

TEST REPORT FOR FCC  
Class II PERMISSIVE CHANGE  
On Behalf of  
Amtran Technology Co., Ltd.  
Bluetooth Embedded Module  
Model No.: BCM92046MD\_EMB  
FCC ID: MDZSV422XVT-BT

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Date of Test : Mar. 01 ~ Oct. 24, 2010  
Date of Report : Oct. 28, 2010

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## TEST REPORT CERTIFICATION (Class II Permissive Change)

Applicant : Amtran Technology Co., Ltd.  
 EUT Description : Bluetooth Embedded Module  
 FCC ID : MDZSV422XVT-BT  
 (A) MODEL NO. : BCM92046MD\_EMB  
 (B) SERIAL NO. : N/A  
 (C) POWER SUPPLY : DC 5V  
 (D) TEST VOLTAGE : AC 120V, 60Hz  
 (Via LCD TV or Notebook PC)

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART C, Oct. 2009  
 AND ANSI C63.4/2003

(FCC CFR 47 Part 15C, §15.205, §15.207, §15.209 and §15.247)

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 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 FCC official limits.

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

This report is based on reports of EM-F980571, EM-F980641, EM-F990210, EM-F990320 and EM-F990341 & EM-F990923.

Date of Test: Mar. 01 ~ Oct. 24, 2010

Date of Report: Oct. 28, 2010

Date of Test of Original: Aug. 03 ~ 05, 2009

Date of Original: Aug. 13, 2009

Producer:   
 (Tina Huang/Administrator)

Reviewer:   
 (Henning Chang/Supervisor)

Signatory:   
 (Ben Cheng/Manager)

## 1. DESCRIPTION OF VERSION

Edition No.	Date of Rev.	Summary	Report No.
Rev. 0	Aug. 13, 2009	Original Report.	EM-F980571
Rev. 1	Sep. 01, 2009	<ol style="list-style-type: none"> <li>1. There is no hardware or electrical modification made to the applying modular transmitter itself. The changes filed under this application are adding LCD TV Model VIZIO VF552XVT collocated with Bluetooth Embedded Module, FCC ID: MDZSV422XVT-BT.</li> <li>2. Supplementary test data are recorded in report of EM-F980641.</li> </ol>	EM-F980641
Rev. 2	Mar. 15, 2010	<ol style="list-style-type: none"> <li>1. The changes filed under this application are adding LCD TV Model VIZIO M550NV collocated with Bluetooth Embedded Module, FCC ID: MDZSV422XVT-BT. And the PCB's electronic circuit changes are described at appendix.</li> <li>2. Supplementary test data are recorded in test report of EM-F990210.</li> </ol>	EM-F990210
Rev. 3	Apr. 12, 2010	<ol style="list-style-type: none"> <li>1. The changes filed under this application are adding LCD TV Model VIZIO XVT423SV / VIZIO XVT423SV-XX / XVT423SV collocated with Bluetooth Embedded Module, FCC ID: MDZSV422XVT-BT. And the PCB's electronic circuit changes are described at appendix.</li> <li>2. Supplementary test data are recorded in test report of EM-F990320.</li> </ol>	EM-F990320
Rev. 4	Apr. 14, 2010	<ol style="list-style-type: none"> <li>1. The changes filed under this application are adding LCD TV Model VIZIO XVT323SV####, XVT323SV#### collocated with Bluetooth Embedded Module, FCC ID: MDZSV422XVT-BT. And the PCB's electronic circuit changes are described at appendix.</li> <li>2. Supplementary test data are recorded in test report of EM-F990342.</li> </ol>	EM-F990342
Rev. 5	Sep. 16, 2010	<ol style="list-style-type: none"> <li>1. The changes filed under this application are adding LCD TV Model XVT3D424SV / VIZIO XVT3D424SV / VIZIO XVT3D424SV-XX collocated with Bluetooth Embedded Module, FCC ID: MDZSV422XVT-BT. And the PCB's electronic circuit changes are described at appendix.</li> <li>2. Supplementary test data are recorded in test report of EM-F990923.</li> </ol>	EM-F990923

Edition No.	Date of Rev.	Summary	Report No.
Rev. 6	Oct. 28, 2010	<ol style="list-style-type: none"> <li data-bbox="568 232 1310 472">1. The changes filed under this application are adding LCD TV Model XVT3D650SV / VIZIO XVT3D650SV / VIZIO XVT3D650SV-XX collocated with Bluetooth Embedded Module, FCC ID: MDZSV422XVT-BT. And the PCB's electronic circuit changes are described at appendix.</li> <li data-bbox="568 472 1310 555">2. Supplementary test data are recorded in test report of EM-F991051.</li> </ol>	EM-F991051

## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

Description	:	Bluetooth Embedded Module (With Host LCD TV: VIZIO XVT3D650SV)
Model Number	:	BCM92046MD_EMB
FCC ID	:	MDZSV422XVT-BT
Applicant	:	Amtran Technology Co., Ltd. 17F, No.268, Lien Chen Rd., Chung Ho City, Taipei County, Taiwan, 235 R.O.C.
Fundamental Range	:	2400MHz ~ 2483.5MHz
Channel Number	:	79
Radio Technology	:	FHSS Modulation
Antenna Gain	:	1.87dBi
Date of Receipt of Sample	:	Mar. 01, 2010 & Sep. 29, 2010
Date of Test	:	Mar. 01 ~ Oct. 24, 2010

#### Information for Class II Permissive Change:

1. This EUT is additional version with original FCC ID MDZSV422XVT-BT.
2. The changes filed under this application are adding LCD TV Model XVT3D650SV / VIZIO XVT3D650SV / VIZIO XVT3D650SV-XX (The "X" is number suffix 0 ~9 or alphabet A ~Z or blank.) collocated with Bluetooth Embedded Module, FCC ID: MDZSV422XVT-BT. And the PCB's electronic circuit changes are described at appendix.
3. The differences among three models of LCD TV are in brand name and marketing purpose, the model VIZIO XVT3D650SV is representative tested in this report of EM-F991051.
4. This report is based on reports of EM-F980571 & EM-F980641 & EM-F990210 & EM-F990320 & EM-F990341 & EM-F990923.

## 2.2. Tested Supporting System Details

### 2.2.1. LCD TV (HOST)

Model Number : VIZIO XVT3D650SV  
 Serial Number : N/A  
 FCC ID : FCC By DoC  
 Manufacturer : VIZIO  
 Power Cord : : Non-Shielded, Detachable, 1.8m

### 2.2.2. NOTEBOOK PC

Model Number : PP2130  
 Serial Number : 5Y32KSQZ40ME  
 BSMI ID : 3912A556  
 FCC ID : FCC By DoC  
 Manufacturer : LG (Brand Compaq)  
 Power Adapter : COMPAQ, M/N PA-1650-02C  
 DC Power Cord: Shielded, Undetachable, 1.8m  
                     Bonded a ferrite core  
 AC Power Cord: Non-Shielded, Undetachable, 1.8m

## 2.3. Description of Test Facility

Name of Firm : **AUDIX Technology Corporation**  
**EMC Department**  
 No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,  
 Taipei County, Taiwan, R.O.C.

Test Site : **Semi-Anechoic Chamber**  
 No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,  
 Taipei Hsien, Taiwan  
 May 14, 2009 Renewal on  
 Federal Communication Commission  
 Registration Number: 90993

NVLAP Lab. Code : 200077-0

TAF Accreditation No : 1724

2.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Radiation Test (Distance: 3m)	30MHz~300MHz	±2.91dB
	300MHz~1000MHz	±2.94dB
	Above 1GHz	± 5.02dB

Remark : Uncertainty =  $k u_c(y)$

Test Item	Uncertainty
Maximum peak Output power	± 0.52dBm



### **3. CONDUCTED EMISSION MEASUREMENT**

【The EUT only employs DC power for operation, no conductive emission limits are required according to FCC Part 15 Section §15.207】

## 4. RADIATED EMISSION MEASUREMENT

### 4.1. Test Equipment

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

#### 4.1.1. For Frequency 30MHz~1000MHz (at Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8564EC	3946A00249	Oct. 27, 09'	Oct. 26, 10'
2.	Test Receiver	R & S	ESCS30	100338	Jul. 08, 10'	Jul. 07, 11'
3.	Amplifier	HP	8447D	2944A06305	Feb. 03, 10'	Feb. 02, 11'
4.	Log Periodic Antenna	Schwarzbeck	UHALP 9108-A	0810	Mar. 13, 10'	Mar. 12, 11'
5.	Biconical Antenna	CHASE	VBA6106A	1264	Mar. 13, 10'	Mar. 12, 11'

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8564EC	3946A00249	Oct. 27, 09'	Oct. 26, 10'
2.	Amplifier	HP	8449B	3008A00529	Dec. 15, 09'	Dec. 14, 10'
3.	Horn Antenna	EMCO	3115	9112-3775	May 10, 10'	May 09, 11'
4.	Horn Antenna	EMCO	3116	2653	Oct. 04, 10'	Oct. 03, 11'

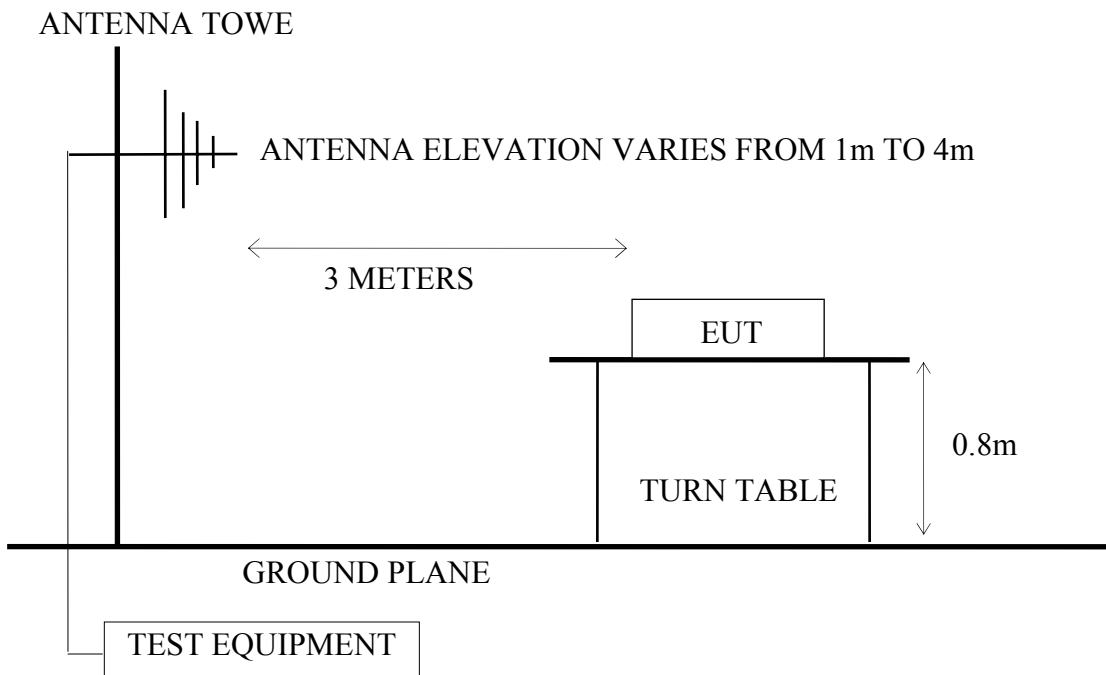
### 4.2. Test Setup

#### 4.2.1. Block Diagram of connection between EUT and simulators

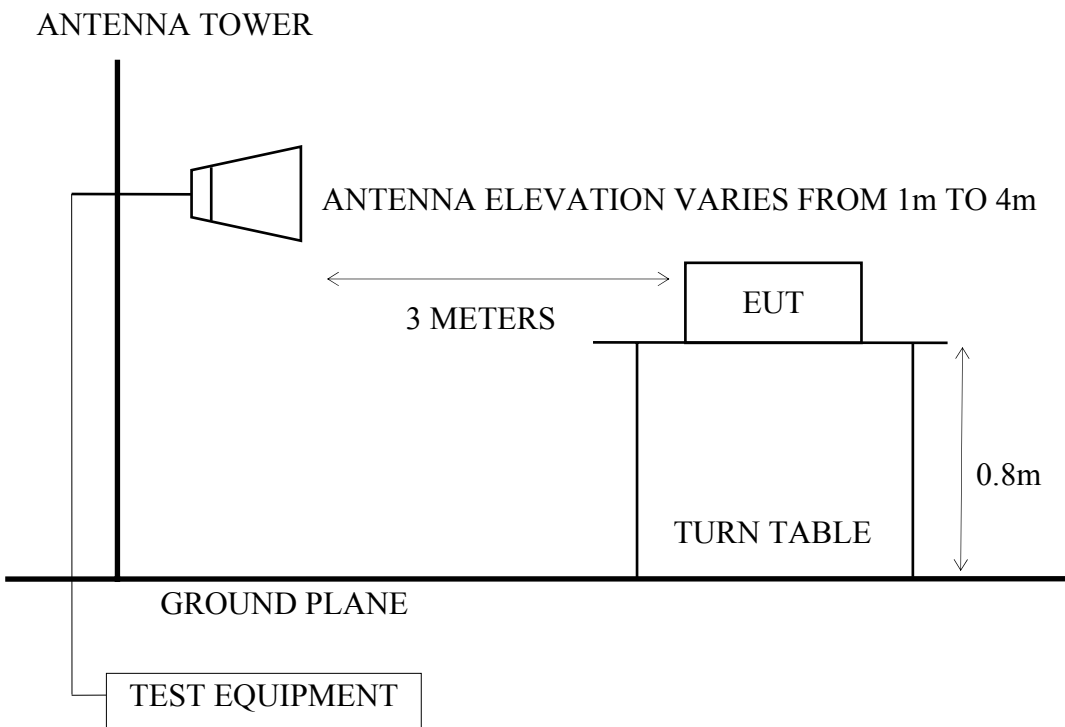


**EUT: BLUETOOTH EMBEDDED MODULE**

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



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



### 4.3. Radiated Emission Limits (§15.209)

Frequency MHz	Distance Meters	Field Strengths Limits	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
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 $\text{dB}\mu\text{V/m}$ (Peak) 54.0 $\text{dB}\mu\text{V/m}$ (Average)	

- Remark :
- (1) Emission level ( $\text{dB}\mu\text{V/m}$ ) = 20 log Emission level ( $\mu\text{V/m}$ )
  - (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).

### 4.4. Operating Condition of EUT

- 4.4.1. Set up the EUT (Bluetooth Embedded Module) and simulator as shown on 3.2.1.
- 4.4.2. To turn on the power of all equipment.
- 4.4.3. The EUT was set to continuously transmit signals at 2402MHz, 2441MHz and 2480MHz during testing.
- 4.4.4. The EUT was set to continuously receive signals at 2441MHz during testing.

### 4.5. 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 to 3 meters away from the receiving antenna which was mounted on an 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 antennas 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 FCC ANSI C63.4-2003 regulation.

The bandwidth of the R&S Test Receiver ESCS30 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 3kHz for average detection (AV) at frequency above 1GHz.

The frequency range from 30MHz to 25GHz (Up to 10<sup>th</sup> harmonics from fundamental frequency) was checked. 30MHz to 1000MHz was measured with Quasi-Peak detector. Above 1GHz was measured with peak and average detector. For average reading in frequency from 1G to 25GHz, we checked it in 1 meter distance and with a shorter cable 2 meter instead of original's. There is no signal exist.

#### 4.6. Radiated Emission Measurement Results

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

EUT : Bluetooth Embedded Module      M/N : BCM92046MD\_EMB

Test Date : Oct. 27, 2010    Temperature : 25 °C    Humidity : 68 %

##### **For Frequency Range 30MHz~1000MHz:**

[Note: Three types of modulation (GFSK and 8-DPSK and  $\pi/4$ -DQPSK) were evaluated but only the worst case (GFSK) was reported in section 4.6.1 & 4.6.2]

The EUT (Bluetooth Embedded Module) with following test modes was performed during this section testing and all the test results are listed in section 4.6.1.

Mode	Host (LCD TV)	Test Mode and Frequency	
1.	VIZIO XVT3D650SV	Transmitting	2402MHz (CH0)
2.			2441MHz (CH39)
3.			2480MHz (CH78)
4.		Receiving	2441MHz (CH39)

Remark 1 : Type of modulation: GFSK.

Remark 2 : All above final readings were measured with Quasi-Peak detector.

**For Frequency above 1GHz:**

The EUT (Bluetooth Embedded Module) with following test modes was performed during this section testing and all the test results are listed in section 4.6.2.

Mode	Host (LCD TV)	Test Mode and Frequency		Test Frequency Range
1.	VIZIO XVT3D650SV	Transmitting	2402MHz (CH0)	1000-2680MHz
2.				2680-5500MHz
3.				5500-18000MHz
4.				18000-25000MHz
5.		Transmitting	2441MHz (CH39)	1000-2680MHz
6.				2680-5500MHz
7.				5500-18000MHz
8.				18000-25000MHz
9.		Transmitting	2480MHz (CH78)	1000-2680MHz
10.				2680-5500MHz
11.				5500-18000MHz
12.				18000-25000MHz
13.		Receiving	2441MHz (CH39)	1000-2680MHz
14.				2680-5500MHz
15.				5500-18000MHz
16.				18000-25000MHz

Remark 1 : The emissions level were too low against the official limit and not report.

Remark 2 : Type of modulation: GFSK.

**For Restricted Bands:**

The EUT (Bluetooth Embedded Module) with following test modes was tested in restricted bands and all the test results are listed in section 4.6.3. (The restricted bands defined in part 15.205(a))

Mode	Host (LCD TV)	Type of Modulation	Test Mode and Frequency		Reference Test Data No.	
					Horizontal	Vertical
1.	VIZIO XVT3D650SV	GFSK	Transmitting	2402MHz (CH0)	# 9, 12	# 10, 11
2.				2480MHz (CH78)	# 16, 13	# 15, 14
3.		8-DPSK	Transmitting	2402MHz (CH0)	# 1, 4	# 2, 3
4.				2480MHz (CH78)	# 8, 5	# 7, 6

[Note: Two types of modulation (GFSK and 8-DPSK) were reported in section 4.6.3]

4.6.1. 30MHz~ 1000MHz Frequency Range Measurement Result

Date of Test : Oct. 24, 2010 Temperature : 25°C  
 EUT : Bluetooth Embedded Module (With Host LCD TV: VIZIO XVT3D650SV) Humidity : 68%  
 Test Mode : Transmitting Mode, Frequency: 2402MHz (CH0)  
Type of Modulation: GFSK

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Horizontal dBμV/m	Emission Level Horizontal dBμV/m	Limits dB	Margin
75.590	12.88	1.80	19.16	33.84	40.00	6.16
123.120	19.27	2.30	18.40	39.97	43.50	3.53
219.150	21.91	3.21	15.08	40.20	46.00	5.80
288.990	25.97	3.80	8.54	38.31	46.00	7.69
448.070	17.63	5.40	10.85	33.88	46.00	12.12
584.840	20.97	6.40	12.65	40.02	46.00	5.98
712.880	23.30	6.53	14.87	44.70	46.00	1.30
745.860	22.91	6.65	15.36	44.92	46.00	1.08
973.810	26.64	7.70	5.57	39.92	54.00	14.08

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

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Vertical dBμV/m	Emission Level Vertical dBμV/m	Limits dB	Margin
37.760	21.58	1.20	5.87	28.65	40.00	11.35
73.650	12.59	1.80	17.42	31.81	40.00	8.19
146.400	20.47	2.50	10.12	33.09	43.50	10.41
226.910	21.96	3.30	14.48	39.73	46.00	6.27
295.780	26.48	4.00	9.00	39.48	46.00	6.52
445.160	17.60	5.40	16.19	39.19	46.00	6.81
571.260	21.14	6.50	14.00	41.64	46.00	4.36
714.820	22.95	6.60	12.18	41.73	46.00	4.27
749.740	23.25	6.70	10.66	40.61	46.00	5.39
908.820	25.01	7.40	7.16	39.57	46.00	6.43

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 : Oct. 24, 2010 Temperature : 25°C

EUT : Bluetooth Embedded Module  
(With Host LCD TV: VIZIO  
XVT3D650SV) Humidity : 68%

Test Mode : Transmitting Mode, Frequency:  
2441MHz (CH39)  
Type of Modulation: GFSK

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB $\mu$ V	Meter Reading Horizontal dB $\mu$ V/m	Emission Level Horizontal dB $\mu$ V/m	Limits dB	Margin
73.650	12.59	1.80	19.73	34.12	40.00	5.88
123.120	19.27	2.30	14.21	35.78	43.50	7.72
228.850	22.01	3.30	14.13	39.44	46.00	6.56
291.900	26.17	3.90	5.35	35.42	46.00	10.58
462.620	17.99	5.70	10.42	34.12	46.00	11.88
582.900	20.92	6.36	10.98	38.25	46.00	7.75
676.020	22.89	6.40	8.27	37.55	46.00	8.45
712.880	23.30	6.53	11.43	41.26	46.00	4.74
749.740	23.25	6.70	11.72	41.67	46.00	4.33

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

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB $\mu$ V	Meter Reading Vertical dB $\mu$ V/m	Emission Level Vertical dB $\mu$ V/m	Limits dB	Margin
73.650	12.59	1.80	19.82	34.21	40.00	5.79
123.120	19.27	2.30	14.44	36.01	43.50	7.49
141.550	20.25	2.50	10.29	33.04	43.50	10.46
229.820	22.08	3.30	14.69	40.07	46.00	5.93
298.690	26.72	3.90	8.94	39.56	46.00	6.44
441.280	17.63	5.30	13.96	36.89	46.00	9.11
578.050	20.97	6.40	13.99	41.36	46.00	4.64
717.730	22.57	6.55	10.34	39.46	46.00	6.54
749.740	23.25	6.70	10.29	40.24	46.00	5.76
966.050	26.89	7.70	6.18	40.77	54.00	13.23

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 : Oct. 24, 2010 Temperature : 25°C

EUT : Bluetooth Embedded Module  
(With Host LCD TV: VIZIO  
XVT3D650SV) Humidity : 68%

Test Mode : Transmitting Mode, Frequency:  
2480MHz (CH78)  
Type of Modulation: GFSK

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Horizontal dBμV/m	Emission Level Horizontal dBμV/m	Limits dB	Margin
72.680	12.42	1.80	19.35	33.57	40.00	6.43
123.120	19.27	2.30	17.38	38.95	43.50	4.55
226.910	21.96	3.30	12.82	38.07	46.00	7.93
293.840	26.33	3.96	7.64	37.93	46.00	8.07
456.800	17.77	5.52	12.28	35.56	46.00	10.44
582.900	20.92	6.36	12.92	40.19	46.00	5.81
712.880	23.30	6.53	11.95	41.78	46.00	4.22
749.740	23.25	6.70	12.23	42.18	46.00	3.82

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

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Vertical dBμV/m	Emission Level Vertical dBμV/m	Limits dB	Margin
73.650	12.59	1.80	18.93	33.32	40.00	6.68
117.300	18.85	2.30	14.64	35.79	43.50	7.71
129.910	19.73	2.40	16.42	38.55	43.50	4.95
143.490	20.27	2.50	14.36	37.13	43.50	6.37
221.090	21.91	3.30	17.41	42.63	46.00	3.37
295.780	26.48	4.00	10.95	41.43	46.00	4.57
439.340	17.57	5.30	13.76	36.63	46.00	9.37
581.930	20.91	6.30	15.50	42.71	46.00	3.29
712.880	23.30	6.53	10.43	40.26	46.00	5.74
749.740	23.25	6.70	10.62	40.57	46.00	5.43
898.150	24.98	7.30	7.69	39.97	46.00	6.03

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 : Oct. 24, 2010 Temperature : 25°C

EUT : Bluetooth Embedded Module  
(With Host LCD TV: VIZIO  
XVT3D650SV) Humidity : 68%

Test Mode : Receiving Mode, Frequency:  
2441MHz (CH39)  
Type of Modulation: GFSK

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Horizontal dBμV/m	Emission Level Horizontal dBμV/m	Limits dB	Margin
75.590	12.88	1.80	18.16	32.84	40.00	7.16
123.120	19.27	2.30	17.40	38.97	43.50	4.53
219.150	21.91	3.21	14.08	39.20	46.00	6.80
288.990	25.97	3.80	8.54	38.31	46.00	7.69
441.280	17.63	5.30	12.05	34.98	46.00	11.02
582.900	20.92	6.36	10.98	38.25	46.00	7.75
676.020	22.89	6.40	8.27	37.55	46.00	8.45
712.880	23.30	6.53	11.43	41.26	46.00	4.74
749.740	23.25	6.70	10.72	40.67	46.00	5.33
929.190	24.92	7.50	6.35	38.77	46.00	7.23

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

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Vertical dBμV/m	Emission Level Vertical dBμV/m	Limits dB	Margin
73.650	12.59	1.80	18.42	32.81	40.00	7.19
123.120	19.27	2.30	10.35	31.92	43.50	11.58
146.400	20.47	2.50	11.12	34.09	43.50	9.41
226.910	21.96	3.30	14.48	39.73	46.00	6.27
295.780	26.48	4.00	9.00	39.48	46.00	6.52
509.180	19.29	6.80	11.82	37.91	46.00	8.09
581.930	20.91	6.30	12.50	39.71	46.00	6.29
712.880	23.30	6.53	10.43	40.26	46.00	5.74
749.740	23.25	6.70	10.62	40.57	46.00	5.43
898.150	24.98	7.30	9.69	41.97	46.00	4.03

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

#### 4.6.2. Above 1GHz Frequency Range Measurement Results

The emissions level were too low against the official limit and not report.

4.6.3. Restricted Bands Measurement Results

Date of Test : Oct. 24, 2010 Temperature : 25°C  
 EUT : Bluetooth Embedded Module (With Host LCD TV: VIZIO XVT3D650SV) Humidity : 68%  
 Test Mode : Transmitting Mode, Frequency: 2402MHz (CH0)  
Type of Modulation: GFSK

	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB $\mu$ V	Meter Reading Horizontal dB $\mu$ V/m	Emission Level Horizontal dB $\mu$ V/m	Limits dB	Margin
Fundamental	2401.730	28.10	6.35	33.94	68.39		
Peak *	2349.820	28.04	6.29	2.92	37.25	74.00	36.75
Fundamental	2402.070	28.10	6.36	52.34	86.80		
Average *	2379.440	28.08	6.32	-7.63	26.77	54.00	27.23

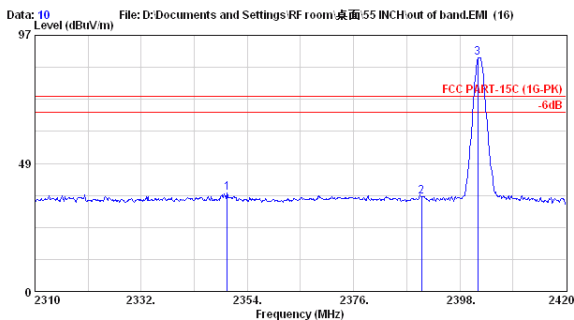
- Remark : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
 2. Low frequency section (spurious in the restricted band 2310-2420MHz).  
 3. ‘\*’ The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



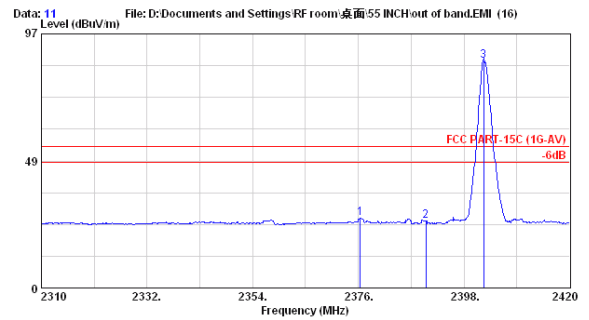
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Site no. : A/C Chamber Data no. : 10  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C (1G-PK)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2402 (GFSK)



Site no. : A/C Chamber Data no. : 11  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2402 (GFSK)

Date of Test : Oct. 24, 2010 Temperature : 25°C  
 EUT : Bluetooth Embedded Module (With Host LCD TV: VIZIO XVT3D650SV) Humidity : 68%  
 Test Mode : Transmitting Mode, Frequency: 2402MHz (CH0)  
Type of Modulation: GFSK

	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Vertical dBμV/m	Emission Level Vertical dBμV/m	Limits dB	Margin
Fundamental	2402.070	28.10	6.36	58.01	92.47		
Peak *	2343.990	28.04	6.28	2.92	37.24	74.00	36.76
Fundamental	2402.290	28.10	6.36	53.72	88.18		
Average *	2.53.230	28.06	6.29	-7.53	26.82	54.00	27.18

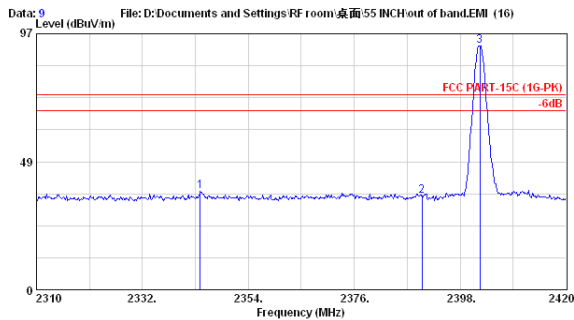
- Remark : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
 2. Low frequency section (spurious in the restricted band 2310-2420MHz).  
 3. ‘\*’ The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



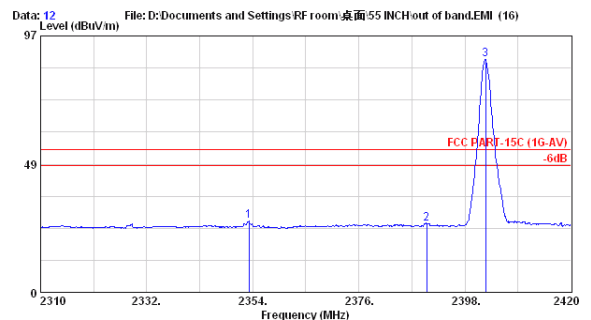
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Site no. : A/C Chamber Data no. : 9  
 Dis. / Ant. : 3m 3115(3775) Ant. pol. : VERTICAL  
 Limit : FCC PART-15C (1G-PK)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N:BCM92046MD\_EMB  
 Test Mode : TX2402 (GFSK)



Site no. : A/C Chamber Data no. : 12  
 Dis. / Ant. : 3m 3115(3775) Ant. pol. : VERTICAL  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N:BCM92046MD\_EMB  
 Test Mode : TX2402 (GFSK)

Date of Test : Oct. 24, 2010 Temperature : 25°C  
 EUT : Bluetooth Embedded Module (With Host LCD TV: VIZIO XVT3D650SV) Humidity : 68%  
 Test Mode : Transmitting Mode, Frequency: 2480MHz (CH78)  
Type of Modulation: GFSK

	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Horizontal dBμV/m	Emission Level Horizontal dBμV/m	Limits dB	Margin
Fundamental	2480.140	28.18	6.44	53.45	88.07		
Peak *	2483.620	28.18	6.45	2.41	37.04	74.00	36.96
Fundamental	2480.020	28.18	6.44	54.34	88.96		
Average *	2483.560	28.18	6.45	-0.17	34.46	54.00	19.54

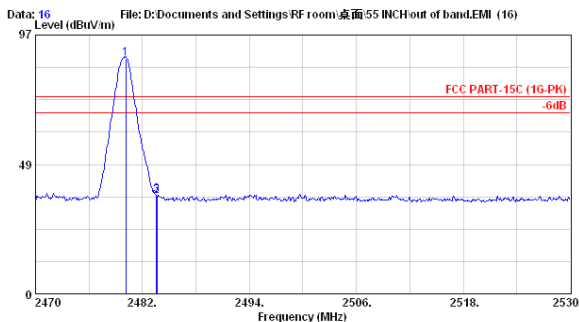
- Remark : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
 2. Low frequency section (spurious in the restricted band 2470-2530MHz).  
 3. "\*" The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



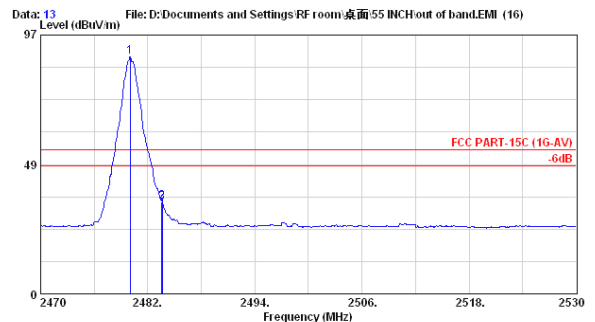
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Site no. : A/C Chamber Data no. : 16  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C (1G-PK)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N:BCM92046MD\_EMB  
 Test Mode : TX2480 (GFSK)



Site no. : A/C Chamber Data no. : 13  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N:BCM92046MD\_EMB  
 Test Mode : TX2480 (GFSK)

Date of Test : Oct. 24, 2010 Temperature : 25°C  
 EUT : Bluetooth Embedded Module (With Host LCD TV: VIZIO XVT3D650SV) Humidity : 68%  
 Test Mode : Transmitting Mode, Frequency: 2480MHz (CH78)  
Type of Modulation: GFSK

	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Vertical dBμV/m	Emission Level Vertical dBμV/m	Limits dB	Margin
Fundamental	2479.840	28.18	6.44	58.41	93.03		
Peak *	2483.620	28.18	6.45	2.89	37.52	74.00	36.48
Fundamental	2479.840	28.18	6.44	52.08	86.70		
Average *	2489.620	28.18	6.45	-0.23	34.40	54.00	19.60

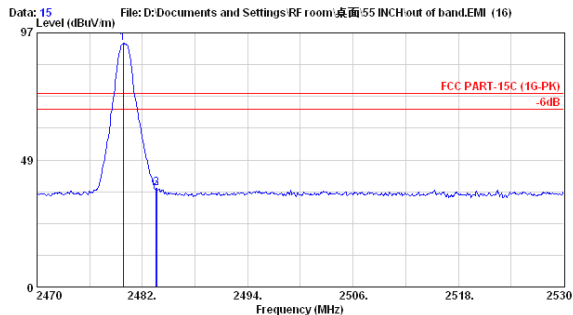
- Remark : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
 2. Low frequency section (spurious in the restricted band 2470-2530MHz).  
 3. ‘\*’ The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



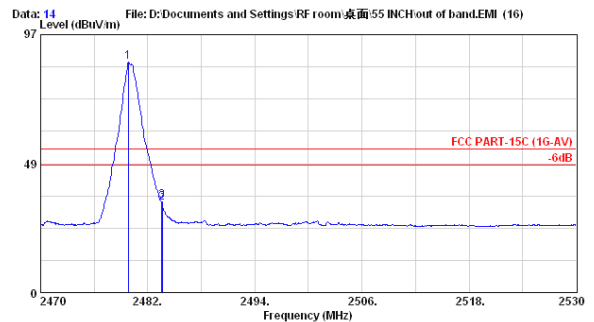
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Site no. : A/C Chamber Data no. : 15  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : VERTICAL  
 Limit : FCC PART-15C (1G-PK)  
 Env. / Ins. : 8564BC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2480 (GFSK)



Site no. : A/C Chamber Data no. : 14  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : VERTICAL  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : 8564BC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2480 (GFSK)

Date of Test : Oct. 24, 2010 Temperature : 25°C

EUT : Bluetooth Embedded Module  
(With Host LCD TV: VIZIO  
XVT3D650SV) Humidity : 68%

Test Mode : Transmitting Mode, Frequency:  
2402MHz (CH0)  
Type of Modulation: 8-DPSK

	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Horizontal dBμV/m	Emission Level Horizontal dBμV/m	Limits dB	Margin
Fundamental	2401.740	28.10	6.34	52.43	86.87		
Peak *	2341.240	28.04	6.28	3.34	37.66	74.00	36.34
Fundamental	2402.270	28.10	6.36	47.62	82.08		
Average *	2375.890	28.08	6.32	-7.47	26.93	54.00	27.07

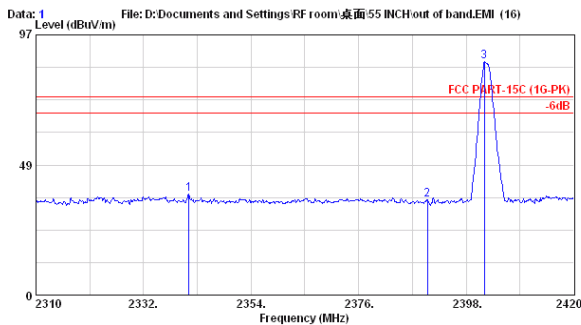
- Remark : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
 2. Low frequency section (spurious in the restricted band 2310-2420MHz).  
 3. "\*" The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



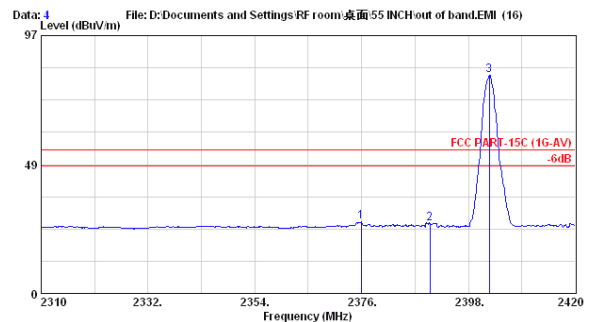
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Site no. : A/C Chamber Data no. : 1  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C (1G-PK) Engineer : Henning Chang  
 Env. / Ins. : 8564BC 25°C / 68%  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2402 (8DPSK)



Site no. : A/C Chamber Data no. : 4  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C (1G-AV) Engineer : Henning Chang  
 Env. / Ins. : 8564BC 25°C / 68%  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2402 (8DPSK)



Date of Test : Oct. 24, 2010 Temperature : 25°C  
 EUT : Bluetooth Embedded Module (With Host LCD TV: VIZIO XVT3D650SV) Humidity : 68%  
 Test Mode : Transmitting Mode, Frequency: 2402MHz (CH0)  
Type of Modulation: 8-DPSK

	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Vertical dBμV/m	Emission Level Vertical dBμV/m	Limits dB	Margin
Fundamental	2401.740	28.10	6.35	54.78	89.23		
Peak *	2345.860	28.04	6.29	2.86	37.19	74.00	36.81
Fundamental	2402.290	28.10	6.36	51.86	86.32		
Average *	2382.820	28.08	6.33	-8.01	26.40	54.00	27.60

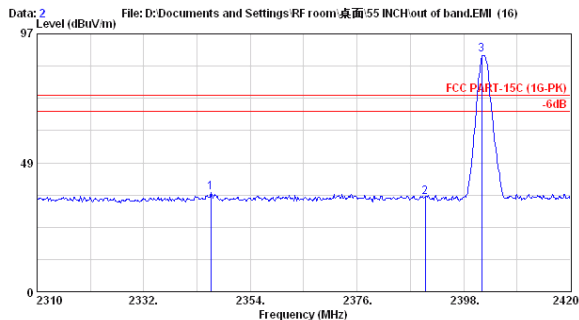
- Remark : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
 2. Low frequency section (spurious in the restricted band 2310-2420MHz).  
 3. "\*" The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



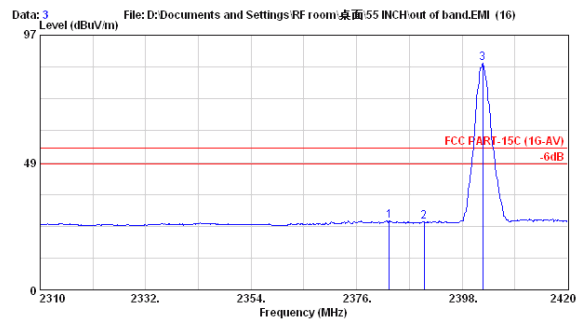
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Site no. : A/C Chamber Data no. : 2  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : VERTICAL  
 Limit : FCC PART-15C (1G-PK)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N:BCM92046MD\_EMB  
 Test Mode : TX2402 (8DPSK)



Site no. : A/C Chamber Data no. : 3  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : VERTICAL  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N:BCM92046MD\_EMB  
 Test Mode : TX2402 (8DPSK)

Date of Test : Oct. 24, 2010 Temperature : 25°C  
 EUT : Bluetooth Embedded Module (With Host LCD TV: VIZIO XVT3D650SV) Humidity : 68%  
 Test Mode : Transmitting Mode, Frequency: 2480MHz (CH78)  
Type of Modulation: 8-DPSK

	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Horizontal dBμV/m	Emission Level Horizontal dBμV/m	Limits dB	Margin
Fundamental	2479.720	28.18	6.44	50.91	85.53		
Peak *	2483.560	28.18	6.45	4.74	39.37	74.00	34.63
Fundamental	2480.020	28.18	6.44	46.60	81.22		
Average *	2483.560	28.18	6.45	1.97	36.60	54.00	17.40

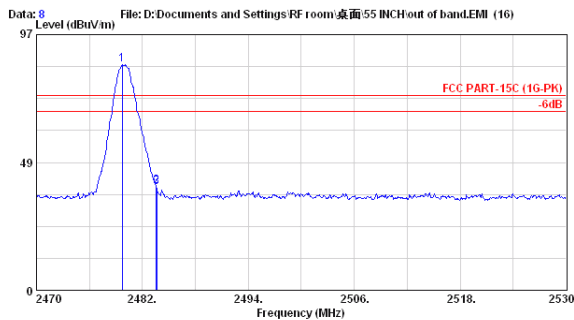
- Remark : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
 2. Low frequency section (spurious in the restricted band 2470-2530MHz).  
 3. ‘\*’ The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



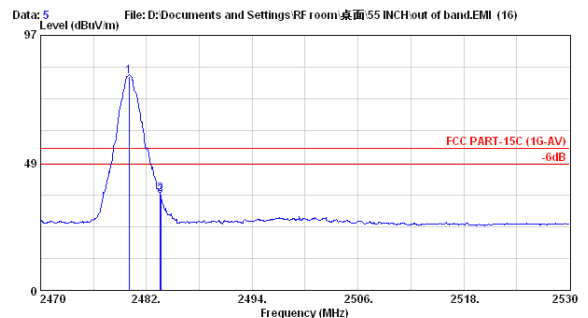
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Site no. : A/C Chamber Data no. : 8  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C (1G-PK)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2480 (8DPSK)



Site no. : A/C Chamber Data no. : 5  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2480 (8DPSK)

Date of Test : Oct. 26, 2010 Temperature : 25°C  
 EUT : Bluetooth Embedded Module (With Host LCD TV: VIZIO XVT3D650SV) Humidity : 68%  
 Test Mode : Transmitting Mode, Frequency: 2480MHz (CH78)  
Type of Modulation: 8-DPSK

	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dBμV	Meter Reading Vertical dBμV/m	Emission Level Vertical dBμV/m	Limits dB	Margin
Fundamental	2479.840	28.18	6.44	53.99	88.61		
Peak *	2483.620	28.18	6.45	6.10	40.73	74.00	33.27
Fundamental	2480.140	28.18	6.44	50.04	84.66		
Average *	2483.560	28.18	6.45	2.58	37.21	54.00	16.79

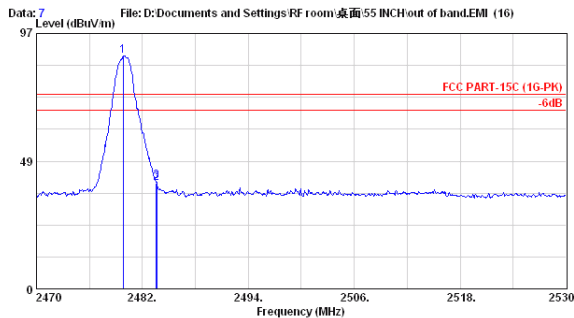
- Remark : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
 2. Low frequency section (spurious in the restricted band 2470-2530MHz).  
 3. ‘\*’ The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



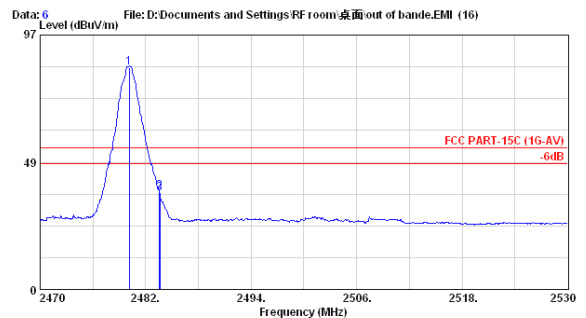
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Site no. : A/C Chamber Data no. : 7  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : VERTICAL  
 Limit : FCC PART-15C (1G-PK)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2480 (8DPSK)



Site no. : A/C Chamber Data no. : 6  
 Dis. / Ant. : 3m 3115 (3775) Ant. pol. : VERTICAL  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : 8564EC 25°C / 68% Engineer : Henning Chang  
 EUT : Bluetooth Embedded Module  
 Power Rating : 120Vac/60Hz M/N: BCM92046MD\_EMB  
 Test Mode : TX2480 (8DPSK)

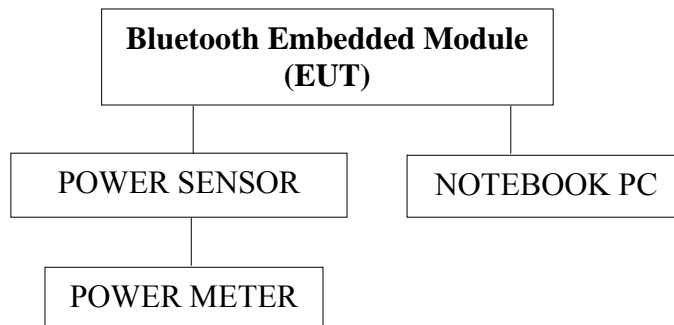
## 5. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

### 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	Antrisu	ML2487A	6K00005406	Feb. 11, 10'	Feb. 10, 11'
2.	Power Sensor	Antrisu	MA2491A	030873	Feb. 11, 10'	Feb. 10, 11'

### 5.2. Block Diagram of Test Setup



### 5.3. Specification Limits (§15.247(b)-(1))

The Limits of maximum Peak Output Power for frequency hopping systems in 2400-2483.5MHz is: 0.125Watt. (21dBm)

### 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 EUT (Bluetooth Embedded Module) was on transmitting frequency function during the testing.

### 5.5. Test Procedure follow DA00-705

The transmitter output was connected to the spectrum analyzer.  
 Span can encompass the waveform  
 RBW=VBW=1MHz  
 Sweep=Auto

## 5.6. Test Results

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

[Note: Two types of modulation (GFSK and 8-DPSK) were reported in this report.]

EUT : Bluetooth Embedded Module      M/N : BCM92046MD\_EMB

Test Date : Mar. 01, 2010    Temperature : 23 °C    Humidity : 46 %

### 5.6.1.Type of Modulation: GFSK

No.	Channel	Test Frequency	Peak Output Power	Limit
1.	0	2402MHz	<b>1.26dBm</b>	21dBm
2.	39	2441MHz	<b>1.18dBm</b>	21dBm
3.	78	2480MHz	<b>0.80dBm</b>	21dBm

### 5.6.2.Type of Modulation: 8-DPSK

No.	Channel	Test Frequency	Peak Output Power	Limit
1.	0	2402MHz	<b>-1.44dBm</b>	21dBm
2.	39	2441MHz	<b>-2.29dBm</b>	21dBm
3.	78	2480MHz	<b>-4.88dBm</b>	21dBm

## **6. DEVIATION TO TEST SPECIFICATIONS**

**【NONE】**

## 7. PHOTOGRAPHS

### 7.1. Photos of Radiated Measurement at Semi-Anechoic Chamber

#### 7.1.1. Frequency Range 30MHz~1GHz (With Host: VIZIO XVT3D650SV)



#### 7.1.2. Frequency Range: Above 1GHz (With Host: VIZIO XVT3D650SV)



## 7.2. Photo of Maximum Peak Output Power Measurement

