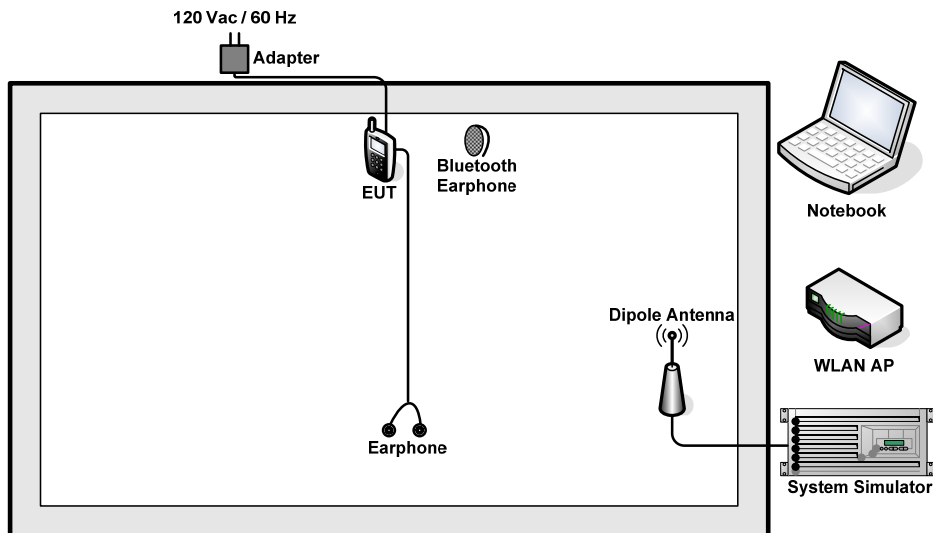
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11g/n (BW 20M)_CH01_2412 MHz Mode 8: 802.11g/n (BW 20M)_CH06_2437 MHz Mode 9: 802.11g/n (BW 20M)_CH11_2462 MHz Mode 10: 802.11g/n (BW 40M)_CH03_2422 MHz Mode 11: 802.11g/n (BW 40M)_CH06_2437 MHz Mode 12: 802.11g/n (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: 802.11g/n (BW 20M)_CH01_2412 MHz Mode 8: 802.11g/n (BW 20M)_CH06_2437 MHz Mode 9: 802.11g/n (BW 20M)_CH11_2462 MHz Mode 10: 802.11g/n (BW 40M)_CH03_2422 MHz Mode 11: 802.11g/n (BW 40M)_CH06_2437 MHz Mode 12: 802.11g/n (BW 40M)_CH09_2452 MHz
AC Conducted Emission	Mode 1 : GSM 850 Idle + Bluetooth Link + WLAN Link + Adapter + Earphone + Camera	

2.5 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.6 RF Utility

The programmed RF utility, “* # * # 3646633 # * # *” 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 Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

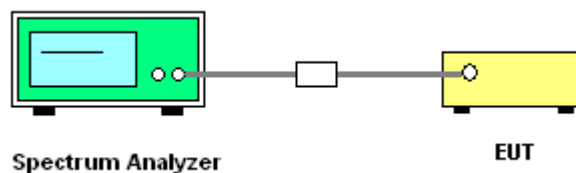
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1-5% of the emission bandwidth (EBW). Set the Video bandwidth (VBW) $\geq 3 * RBW$. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup



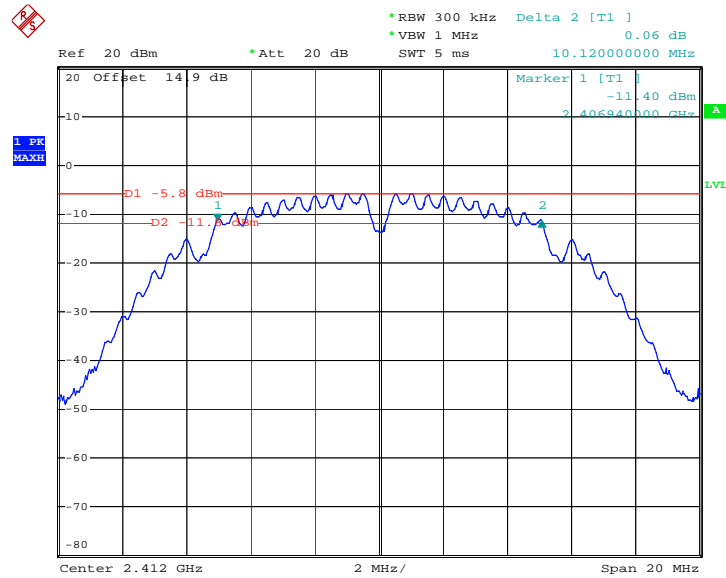


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.12	0.5	Pass
06	2437	10.16	0.5	Pass
11	2462	10.16	0.5	Pass

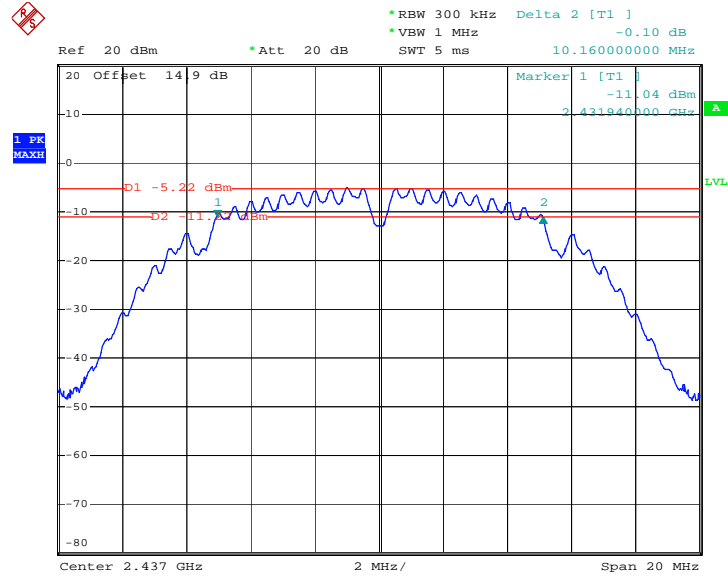
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 24.APR.2012 20:34:40

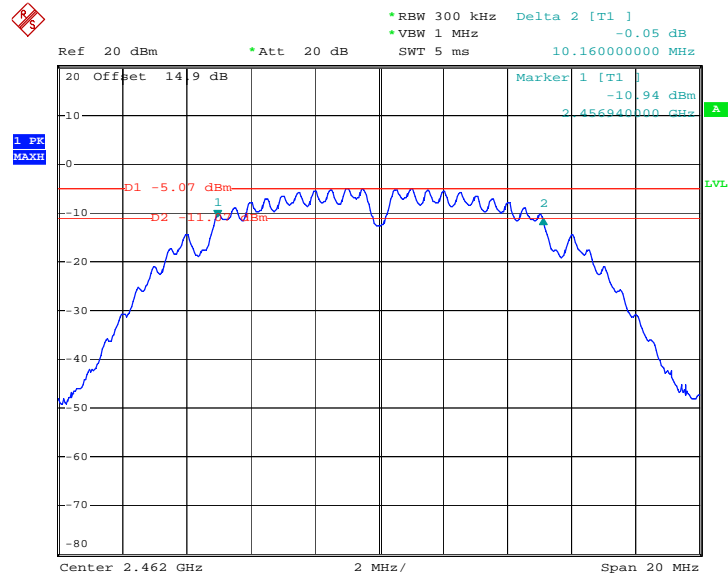


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 24.APR.2012 22:05:41

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



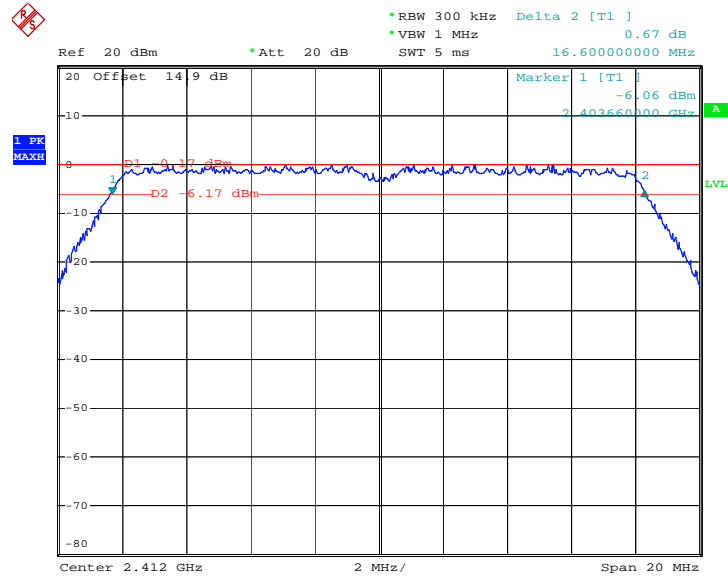
Date: 24.APR.2012 20:43:14



Test Mode :	Mode 4, 5, 6	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.60	0.5	Pass
06	2437	16.68	0.5	Pass
11	2462	16.56	0.5	Pass

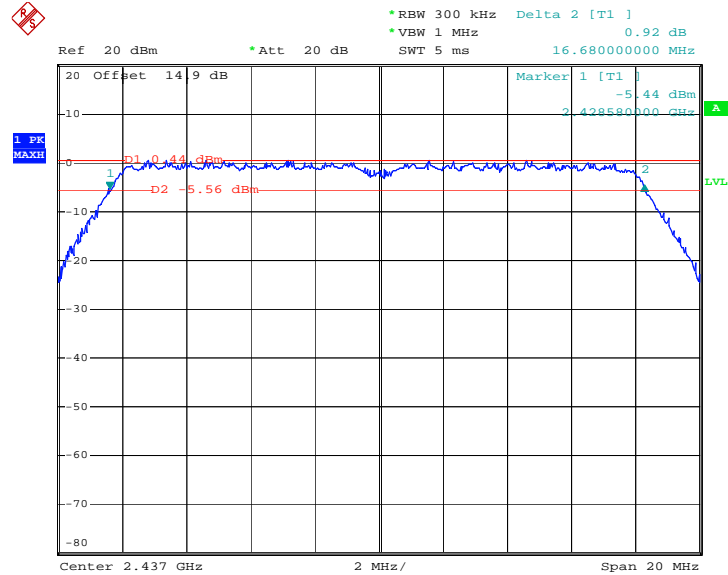
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 24.APR.2012 21:46:35

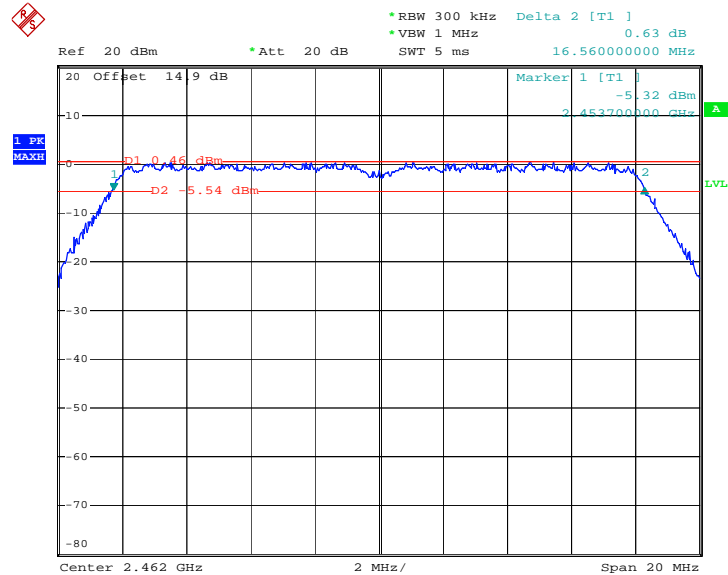


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 24.APR.2012 22:00:35

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



Date: 24.APR.2012 21:55:14

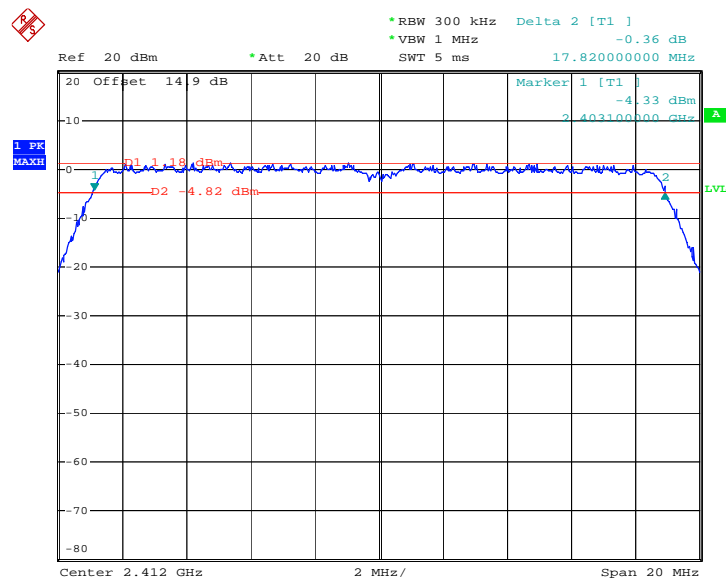


Test Mode :	Mode 7, 8, 9	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.82	0.5	Pass
06	2437	17.76	0.5	Pass
11	2462	17.80	0.5	Pass

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

01

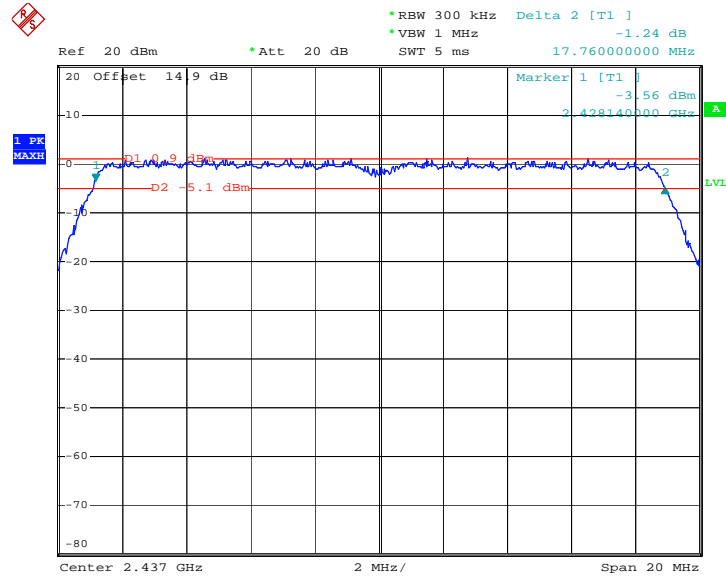


Date: 24.APR.2012 21:19:40



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

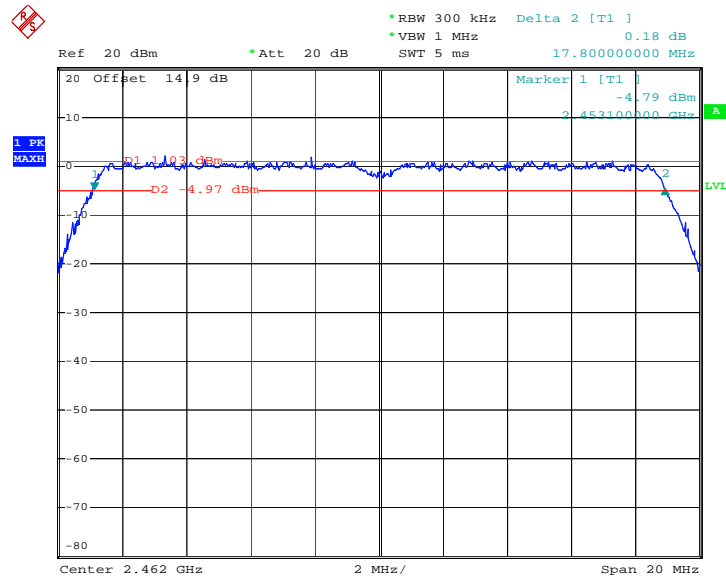
06



Date: 24.APR.2012 21:23:23

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

11



Date: 24.APR.2012 21:26:17

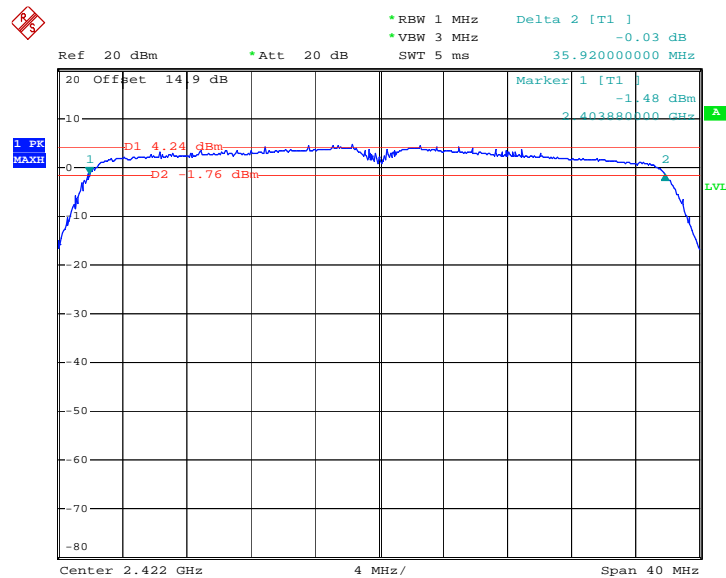


Test Mode :	Mode 10, 11, 12	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11g/n (BW 40MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	35.92	0.5	Pass
06	2437	35.84	0.5	Pass
09	2452	35.68	0.5	Pass

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

03

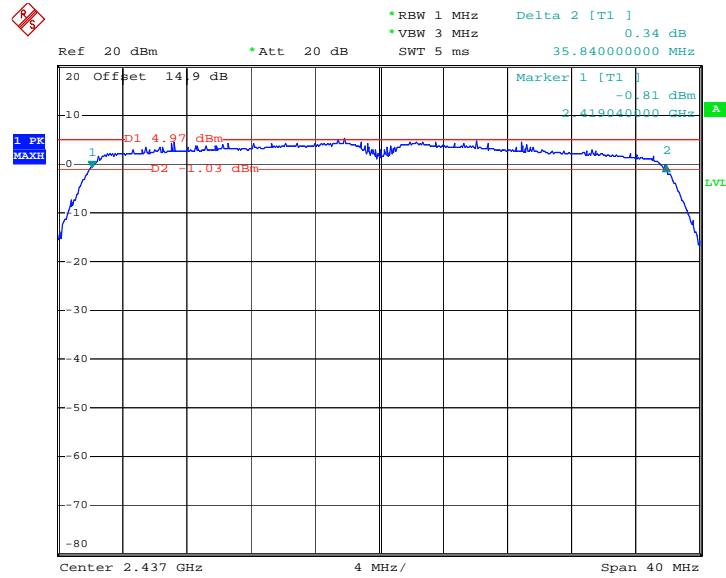


Date: 24.APR.2012 21:33:47



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

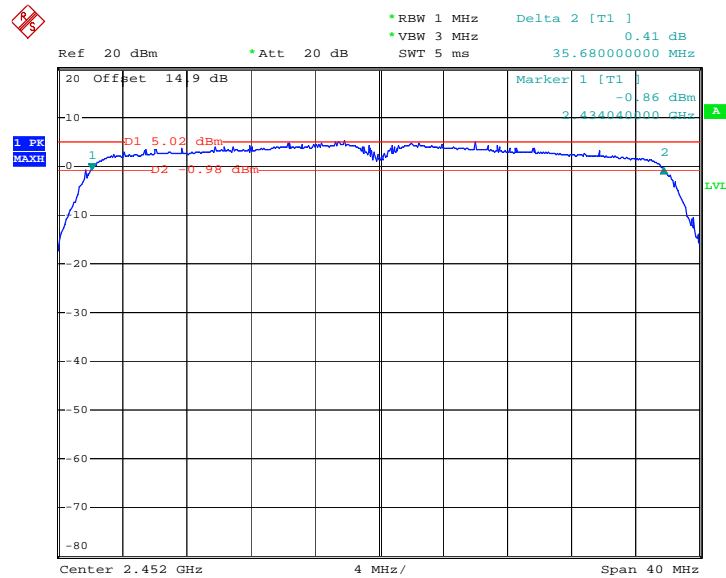
06



Date: 24.APR.2012 22:03:26

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

09



Date: 24.APR.2012 21:40:55

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

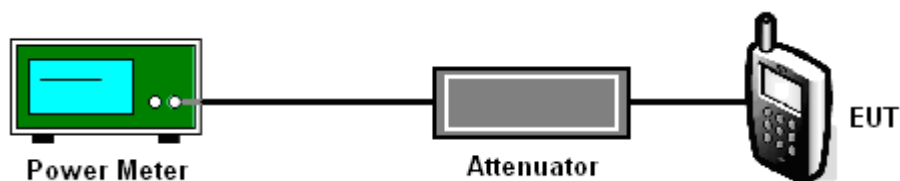
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure PK2 of FCC KDB No. 558074 DTS Meas. Guidance v01.
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 :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	4.97	30	Pass
06	2437	5.95	30	Pass
11	2462	8.74	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.32	30	Pass
06	2437	19.03	30	Pass
11	2462	21.11	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.65	30	Pass
06	2437	20.87	30	Pass
11	2462	21.15	30	Pass

Test Mode :	Mode 10, 11, 12	Temperature :	23~24
Test Engineer :	Zhi Lu	Relative Humidity :	43~44

Channel	Frequency (MHz)	802.11g/n (BW 40MHz) Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
03	2422	20.97	30	Pass
06	2437	21.28	30	Pass
09	2452	21.94	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

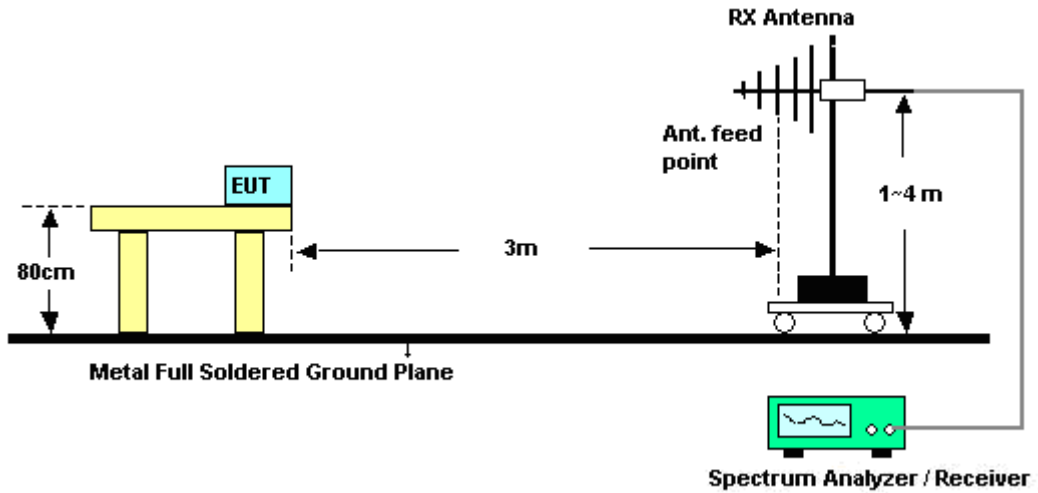
See list of measuring instruments of this test report.

3.3.3 Test Procedures

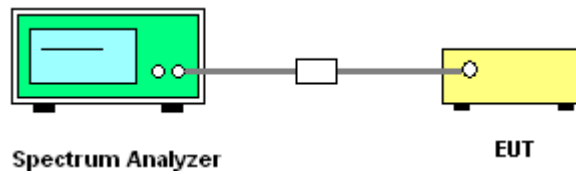
1. The testing follows the guidelines in ANSI C63.4-2003 and the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) \geq RBW. Out of the authorized frequency band emissions must be at least 20 dB lower than the highest emission level within the authorized band as measured with a 100 KHz RBW. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
3. Radiated emission test: Apply to band edge emissions that falling on 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 measurement above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, then modify the unit for continuous operation. Use the settings in this paragraph to correct the reading level by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation per 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 :	21~22°C
Test Band :	802.11b	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.28	51.06	-22.94	74	48.78	32.86	3.47	34.05	119	350	Peak
2388.28	36.58	-17.42	54	34.3	32.86	3.47	34.05	119	350	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2315.13	45.14	-28.86	74	43.05	32.73	3.22	33.86	100	360	Peak
2315.13	32.05	-21.95	54	29.96	32.73	3.22	33.86	100	360	Average

Test Mode :	Mode 3	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2494.49	49.47	-24.53	74	46.93	33.05	3.72	34.23	100	360	Peak
2494.49	36.44	-17.56	54	33.9	33.05	3.72	34.23	100	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2491.83	49.58	-24.42	74	47.04	33.05	3.72	34.23	147	44	Peak
2491.83	23.15	-30.85	54	20.61	33.05	3.72	34.23	147	44	Average



Test Mode :	Mode 4	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	59.09	-14.91	74	56.81	32.86	3.47	34.05	100	332	Peak
2389.8	44.57	-9.43	54	42.29	32.86	3.47	34.05	100	332	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	56.88	-17.12	74	54.6	32.86	3.47	34.05	100	40	Peak
2389.8	44.16	-9.84	54	41.88	32.86	3.47	34.05	100	40	Average

Test Mode :	Mode 6	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.32	57.52	-16.48	74	55.03	33.01	3.68	34.2	100	336	Peak
2486.32	44.34	-9.66	54	41.85	33.01	3.68	34.2	100	336	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.23	54.8	-19.2	74	52.31	33.01	3.68	34.2	100	308	Peak
2484.23	41.73	-12.27	54	39.24	33.01	3.68	34.2	100	308	Average



Test Mode :	Mode 7	Temperature :	21~22°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	68.08	-5.92	74	65.8	32.86	3.47	34.05	100	334	Peak
2389.99	46.01	-7.99	54	43.73	32.86	3.47	34.05	100	334	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	62.95	-11.05	74	60.67	32.86	3.47	34.05	100	38	Peak
2389.61	46.12	-7.88	54	43.84	32.86	3.47	34.05	100	38	Average

Test Mode :	Mode 9	Temperature :	21~22°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.61	62.54	-11.46	74	60.05	33.01	3.68	34.2	100	332	Peak
2484.61	45.85	-8.15	54	43.36	33.01	3.68	34.2	100	332	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.42	62.18	-11.82	74	59.69	33.01	3.68	34.2	113	29	Peak
2484.42	46.17	-7.83	54	43.68	33.01	3.68	34.2	113	29	Average



Test Mode :	Mode 10	Temperature :	21~22°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	41~42%
Test Channel :	03	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.23	69.97	-4.03	74	67.69	32.86	3.47	34.05	100	360	Peak
2389.23	45.95	-8.05	54	43.67	32.86	3.47	34.05	100	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	69.96	-4.04	74	67.68	32.86	3.47	34.05	100	300	Peak
2389.8	46.04	-7.96	54	43.76	32.86	3.47	34.05	100	300	Average

Test Mode :	Mode 12	Temperature :	21~22°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	41~42%
Test Channel :	09	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.42	70.56	-3.44	74	68.07	33.01	3.68	34.2	100	328	Peak
2484.42	48.9	-5.1	54	46.41	33.01	3.68	34.2	100	328	Average

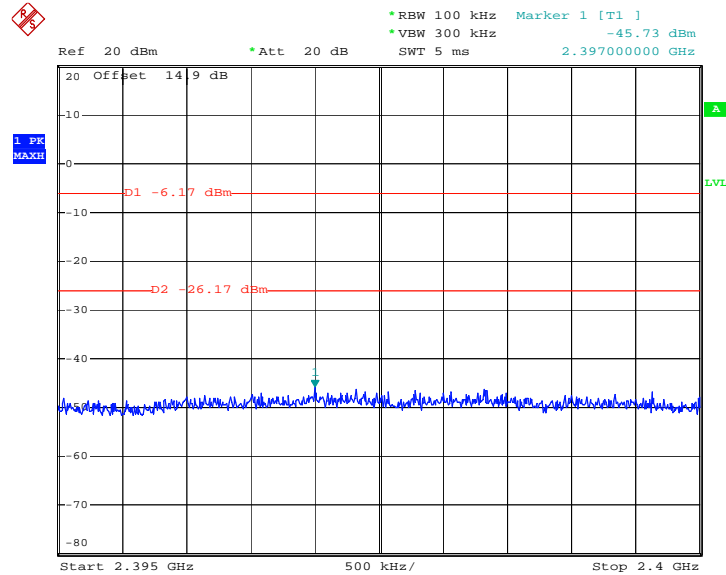
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	69.73	-4.27	74	67.24	33.01	3.68	34.2	100	40	Peak
2483.66	48.25	-5.75	54	45.76	33.01	3.68	34.2	100	40	Average



3.3.6 Test Plots of Conducted Band Edges

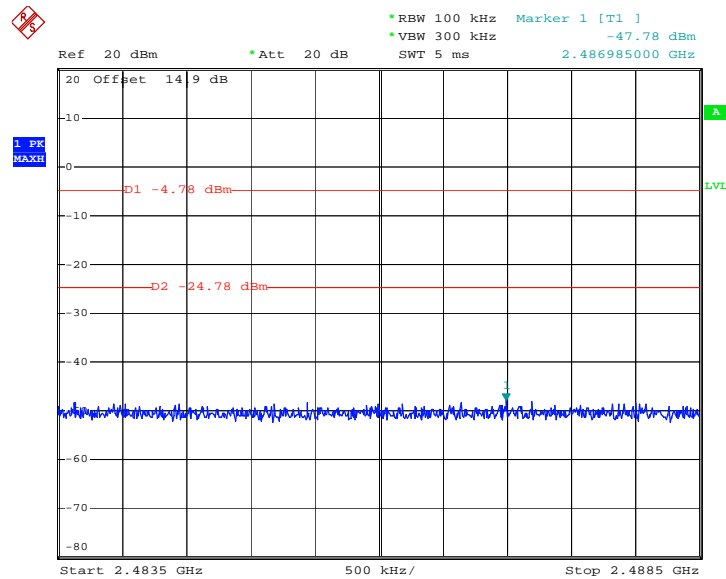
Test Mode :	Mode 1 and 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	43~44%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11b Channel 01



Date: 25.APR.2012 15:33:38

High Band Edge Plot on 802.11b Channel 11

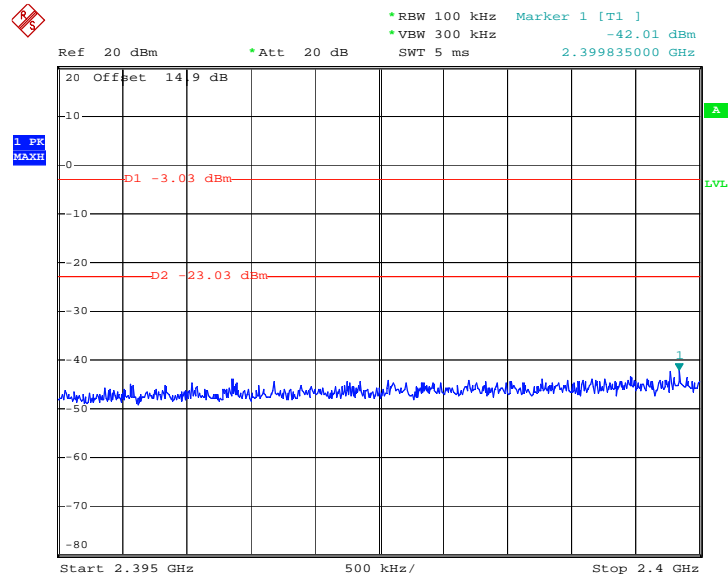


Date: 25.APR.2012 15:45:17



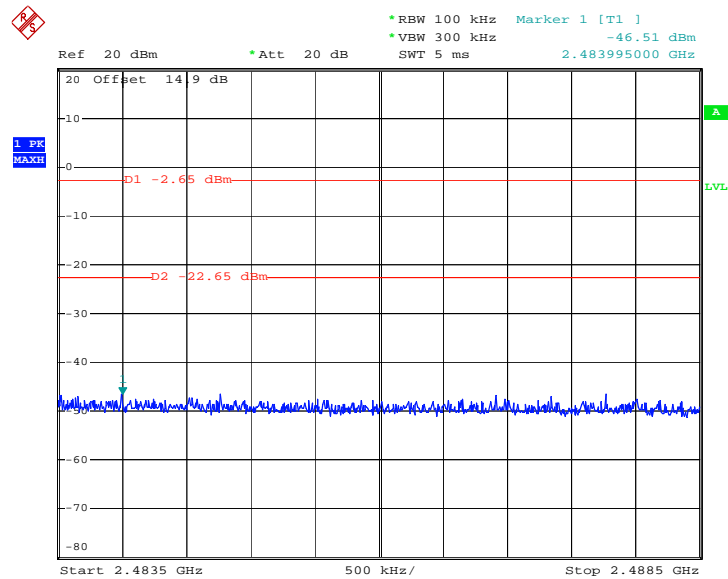
Test Mode :	Mode 4 and 6	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	43~44%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11g Channel 01



Date: 25.APR.2012 15:50:42

High Band Edge Plot on 802.11g Channel 11

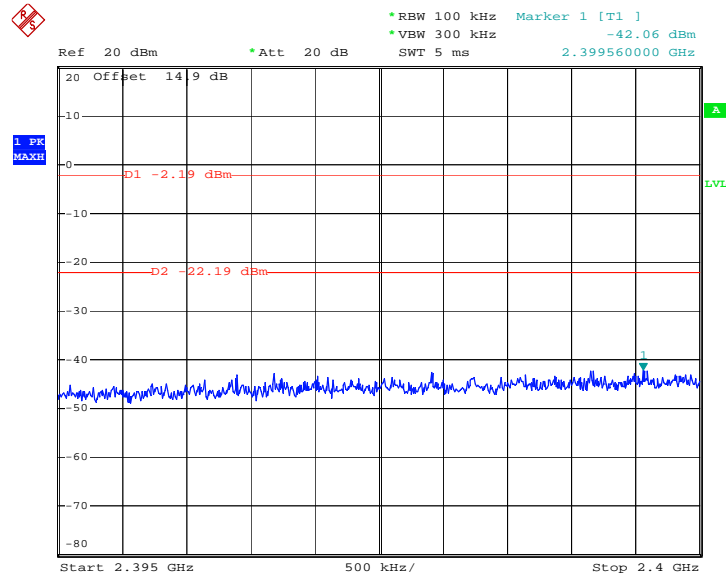


Date: 25.APR.2012 15:56:03



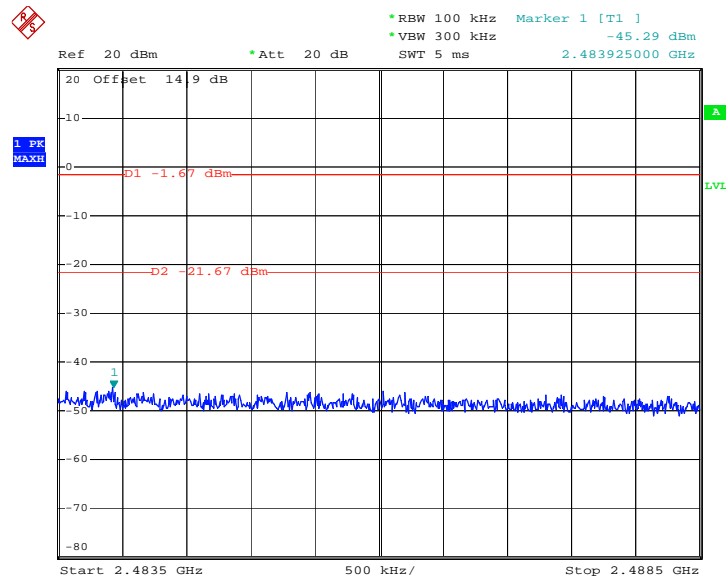
Test Mode :	Mode 7 and 9	Temperature :	23~24°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	43~44%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

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



Date: 25.APR.2012 16:01:09

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

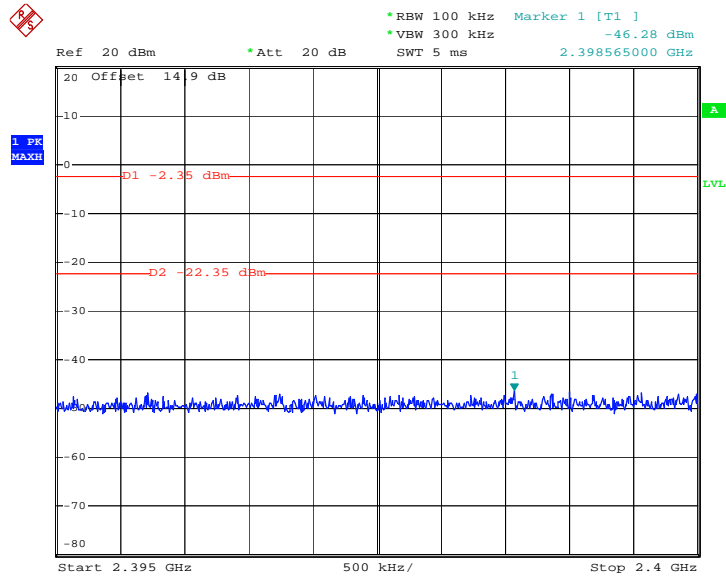


Date: 25.APR.2012 16:04:33



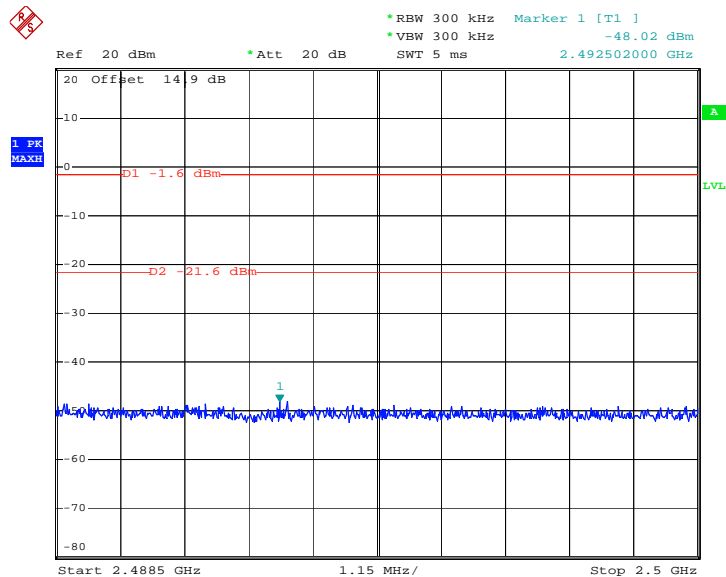
Test Mode :	Mode 10 and 12	Temperature :	23~24°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	43~44%
Test Channel :	03 and 09	Test Engineer :	Zhi Lu

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



Date: 25.APR.2012 16:07:17

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



Date: 25.APR.2012 16:11:36

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.

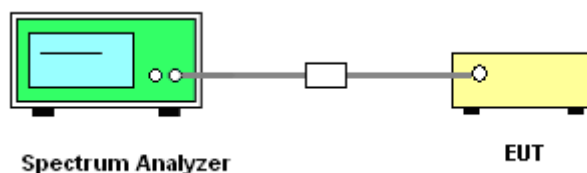
3.4.2 Measuring Instruments

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. The path loss was compensated to the results for each measurement.
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.

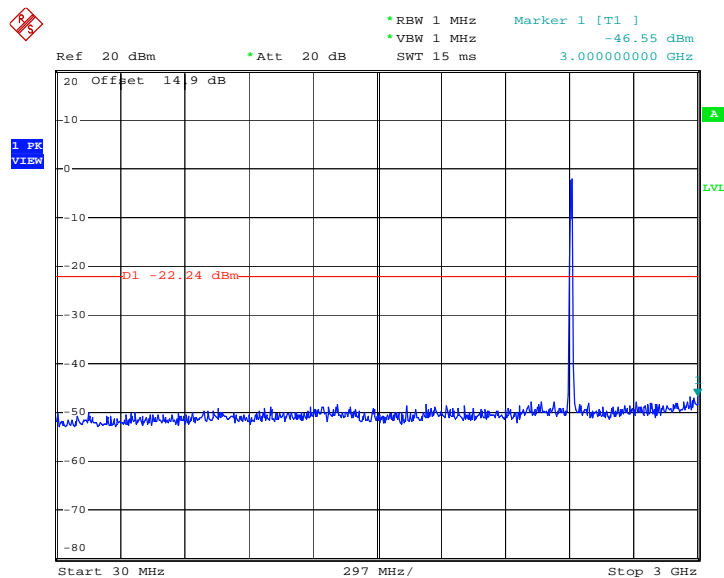
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

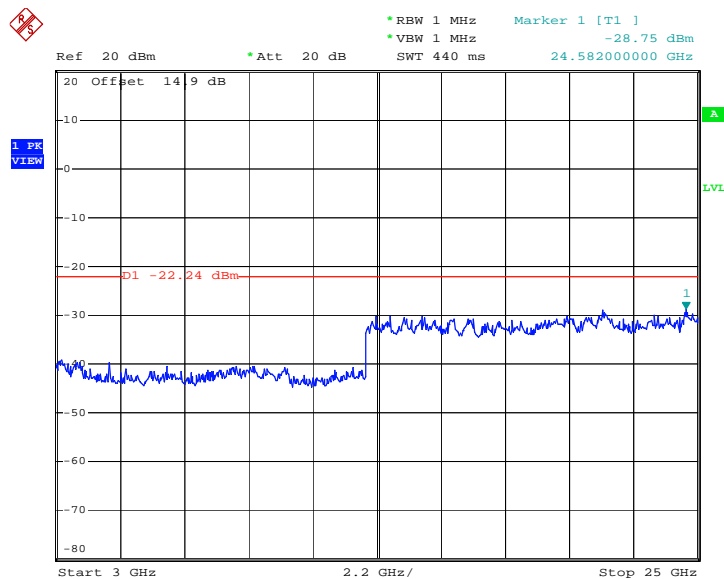
Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	43~44%
Test Channel :	01	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:42:11

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

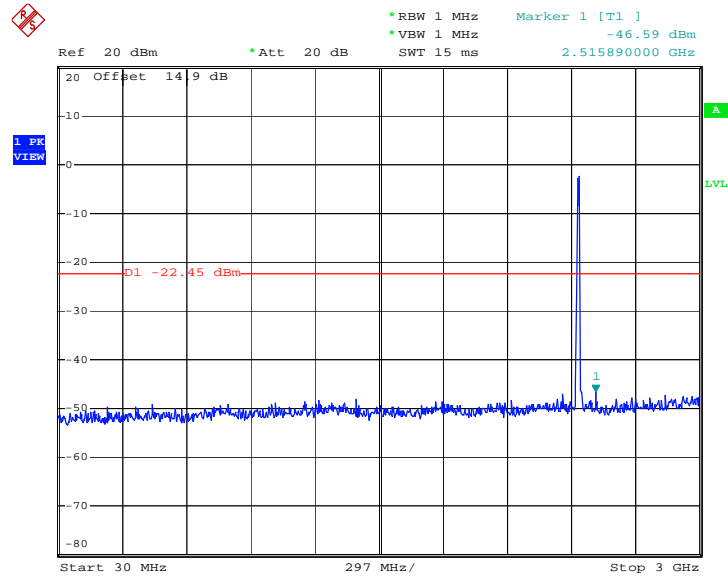


Date: 26.APR.2012 15:42:30



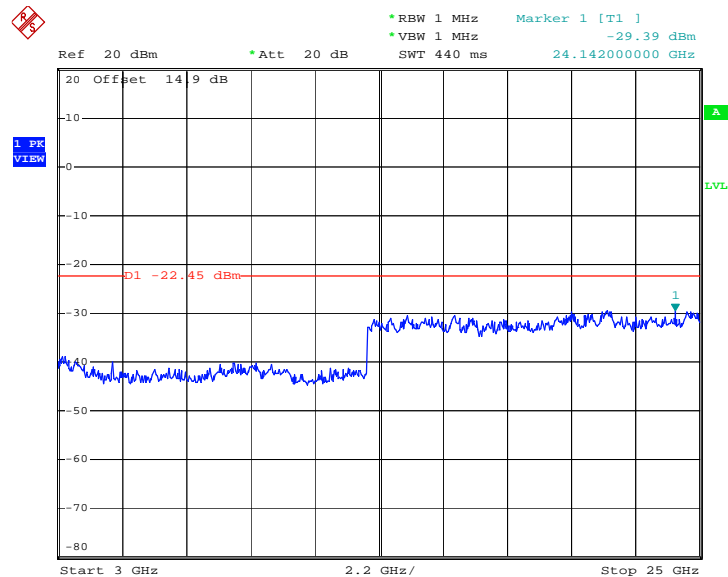
Test Mode :	Mode 2	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	43~44%
Test Channel :	06	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:43:04

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

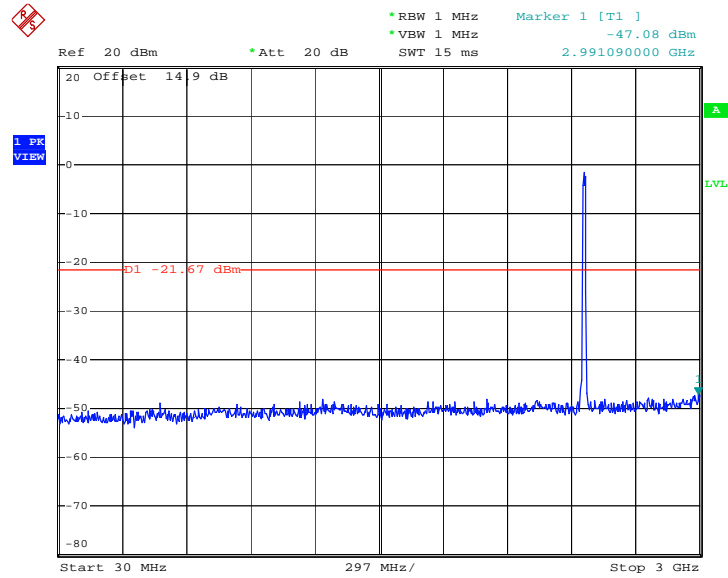


Date: 26.APR.2012 15:43:22



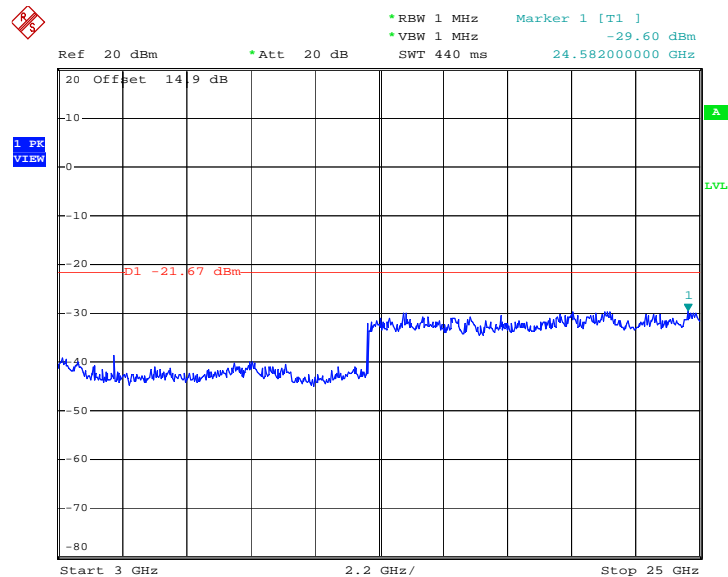
Test Mode :	Mode 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	43~44%
Test Channel :	11	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:44:10

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

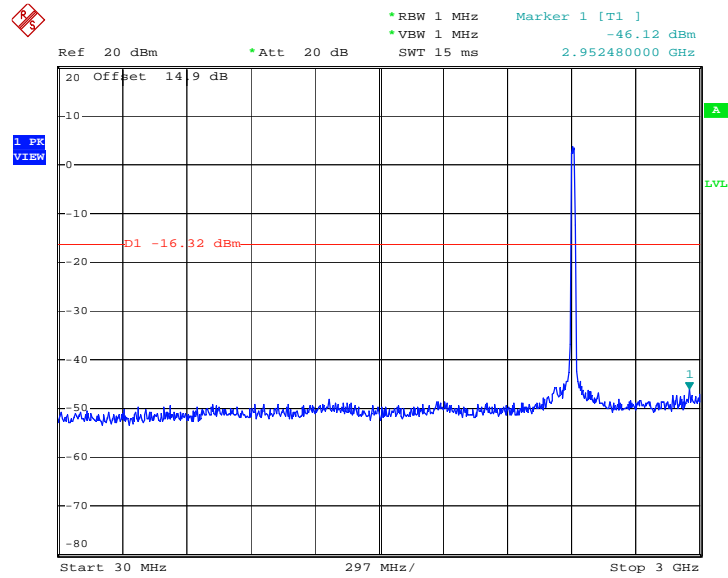


Date: 26.APR.2012 15:44:28



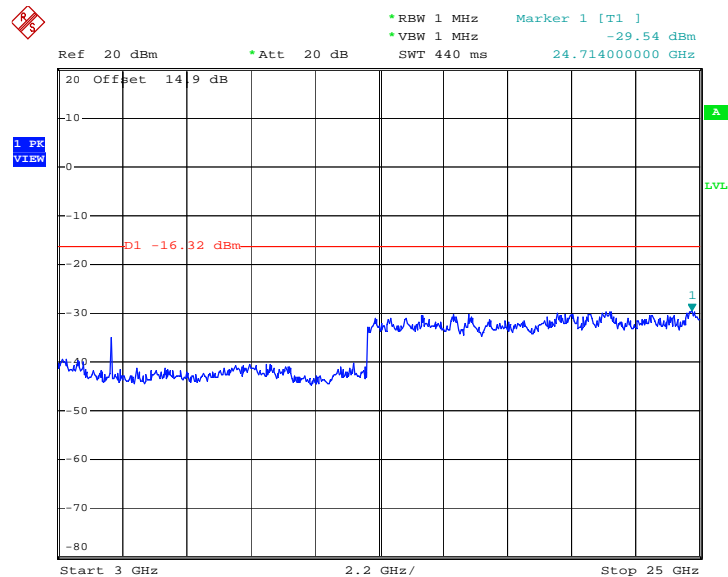
Test Mode :	Mode 4	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	43~44%
Test Channel :	01	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:37:39

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

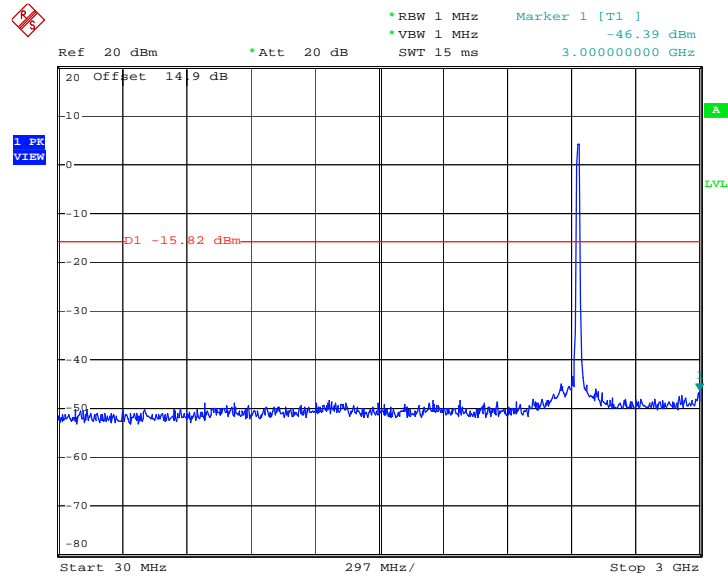


Date: 26.APR.2012 15:37:58



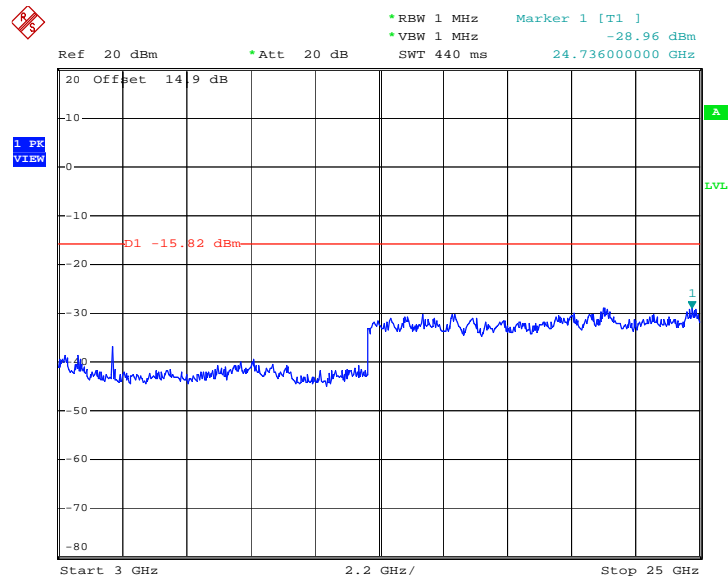
Test Mode :	Mode 5	Temperature :	23~24
Test Band :	802.11g	Relative Humidity :	43~44
Test Channel :	06	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:38:44

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

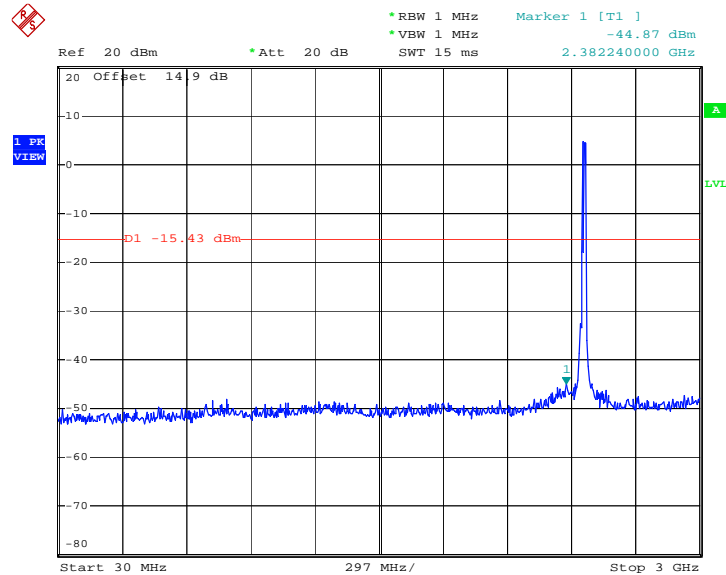


Date: 26.APR.2012 15:39:02



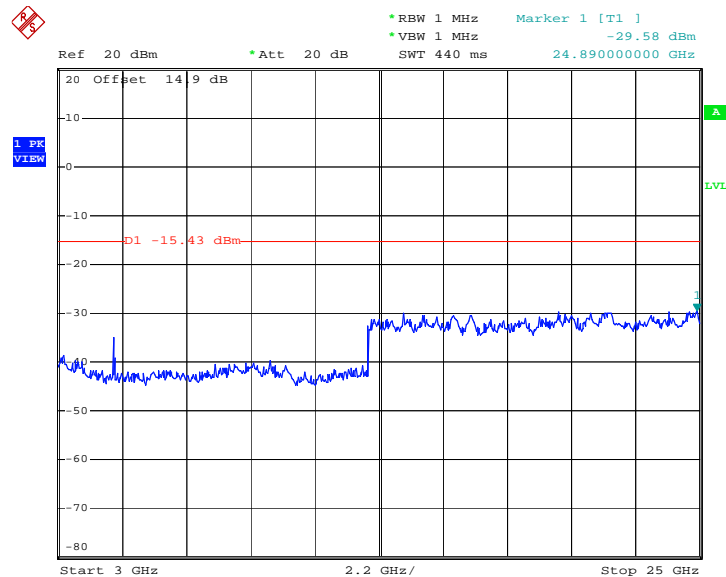
Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	43~44%
Test Channel :	11	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:39:40

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

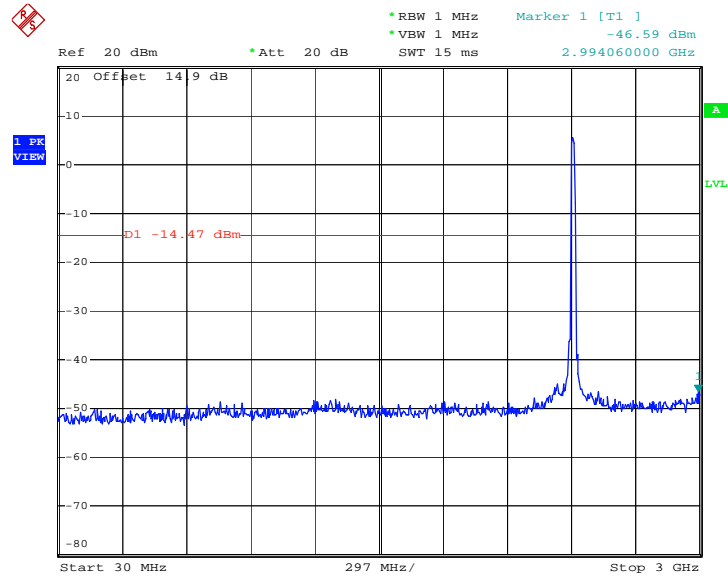


Date: 26.APR.2012 15:39:59



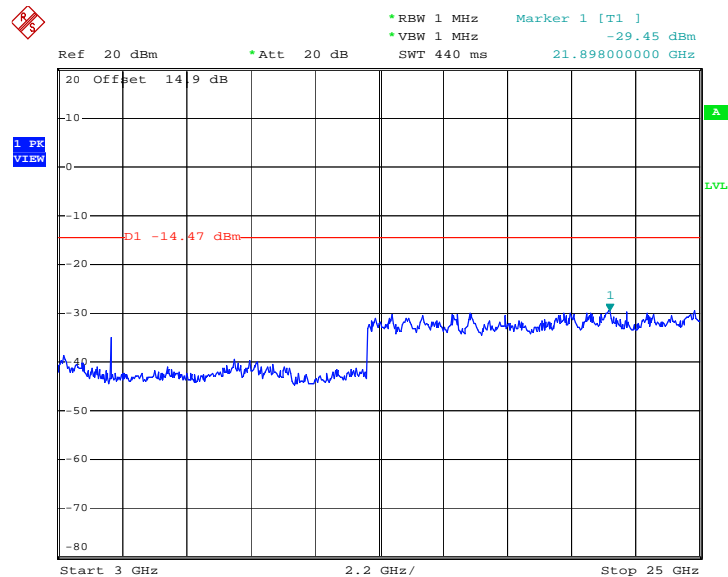
Test Mode :	Mode 7	Temperature :	23~24°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	43~44%
Test Channel :	01	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:46:16

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

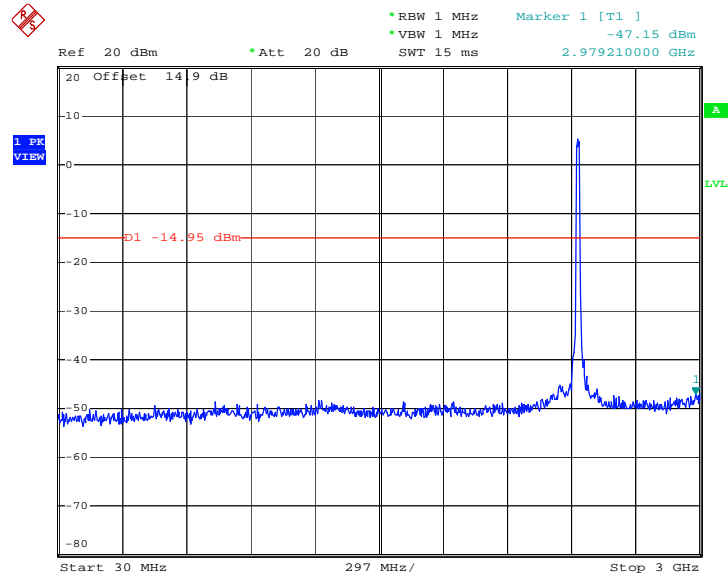


Date: 26.APR.2012 15:46:34



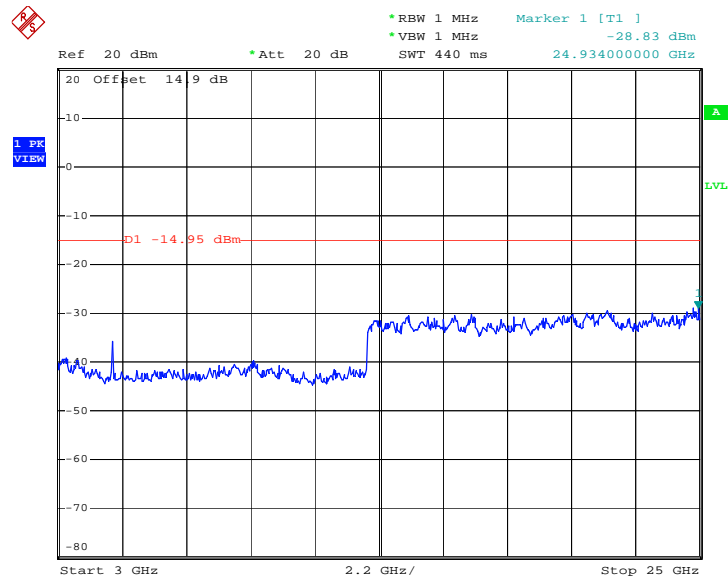
Test Mode :	Mode 8	Temperature :	23~24°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	43~44%
Test Channel :	06	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:47:12

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

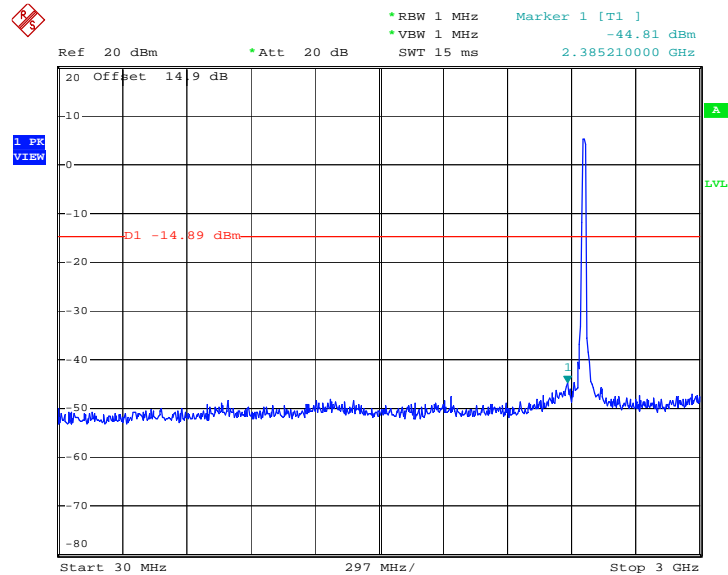


Date: 26.APR.2012 15:47:30



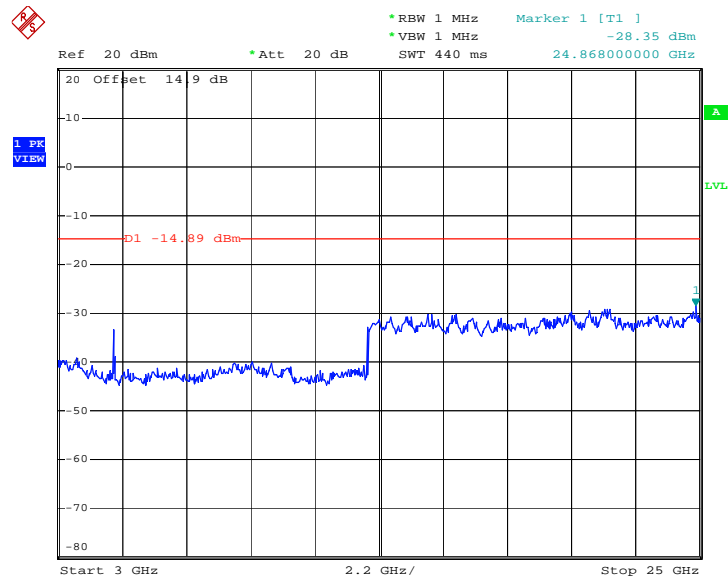
Test Mode :	Mode 9	Temperature :	23~24°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	43~44%
Test Channel :	11	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:48:12

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

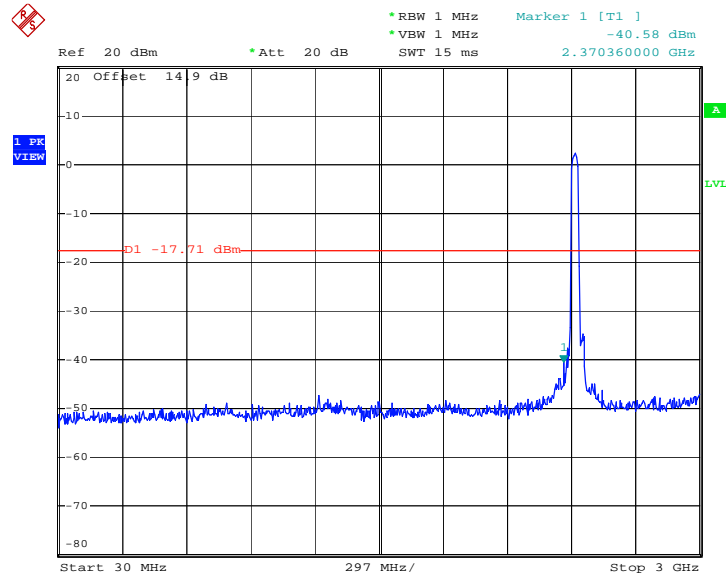


Date: 26.APR.2012 15:48:30



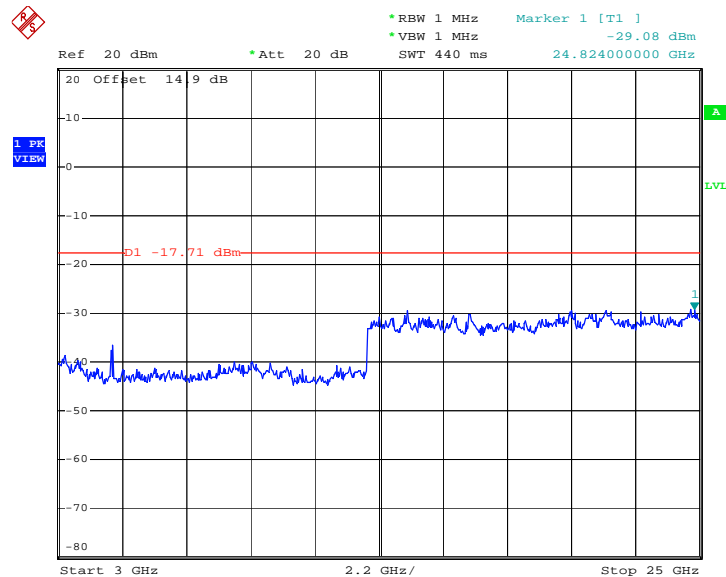
Test Mode :	Mode 10	Temperature :	23~24°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	43~44%
Test Channel :	03	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 15:53:14

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

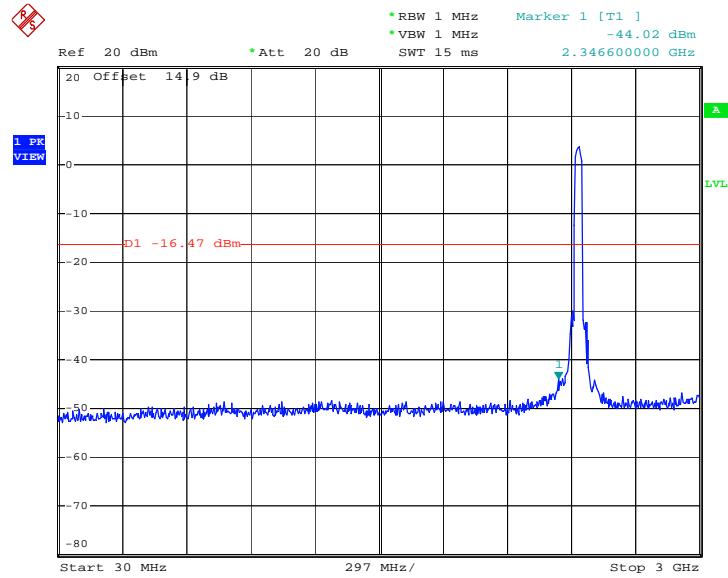


Date: 26.APR.2012 15:53:32



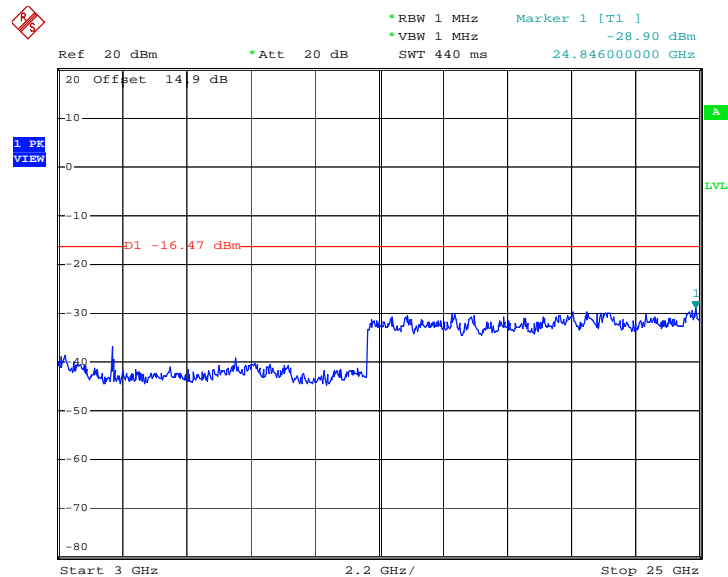
Test Mode :	Mode 11	Temperature :	23~24°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	43~44%
Test Channel :	06	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 16:09:21

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

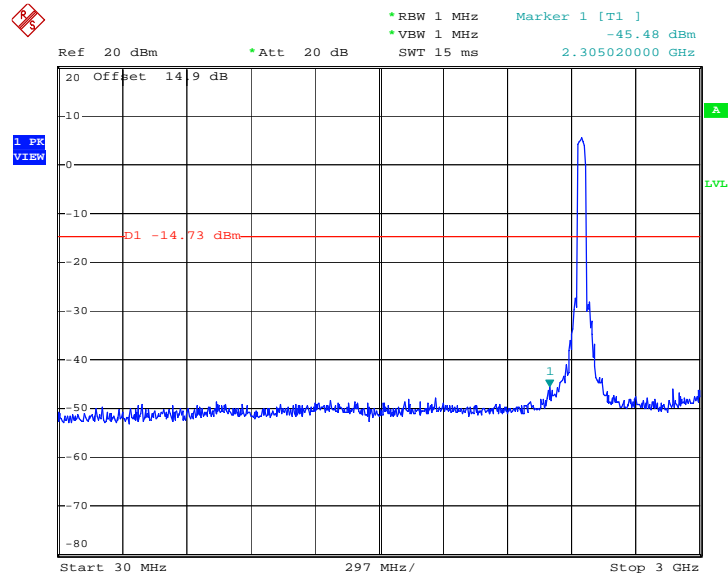


Date: 26.APR.2012 16:07:53



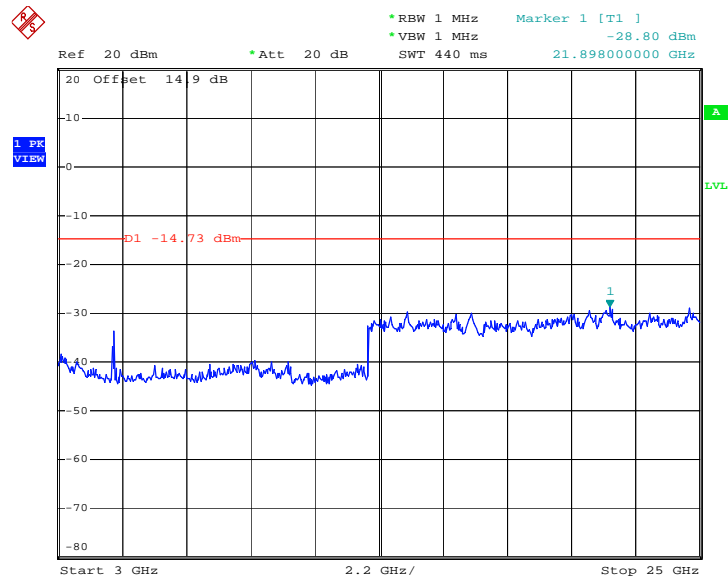
Test Mode :	Mode 12	Temperature :	23~24°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	43~44%
Test Channel :	09	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 26.APR.2012 16:12:06

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 26.APR.2012 16:11:07

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.

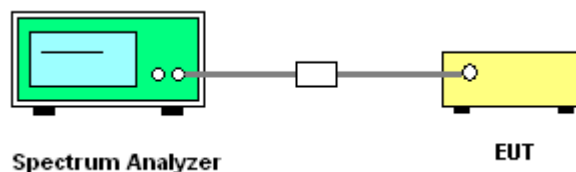
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The testing follows Measurement Procedure PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Record the measurement data derived from spectrum analyzer.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Video bandwidth (VBW) \geq 300 KHz In order to make an accurate measurement, set the span to 5-30% greater than Emission Bandwidth (EBW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ kHz}/100\text{ kHz} = -15.2\text{ dB})$.

3.5.4 Test Setup



3.5.5 Test Result of Power Spectral Density

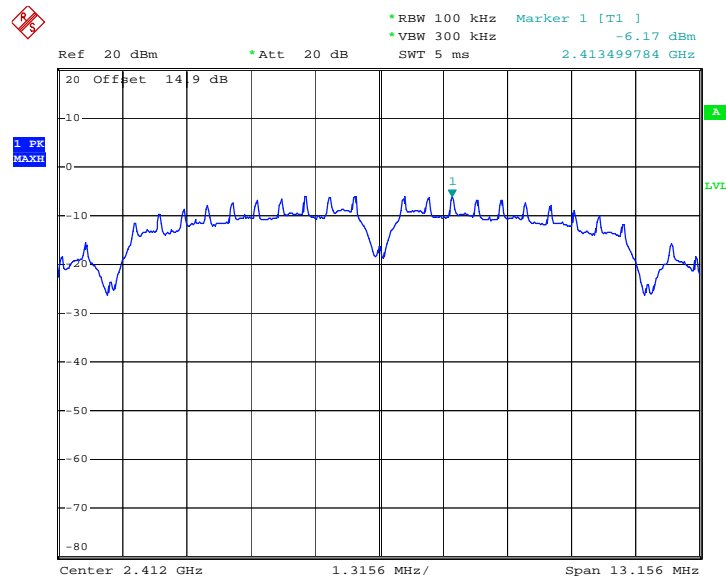
Test Mode :	Mode 1, 2, 3	Temperature :	23~24□
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-6.17	-21.37	8	Pass
06	2437	-5.50	-20.70	8	Pass
11	2462	-4.78	-19.98	8	Pass

Note:

1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3kHz (dBm)= Measured power density/ 100KHz (dBm) + BWCF (dB)

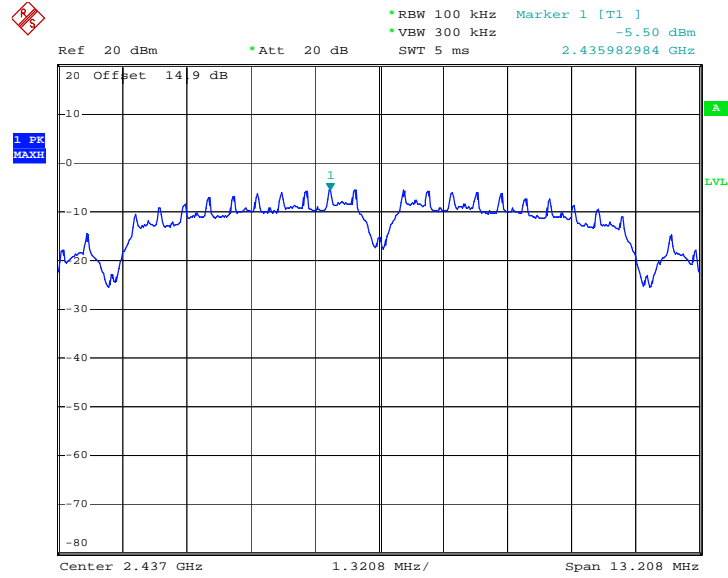
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 25.APR.2012 15:32:24

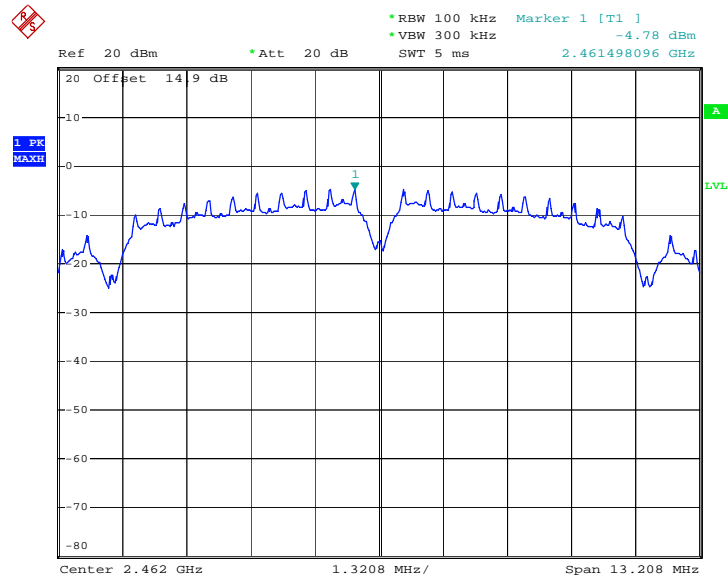


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 25.APR.2012 15:42:34

Mode 3 : PSD Plot on 802.11b Channel 11



Date: 25.APR.2012 15:44:40



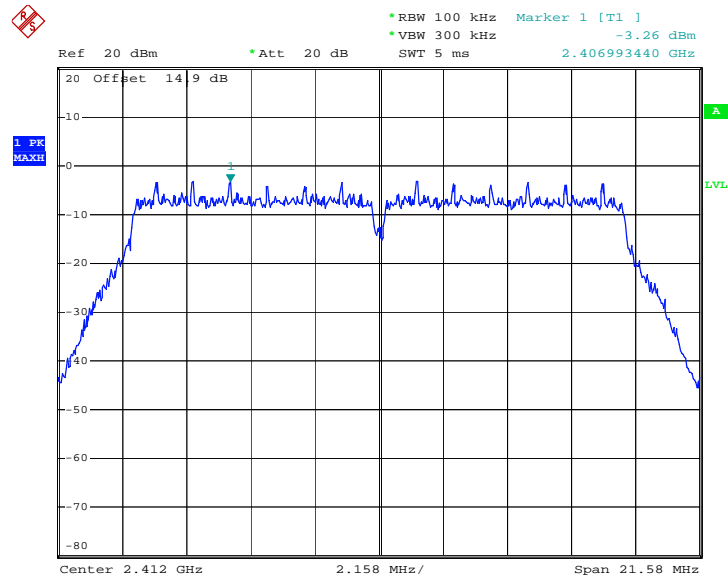
Test Mode :	Mode 4, 5, 6	Temperature :	23~24□
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-3.26	-18.46	8	Pass
06	2437	-3.14	-18.34	8	Pass
11	2462	-2.65	-17.85	8	Pass

Note:

1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3KHz (dBm)= Measured power density/ 100KHz (dBm) + BWCF (dB)

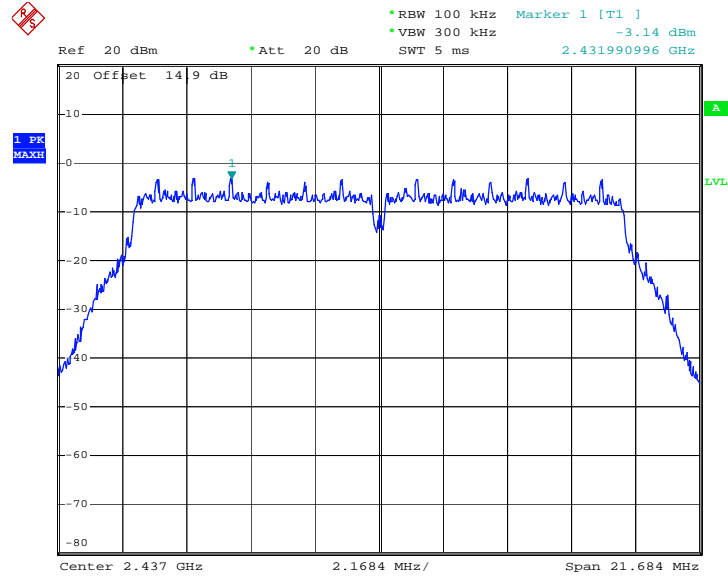
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 25.APR.2012 15:58:45

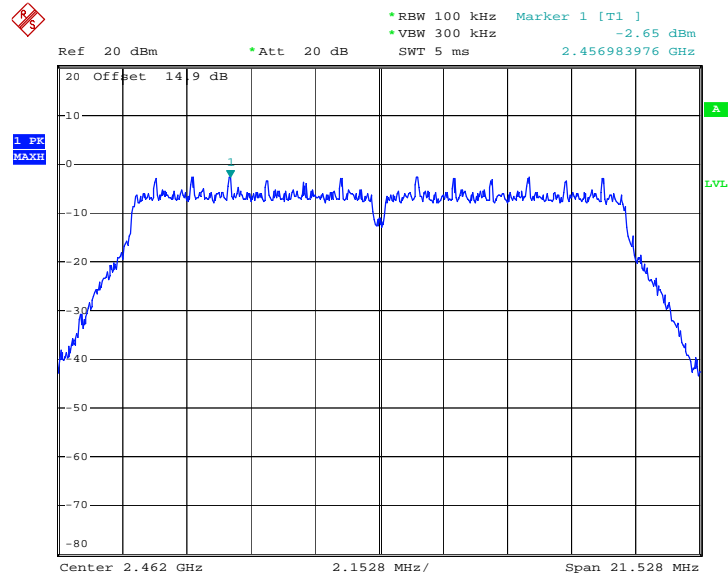


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 25.APR.2012 15:53:17

Mode 6 : PSD Plot on 802.11g Channel 11



Date: 25.APR.2012 15:55:36



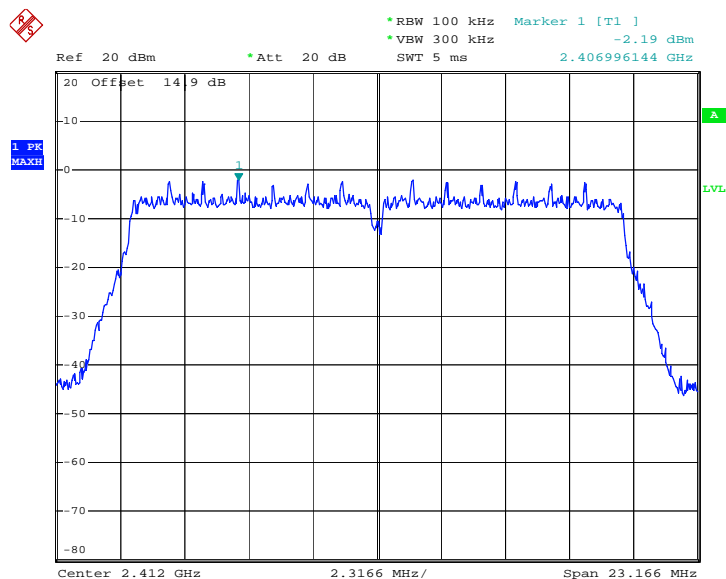
Test Mode :	Mode 7, 8, 9	Temperature :	23~24□
Test Engineer :	Zhi Lu	Relative Humidity :	43~44%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-2.19	-17.39	8	Pass
06	2437	-1.78	-16.98	8	Pass
11	2462	-1.67	-16.87	8	Pass

Note:

1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = 10 log (3k/100k) = -15.2 dB
3. Power Density/ 3KHz (dBm)= Measured power density/ 100KHz (dBm) + BWCF (dB)

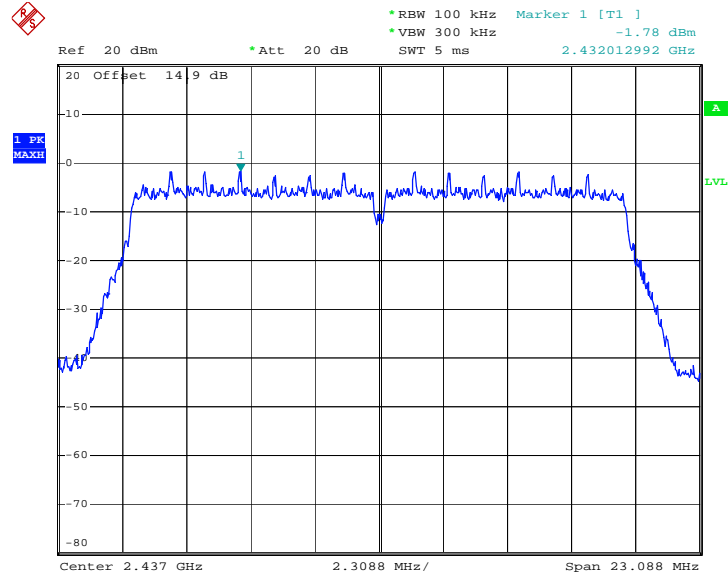
Mode 7 : PSD Plot on 802.11g/n (BW 20MHz) Channel 01



Date: 25.APR.2012 16:00:29

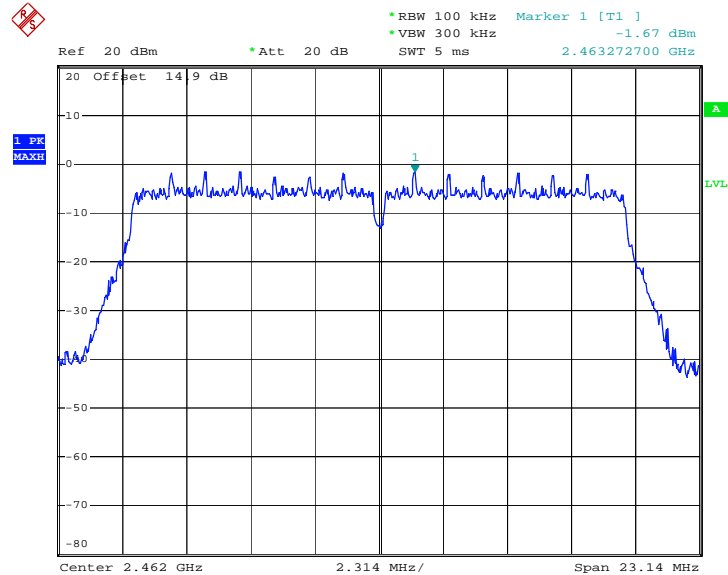


Mode 8 : PSD Plot on 802.11g/n (BW 20MHz) Channel 6



Date: 25.APR.2012 16:02:39

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



Date: 25.APR.2012 16:04:04



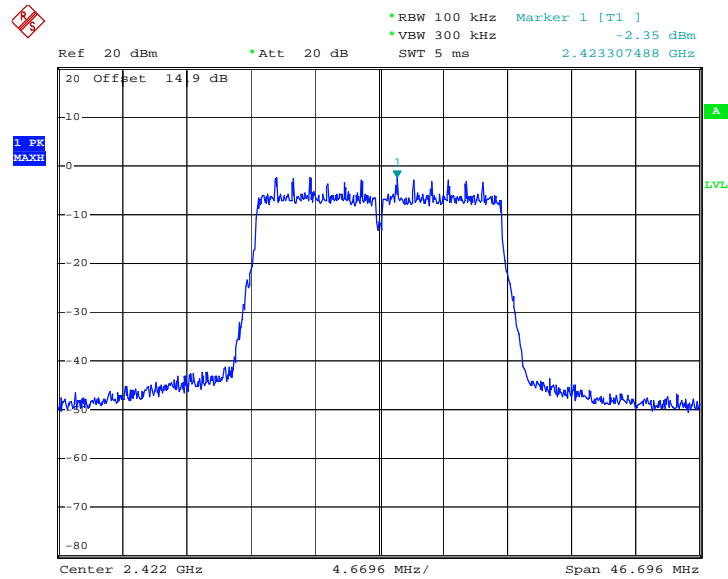
Test Mode :	Mode 10, 11, 12	Temperature :	23~24
Test Engineer :	Zhi Lu	Relative Humidity :	43~44

Channel	Frequency (MHz)	802.11g/n (BW 40MHz) Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
03	2422	-2.35	-17.55	8	Pass
06	2437	-2.14	-17.34	8	Pass
09	2452	-1.60	-16.80	8	Pass

Note:

1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3KHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB)

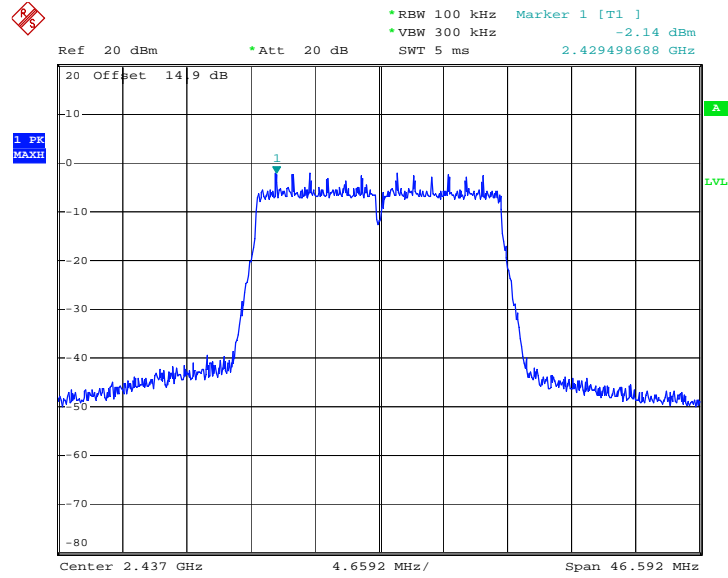
Mode 10 : PSD Plot on 802.11g/n (BW 40MHz) Channel 03



Date: 25.APR.2012 16:06:36

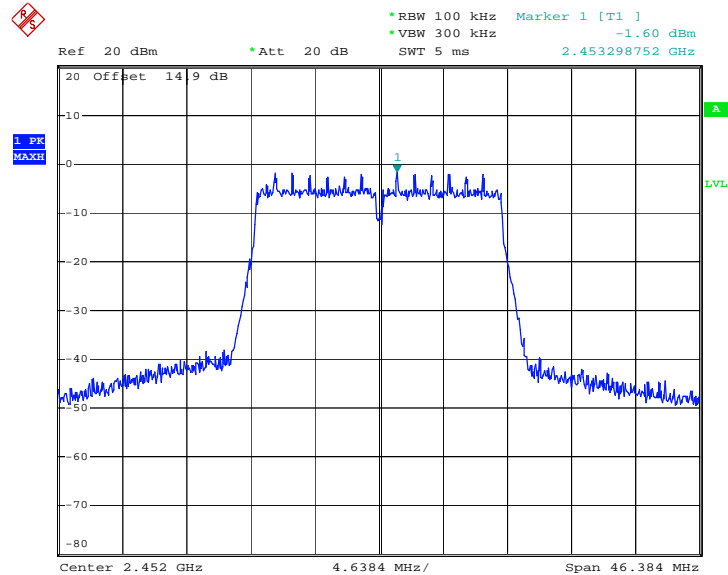


Mode 11 : PSD Plot on 802.11g/n (BW 40MHz) Channel 06



Date: 25.APR.2012 16:08:53

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



Date: 25.APR.2012 16:11:04

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.

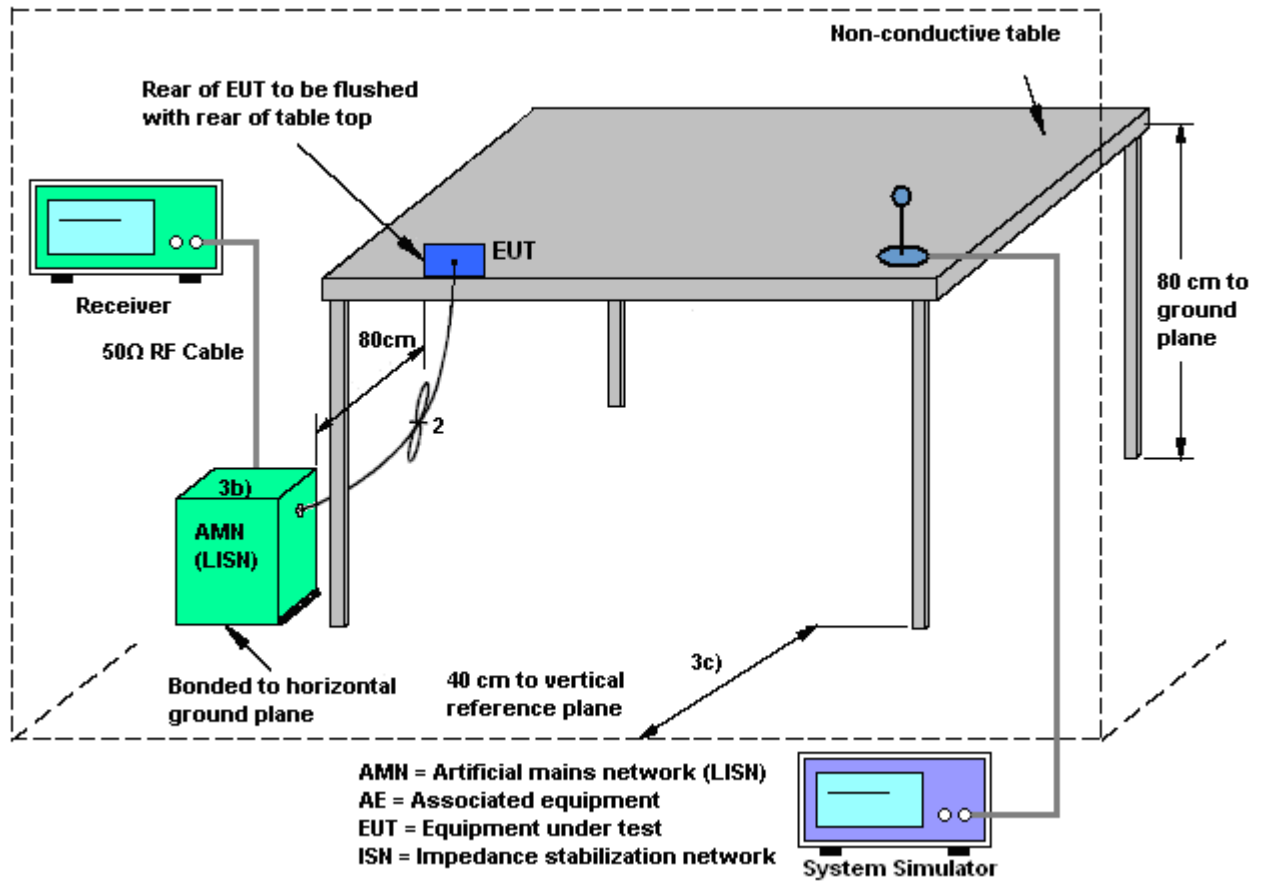
3.6.2 Measuring Instruments

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.

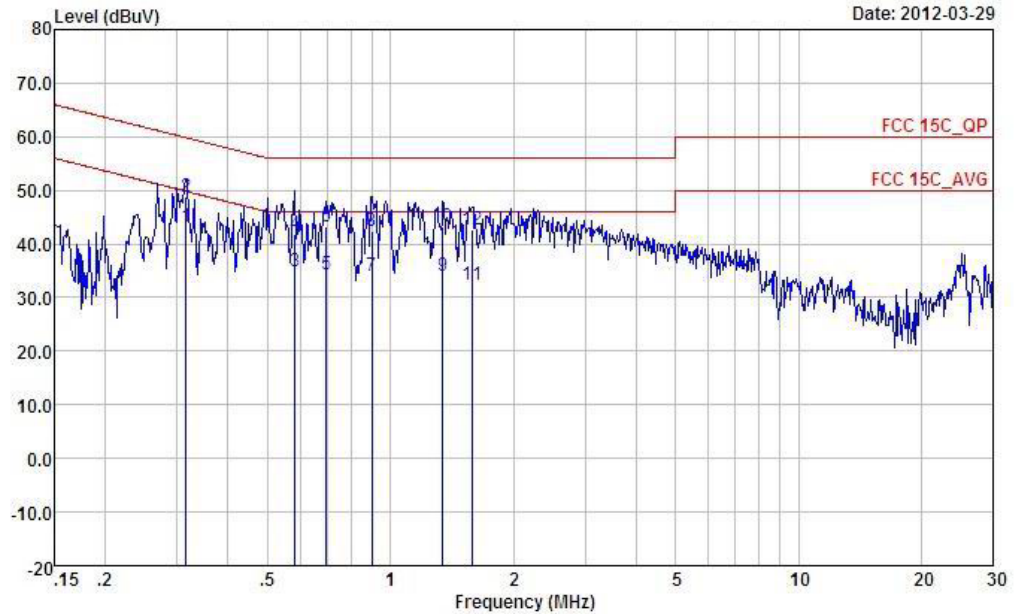
3.6.4 Test Setup





3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Neaps Wang	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM 850 Idle + Bluetooth Link + WLAN Link + Adapter + Earphone + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

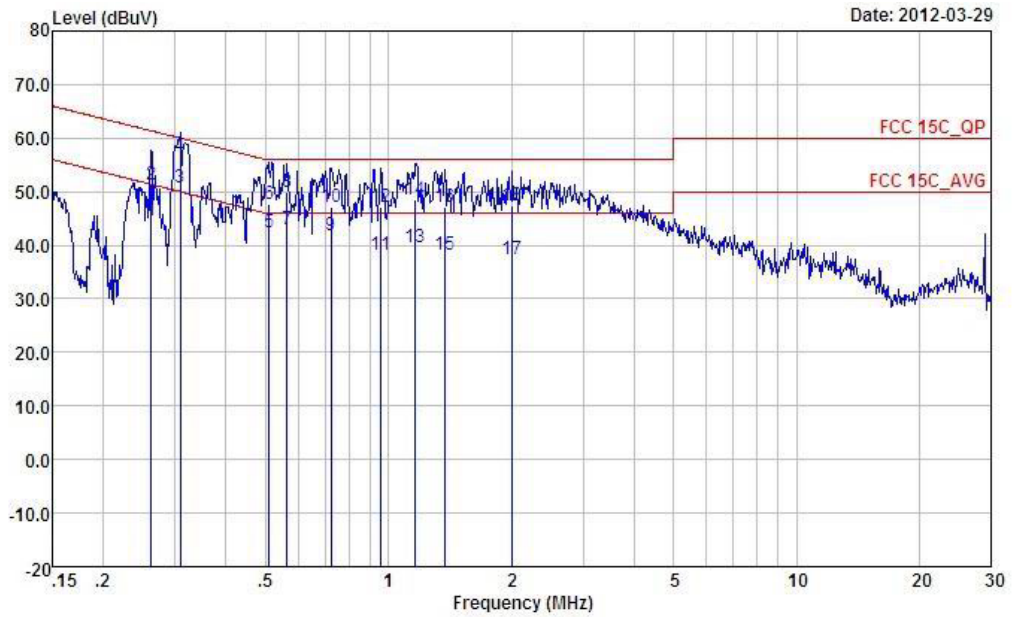


Site : CO01-SZ
 Condition : FCC 15C_QP LISN_L_2000601 LINE
 Project : (FR)231611
 Mode : Mode1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.31	43.19	-16.65	59.84	33.10	0.02	10.07	Average
2	0.31	48.89	-10.95	59.84	38.80	0.02	10.07	QP
3	0.58	35.01	-20.99	56.00	24.90	0.02	10.09	Average
4	0.58	41.71	-14.29	56.00	31.60	0.02	10.09	QP
5	0.70	34.42	-21.58	56.00	24.30	0.02	10.10	Average
6	0.70	43.12	-12.88	56.00	33.00	0.02	10.10	QP
7	0.90	34.03	-21.97	56.00	23.89	0.03	10.11	Average
8	0.90	42.33	-13.67	56.00	32.19	0.03	10.11	QP
9	1.34	34.15	-21.85	56.00	24.00	0.03	10.12	Average
10	1.34	43.15	-12.85	56.00	33.00	0.03	10.12	QP
11	1.59	32.36	-23.64	56.00	22.20	0.03	10.13	Average
12	1.59	42.76	-13.24	56.00	32.60	0.03	10.13	QP



Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Neaps Wang	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM 850 Idle + Bluetooth Link + WLAN Link + Adapter + Earphone + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
 Condition : FCC 15C_QP LISN_N_2000601 NEUTRAL
 Project : (FR)231611
 Mode : Mode1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.26	44.58	-16.80	61.38	34.50	0.02	10.06	Average
2	0.26	51.38	-10.00	61.38	41.30	0.02	10.06	QP
3	0.31	50.88	-9.14	60.02	40.80	0.02	10.06	Average
4	0.31	56.48	-3.54	60.02	46.40	0.02	10.06	QP
5	0.51	42.30	-13.70	56.00	32.19	0.02	10.09	Average
6	0.51	47.70	-8.30	56.00	37.59	0.02	10.09	QP
7	0.56	42.91	-13.09	56.00	32.80	0.02	10.09	Average
8	0.56	50.01	-5.99	56.00	39.90	0.02	10.09	QP
9	0.72	41.72	-14.28	56.00	31.60	0.02	10.10	Average
10	0.72	47.12	-8.88	56.00	37.00	0.02	10.10	QP
11	0.96	38.33	-17.67	56.00	28.20	0.02	10.11	Average
12	0.96	47.13	-8.87	56.00	37.00	0.02	10.11	QP
13	1.17	39.74	-16.26	56.00	29.60	0.02	10.12	Average
14	1.17	48.44	-7.56	56.00	38.30	0.02	10.12	QP
15	1.37	38.25	-17.75	56.00	28.10	0.03	10.12	Average
16	1.37	47.15	-8.85	56.00	37.00	0.03	10.12	QP
17	2.01	37.48	-18.52	56.00	27.30	0.03	10.15	Average
18	2.01	47.48	-8.52	56.00	37.30	0.03	10.15	QP

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

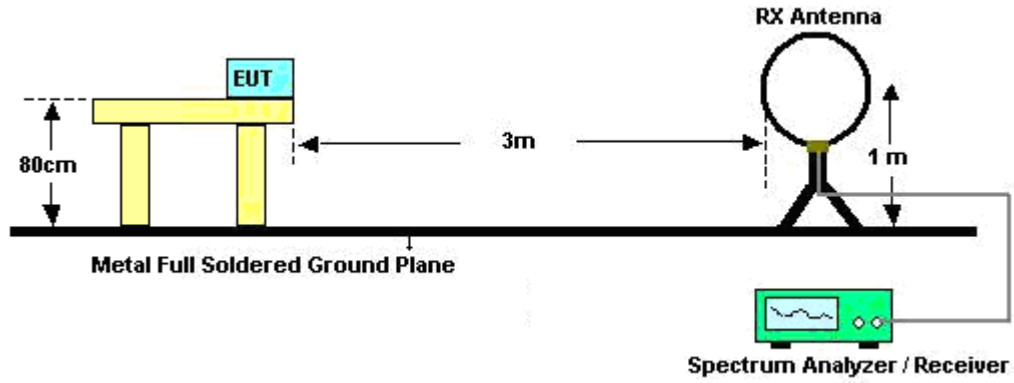
See list of measuring instruments of this test report.

3.7.3 Test Procedures

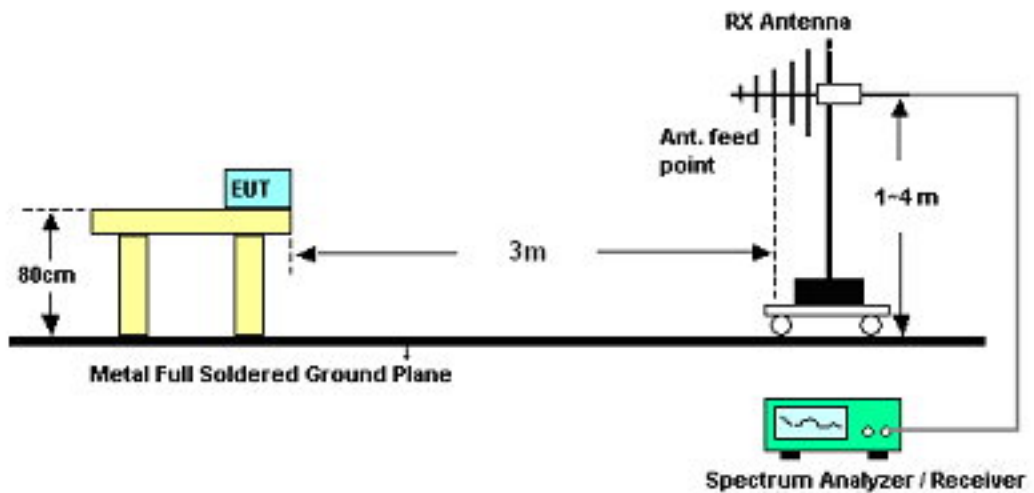
1. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Measurement above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB per decade from 3m to 1m.
 Distance extrapolation factor = $20 \log(\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
2. Maximize the emission by rotating the EUT for three orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines in ANSI C63.4-2003.

3.7.4 Test Setup

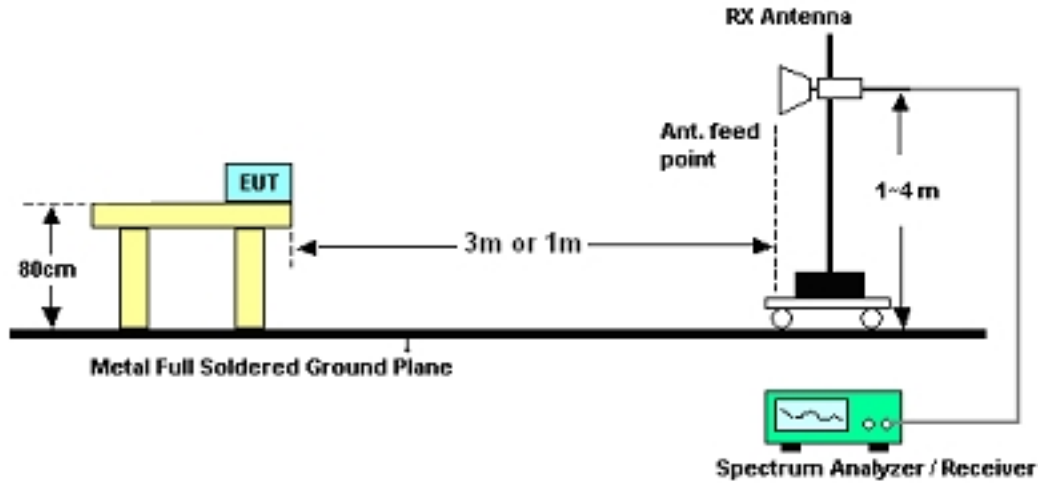
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.



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

Test Mode :	Mode 1	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
36.79	28.78	-11.22	40	44.42	14.19	0.24	30.07	100	0	Peak
61.04	26.6	-13.4	40	51.14	5.28	0.31	30.13	-	-	Peak
189.08	19.43	-24.07	43.5	40.31	8.49	0.57	29.94	-	-	Peak
475.23	23.01	-22.99	46	35.09	16.75	0.93	29.76	-	-	Peak
789.51	25.68	-20.32	46	34.16	19.86	1.24	29.58	-	-	Peak
876.81	27.19	-18.81	46	34.98	20.48	1.29	29.56	-	-	Peak
2388.28	36.58	-17.42	54	34.3	32.86	3.47	34.05	119	350	Average
2388.28	51.06	-22.94	74	48.78	32.86	3.47	34.05	119	350	Peak
2412	99.62	-	-	97.29	32.89	3.52	34.08	100	340	Peak
2412	94.38	-	-	92.05	32.89	3.52	34.08	100	340	Average
2494.11	39.24	-14.76	54	36.7	33.05	3.72	34.23	100	340	Average
2494.11	50.51	-23.49	74	47.97	33.05	3.72	34.23	100	340	Peak
4824	41.42	-12.58	54	33.55	35.17	4.97	32.27	200	360	Average
4824	52.14	-21.86	74	44.27	35.17	4.97	32.27	200	360	Peak



Test Mode :	Mode 1	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.76	33.12	-6.88	40	49.24	13.7	0.24	30.06	100	340	QP
188.11	21.45	-22.05	43.5	42.33	8.48	0.57	29.93	-	-	Peak
338.46	20.85	-25.15	46	35.76	14.23	0.8	29.94	-	-	Peak
478.14	23.26	-22.74	46	35.24	16.83	0.94	29.75	-	-	Peak
725.49	28.93	-17.07	46	37.78	19.62	1.16	29.63	-	-	Peak
942.77	28.66	-25.34	54	36.16	20.7	1.33	29.53	-	-	Peak
2315.13	32.05	-21.95	54	29.96	32.73	3.22	33.86	100	360	Average
2315.13	45.14	-28.86	74	43.05	32.73	3.22	33.86	100	360	Peak
2412	94.2	-	-	91.87	32.89	3.52	34.08	111	360	Peak
2412	89.61	-	-	87.28	32.89	3.52	34.08	111	360	Average
2489.74	34	-20	54	31.46	33.05	3.72	34.23	100	360	Average
2489.74	45.63	-28.37	74	43.09	33.05	3.72	34.23	100	360	Peak
4824	55.89	-18.11	74	48.02	35.17	4.97	32.27	100	360	Peak
4824	49.89	-4.11	54	42.02	35.17	4.97	32.27	100	360	Average



Test Mode :	Mode 2	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
60.07	26.16	-13.84	40	50.69	5.3	0.31	30.14	100	0	Peak
189.08	19.36	-24.14	43.5	40.24	8.49	0.57	29.94	-	-	Peak
357.86	19.01	-26.99	46	33.45	14.67	0.82	29.93	-	-	Peak
471.35	22.51	-23.49	46	34.71	16.65	0.92	29.77	-	-	Peak
748.77	24.89	-21.11	46	33.36	19.89	1.18	29.54	-	-	Peak
802.12	26.65	-19.35	46	35.12	19.87	1.25	29.59	-	-	Peak
2310.76	36.23	-17.77	54	34.14	32.73	3.22	33.86	100	0	Average
2310.76	49.8	-24.2	74	47.71	32.73	3.22	33.86	100	0	Peak
2437	96.91	-	-	94.51	32.95	3.6	34.15	100	0	Peak
2437	90.48	-	-	88.08	32.95	3.6	34.15	100	0	Average
2489.93	36.72	-17.28	54	34.18	33.05	3.72	34.23	100	0	Average
2489.93	49.36	-24.64	74	46.82	33.05	3.72	34.23	100	0	Peak
4875	40.92	-13.08	54	33.03	35.18	4.98	32.27	280	360	Average
4875	51.79	-22.21	74	43.9	35.18	4.98	32.27	280	360	Peak



Test Mode :	Mode 2	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
36.79	33.44	-6.56	40	49.08	14.19	0.24	30.07	100	360	QP
189.08	21.57	-21.93	43.5	42.45	8.49	0.57	29.94	-	-	Peak
339.43	20.52	-25.48	46	35.41	14.25	0.8	29.94	-	-	Peak
541.19	24.38	-21.62	46	34.75	18.33	0.99	29.69	-	-	Peak
762.35	27.83	-18.17	46	36.3	19.89	1.19	29.55	-	-	Peak
991.27	29.82	-24.18	54	36.88	21.05	1.41	29.52	-	-	Peak
2376.88	36.21	-17.79	54	33.97	32.83	3.42	34.01	100	360	Average
2376.88	49.69	-24.31	74	47.45	32.83	3.42	34.01	100	360	Peak
2437	95.7	-	-	93.3	32.95	3.6	34.15	100	307	Peak
2437	91.4	-	-	89	32.95	3.6	34.15	100	307	Average
2488.98	36.63	-17.37	54	34.09	33.05	3.72	34.23	100	360	Average
2488.98	49.29	-24.71	74	46.75	33.05	3.72	34.23	100	360	Peak
4875	56.04	-17.96	74	48.15	35.18	4.98	32.27	100	360	Peak
4875	50.62	-3.38	54	42.73	35.18	4.98	32.27	100	360	Average



Test Mode :	Mode 3	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.76	27.19	-12.81	40	43.31	13.7	0.24	30.06	100	0	Peak
189.08	18.84	-24.66	43.5	39.72	8.49	0.57	29.94	-	-	Peak
297.72	18.3	-27.7	46	34.56	12.97	0.72	29.95	-	-	Peak
471.35	22.74	-23.26	46	34.94	16.65	0.92	29.77	-	-	Peak
749.74	24.38	-21.62	46	32.84	19.9	1.18	29.54	-	-	Peak
873.9	26.7	-19.3	46	34.51	20.48	1.29	29.58	-	-	Peak
2326.34	35.88	-18.12	54	33.75	32.76	3.27	33.9	100	360	Average
2326.34	49.2	-24.8	74	47.07	32.76	3.27	33.9	100	360	Peak
2462	97.32	-	-	94.87	32.98	3.64	34.17	100	333	Peak
2462	92.29	-	-	89.84	32.98	3.64	34.17	100	333	Average
2494.49	36.44	-17.56	54	33.9	33.05	3.72	34.23	100	360	Average
2494.49	49.47	-24.53	74	46.93	33.05	3.72	34.23	100	360	Peak
4923	40.08	-13.92	54	32.16	35.19	4.99	32.26	280	0	Average
4923	52.14	-21.86	74	44.22	35.19	4.99	32.26	280	0	Peak



Test Mode :	Mode 3	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.76	35.62	-4.38	40	51.74	13.7	0.24	30.06	100	360	QP
189.08	22.24	-21.26	43.5	43.12	8.49	0.57	29.94	-	-	Peak
338.46	20.91	-25.09	46	35.82	14.23	0.8	29.94	-	-	Peak
573.2	24.96	-21.04	46	35.04	18.54	1.03	29.65	-	-	Peak
719.67	27.29	-18.71	46	36.28	19.52	1.15	29.66	-	-	Peak
945.68	29.88	-24.12	54	37.38	20.71	1.33	29.54	-	-	Peak
2336.79	21.79	-32.21	54	19.62	32.78	3.33	33.94	100	50	Average
2336.79	49.54	-24.46	74	47.37	32.78	3.33	33.94	100	50	Peak
2462	96.57	-	-	94.12	32.98	3.64	34.17	100	35	Peak
2462	91.99	-	-	89.54	32.98	3.64	34.17	100	35	Average
2491.83	23.15	-30.85	54	20.61	33.05	3.72	34.23	147	44	Average
2491.83	49.58	-24.42	74	47.04	33.05	3.72	34.23	147	44	Peak
4923	53.68	-0.32	54	45.76	35.19	4.99	32.26	100	0	Average
4923	58.26	-15.74	74	50.34	35.19	4.99	32.26	100	0	Peak



Test Mode :	Mode 4	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
83.35	32.39	-7.61	40	54.72	7.34	0.36	30.03	100	360	Peak
140.58	20.05	-23.45	43.5	38.74	10.82	0.49	30	-	-	Peak
189.08	19.66	-23.84	43.5	40.54	8.49	0.57	29.94	-	-	Peak
286.08	18.51	-27.49	46	34.97	12.78	0.71	29.95	-	-	Peak
474.26	23.03	-22.97	46	35.14	16.72	0.93	29.76	-	-	Peak
859.35	26.82	-19.18	46	34.67	20.5	1.28	29.63	-	-	Peak
2389.8	44.57	-9.43	54	42.29	32.86	3.47	34.05	100	332	Average
2389.8	59.09	-14.91	74	56.81	32.86	3.47	34.05	100	332	Peak
2412	105.19	-	-	102.86	32.89	3.52	34.08	100	332	Peak
2412	90.65	-	-	88.32	32.89	3.52	34.08	100	332	Average
2487.27	40.49	-13.51	54	38	33.01	3.68	34.2	100	332	Average
2487.27	52.96	-21.04	74	50.47	33.01	3.68	34.2	100	332	Peak
4824	41.41	-12.59	54	33.54	35.17	4.97	32.27	100	360	Average
4824	53.5	-20.5	74	45.63	35.17	4.97	32.27	100	360	Peak



Test Mode :	Mode 4	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.97	36.69	-3.31	40	49.23	17.29	0.25	30.08	100	340	QP
36.79	33.04	-6.96	40	48.68	14.19	0.24	30.07	100	340	QP
83.35	27.81	-12.19	40	50.14	7.34	0.36	30.03	-	-	Peak
189.08	22.22	-21.28	43.5	43.1	8.49	0.57	29.94	-	-	Peak
717.73	28.27	-17.73	46	37.3	19.49	1.15	29.67	-	-	Peak
860.32	25.9	-20.1	46	33.75	20.5	1.28	29.63	-	-	Peak
2389.8	44.16	-9.84	54	41.88	32.86	3.47	34.05	100	40	Average
2389.8	56.88	-17.12	74	54.6	32.86	3.47	34.05	100	40	Peak
2412	102.13	-	-	99.8	32.89	3.52	34.08	100	40	Peak
2412	88.94	-	-	86.61	32.89	3.52	34.08	100	40	Average
2495.44	38.67	-15.33	54	36.13	33.05	3.72	34.23	100	40	Average
2495.44	51.66	-22.34	74	49.12	33.05	3.72	34.23	100	40	Peak
4833	58.54	-15.46	74	50.67	35.17	4.97	32.27	100	0	Peak
4833	44.59	-9.41	54	36.72	35.17	4.97	32.27	100	0	Average



Test Mode :	Mode 5	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.97	30.41	-9.59	40	42.95	17.29	0.25	30.08	100	0	Peak
37.76	26.75	-13.25	40	42.87	13.7	0.24	30.06	-	-	Peak
60.07	26.29	-13.71	40	50.82	5.3	0.31	30.14	-	-	Peak
531.49	22.78	-23.22	46	33.41	18.08	0.99	29.7	-	-	Peak
801.15	27.27	-18.73	46	35.75	19.86	1.25	29.59	-	-	Peak
868.08	28.46	-17.54	46	36.28	20.49	1.29	29.6	-	-	Peak
2363.2	38.76	-15.24	54	36.55	32.81	3.38	33.98	100	336	Average
2363.2	51.74	-22.26	74	49.53	32.81	3.38	33.98	100	336	Peak
2437	90.94	-	-	88.54	32.95	3.6	34.15	100	337	Average
2437	104.56	-	-	102.16	32.95	3.6	34.15	100	337	Peak
2484.04	53.25	-20.75	74	50.76	33.01	3.68	34.2	100	336	Peak
2484.04	41.4	-12.6	54	38.91	33.01	3.68	34.2	100	336	Average
4875	40.24	-13.76	54	32.35	35.18	4.98	32.27	200	360	Average
4875	52.32	-21.68	74	44.43	35.18	4.98	32.27	200	360	Peak



Test Mode :	Mode 5	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.76	36.71	-3.29	40	52.83	13.7	0.24	30.06	200	0	Peak
189.08	19.69	-23.81	43.5	40.57	8.49	0.57	29.94	-	-	Peak
340.4	20.32	-25.68	46	35.17	14.28	0.81	29.94	-	-	Peak
480.08	23.65	-22.35	46	35.59	16.87	0.94	29.75	-	-	Peak
718.7	28.33	-17.67	46	37.35	19.5	1.15	29.67	-	-	Peak
841.89	26.34	-19.66	46	34.28	20.43	1.28	29.65	-	-	Peak
2389.99	37.87	-16.13	54	35.59	32.86	3.47	34.05	112	0	Average
2389.99	51.24	-22.76	74	48.96	32.86	3.47	34.05	112	0	Peak
2437	100.96	-	-	98.56	32.95	3.6	34.15	111	22	Peak
2437	87.43	-	-	85.03	32.95	3.6	34.15	111	22	Average
2484.61	38.51	-15.49	54	36.02	33.01	3.68	34.2	111	0	Average
2484.61	52.18	-21.82	74	49.69	33.01	3.68	34.2	111	0	Peak
4878	46.52	-7.48	54	38.63	35.18	4.98	32.27	100	0	Average
4878	59.62	-14.38	74	51.73	35.18	4.98	32.27	100	0	Peak



Test Mode :	Mode 6	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.97	31.31	-8.69	40	43.85	17.29	0.25	30.08	100	0	Peak
36.79	27.53	-12.47	40	43.17	14.19	0.24	30.07	-	-	Peak
189.08	19	-24.5	43.5	39.88	8.49	0.57	29.94	-	-	Peak
739.07	24.97	-21.03	46	33.57	19.8	1.17	29.57	-	-	Peak
840.92	27.37	-18.63	46	35.32	20.42	1.28	29.65	-	-	Peak
972.84	26.28	-27.72	54	33.55	20.89	1.37	29.53	-	-	Peak
2388.66	39.69	-14.31	54	37.41	32.86	3.47	34.05	100	360	Average
2388.66	52.14	-21.86	74	49.86	32.86	3.47	34.05	100	360	Peak
2462	104.66	-	-	102.21	32.98	3.64	34.17	100	336	Peak
2462	90.92	-	-	88.47	32.98	3.64	34.17	100	336	Average
2486.32	44.34	-9.66	54	41.85	33.01	3.68	34.2	100	336	Average
2486.32	57.52	-16.48	74	55.03	33.01	3.68	34.2	100	336	Peak
4923	40.7	-13.3	54	32.78	35.19	4.99	32.26	200	0	Average
4923	53.25	-20.75	74	45.33	35.19	4.99	32.26	200	0	Peak



Test Mode :	Mode 6	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.76	38.12	-1.88	40	54.24	13.7	0.24	30.06	120	300	Peak
189.08	21.87	-21.63	43.5	42.75	8.49	0.57	29.94	-	-	Peak
340.4	21.4	-24.6	46	36.25	14.28	0.81	29.94	-	-	Peak
599.39	26.26	-19.74	46	36.21	18.6	1.07	29.62	-	-	Peak
671.17	27.52	-18.48	46	37.03	19.06	1.11	29.68	-	-	Peak
719.67	28.01	-17.99	46	37	19.52	1.15	29.66	-	-	Peak
2379.54	37.68	-16.32	54	35.44	32.83	3.42	34.01	100	308	Average
2379.54	50.46	-23.54	74	48.22	32.83	3.42	34.01	100	308	Peak
2462	99.87	-	-	97.42	32.98	3.64	34.17	100	305	Peak
2462	86.64	-	-	84.19	32.98	3.64	34.17	100	305	Average
2484.23	41.73	-12.27	54	39.24	33.01	3.68	34.2	100	308	Average
2484.23	54.8	-19.2	74	52.31	33.01	3.68	34.2	100	308	Peak
4926	61.27	-12.73	74	53.35	35.19	4.99	32.26	100	360	Peak
4926	48.25	-5.75	54	40.33	35.19	4.99	32.26	100	360	Average



Test Mode :	Mode 7	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	30.81	-9.19	40	42.63	18	0.26	30.08	100	0	Peak
60.07	25.9	-14.1	40	50.43	5.3	0.31	30.14	-	-	Peak
82.38	28.33	-11.67	40	50.85	7.15	0.36	30.03	-	-	Peak
474.26	22.82	-23.18	46	34.93	16.72	0.93	29.76	-	-	Peak
840.92	26.84	-19.16	46	34.79	20.42	1.28	29.65	-	-	Peak
942.77	27.77	-26.23	54	35.27	20.7	1.33	29.53	-	-	Peak
2389.99	46.01	-7.99	54	43.73	32.86	3.47	34.05	100	334	Average
2389.99	68.08	-5.92	74	65.8	32.86	3.47	34.05	100	334	Peak
2412	105.18	-	-	102.85	32.89	3.52	34.08	100	334	Peak
2412	90.5	-	-	88.17	32.89	3.52	34.08	100	334	Average
2494.68	40.33	-13.67	54	37.79	33.05	3.72	34.23	100	334	Average
2494.68	53.18	-20.82	74	50.64	33.05	3.72	34.23	100	334	Peak
4818	41.14	-12.86	54	33.27	35.17	4.97	32.27	100	0	Average
4818	55.24	-18.76	74	47.37	35.17	4.97	32.27	100	0	Peak



Test Mode :	Mode 7	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.94	35.99	-4.01	40	49.29	16.55	0.24	30.09	100	360	QP
36.79	32.24	-7.76	40	47.88	14.19	0.24	30.07	100	360	QP
81.41	25.4	-14.6	40	48.22	6.87	0.35	30.04	-	-	Peak
340.4	21.5	-24.5	46	36.35	14.28	0.81	29.94	-	-	Peak
719.67	26.86	-19.14	46	35.85	19.52	1.15	29.66	-	-	Peak
941.8	29.09	-24.91	54	36.59	20.7	1.33	29.53	-	-	Peak
2389.61	46.12	-7.88	54	43.84	32.86	3.47	34.05	100	38	Average
2389.61	62.95	-11.05	74	60.67	32.86	3.47	34.05	100	38	Peak
2412	104.19	-	-	101.86	32.89	3.52	34.08	100	38	Peak
2412	90.59	-	-	88.26	32.89	3.52	34.08	100	38	Average
2491.83	39.4	-14.6	54	36.86	33.05	3.72	34.23	100	38	Average
2491.83	51.81	-22.19	74	49.27	33.05	3.72	34.23	100	38	Peak
4821	47.18	-6.82	54	39.31	35.17	4.97	32.27	140	360	Average
4821	60.1	-13.9	74	52.23	35.17	4.97	32.27	140	360	Peak



Test Mode :	Mode 8	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.97	30.71	-9.29	40	43.25	17.29	0.25	30.08	-	-	Peak
82.38	28.63	-11.37	40	51.15	7.15	0.36	30.03	-	-	Peak
127.97	18.75	-24.75	43.5	36.54	11.72	0.47	29.98	-	-	Peak
295.78	20.08	-25.92	46	36.36	12.95	0.72	29.95	-	-	Peak
473.29	23.72	-22.28	46	35.85	16.7	0.93	29.76	-	-	Peak
865.17	26.15	-19.85	46	33.98	20.49	1.29	29.61	-	-	Peak
2389.99	39.99	-34.01	74	37.71	32.86	3.47	34.05	100	310	Average
2389.99	51.95	-22.05	74	49.67	32.86	3.47	34.05	100	310	Peak
2437	104.24	-	-	101.84	32.95	3.6	34.15	100	310	Peak
2437	90.39	-	-	87.99	32.95	3.6	34.15	100	310	Average
2484.42	41.64	-32.36	74	39.15	33.01	3.68	34.2	100	310	Average
2484.42	54.41	-19.59	74	51.92	33.01	3.68	34.2	100	310	Peak
4869	42.55	-31.45	74	34.66	35.18	4.98	32.27	100	360	Average
4869	54.99	-19.01	74	47.1	35.18	4.98	32.27	100	360	Peak



Test Mode :	Mode 8	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	36.85	-3.15	40	48.67	18	0.26	30.08	100	60	QP
81.41	27.01	-12.99	40	49.83	6.87	0.35	30.04	-	-	Peak
240.4	20.59	-25.41	46	38.19	11.56	0.66	29.82	-	-	Peak
640.13	26.63	-19.37	46	36.34	18.85	1.09	29.65	-	-	Peak
719.67	28.48	-17.52	46	37.47	19.52	1.15	29.66	-	-	Peak
820.23	30.12	-15.88	46	38.39	20.09	1.26	29.62	-	-	Peak
2389.23	39.88	-14.12	54	37.6	32.86	3.47	34.05	111	0	Average
2389.23	52.9	-21.1	74	50.62	32.86	3.47	34.05	111	0	Peak
2437	104.18	-	-	101.78	32.95	3.6	34.15	111	8	Peak
2437	90.15	-	-	87.75	32.95	3.6	34.15	111	8	Average
2486.13	39.86	-14.14	54	37.37	33.01	3.68	34.2	111	0	Average
2486.13	52.95	-21.05	74	50.46	33.01	3.68	34.2	111	0	Peak
4872	47.55	-6.45	54	39.66	35.18	4.98	32.27	100	0	Average
4872	61.08	-12.92	74	53.19	35.18	4.98	32.27	100	0	Peak



Test Mode :	Mode 9	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.97	32.03	-7.97	40	44.57	17.29	0.25	30.08	100	230	Peak
81.41	29.96	-10.04	40	52.78	6.87	0.35	30.04	-	-	Peak
135.73	18.51	-24.99	43.5	36.81	11.21	0.48	29.99	-	-	Peak
476.2	23.22	-22.78	46	35.27	16.78	0.93	29.76	-	-	Peak
874.87	26.8	-19.2	46	34.6	20.48	1.29	29.57	-	-	Peak
899.12	27.15	-18.85	46	34.88	20.45	1.3	29.48	-	-	Peak
2377.07	38.64	-15.36	54	36.4	32.83	3.42	34.01	100	332	Average
2377.07	52.24	-21.76	74	50	32.83	3.42	34.01	100	332	Peak
2462	89.53	-	-	87.08	32.98	3.64	34.17	100	332	Average
2462	103.69	-	-	101.24	32.98	3.64	34.17	100	332	Peak
2484.61	62.54	-11.46	74	60.05	33.01	3.68	34.2	100	332	Peak
2484.61	45.85	-8.15	54	43.36	33.01	3.68	34.2	100	332	Average
4923	53.96	-20.04	74	46.04	35.19	4.99	32.26	100	0	Peak
4923	41.09	-12.91	54	33.17	35.19	4.99	32.26	100	0	Average



Test Mode :	Mode 9	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.94	35	-5	40	48.3	16.55	0.24	30.09	100	340	QP
40.67	32.39	-7.61	40	50.55	11.64	0.25	30.05	100	320	QP
81.41	29.62	-10.38	40	52.44	6.87	0.35	30.04	-	-	Peak
129.91	21.87	-21.63	43.5	39.69	11.7	0.47	29.99	-	-	Peak
724.52	27.33	-18.67	46	36.22	19.6	1.15	29.64	-	-	Peak
755.56	27.13	-18.87	46	35.58	19.9	1.19	29.54	-	-	Peak
2385.24	38.95	-15.05	54	36.71	32.83	3.42	34.01	113	29	Average
2385.24	51.82	-22.18	74	49.58	32.83	3.42	34.01	113	29	Peak
2462	105.63	-	-	103.18	32.98	3.64	34.17	113	29	Peak
2462	91	-	-	88.55	32.98	3.64	34.17	113	29	Average
2484.42	46.17	-7.83	54	43.68	33.01	3.68	34.2	113	29	Average
2484.42	62.18	-11.82	74	59.69	33.01	3.68	34.2	113	29	Peak
4920	61.63	-12.37	74	53.71	35.19	4.99	32.26	100	0	Peak
4920	47.96	-6.04	54	40.04	35.19	4.99	32.26	100	0	Average



Test Mode :	Mode 10	Temperature :	21~22°C
Test Channel :	03	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2422 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	30.81	-9.19	40	42.63	18	0.26	30.08	200	300	Peak
139.61	19.51	-23.99	43.5	38.12	10.9	0.49	30	-	-	Peak
474.26	22.82	-23.18	46	34.93	16.72	0.93	29.76	-	-	Peak
662.44	21.86	-24.14	46	31.45	18.98	1.1	29.67	-	-	Peak
750.71	25.05	-20.95	46	33.51	19.9	1.18	29.54	-	-	Peak
942.77	27.77	-26.23	54	35.27	20.7	1.33	29.53	-	-	Peak
2389.23	45.95	-8.05	54	43.67	32.86	3.47	34.05	100	360	Average
2389.23	69.97	-4.03	74	67.69	32.86	3.47	34.05	100	360	Peak
2422	101.58	-	-	99.22	32.92	3.56	34.12	100	342	Peak
2422	84.57	-	-	82.21	32.92	3.56	34.12	100	342	Average
2487.27	38.89	-15.11	54	36.4	33.01	3.68	34.2	100	360	Average
2487.27	53.65	-20.35	74	51.16	33.01	3.68	34.2	100	360	Peak
4845	40.5	-13.5	54	32.61	35.18	4.98	32.27	100	0	Average
4845	52.97	-21.03	74	45.08	35.18	4.98	32.27	100	0	Peak



Test Mode :	Mode 10	Temperature :	21~22°C
Test Channel :	03	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2422 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.97	35.99	-4.01	40	48.53	17.29	0.25	30.08	100	360	QP
36.79	32.24	-7.76	40	47.88	14.19	0.24	30.07	100	300	QP
81.41	26.4	-13.6	40	49.22	6.87	0.35	30.04	-	-	Peak
185.2	12.63	-30.87	43.5	33.52	8.45	0.57	29.91	-	-	Peak
340.4	21.5	-24.5	46	36.35	14.28	0.81	29.94	-	-	Peak
722.58	27.63	-18.37	46	36.57	19.56	1.15	29.65	-	-	Peak
2389.8	46.04	-7.96	54	43.76	32.86	3.47	34.05	100	300	Average
2389.8	69.96	-4.04	74	67.68	32.86	3.47	34.05	100	300	Peak
2422	100.89	-	-	98.53	32.92	3.56	34.12	100	305	Peak
2422	82.98	-	-	80.62	32.92	3.56	34.12	100	305	Average
2496.58	40.31	-13.69	54	37.77	33.05	3.72	34.23	100	300	Average
2496.58	52.42	-21.58	74	49.88	33.05	3.72	34.23	100	300	Peak
4842	46.05	-7.95	54	38.16	35.18	4.98	32.27	100	360	Average
4842	59.51	-14.49	74	51.62	35.18	4.98	32.27	100	360	Peak



Test Mode :	Mode 11	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
82.38	29.63	-10.37	40	52.15	7.15	0.36	30.03	100	0	Peak
127.97	18.75	-24.75	43.5	36.54	11.72	0.47	29.98	-	-	Peak
189.08	20.36	-23.14	43.5	41.24	8.49	0.57	29.94	-	-	Peak
295.78	20.08	-25.92	46	36.36	12.95	0.72	29.95	-	-	Peak
473.29	23.72	-22.28	46	35.85	16.7	0.93	29.76	-	-	Peak
796.3	27.01	-18.99	46	35.5	19.85	1.25	29.59	-	-	Peak
2388.28	40.75	-13.25	54	38.47	32.86	3.47	34.05	100	360	Average
2388.28	54.47	-19.53	74	52.19	32.86	3.47	34.05	100	360	Peak
2437	102.56	-	-	100.16	32.95	3.6	34.15	100	340	Peak
2437	84.84	-	-	82.44	32.95	3.6	34.15	100	340	Average
2484.42	42.94	-11.06	54	40.45	33.01	3.68	34.2	100	340	Average
2484.42	58.03	-15.97	74	55.54	33.01	3.68	34.2	100	340	Peak
4881	40.49	-13.51	54	32.6	35.18	4.98	32.27	100	0	Average
4881	53.89	-20.11	74	46	35.18	4.98	32.27	100	0	Peak



Test Mode :	Mode 11	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	36.85	-3.15	40	48.67	18	0.26	30.08	100	60	QP
40.67	35.17	-4.83	40	53.33	11.64	0.25	30.05	-	-	Peak
82.38	27.27	-12.73	40	49.79	7.15	0.36	30.03	-	-	Peak
189.08	22.09	-21.41	43.5	42.97	8.49	0.57	29.94	-	-	Peak
340.4	20.59	-25.41	46	35.44	14.28	0.81	29.94	-	-	Peak
719.67	28.48	-17.52	46	37.47	19.52	1.15	29.66	-	-	Peak
2387.52	40.62	-13.38	54	38.34	32.86	3.47	34.05	115	0	Average
2387.52	53.74	-20.26	74	51.46	32.86	3.47	34.05	115	360	Peak
2437	83.55	-	-	81.15	32.95	3.6	34.15	115	360	Average
2437	100.69	-	-	98.29	32.95	3.6	34.15	115	360	Peak
2483.66	58.88	-15.12	74	56.39	33.01	3.68	34.2	115	360	Peak
2483.66	42.7	-11.3	54	40.21	33.01	3.68	34.2	115	360	Average
4869	59.46	-14.54	74	51.57	35.18	4.98	32.27	100	360	Peak
4869	46.8	-7.2	54	38.91	35.18	4.98	32.27	100	360	Average



Test Mode :	Mode 12	Temperature :	21~22°C
Test Channel :	09	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2452 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
82.38	30.12	-9.88	40	52.64	7.15	0.36	30.03	100	0	Peak
139.61	19.09	-24.41	43.5	37.7	10.9	0.49	30	-	-	Peak
189.08	20.5	-23	43.5	41.38	8.49	0.57	29.94	-	-	Peak
476.2	23.22	-22.78	46	35.27	16.78	0.93	29.76	-	-	Peak
710.94	23.36	-22.64	46	32.52	19.4	1.14	29.7	-	-	Peak
838.01	26.74	-19.26	46	34.74	20.38	1.27	29.65	-	-	Peak
2378.78	39.24	-14.76	54	37	32.83	3.42	34.01	100	360	Average
2378.78	53.47	-20.53	74	51.23	32.83	3.42	34.01	100	360	Peak
2452	85.46	-	-	83.06	32.95	3.6	34.15	100	360	Average
2452	102.89	-	-	100.49	32.95	3.6	34.15	100	360	Peak
2484.42	70.56	-3.44	74	68.07	33.01	3.68	34.2	100	328	Peak
2484.42	48.9	-5.1	54	46.41	33.01	3.68	34.2	100	328	Average
4905	40.67	-13.33	54	32.75	35.19	4.99	32.26	200	0	Average
4905	53.41	-20.59	74	45.49	35.19	4.99	32.26	200	0	Peak



Test Mode :	Mode 12	Temperature :	21~22°C
Test Channel :	09	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2452 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	35.95	-4.05	40	47.77	18	0.26	30.08	100	340	QP
40.67	32.39	-7.61	40	50.55	11.64	0.25	30.05	100	320	QP
81.41	29.62	-10.38	40	52.44	6.87	0.35	30.04	-	-	Peak
129.91	21.87	-21.63	43.5	39.69	11.7	0.47	29.99	-	-	Peak
189.08	21.88	-21.62	43.5	42.76	8.49	0.57	29.94	-	-	Peak
755.56	27.13	-18.87	46	35.58	19.9	1.19	29.54	-	-	Peak
2388.28	40.08	-13.92	54	37.8	32.86	3.47	34.05	100	40	Average
2388.28	54.23	-19.77	74	51.95	32.86	3.47	34.05	100	40	Peak
2452	103.73	-	-	101.33	32.95	3.6	34.15	100	40	Peak
2452	85.26	-	-	82.86	32.95	3.6	34.15	100	40	Average
2483.66	48.25	-5.75	54	45.76	33.01	3.68	34.2	100	40	Average
2483.66	69.73	-4.27	74	67.24	33.01	3.68	34.2	100	40	Peak
4905	48.62	-5.38	54	40.7	35.19	4.99	32.26	100	360	Average
4905	62.84	-11.16	74	54.92	35.19	4.99	32.26	100	360	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 Dipole 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	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Apr. 24, 2012~ Apr. 26, 2012	Dec. 29, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY451015 55	N/A	Aug. 23, 2011	Apr. 24, 2012~ Apr. 26, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY444211 98	N/A	Aug. 23, 2011	Apr. 24, 2012~ Apr. 26, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-9605 02	N/A	Dec. 30, 2011	Apr. 24, 2012~ Apr. 26, 2012	Dec. 29, 2012	Conducted (TH01-KS)
DC Power Supply	TOPWARD	GPS-30300	E1884515	N/A	Aug. 23, 2011	Apr. 24, 2012~ Apr. 26, 2012	Aug. 22, 2012	Conducted (TH01-KS)
AC LISN	ETS-LINDGRE N	3816/2SH	00103912	0.1MHz~108MHz	Feb. 27, 2012	Mar. 29, 2012	Feb. 26, 2013	Conduction (CO01-SZ)
AC LISN	ETS-LINDGRE N	3816/2SH	00103892	0.1MHz~108MHz	Feb. 27, 2012	Mar. 29, 2012	Feb. 26, 2013	Conduction (CO01-SZ)
ESCIO TEST Receiver	R&S	1142.8007.03	100724	9K-3GHz	Mar. 07, 2012	Mar. 29, 2012	Mar. 06, 2013	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000 891N/A	N/A	Oct. 12, 2011	Mar. 29, 2012	Oct. 11, 2012	Conduction (CO01-SZ)
AC LISN	SCHWARZBE CK	NNLK 8121	8121370	10KHz-30MHz	Jun. 13, 2011	Mar. 29, 2012	Jun. 12, 2012	Conduction (CO01-SZ)
System Simulator	Agilent	E5515C	MY502641 68	GSM/WCDMA /CDMA2000	Mar. 13, 2012	Mar. 29, 2012	Mar. 12, 2013	Conduction (CO01-SZ)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Apr. 26, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Apr. 26, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Apr. 26, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9 kHz~30 MHz	Jul. 28, 2011	Apr. 26, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Apr. 26, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 30, 2011	Apr. 26, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A023 70	1GHz~26.5GHz	Dec. 30, 2011	Apr. 26, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2011	Apr. 26, 2012	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA1702 49	15GHz~40GHz	Oct. 11, 2011	Apr. 26, 2012	Oct.10, 2012	Radiation (03CH01-KS)

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 EP231611 as below.