

# FCC Part 15C

## Measurement And Test Report For

### Shenzhen Xuner Technology Development Co., Ltd.

Room1612-1619, Wanjun Trade Building, NO 21Baoxing Road, Bao'an District  
Shenzhen, China

**FCC ID: C6O-X02**

<b>This Report Concerns:</b>	<b>Equipment Type:</b>
<input checked="" type="checkbox"/> Original Report	Bluetooth Phone
<b>Report Number:</b>	BCT120220R-001F
<b>Test Engineer:</b>	Mary Wu
<b>Reviewed By:</b>	Caven He
<b>Approved &amp; Authorized By:</b>	Steven Fang
<b>Test Date:</b>	Feb. 20, 2012 – Feb.29, 2012
<b>Issue Date:</b>	Mar.02, 2012
<b>Prepared By:</b>	<b>Shenzhen BCT Technology Co., Ltd.</b> 6F, Yantian Business Building, Bao'an Road, Bao'an District, Shenzhen, P.R.China. Tel: 86-755-2947 5656 Fax: 86-755-2947 5655

**Note:** This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen BCT Technology Co., Ltd.

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# 1. GENERAL INFORMATION

## 1.1 Product Description for Equipment Under Test (EUT)

Applicant:	Shenzhen Xuner Technology Development Co., Ltd.
Address of applicant:	Room1612-1619, Wanjun Trade Building, NO 21Baoxing Road, Bao'an District Shenzhen, China
Manufacturer:	Shenzhen Xuner Technology Development Co., Ltd.
Address of manufacturer:	Room1612-1619, Wanjun Trade Building, NO 21Baoxing Road, Bao'an District Shenzhen, China
Equipment Under Test:	Bluetooth Phone
Tested Model No.:	X02
Trade Name:	/
Supplementary Models No:	/
	Remark: supplementary models are only different in exterior with tested Model and with the same circuit construction
Type of Modulation:	GFSK
Antenna Type:	Integral Antenna
Frequency Band:	2402~2480 MHz
Number of Channels:	79
Channel Separation:	1 MHz
Rated Power:	0.98dBm
Power Supply:	USB 5V

Remark: \* The test data gathered are from the production sample provided by the manufacturer.

## 1.2 Related Submittal(s) / Grant (s)

This submittal(s) is a test report based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 - 2003.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15C 15.207, 15.209, 15.247 and DA 00-705.

## 1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 - 2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. Radiated testing was performed at an antenna to EUT distance 3 meters.

## **1.4 Test Facility**

All measurement required was performed at laboratory of Shenzhen BCT Technology Co., Ltd. at 6F, Yantian Business Building, Bao'an Road, Bao'an District, Shenzhen, P.R.China.

The test facility is recognized, certified, or accredited by the following organizations:

### **FCC – Registration No.: 539135**

Shenzhen BCT Technology Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 539135, June, 2010

The facility also complies with the radiated and AC line conducted test site criteria set forth in CISPR 16-1: 2006, CISPR16-2: 2006.

## **2. TEST METHODOLOGY**

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR PART 15C 15.207, 15.209, 15.247 and DA 00-705

### **2.1 EUT Configuration**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

### **2.2 EUT Exercise**

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

### **2.3 General Test Procedures**

#### **2.3.1 Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

#### **2.3.2 Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4

## 2.4 Description Of Test Modes

The EUT has been tested under operating condition.

This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only.

Then, the worst case is FHSS Channel Low (2402MHz), Mid (2441MHz) and High (2480MHz), these were chosen for full testing.

## 2.5 List of Measuring Equipments Used

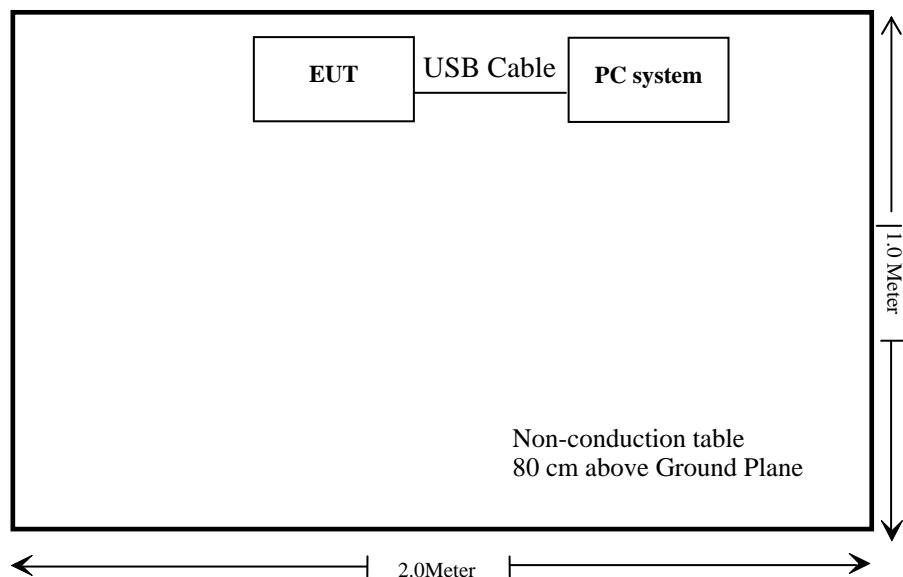
Items	Equipment	Manufacturer	Model No.	Serial No.	Last Cal	Cal. Period
1	EMI Test Receiver	ROHDE & SCHWARZ	ESI 26	100079	11/05/2011	1 year
2	Horn Antenna	R/S	CH14-H052	1091698	11/05/2011	1 year
3	3m Semi- Anechoic Chamber	ETS	N/A	N/A	11/05/2011	1 year
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100038	11/05/2011	1 year
2	EMI Test Receiver	ROHDE & SCHWARZ	ESI 26	100009	11/05/2011	1 year
3	Receiver/ Spectrum Analyzer	ROHDE & SCHWARZ	ESCI	100106	11/05/2011	1 year
4	Spectrum Analyzer	Agilent	E7405A	US41160415	11/05/2011	1 year
5	Artificial Mains	ROHDE & SCHWARZ	ESH2-Z5	100028	11/05/2011	1 year
6	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100044	11/05/2011	1 year
7	LISN	COM Power	LI-200	12212	11/05/2011	1 year
8	LISN	COM Power	LI-200	12019	11/05/2011	1 year
9	3m/5m Semi- Anechoic Chamber	ETS	N/A	N/A	11/05/2011	1 year
10	Ultra-Broadband Antenna	R/S	HL562	100015	11/05/2011	1 year
11	Horn Antenna	R/S	HF906	100039	11/05/2011	1 year
12	RF Test Panel	R/S	TS / RSP	335015/ 0017	N/A	N/A
13	Turntable	ETS	2088	2149	N/A	N/A
14	Antenna Mast	ETS	2075	2346	N/A	N/A

## 2.6 List of supporting Equipments Used

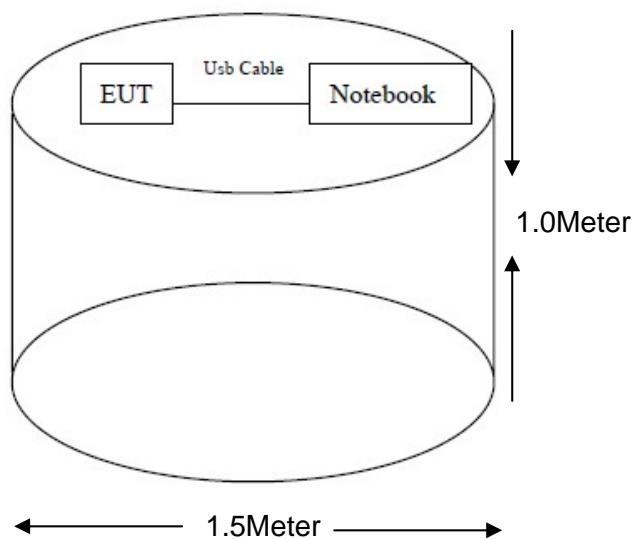
Items	Equipment	Manufacturer	Model No.	Serial No.	Last Cal	Cal. Period
<hr/>						
1	PC System	Dell	Inspiron 570	230064	11/05/2011	1 year
2	Notbook	Acer	4533	94516718616	11/05/2011	1 year

## 3. Connection Diagram of Test System

Below 1GHz



Above 1GHz



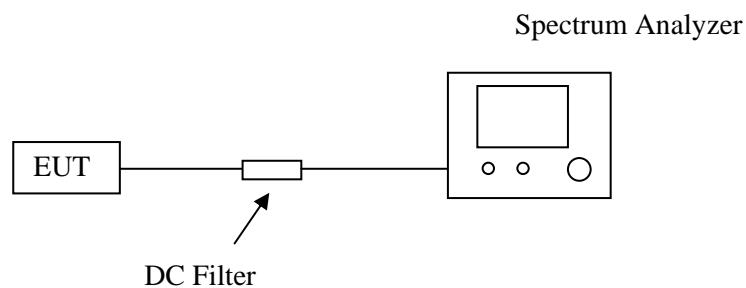
## 4. FCC PART 15.247 REQUIREMENTS

### 4.1 Peak Power

#### 4.1.1 Test Equipment

Please reference 2.5

#### 4.1.2 Block Diagram of Test Setup



#### 4.1.3 Limit

According to §15.247 and DA 00-705

#### 4.1.4 Test Procedure

The transmitter output is connected to the Power Meter or spectrum analyzer.

#### 4.1.5 Test Results

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Limit (mW)	Result
Low	2402	0.98	1.25	125	Pass
Mid	2441	0.21	1.05	125	Pass
High	2480	0.20	1.05	125	Pass

## 4.2 Band Edges Measurement

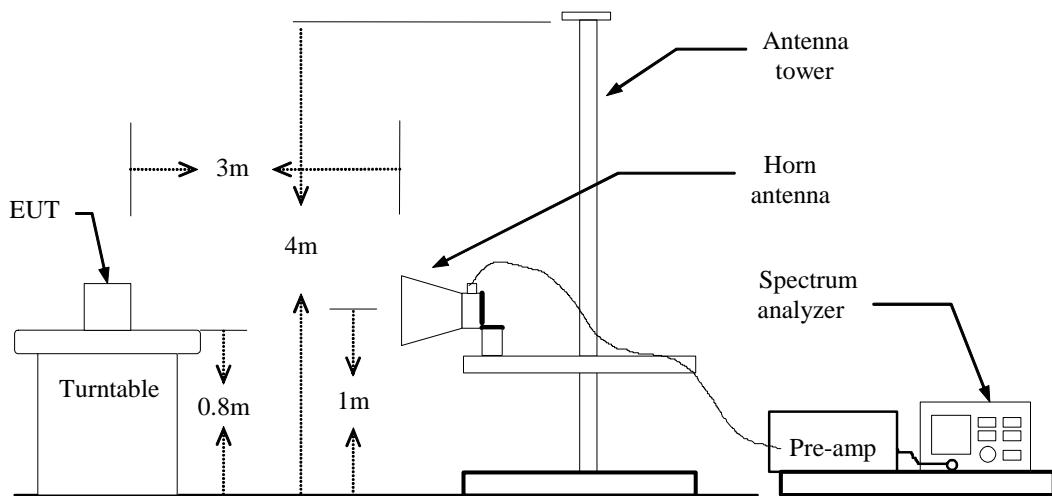
### 4.2.1 Limit

According to §15.247 and DA 00-705

#### 4.2.2 Test Equipment

Please reference 2.5

#### 4.2.3 Block Diagram of Test Setup



#### 4.2.4 Test Procedure

According to §15.247 and DA 00-705

#### 4.2.5 Test Results

##### CH Low

Frequency (MHz)	Ant Pol H/V	PK Value (dBuV)	Ave Value (dBuV)	PK Limit (dBuV)	Ave Limit (dBuV)	PK Margin (dB)	Ave Margin (dB)
2390.00	V	43.19	33.27	74.00	54.00	30.81	20.73
2390.00	H	43.22	33.56	74.00	54.00	30.78	20.44

##### CH High

Frequency (MHz)	Ant Pol H/V	PK Value (dBuV)	Ave Value (dBuV)	PK Limit (dBuV)	Ave Limit (dBuV)	PK Margin (dB)	Ave Margin (dB)
2483.50	V	42.38	33.48	74.00	54.00	31.62	20.52
2483.50	H	43.15	33.62	74.00	54.00	30.85	20.38

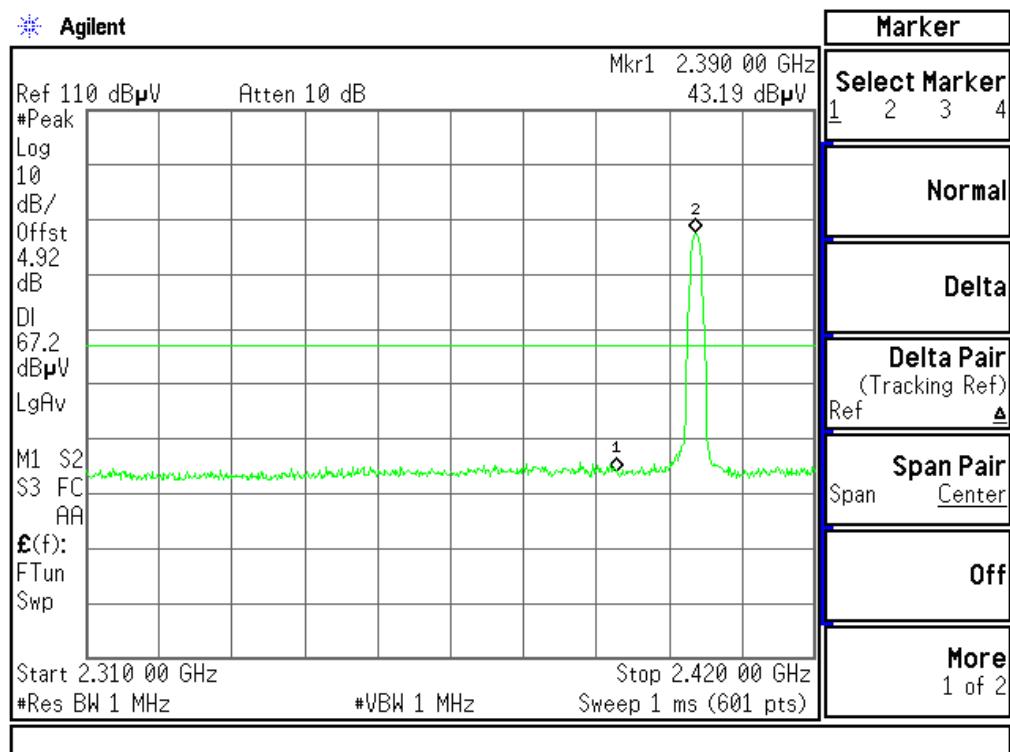
\* The test data graph please refer to the following page.

Note : The attenuate 20 below fundamental level is less then FCC 15.209 limit, the attenuate 20 below fundamental level is marked in the test data graph.

#### Band Edges (CH 2402MHz)

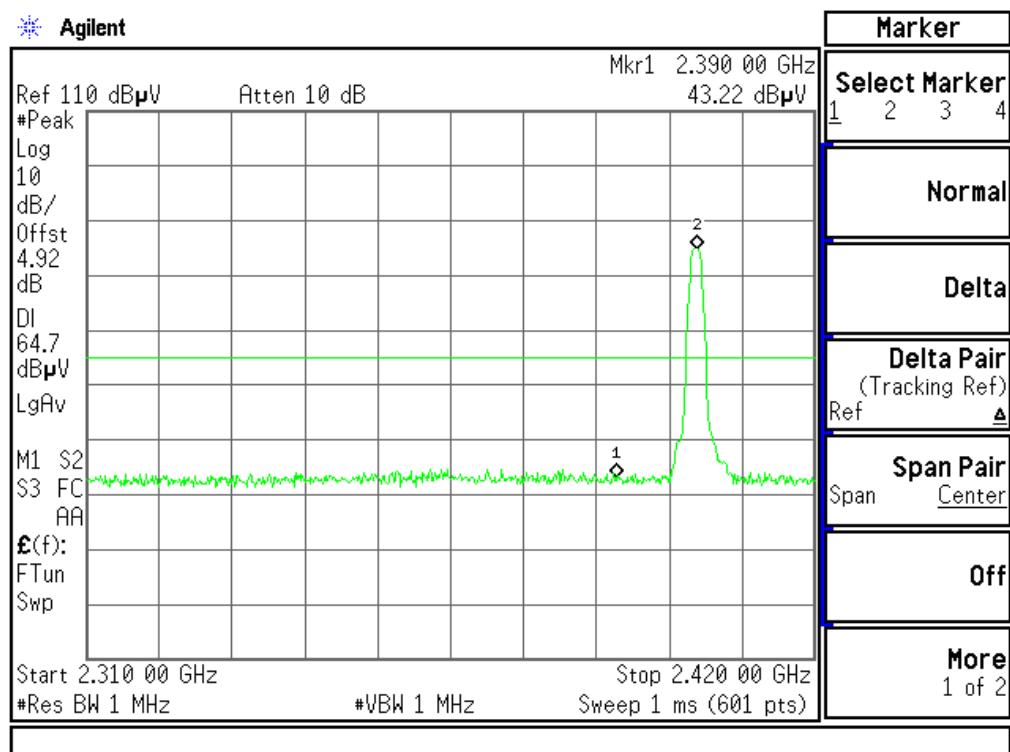
Detector mode: Peak

Polarity: Vertical



Detector mode: Peak

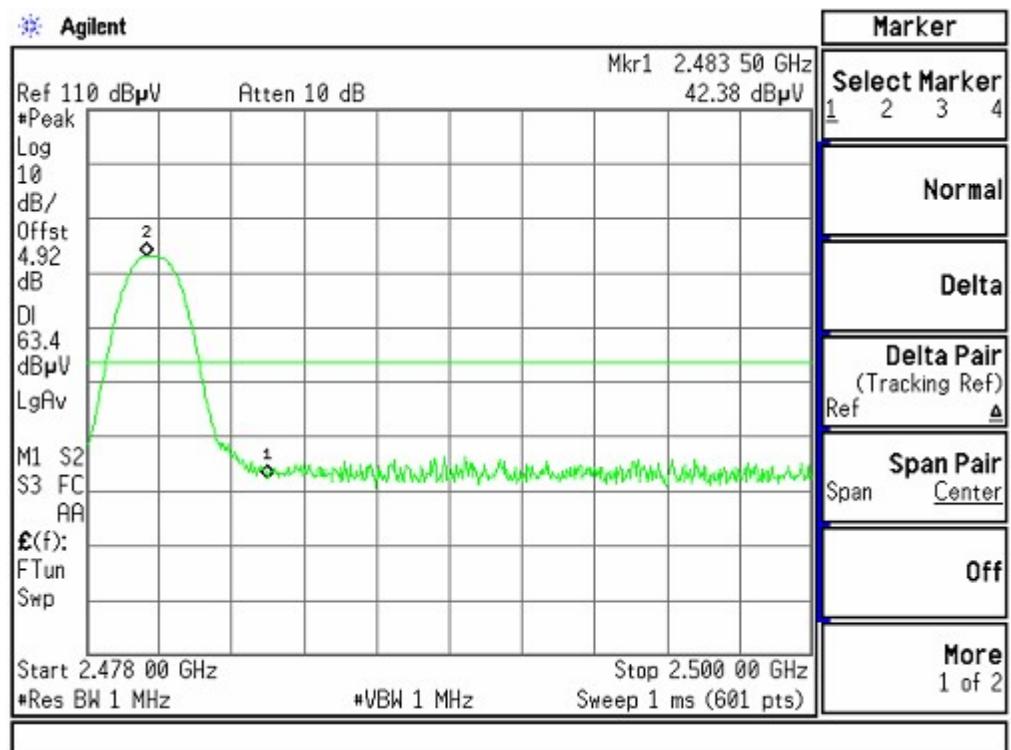
Polarity: Horizontal



### Band Edges (CH 2480.0MHz)

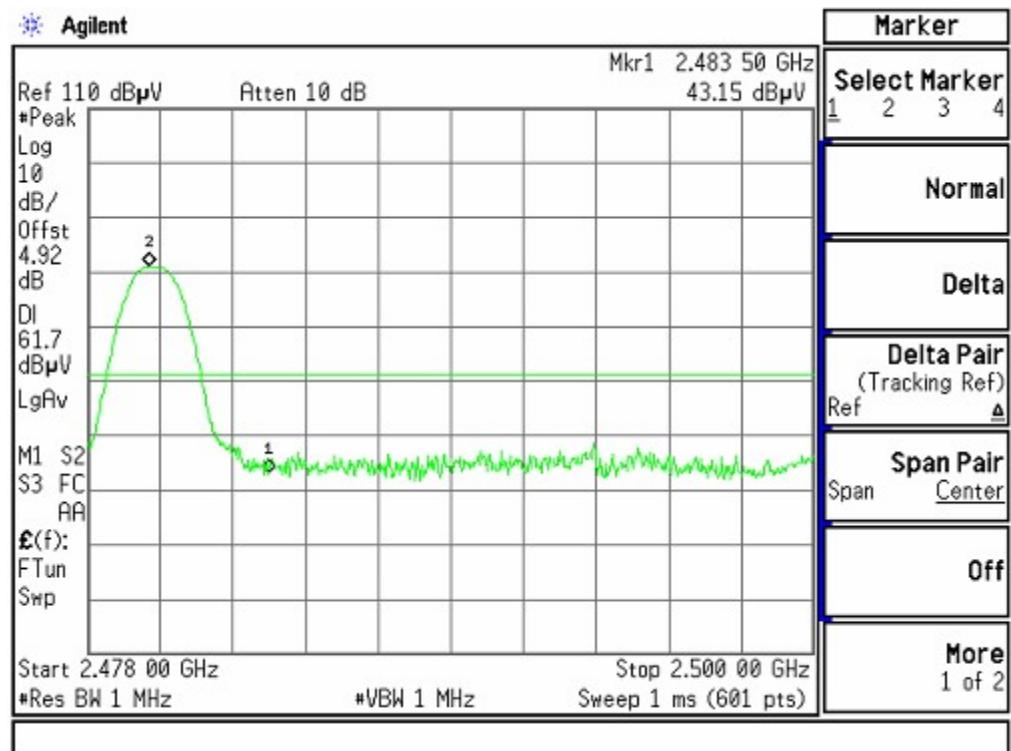
Detector mode: Peak

Polarity: Vertical



Detector mode: Peak

Polarity: Horizontal



## 4.3 Frequency Separation

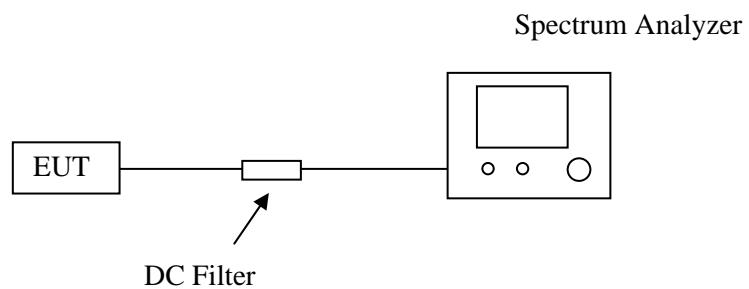
### 4.3.1 Limit

According to §15.247 and DA 00-705

### 4.3.2 Test Equipment

Please reference 2.5

### 4.3.3 Block Diagram of Test Setup



### 4.3.4 Test Procedure

According to §15.247 and DA 00-705

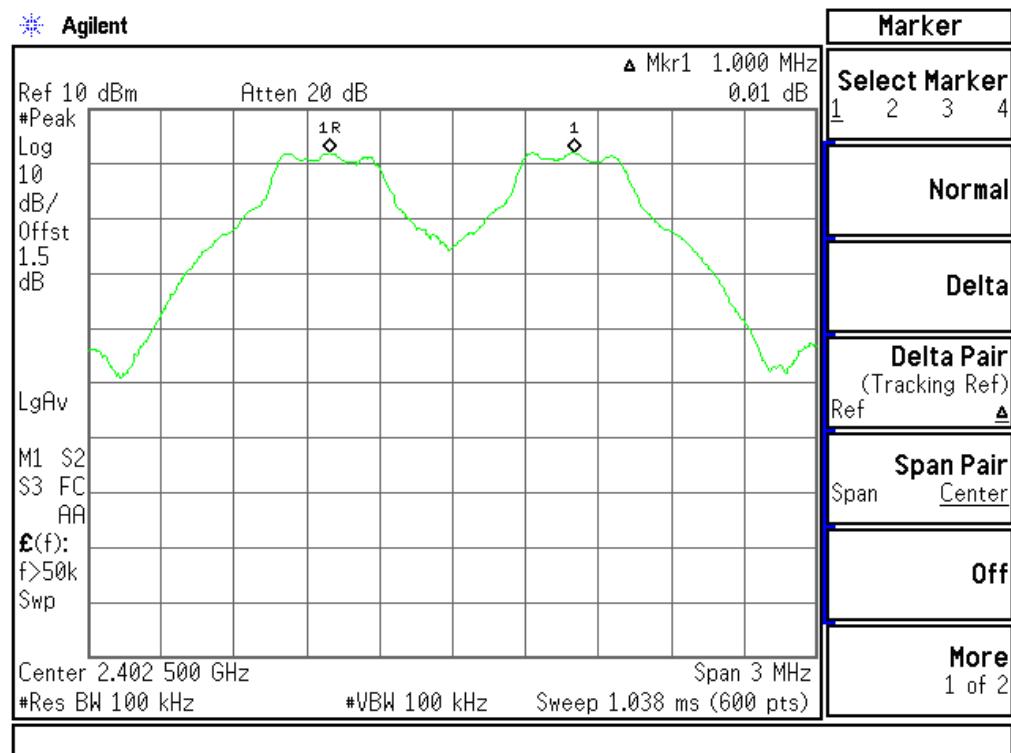
### 4.3.5 Test Results

Channel Separation (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Result
1.000	942.569	>628.38	Pass

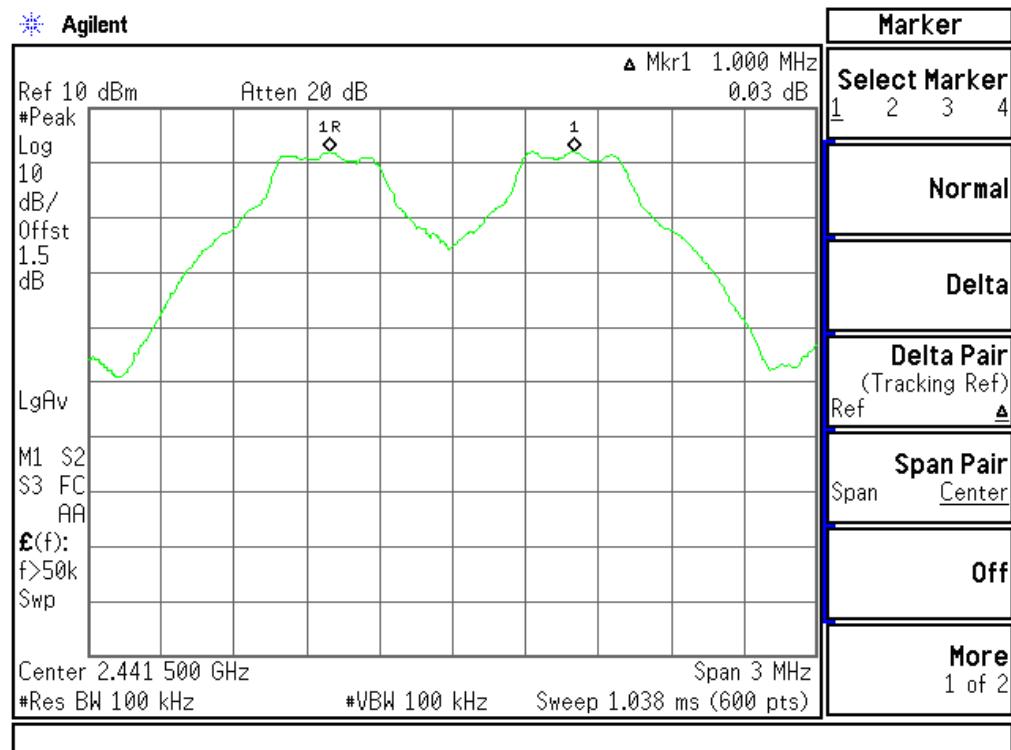
*The test data graph please refer to the following page.*

## Measurement of Channel Separation

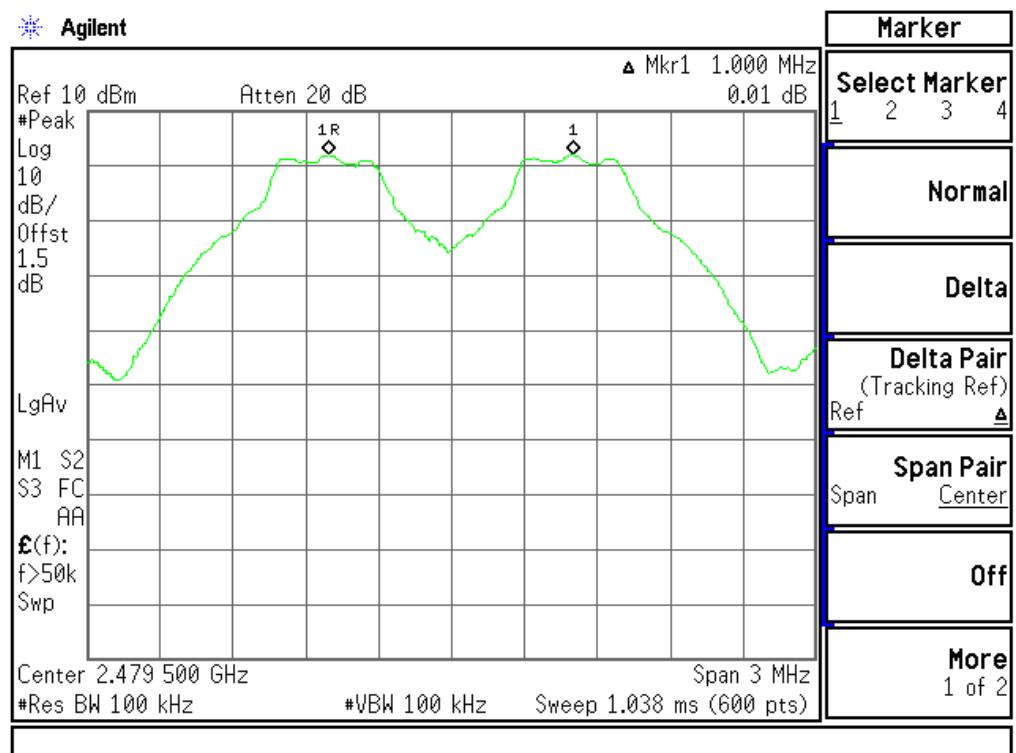
Test Channel: 2402MHz



Test Channel: 2441MHz

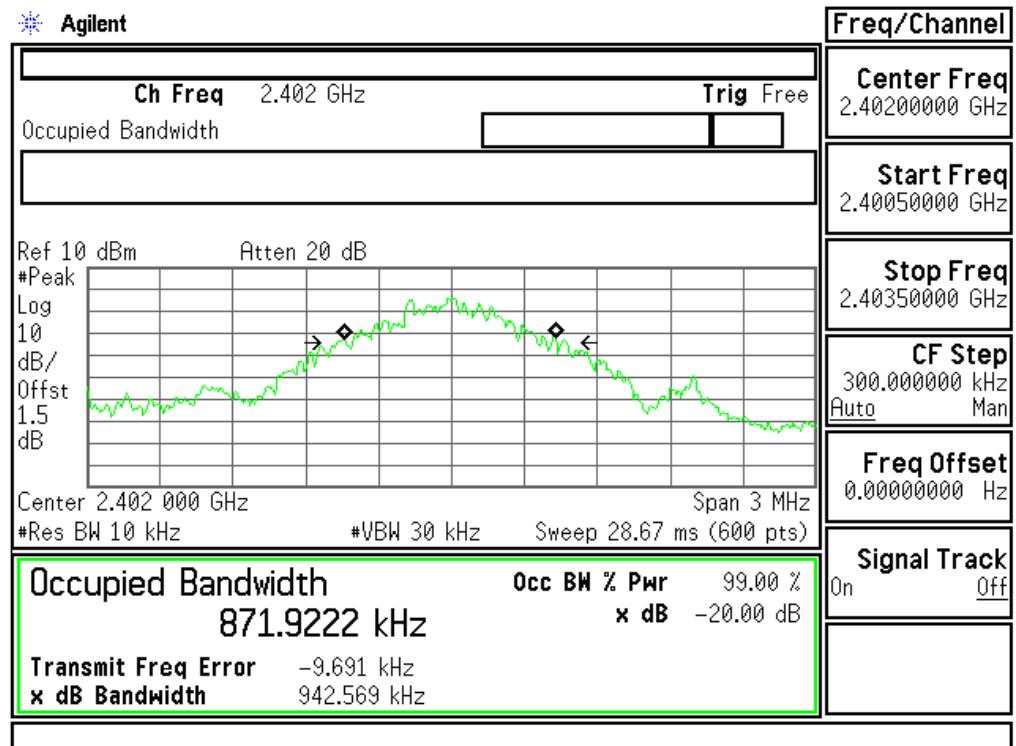


Test Channel: 2480MHz

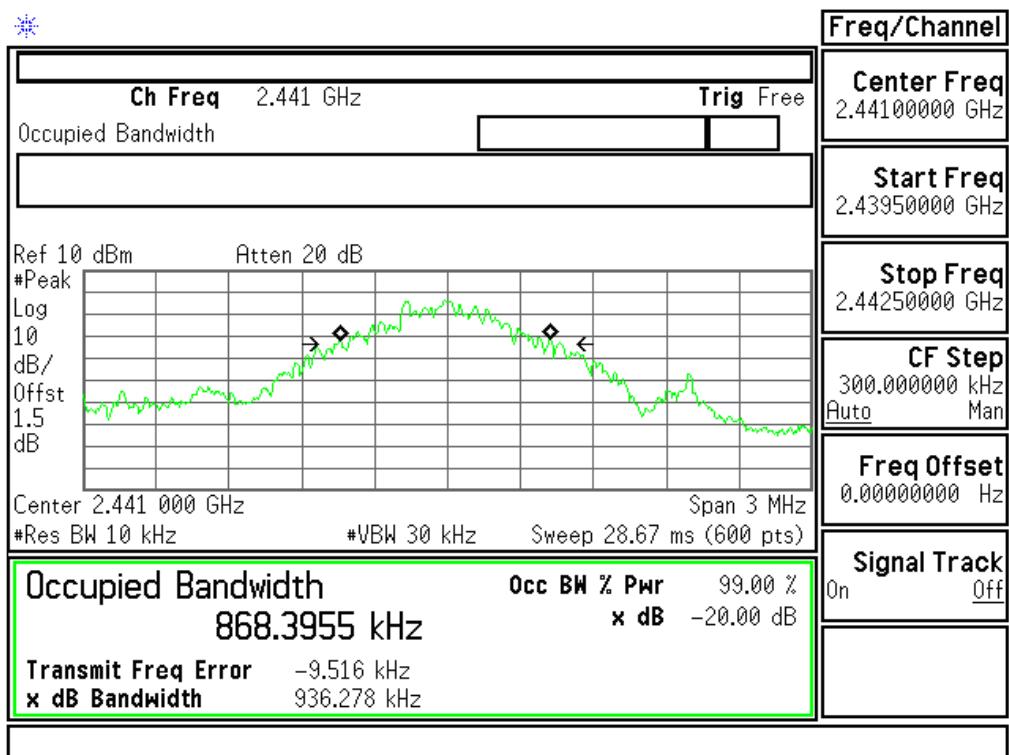


### Measurement of 20dB Bandwidth

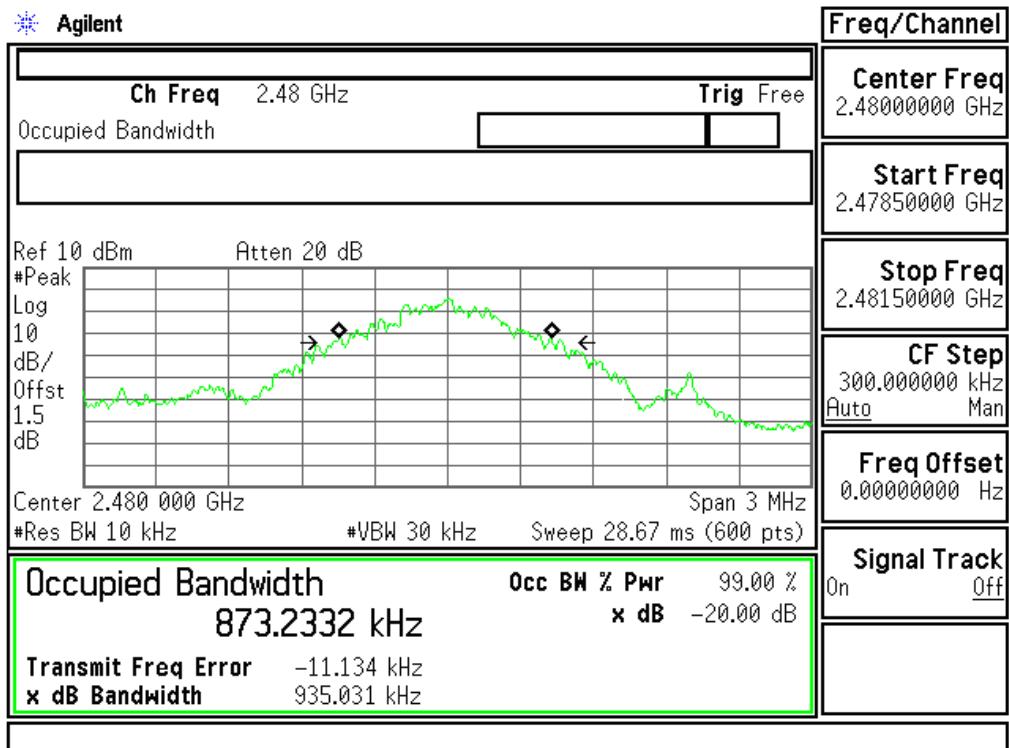
Test Channel: 2402MHz



Test Channel: 2441MHz



Test Channel: 2480MHz



## 4.4 Number Of Hopping Frequency

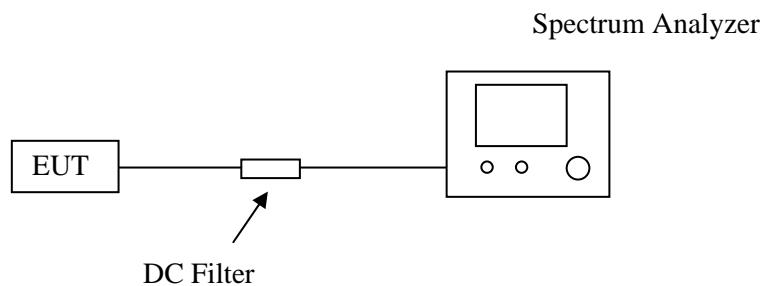
### 4.4.1 Limit

According to § 15.247(a)(1)(ii), Frequency hopping systems operating in the 2400MHz- 2483.5 MHz bands shall use at least 75 hopping frequencies.

### 4.4.2 Test Equipment

Please reference 2.5

### 4.4.3 Block Diagram of Test Setup



### 4.4.4 Test Procedure

According to §15.247 and DA 00-705

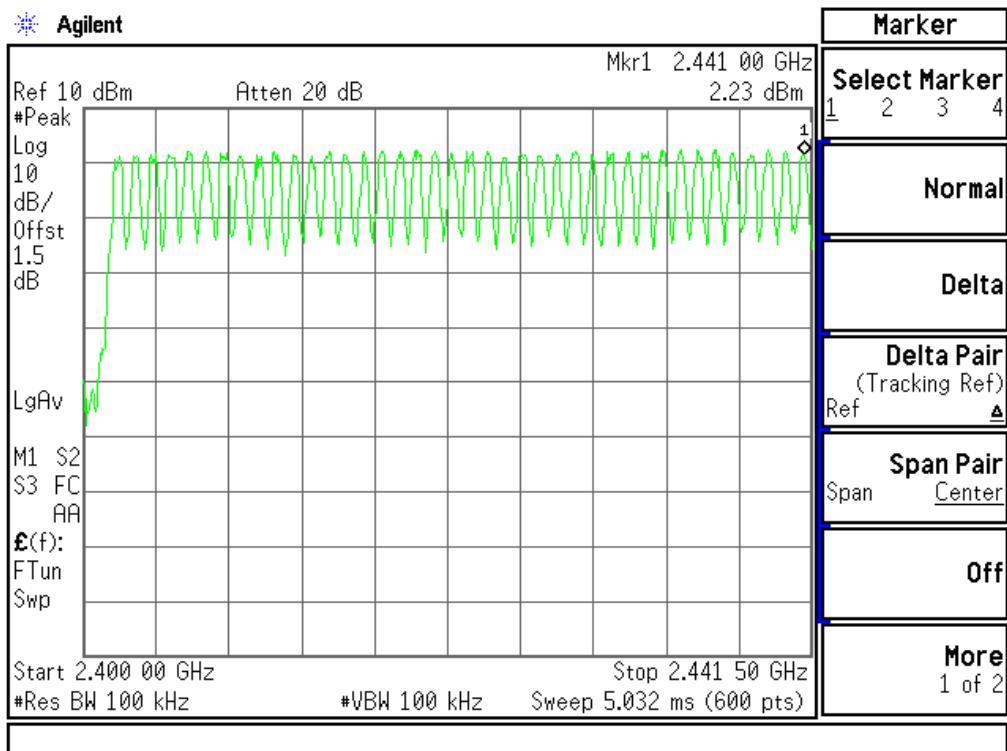
### 4.4.5 Test Results

Result (No. of CH)	Limit (No. of CH)	Result
79	>75	PASS

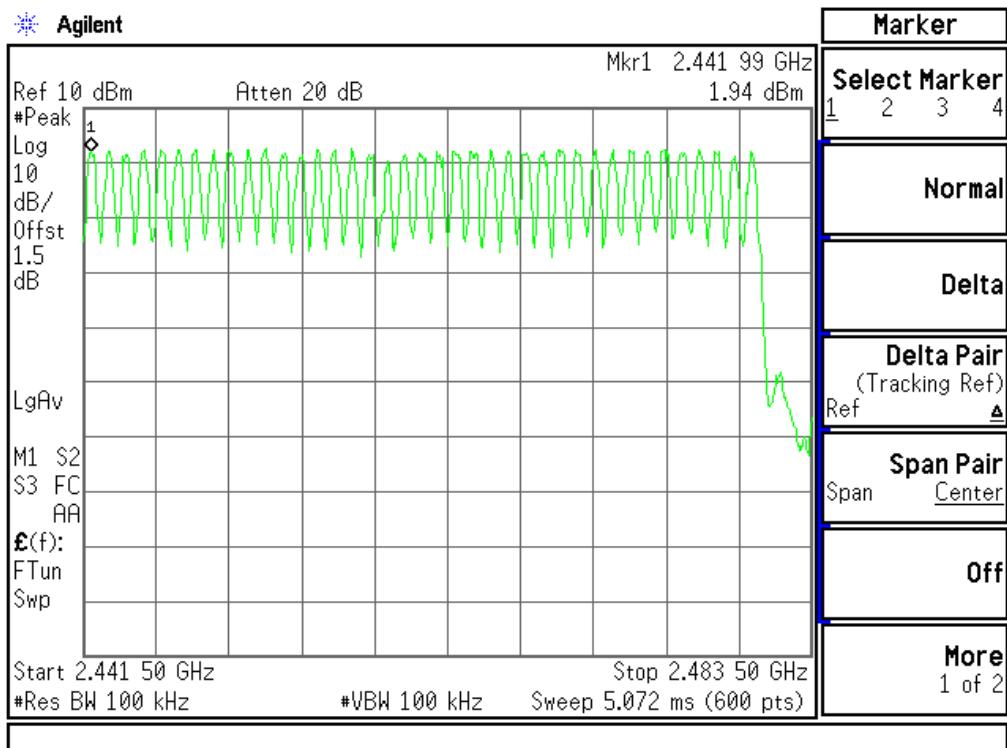
*The test data graph please refer to the following page.*

## Channel Number

2.4 GHz – 2.4415 GHz



2.4415 GHz – 2.4835 GHz



## 4.5 Time Of Occupancy (Dwell Time)

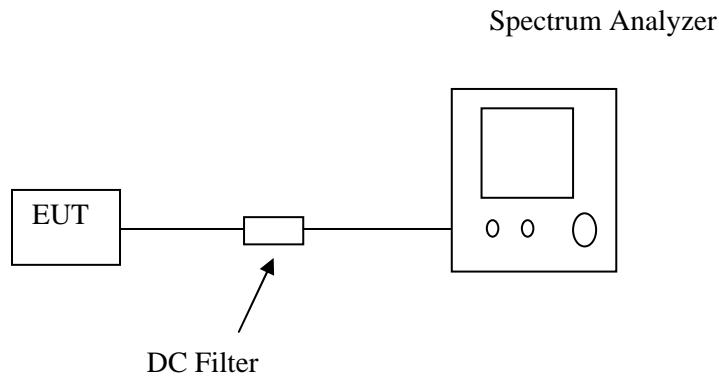
### 4.5.1 Limit

According to §15.247 and DA 00-705

### 4.5.2 Test Equipment

Please reference 2.5

### 4.5.3 Block Diagram of Test Setup



### 4.5.4 Test Procedure

According to §15.247 and DA 00-705

### 4.5.5 Test Results

#### DH 1

$$0.400 * (1600/2)/79 * 31.6 = 128.00 \text{ (ms)}$$

#### DH 3

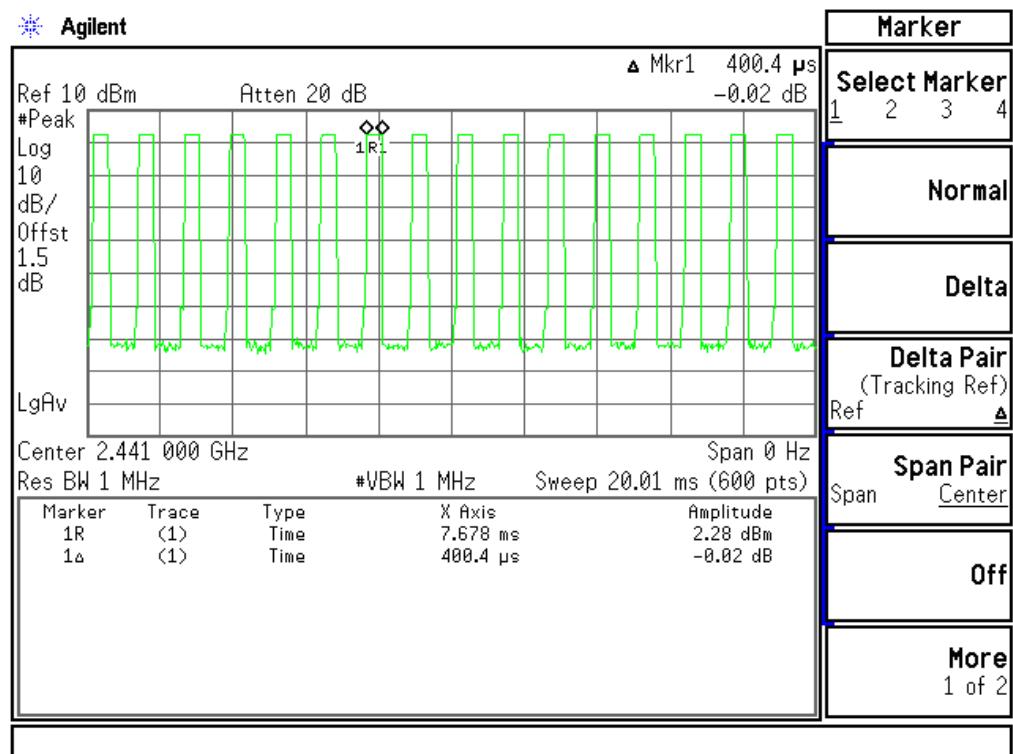
$$1.64 * (1600/4)/79 * 31.6 = 262.40 \text{ (ms)}$$

#### DH 5

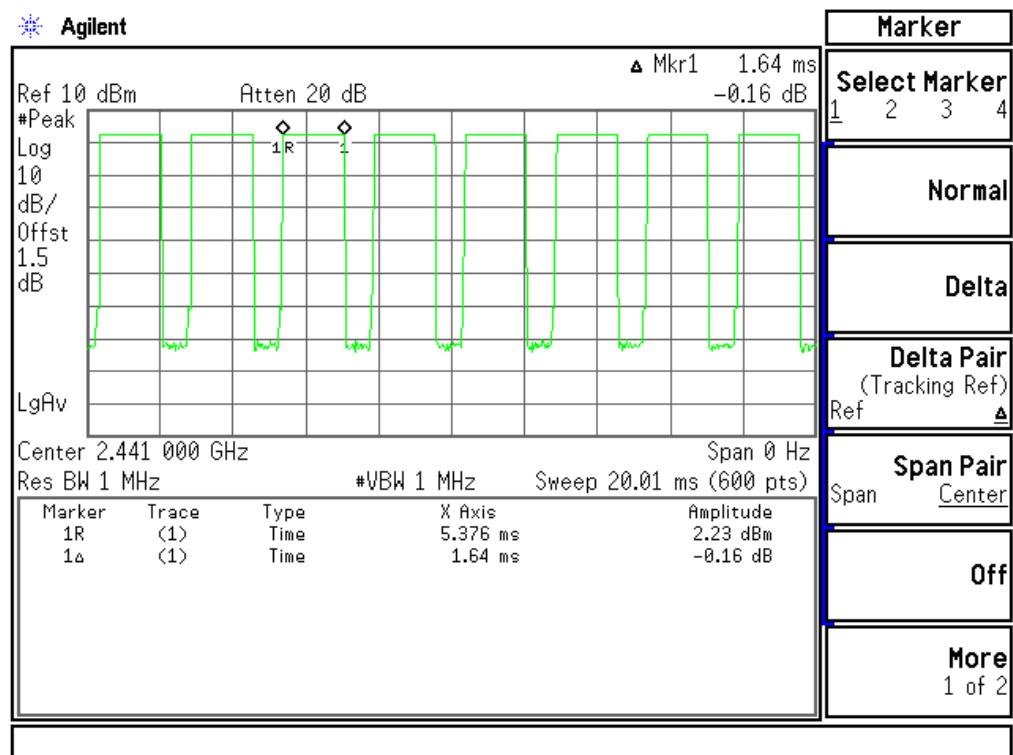
$$2.932 * (1600/6)/79 * 31.6 = 312.77 \text{ (ms)}$$

*The test data graph please refer to the following:*

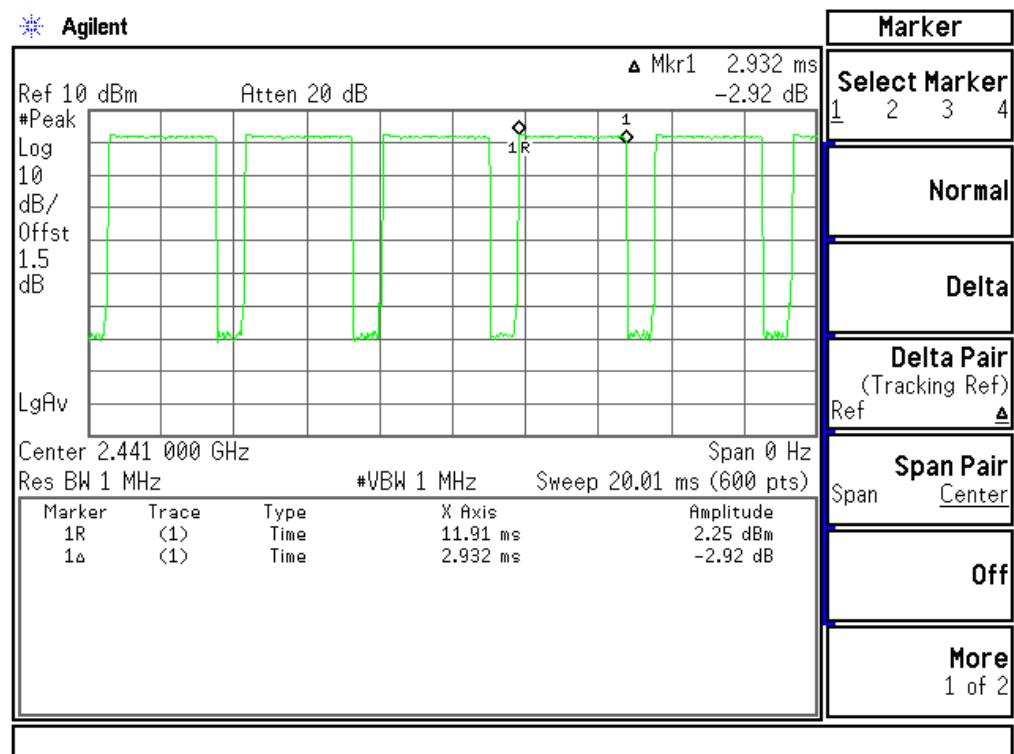
## Middle Channel For DH1



## Middle Channel For DH3



## Middle Channel For DH5



## 4.6 Spurious Emissions

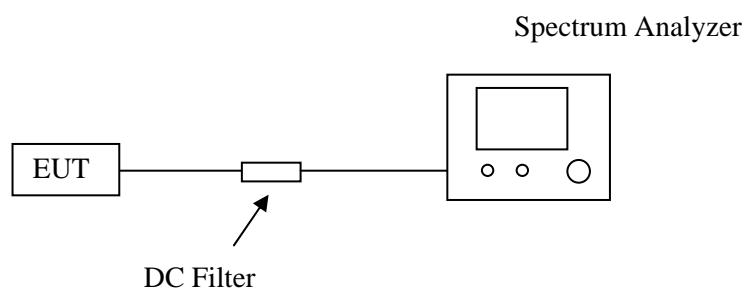
### 4.6.1 Limit

According to §15.247 and DA 00-705

### 4.6.2 Test Equipment

Please reference 2.5

### 4.6.3 Block Diagram of Test Setup



### 4.6.4 Test Procedure

According to §15.247 and DA 00-705

Measurements are made over the 9kHz to 26.5GHz range with the transmitter set to the lowest, middle, and highest channels. No emission found between lowest internal used/generated frequency to 30 MHz.

### 4.6.5 Test Results

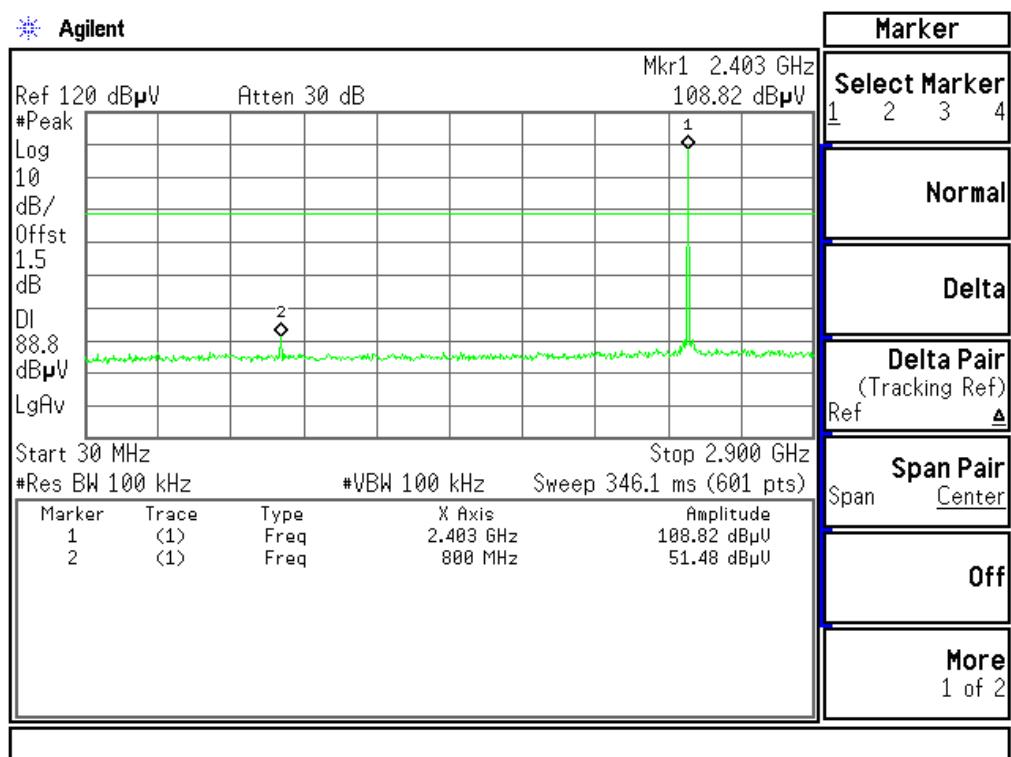
*No non-compliance noted*

*The test data graph please refer to the following page.*

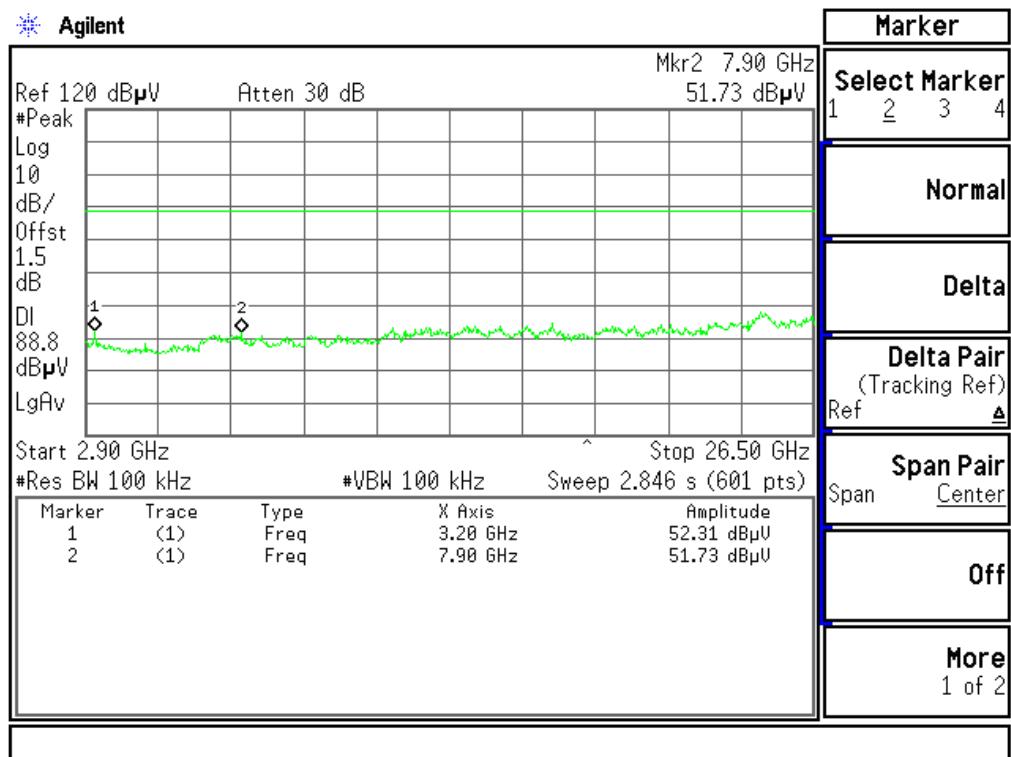
## Test Plot

### Test Channel 2402MHz

30MHz ~ 2.9GHz

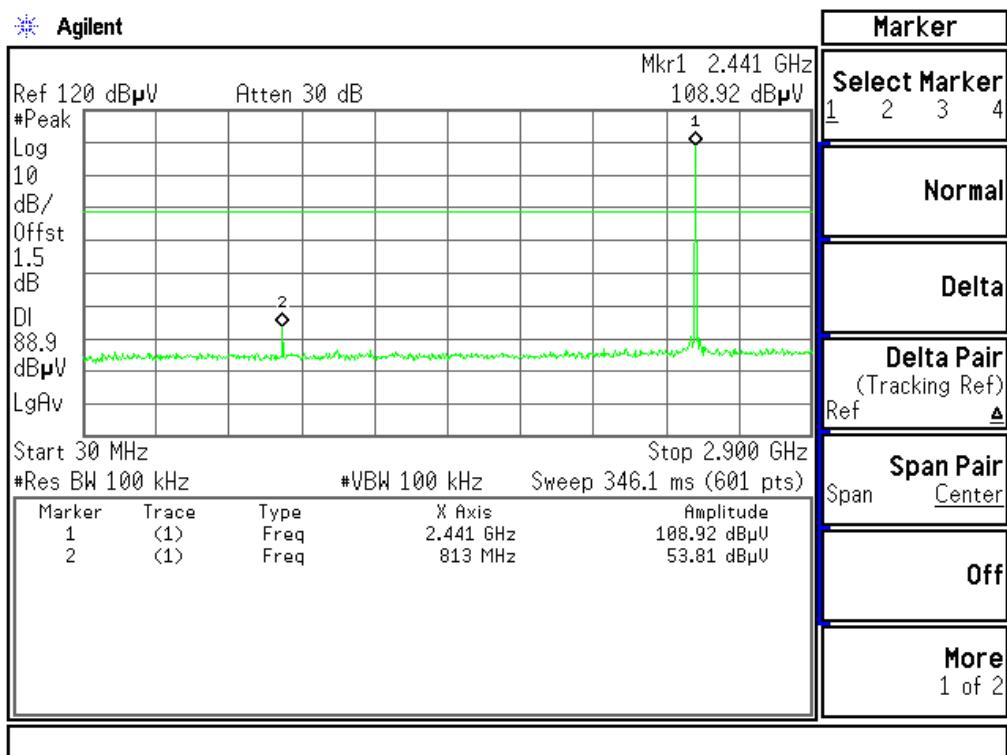


2.9GHz ~ 26.5GHz

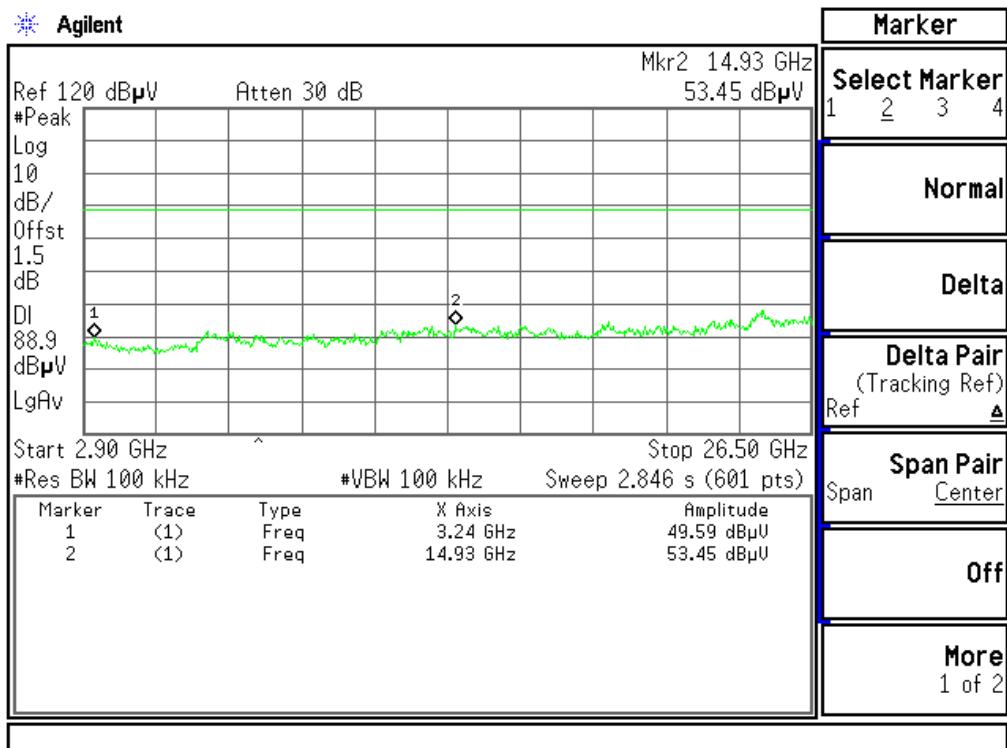


## Test Channel 2441.00MHz

30MHz ~ 2.9GHz

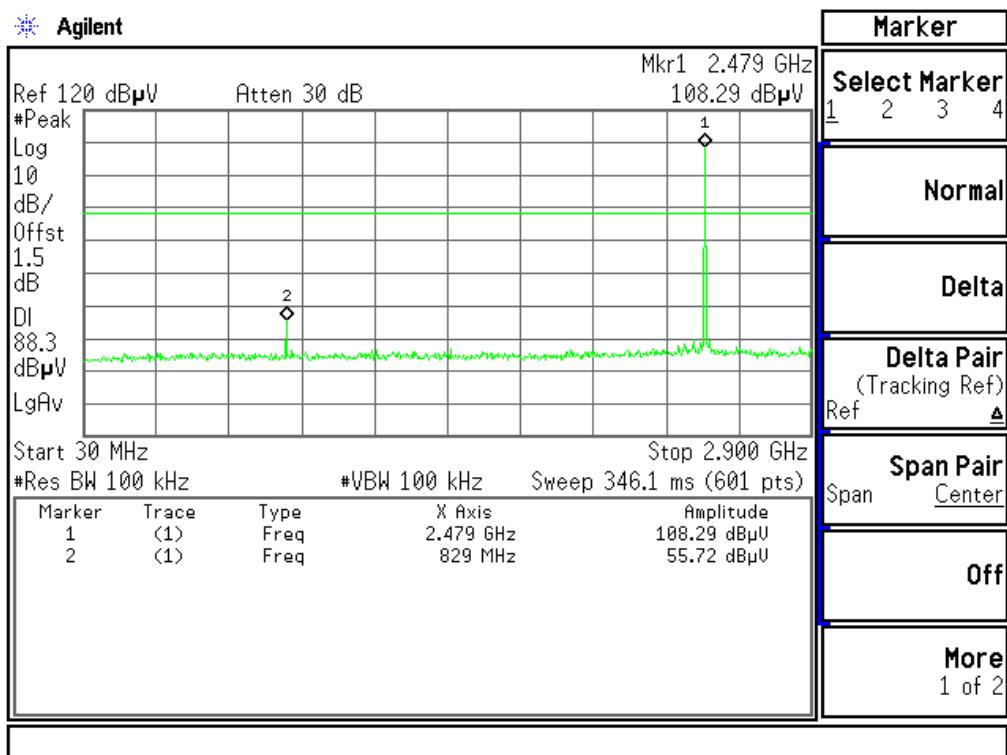


2.9GHz ~ 26.5GHz

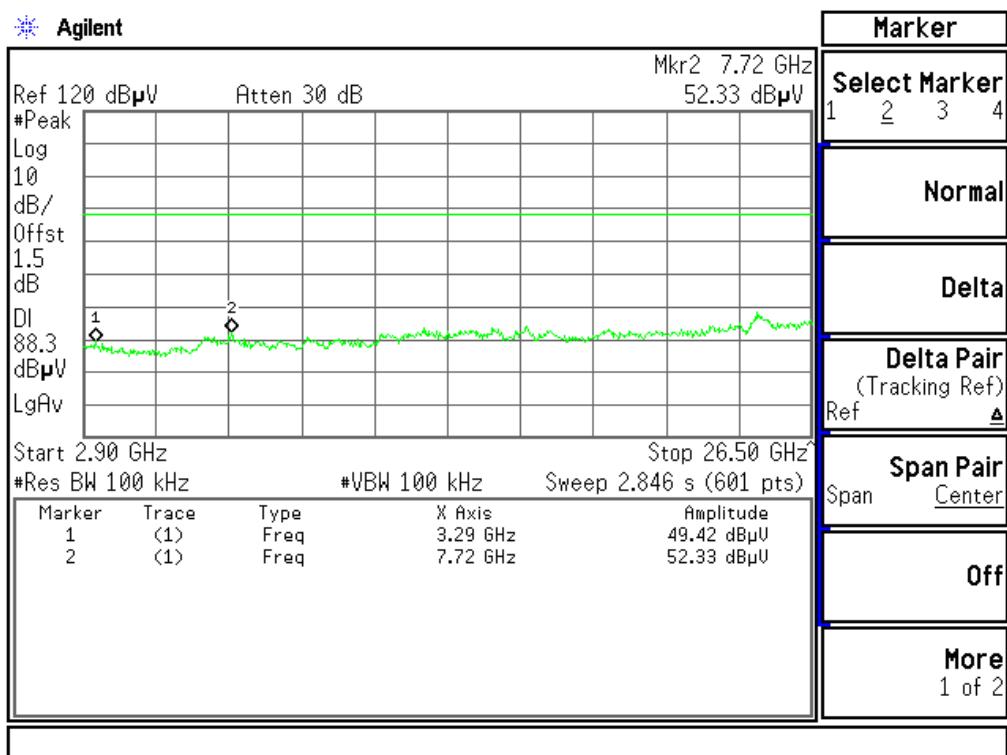


## Test Channel 2480.00MHz

30MHz ~ 2.9GHz



2.9GHz ~ 26.5GHz

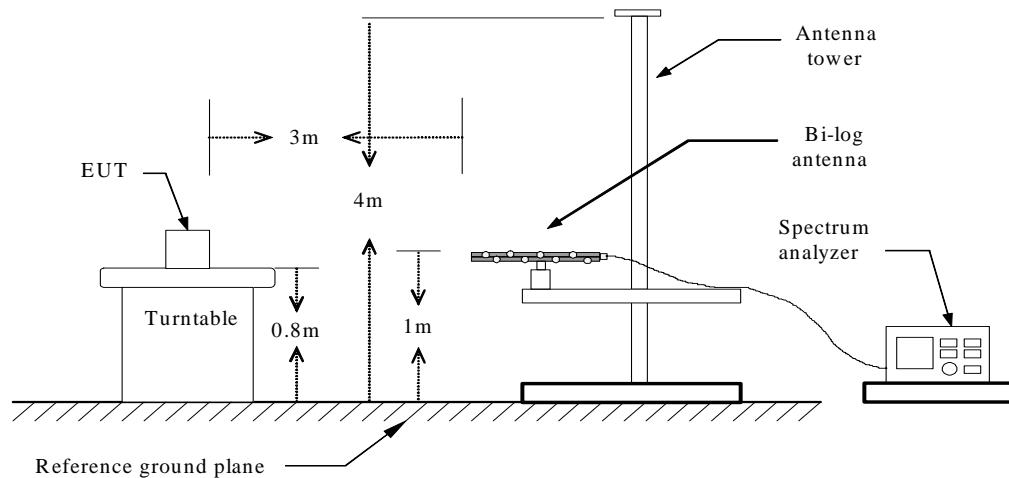


## 5. Radiated emission Measurement

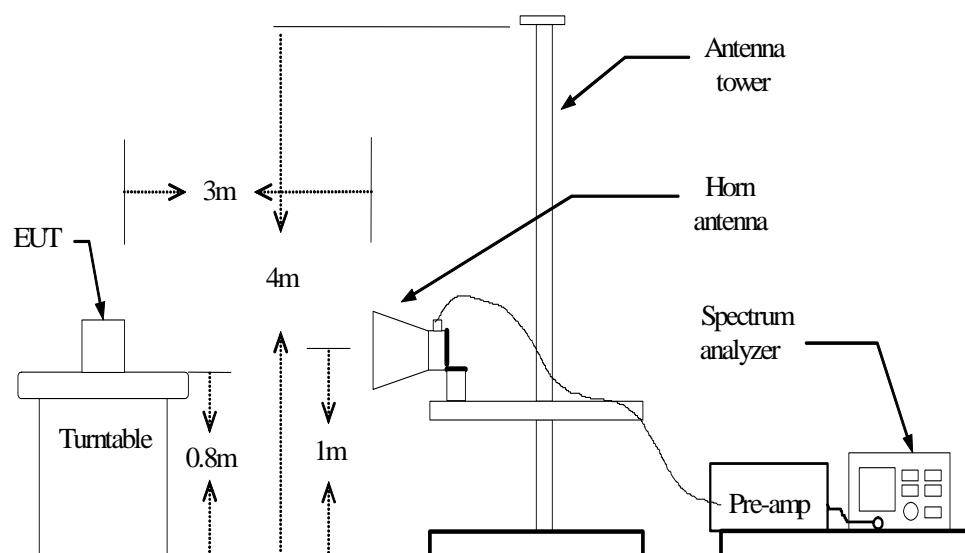
### 5.1 Test Equipment

Please reference 2.5

### 5.2 Block Diagram of Test Setup



**Below 1 GHz**



**Above 1 GHz**

### 5.3 Radiated Emission Limit

15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
\1\ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293.	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

\1\ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

\2\ Above 38.6

Part 15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector.

Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

Part 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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

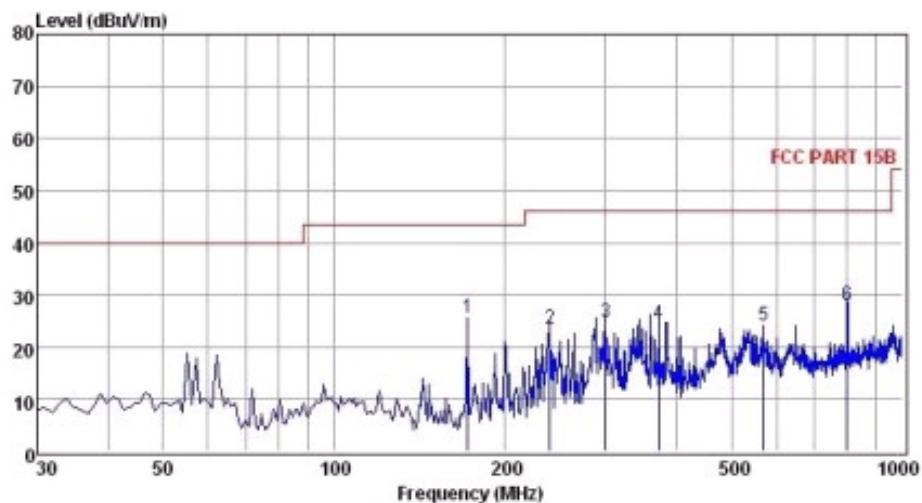
### 5.4 Test Results

**PASS.**

*The test data please refer to following page.*

## Below 1GHz

### HORIZONTAL:



Site no. : 3m Chamber M/N : X02  
Limit : FCC PART 15 C (3M) Ant. pol. : HORIZONTAL  
Env. / Ins. : 24°C/56% Engineer : Willis  
EUT : 2.4GHz Bluetooth

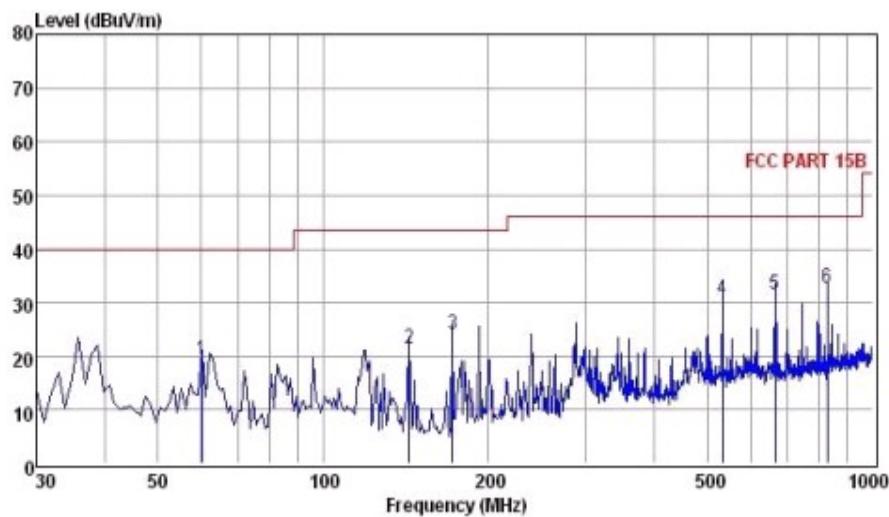
Freq.	Reading	CabLoss	AntFac	PreFac	Measured	Limit	Over	Remark
MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1 171.62	45.86	0.91	9.09	30.20	25.66	43.50	-17.84	QP
2 239.52	40.47	1.01	12.07	30.18	23.37	46.00	-22.63	QP
3 300.63	40.53	1.13	13.07	30.15	24.58	46.00	-21.42	QP
4 372.41	38.76	1.20	14.53	30.11	24.38	46.00	-21.62	QP
5 569.32	34.78	1.43	17.88	30.02	24.07	46.00	-21.93	QP
6 800.18	36.24	1.68	20.06	30.10	27.88	46.00	-18.12	QP

Note: 1. All readings are Quasi-peak values.

2. Measured = Reading + Antenna Factor + Cable Loss - Amp Factor.

3. The emission levels that are 20dB below the official limit are not reported.

**VERTICAL:**

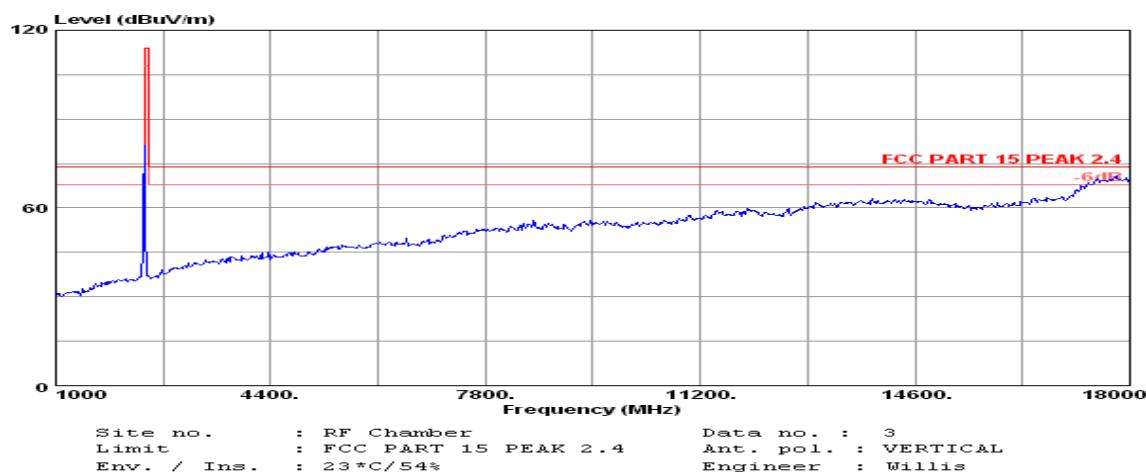
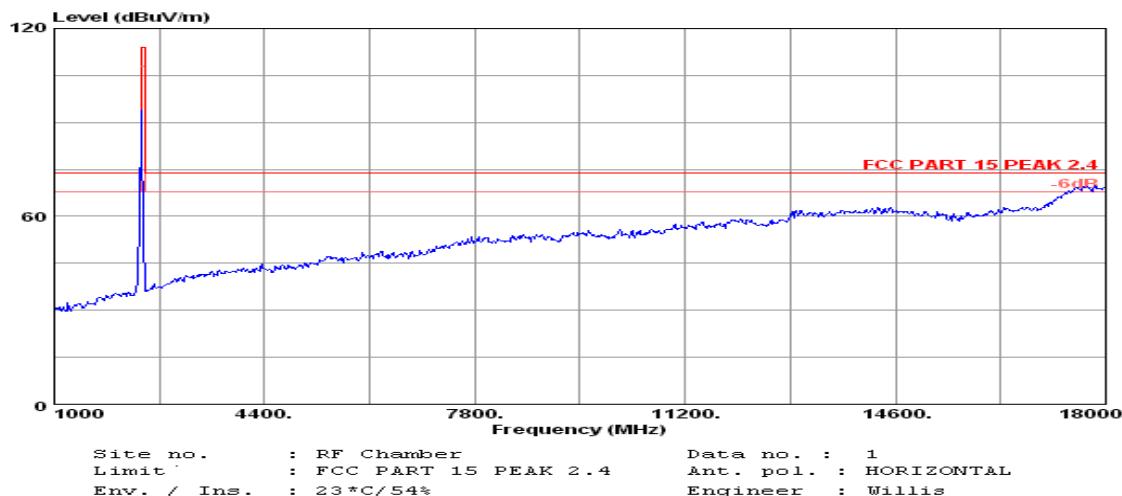


Site no.	: 3m Chamber			M/N	: X01			
Limit	: FCC PART 15 C (3M)			Ant. pol.	: VERTICAL			
Env. / Ins.	: 24°C/56%			Engineer	: Willis			
EUT	: 2.4GHz Bluetooth							
Freq.	Reading	CabLoss	AntFac	PreFac	Measured	Limit	Over	Remark
MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1 60.07	36.22	0.49	12.66	30.16	19.21	40.00	-20.79	QP
2 143.49	42.77	0.71	8.21	30.20	21.49	43.50	-22.01	QP
3 171.62	44.20	0.91	9.09	30.20	24.00	43.50	-19.50	QP
4 532.46	42.20	1.36	17.19	30.03	30.72	46.00	-15.28	QP
5 663.41	41.15	1.67	18.68	30.03	31.47	46.00	-14.53	QP
6 827.34	40.58	1.80	20.34	30.11	32.61	46.00	-13.39	QP

Note: 1. All readings are Quasi-peak values.  
 2. Measured = Reading + Antenna Factor + Cable Loss - Amp Factor.  
 3. The emission levels that are 20dB below the official limit are not reported.

## Test for Above 1GHz

### Test channel 2402.00MHz

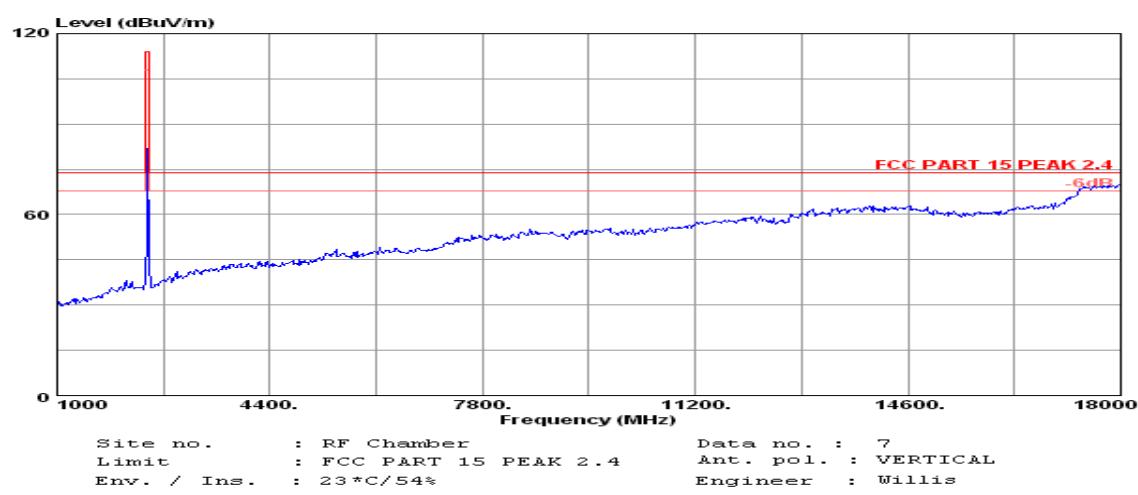
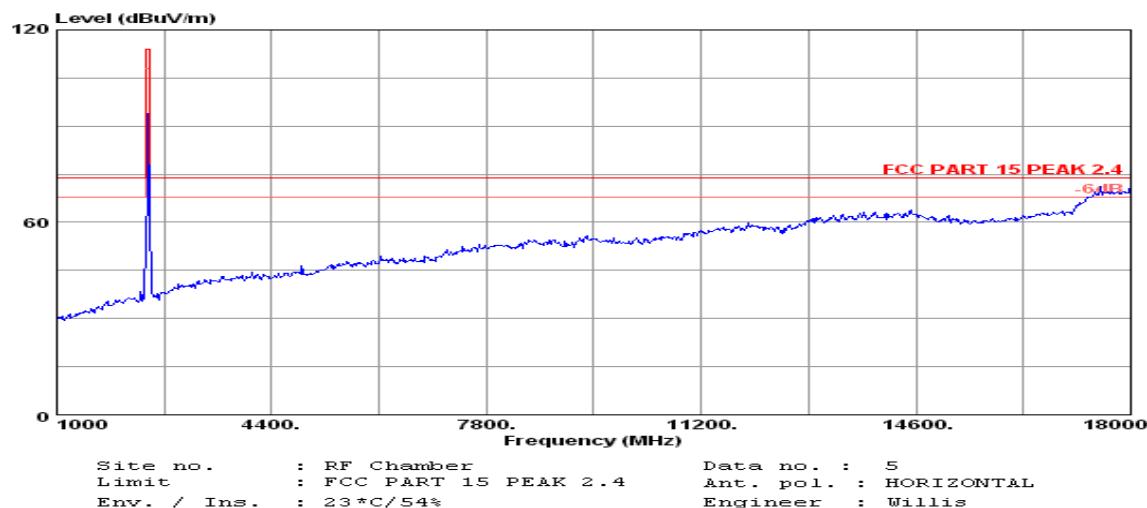


Freq. (MHz)	Level (dBuV/m)	Read Level (dBuV)	Ant. Fac (dB/m)	Pre. Fac (dB)	Cab.Los (dB)	Over limit (dB)	Limits (dBuV/m)	Remark	Pol/Phase
2402.00	96.19	94.74	29.49	36.60	7.54	-17.81	114.00	Peak	Horizontal
2402.00	90.30	89.81	29.49	36.60	7.54	-3.70	94.00	Average	Horizontal
2402.00	87.72	87.29	29.49	36.60	7.54	-27.28	114.00	Peak	Vertical
2402.00	84.99	85.42	29.49	36.60	7.54	-9.01	94.00	Average	Vertical
4804.00	57.89	48.54	34.52	34.95	10.78	-16.11	74.00	Peak	Vertical
4804.00	40.08	29.73	34.52	34.95	10.78	-13.92	54.00	Average	Vertical

#### Notes:

1. Measuring frequencies from 9k~10th harmonic (ex. 26GHz), No emission found between lowest internal used/generated frequency to 30 MHz.
2. Radiated emissions measured in frequency range from 9k~10th harmonic (ex. 26GHz) were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. No emission be detected above 18GHz.

### Test channel 2441.00MHz

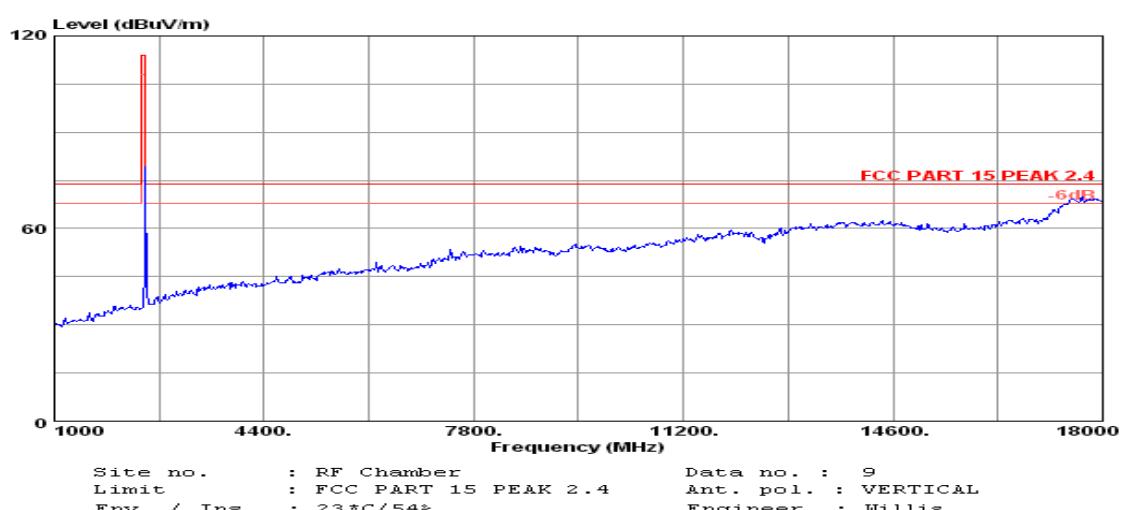
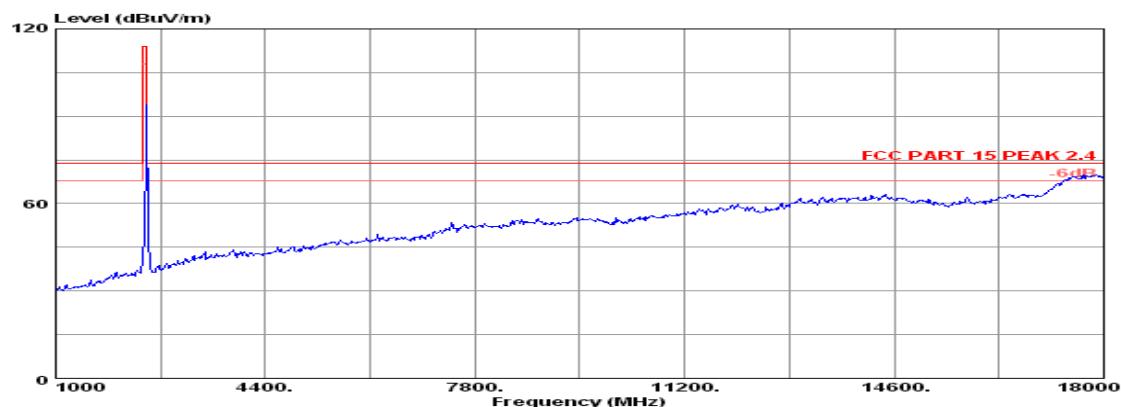


Freq. (MHz)	Level (dBuV/ m)	Read Level (dBuV)	Ant. Fac (dB/m)	Pre. Fac (dB)	Cab.Los (dB)	Over limit (dB)	Limits		
							(dBuV/m)	Remark	Pol/Phase
2441.00	93.80	92.37	29.49	36.60	7.54	-20.20	114.00	Peak	Horizontal
2441.00	90.29	88.86	29.49	36.60	7.54	-3.71	94.00	Average	Horizontal
2441.00	86.26	85.83	29.49	36.60	7.54	-27.74	114.00	Peak	Vertical
2441.00	85.90	87.47	29.49	36.60	7.54	-7.10	94.00	Average	Vertical
4882.00	57.23	46.88	34.52	34.95	10.78	-16.77	74.00	Peak	Vertical
4882.00	37.98	27.63	34.52	34.95	10.78	-16.02	54.00	Average	Vertical

#### **Notes:**

1. Measuring frequencies from 9k~10th harmonic (ex. 26GHz), No emission found between lowest internal used/generated frequency to 30 MHz.
2. Radiated emissions measured in frequency range from 9k~10th harmonic (ex. 26GHz) were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. No emission be detected above 18GHz.

### Test channel 2480.00MHz



Freq. (MHz)	Level (dBuV/m)	Read Level (dBuV)	Ant. Fac (dB/m)	Pre. Fac (dB)	Cab.Los (dB)	Over limit (dB)	Limits (dBuV/m)	Remark	Pol/Phase
2480.00	87.60	91.52	25.10	36.70	7.68	-26.40	114.00	Peak	Horizontal
2480.00	86.05	89.97	25.10	36.70	7.68	-7.95	94.00	Average	Horizontal
2480.00	84.42	83.50	25.10	36.70	7.68	-29.58	114.00	Peak	Vertical
2480.00	82.83	80.91	25.10	36.70	7.68	-11.17	94.00	Average	Vertical
4960.00	55.23	44.81	34.63	35.02	10.81	-18.77	74.00	Peak	Vertical
4960.00	35.71	25.29	34.63	35.02	10.81	-18.29	54.00	Average	Vertical

#### **Notes:**

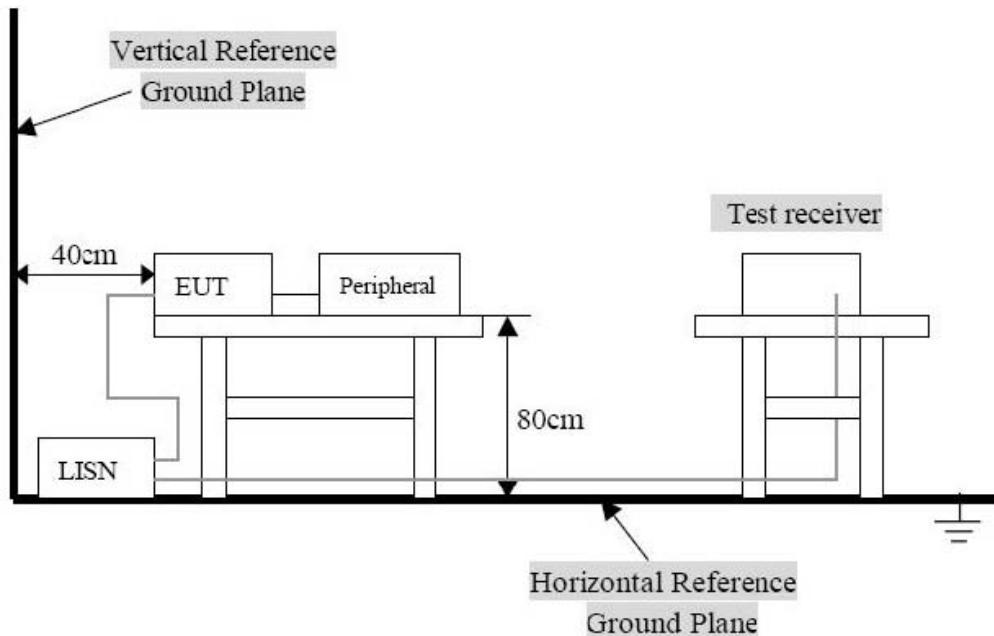
1. Measuring frequencies from 9k~10th harmonic (ex. 26GHz), No emission found between lowest internal used/generated frequency to 30 MHz.
2. Radiated emissions measured in frequency range from 9k~10th harmonic (ex. 26GHz) were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. No emission be detected above 18GHz.

## 6. Power line conducted emissions

### 6.1 Test Equipment

Please reference 2.5

### 6.2 Block Diagram of Test Setup



### 6.3 Conducted Emission Limit

For an intentional radiator which 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 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

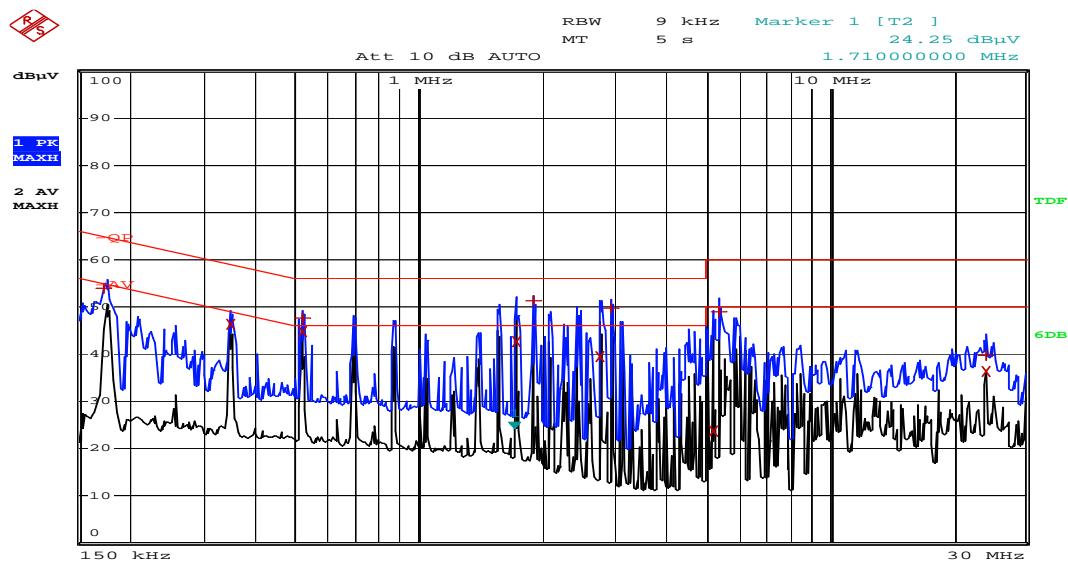
Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

### 6.4 Test Results

**PASS.**

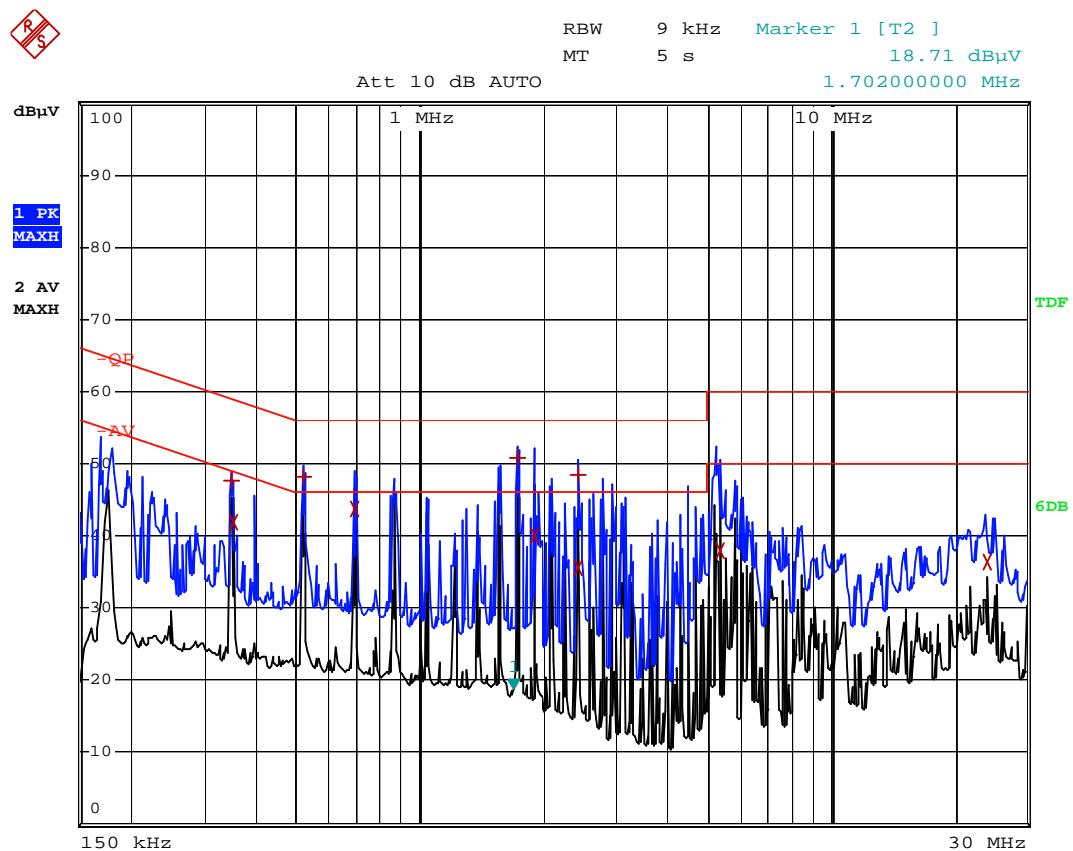
*The test data please refer to following page.*

EUT : Bluetooth Phone  
 M/N : X02  
 Operating Condition : Link PC  
 Operator : Amy  
 Test Specification : AC 120V/60Hz  
 Comment : Line



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	-QP			
Trace2:	-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV	DELTA	LIMIT dB
1	Quasi Peak 174 kHz	53.89		-10.87
2	Average 346 kHz	46.33		-2.72
1	Quasi Peak 522 kHz	47.57		-8.42
2	Average 522 kHz	44.87		-1.13
2	Average 1.73 MHz	42.53		-3.47
1	Quasi Peak 1.902 MHz	51.28		-4.71
2	Average 2.77 MHz	39.54		-6.45
1	Quasi Peak 2.946 MHz	49.83		-6.16
2	Average 5.234 MHz	23.67		-26.32
1	Quasi Peak 5.366 MHz	49.01		-10.98
1	Quasi Peak 23.986 MHz	39.83		-20.16
2	Average 23.986 MHz	36.48		-13.51

EUT : Bluetooth Phone  
 M/N : X02  
 Operating Condition : Link PC  
 Operator : Amy  
 Test Specification : AC 120V/60Hz  
 Comment : Neutral



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	-QP			
Trace2:	-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV	DELTA	LIMIT dB
1 Quasi Peak	346 kHz	47.70	-11.35	
2 Average	350 kHz	41.89	-7.06	
1 Quasi Peak	522 kHz	48.25	-7.74	
2 Average	694 kHz	43.63	-2.36	
1 Quasi Peak	1.73 MHz	50.68	-5.31	
2 Average	1.902 MHz	39.96	-6.03	
2 Average	2.422 MHz	35.54	-10.46	
1 Quasi Peak	2.426 MHz	48.53	-7.46	
2 Average	5.37 MHz	37.81	-12.18	
2 Average	23.986 MHz	36.33	-13.66	

## 7. ANTENNA REQUIREMENT

### 7.1 Standard Applicable

According to §15.203, Antenna requirement.

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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 provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

And according to §15.247(4)(1), system operating in the 2400-2483.5MHz bands that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

### 7.2 Antenna Connected Construction

The directional gains of antenna used for transmitting is 2.0 dBi, and the antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

**THE END OF REPORT**