APPLICATION FOR CERTIFICATION

On Behalf of

LG Electronics Inc.

Bluetooth Adapter Card

Model No.：MB8811C0

FCC ID : BEJ9QK-DMMB8811C0

IC: 2703H-DMMB8811C0

Brand : LG

Prepared for : LG Electronics Inc.
19-1, Cheongho-Ri, Jinwuy-Myeon,
Pyeongtaek-City, Gyeonggi-Do,
451-713, Korea

Prepared by : AUDIX Technology Corporation
EMC Department
No. 53-11, Dingfu, Linkou Dist.,
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File Number	：	C1M1307080
Report Number	：	EM-F1020519
Date of Test	：	Jul. 08 ~ 12, 2013
Date of Report	：	Jul. 16, 2013

TABLE OF CONTENTS

TEST REPORT CERTIFICATION

Applicant	:	LG Electronics Inc.
Manufacturer	:	LG Electronics Inc.
EUT Description	:	Bluetooth Adapter Card
FCC ID	:	**BEJ9QK-DMMB8811C0**
IC	:	**2703H-DMMB8811C0**

(A) Model No.	:	MB8811C0
(B) Serial No.	:	N/A
(C) Brand	:	LG
(D) Power Supply	:	DC 3.3V
(E) Test Voltage	:	DC 3.3V (Transferred via JIG Board)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C, Oct. 2012
(FCC CFR 47 Part 15C & E, §15.205, §15.207, §15.209 and 15.407)
Industry Canada Rules and Regulations RSS-Gen (Issue 3), December 2010 and
RSS-210 (Issue 8), December 2010
(Canada RSS-210 §Annex 9)
AND ANSI C63.4:2003

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C & E and Canada RSS-210 (Issue 8) Annex 9 limits.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the requirements of FCC Part 15 and Industry Canada RSS-Gen, RSS-210 standards.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test: Jul. 08 ~ 12, 2013 Date of Report: Jul. 16, 2013

Producer: 
(Annie Yu/Administrator)

Signatory: 
(Leon Liu/Deputy General Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product	Bluetooth Adapter Card
Model Number	MB8811C0
Serial Number	N/A
Brand Name	LG
Applicant	LG Electronics Inc. 19-1, Cheongho-Ri, Jinwuy-Myeon, Pyeongtaek-City, Gyeonggi-Do, 451-713, Korea
Manufacturer	LG Electronics Inc. 19-1, Cheongho-Ri, Jinwuy-Myeon, Pyeongtaek-City, Gyeonggi-Do, 451-713, Korea
FCC ID	BEJ9QK-DMMB8811C0
IC	2703H-DMMB8811C0
Fundamental Range	2402MHz ~ 2480MHz
Frequency Channel	79 channels (GFSK,π/4DQPSK, 8-DPSK) 40 channels (Low Energy)
Radio Technology	FHSS (GFSK,π/4DQPSK, 8-DPSK) DSSS (Low Energy)
Data Transfer Rate	1/2/3Mbps
Date of Receipt of Sample	Jul. 08, 2012
Date of Test	Jul. 08 ~ 12, 2013
Note: This EUT has BT and Low Energy function. See below for related test reports based on radio functionality. 1. The BT function has been test in other report of EM-F1020518. 2. The Low Energy has been test in other report of EM-F1020519.	

1.2. Tested Supporting System Details

1.2.1. NOTEBOOK PC

Model Number	:	ZL5
Serial Number	:	N/A
Manufacturer	:	acer
AC Adapter	:	LITEON, M/N PA-1650-02
AC Power Cord	:	DC Cord: Non-Shielded, Undetachable, 1.8m Non-Shielded, Detachable, 1.8m

1.2.2. JIG BOARD

Model Number	:	N/A
Serial Number	:	N/A
Brand	:	LG
Bus Cable	:	Non-Shielded, Undetachable, 0.20m
USB Cable	:	Non-Shielded, Detachable, 0.55m

1.3. Description of Test Facility

Name of Firm	:	**AUDIX Technology Corporation** EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan, R.O.C.
Test Site (C8/Semi-AC)	:	**No. 8 Shielded Room &** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan, R.O.C. **Semi-Anechoic Chamber** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan, R.O.C. May 14, 2009 Renewal on Federal Communication Commission Registration Number: 90993
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724

1.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conduction Test	150kHz~30MHz	±1.73dB
Radiation Test (Distance: 3m)	30MHz~300MHz	± 2.91dB
	300MHz~1000MHz	± 2.74dB
	Above 1GHz	± 5.02dB

Remark：Uncertainty = $ku_c(y)$

Test Item	Uncertainty
6dB Bandwidth	± 0.05kHz
Maximum peak output power	± 0.33dBm
Emission Limitations	± 0.13dB
Band edges	± 0.13dB
Power spectral density	± 0.13dB

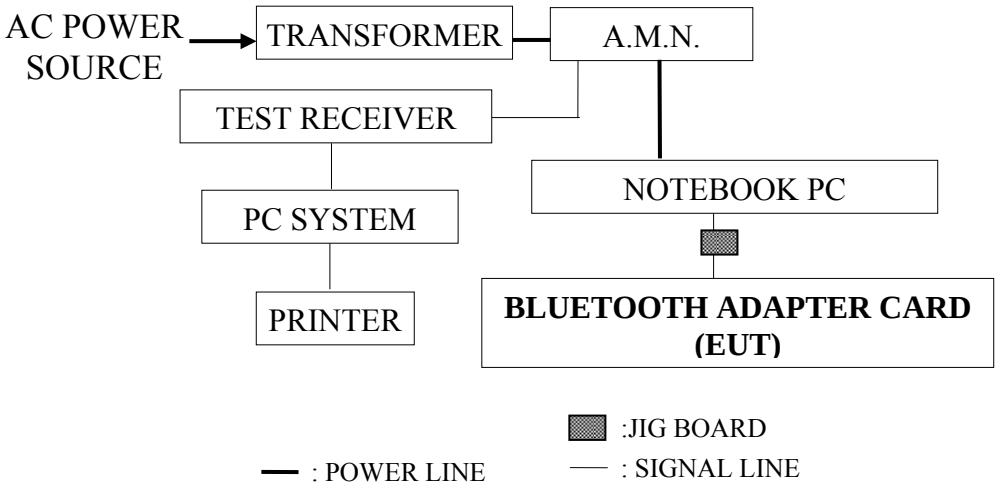
2. CONDUCTED EMISSION MEASUREMENT

2.1. Test Equipment

The following test equipment was used during the powerline conducted emission measurement: (No. 8 Shielded Room)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCS30	100265	Aug. 24, 12'	Aug. 23, 13'
2.	A.M.N.	R&S	ESH2-Z5	100366	Mar. 19, 13'	Mar. 18, 14'

2.2. Block Diagram of Test Setup



2.3. Powerline Conducted Emission Limit (§15.207, RSS-Gen §7.2.2/Table 2)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500kHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark: 1. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.
2. The lower limit applies at the band edges.

2.4. Operating Condition of EUT

2.4.1. Setup the **EUT (Bluetooth Adapter Card)** as shown on 2.2.

2.4.2. Turn on the power of all equipment.

2.4.3. The Notebook PC was running test software "CSR" to set EUT (Bluetooth Adapter Card) on transmitting and receiving during all testing.

2.5. Test Procedure

The EUT (link Notebook PC) was placed on the table which was above the ground by 80cm and Notebook PC's adapter's power cord connected to the AC mains through an Artificial Mains Network (A.M.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)
Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions simulators of the interface cables should be manipulated according to ANSI C63.4-2003, RSS-Gen and RSS-210 regulation during conducted measurement.

The bandwidth of the R&S Test Receiver ESCS30 was set at 9kHz.

The frequency range from 150kHz to 30MHz was checked.

All the final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

2.6. Powerline Conducted Emission Measurement Results

PASSED. All emissions not reported below are too low against the prescribed limits.

The EUT was measured during this section testing and all the test results are listed in next pages.

EUT：Bluetooth Adapter Card Model No.：MB8811C0

Test Date：Jul. 12, 2013 Temperature：25℃ Humidity：65%

The details are as follows：

Mode	Reference Test Data	
	Neutral	Line
1.	# 4	# 3

AUDIX TECHNOLOGY Corp. EMC Department
No.53-11, Dingfu, Linkou Dist.,New Taipei City
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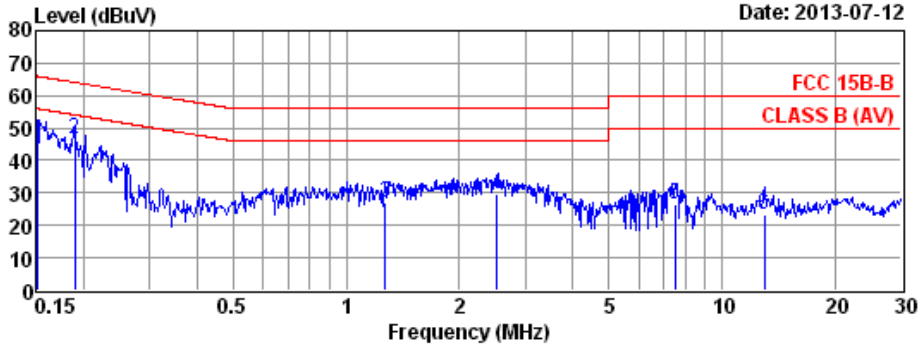
Data: 4 File: D:\test data\REPORT\2013\C1M1307XXX\C1M1307080-C-D.EM6 (4)



Site no. : No.8 Shielded Room Data no. : 4
Dis. / Ant. : ESH2-Z5 366 Ant. pol. : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : 25*C / 65% ESCS (265) Engineer : Jack_Wu
EUT : MB8811C0
Power Rating : 120Vac/60Hz
Test Mode : Operating

	Freq. (MHz)	AMN. Factor (dB)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.150	0.10	0.04	49.67	49.81	65.99	16.18	QP
2	0.189	0.10	0.04	46.62	46.76	64.06	17.30	QP
3	1.269	0.20	0.06	26.74	27.00	56.00	29.00	QP
4	2.513	0.20	0.09	29.39	29.68	56.00	26.32	QP
5	7.486	0.27	0.17	26.26	26.70	60.00	33.30	QP
6	12.920	0.36	0.21	22.95	23.52	60.00	36.48	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Reading.
2. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

AUDIX TECHNOLOGY Corp. EMC Department
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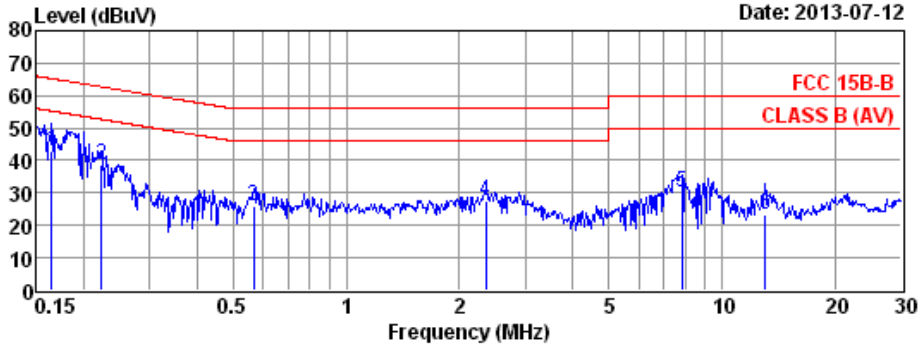
Data: 3 File: D:\test data\REPORT\2013\C1M1307XXX\C1M1307080-C-D.EM6 (4)



Site no. : No.8 Shielded Room Data no. : 3
Dis. / Ant. : ESH2-Z5 366 Ant. pol. : LINE
Limit : FCC 15B-B
Env. / Ins. : 25*C / 65% ESCS (265) Engineer : Jack_Wu
EUT : MB8811C0
Power Rating : 120Vac/60Hz
Test Mode : Operating

	Freq. (MHz)	AMN. Factor (dB)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.164	0.10	0.04	42.75	42.89	65.25	22.36	QP
2	0.223	0.10	0.04	38.59	38.73	62.70	23.97	QP
3	0.567	0.14	0.04	25.59	25.77	56.00	30.23	QP
4	2.346	0.20	0.09	27.14	27.43	56.00	28.57	QP
5	7.810	0.27	0.17	29.93	30.37	60.00	29.63	QP
6	12.988	0.36	0.21	22.70	23.27	60.00	36.73	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Reading.
2. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

3.1.1. For Frequency Range 30MHz~1000MHz (at Semi-Anechoic Chamber)

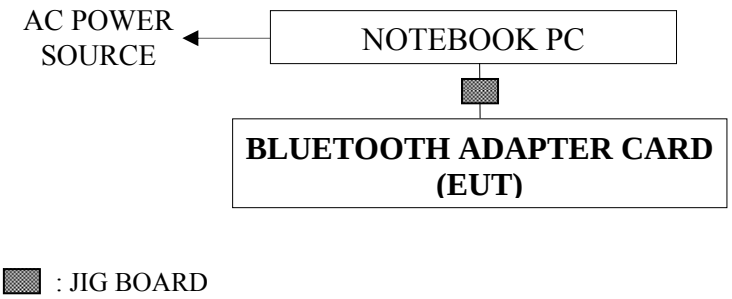
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 07, 12'	Aug. 06, 13'
2.	Test Receiver	R & S	ESCS30	100338	Jul. 01, 13'	Jun. 30, 14'
3.	Amplifier	HP	8447D	2944A06305	Feb. 19, 13'	Feb. 18, 14'
4.	Log Periodic Antenna	Schwarzbeck	UHALP 9108-A	0810	Mar. 02, 13'	Mar. 01, 14'
5.	Biconical Antenna	CHASE	VBA6106A	1264	Mar. 02, 13'	Mar. 01, 14'

3.1.2. For Frequency Above 1GHz (at Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 07, 12'	Aug. 06, 13'
2.	Test Receiver	R & S	ESCS30	100338	Jul. 01, 13'	Jun. 30, 14'
3.	Pre-Amplifier	HP	8449B	3008A02676	Mar. 01, 13'	Feb. 28, 14'
4.	2.4GHz Notch Filter	K&L	7NSL10-2441.5E130.5-00	1	Jun. 13, 13'	Jun. 12, 14'
5.	3.5G High Pass Filter	Microware Circuits	H3G018G1	484796	Jun. 13, 13'	Jun. 12, 14'
6.	Horn Antenna	EMCO	3115	9112-3775	May 07, 13'	May 06, 14'
7.	Horn Antenna	EMCO	3116	2653	Oct. 15, 12'	Oct. 14, 13'

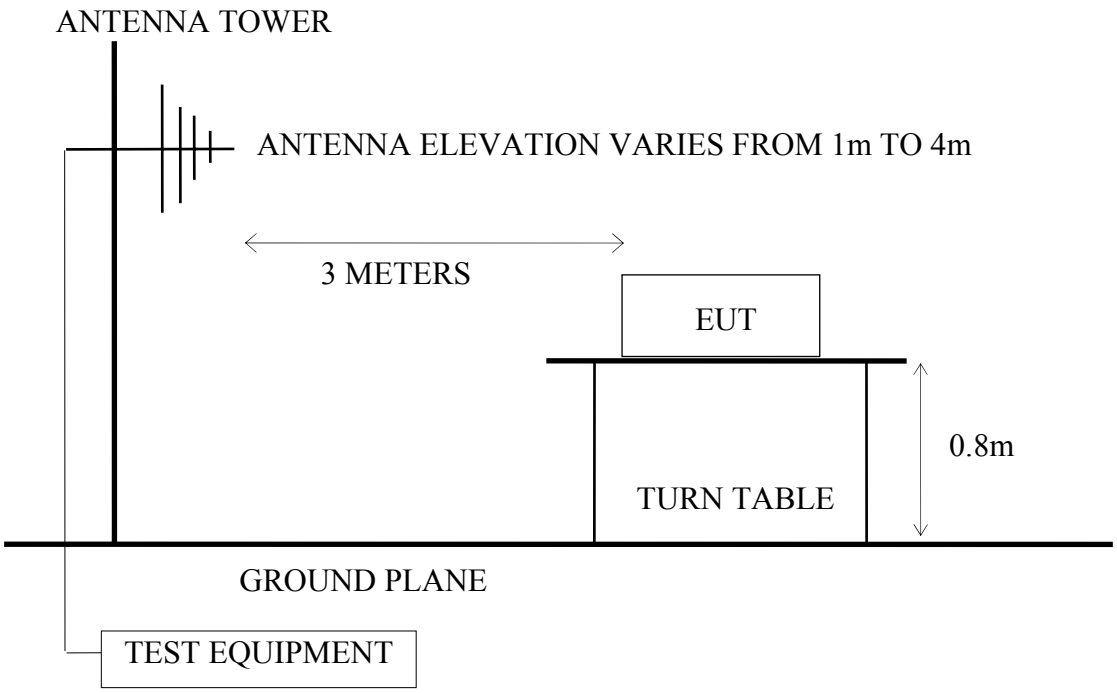
3.2. Test Setup

3.2.1. Block Diagram of connection between EUT and simulators

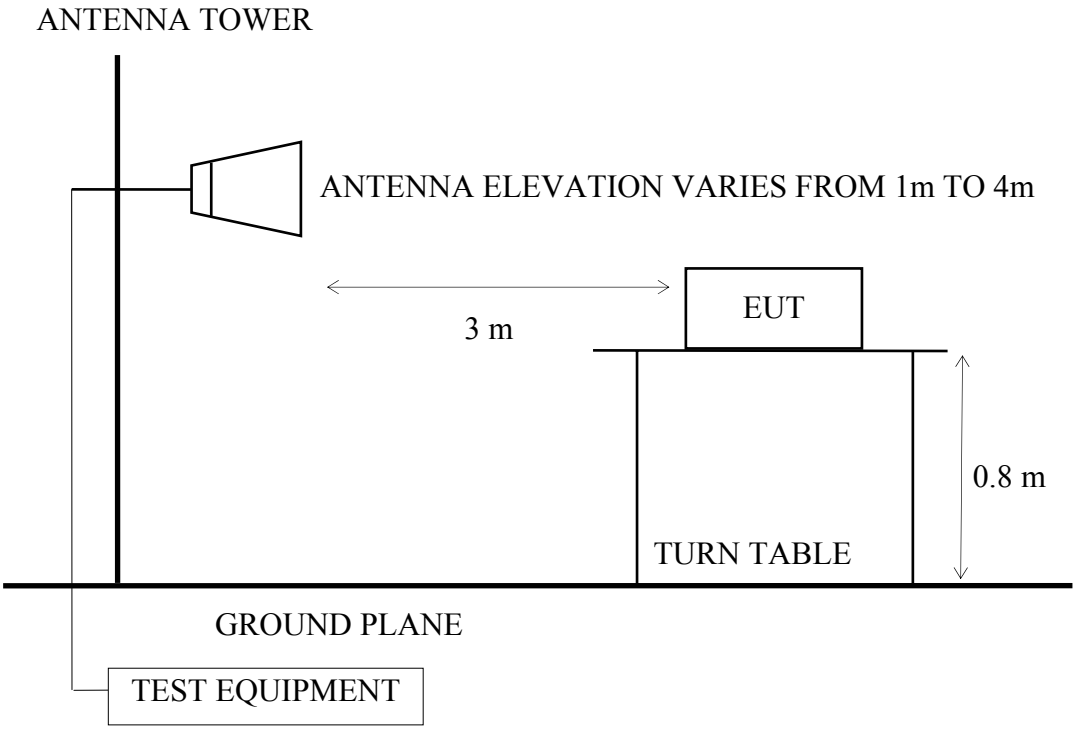


: JIG BOARD

3.2.2. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



3.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



3.3. Radiated Emission Limits (§15.209, RSS-210 §2.7/Table 2)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		μV/m	dBμV/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark：(1) Emission level (dBμV/m) = 20 log Emission level (μV/m)
(2) The tighter limit applies at the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
(4) The limits in this table are based on CFR 47 Part 15.205(a)(b) and Part 15.209 (a).
(5) The over 1GHz limit, FCC limit is used based on CFR 47 Part 15.35 (b) and Part 15.205(b) & Part 15.209(e) and Part 15.207(c).

3.4. Operating Condition of EUT

3.4.1. Set up the EUT (Bluetooth Adapter Card) and simulator as shown on 3.2.1.

3.4.2. To turn on the power of all equipments.

3.4.3. The Notebook PC was running test software “CSR” to set EUT (Bluetooth Adapter Card) on transmitting and receiving during all testing.

3.4.4. The EUT set to continuously transmit signals at 2402MHz, 2440MHz and 2480MHz during all test time.

3.5. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated biconical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2003, RSS-Gen and RSS-210 regulation.

The bandwidth of the R&S Test Receiver was set at 120kHz. (For 30MHz to 1000MHz)

The resolution bandwidth and video bandwidth of test spectrum analyzer is 1MHz for peak detection (PK) at frequency above 1GHz.

The resolution bandwidth of test spectrum analyzer is 1MHz and the video bandwidth is 10Hz for average detection (AV) at frequency above 1GHz.

The frequency range from 30MHz to 25GHz (Up to 10^{th} harmonics from fundamental frequency) was checked. 30MHz to 1000MHz was measured with Quasi-Peak detector.

Pursuant to ANSI C63.4 8.3.1.2, when peak value complies with the average limit, we didn't perform measurement in average detector.

3.6. Test Results

PASSED.
(All emissions not reported for there is no emission be found.)

For Frequency Range 30MHz~1000MHz:

The radiation tests on three different axes (stand, lie and side), we assessed the value and we selected the worse radiation position "lie" for our measured results.

The EUT with following test modes was performed during this section testing and all the test results are listed in section 3.6.1.

EUT: Bluetooth Adapter Card M/N: MB8811C0

Test Date: Jul. 11, 2013 Temperature: 26℃ Humidity: 61%

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 14	# 13
2.		2440MHz (CH19)	# 14	# 13
3.		2480MHz (CH39)	# 14	# 13

* Above all final readings were measured with Quasi-Peak detector.

For Frequency above 1GHz:

Remark：The emissions (up to 25GHz) not reported are too low to be measured.

For Restricted Bands:

The EUT was tested in restricted bands and all the test results are listed in section 3.6.2. (The restricted bands defined in part 15.205(a))

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 3, 4	# 1 , 2
2.		2480MHz (CH39)	# 7, 8	# 5, 6

3.6.1. Frequency Range 30-1000MHz

Transmit, Frequency: 2402MHz

Site no. : A/C Chamber Data no. : 14
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL
Limit : FCC PART-15C
Env. / Ins. : E4446A 26℃/61% Wenbin_yang
EUT : MB8811C0
Power Rating : DC3.3V
Test Mode : TX2402 BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	84.320	14.58	1.90	12.82	29.30	40.00	10.70	QP
2	275.410	25.25	3.70	3.10	32.05	46.00	13.95	QP
3	483.960	18.84	6.14	4.28	29.26	46.00	16.74	QP
4	830.250	24.75	7.10	2.39	34.24	46.00	11.76	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official

Site no. : A/C Chamber Data no. : 13
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL
Limit : FCC PART-15C
Env. / Ins. : E4446A 26℃/61% Wenbin_yang
EUT : MB8811C0
Power Rating : DC3.3V
Test Mode : TX2402 BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	87.230	15.21	2.00	14.80	32.02	40.00	7.98	QP
2	292.870	26.24	3.90	-1.75	28.39	46.00	17.61	QP
3	831.220	24.79	7.10	-0.86	31.03	46.00	14.97	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Transmit, Frequency: 2440MHz

Site no. : A/C Chamber Data no. : 14
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL
Limit : FCC PART-15C
Env. / Ins. : E4446A 26℃/61% Wenbin_yang
EUT : MB8811C0
Power Rating : DC3.3V
Test Mode : TX2440 BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	84.320	14.58	1.90	18.31	34.79	40.00	5.21	QP
2	275.410	25.25	3.70	2.89	31.83	46.00	14.17	QP
3	830.250	24.75	7.10	8.84	40.69	46.00	5.31	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber Data no. : 13
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL
Limit : FCC PART-15C
Env. / Ins. : E4446A 26℃/61% Wenbin_yang
EUT : MB8811C0
Power Rating : DC3.3V
Test Mode : TX2440 BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	84.320	14.58	1.90	44.25	34.41	40.00	5.59	QP
2	347.190	15.14	4.39	38.48	31.85	46.00	14.15	QP
3	830.250	24.75	7.10	30.31	34.96	46.00	11.04	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Transmit, Frequency: 2480MHz

Site no. : A/C Chamber Data no. : 14
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL
Limit : FCC PART-15C
Env. / Ins. : E4446A 26℃/61% Wenbin_yang
EUT : MB8811C0
Power Rating : DC3.3V
Test Mode : TX2480 BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	87.230	15.21	2.00	15.23	32.44	40.00	7.56	QP
2	484.930	18.80	6.20	6.21	31.21	46.00	14.79	QP
3	828.310	24.62	7.10	-0.54	31.18	46.00	14.82	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber Data no. : 13
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL
Limit : FCC PART-15C
Env. / Ins. : E4446A 26℃/61% Wenbin_yang
EUT : MB8811C0
Power Rating : DC3.3V
Test Mode : TX2480 BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
1	84.320	14.58	1.90	18.39	34.87	40.00	5.13	QP	@
2	312.270	14.76	4.00	9.85	28.60	46.00	17.40	QP	
3	830.250	24.75	7.10	3.25	35.10	46.00	10.90	QP	

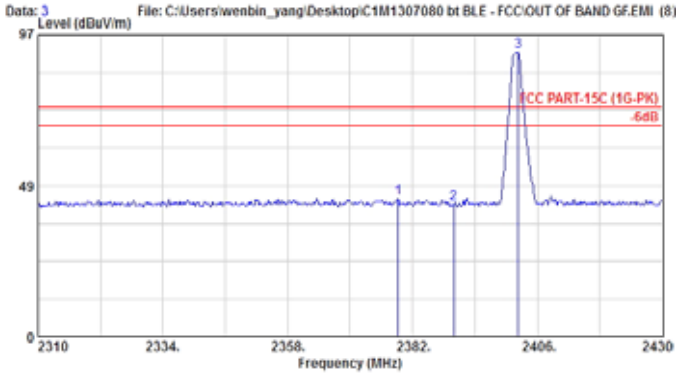
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

3.6.2. Restricted Bands Measurement Results

Date of Test： Jul. 11, 2013 Temperature： 26℃

EUT： Bluetooth Adapter Card Humidity： 61%

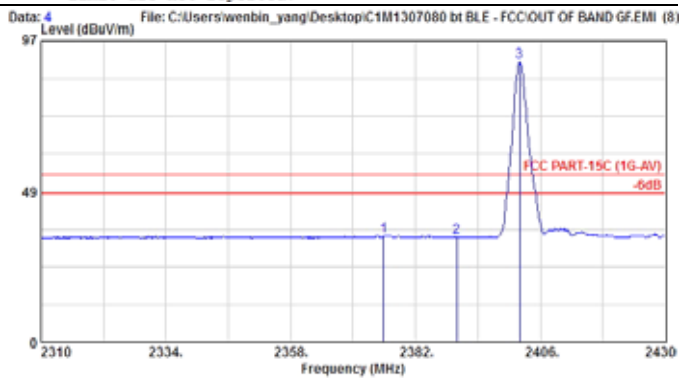
Test Mode： Transmitting Mode, Frequency: 2402MHz (CH0)




```
Site no.      : A/C Chamber                  Data no.  : 3
Dis. / Ant.   : 3m   3115(4927)              Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 26℃/61%                        Wenbin_yang
EUT           : MB8811C0
Power Rating  : DC3.3V
Test Mode     : TX2402 BLE
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2379.240	28.43	6.32	9.75	44.51	74.00	29.49	Peak
2	2390.000	28.47	6.34	7.88	42.69	74.00	31.31	Peak
3	2402.280	28.47	6.36	56.69	91.52	74.00	-17.52	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : A/C Chamber                  Data no.  : 4
Dis. / Ant.   : 3m   3115(4927)              Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        Wenbin_yang
EUT           : MB8811C0
Power Rating  : DC3.3V
Test Mode     : TX2402 BLE
```

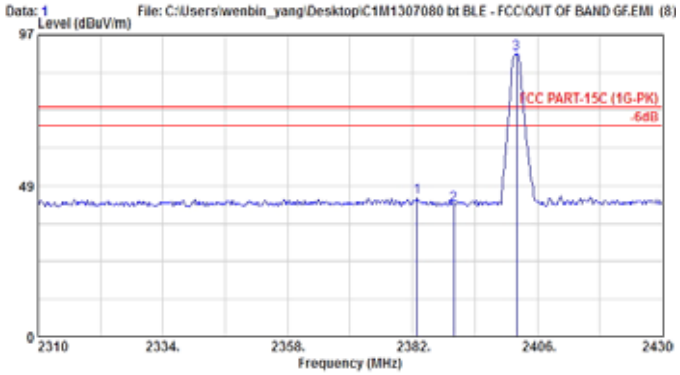
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2375.880	28.43	6.32	-0.65	34.11	54.00	19.89	Average
2	2390.000	28.47	6.34	-1.10	33.72	54.00	20.28	Average
3	2402.040	28.47	6.36	55.38	90.21	54.00	-36.21	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2013 Temperature： 26℃

EUT： Bluetooth Adapter Card Humidity： 61%

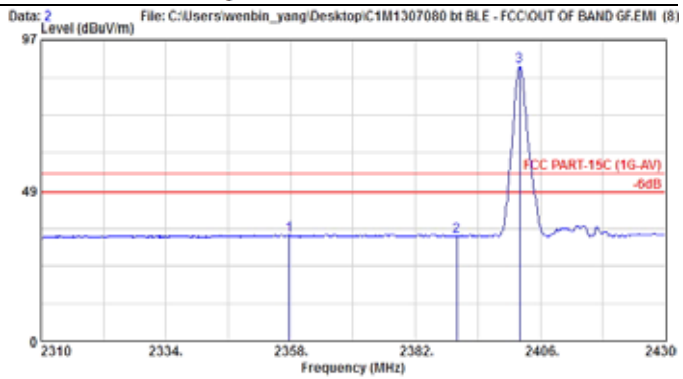
Test Mode： Transmitting Mode, Frequency: 2402MHz (CH0)



Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% Wenbin_yang
EUT : MB8811C0
Power Rating : DC3.3V
Test Mode : TX2402 BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2382.840	28.43	6.33	9.88	44.64	74.00	29.36	Peak
2	2390.000	28.47	6.34	7.55	42.36	74.00	31.64	Peak
3	2402.040	28.47	6.36	56.22	91.05	74.00	-17.05	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% Wenbin_yang
EUT : MB8811C0
Power Rating : DC3.3V
Test Mode : TX2402 BLE

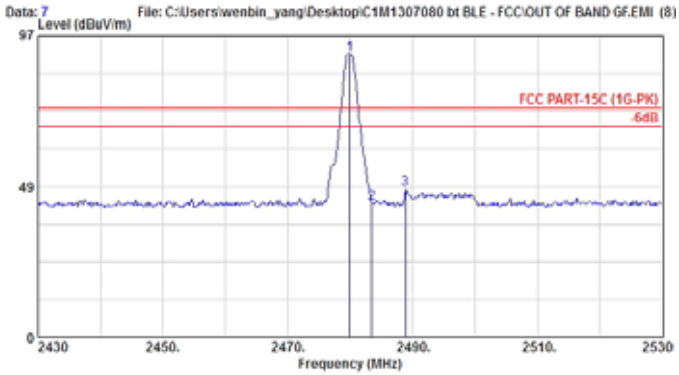
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2357.640	28.40	6.29	-0.46	34.23	54.00	19.77	Average
2	2390.000	28.47	6.34	-1.12	33.69	54.00	20.31	Average
3	2402.040	28.47	6.36	53.51	88.35	54.00	-34.35	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2013 Temperature： 26℃

EUT： Bluetooth Adapter Card Humidity： 61%

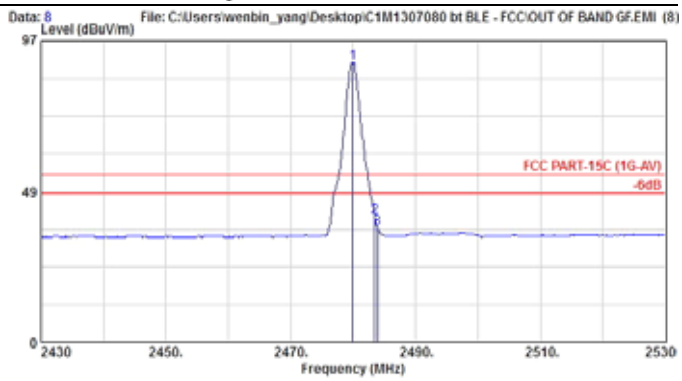
Test Mode： Transmitting Mode, Frequency: 2480MHz (CH39)




```
Site no.      : A/C Chamber                  Data no.  : 7
Dis. / Ant.   : 3m   3115(49..)              Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 26℃/61%                        Wenbin_yang
EUT           : MB8811C0
Power Rating  : DC3.3V
Test Mode     : TX2480 BLE
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2480.000	28.66	6.44	55.89	90.99	74.00	-16.99	Peak
2	2483.500	28.66	6.45	8.04	43.16	74.00	30.84	Peak
3	2488.900	28.70	6.45	12.49	47.64	74.00	26.36	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : A/C Chamber                  Data no.  : 8
Dis. / Ant.   : 3m   3115(4927)              Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        Wenbin_yang
EUT           : MB8811C0
Power Rating  : DC3.3V
Test Mode     : TX2480 BLE
```

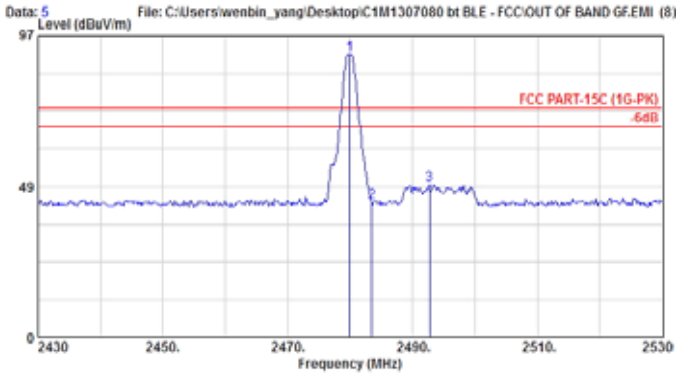
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2480.000	28.66	6.44	54.72	89.82	54.00	-35.82	Average
2	2483.500	28.66	6.45	5.07	40.19	54.00	13.81	Average
3	2483.900	28.66	6.45	1.60	36.72	54.00	17.28	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： Jul. 11, 2013 Temperature： 26℃

EUT： Bluetooth Adapter Card Humidity： 61%

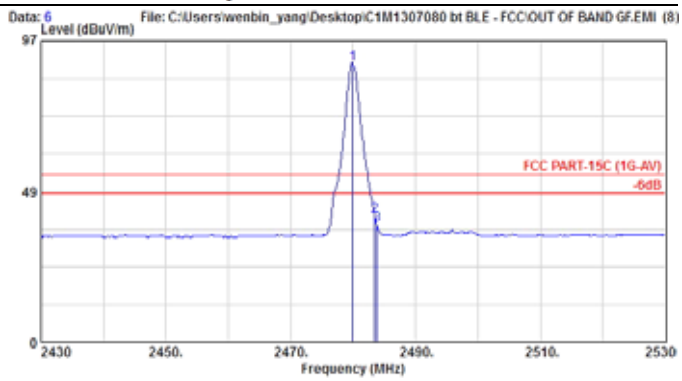
Test Mode： Transmitting Mode, Frequency: 2480MHz (CH39)




```
Site no.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 26℃/61%                        Wenbin_yang
EUT           : MB8811C0
Power Rating  : DC3.3V
Test Mode     : TX2480 BLE
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2480.000	28.66	6.44	55.73	90.84	74.00	-16.84	Peak
2	2483.500	28.66	6.45	8.08	43.20	74.00	30.80	Peak
3	2492.700	28.70	6.46	13.89	49.05	74.00	24.95	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        Wenbin_yang
EUT           : MB8811C0
Power Rating  : DC3.3V
Test Mode     : TX2480 BLE
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2480.000	28.66	6.44	54.36	89.46	54.00	-35.46	Average
2	2483.500	28.66	6.45	5.29	40.40	54.00	13.60	Average
3	2483.800	28.66	6.45	2.49	37.60	54.00	16.40	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

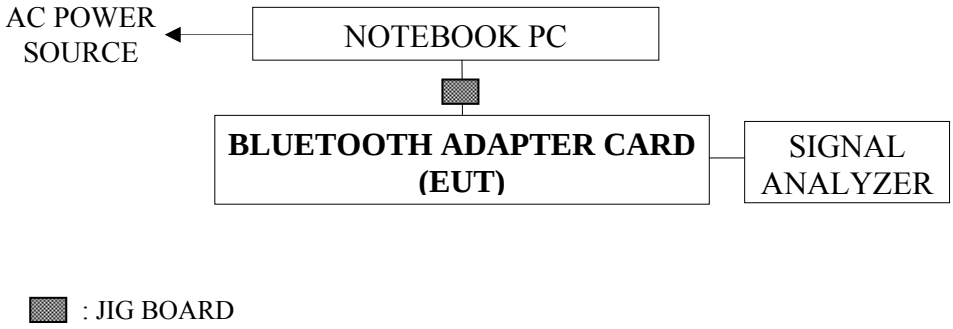
4. 6dB BANDWIDTH MEASUREMENT

4.1. Test Equipment

The following test equipment was used during the Emission Bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Oct. 17, 12'	Oct. 16, 13'

4.2. Block Diagram of Test Setup



4.3. Specification Limits [§15.247(a)(2)]

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

4.4. Operating Condition of EUT

4.4.1. Set up the EUT and simulator as shown on 4.2.

4.4.2. To turn on the power of all equipment.

4.4.3. The Notebook PC was running test software "CSR" to set EUT (Bluetooth Adapter Card) on transmitting and receiving during all testing.

4.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 1.5% EBW, VBW≥3xRBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.
The measurement guideline was according to KDB 558074 D01 V03.
The measurement guideline was according to RSS-Gen.

4.6. Test Results

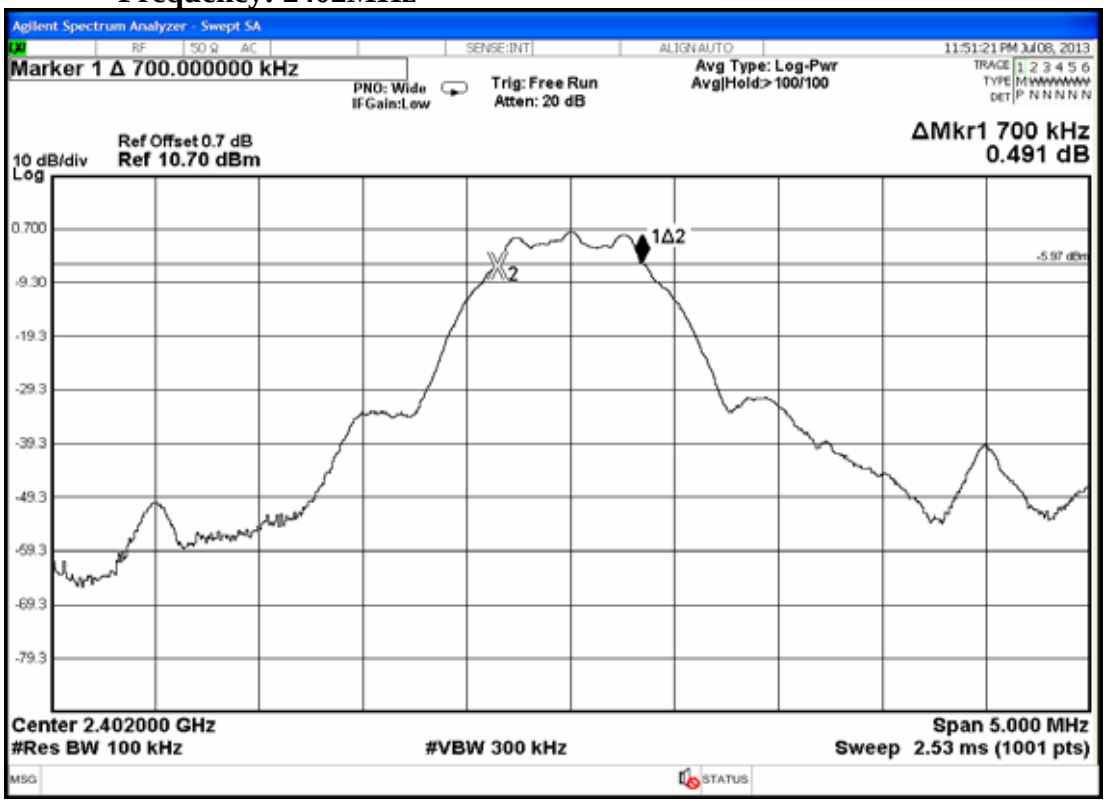
PASSED. All the test results are attached in next pages.

Test Date : Jul. 08, 2013 Temperature : 25℃ Humidity : 65%

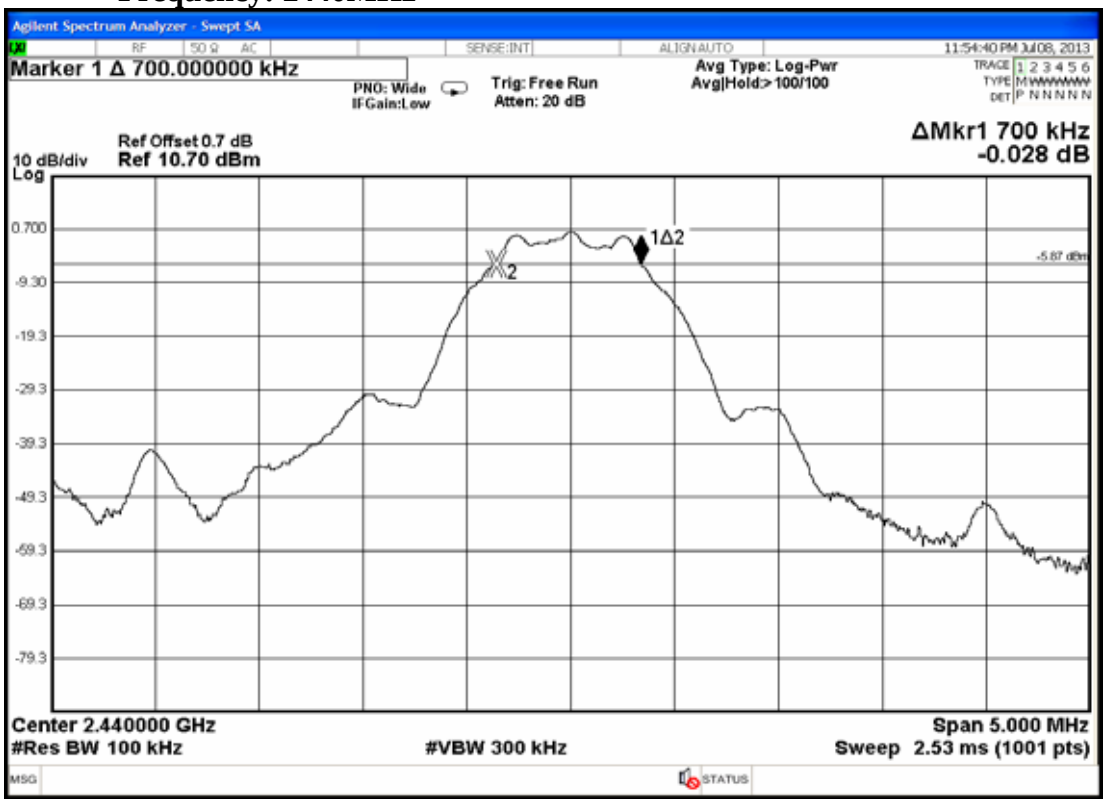
Mode	Channel	Frequency	**6dB Bandwidth**
1.	CH0	2402MHz	**0.700MHz**
2.	CH19	2440MHz	**0.700MHz**
3.	CH39	2480MHz	**0.700MHz**

[Limit: least 500kHz]

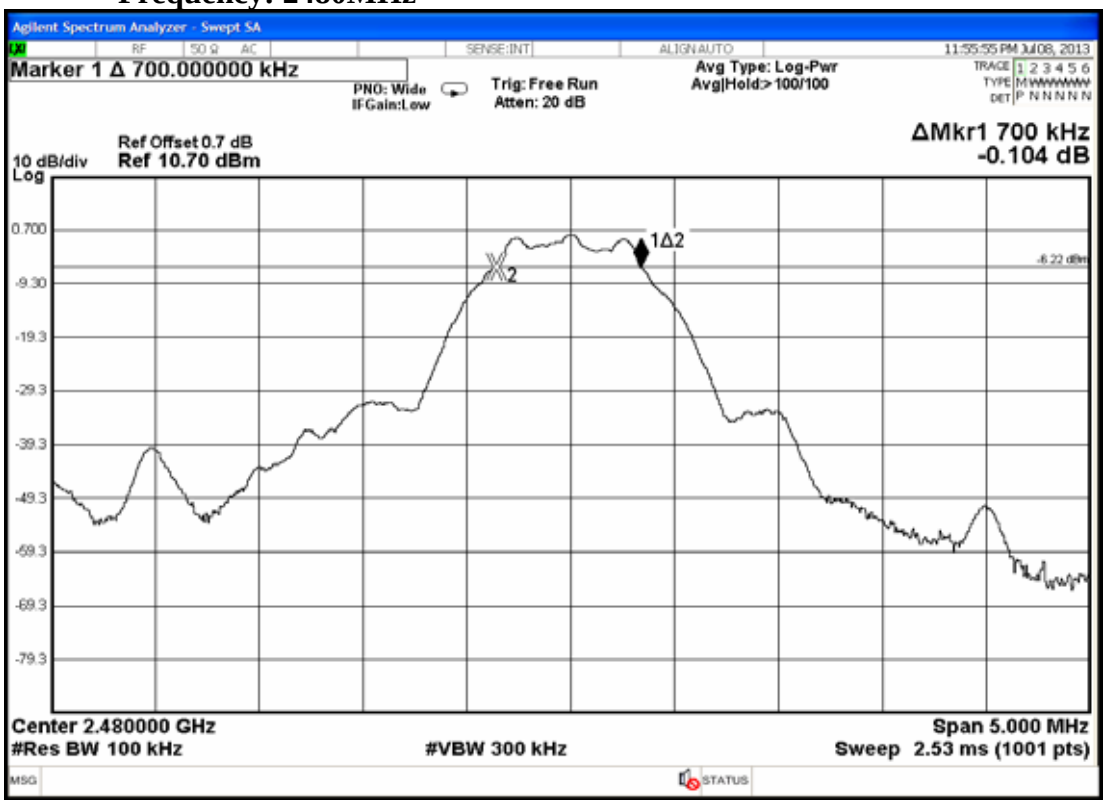
Frequency: 2402MHz



Frequency: 2440MHz



Frequency: 2480MHz



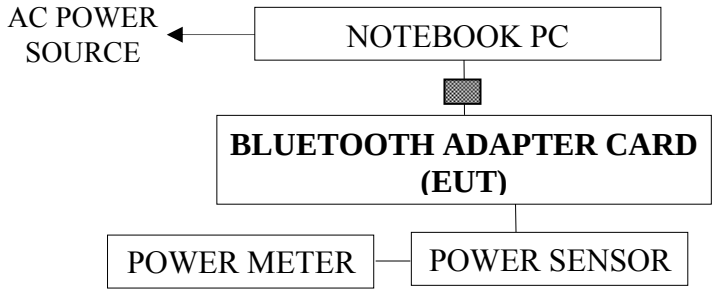
5. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

5.1. Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Power Meter	Anritsu	ML2495A	1145008	Oct. 30, 12'	Oct. 29, 13'
2.	Power Sensor	Anritsu	MA2411B	1126096	Oct. 30, 12'	Oct. 29, 13'

5.2. Block Diagram of Test Setup



5.3. Specification Limits [§15.247(b)-(3)]

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz is: 1Watt. (30dBm)

5.4. Operating Condition of EUT

5.4.1. Set up the EUT and simulator as shown on 5.2.

5.4.2. To turn on the power of all equipment.

5.4.3. The Notebook PC was running test software "CSR" to set EUT (Bluetooth Adapter Card) on transmitting and receiving during all testing.

5.5. Test Procedure

The transmitter output was connected to the power sensor and record the reading of power meter.

The measurement guideline was according to KDB 558074 D01 V03.

The measurement guideline was according to RSS-Gen.

5.6. Test Results

PASSED. All the test results are listed below.

Test Date : Jul. 08, 2013 Temperature : 25℃ Humidity : 65%

Mode	Channel	Frequency	Output Power(dBm)	
			Peak	**Average**
1.	CH0	2402MHz	**2.04**	**-2.08**
2.	CH19	2440MHz	**2.54**	**-1.77**
3.	CH39	2480MHz	**2.64**	**-1.46**

[Limit: 1Watt. (30dBm)]

6. EMISSION LIMITATIONS MEASUREMENT

Pursuant to KDB 558074 D01 V03 that emission levels below limits specified in 15.209 would not be required.

7. BAND EDGES MEASUREMENT

7.1. Test Equipment

The following test equipment was used during the band edges measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Oct. 17, 12'	Oct. 16, 13'

7.2. Block Diagram of Test Setup

The same as section.4.2.

7.3. Specification Limits [§15.247(c)]

The highest level should be at least 20 dB below reference level as measured in section 8.6.

7.4. Operating Condition of EUT

7.4.1. Set up the EUT and simulator as shown on 4.2.

7.4.2. To turn on the power of all equipment.

7.4.3. The Notebook PC was running test software "CSR" to set EUT (Bluetooth Adapter Card) on transmitting and receiving during all testing.

7.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. Set both RBW=100 kHz and VBW to 300kHz with suitable frequency span including 100kHz bandwidth from band edge.

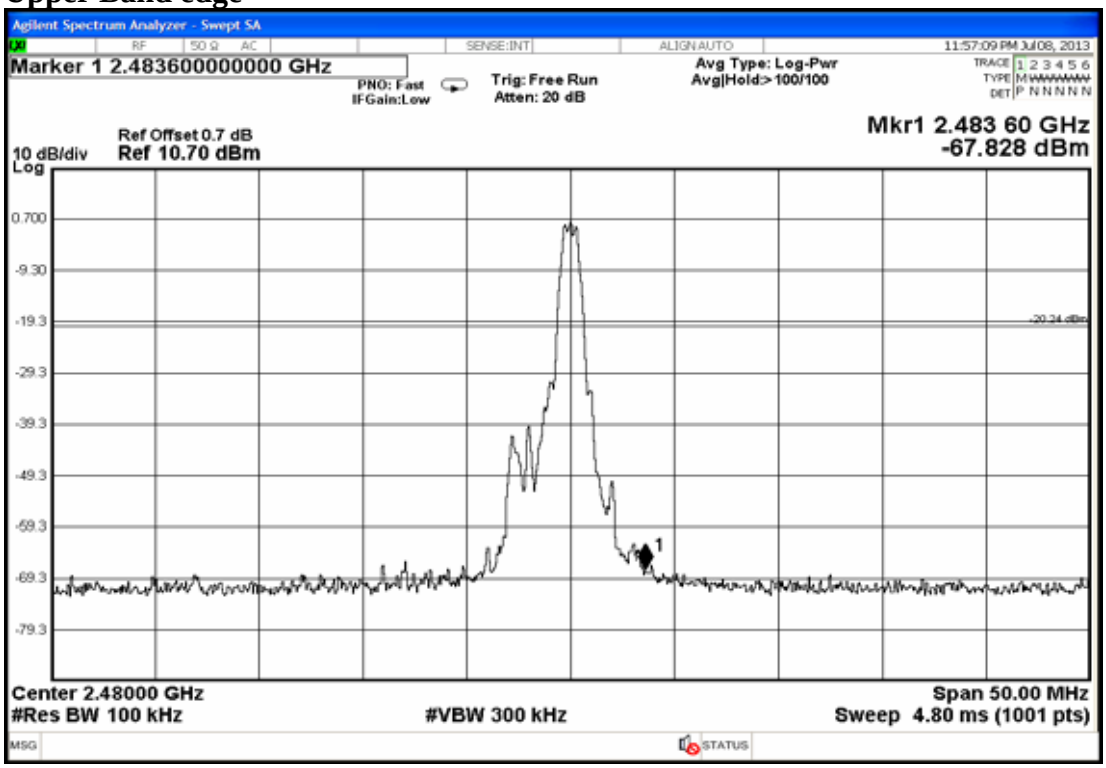
The measurement guideline was according to KDB 558074 D01 V03.

7.6. Test Results

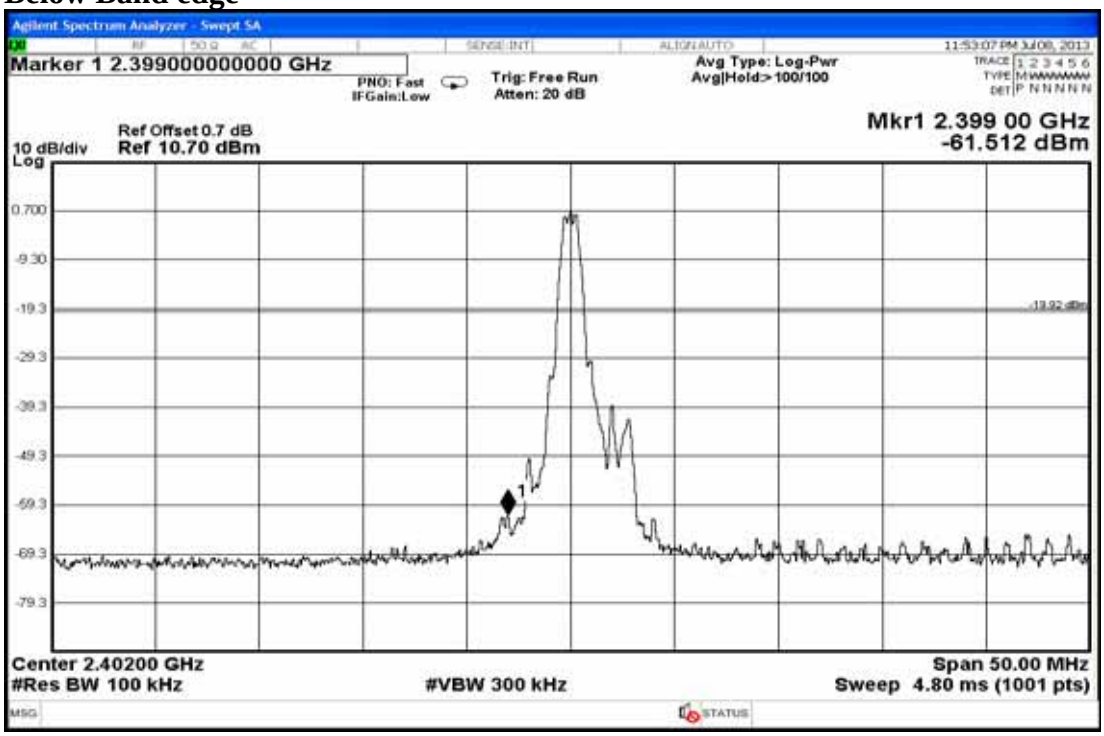
PASSED. All the test results are attached in next pages.

Test Date : Jul. 08, 2013 Temperature : 25℃ Humidity : 65%

Upper Band edge



Below Band edge



8. POWER SPECTRAL DENSITY MEASUREMENT

8.1. Test Equipment

The following test equipment was used during the power spectral density measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Oct. 17, 12'	Oct. 16, 13'

8.2. Block Diagram of Test Setup

The same as section.4.2.

8.3. Specification Limits [§15.407(a)-(1), RSS-210 A9.2 (1)]

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

8.4. Operating Condition of EUT

8.4.1. Set up the EUT and simulator as shown on 4.2.

8.4.2. To turn on the power of all equipment.

8.4.3. The Notebook PC was running test software "CSR" to set EUT (Bluetooth Adapter Card) on transmitting and receiving during all testing.

8.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using 100kHz RBW and ≥300kHz VBW, set sweep time = Auto.

The measurement guideline was according to KDB 558074 D01 V03.

The measurement guideline was according to RSS-Gen.

8.6. Test Results

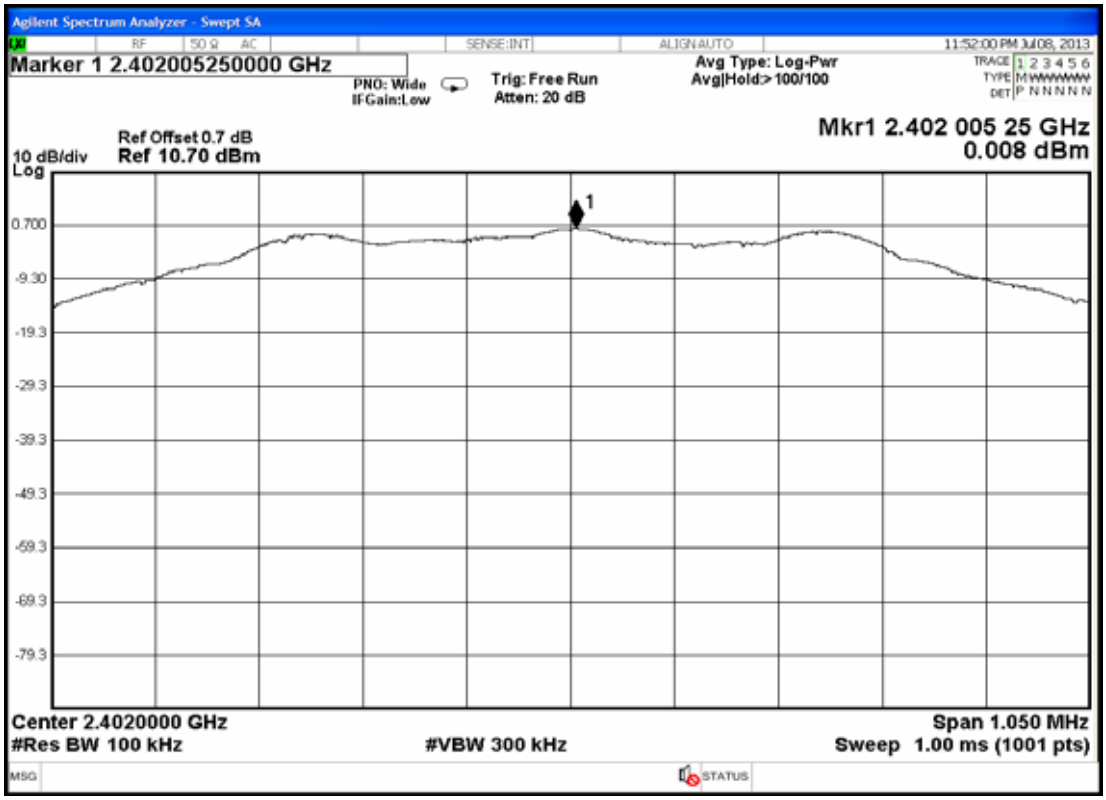
PASSED. All the test results are attached in next pages.

Test Date : Jul. 08, 2013 Temperature : 25℃ Humidity : 65%

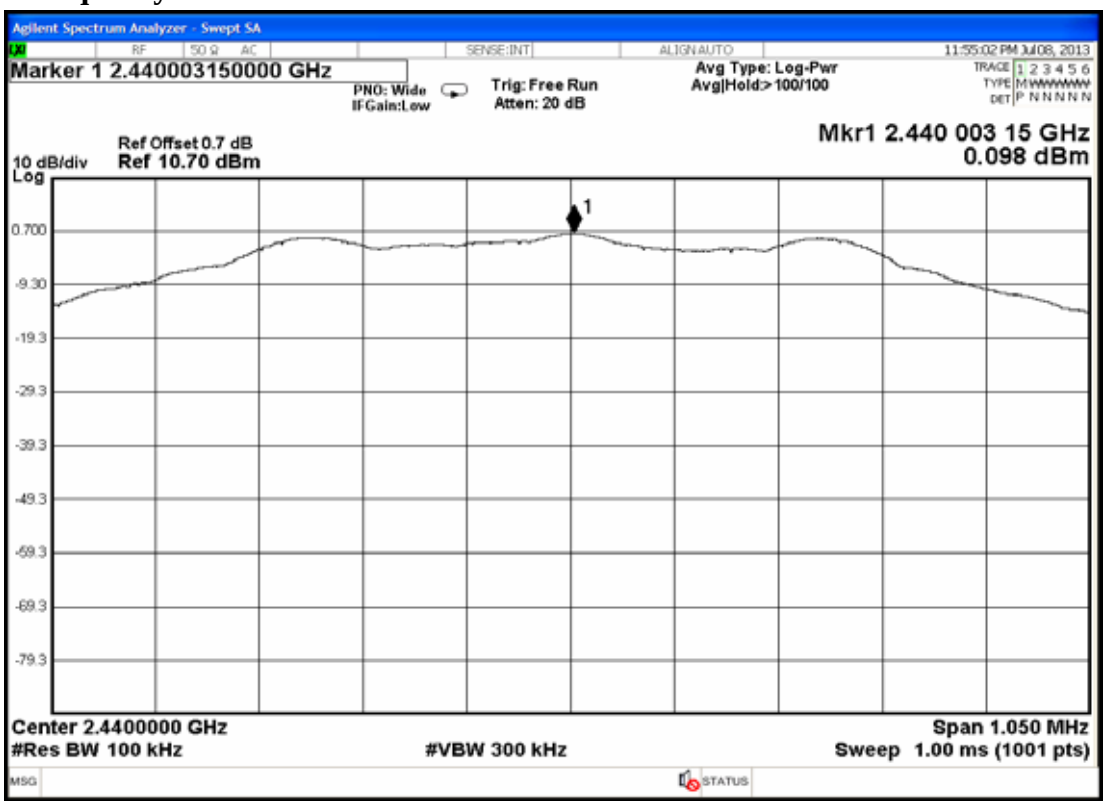
Mode	Channel	Frequency	**Power Spectral Density (dBm)**
1.	CH0	2402MHz	**0.008**
2.	CH19	2440MHz	**0.098**
3.	CH39	2480MHz	**-0.241**

[Limit: 4dBm]

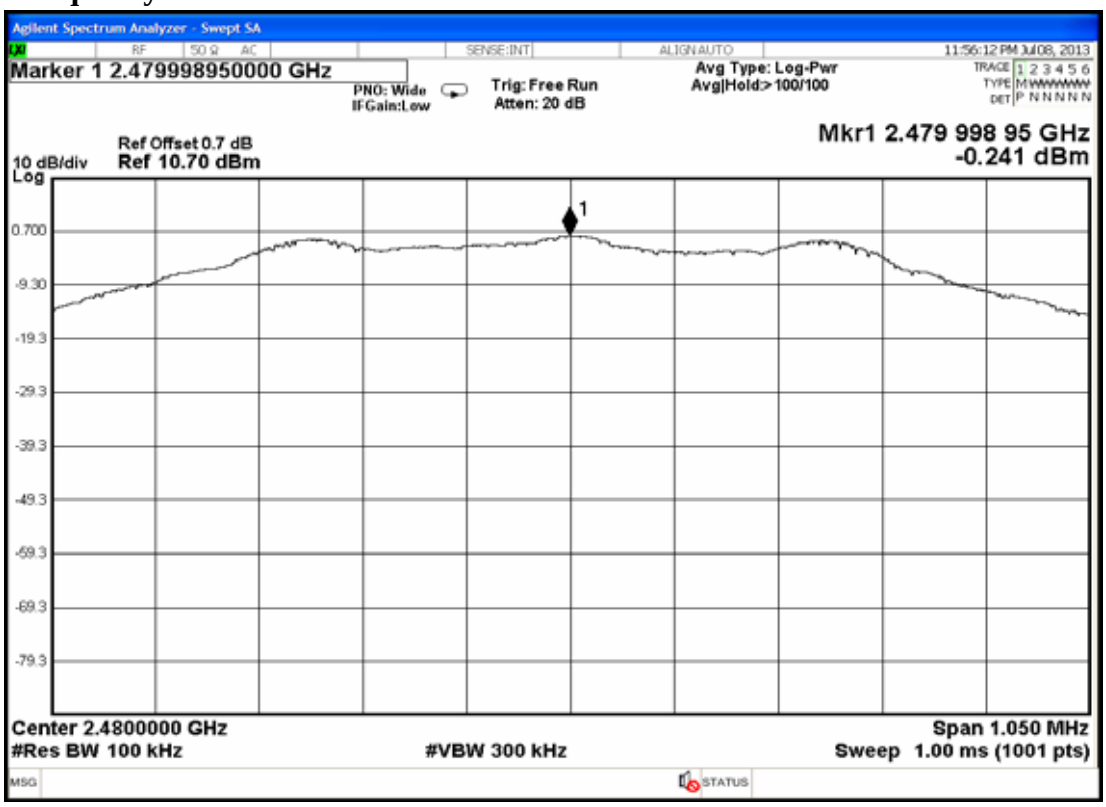
Frequency: 2402MHz



Frequency: 2440MHz



Frequency: 2480MHz



9. DEVIATION TO TEST SPECIFICATIONS

【NONE】

10. PHOTOGRAPHS

10.1. Photos of Conducted Emission Measurement

FRONT VIEW OF CONDUCTED MEASUREMENT

BACK VIEW OF CONDUCTED MEASUREMENT

10.2.Photos of Radiated Measurement at Semi-Anechoic Chamber

10.2.1.Frequency Below 1GHz

10.2.2. Frequency Above 1GHz

10.3.Photo of Section RF Conducted Measurement