



FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Smartphone
MODEL NAME : PM35110
FCC ID : NM8PM35110
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Aug. 14, 2012 and completely tested on Sep. 04, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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

Reviewed by:

Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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



TABLE OF CONTENTS

REVISION HISTORY..... 3

SUMMARY OF TEST RESULT 4

1 GENERAL DESCRIPTION..... 5

 1.1 Applicant 5

 1.2 Manufacturer..... 5

 1.3 Feature of Equipment Under Test 5

 1.4 Testing Site 6

 1.5 Applied Standards 6

 1.6 Ancillary Equipment List 6

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST..... 7

 2.1 RF Output Power 7

 2.2 Test Mode..... 8

 2.3 Connection Diagram of Test System..... 9

 2.4 RF Utility 9

3 TEST RESULT 10

 3.1 6dB Bandwidth Measurement 10

 3.2 Peak Output Power Measurement 13

 3.3 Power Spectral Density Measurement 16

 3.4 Conducted Band Edges and Spurious Emission Measurement 19

 3.5 Radiated Band Edges and Spurious Emission Measurement 27

 3.6 AC Conducted Emission Measurement..... 48

 3.7 Antenna Requirements 54

4 LIST OF MEASURING EQUIPMENT..... 55

5 UNCERTAINTY OF EVALUATION..... 56

APPENDIX A. SETUP PHOTOGRAPHS



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)(1)	A8.1(b)	Peak Output Power	$\leq 30\text{dBm}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.4	15.247(d)	A8.5	Conducted Band Edges and Spurious Emission	$\leq 20\text{dBc}$	Pass	-
3.5	15.247(d)	A8.5	Radiated Band Edges and Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 5.96 dB at 32.970 MHz
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 5.90 dB at 0.398 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

HTC Corporation

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

1.2 Manufacturer

HTC Corporation

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

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Smartphone
Model Name	PM35110
FCC ID	NM8PM35110
Sample 1	EUT with LCM 1, Camera Front 1, Camera Main 1, DDR Memory 1 and Battery 1
Sample 2	EUT with LCM 2, Camera Front 1, Camera Main 2, DDR Memory 2 and Battery 2
Sample 3	EUT with LCM 1, Camera Front 1, Camera Main 1, DDR Memory 3 and Battery 1
Sample 4	EUT with LCM 2, Camera Front 2, Camera Main 2, DDR Memory 3 and Battery 2
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/ WLAN 11abgn / Bluetooth / NFC
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	2402 MHz ~ 2480 MHz
Number of Channels	40
Carrier Frequency of Each Channel	40 Channel(37 hopping + 3 advertising channel)
Maximum Output Power to Antenna	Bluetooth 4.0 - LE : 4.31 dBm (0.0027 W)
Antenna Type	PIFA Antenna type with gain -0.40 dBi
Type of Modulation	Bluetooth 4.0 - LE : GFSK

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.			
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
Test Site No.	Sporton Site No.			FCC/IC Registration No.
	TH02-HY	CO05-HY	03CH05-HY	722060/4086B-1

1.5 Applied Standards

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

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

Remark:

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

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
4.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
5.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m



2 Test Configuration of Equipment Under Test

2.1 RF Output Power

The RF output power was recorded in the following table:

Channel	Frequency	Bluetooth 4.0 – LE RF Output Power	
		Data Rate / Modulation	
		GFSK	
		1Mbps	
Ch00	2402MHz	2.84 dBm	
Ch19	2440MHz	3.68 dBm	
Ch39	2480MHz	4.31 dBm	

2.2 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (9 kHz 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.

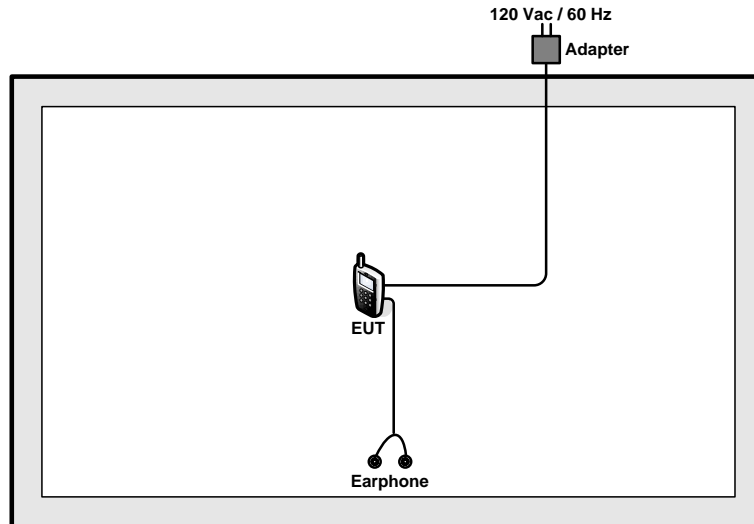
The following tables are showing the test modes as the worst cases (X plane for Sample 1; Z plane for Sample 2) and recorded in this report.

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

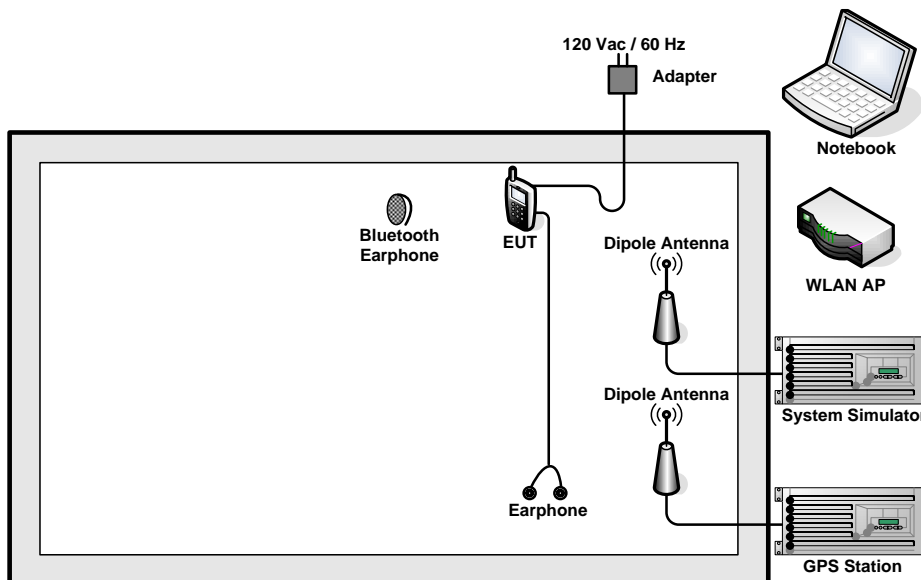
Test Cases	
Test Item	Data Rate / Modulation
	Bluetooth 4.0 – LE / GFSK
Conducted TCs	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps
Radiated TCs	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps for Sample 1 Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps for Sample 1 Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps for Sample 1 Mode 4: Bluetooth Tx CH39_2480 MHz_1Mbps for Sample 2
AC Conducted Emission	Mode 1 :GSM850 Idle + Bluetooth Link + WLAN (2.4G) Link + GPS Rx + Earphone 1 + Battery + USB Cable 1 (Charging from Adapter 5) for Sample 1 Mode 2 GSM850 Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + Earphone 1 + Battery + USB Cable 1 (Charging from Adapter 5) for Sample 1 Mode 3 GSM850 Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + Earphone 1 + Battery + USB Cable 1 (Charging from Adapter 5) for Sample 2
Remark:	
<ol style="list-style-type: none"> For conducted emission, the worst case is mode 3; only the test data of this mode was reported. For Radiated TCs, the test was performed with adapter 5, earphone 1, and USB cable 1. 	

2.3 Connection Diagram of Test System

<Bluetooth 4.0 – LE Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

For Bluetooth function, programmed RF utility, “Remote 432X controller (P2.01)” installed in the notebook make the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

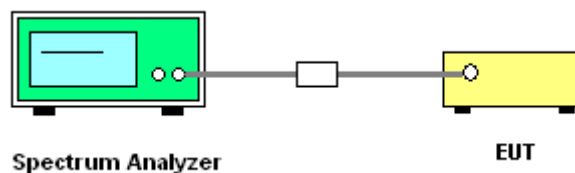
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows 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. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.

3.1.4 Test Setup



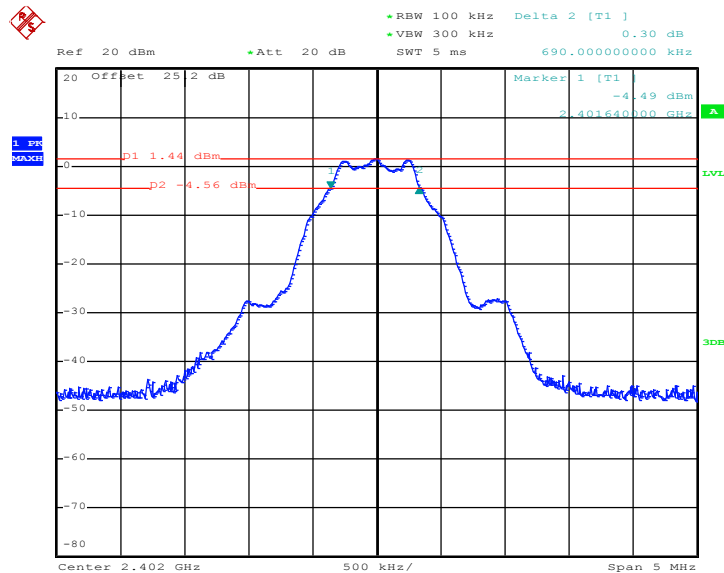


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Bluetooth 4.0 - LE	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	6dB Bandwidth (MHz)
00	2402	0.69
19	2440	0.69
39	2480	0.69

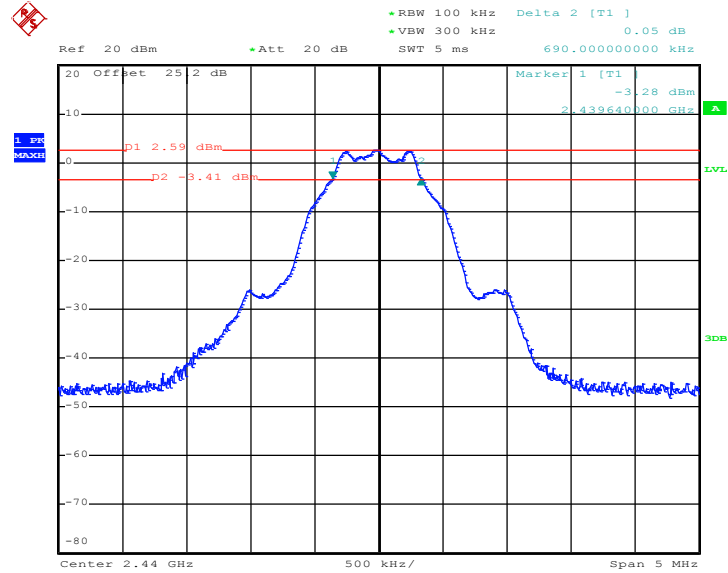
6 dB Bandwidth Plot on Channel 00



Date: 30.AUG.2012 02:02:57

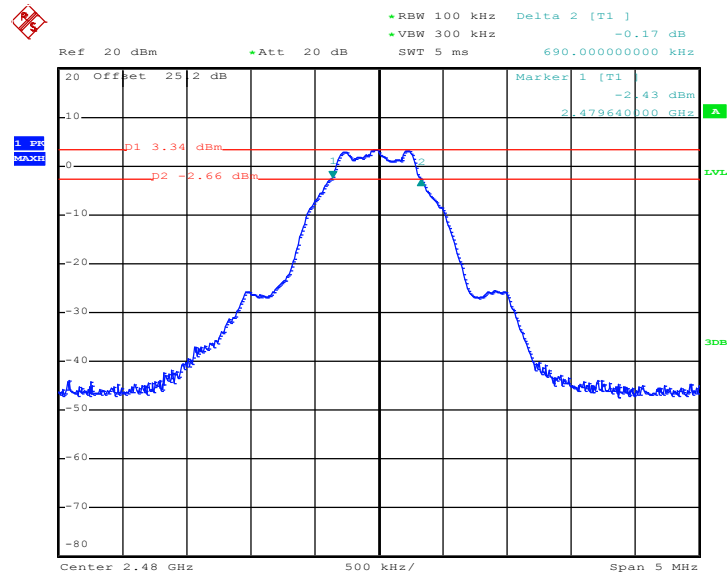


6 dB Bandwidth Plot on Channel 19



Date: 30.AUG.2012 02:00:41

6 dB Bandwidth Plot on Channel 39



Date: 30.AUG.2012 01:58:01

3.2 Peak Output Power Measurement

3.2.1 Limit of Peak Output Power

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

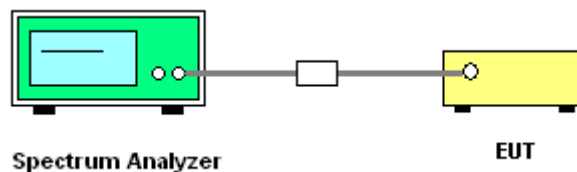
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the power meter by a low loss cable
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



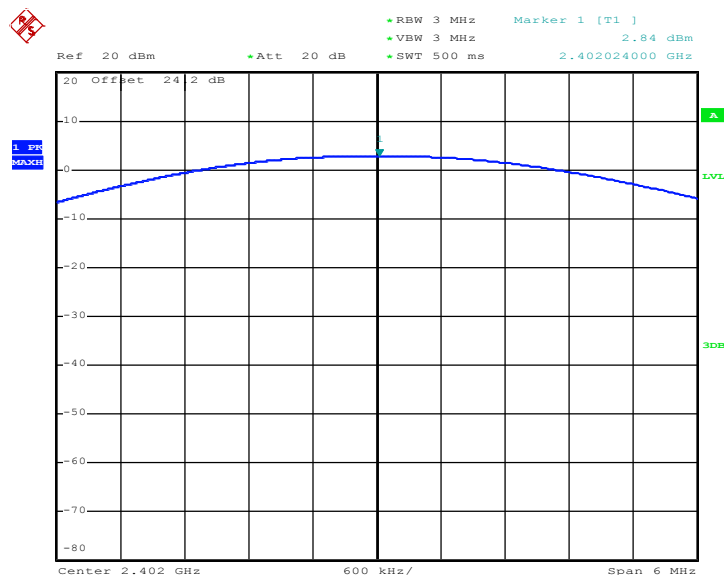


3.2.5 Test Result of Peak Output Power

Test Mode :	Bluetooth 4.0 - LE	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	RF Power (dBm)		
		GFSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	2.84	30.00	Pass
19	2440	3.68	30.00	Pass
39	2480	4.31	30.00	Pass

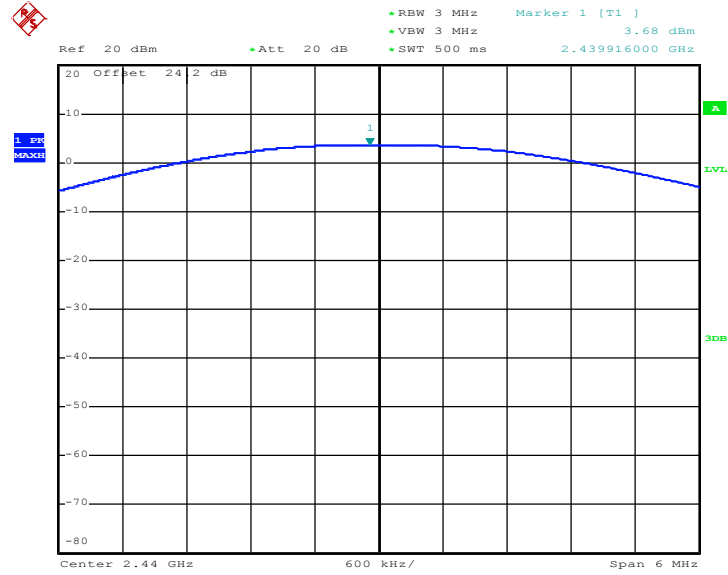
Peak Output Power Plot on Channel 00



Date: 22.AUG.2012 23:49:14

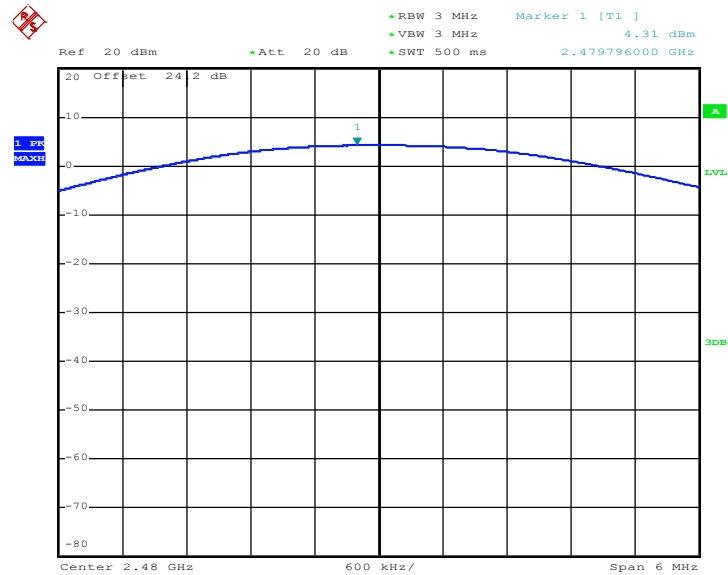


Peak Output Power Plot on Channel 19



Date: 22.AUG.2012 23:48:49

Peak Output Power Plot on Channel 39



Date: 22.AUG.2012 23:48:19

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.

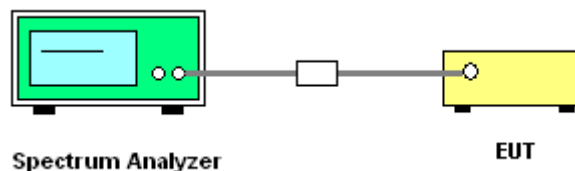
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 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. Set to the maximum power setting and enable the EUT transmit continuously.
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. Record the measurement data derived from spectrum analyzer.
7. 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 $BWCF = 10\log(3\text{ kHz}/100\text{ kHz} = -15.2\text{ dB})$.

3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

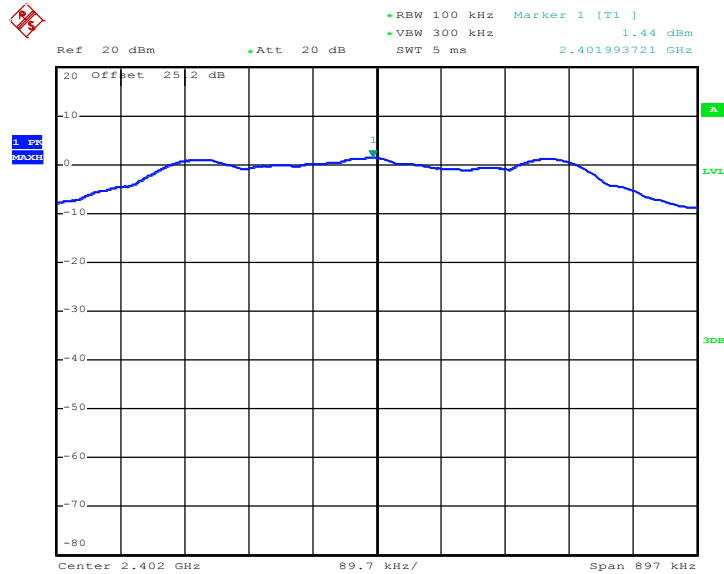
Test Mode :	Bluetooth 4.0 - LE	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
00	2402	1.44	-13.76	8	Pass
19	2440	2.60	-12.60	8	Pass
39	2480	3.32	-11.88	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)

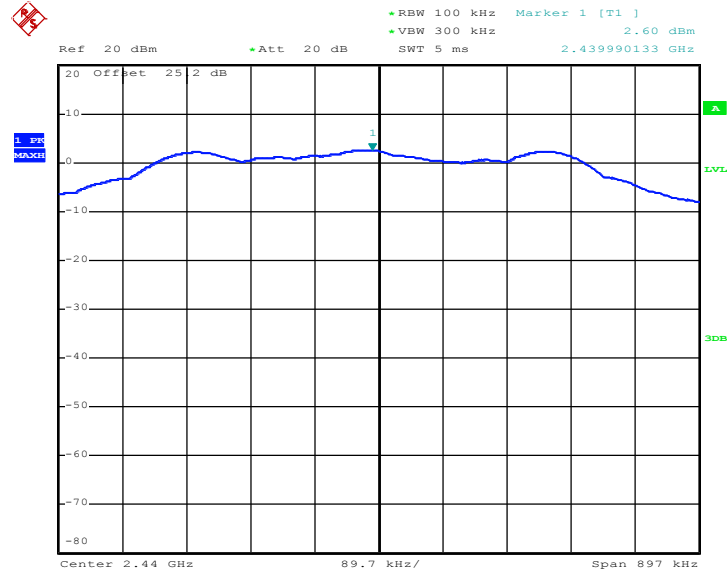
PSD Plot on Channel 00



Date: 30.AUG.2012 02:03:17

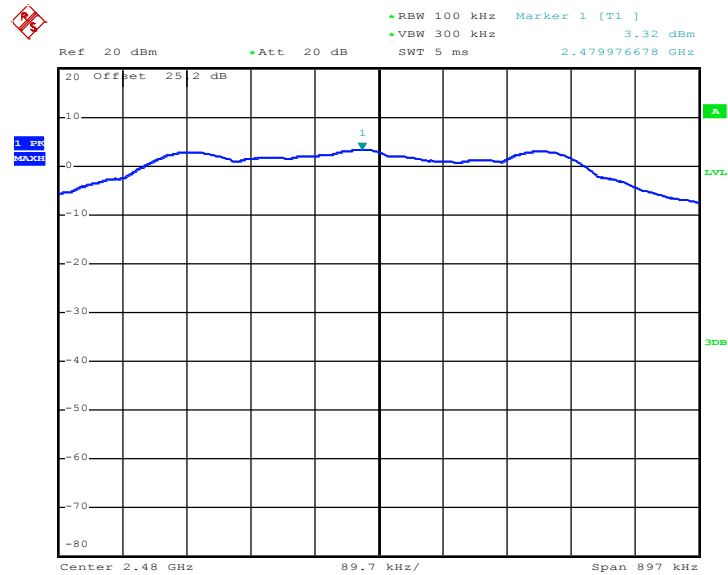


PSD Plot on Channel 19



Date: 30.AUG.2012 02:01:03

PSD Plot on Channel 39



Date: 30.AUG.2012 01:58:21

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission

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

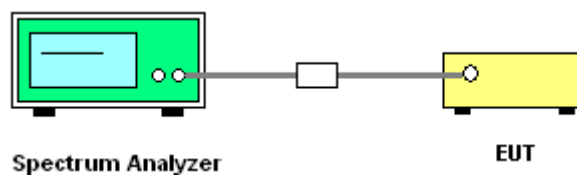
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

1. The 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. The transmitter output was connected to the spectrum analyzer via a low lose cable.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. 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).

3.4.4 Test Setup

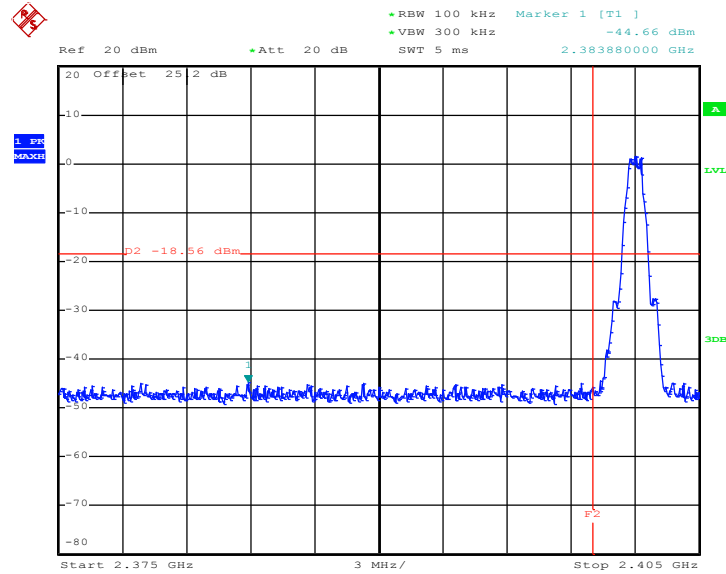




3.4.5 Test Result of Conducted Band Edges

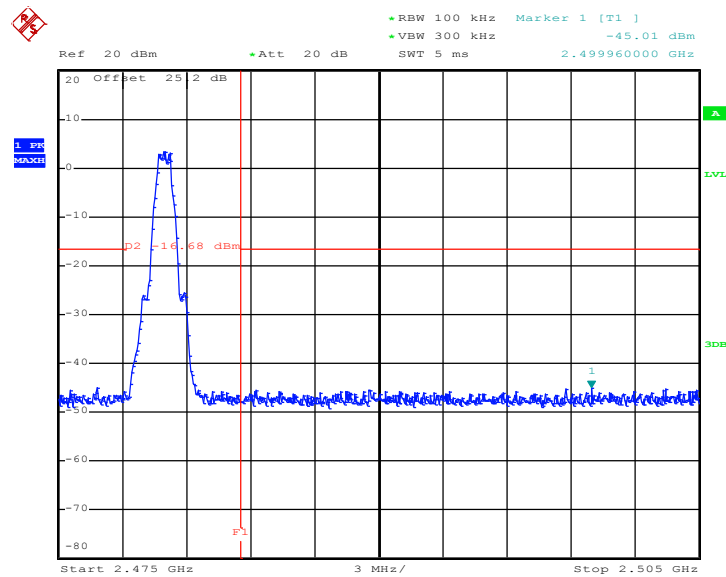
Test Mode :	Bluetooth 4.0 - LE	Temperature :	24~26°C
Test Channel :	00 and 39	Relative Humidity :	50~53%
		Test Engineer :	Book Lin

Low Band Edge Plot on Channel 00



Date: 30.AUG.2012 02:03:32

High Band Edge Plot on Channel 39



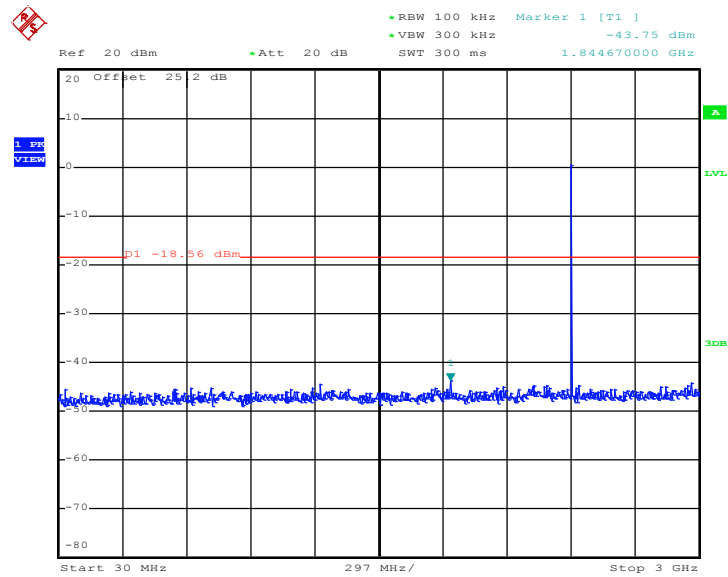
Date: 30.AUG.2012 01:58:37



3.4.6 Test Result of Conducted Spurious Emission

Test Mode :	Bluetooth 4.0 - LE	Temperature :	24~26°C
Test Channel :	00	Relative Humidity :	50~53%
		Test Engineer :	Book Lin

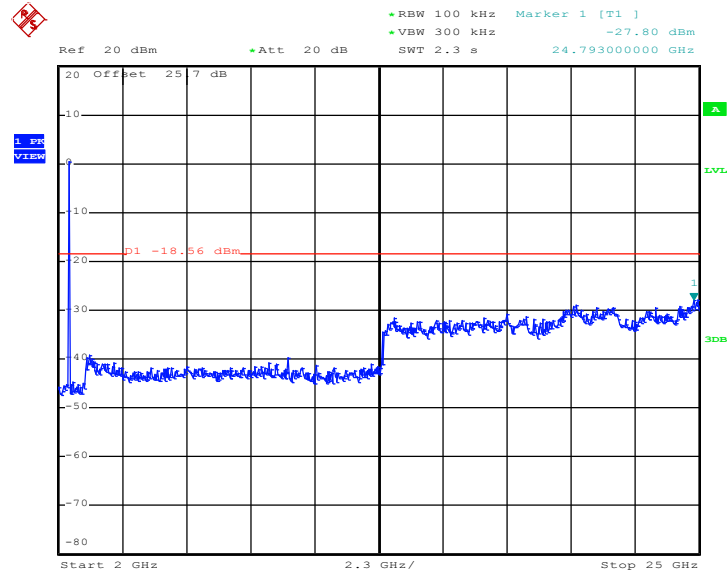
Conducted Spurious Emission Plot on Bluetooth 4.0 - LE 1Mbps
GFSK Channel 00



Date: 30.AUG.2012 02:03:53



Conducted Spurious Emission Plot on Bluetooth 4.0 - LE 1Mbps
GFSK Channel 00

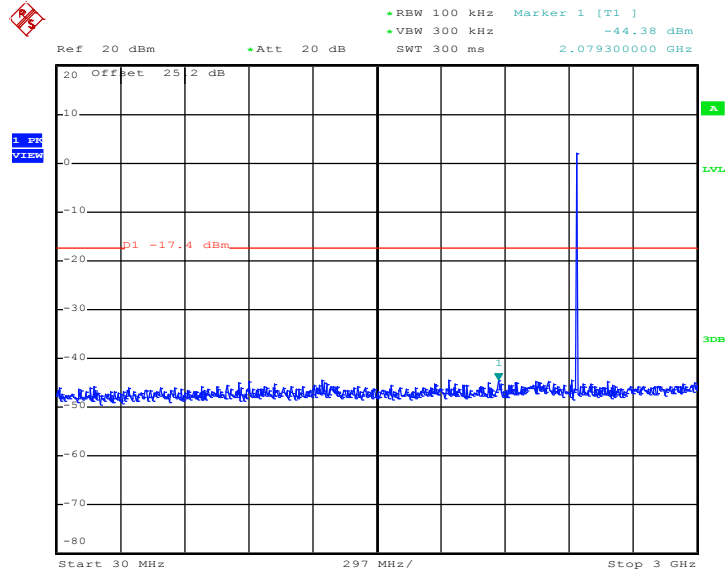


Date: 30.AUG.2012 02:04:11



Test Mode :	Bluetooth 4.0 - LE	Temperature :	24~26°C
Test Channel :	19	Relative Humidity :	50~53%
		Test Engineer :	Book Lin

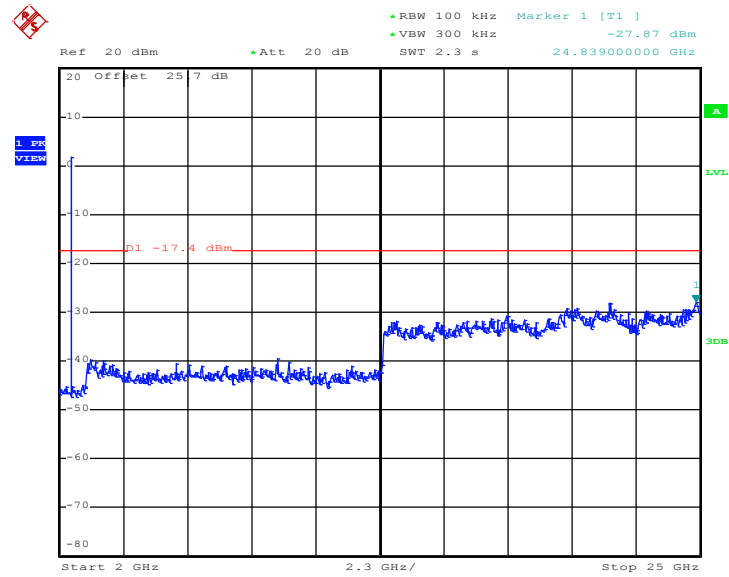
Conducted Spurious Emission Plot on Bluetooth 4.0 - LE 1Mbps
GFSK Channel 19



Date: 30.AUG.2012 02:01:24



Conducted Spurious Emission Plot on Bluetooth 4.0 - LE 1Mbps
GFSK Channel 19

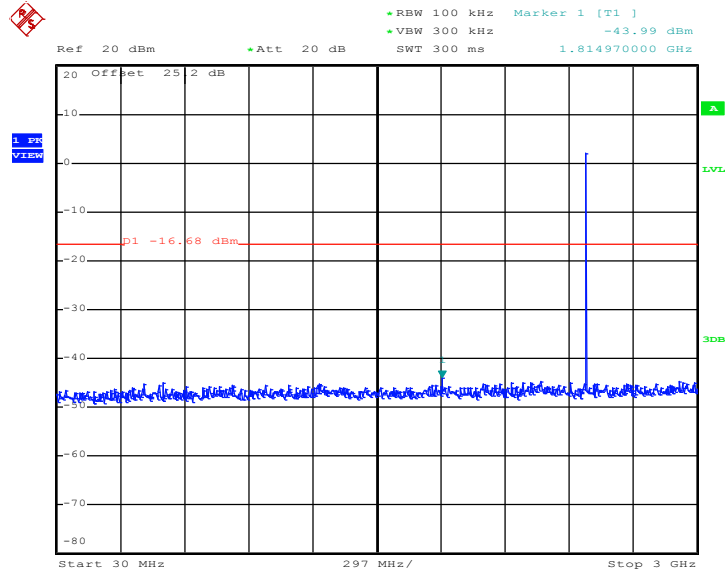


Date: 30.AUG.2012 02:01:42



Test Mode :	Bluetooth 4.0 - LE	Temperature :	24~26°C
Test Channel :	39	Relative Humidity :	50~53%
		Test Engineer :	Book Lin

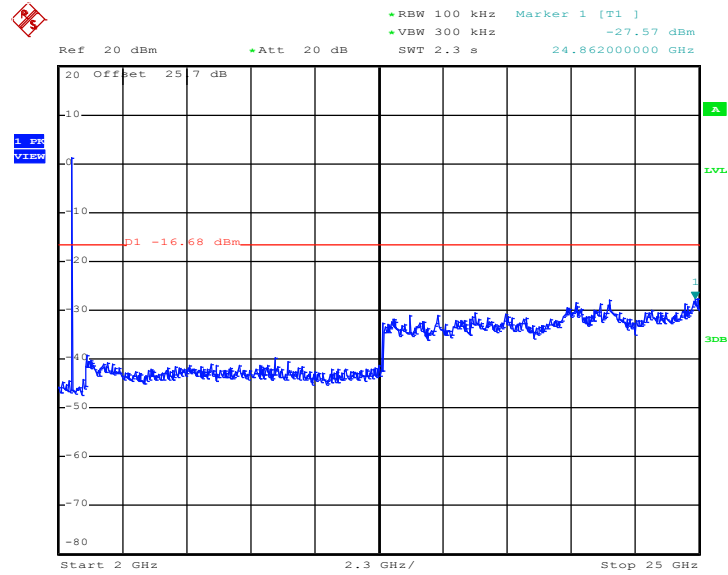
Conducted Spurious Emission Plot on Bluetooth 4.0 - LE 1Mbps
GFSK Channel 39



Date: 30.AUG.2012 01:59:09



Conducted Spurious Emission Plot on Bluetooth 4.0 - LE 1Mbps
GFSK Channel 39



Date: 30.AUG.2012 01:59:27

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated Band Edges and Spurious 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. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The testing follows the guidelines in ANSI C63. 10-2009
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;



- (2) Set RBW=100 KHz for $f < 1$ GHz; $VBW \geq RBW$; Sweep = auto; Detector function = peak; Trace = max hold;
- (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.

For average measurement:

- $VBW = 10$ Hz, when duty cycle is no less than 98 percent.
- $VBW \geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(us)	1/T(KHz)	VBW Setting
Bluetooth 4.0 - LE	64.56	408.00	2.45	3KHz

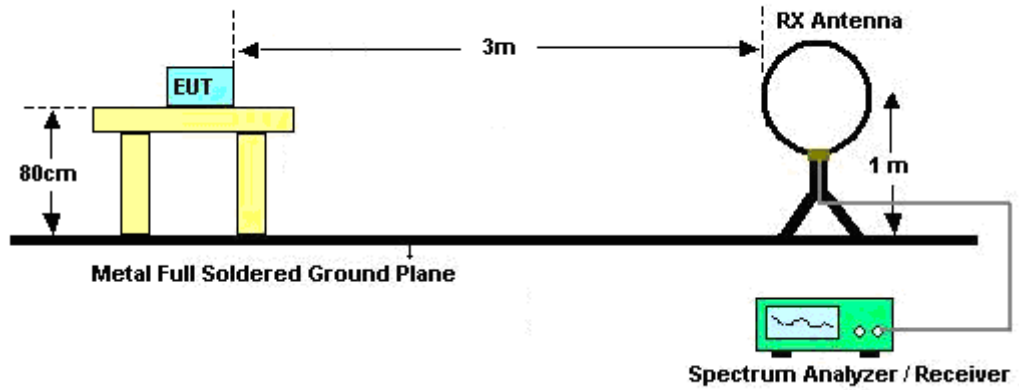
Note: For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

Marker-Delta method in DA 00-705 :

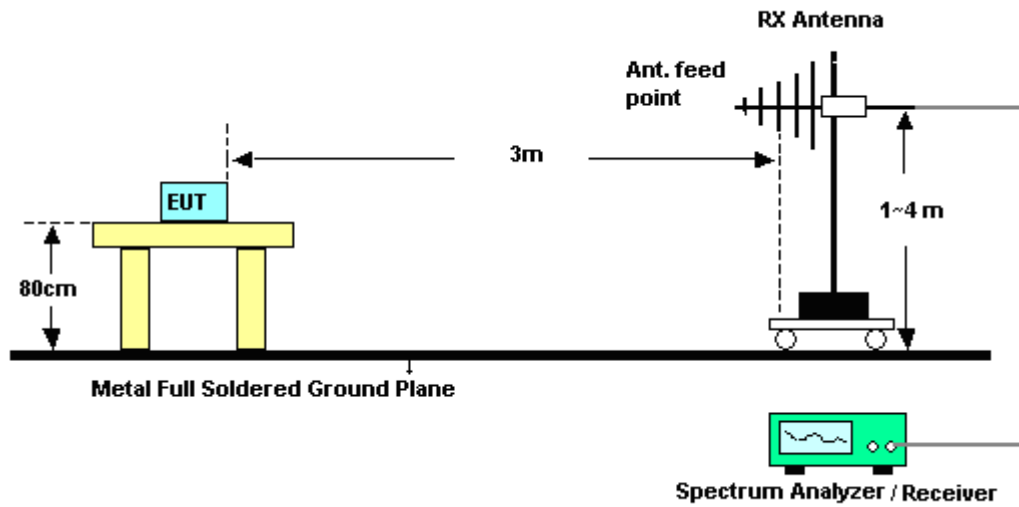
- (1) Use a 1 MHz RBW, a 1 MHz VBW, and a peak detector (as required by Section 15.35). Repeat the measurement with an average detector (i.e., 1 MHz RBW with 10 Hz VBW).
- (2) Set span = 10MHz, that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set RBW = 100KHz, 1% of the total span. Set VBW = 100KHz \geq RBW.
- (3) Subtract the delta measured in step (2) from the field strengths measured in step (1). The resultant field strengths (peak/average) are then used to determine band-edge compliance as required by Section 15.205.

3.5.4 Test Setup

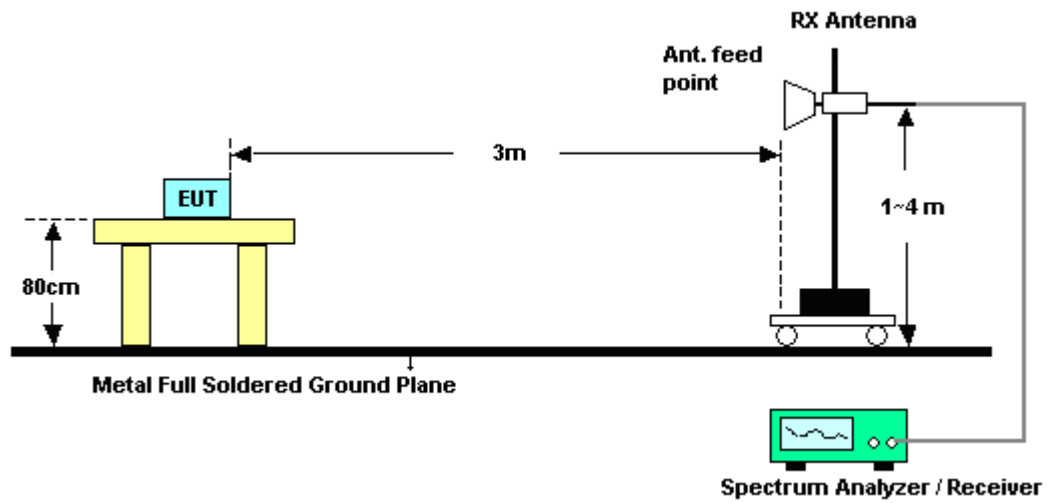
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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



3.5.6 Test Result of Radiated Band Edges

<Sample 1>

Test Mode :	Mode 1	Temperature :	21~23°C
Test Channel :	00	Relative Humidity :	49~51%
		Test Engineer :	David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2373.99	48.21	-25.79	74	47.36	32.16	4.57	35.88	103	54	Peak
2346.81	36.8	-17.2	54	36.03	32.11	4.55	35.89	103	54	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.47	47.7	-26.3	74	46.82	32.18	4.58	35.88	109	343	Peak
2354.19	36.29	-17.71	54	35.5	32.13	4.55	35.89	109	343	Average



Test Mode :	Mode 3	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
		Test Engineer :	David Yang

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	59.61	-14.39	74	58.5	32.28	4.64	35.81	122	56	Peak
2483.5	55.21	1.21	54	54.1	32.28	4.64	35.81	122	56	Average
2483.5	43.29	-30.71	74	-	-	-	-	-	-	Peak
2483.5	42.47	-11.53	54	-	-	-	-	-	-	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBμV/m)	Delta Result (dB)	Measurement Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
Peak	102.47	59.18	43.29	74	-30.71	Pass
Average	101.65	59.18	42.47	54	-11.53	Pass

Note : Measurement result = Maximum field strength – Delta result

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
2483.5	56.36	-17.64	74	55.25	32.28	4.64	35.81	128	5	Peak
2483.5	51.74	-2.26	54	50.63	32.28	4.64	35.81	128	5	Average
2483.5	43.19	-30.81	74	-	-	-	-	-	-	Peak
2483.5	42.48	-11.52	54	-	-	-	-	-	-	Average

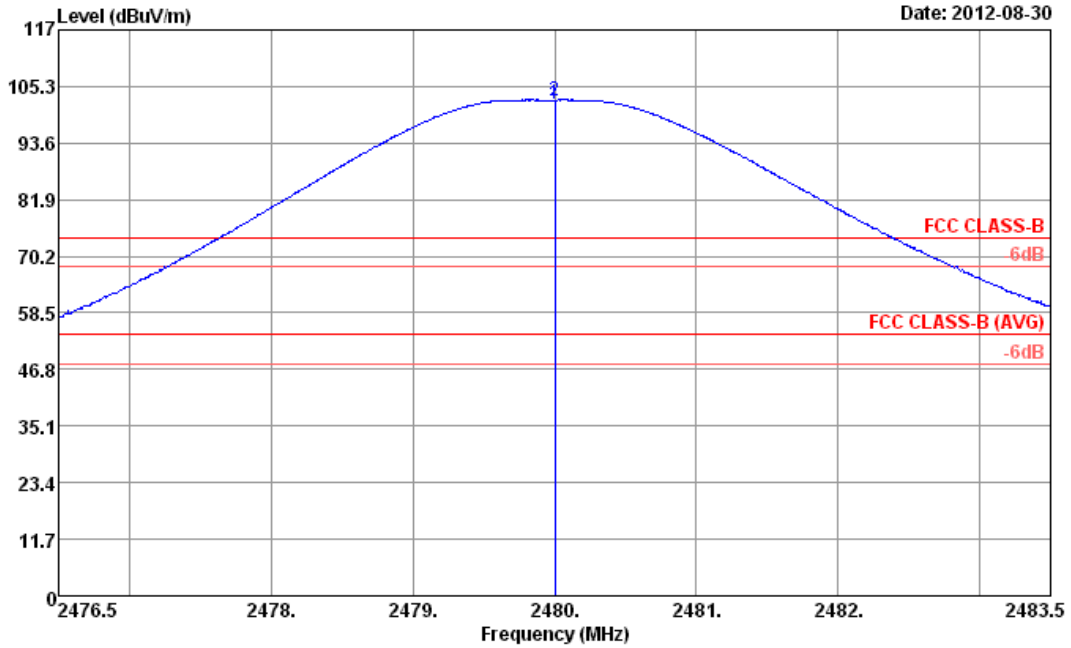
Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBμV/m)	Delta Result (dB)	Measurement Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
Peak	98.88	55.69	43.19	74	-30.81	Pass
Average	98.17	55.69	42.48	54	-11.52	Pass

Note : Measurement result = Maximum field strength – Delta result



Test Mode :	Mode 3	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Horizontal



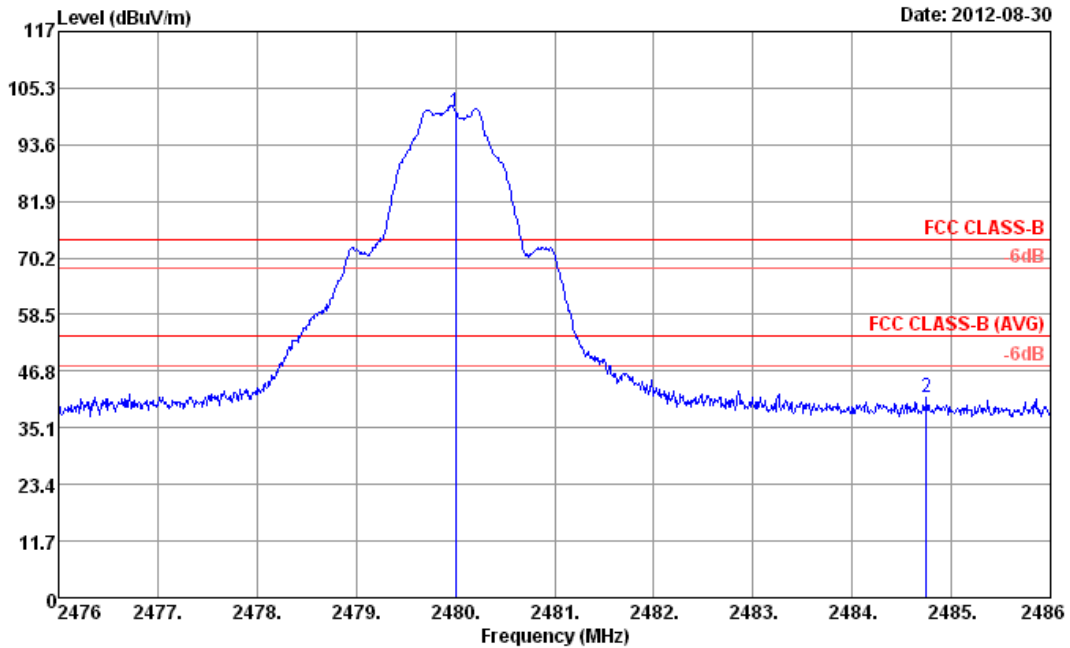
Site : 03CH05-HY
 Condition : FCC CLASS-B 3m HF_ANT_584_20120809 HORIZONTAL
 : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	2480.00	101.65	47.65	54.00	100.54	32.28	4.64	35.81	122	56	Average
2 *	2480.00	102.47	28.47	74.00	101.36	32.28	4.64	35.81	122	56	Peak

* Maximum field strength of the fundamental emission



Test Mode :	Mode 3	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Horizontal



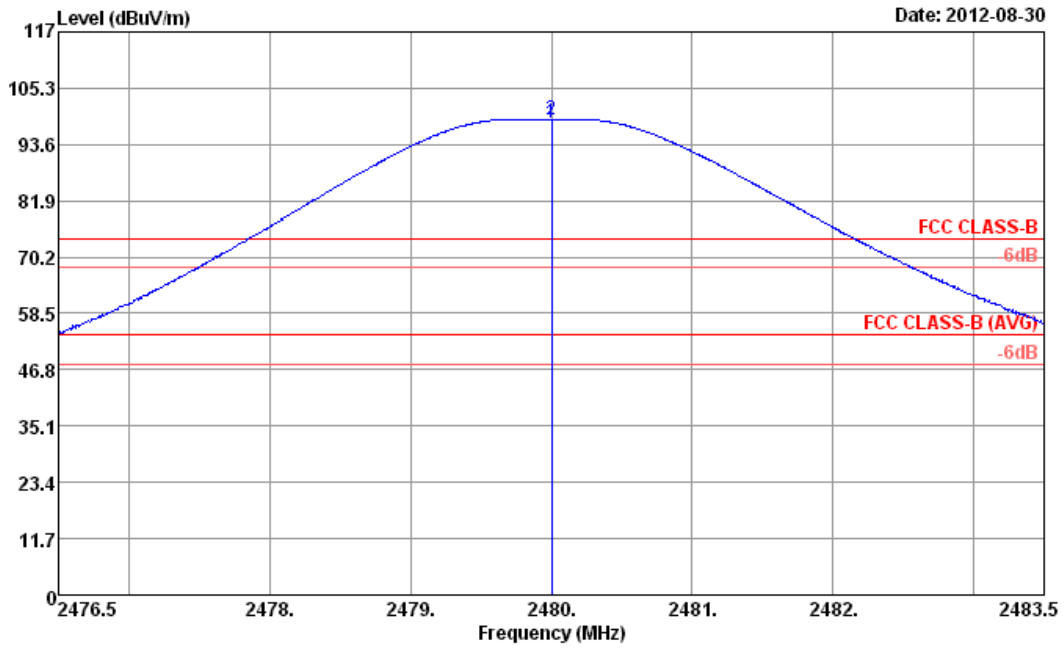
Site : 03CH05-HY
 Condition : FCC CLASS-B 3m HF_ANT_584_20120809 HORIZONTAL
 : RBW:100.000KHz VBW:100.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	2480.00	100.42	26.42	74.00	99.31	32.28	4.64	35.81	122	56	Peak
2	2484.75	41.24	-32.76	74.00	40.13	32.28	4.64	35.81	122	56	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 59.18 dB , single carrier Mode



Test Mode :	Mode 3	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Vertical



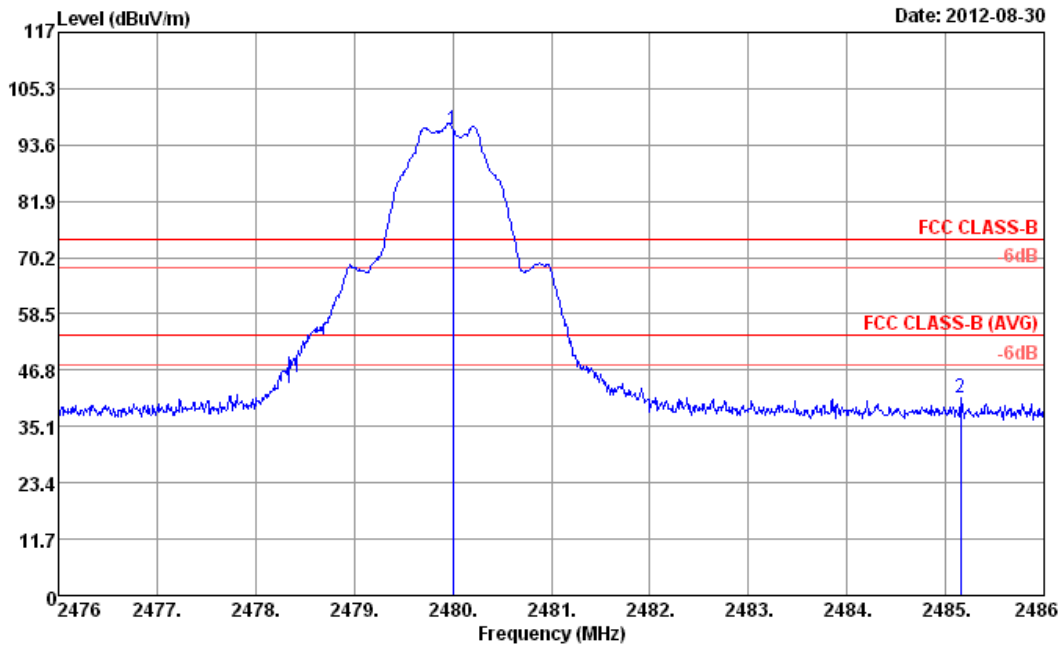
Site : 03CH05-HY
 Condition : FCC CLASS-B 3m HF_ANT_584_20120809 VERTICAL
 : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	Read Antenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	2480.00	98.17	44.17	54.00	97.06	32.28	4.64	35.81	128	5	Average
2 *	2480.00	98.88	24.88	74.00	97.77	32.28	4.64	35.81	128	5	Peak

* Maximum field strength of the fundamental emission



Test Mode :	Mode 3	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Vertical



Site : 03CH05-HY
 Condition : FCC CLASS-B 3m HF_ANT_584_20120809 VERTICAL
 : RBW:100.000KHz VBW:100.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	2480.00	96.74	22.74	74.00	95.63	32.28	4.64	35.81	128	5	Peak
2	2485.15	41.05	-32.95	74.00	39.94	32.28	4.64	35.81	128	5	Peak

* Marker-Delta Method (RBW/BW=100KHz): 55.69 dB , single carrier Mode



<Sample 2>

Test Mode :	Mode 4	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
		Test Engineer :	David Yang

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	58.89	-15.11	74	57.78	32.28	4.64	35.81	100	274	Peak
2483.5	54.51	0.51	54	53.4	32.28	4.64	35.81	100	274	Average
2483.5	43.78	-30.22	74	-	-	-	-	-	-	Peak
2483.5	42.87	-11.13	54	-	-	-	-	-	-	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBμV/m)	Delta Result (dB)	Measurement Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
Peak	101.43	57.65	43.78	74	-30.22	Pass
Average	100.52	57.65	42.87	54	-11.13	Pass

Note : Measurement result = Maximum field strength – Delta result

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
2483.5	54.55	-19.45	74	53.44	32.28	4.64	35.81	136	39	Peak
2483.5	49.31	-4.69	54	48.2	32.28	4.64	35.81	136	39	Average
2483.5	41.19	-32.81	74	-	-	-	-	-	-	Peak
2483.5	40.33	-13.67	54	-	-	-	-	-	-	Average

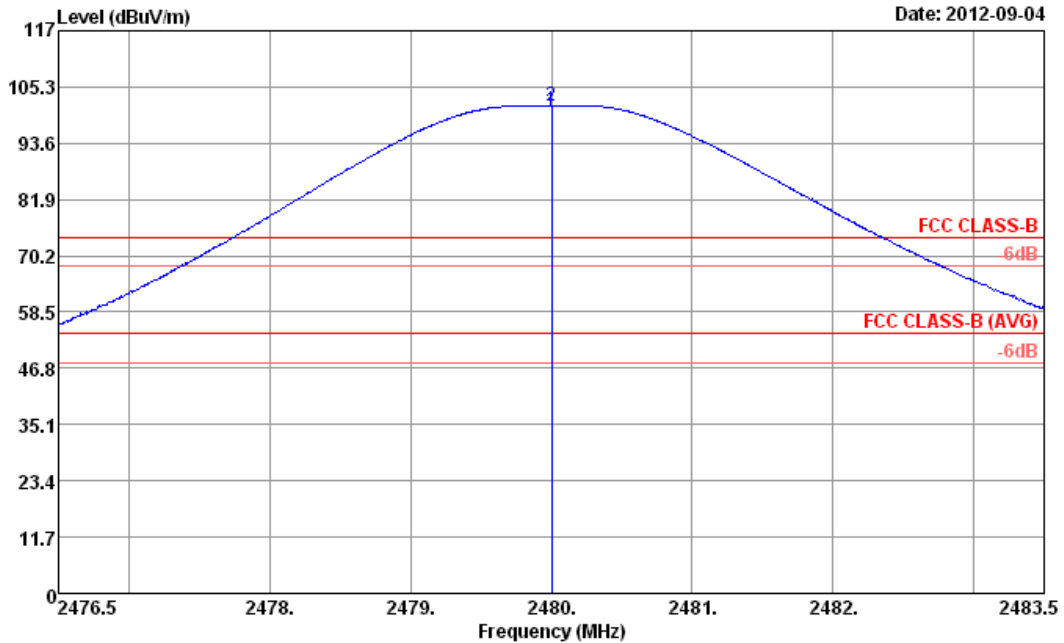
Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBμV/m)	Delta Result (dB)	Measurement Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
Peak	96.23	55.04	41.19	74	-32.81	Pass
Average	95.37	55.04	40.33	54	-13.67	Pass

Note : Measurement result = Maximum field strength – Delta result



Test Mode :	Mode 4	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Horizontal



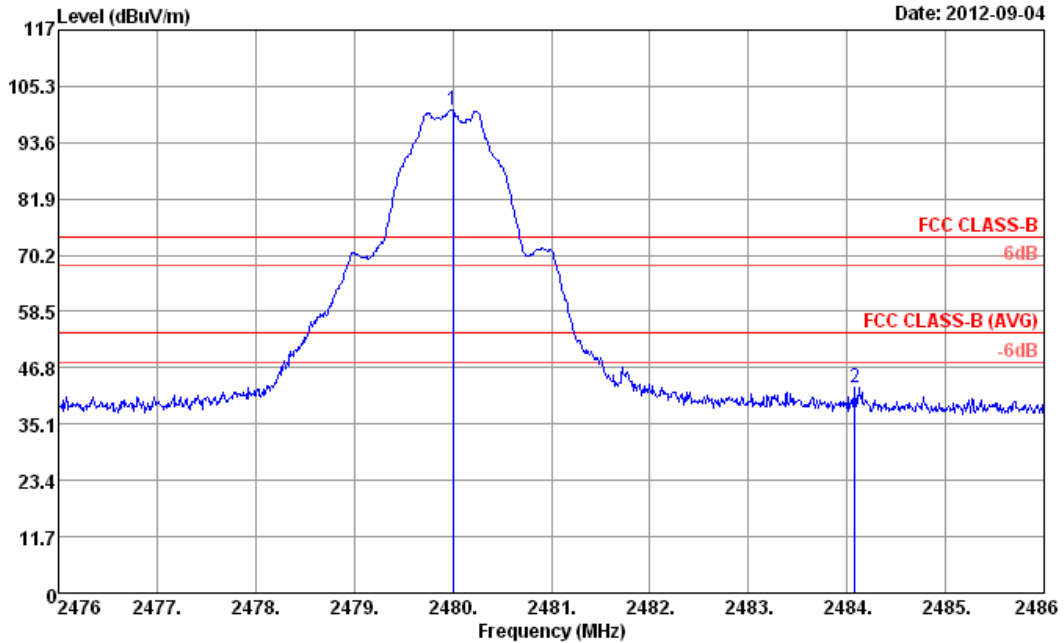
Site : 03CH05-HY
 Condition : FCC CLASS-B 3m HF_ANT_584_20120809 HORIZONTAL
 : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	2480.00	100.52	46.52	54.00	99.41	32.28	4.64	35.81	100	274	Average
2 *	2480.00	101.43	27.43	74.00	100.32	32.28	4.64	35.81	100	274	Peak

* Maximum field strength of the fundamental emission



Test Mode :	Mode 4	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Horizontal



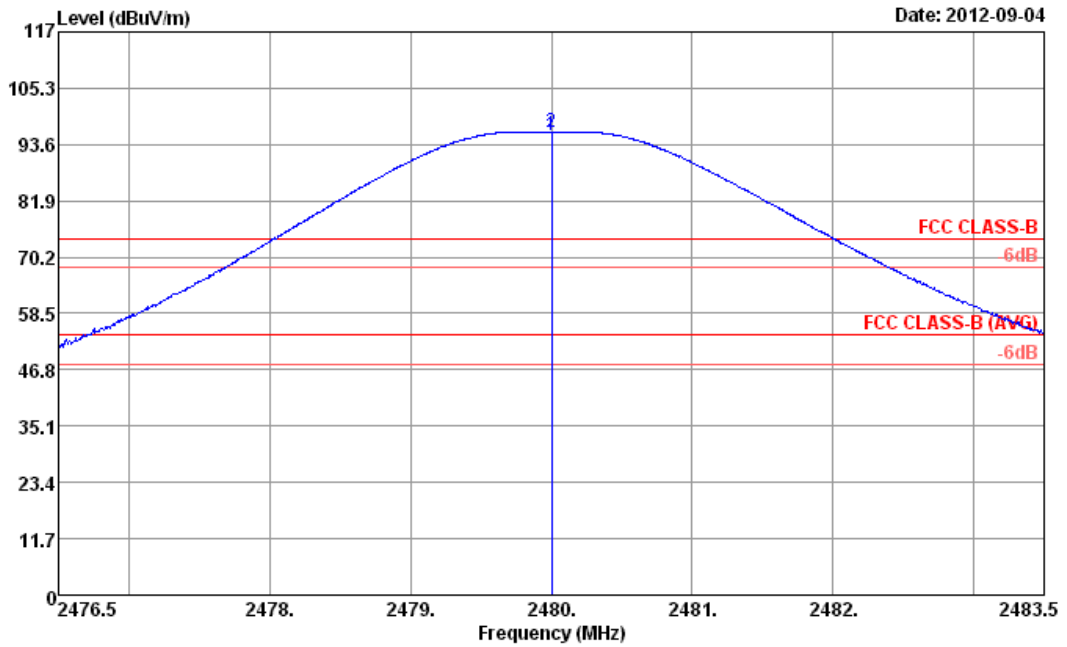
Site : 03CH05-HY
 Condition : FCC CLASS-B 3m HF_ANT_584_20120809 HORIZONTAL
 : RBW:100.000KHz VBW:100.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	cm	deg	
1 *	2480.00	100.44	26.44	74.00	99.33	32.28	4.64	35.81	100	274 Peak
2	2484.08	42.79	-31.21	74.00	41.68	32.28	4.64	35.81	100	274 Peak

* Marker-Delta Method (RBW/VBW=100KHz): 57.65 dB , single carrier Mode



Test Mode :	Mode 4	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Vertical



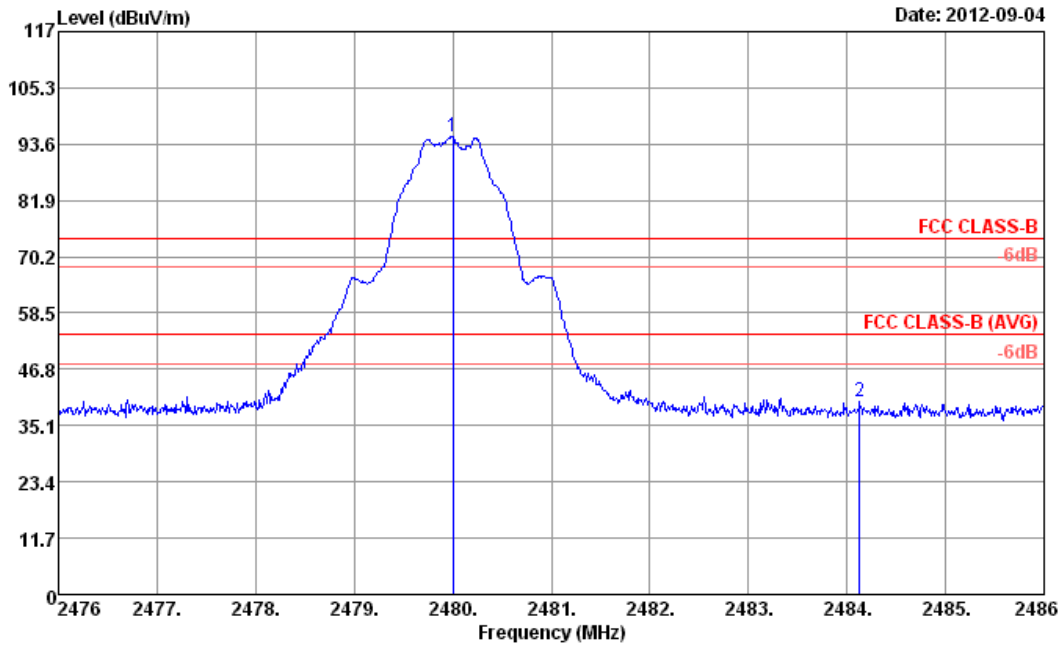
Site : 03CH05-HY
 Condition : FCC CLASS-B 3m HF_ANT_584_20120809 VERTICAL
 : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	2480.00	95.37	41.37	54.00	94.26	32.28	4.64	35.81	136	39	Average
2 *	2480.00	96.23	22.23	74.00	95.12	32.28	4.64	35.81	136	39	Peak

* Maximum field strength of the fundamental emission



Test Mode :	Mode 4	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Vertical



Site : 03CH05-HY
 Condition : FCC CLASS-B 3m HF_ANT_584_20120809 VERTICAL
 : RBW:100.000KHz VBW:100.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	2480.00	95.25	21.25	74.00	94.14	32.28	4.64	35.81	136	39	Peak
2	2484.13	40.21	-33.79	74.00	39.10	32.28	4.64	35.81	136	39	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 55.04 dB , single carrier Mode

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

Test Mode :	Mode 1	Temperature :	21~23°C
Test Channel :	00	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 2402 MHz is fundamental signal which can be ignored. 7206 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 99.22 dBuV/m - 20dB = 79.22dBuV/m. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2402	98.33	-	-	97.43	32.18	4.58	35.86	103	54	Average
2402	99.22	-	-	98.32	32.18	4.58	35.86	103	54	Peak
4804	40.03	-33.97	74	58.33	34.26	6.5	59.06	100	0	Peak
7206	42.7	-36.52	79.22	56.2	36.06	8.25	57.81	100	0	Peak

Test Mode :	Mode 1	Temperature :	21~23°C
Test Channel :	00	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 2402 MHz is fundamental signal which can be ignored. 7206 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 95.15 dBuV/m - 20dB = 75.15dBuV/m. Average measurement was not performed if peak level went lower than the average limit. 		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2402	94.3	-	-	93.4	32.18	4.58	35.86	109	343	Average
2402	95.15	-	-	94.25	32.18	4.58	35.86	109	343	Peak
4804	40.72	-33.28	74	59.02	34.26	6.5	59.06	100	0	Peak
7206	42.97	-32.18	75.15	56.47	36.06	8.25	57.81	100	0	Peak



Test Mode :	Mode 2	Temperature :	21~23°C
Test Channel :	19	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2440 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2440	103.06	-	-	102.05	32.24	4.61	35.84	101	54	Average
2440	103.89	-	-	102.88	32.24	4.61	35.84	101	54	Peak
4880	39.73	-34.27	74	57.79	34.28	6.54	58.88	100	0	Peak
7320	43.82	-30.18	74	57.38	36.03	8.42	58.01	100	0	Peak

Test Mode :	Mode 2	Temperature :	21~23°C
Test Channel :	19	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 2440 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2440	98.43	-	-	97.42	32.24	4.61	35.84	109	0	Average
2440	99.25	-	-	98.24	32.24	4.61	35.84	109	0	Peak
4880	39.8	-34.2	74	57.86	34.28	6.54	58.88	100	0	Peak
7320	43.45	-30.55	74	57.01	36.03	8.42	58.01	100	0	Peak



Test Mode :	Mode 3	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2480 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	21.94	-18.06	40	33.75	19.12	0.71	31.64	-	-	Peak
111.81	27.15	-16.35	43.5	46.11	11.4	1.15	31.51	-	-	Peak
214.41	31.53	-11.97	43.5	51.86	9.24	1.52	31.09	100	87	Peak
314.7	28.74	-17.26	46	44.43	13.4	1.82	30.91	-	-	Peak
661.9	23.14	-22.86	46	30.45	20.22	2.6	30.13	-	-	Peak
794.9	24.91	-21.09	46	29.94	22	2.82	29.85	-	-	Peak
2480	101.65	-	-	100.54	32.28	4.64	35.81	122	56	Average
2480	102.5	-	-	101.39	32.28	4.64	35.81	122	56	Peak
4960	40.73	-33.27	74	58.52	34.29	6.57	58.65	100	0	Peak
7440	42.76	-31.24	74	56.33	36.01	8.63	58.21	100	0	Peak



Test Mode :	Mode 3	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 2480 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	33.94	-6.06	40	47.09	17.76	0.72	31.63	100	47	Peak
108.57	33.82	-9.68	43.5	53.13	11.1	1.13	31.54	-	-	Peak
161.22	25.25	-18.25	43.5	44.68	10.42	1.35	31.2	-	-	Peak
304.9	23.8	-22.2	46	39.59	13.35	1.79	30.93	-	-	Peak
586.3	22.78	-23.22	46	31.16	19.8	2.4	30.58	-	-	Peak
767.6	25.17	-20.83	46	30.22	22.23	2.78	30.06	-	-	Peak
2480	98.17	-	-	97.06	32.28	4.64	35.81	128	5	Average
2480	98.99	-	-	97.88	32.28	4.64	35.81	128	5	Peak
4960	40.05	-33.95	74	57.84	34.29	6.57	58.65	100	0	Peak
7440	44.91	-29.09	74	58.48	36.01	8.63	58.21	100	0	Peak



Test Mode :	Mode 4	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2480 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
111.81	26.88	-16.62	43.5	45.84	11.4	1.15	31.51	-	-	Peak
203.34	30.9	-12.6	43.5	51.43	9.14	1.48	31.15	-	-	Peak
224.94	33.5	-12.5	46	53.13	9.75	1.56	30.94	122	103	Peak
321	28.08	-17.92	46	43.63	13.53	1.83	30.91	-	-	Peak
605.9	21.58	-24.42	46	29.43	20.08	2.44	30.37	-	-	Peak
859.3	25.23	-20.77	46	28.73	23.31	2.94	29.75	-	-	Peak
2480	100.52	-	-	99.41	32.28	4.64	35.81	100	274	Average
2480	101.36	-	-	100.25	32.28	4.64	35.81	100	274	Peak
4962	40.85	-33.15	74	58.64	34.29	6.57	58.65	100	0	Peak



Test Mode :	Mode 4	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 2480 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	34.04	-5.96	40	47.19	17.76	0.72	31.63	100	317	Peak
110.19	33.13	-10.37	43.5	52.23	11.3	1.15	31.55	-	-	Peak
229.53	27.12	-18.88	46	46.26	10.2	1.58	30.92	-	-	Peak
304.9	22.68	-23.32	46	38.47	13.35	1.79	30.93	-	-	Peak
426	20.46	-25.54	46	32.75	16.66	2.08	31.03	-	-	Peak
817.3	24.64	-21.36	46	29.03	22.52	2.86	29.77	-	-	Peak
2480	95.37	-	-	94.26	32.28	4.64	35.81	136	39	Average
2480	96.22	-	-	95.11	32.28	4.64	35.81	136	39	Peak
4962	40.95	-33.05	74	58.74	34.29	6.57	58.65	100	0	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

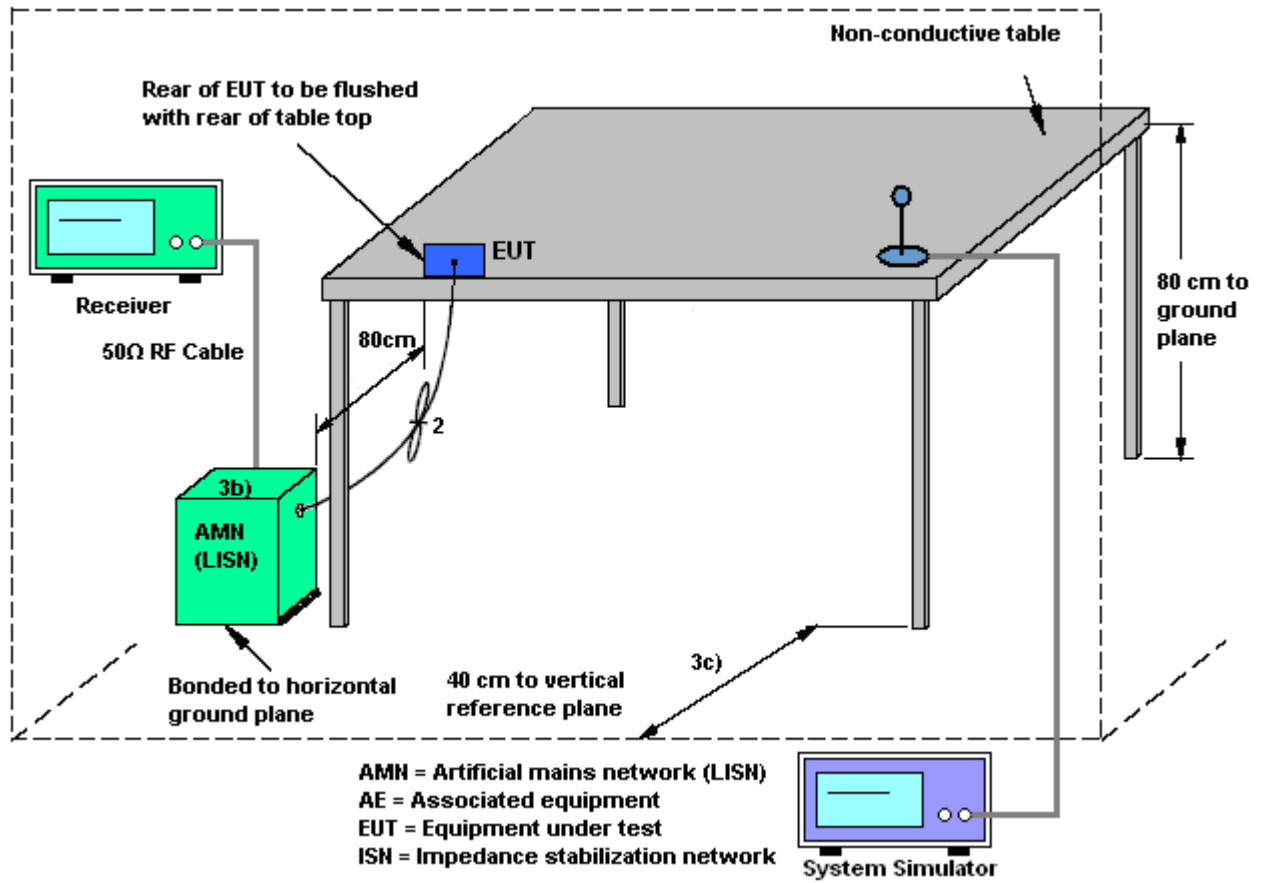
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

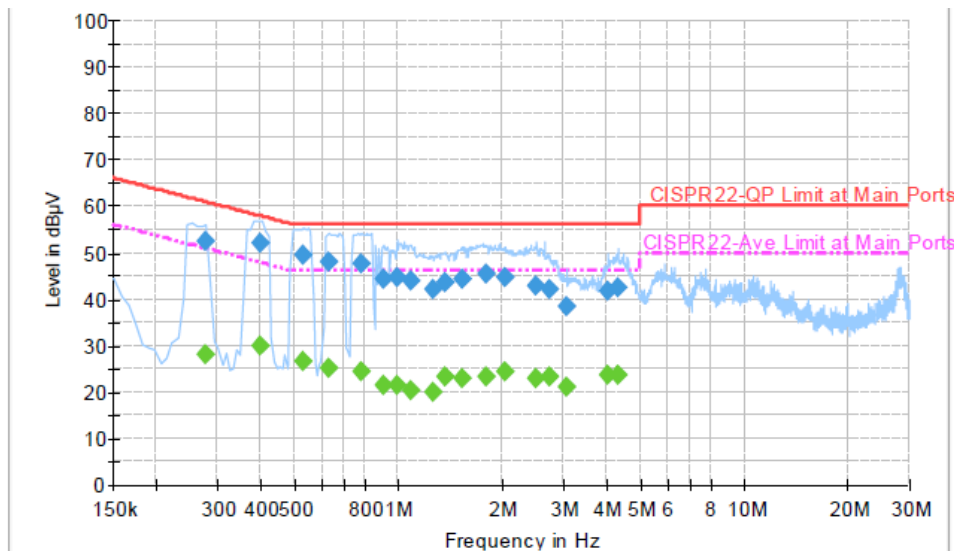
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	49~50%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + Earphone 1 + Battery + USB Cable 1 (Charging from Adapter 5) for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

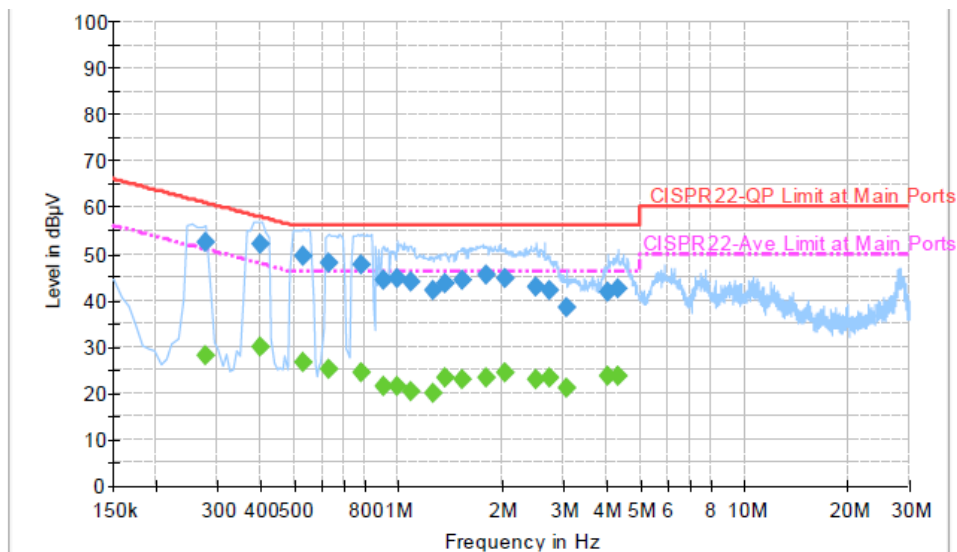


Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.278000	52.3	Off	L1	19.4	8.6	60.9
0.398000	52.0	Off	L1	19.4	5.9	57.9
0.534000	49.5	Off	L1	19.4	6.5	56.0
0.630000	48.1	Off	L1	19.5	7.9	56.0
0.782000	47.6	Off	L1	19.4	8.4	56.0
0.910000	44.1	Off	L1	19.4	11.9	56.0
0.990000	44.7	Off	L1	19.4	11.3	56.0
1.094000	44.0	Off	L1	19.4	12.0	56.0
1.262000	42.1	Off	L1	19.4	13.9	56.0
1.366000	43.4	Off	L1	19.4	12.6	56.0
1.526000	44.3	Off	L1	19.4	11.7	56.0
1.806000	45.4	Off	L1	19.6	10.6	56.0
2.030000	44.6	Off	L1	19.5	11.4	56.0
2.510000	42.9	Off	L1	19.6	13.1	56.0
2.734000	42.0	Off	L1	19.6	14.0	56.0
3.070000	38.3	Off	L1	19.6	17.7	56.0
4.038000	41.7	Off	L1	19.6	14.3	56.0
4.318000	42.3	Off	L1	19.6	13.7	56.0



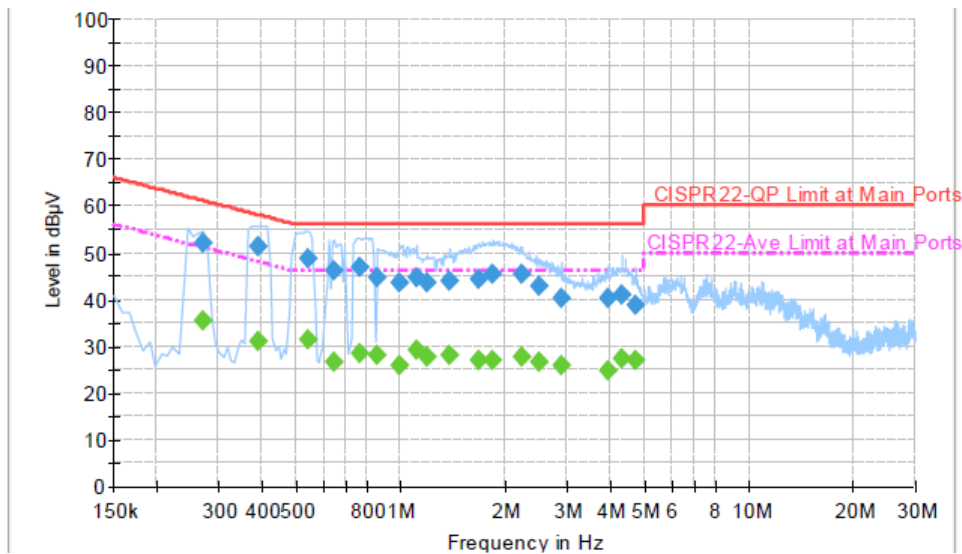
Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	49~50%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + Earphone 1 + Battery + USB Cable 1 (Charging from Adapter 5) for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.278000	27.9	Off	L1	19.4	23.0	50.9
0.398000	30.0	Off	L1	19.4	17.9	47.9
0.534000	26.8	Off	L1	19.4	19.2	46.0
0.630000	25.0	Off	L1	19.5	21.0	46.0
0.782000	24.3	Off	L1	19.4	21.7	46.0
0.910000	21.5	Off	L1	19.4	24.5	46.0
0.990000	21.5	Off	L1	19.4	24.5	46.0
1.094000	20.4	Off	L1	19.4	25.6	46.0
1.262000	19.9	Off	L1	19.4	26.1	46.0
1.366000	23.2	Off	L1	19.4	22.8	46.0
1.526000	23.0	Off	L1	19.4	23.0	46.0
1.806000	23.3	Off	L1	19.6	22.7	46.0
2.030000	24.2	Off	L1	19.5	21.8	46.0
2.510000	22.7	Off	L1	19.6	23.3	46.0
2.734000	23.1	Off	L1	19.6	22.9	46.0
3.070000	21.2	Off	L1	19.6	24.8	46.0
4.038000	23.6	Off	L1	19.6	22.4	46.0
4.318000	23.8	Off	L1	19.6	22.2	46.0

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	49~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + Earphone 1 + Battery + USB Cable 1 (Charging from Adapter 5) for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

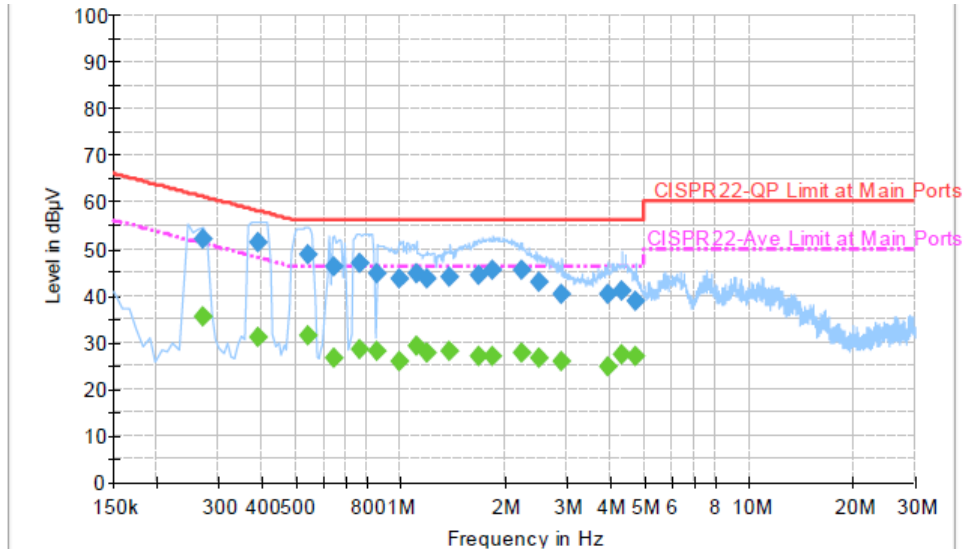


Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.270000	52.0	Off	N	19.4	9.1	61.1
0.390000	51.2	Off	N	19.3	6.9	58.1
0.542000	48.6	Off	N	19.4	7.4	56.0
0.646000	46.2	Off	N	19.4	9.8	56.0
0.766000	46.7	Off	N	19.4	9.3	56.0
0.862000	44.6	Off	N	19.4	11.4	56.0
0.990000	43.6	Off	N	19.5	12.4	56.0
1.110000	44.7	Off	N	19.4	11.3	56.0
1.190000	43.4	Off	N	19.5	12.6	56.0
1.390000	43.8	Off	N	19.5	12.2	56.0
1.670000	44.1	Off	N	19.5	11.9	56.0
1.838000	45.3	Off	N	19.6	10.7	56.0
2.222000	45.2	Off	N	19.6	10.8	56.0
2.502000	42.7	Off	N	19.6	13.3	56.0
2.918000	40.4	Off	N	19.6	15.6	56.0
3.950000	40.1	Off	N	19.6	15.9	56.0
4.310000	40.9	Off	N	19.6	15.1	56.0
4.726000	38.7	Off	N	19.7	17.3	56.0



Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	49~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + Earphone 1 + Battery + USB Cable 1 (Charging from Adapter 5) for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.270000	35.5	Off	N	19.4	15.6	51.1
0.390000	31.0	Off	N	19.3	17.1	48.1
0.542000	31.5	Off	N	19.4	14.5	46.0
0.646000	26.5	Off	N	19.4	19.5	46.0
0.766000	28.2	Off	N	19.4	17.8	46.0
0.862000	27.9	Off	N	19.4	18.1	46.0
0.990000	25.7	Off	N	19.5	20.3	46.0
1.110000	29.3	Off	N	19.4	16.7	46.0
1.190000	27.7	Off	N	19.5	18.3	46.0
1.390000	28.1	Off	N	19.5	17.9	46.0
1.670000	27.1	Off	N	19.5	18.9	46.0
1.838000	26.9	Off	N	19.6	19.1	46.0
2.222000	27.6	Off	N	19.6	18.4	46.0
2.502000	26.6	Off	N	19.6	19.4	46.0
2.918000	25.7	Off	N	19.6	20.3	46.0
3.950000	24.8	Off	N	19.6	21.2	46.0
4.310000	27.1	Off	N	19.6	18.9	46.0
4.726000	26.9	Off	N	19.7	19.1	46.0



3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Connected Construction

Non-standard connector used.

3.7.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Aug. 22, 2012 ~ Aug. 30, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Spectrum Analyzer	R&S	ESU26	100390	20Hz ~ 26.5GHz	Dec. 22, 2011	Aug. 30, 2012 ~ Sep. 04, 2012	Dec. 21, 2012	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz ~ 2GHz	Oct. 22, 2011	Aug. 30, 2012 ~ Sep. 04, 2012	Oct. 21, 2012	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 ~ 360 degree	N/A	Aug. 30, 2012 ~ Sep. 04, 2012	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m ~ 4 m	N/A	Aug. 30, 2012 ~ Sep. 04, 2012	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz~18GHz	Aug. 10, 2012	Aug. 30, 2012 ~ Sep. 04, 2012	Aug. 09, 2013	Radiation (03CH05-HY)
Pre Amplifier	COM-POWER	PA-103A	161075	10Hz ~ 1000MHz Gain:32dB	Feb. 27, 2012	Aug. 30, 2012 ~ Sep. 04, 2012	Feb. 26, 2013	Radiation (03CH05-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159087	1GHz~18GHz	Feb. 27, 2012	Aug. 30, 2012 ~ Sep. 04, 2012	Feb. 26, 2013	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A019 17	1GHz~26.5GHz	Apr. 13, 2012	Aug. 27, 2012 ~ Sep. 04, 2012	Apr. 12, 2013	Radiation (03CH05-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 251	15GHz ~ 40GHz	Oct. 21, 2011	Aug. 30, 2012 ~ Sep. 04, 2012	Oct. 20, 2012	Radiation (03CH05-HY)
Loop Antenna	R&S	HFH2-Z2	860004/00 1	9KHz ~ 30MHz	Jul. 03, 2012	Aug. 30, 2012 ~ Sep. 04, 2012	Jul. 02, 2014	Radiation (03CH05-HY)
EMI Test Receiver	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Aug. 26, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Aug. 26, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Aug. 26, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Aug. 26, 2012	N/A	Conduction (CO05-HY)
GPS Station	Pendulum	GSG-54	N/A	N/A	N/A	Aug. 26, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117997	N/A	Aug. 22, 2011	Aug. 26, 2012	Aug. 21, 2013	Conduction (CO05-HY)



5 Uncertainty of Evaluation

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

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

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
---	------