FCC RF Test Report

APPLICANT	:	Brightstar Corporation
EQUIPMENT	:	GSM Mobile Phone
BRAND NAME	:	Avvio
MODEL NAME	:	Avvio 831
FCC ID	:	WVBA831
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on May 17, 2012 and completely tested on Jul. 23, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai / Manager

Testing Laboratory 1190

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR251703B	Rev. 01	Initial issue of report	Aug. 02, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	A8.5	Conducted Band Edges	≤ 20dBc	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	A8.5	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	-
			Radiated Spurious Emission		Pass	Under limit 3.49 dB at 4874.000 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 15.34 dB at 0.380 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

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

1.2 Manufacturer

Shanghai Huaqin Telecom Technology Co., Ltd.
Building 12, 399 Keyuan Road, Pudong district, Shanghai, China

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	GSM Mobile Phone
Brand Name	Avvio
Model Name	Avvio 831
FCC ID	WVBA831
EUT supports Radios application	GSM / EGPRS (Downlink Only) / WCDMA / HSPA / WLAN 11bg / Bluetooth
HW Version	W92_MB_V4.0
SW Version	ZW92D_099A_V0_0_0
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.

Product Specification subjective to this standard	
Tx/Rx Frequency Range	2412 MHz ~ 2462 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Maximum Output Power to Antenna	802.11b : 16.75 dBm (0.0473 W) 802.11g : 21.43 dBm (0.1390 W)
Antenna Type	PIFA Antenna with gain -1 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM)

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.			FCC/IC Registration No.
	TH01-KS	CO01-KS	03CH01-KS	149928/4086E-1

1.5 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01
- FCC TCB Workshop 2012, April
- ANSI C63.4-2003 and ANSI C63.10-2009
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 3

Remark:

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

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	VOSTRO1450	PPD-AR5B195	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
5.	Bluetooth Earphone	Nokia	BH-106	QTLBH-106	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate as below table and the highest power data rates (11b, 11g 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)	16.75	16.58	16.56	16.59

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)	21.43	21.18	21.28	21.26	21.25	21.31	21.23	21.38

2.3 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and ANSI C63.10-2009 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).

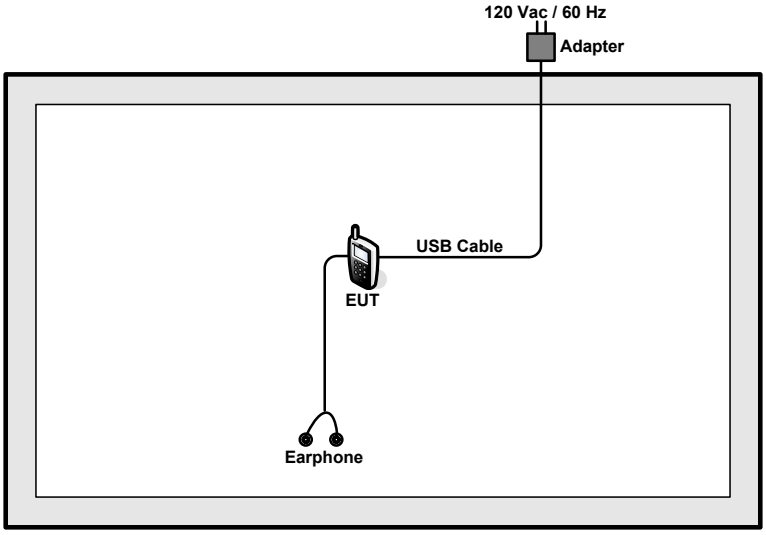
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations.

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

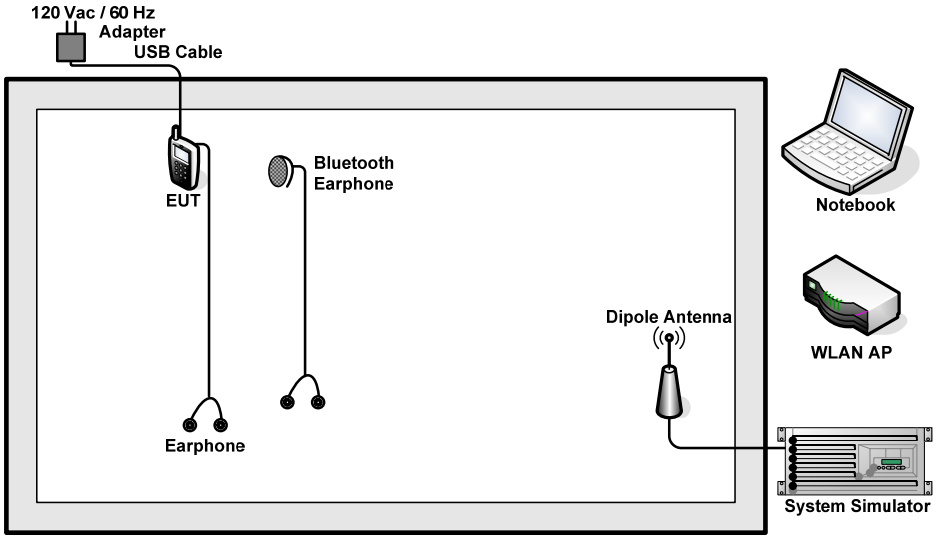
<table>
<tr><th colspan="2">Test Cases</th></tr>
<tr><th>Test Item</th><td>802.11b (Modulation : DSSS)
802.11g/n (Modulation : OFDM)</td></tr>
<tr><th>Conducted TCs</th><td>
<table>
<tr><th>Test Mode</th><th>802.11b</th><th>802.11g</th></tr>
<tr><td>CH01</td><td>1</td><td>4</td></tr>
<tr><td>CH06</td><td>2</td><td>5</td></tr>
<tr><td>CH11</td><td>3</td><td>6</td></tr>
</table>
</td></tr>
<tr><th>Radiated TCs</th><td>
<table>
<tr><th>Test Mode</th><th>802.11b</th><th>802.11g</th></tr>
<tr><td>CH01</td><td>1</td><td>4</td></tr>
<tr><td>CH06</td><td>2</td><td>5</td></tr>
<tr><td>CH11</td><td>3</td><td>6</td></tr>
</table>
</td></tr>
<tr><th>AC Conducted Emission</th><td>Mode 1 :GSM850 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adpater)</td></tr>
</table>

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

For WLAN function, key in "＊＃510818＃" on the EUT directly. Then, the EUT will get into the engineering modes to contact with WLAN AP for continuous transmitting and receiving signals.

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

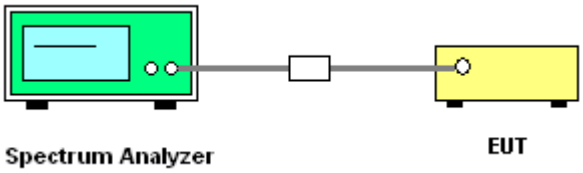
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
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) ≥ 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

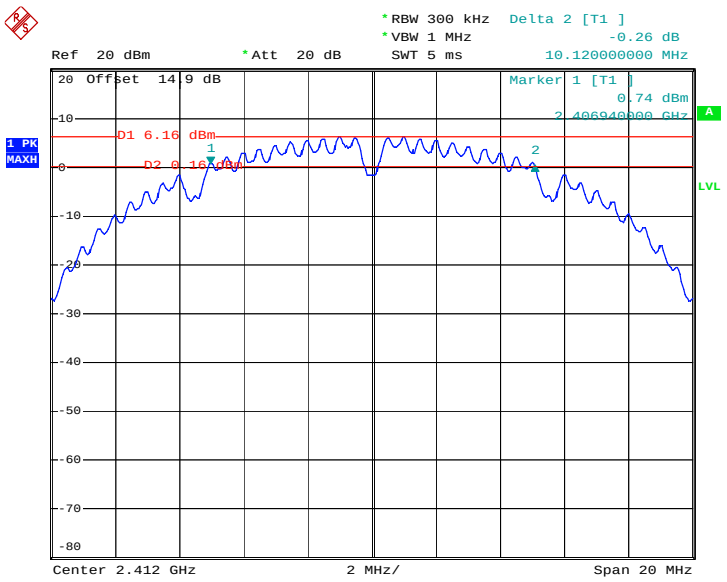


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	802.11b	Temperature :	23~24℃
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

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

6 dB Bandwidth Plot on 802.11b Channel 01



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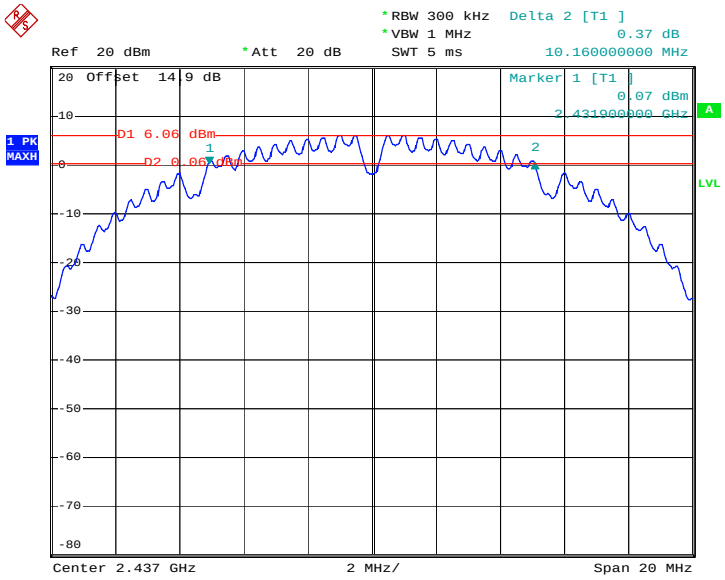
6 dB Bandwidth Plot on 802.11b Channel 06



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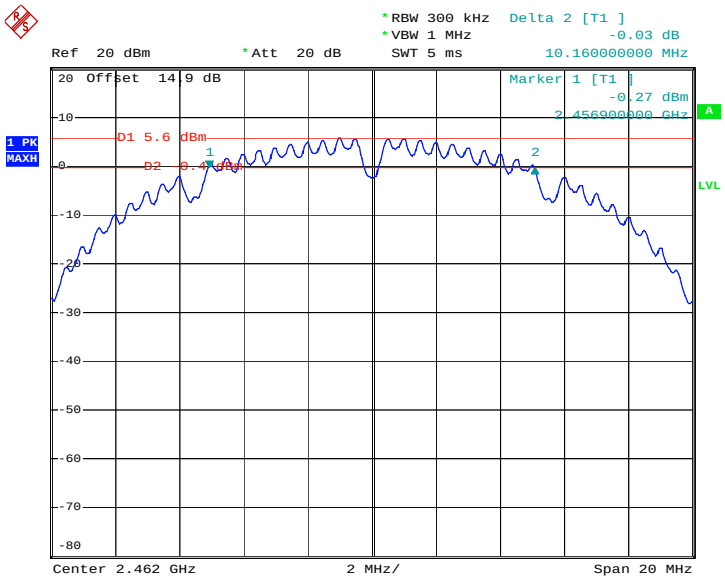
6 dB Bandwidth Plot on 802.11b Channel 11



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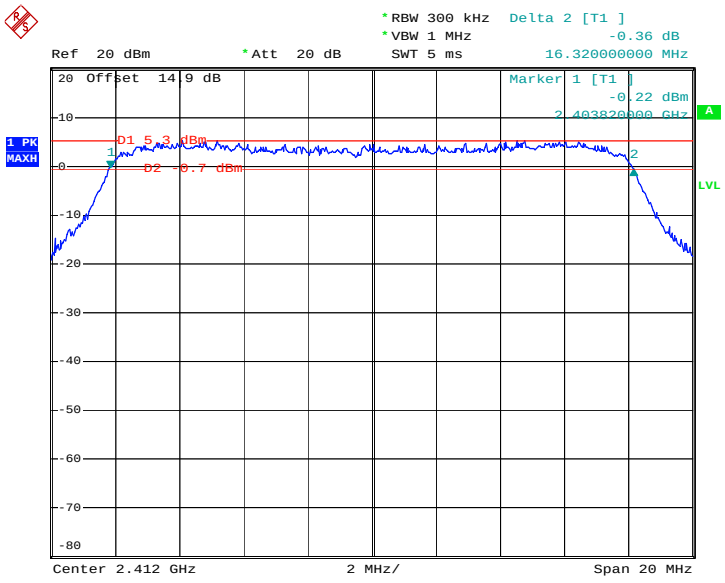
Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.32	0.5	Pass
06	2437	16.36	0.5	Pass
11	2462	16.28	0.5	Pass

6 dB Bandwidth Plot on 802.11g Channel 01



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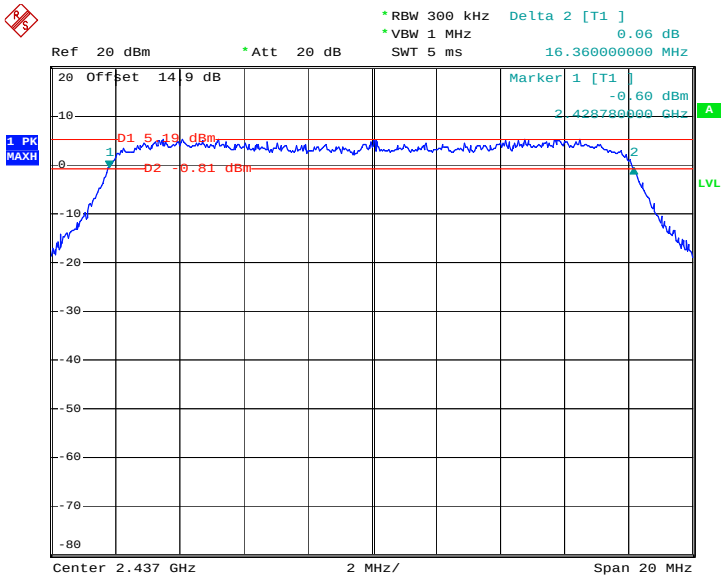
6 dB Bandwidth Plot on 802.11g Channel 06



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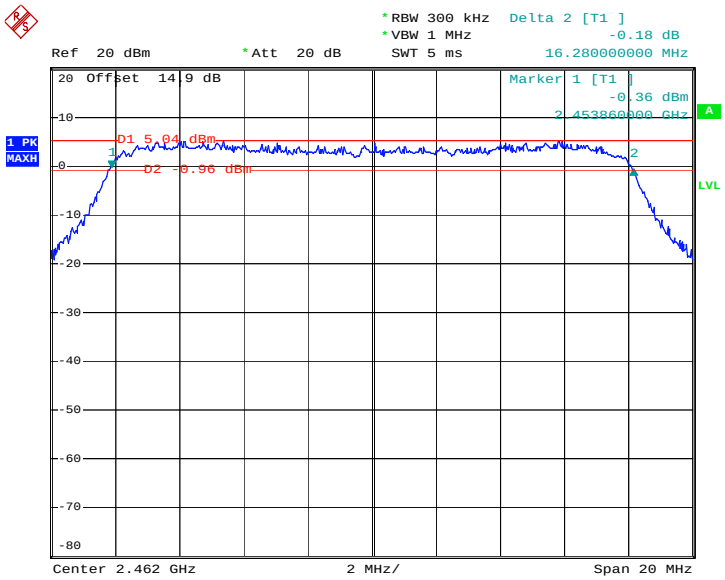
6 dB Bandwidth Plot on 802.11g Channel 11



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3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, the limit for peak output power is 30dBm. If transmitting Antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the Antenna exceeds 6dBi.

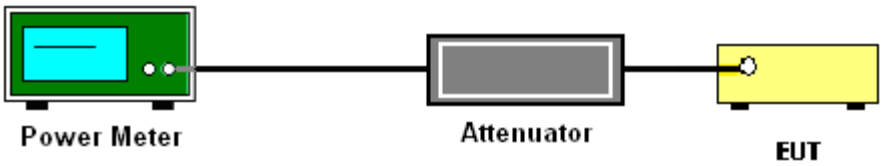
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance and TCB Workshop 2012, April.
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 Peak Output Power

Test Mode :	802.11b	Temperature :	23~24℃
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.75	30	Pass
06	2437	16.43	30	Pass
11	2462	15.99	30	Pass

Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.43	30	Pass
06	2437	21.18	30	Pass
11	2462	20.98	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	23~24℃
Test Engineer :	Lizy Li	Relative Humidity :	47~48%
Duty Cycle:	99.08%	Duty Factor:	0.04dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	14.86
06	2437	14.73
11	2462	14.27

Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	Lizy Li	Relative Humidity :	47~48%
Duty Cycle:	93.46%	Duty Factor:	0.29dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	13.34
06	2437	13.20
11	2462	12.97

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3KHz band at any time interval of continuous transmission.

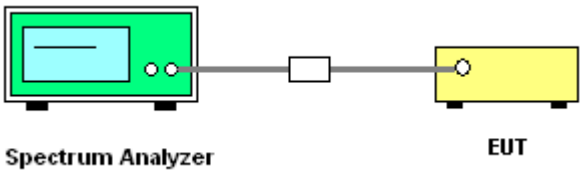
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 5.3.1 (Peak PSD) of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
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) >= 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 = 10log (3 kHz/100 kHz = -15.2 dB).

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

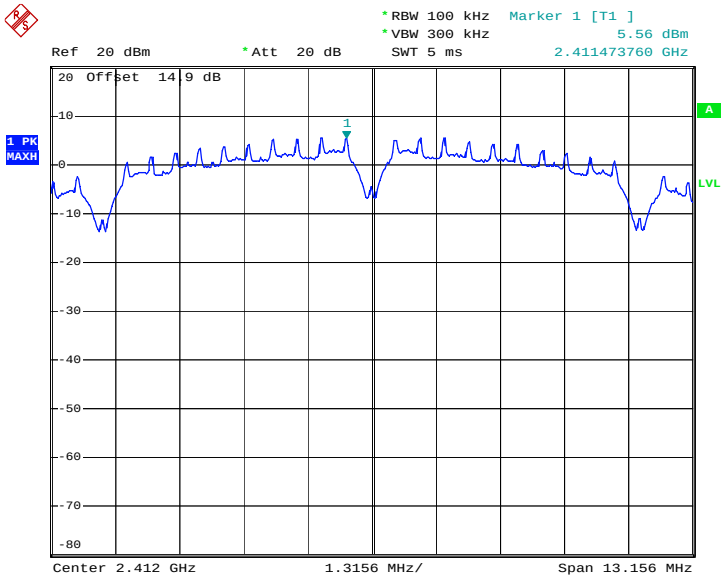
Test Mode :	802.11b	Temperature :	23~24℃
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	5.56	-9.64	8	Pass
06	2437	5.43	-9.77	8	Pass
11	2462	5.03	-10.17	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)*

PSD Plot on 802.11b Channel 01



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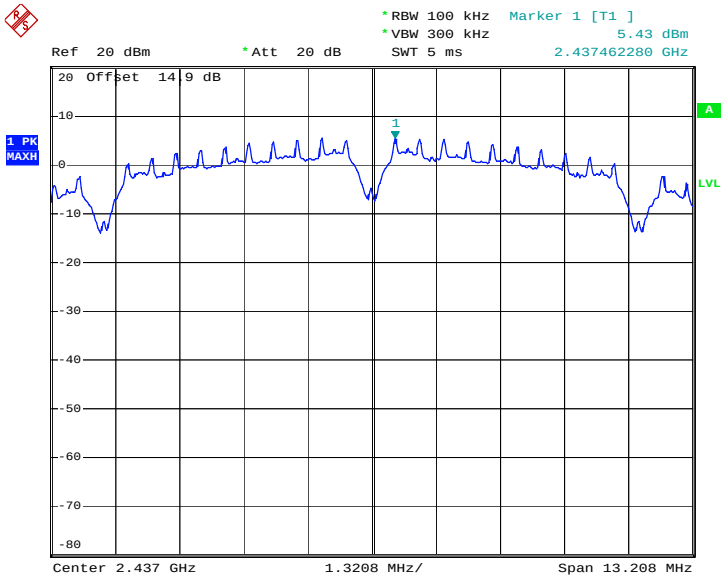
PSD Plot on 802.11b Channel 06



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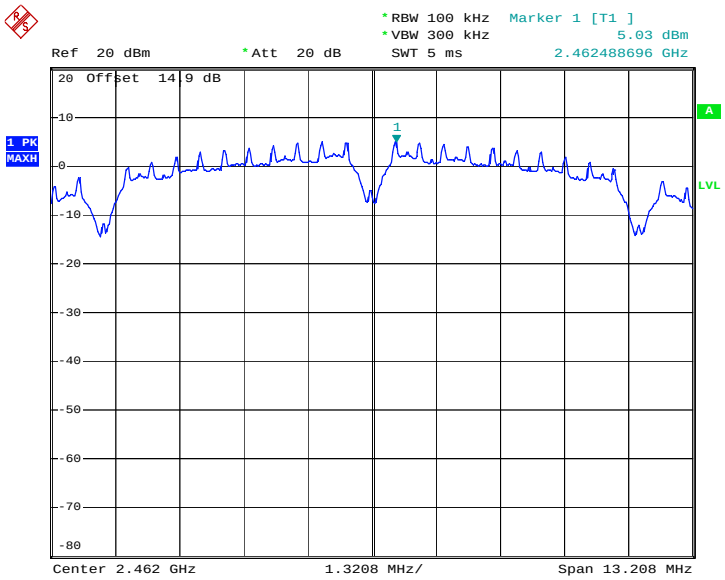
PSD Plot on 802.11b Channel 11



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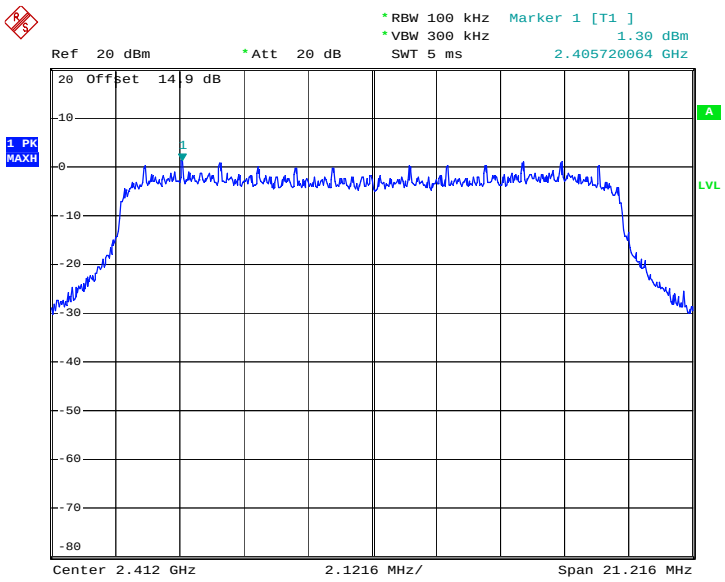
Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	Lizy Li	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.30	-13.90	8	Pass
06	2437	1.31	-13.89	8	Pass
11	2462	1.21	-13.99	8	Pass

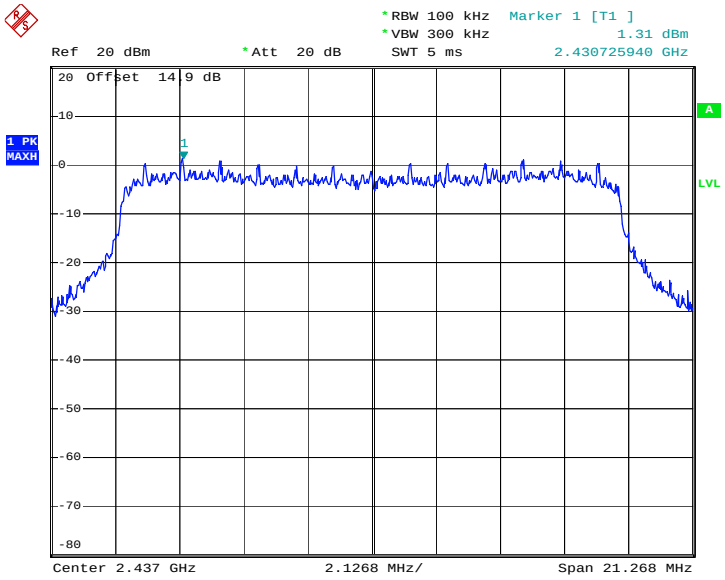
Note:

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)*

PSD Plot on 802.11g Channel 01



PSD Plot on 802.11g Channel 06



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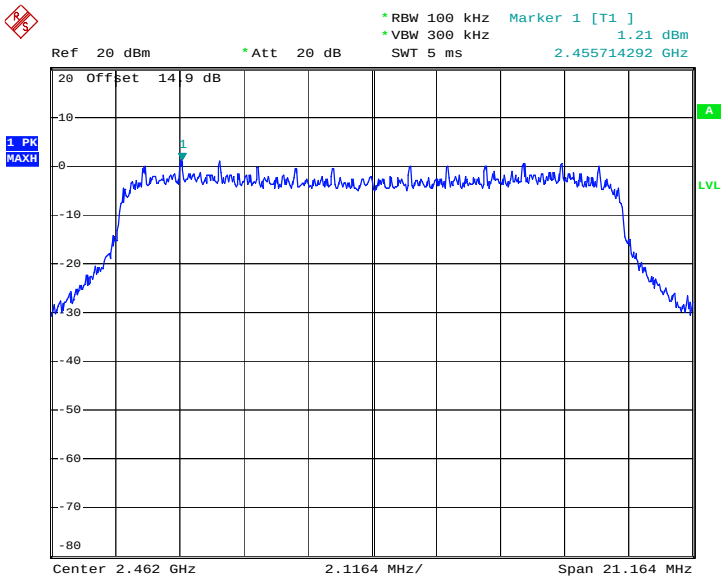
PSD Plot on 802.11g Channel 11



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3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

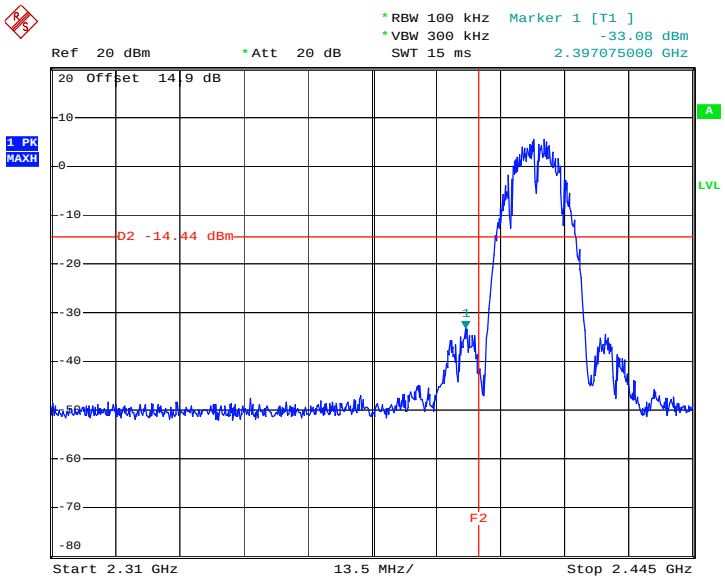
1. The testing follows the guidelines in the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. Set RBW = 100 KHz, VBW=300 KHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz, when maximum peak conducted output power procedure is used. The attenuation is set to 30dB, when maximum conducted output power procedure is used.

3.4.4 Test Setup

3.4.5 Test Plots of Conducted Band Edges

Test Mode :	802.11b	Temperature :	23~24℃
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Lizy Li

Low Band Edge Plot on 802.11b Channel 01



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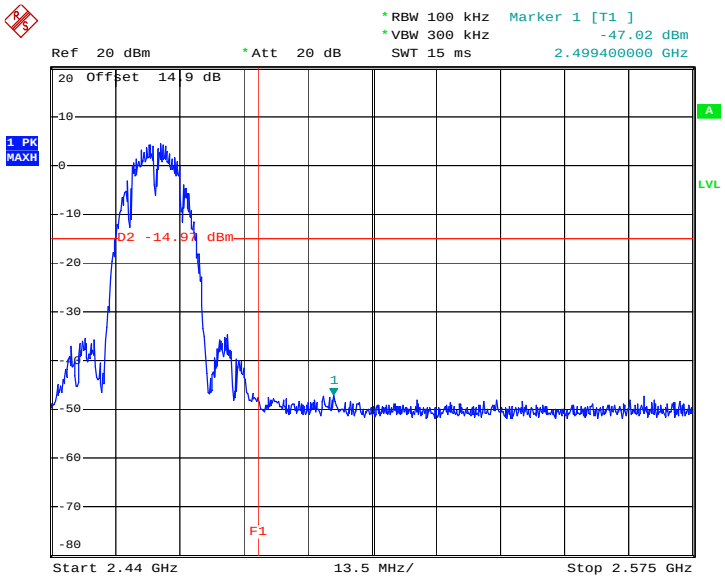
High Band Edge Plot on 802.11b Channel 11



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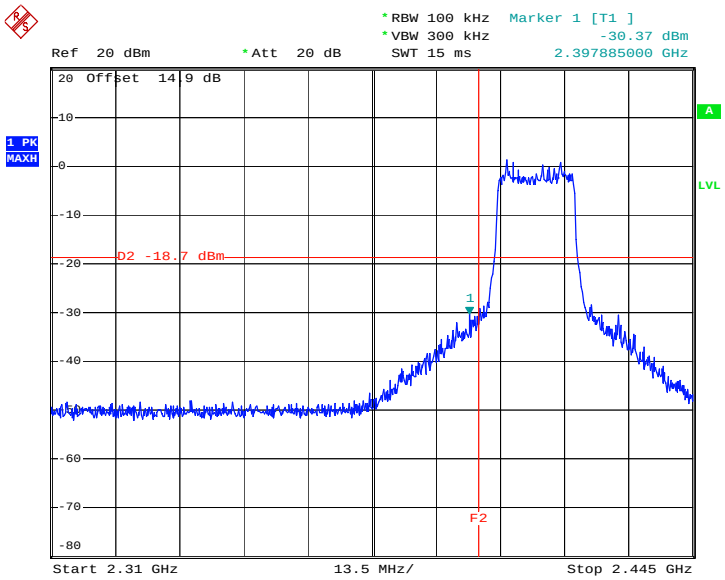
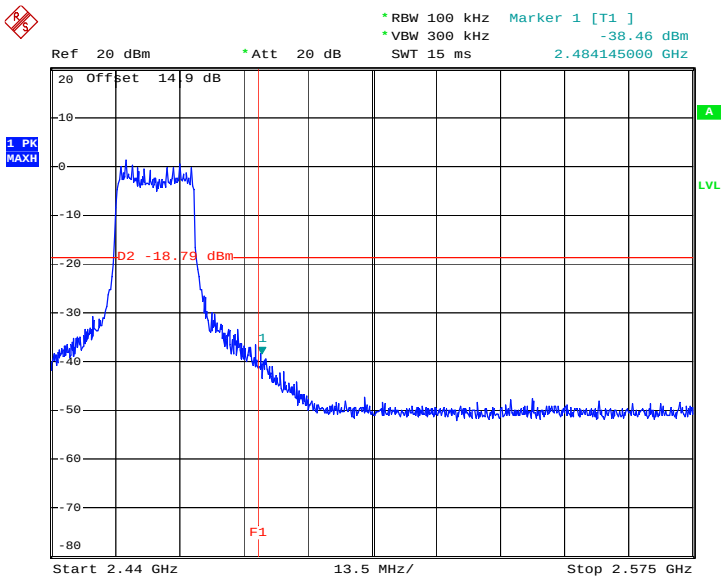
Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Lizy Li

Low Band Edge Plot on 802.11g Channel 01



Date: 20.JUL.2012 04:15:38

High Band Edge Plot on 802.11g Channel 11



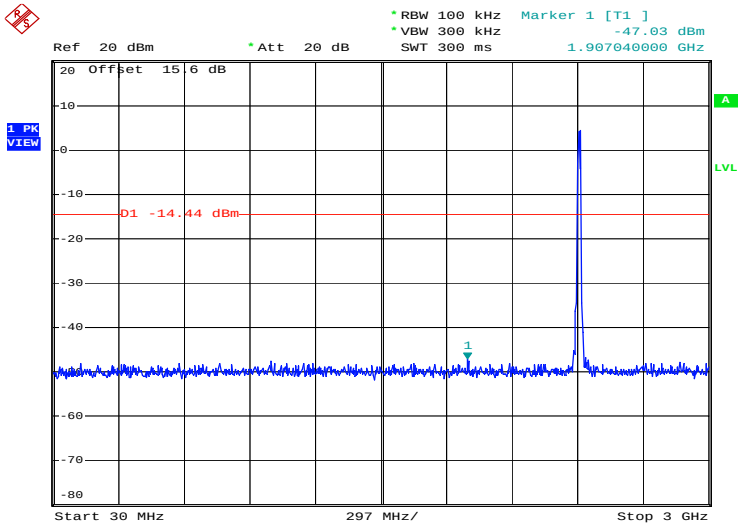
Date: 20.JUL.2012 04:29:24

3.4.6 Test Plots of Spurious Emission

Test Mode :	802.11b	Temperature :	23~24℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	Lizy Li

802.11b 30 MHz~3 GHz

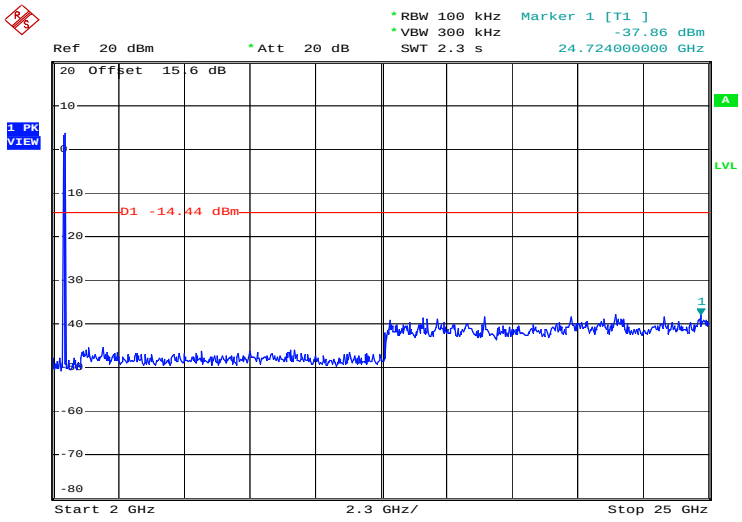
Conducted Spurious Emission Plot on Channel 01



Date: 20.JUL.2012 03:53:58

802.11b 2 GHz~25 GHz

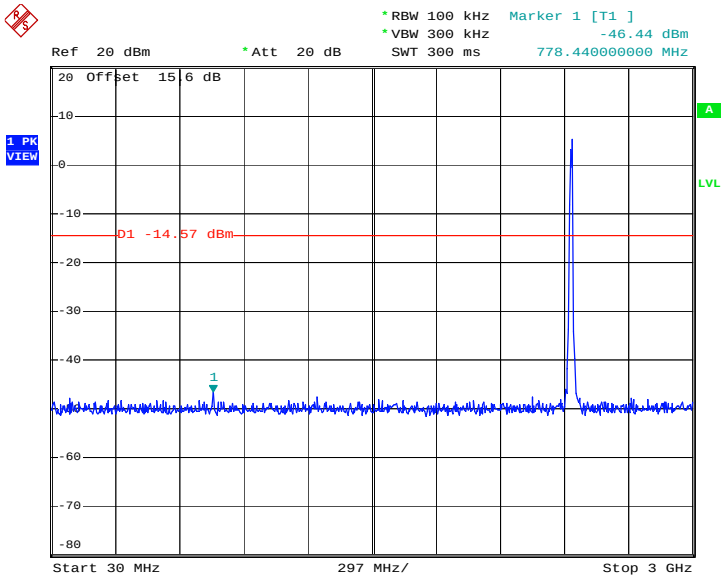
Conducted Spurious Emission Plot on Channel 01



Date: 20.JUL.2012 03:54:16

802.11b 30 MHz~3 GHz

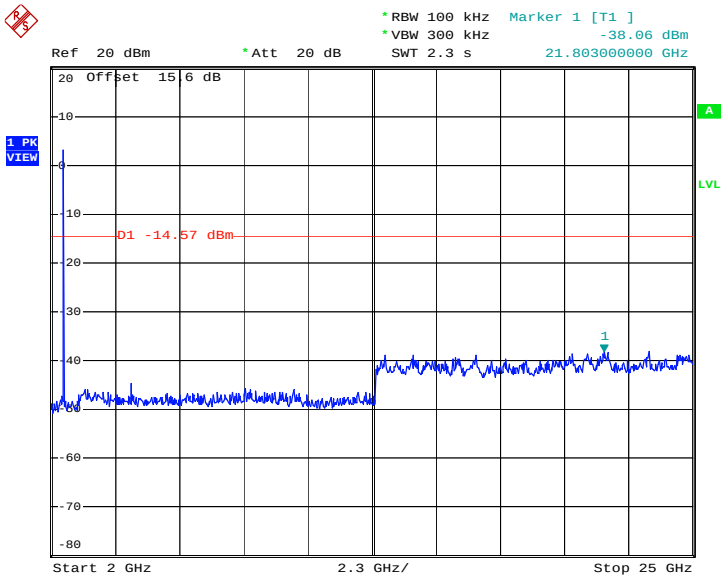
Conducted Spurious Emission Plot on Channel 06



Date: 20.JUL.2012 04:00:38

802.11b 2 GHz~25 GHz

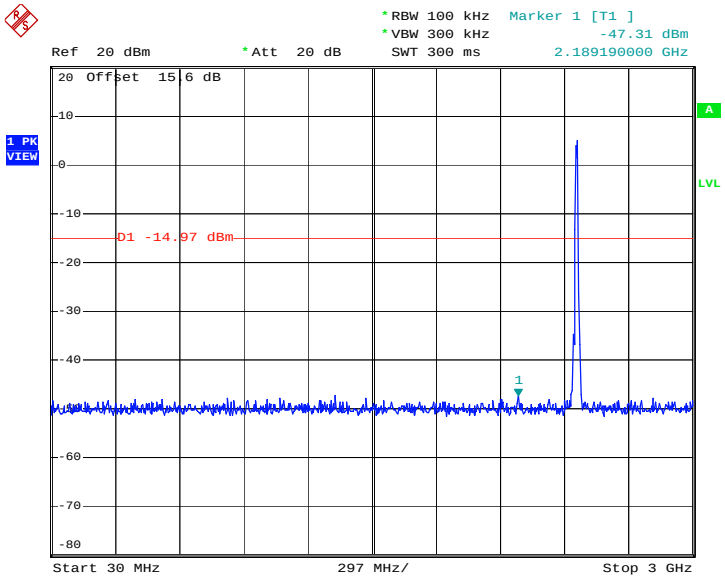
Conducted Spurious Emission Plot on Channel 06



Date: 20.JUL.2012 04:00:57

802.11b 30 MHz~3 GHz

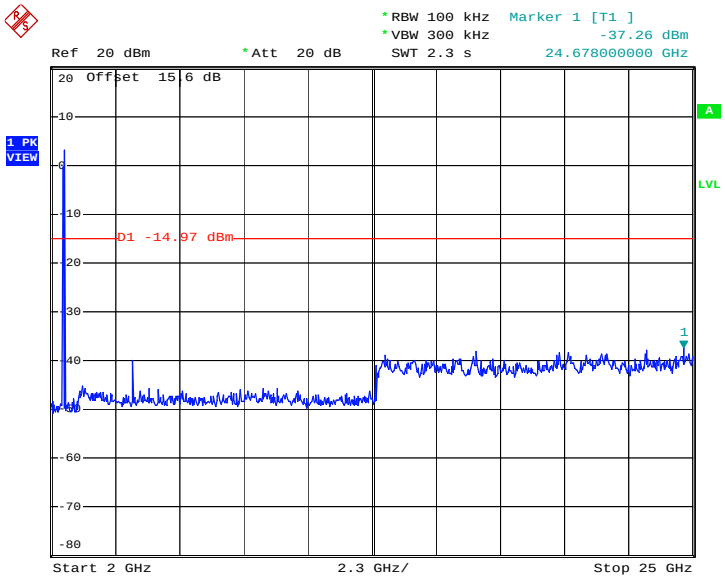
Conducted Spurious Emission Plot on Channel 11



Date: 20.JUL.2012 04:06:24

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

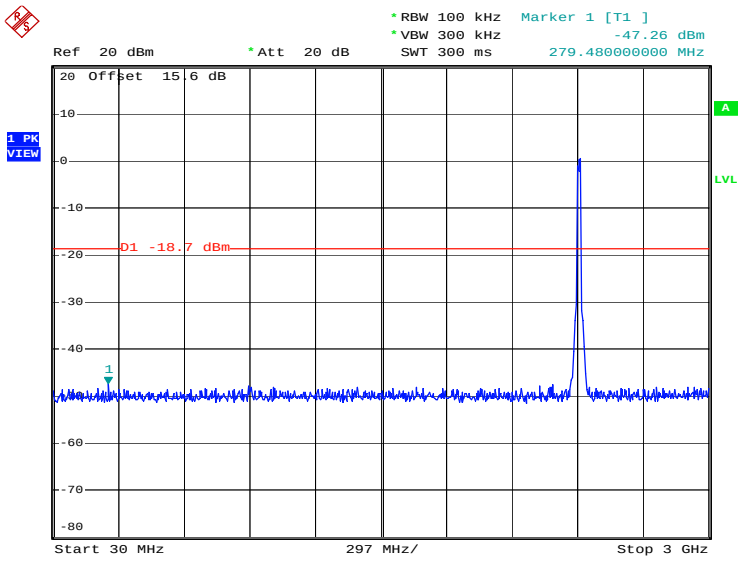


Date: 20.JUL.2012 04:06:42

Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	Lizy Li

802.11g 30 MHz~3 GHz

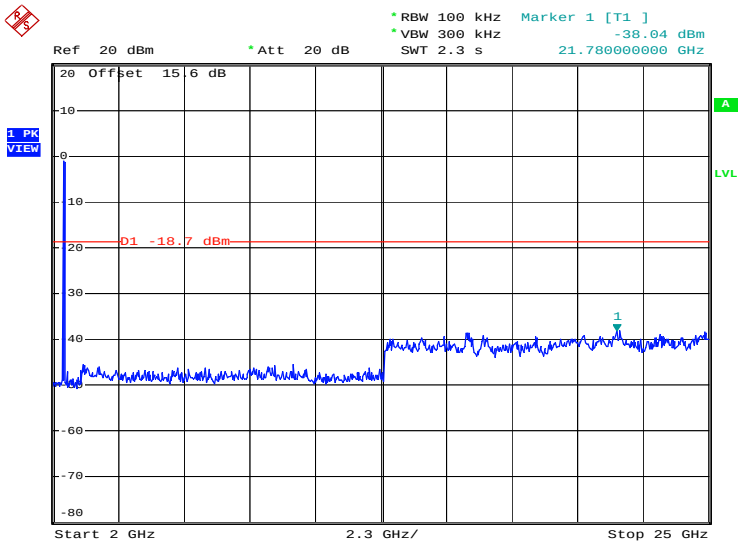
Conducted Spurious Emission Plot on Channel 01



Date: 20.JUL.2012 04:18:58

802.11g 2 GHz~25 GHz

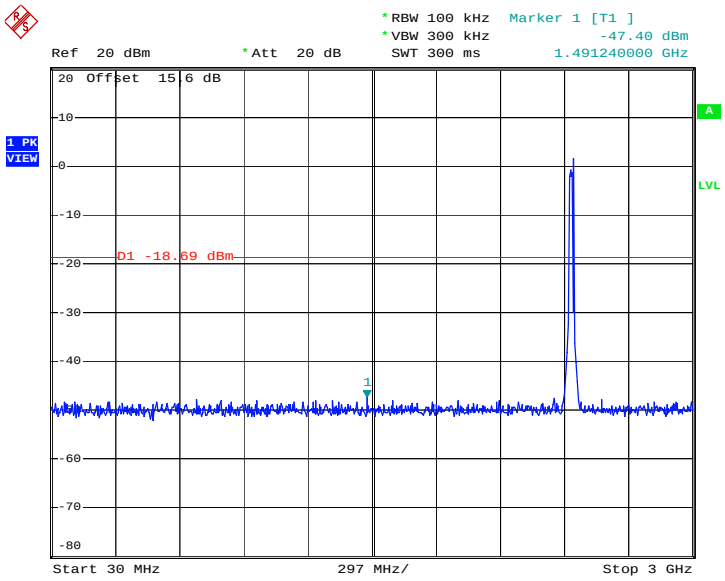
Conducted Spurious Emission Plot on Channel 01



Date: 20.JUL.2012 04:19:17

802.11g 30 MHz~3 GHz

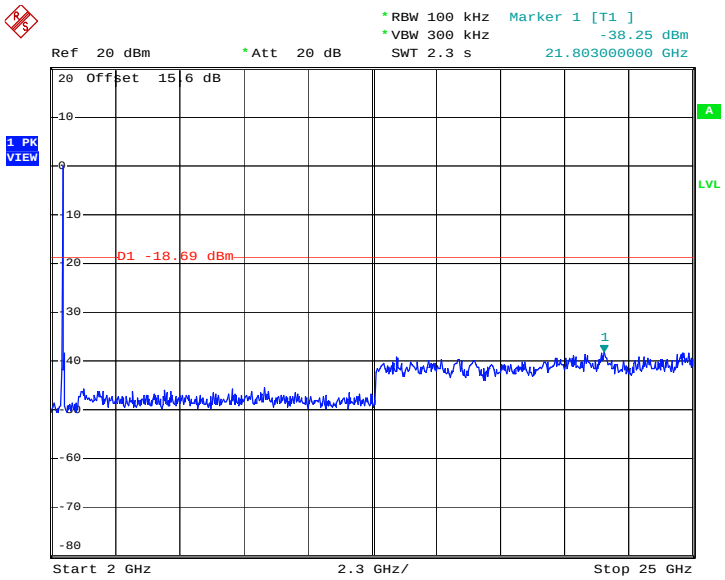
Conducted Spurious Emission Plot on Channel 06



Date: 20.JUL.2012 04:23:29

802.11g 2 GHz~25 GHz

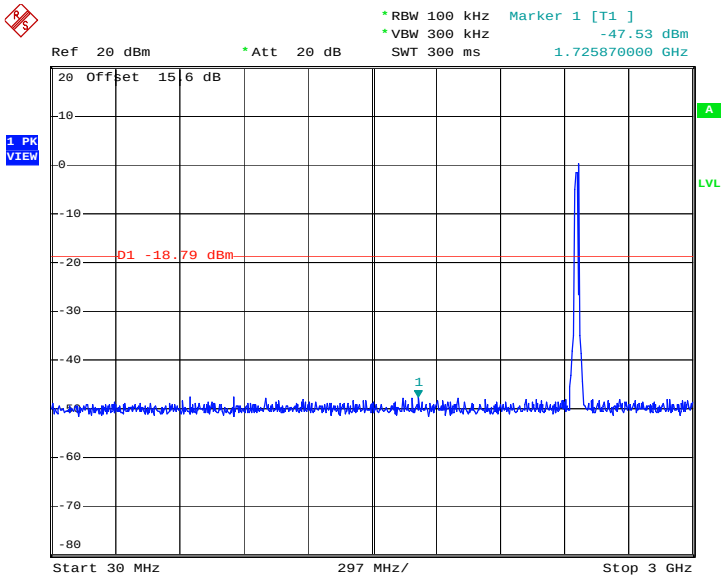
Conducted Spurious Emission Plot on Channel 06



Date: 20.JUL.2012 04:23:47

802.11g 30 MHz~3 GHz

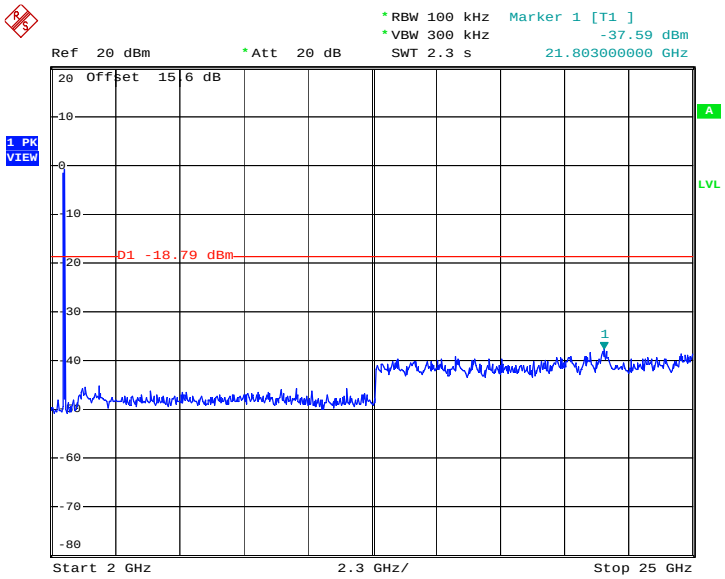
Conducted Spurious Emission Plot on Channel 11



Date: 20.JUL.2012 04:30:02

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



Date: 20.JUL.2012 04:30:21

3.5 Radiated Emission Measurement

3.5.1 Limit of Radiated Emission

In any 100 KHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.5.2 Measuring Instruments

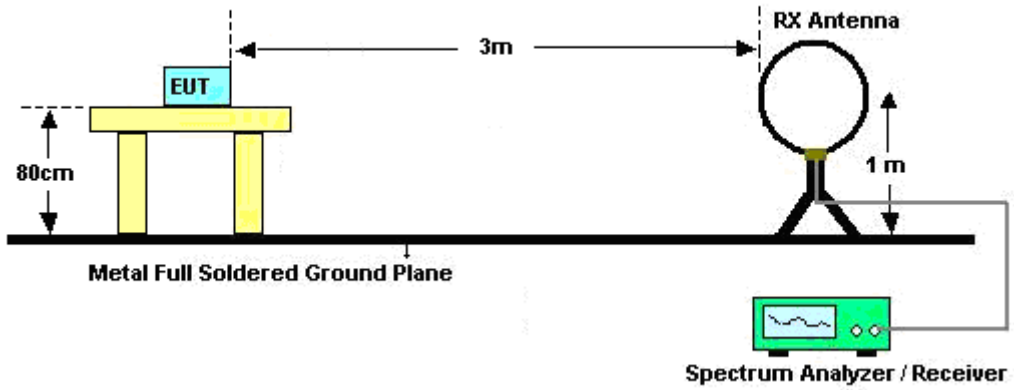
See list of measuring instruments of this test report.

3.5.3 Test Procedures

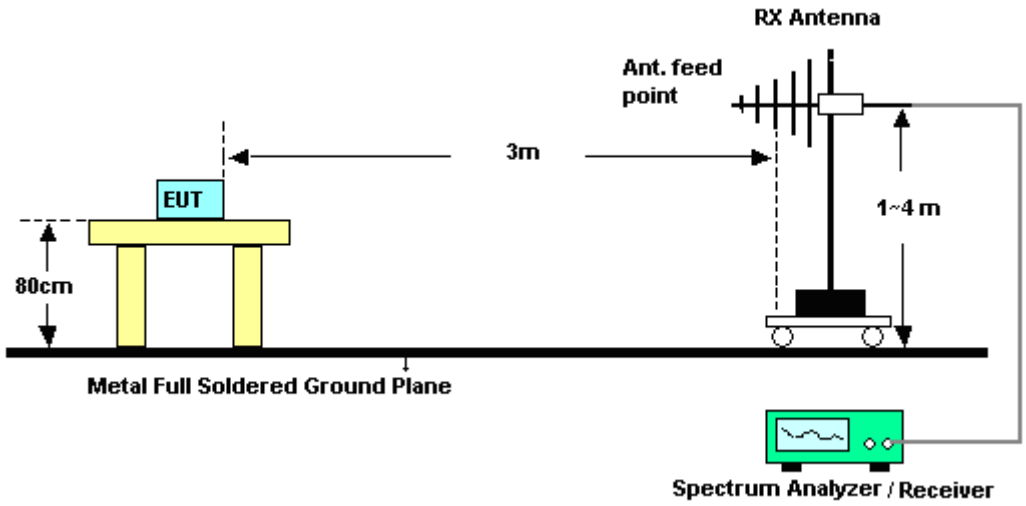
1. The testing follows TCB Workshop 2012, April and fulfills ANSI C63.4-2003 and the guidelines in ANSI C63.10-2009 test site requirement. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
2. The EUT was placed on a turntable with 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving Antenna, which was mounted on the top of a variable height Antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest radiation.
5. 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 ≥ 1 GHz, 100 KHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. If the emission level of the EUT measured by the peak detector is more than 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

3.5.4 Test Setup

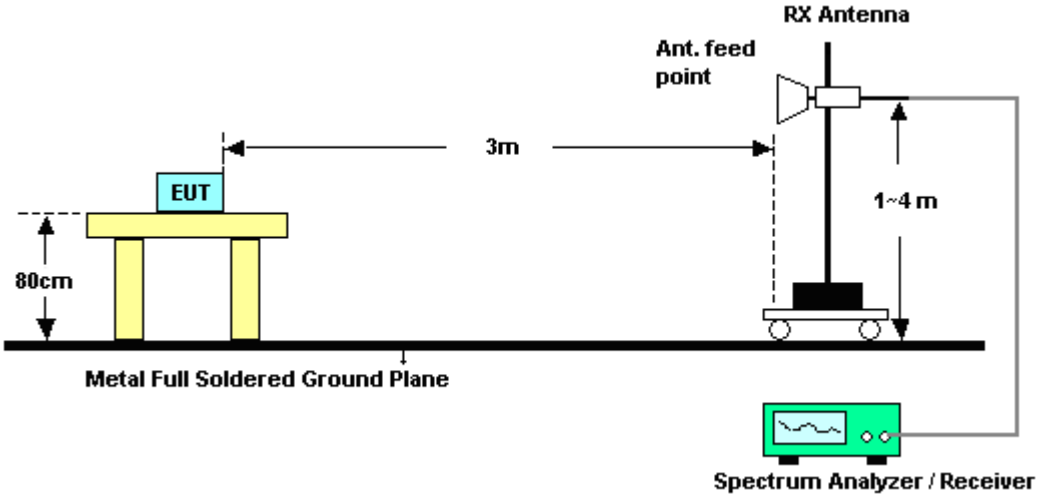
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.5.6 Test Result of Radiated Band Edges

Test Mode :	802.11b	Temperature :	19~20℃
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Jack Li

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
2388.85	51.47	-22.53	74	49.19	32.86	3.47	34.05	112	33	Peak
2388.85	34.43	-19.57	54	32.15	32.86	3.47	34.05	112	33	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
2387.71	51.41	-22.59	74	49.13	32.86	3.47	34.05	100	166	Peak
2387.71	38.92	-15.08	54	36.64	32.86	3.47	34.05	100	166	Average

Test Mode :	802.11b	Temperature :	19~20℃
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Jack Li

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
2486.13	50.76	-23.24	74	48.27	33.01	3.68	34.2	114	275	Peak
2486.13	39.43	-14.57	54	36.94	33.01	3.68	34.2	114	275	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	51.61	-22.39	74	49.12	33.01	3.68	34.2	152	216	Peak
2483.66	39.13	-14.87	54	36.64	33.01	3.68	34.2	152	216	Average

Test Mode :	802.11g	Temperature :	19~20℃
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Jack Li

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
2389.61	65	-9	74	62.72	32.86	3.47	34.05	200	55	Peak
2389.61	45.31	-8.69	54	43.03	32.86	3.47	34.05	200	55	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
2389.42	61.6	-12.4	74	59.32	32.86	3.47	34.05	197	55	Peak
2389.42	42.01	-11.99	54	39.73	32.86	3.47	34.05	197	55	Average

Test Mode :	802.11g	Temperature :	19~20℃
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Jack Li

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	60.74	-13.26	74	58.25	33.01	3.68	34.2	100	0	Peak
2483.5	41.62	-12.38	54	39.13	33.01	3.68	34.2	100	0	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
2484.04	59.07	-14.93	74	56.58	33.01	3.68	34.2	102	55	Peak
2484.04	39.89	-14.11	54	37.4	33.01	3.68	34.2	102	55	Average

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

Test Mode :	802.11b	Temperature :	19~20℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
103.72	25.58	-17.92	43.5	44.11	11.01	0.42	29.96	-	-	Peak
149.31	28.79	-14.71	43.5	48.18	10.07	0.51	29.97	-	-	Peak
175.5	27.86	-15.64	43.5	48.4	8.8	0.55	29.89	-	-	Peak
256.98	25.74	-20.26	46	42.82	12.1	0.68	29.86	-	-	Peak
768.17	27.94	-18.06	46	36.42	19.88	1.2	29.56	-	-	Peak
951.5	38.39	-7.61	46	45.86	20.74	1.33	29.54	200	11	Peak
2388.85	51.47	-22.53	74	49.19	32.86	3.47	34.05	112	33	Peak
2388.85	34.43	-19.57	54	32.15	32.86	3.47	34.05	112	33	Average
2412	102.41	-	-	100.08	32.89	3.52	34.08	106	50	Peak
2412	94.9	-	-	92.57	32.89	3.52	34.08	106	50	Average
2494.11	50.4	-23.6	74	47.86	33.05	3.72	34.23	200	145	Peak
2494.11	34.32	-19.68	54	31.78	33.05	3.72	34.23	200	145	Average
4824	53.59	-20.41	74	45.72	35.17	4.97	32.27	100	56	Peak
4824	49.71	-4.29	54	41.84	35.17	4.97	32.27	100	56	Average

Test Mode :	802.11b	Temperature :	19~20℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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	29.64	-10.36	40	45.76	13.7	0.24	30.06	-	-	Peak
97.9	28.22	-15.28	43.5	47.63	10.15	0.41	29.97	-	-	Peak
528.58	29.29	-16.71	46	40.02	17.99	0.98	29.7	-	-	Peak
566.41	28.66	-17.34	46	38.77	18.53	1.02	29.66	-	-	Peak
599.39	28.85	-17.15	46	38.8	18.6	1.07	29.62	-	-	Peak
951.5	38.42	-7.58	46	45.89	20.74	1.33	29.54	112	347	Peak
2387.71	51.41	-22.59	74	49.13	32.86	3.47	34.05	100	166	Peak
2387.71	38.92	-15.08	54	36.64	32.86	3.47	34.05	100	166	Average
2412	97	-	-	94.67	32.89	3.52	34.08	112	88	Peak
2412	91.39	-	-	89.06	32.89	3.52	34.08	112	88	Average
2488.22	50.43	-23.57	74	47.89	33.05	3.72	34.23	120	0	Peak
2488.22	38.03	-15.97	54	35.49	33.05	3.72	34.23	120	0	Average
4826	52.04	-21.96	74	44.17	35.17	4.97	32.27	100	55	Peak
4826	49.09	-4.91	54	41.22	35.17	4.97	32.27	100	55	Average
7236	52.87	-21.13	74	45.08	36.18	6.53	34.92	100	49	Peak
7236	41.83	-12.17	54	34.04	36.18	6.53	34.92	100	49	Average

Test Mode :	802.11b	Temperature :	19~20℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
103.72	25.5	-18	43.5	44.03	11.01	0.42	29.96	-	-	Peak
150.28	28.16	-15.34	43.5	47.62	10	0.51	29.97	-	-	Peak
179.38	28.25	-15.25	43.5	49.1	8.47	0.56	29.88	-	-	Peak
263.77	25.42	-20.58	46	42.38	12.23	0.68	29.87	-	-	Peak
759.44	27.68	-18.32	46	36.15	19.89	1.19	29.55	-	-	Peak
951.5	34.5	-11.5	46	41.97	20.74	1.33	29.54	200	0	Peak
2382.01	50.83	-23.17	74	48.59	32.83	3.42	34.01	100	132	Peak
2382.01	37.51	-16.49	54	35.27	32.83	3.42	34.01	100	132	Average
2437	97.69	-	-	95.29	32.95	3.6	34.15	195	49	Peak
2437	92.51	-	-	90.11	32.95	3.6	34.15	195	49	Average
2488.79	50.12	-23.88	74	47.58	33.05	3.72	34.23	200	0	Peak
2488.79	37.05	-16.95	54	34.51	33.05	3.72	34.23	200	0	Average
4874	54.32	-19.68	74	46.43	35.18	4.98	32.27	101	50	Peak
4874	50.51	-3.49	54	42.62	35.18	4.98	32.27	101	50	Average

Test Mode :	802.11b	Temperature :	19~20℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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	29.82	-10.18	40	45.94	13.7	0.24	30.06	122	245	Peak
101.78	28.47	-15.03	43.5	47.28	10.74	0.41	29.96	-	-	Peak
492.69	28.29	-17.71	46	39.98	17.1	0.95	29.74	-	-	Peak
518.88	30.26	-15.74	46	41.36	17.64	0.97	29.71	-	-	Peak
560.59	30.18	-15.82	46	40.32	18.52	1.01	29.67	-	-	Peak
951.5	35.19	-10.81	46	42.66	20.74	1.33	29.54	-	-	Peak
2327.1	51.13	-22.87	74	49	32.76	3.27	33.9	115	216	Peak
2327.1	37.29	-16.71	54	35.16	32.76	3.27	33.9	115	216	Average
2437	94.94	-	-	92.54	32.95	3.6	34.15	157	100	Peak
2437	89.86	-	-	87.46	32.95	3.6	34.15	157	100	Average
2491.07	49.97	-24.03	74	47.43	33.05	3.72	34.23	200	344	Peak
2491.07	36.15	-17.85	54	33.61	33.05	3.72	34.23	200	344	Average
4874	53.61	-20.39	74	45.72	35.18	4.98	32.27	100	50	Peak
4874	49.02	-4.98	54	41.13	35.18	4.98	32.27	100	50	Average
7311	52.16	-21.84	74	44.41	36.2	6.6	35.05	100	145	Peak
7311	40.75	-13.25	54	33	36.2	6.6	35.05	100	145	Average

Test Mode :	802.11b	Temperature :	19~20℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
103.72	25.71	-17.79	43.5	44.24	11.01	0.42	29.96	-	-	Peak
147.37	28.15	-15.35	43.5	47.42	10.21	0.5	29.98	-	-	Peak
177.44	28.19	-15.31	43.5	48.89	8.63	0.56	29.89	-	-	Peak
267.65	25.32	-20.68	46	42.21	12.31	0.69	29.89	-	-	Peak
746.83	26.93	-19.07	46	35.42	19.88	1.18	29.55	-	-	Peak
951.5	34.68	-11.32	46	42.15	20.74	1.33	29.54	198	3	Peak
2360.35	50.35	-23.65	74	48.14	32.81	3.38	33.98	100	355	Peak
2360.35	38.09	-15.91	54	35.88	32.81	3.38	33.98	100	355	Average
2462	97.85	-	-	95.4	32.98	3.64	34.17	106	316	Peak
2462	92.47	-	-	90.02	32.98	3.64	34.17	106	316	Average
2486.13	50.76	-23.24	74	48.27	33.01	3.68	34.2	114	275	Peak
2486.13	39.43	-14.57	54	36.94	33.01	3.68	34.2	114	275	Average
4924	53.32	-20.68	74	45.4	35.19	4.99	32.26	100	48	Peak
4924	49.81	-4.19	54	41.89	35.19	4.99	32.26	100	48	Average

Test Mode :	802.11b	Temperature :	19~20℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
36.79	29.54	-10.46	40	45.18	14.19	0.24	30.07	122	221	Peak
102.75	28.02	-15.48	43.5	46.69	10.87	0.42	29.96	-	-	Peak
488.81	28.42	-17.58	46	40.17	17.04	0.95	29.74	-	-	Peak
520.82	30.5	-15.5	46	41.53	17.7	0.98	29.71	-	-	Peak
571.26	28.23	-17.77	46	38.32	18.54	1.03	29.66	-	-	Peak
951.5	35.05	-10.95	46	42.52	20.74	1.33	29.54	-	-	Peak
2348.19	50.66	-23.34	74	48.49	32.78	3.33	33.94	200	12	Peak
2348.19	37.66	-16.34	54	35.49	32.78	3.33	33.94	200	12	Average
2462	94.2	-	-	91.75	32.98	3.64	34.17	155	99	Peak
2462	88.93	-	-	86.48	32.98	3.64	34.17	155	99	Average
2483.66	51.61	-22.39	74	49.12	33.01	3.68	34.2	152	216	Peak
2483.66	39.13	-14.87	54	36.64	33.01	3.68	34.2	152	216	Average

Test Mode :	802.11g	Temperature :	19~20℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
102.75	25.9	-17.6	43.5	44.57	10.87	0.42	29.96	-	-	Peak
149.31	27.68	-15.82	43.5	47.07	10.07	0.51	29.97	-	-	Peak
175.5	28.1	-15.4	43.5	48.64	8.8	0.55	29.89	-	-	Peak
255.04	25.95	-20.05	46	43.06	12.07	0.67	29.85	-	-	Peak
769.14	27.77	-18.23	46	36.25	19.88	1.2	29.56	-	-	Peak
951.5	34.46	-11.54	46	41.93	20.74	1.33	29.54	100	360	Peak
2389.61	65	-9	74	62.72	32.86	3.47	34.05	200	55	Peak
2389.61	45.31	-8.69	54	43.03	32.86	3.47	34.05	200	55	Average
2412	101.91	-	-	99.58	32.89	3.52	34.08	197	50	Peak
2412	87.77	-	-	85.44	32.89	3.52	34.08	197	50	Average
2497.34	51.06	-22.94	74	48.52	33.05	3.72	34.23	144	148	Peak
2497.34	38.22	-15.78	54	35.68	33.05	3.72	34.23	144	148	Average

Test Mode :	802.11g	Temperature :	19~20℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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	29.5	-10.5	40	45.62	13.7	0.24	30.06	120	230	Peak
102.75	28.23	-15.27	43.5	46.9	10.87	0.42	29.96	-	-	Peak
480.08	27.94	-18.06	46	39.88	16.87	0.94	29.75	-	-	Peak
530.52	29.95	-16.05	46	40.61	18.05	0.99	29.7	-	-	Peak
586.78	29.35	-16.65	46	39.35	18.58	1.05	29.63	-	-	Peak
951.5	34.85	-11.15	46	42.32	20.74	1.33	29.54	-	-	Peak
2389.42	61.6	-12.4	74	59.32	32.86	3.47	34.05	197	55	Peak
2389.42	42.01	-11.99	54	39.73	32.86	3.47	34.05	197	55	Average
2412	99.5	-	-	97.17	32.89	3.52	34.08	200	86	Peak
2412	84.94	-	-	82.61	32.89	3.52	34.08	200	86	Average
2498.86	50.23	-23.77	74	47.69	33.05	3.72	34.23	104	152	Peak
2498.86	37.12	-16.88	54	34.58	33.05	3.72	34.23	104	152	Average

Test Mode :	802.11g	Temperature :	19~20℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
103.72	25.81	-17.69	43.5	44.34	11.01	0.42	29.96	-	-	Peak
149.31	27.81	-15.69	43.5	47.2	10.07	0.51	29.97	-	-	Peak
177.44	28.06	-15.44	43.5	48.76	8.63	0.56	29.89	-	-	Peak
765.26	27.96	-18.04	46	36.42	19.89	1.2	29.55	-	-	Peak
849.65	27.65	-18.35	46	35.52	20.51	1.28	29.66	-	-	Peak
951.5	35.19	-10.81	46	42.66	20.74	1.33	29.54	200	10	Peak
2341.92	50.49	-23.51	74	48.32	32.78	3.33	33.94	136	244	Peak
2341.92	37.33	-16.67	54	35.16	32.78	3.33	33.94	136	244	Average
2437	99.85	-	-	97.45	32.95	3.6	34.15	200	53	Peak
2437	85.32	-	-	82.92	32.95	3.6	34.15	200	53	Average
2489.55	49.61	-24.39	74	47.07	33.05	3.72	34.23	100	137	Peak
2489.55	38.57	-15.43	54	36.03	33.05	3.72	34.23	100	137	Average

Test Mode :	802.11g	Temperature :	19~20℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
35.82	29.27	-10.73	40	44.47	14.65	0.23	30.08	123	246	Peak
101.78	28.39	-15.11	43.5	47.2	10.74	0.41	29.96	-	-	Peak
484.93	28.18	-17.82	46	40.02	16.97	0.94	29.75	-	-	Peak
529.55	30.37	-15.63	46	41.06	18.02	0.99	29.7	-	-	Peak
580.96	29.22	-16.78	46	39.24	18.57	1.05	29.64	-	-	Peak
951.5	35.1	-10.9	46	42.57	20.74	1.33	29.54	-	-	Peak
2315.32	50.91	-23.09	74	48.82	32.73	3.22	33.86	200	112	Peak
2315.32	37.55	-16.45	54	35.46	32.73	3.22	33.86	200	112	Average
2437	97.94	-	-	95.54	32.95	3.6	34.15	166	89	Peak
2437	83.87	-	-	81.47	32.95	3.6	34.15	166	89	Average
2487.08	50.63	-23.37	74	48.14	33.01	3.68	34.2	103	346	Peak
2487.08	38.65	-15.35	54	36.16	33.01	3.68	34.2	103	346	Average

Test Mode :	802.11g	Temperature :	19~20℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
102.75	25.55	-17.95	43.5	44.22	10.87	0.42	29.96	-	-	Peak
148.34	27.86	-15.64	43.5	47.19	10.14	0.51	29.98	-	-	Peak
175.5	28.13	-15.37	43.5	48.67	8.8	0.55	29.89	-	-	Peak
753.62	27.32	-18.68	46	35.78	19.9	1.18	29.54	-	-	Peak
795.33	26.99	-19.01	46	35.48	19.85	1.25	29.59	-	-	Peak
951.5	34.07	-11.93	46	41.54	20.74	1.33	29.54	200	360	Peak
2382.39	50.62	-23.38	74	48.38	32.83	3.42	34.01	145	221	Peak
2382.39	37.4	-16.6	54	35.16	32.83	3.42	34.01	145	221	Average
2462	99.31	-	-	96.86	32.98	3.64	34.17	199	321	Peak
2462	83.71	-	-	81.26	32.98	3.64	34.17	199	321	Average
2483.5	60.74	-13.26	74	58.25	33.01	3.68	34.2	100	0	Peak
2483.5	41.62	-12.38	54	39.13	33.01	3.68	34.2	100	0	Average

Test Mode :	802.11g	Temperature :	19~20℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
36.79	30.23	-9.77	40	45.87	14.19	0.24	30.07	120	0	Peak
101.78	28.51	-14.99	43.5	47.32	10.74	0.41	29.96	-	-	Peak
483.96	28.09	-17.91	46	39.95	16.95	0.94	29.75	-	-	Peak
524.7	30.4	-15.6	46	41.28	17.85	0.98	29.71	-	-	Peak
579.02	29.63	-16.37	46	39.67	18.56	1.04	29.64	-	-	Peak
951.5	35.19	-10.81	46	42.66	20.74	1.33	29.54	-	-	Peak
2346.67	50.53	-23.47	74	48.36	32.78	3.33	33.94	120	111	Peak
2346.67	37.41	-16.59	54	35.24	32.78	3.33	33.94	120	111	Average
2462	97.84	-	-	95.39	32.98	3.64	34.17	200	90	Peak
2462	83.01	-	-	80.56	32.98	3.64	34.17	200	90	Average
2484.04	59.07	-14.93	74	56.58	33.01	3.68	34.2	102	55	Peak
2484.04	39.89	-14.11	54	37.4	33.01	3.68	34.2	102	55	Average

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 KHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

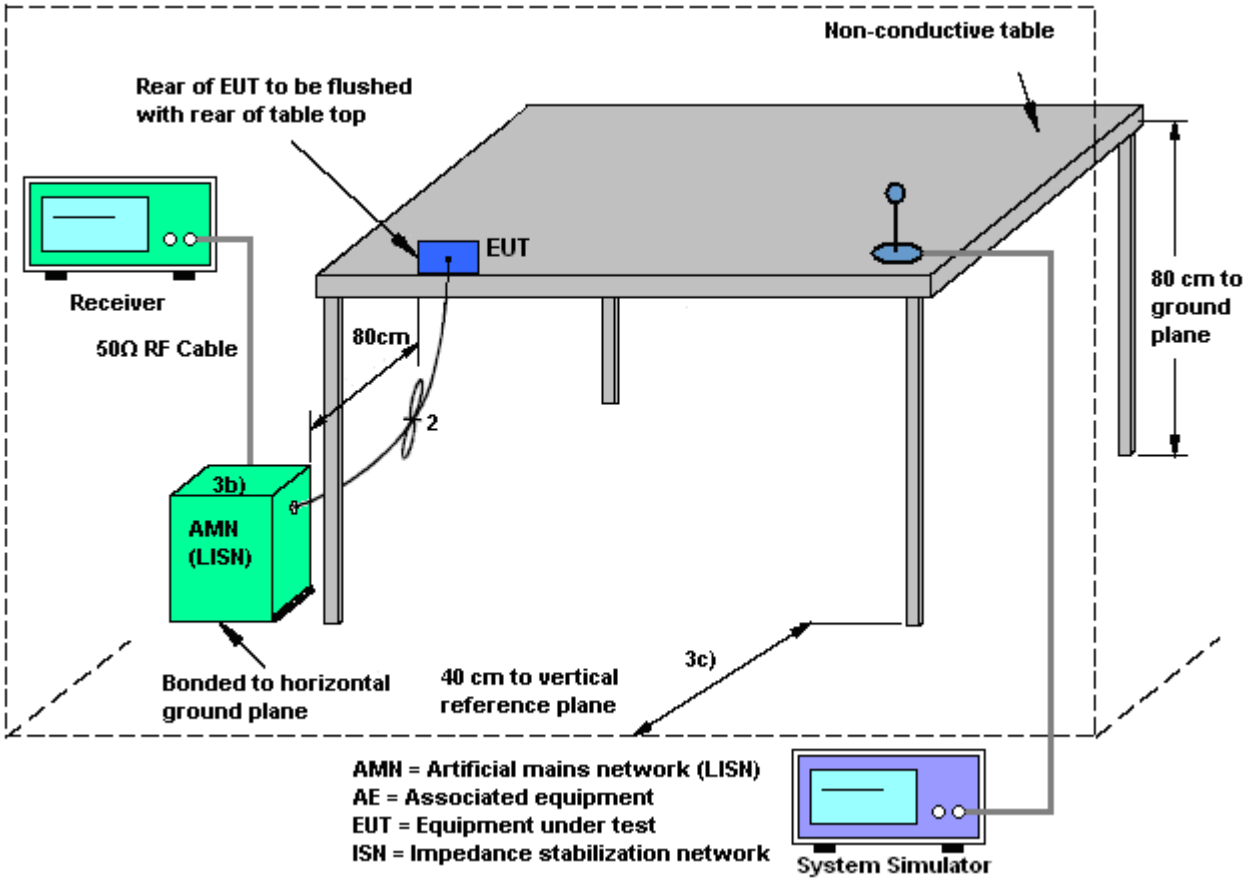
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

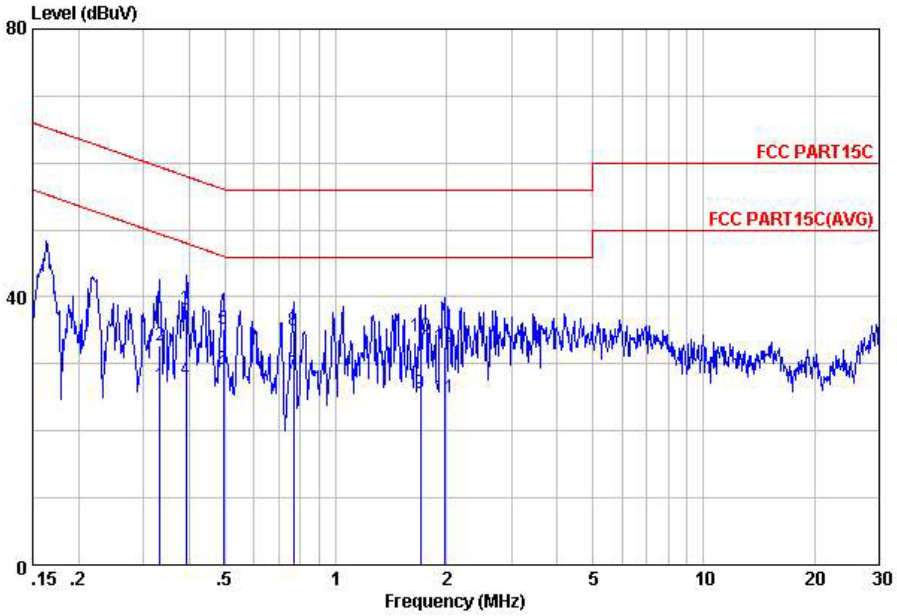
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 KHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adpater)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

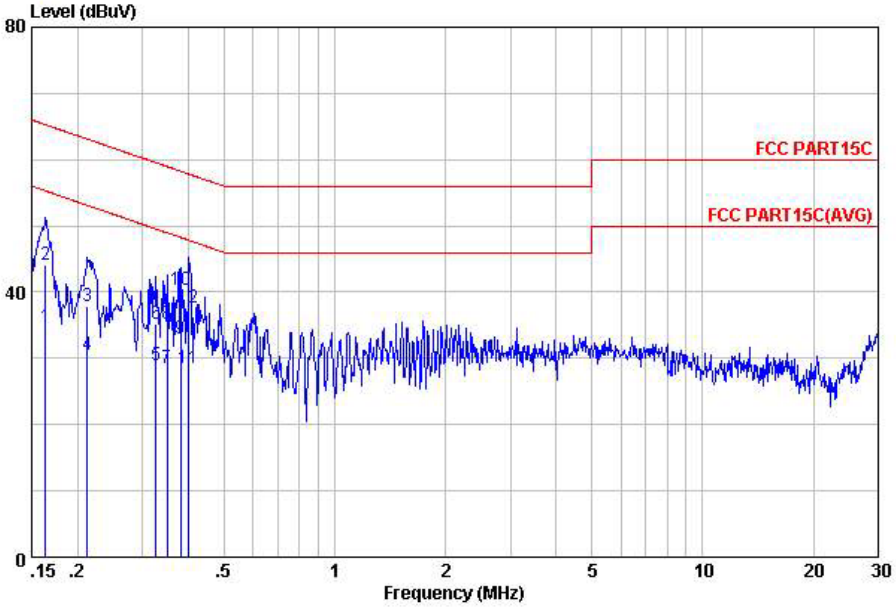


Site : C001-KS
Condition: FCC PART15C LISN-100807 LINE

mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.33	26.80	-22.60	49.40	16.70	-0.08	10.18	Average
2	0.33	32.70	-26.70	59.40	22.60	-0.08	10.18	QP
3	0.39	38.01	-20.02	58.03	27.90	-0.08	10.19	QP
4	0.39	27.71	-20.32	48.03	17.60	-0.08	10.19	Average
5	0.49	35.13	-20.97	56.10	25.00	-0.08	10.21	QP
6	0.49	29.23	-16.87	46.10	19.10	-0.08	10.21	Average
7	0.77	28.45	-17.55	46.00	18.30	-0.09	10.24	Average
8	0.77	35.05	-20.95	56.00	24.90	-0.09	10.24	QP
9	1.70	25.60	-20.40	46.00	15.40	-0.11	10.31	Average
10	1.70	34.20	-21.80	56.00	24.00	-0.11	10.31	QP
11	1.97	25.02	-20.98	46.00	14.80	-0.11	10.33	Average
12	1.97	32.62	-23.38	56.00	22.40	-0.11	10.33	QP

Test Mode :	Mode 1	Temperature :	19~20℃
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adpater)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC PART15C LISN-100807 NEUTRAL

mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	34.66	-20.64	55.30	24.60	-0.08	10.14	Average
2	0.16	44.06	-21.24	65.30	34.00	-0.08	10.14	QP
3	0.21	37.98	-25.12	63.10	27.90	-0.07	10.15	QP
4	0.21	30.48	-22.62	53.10	20.40	-0.07	10.15	Average
5	0.33	29.00	-20.53	49.53	18.90	-0.08	10.18	Average
6	0.33	35.20	-24.33	59.53	25.10	-0.08	10.18	QP
7	0.35	28.60	-20.36	48.96	18.50	-0.08	10.18	Average
8	0.35	35.20	-23.76	58.96	25.10	-0.08	10.18	QP
9	0.38	32.91	-15.34	48.25	22.80	-0.08	10.19	Average
10	0.38	40.41	-17.84	58.25	30.30	-0.08	10.19	QP
11	0.40	28.51	-19.30	47.81	18.40	-0.08	10.19	Average
12	0.40	37.61	-20.20	57.81	27.50	-0.08	10.19	QP

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.7.2 Antenna Connected Construction

Non-standard connector used.

3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Ju1. 20, 2012~ Jul. 23, 2012	Dec. 29, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 23, 2011	Ju1. 20, 2012~ Jul. 23, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 23, 2011	Ju1. 20, 2012~ Jul. 23, 2012	Aug. 22, 2012	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 23, 2011	Ju1. 20, 2012~ Jul. 23, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 30, 2011	Ju1. 20, 2012~ Jul. 23, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Jul. 23, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Jul. 23, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Jul. 23, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9 kHz~30 MHz	Jul. 28, 2011	Jul. 23, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Jul. 23, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 30, 2011	Jul. 23, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	Jul. 23, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2011	Jul. 23, 2012	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Oct. 11, 2011	Jul. 23, 2012	Oct.10, 2012	Radiation (03CH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 01, 2012	May 25, 2012	May 31, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 30, 2011	May 25, 2012	Dec. 29, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 30, 2011	May 25, 2012	Dec. 29, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	May 25, 2012	Nov. 15, 2012	Conduction (CO01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	May 25, 2012	Dec. 29, 2012	Conduction (CO01-KS)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**

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

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

Uncertainty of Conducted Emission Measurement (150 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**

Appendix A. Photographs of EUT

Please refer to Sporton report number EP251703 as below.