



A Test Lab Techno Corp.

No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)
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Part 15 C Measurement Report



Report No.	: 0903FR13
Applicant	: HUAWEI TECHNOLOGIES CO.,LTD.
FCC ID	: QISG5720
Product Type	: HUAWEI G5720
Trade Mark	: HUAWEI
Model No	: G5720
Dates of Test	: Feb. 18 ~ Feb. 19, 2009
Test Specification	: Part 15 Subpart C (15.247) PUBLIC NOTICE :DA 00-705 Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems
Location of Test Lab.	: Chang-an Lab.

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full.

Country Huang 20090325
Measurement Center Manager

John Cheng 20090325
Testing Engineer



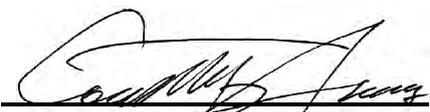
CERTIFICATION

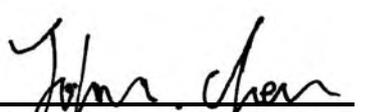
We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2003. All test were conducted by *A Test Lab Techno Corp. No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)* Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is in compliance with Class B radiated and conducted emission limit of FCC Rules Part 15 Subpart C (15.247).

EUT : HUAWEI G5720
Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
Administration Building, Huawei Base, Bantian, Longgang District,
Shenzhen 518129
FCC ID : QISG5720
Trade Mark : HUAWEI
Model No : G5720

Approved by : 
Country Huang 2009/03/25

Prepared by : 
John Cheng 2009/03/25

A Test Lab Techno Corp.

*No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)
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1. GENERAL

1.1 Description of Equipment under Test (EUT)

Applicant :

HUAWEI TECHNOLOGIES CO.,LTD.

Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129

Manufacturer : HUAWEI TECHNOLOGIES CO.,LTD.
Manufacturer Address : Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129
FCC ID : QISG5720
Product Type : HUAWEI G5720
Trade Mark : HUAWEI
Product Model : G5720
Hardware : P/N:PO-VE306-011-00B
Software : 08A_0840_V10VE3_32
Frequency of Channel : See Table 1
Type of Modulation : Internal Type
Type of Antenna : Small circular polarized patch antenna
Antenna Gain : 0.5dBi

During testing the EUT was operated at Tx or Rx mode for each emission measured. This was done in order to ensure that maximum emission levels were attained.

CH No.	Freq.						
0	2402.00	20	2422.00	40	2442.00	60	2462.00
1	2403.00	21	2423.00	41	2443.00	61	2463.00
2	2404.00	22	2424.00	42	2444.00	62	2464.00
3	2405.00	23	2425.00	43	2445.00	63	2465.00
4	2406.00	24	2426.00	44	2446.00	64	2466.00
5	2407.00	25	2427.00	45	2447.00	65	2467.00
6	2408.00	26	2428.00	46	2448.00	66	2468.00
7	2409.00	27	2429.00	47	2449.00	67	2469.00
8	2410.00	28	2430.00	48	2450.00	68	2470.00
9	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00		

Table 1. Bluetooth Frequency of Each Channel (Working Frequency)



1.2 Introduction

The following measurement report is submitted on behalf of **HUAWEI TECHNOLOGIES CO.,LTD.** In support of a Class B Digital Device certification in accordance with Part2 Subpart J and Part 15 Subpart A And B&C of the Commission's and Regulations.

1.3 Summary of Tests

47 CFR Part 15 Subpart C			
Reference	Test	Results	Note
15.107	AC Power Conducted Emission	PASS	
15.247(c)	Transmitter Radiated Emissions	PASS	
15.247(b)	Max. Output Power	PASS	
15.247(a)(1)	20dB RF Bandwidth	PASS	
15.247(a)(1)(ii)	Carrier Frequency Separation	PASS	
15.247(a)(1)(i)	Number of Hopping	PASS	
15.247(a)(1)(i)	Time of Occupancy (Dwell Time)	PASS	
15.247(c)	Out of Band Conducted Spurious Emission	PASS	
15.247(c)	Band Edge Measurement	PASS	
15.203	Antenna Requirement	PASS	

1.4 Description of Support Equipment

Describe	Manufacturer	Model	Serial No.	FCC ID
Bluetooth Tester	R & S	CBT	100350	-----

1.5 Configuration of System under Test

AC Adapter Link

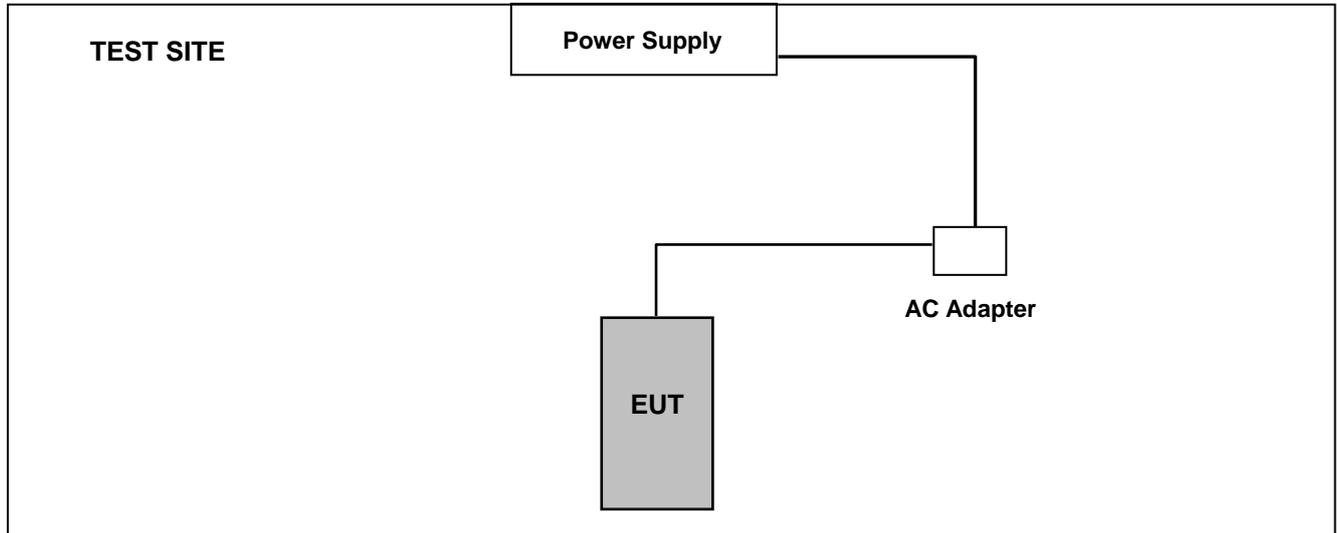


Figure 1. Configuration of System Under Test for AC Adapter Link

During testing the EUT (Universal Bluetooth Headset)'s Power port was connected to AC Adapter.

1.6 Test Procedure

All measurements contained in this report were performed according to the techniques described in Measurement procedure ANSI C63.4-2003 "Measurement of un-Intentional Radiators."

1.7 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated. The systems radiated and conducted emissions were investigated while the computer alternately transferred data to the EUT as well as to the monitor and printer. Using a test program which sent a continuous data and transferred data to and from the EUT was proven to worst case emissions. The system's physical layout and cabling was randomly arranged to ensure that maximum emission levels were attained.



2. Conducted Emissions Requirements

2.1 General & Setup:

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.6.

2.2 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Advantest	R3132	160300103	Mar. 06, 2008	Mar. 06, 2009
Test Receiver	R&S	ESCI	100367	Jun. 05, 2008	Jun. 05, 2009
LISN	EMCO	3816/2 SH	00060110	Jun. 03, 2008	Jun. 03, 2009
LISN	EMCO	3816/2 SH	00060111	Jun. 30, 2008	Jun. 30, 2009
Transient Limiter	ELECTRO-METRICS	EM-7600	777	Jun. 26, 2008	Jun. 26, 2009

2.3 Test Configuration:



Figure 2. Front View of the Test Configuration



Figure 3. Rear View of the Test Configuration



2.4 Test condition:

EUT tested in accordance with the specifications given by the Manufacturer, and exercised in the most unfavorable manner.

2.5 Conducted Emissions Limits:

Frequency range (MHz)	Limits (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.0	56	46
5.0 to 30	60	50

2.6 Measurement Data of Conducted Emissions:

2.6.1 Conducted Emissions (Subpart C)

The following table show a summary of the highest emissions of power line conducted emissions to the HOT and NATURAL conductor of the EUT power.

Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
Model No : G5720
EUT : HUAWEI G5720
Test Mode : Bluetooth 2.0 Link Mode
Test Date : 02/18/2009

Please refer to next pager of detail testing data.

Notes:

1. L1: One end & Ground L2: The other end & Ground
2. Height of table on which the EUT was placed: 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.

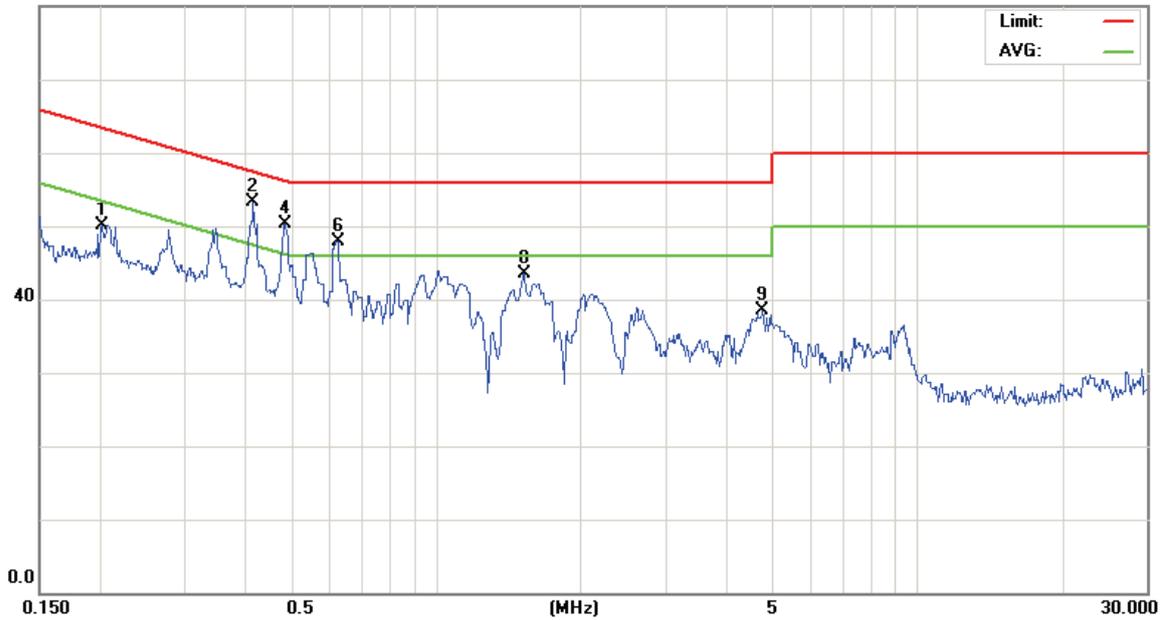


File :VE3(BT)
80.0 dBuV

Data :#1

Date: 2009-2-18

Time: 下午 05:22:36



Site site#1 Phase: **L1** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: 09-0064-SEO
 Mode: BT
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2017	40.42	9.74	50.16	63.54	-13.38	peak	
2	*	0.4167	43.55	9.78	53.33	57.51	-4.18	peak	
3		0.4167	22.02	9.78	31.80	47.51	-15.71	AVG	
4		0.4839	40.44	9.78	50.22	56.27	-6.05	peak	
5		0.4839	23.12	9.78	32.90	46.27	-13.37	AVG	
6		0.6260	38.02	9.79	47.81	56.00	-8.19	peak	
7		0.6260	19.21	9.79	29.00	46.00	-17.00	AVG	
8		1.5260	33.71	9.81	43.52	56.00	-12.48	peak	
9		4.7660	28.41	10.01	38.42	56.00	-17.58	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only

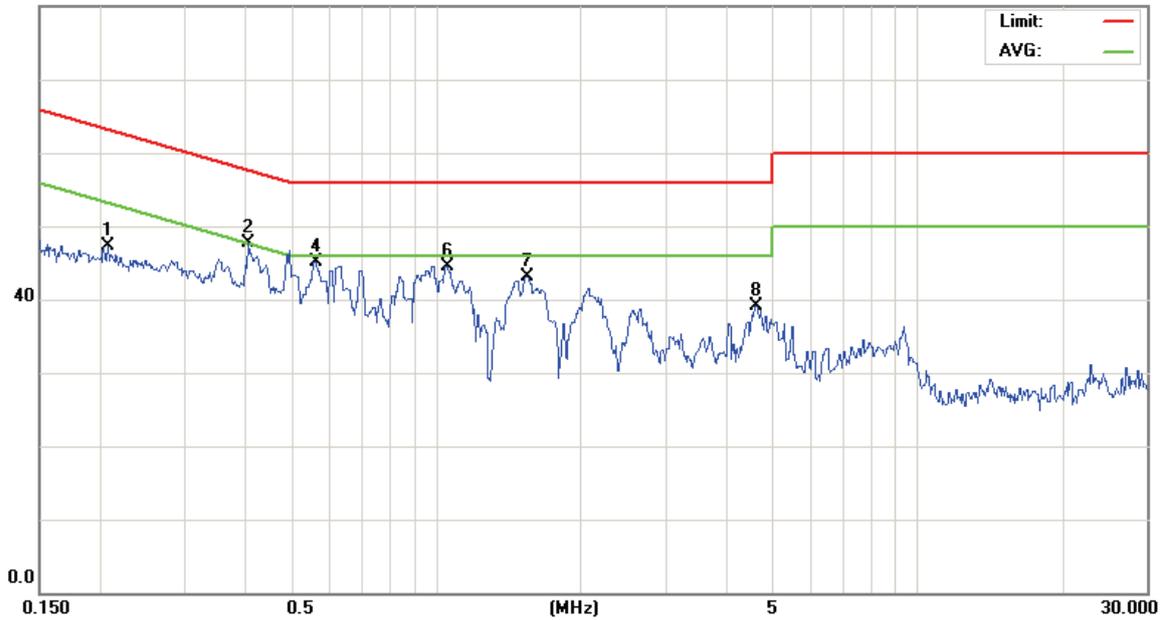


File :VE3(BT)
80.0 dBuV

Data :#2

Date: 2009-2-18

Time: 下午 05:33:00



Site site#1 Phase: **L2** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: 09-0064-SEO
 Mode: BT
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2081	37.63	9.74	47.37	63.28	-15.91	peak	
2	*	0.4061	37.89	9.78	47.67	57.73	-10.06	peak	
3		0.4061	22.02	9.78	31.80	47.73	-15.93	AVG	
4		0.5630	35.28	9.79	45.07	56.00	-10.93	peak	
5		0.5630	18.71	9.79	28.50	46.00	-17.50	AVG	
6		1.0579	34.73	9.80	44.53	56.00	-11.47	peak	
7		1.5439	33.34	9.81	43.15	56.00	-12.85	peak	
8		4.6039	29.13	10.01	39.14	56.00	-16.86	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



3. Radiated Emissions Requirements

3.1 Final radiation measurements were made on a three-meter:

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (model VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).



For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m)} = \text{FI (dBuV)} + \text{AF (dBuV)} + \text{CL (dBuV)} - \text{Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m)} = \text{Amplitude (dBuV)} - \text{Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency :

Transmitter Output < +30dBm

(b) For spurious frequency :

Spurious emission limits = fundamental emission limit /10



3.2 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4408B	MY45107753	Jun. 05, 2008	Jun. 05, 2009
Pre Amplifier	Agilent	8449B	3008A02237	Jun. 03, 2008	Jun. 03, 2009
Pre Amplifier	Agilent	8447D	2944A10961	Jun. 10, 2008	Jun. 10, 2009
Test Receiver	R&S	ESCI	100367	Jun. 05, 2008	Jun. 05, 2009
Biconilog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	Jun. 26, 2008	Jun. 26, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	Jun. 26, 2008	Jun. 26, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	Jun. 09, 2008	Jun. 09, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120E	0899	Jun. 26, 2008	Jun. 26, 2009

3.3 Test Configuration:



Figure 4. Front View of the Test Configuration



Figure 5. Rear View of the Test Configuration



Figure 6. Front View of the Test Configuration



Figure 7. Rear View of the Test Configuration



3.4 Test condition:

EUT tested in accordance with the specifications given by the manufacturer, and exercised in the most unfavorable manner.

3.5 Radiated Emissions Limits:

Frequency range (MHz)	Peak(dBuV)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54



3.6 Measurement Data of Radiated Emissions:

3.6.1 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
Model No : G5720
EUT : HUAWEI G5720
Test Mode : Bluetooth 2.0 Link Mode_ CH Low / Middle / High
Test Date : 02/19/2009

Please refer to next pager of detail testing data.

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The EUT was worst case on X axis after pretest on X & Y & Z axis setting.
7. The testing data only show below 18GHz's data because measure data above 18GHz was only ambient noise.
8. All frequencies from 30MHz to 26.5GHz have been tested



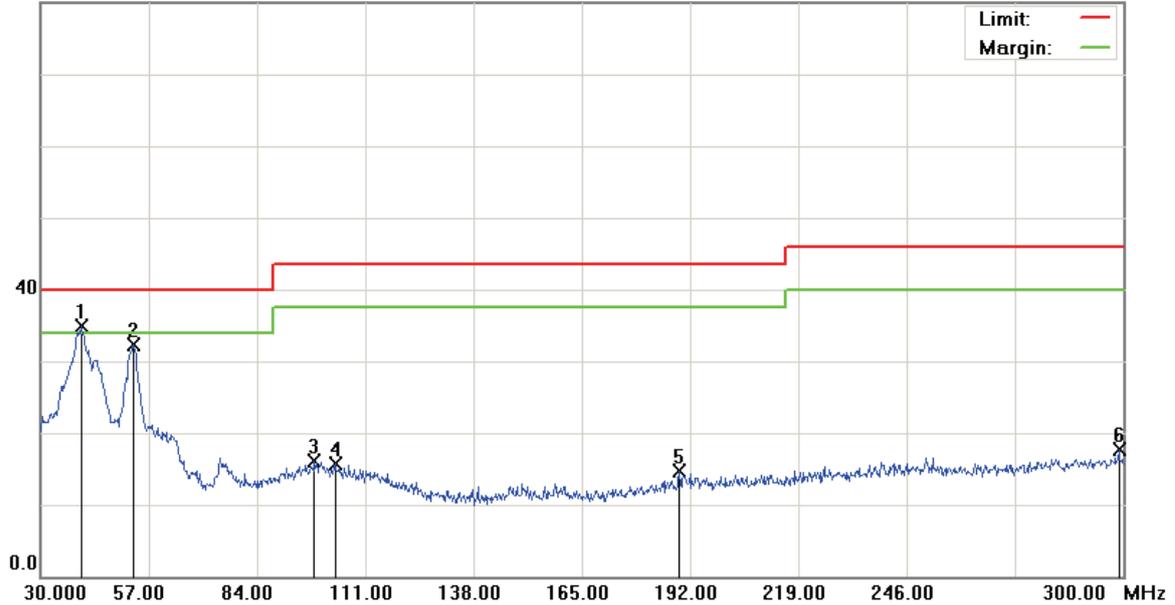
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Data :#1

Date: 2009/2/19

Time: 上午 02:17:12

80.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2402MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	40.2600	46.88	-11.89	34.99	40.00	-5.01			peak
2		53.2200	44.45	-12.19	32.26	40.00	-7.74			peak
3		98.3100	27.91	-11.86	16.05	43.50	-27.45			peak
4		103.4400	27.63	-11.98	15.65	43.50	-27.85			peak
5		189.3000	28.12	-13.43	14.69	43.50	-28.81			peak
6		298.9200	27.68	-10.03	17.65	46.00	-28.35			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



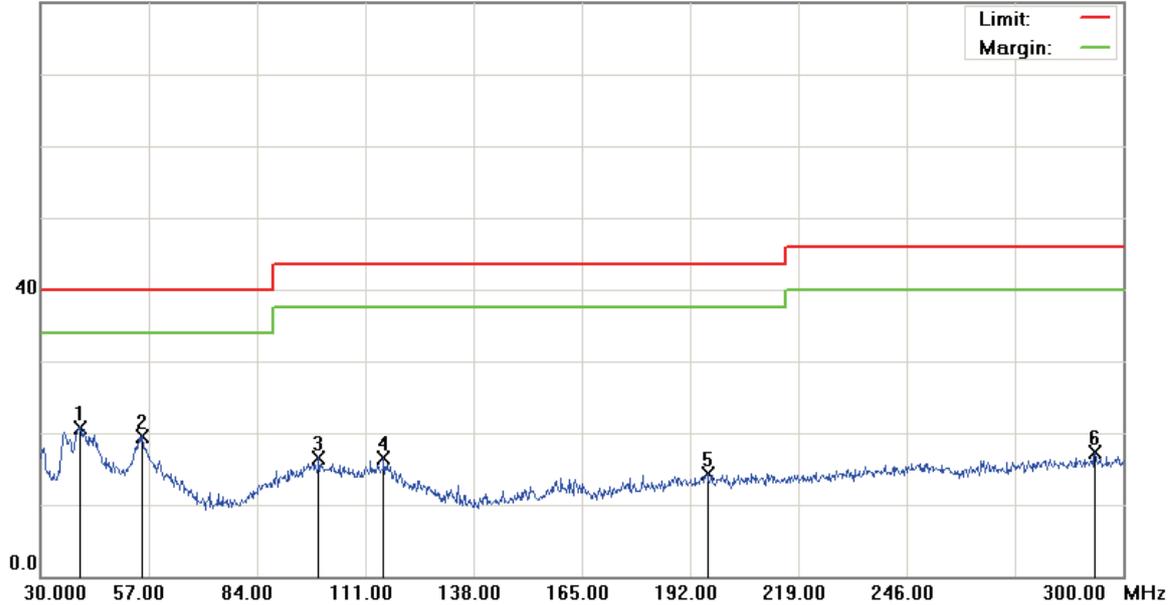
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Data :#3

Date: 2009/2/19

Time: 上午 02:25:39

80.0 dBuV



Site Polarization: *Horizontal* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2402MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	39.9900	32.69	-11.89	20.80	40.00	-19.20			peak
2		55.3800	31.84	-12.24	19.60	40.00	-20.40			peak
3		99.3900	28.40	-11.80	16.60	43.50	-26.90			peak
4		115.5900	30.04	-13.45	16.59	43.50	-26.91			peak
5		196.3200	27.41	-13.11	14.30	43.50	-29.20			peak
6		292.9800	27.37	-10.13	17.24	46.00	-28.76			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



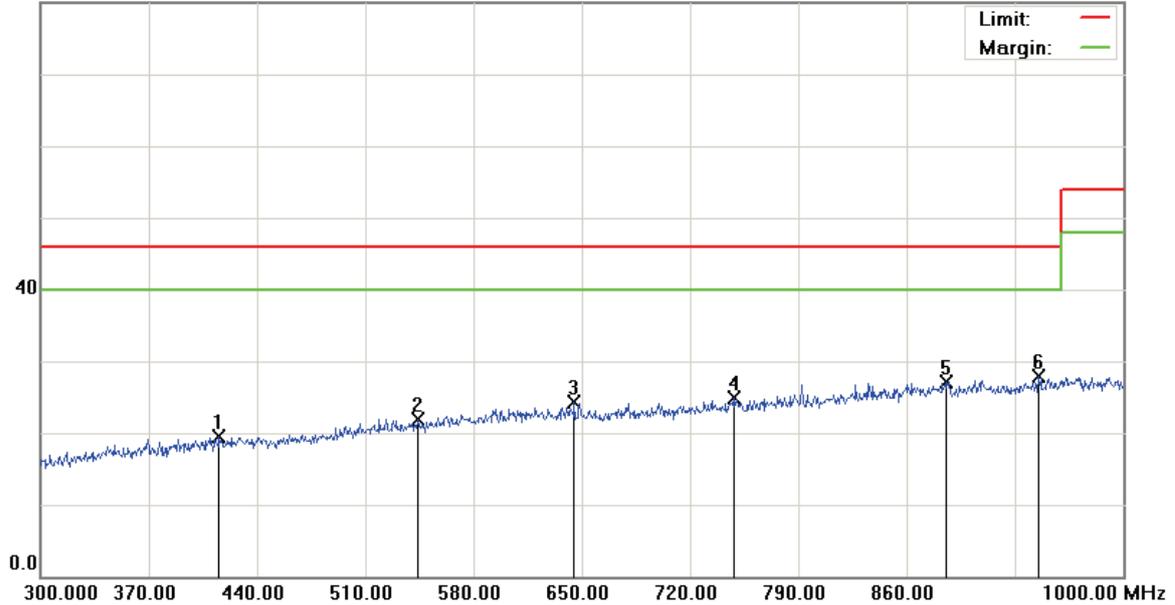
File :VE3(BT)

Data :#2

Date: 2009/2/19

Time: 上午 02:21:26

80.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2402MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree
1		415.5000	27.62	-8.21	19.41	46.00	-26.59	peak	Comment
2		544.3000	27.99	-6.05	21.94	46.00	-24.06	peak	
3		645.1000	28.81	-4.52	24.29	46.00	-21.71	peak	
4		748.0000	28.05	-3.11	24.94	46.00	-21.06	peak	
5		885.9000	27.30	-0.25	27.05	46.00	-18.95	peak	
6	*	945.4000	27.59	0.26	27.85	46.00	-18.15	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



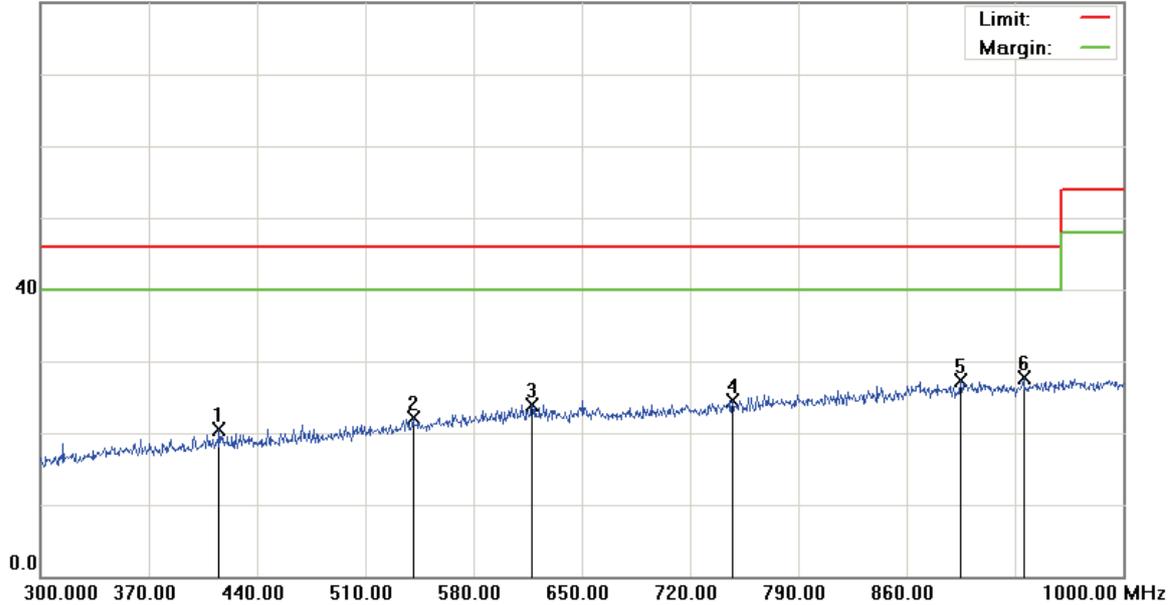
File :VE3(BT)

Data :#4

Date: 2009/2/19

Time: 上午 02:29:52

80.0 dBuV



Site Polarization: **Horizontal** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2402MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree
1		415.5000	28.72	-8.21	20.51	46.00	-25.49	peak	Comment
2		540.8000	28.17	-6.04	22.13	46.00	-23.87	peak	
3		617.8000	28.34	-4.38	23.96	46.00	-22.04	peak	
4		747.3000	27.70	-3.11	24.59	46.00	-21.41	peak	
5		895.0000	27.83	-0.51	27.32	46.00	-18.68	peak	
6	*	935.6000	27.65	0.04	27.69	46.00	-18.31	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



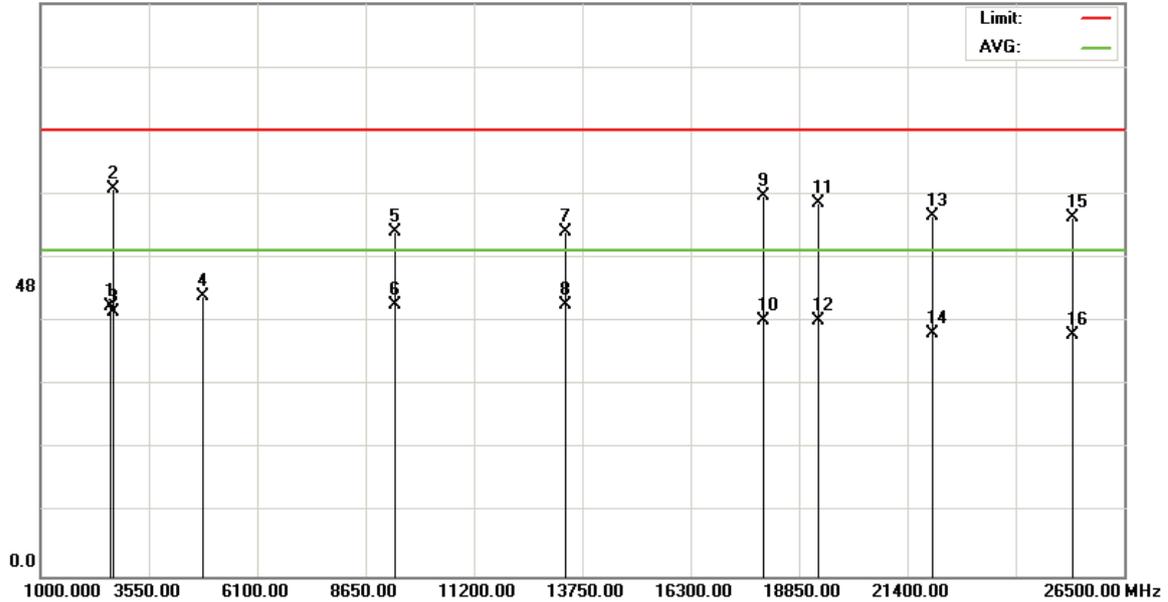
File :VE3(2402)X軸

Data :#14

Date: 2009/2/19

Time: 下午 09:55:48

95.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2402MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		2637.100	43.77	0.95	44.72	74.00	-29.28			peak
2		2700.000	41.76	22.58	64.34	74.00	-9.66			peak
3		2700.000	21.16	22.58	43.74	54.00	-10.26			AVG
4		4804.000	39.18	7.32	46.50	74.00	-27.50			peak
5		9324.750	40.28	16.91	57.19	74.00	-16.81			peak
6		9324.750	28.07	16.91	44.98	54.00	-9.02			AVG
7		13340.00	39.61	17.59	57.20	74.00	-16.80			peak
8	*	13340.00	27.50	17.59	45.09	54.00	-8.91			AVG
9		18000.00	37.57	25.57	63.14	74.00	-10.86			peak
10		18000.00	16.76	25.57	42.33	54.00	-11.67			AVG
11		19296.25	38.87	22.90	61.77	74.00	-12.23			peak
12		19296.25	19.42	22.90	42.32	54.00	-11.68			AVG
13		21973.75	38.66	21.13	59.79	74.00	-14.21			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



Site: Polarization: **Vertical** Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2402MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
14		21973.75	19.20	21.13	40.33	54.00	-13.67			AVG
15		25267.50	40.30	19.13	59.43	74.00	-14.57			peak
16		25267.50	20.88	19.13	40.01	54.00	-13.99			AVG

*:Maximum data x:Over limit !:over margin

●Reference Only



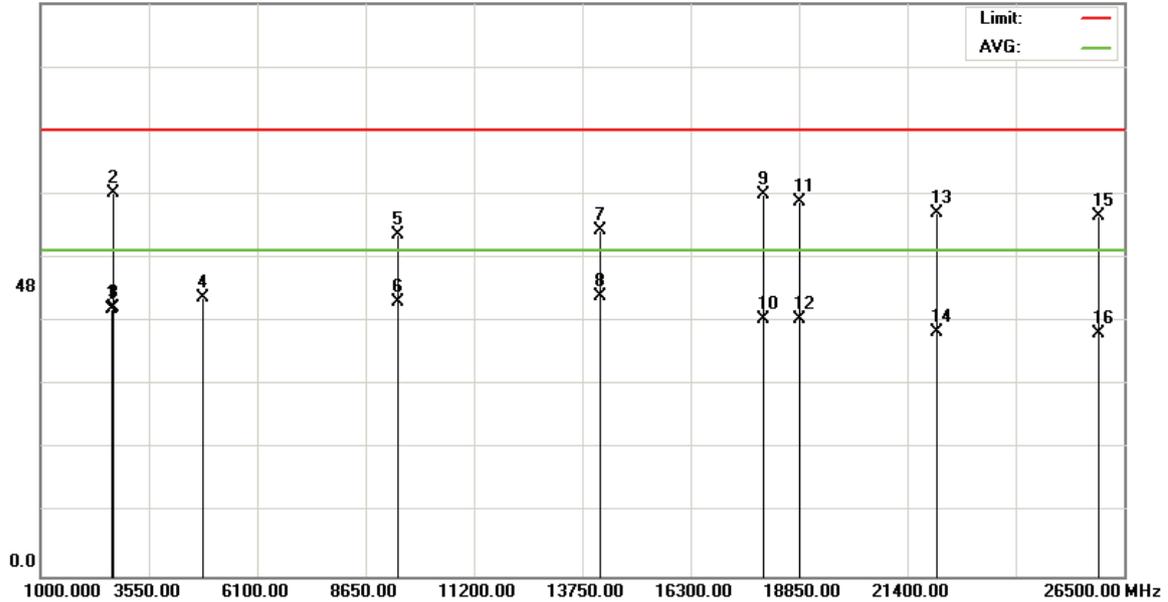
File :VE3(2402)X軸_tmp

Data :#5

Date: 2009/2/19

Time: 下午 10:13:39

95.0 dBuV



Site Polarization: **Horizontal** Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2402MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		2676.200	43.32	1.02	44.34	74.00	-29.66			peak
2		2700.000	41.03	22.58	63.61	74.00	-10.39			peak
3		2700.000	21.84	22.58	44.42	54.00	-9.58			AVG
4		4804.000	38.95	7.32	46.27	74.00	-27.73			peak
5		9397.750	39.65	17.07	56.72	74.00	-17.28			peak
6		9397.750	28.35	17.07	45.42	54.00	-8.58			AVG
7		14180.00	29.08	28.39	57.47	74.00	-16.53			peak
8	*	14180.00	17.96	28.39	46.35	54.00	-7.65			AVG
9		18000.00	28.28	35.11	63.39	74.00	-10.61			peak
10		18000.00	7.43	35.11	42.54	54.00	-11.46			AVG
11		18850.00	38.93	23.15	62.08	74.00	-11.92			peak
12		18850.00	19.46	23.15	42.61	54.00	-11.39			AVG
13		22080.00	39.09	21.07	60.16	74.00	-13.84			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



Site: Polarization: *Horizontal* Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2402MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
14		22080.00	19.40	21.07	40.47	54.00	-13.53			AVG
15		25905.00	41.03	18.63	59.66	74.00	-14.34			peak
16		25905.00	21.71	18.63	40.34	54.00	-13.66			AVG

*:Maximum data x:Over limit !:over margin

●Reference Only



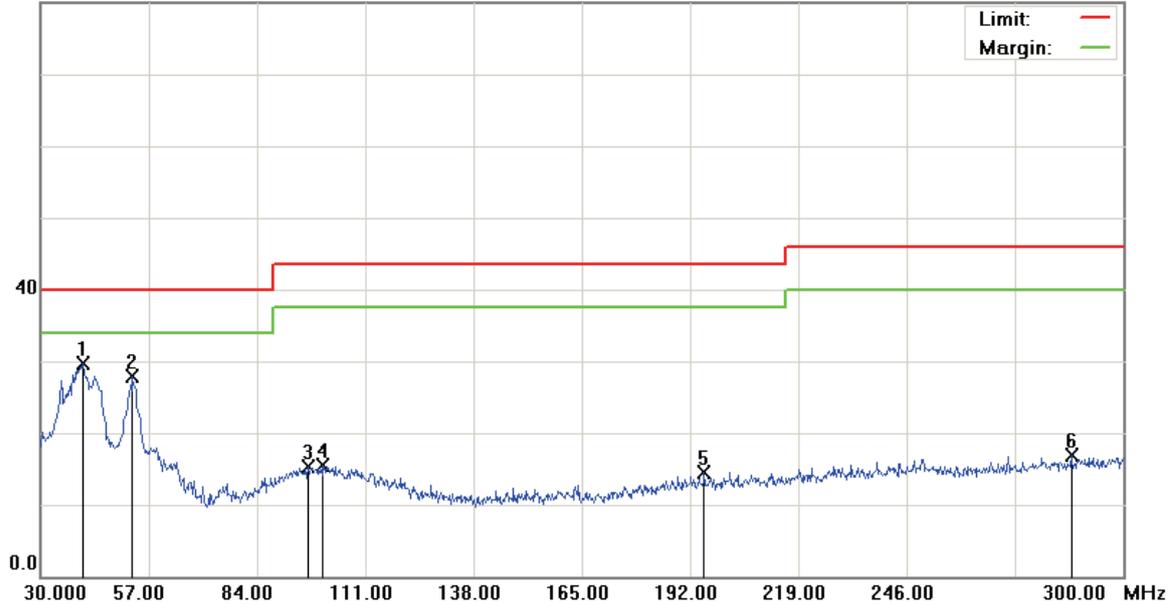
File :VE3(BT)

Data :#5

Date: 2009/2/19

Time: 上午 02:34:32

80.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2441MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	40.5300	41.63	-11.88	29.75	40.00	-10.25			peak
2		52.9500	40.17	-12.19	27.98	40.00	-12.02			peak
3		96.6900	27.21	-11.94	15.27	43.50	-28.23			peak
4		100.2000	27.31	-11.77	15.54	43.50	-27.96			peak
5		195.5100	27.61	-13.10	14.51	43.50	-28.99			peak
6		287.0400	27.18	-10.18	17.00	46.00	-29.00			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



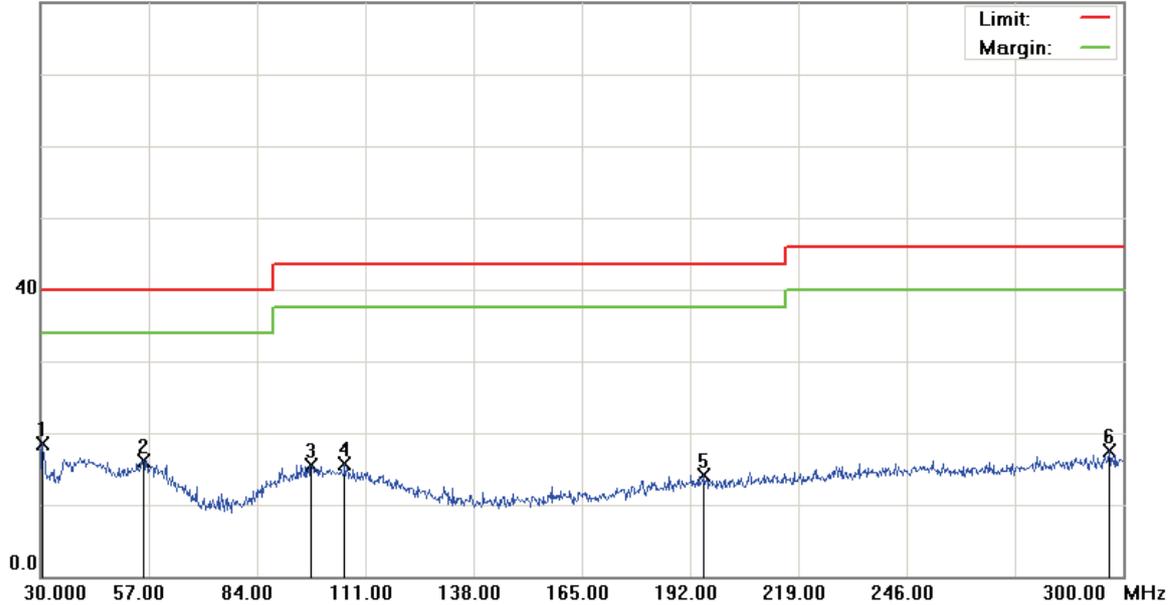
File :VE3(BT)

Data :#7

Date: 2009/2/19

Time: 上午 02:42:58

80.0 dBuV



Site Polarization: **Horizontal** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2441MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree
1	*	30.5400	31.88	-13.31	18.57	40.00	-21.43	peak	Comment
2		55.6500	28.43	-12.25	16.18	40.00	-23.82	peak	
3		97.5000	27.39	-11.90	15.49	43.50	-28.01	peak	
4		105.8700	27.79	-12.15	15.64	43.50	-27.86	peak	
5		195.5100	27.26	-13.10	14.16	43.50	-29.34	peak	
6		296.4900	27.55	-10.13	17.42	46.00	-28.58	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



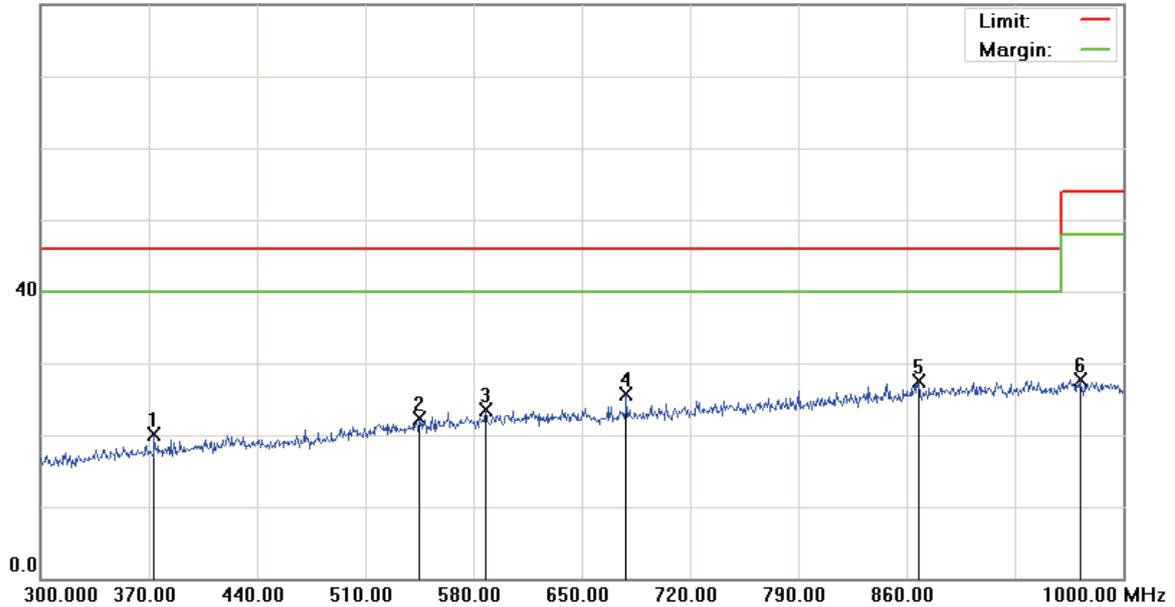
File :VE3(BT)

Data :#6

Date: 2009/2/19

Time: 上午 02:38:46

80.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2441MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		373.5000	29.09	-8.89	20.20	46.00	-25.80			peak
2		545.0000	28.28	-6.06	22.22	46.00	-23.78			peak
3		587.7000	28.72	-5.13	23.59	46.00	-22.41			peak
4		678.7000	29.79	-4.12	25.67	46.00	-20.33			peak
5	*	867.7000	28.17	-0.71	27.46	46.00	-18.54			peak
6		972.0000	26.99	0.70	27.69	54.00	-26.31			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



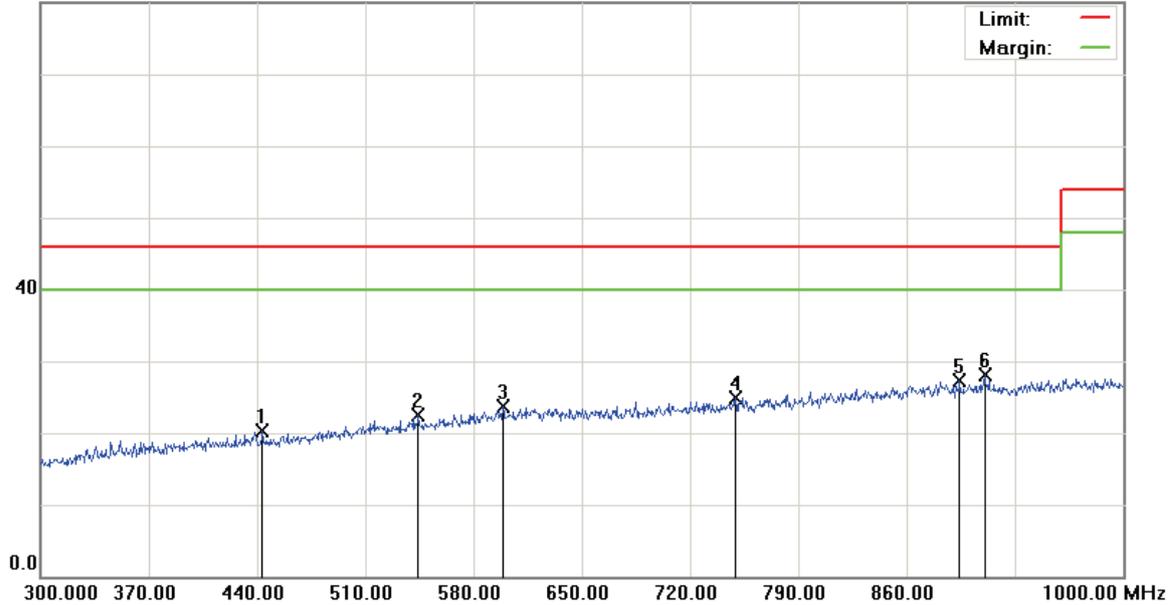
File :VE3(BT)

Data :#8

Date: 2009/2/19

Time: 上午 02:47:12

80.0 dBuV



Site Polarization: *Horizontal* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2441MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree
1		443.5000	28.28	-8.02	20.26	46.00	-25.74	peak	Comment
2		544.3000	28.64	-6.05	22.59	46.00	-23.41	peak	
3		598.9000	28.55	-4.90	23.65	46.00	-22.35	peak	
4		749.4000	28.05	-3.11	24.94	46.00	-21.06	peak	
5		894.3000	27.78	-0.56	27.22	46.00	-18.78	peak	
6	*	910.4000	28.11	-0.02	28.09	46.00	-17.91	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



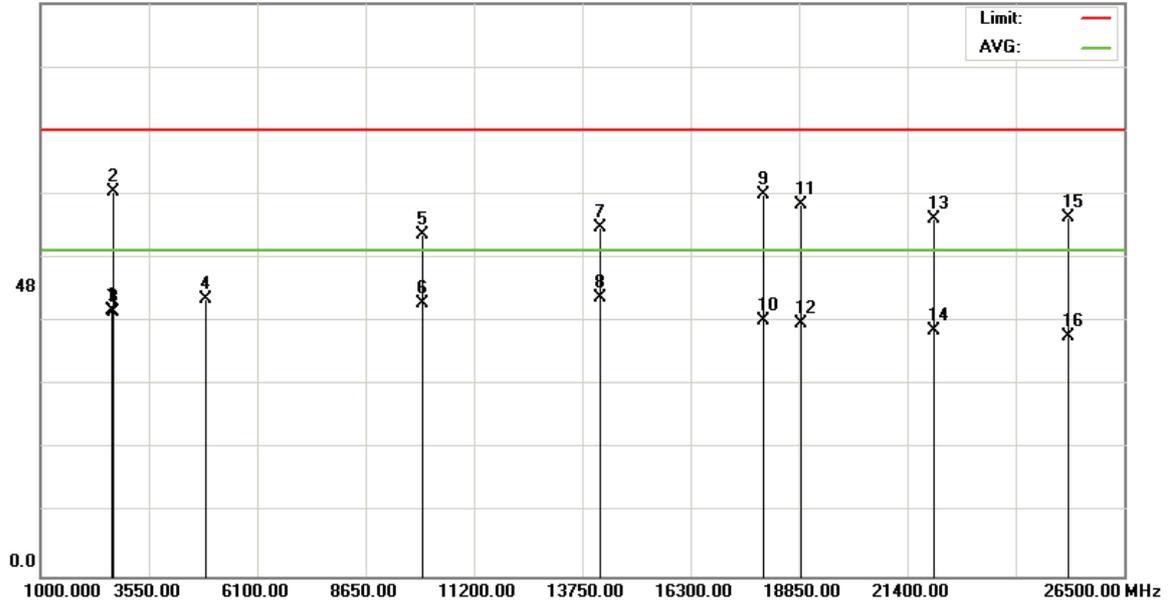
File :VE3(2441)X軸

Data :#14

Date: 2009/2/19

Time: 下午 09:58:55

95.0 dBuV



Site Polarization: **Vertical** Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2441MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		2660.900	43.14	0.93	44.07	74.00	-29.93			peak
2		2700.000	41.13	22.58	63.71	74.00	-10.29			peak
3		2700.000	21.23	22.58	43.81	54.00	-10.19			AVG
4		4882.000	38.25	7.74	45.99	74.00	-28.01			peak
5		9981.750	38.68	17.88	56.56	74.00	-17.44			peak
6		9981.750	27.47	17.88	45.35	54.00	-8.65			AVG
7		14140.00	39.11	18.84	57.95	74.00	-16.05			peak
8	*	14140.00	27.47	18.84	46.31	54.00	-7.69			AVG
9		18000.00	37.79	25.57	63.36	74.00	-10.64			peak
10		18000.00	16.77	25.57	42.34	54.00	-11.66			AVG
11		18892.50	38.46	23.15	61.61	74.00	-12.39			peak
12		18892.50	18.88	23.15	42.03	54.00	-11.97			AVG
13		21995.00	38.15	21.12	59.27	74.00	-14.73			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



Site: Polarization: **Vertical** Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2441MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
14		21995.00	19.63	21.12	40.75	54.00	-13.25			AVG
15		25182.50	40.30	19.20	59.50	74.00	-14.50			peak
16		25182.50	20.48	19.20	39.68	54.00	-14.32			AVG

*:Maximum data x:Over limit !:over margin

●Reference Only



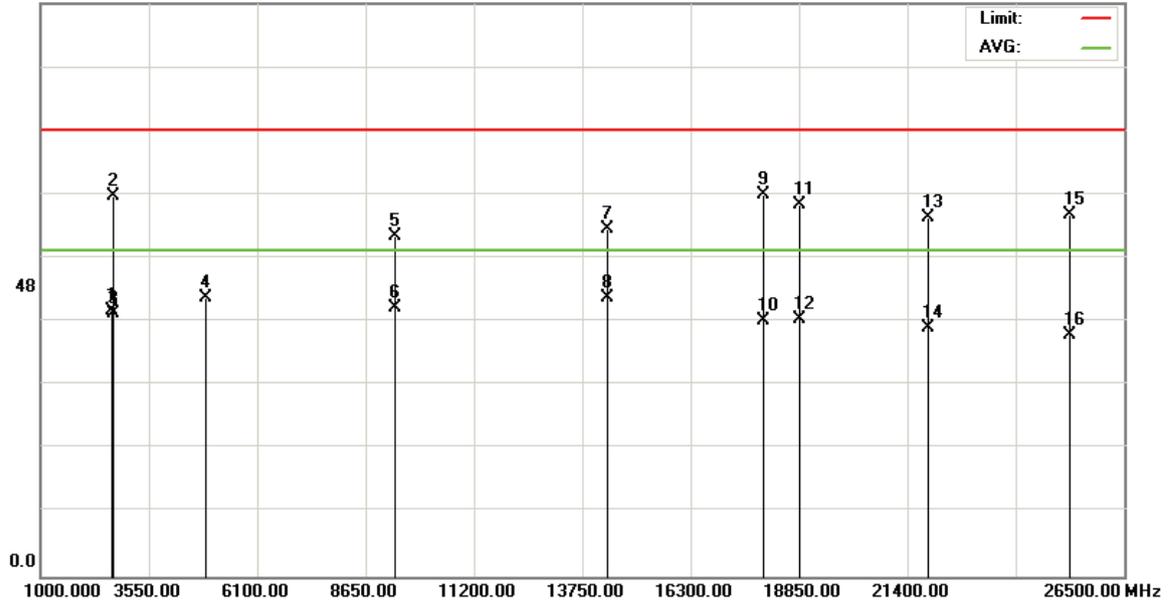
File :VE3(2441)X軸_tmp

Data :#5

Date: 2009/2/19

Time: 下午 10:09:27

95.0 dBuV



Site Polarization: **Horizontal** Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2441MHz · Antenna 100cm

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2674.500	43.05	1.02	44.07	74.00	-29.93			peak
2		2700.000	40.49	22.58	63.07	74.00	-10.93			peak
3		2700.000	21.06	22.58	43.64	54.00	-10.36			AVG
4		4882.000	38.52	7.74	46.26	74.00	-27.74			peak
5		9324.750	39.42	16.91	56.33	74.00	-17.67			peak
6		9324.750	27.52	16.91	44.43	54.00	-9.57			AVG
7		14320.00	29.39	28.11	57.50	74.00	-16.50			peak
8	*	14320.00	18.01	28.11	46.12	54.00	-7.88			AVG
9		18000.00	28.24	35.11	63.35	74.00	-10.65			peak
10		18000.00	7.19	35.11	42.30	54.00	-11.70			AVG
11		18828.75	38.56	23.15	61.71	74.00	-12.29			peak
12		18828.75	19.40	23.15	42.55	54.00	-11.45			AVG
13		21867.50	38.32	21.19	59.51	74.00	-14.49			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



Site: Polarization: *Horizontal* Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2441MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
14		21867.50	19.93	21.19	41.12	54.00	-12.88			AVG
15		25203.75	40.73	19.18	59.91	74.00	-14.09			peak
16		25203.75	20.77	19.18	39.95	54.00	-14.05			AVG

*:Maximum data x:Over limit !:over margin

●Reference Only



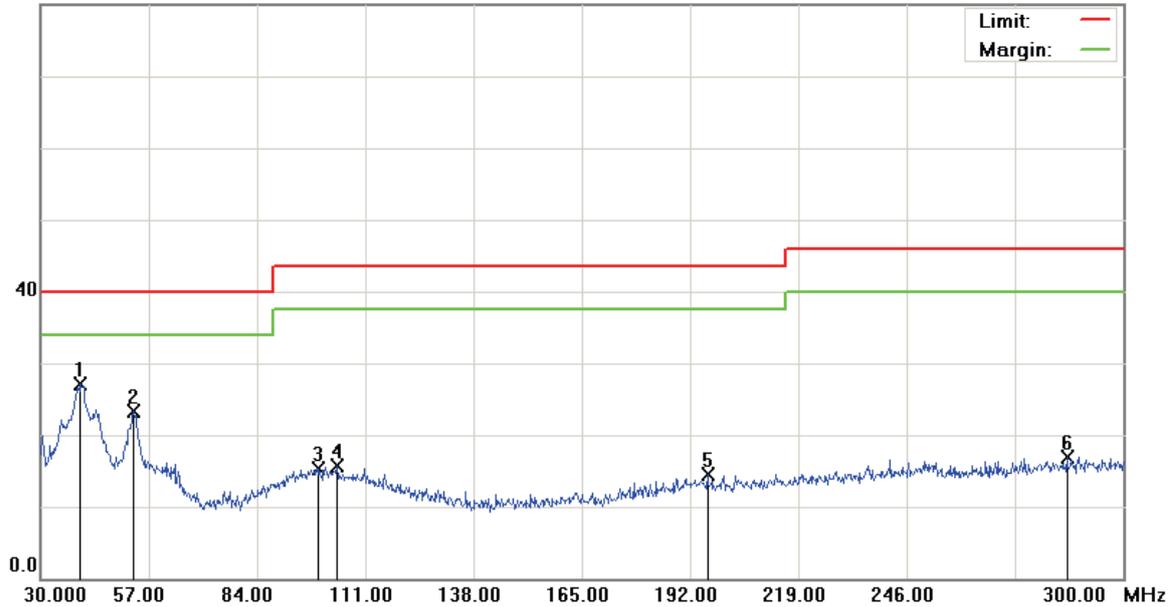
File :VE3(BT)

Data :#9

Date: 2009/2/19

Time: 上午 02:51:55

80.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2480MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree
1	*	39.9900	38.93	-11.89	27.04	40.00	-12.96	peak	Comment
2		53.2200	35.56	-12.19	23.37	40.00	-16.63	peak	
3		99.3900	27.14	-11.80	15.34	43.50	-28.16	peak	
4		103.9800	27.69	-12.02	15.67	43.50	-27.83	peak	
5		196.3200	27.52	-13.11	14.41	43.50	-29.09	peak	
6		285.9600	27.16	-10.24	16.92	46.00	-29.08	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



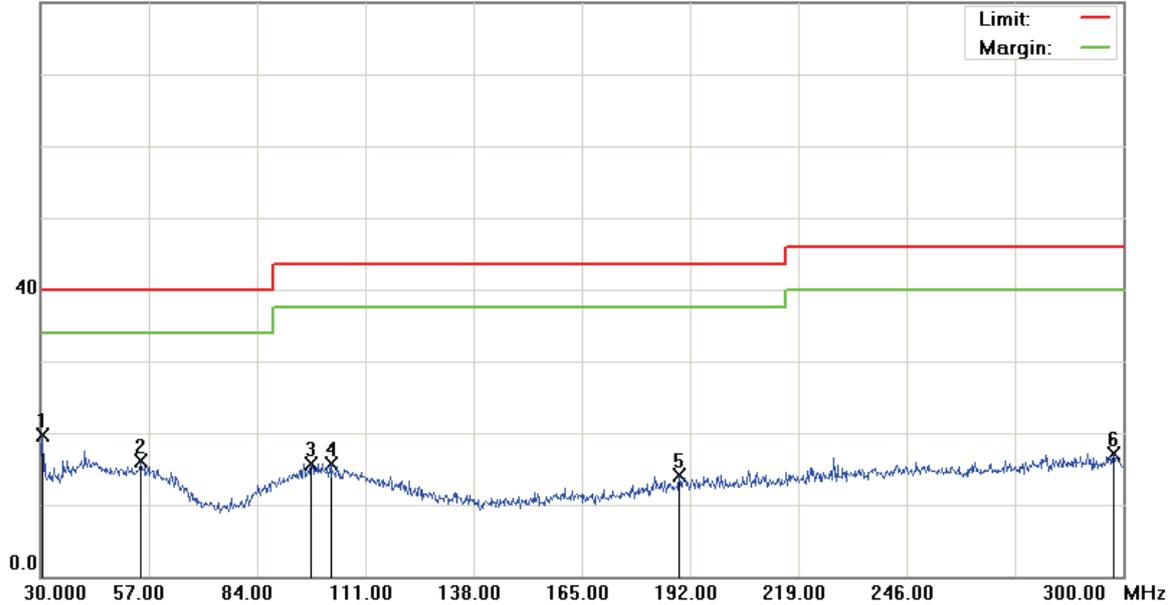
File :VE3(BT)

Data :#11

Date: 2009/2/19

Time: 上午 03:00:21

80.0 dBuV



Site Polarization: *Horizontal* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2480MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	30.5400	33.00	-13.31	19.69	40.00	-20.31			peak
2		55.1100	28.35	-12.22	16.13	40.00	-23.87			peak
3		97.5000	27.54	-11.90	15.64	43.50	-27.86			peak
4		102.3600	27.61	-11.91	15.70	43.50	-27.80			peak
5		189.3000	27.51	-13.43	14.08	43.50	-29.42			peak
6		297.5700	27.20	-10.09	17.11	46.00	-28.89			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



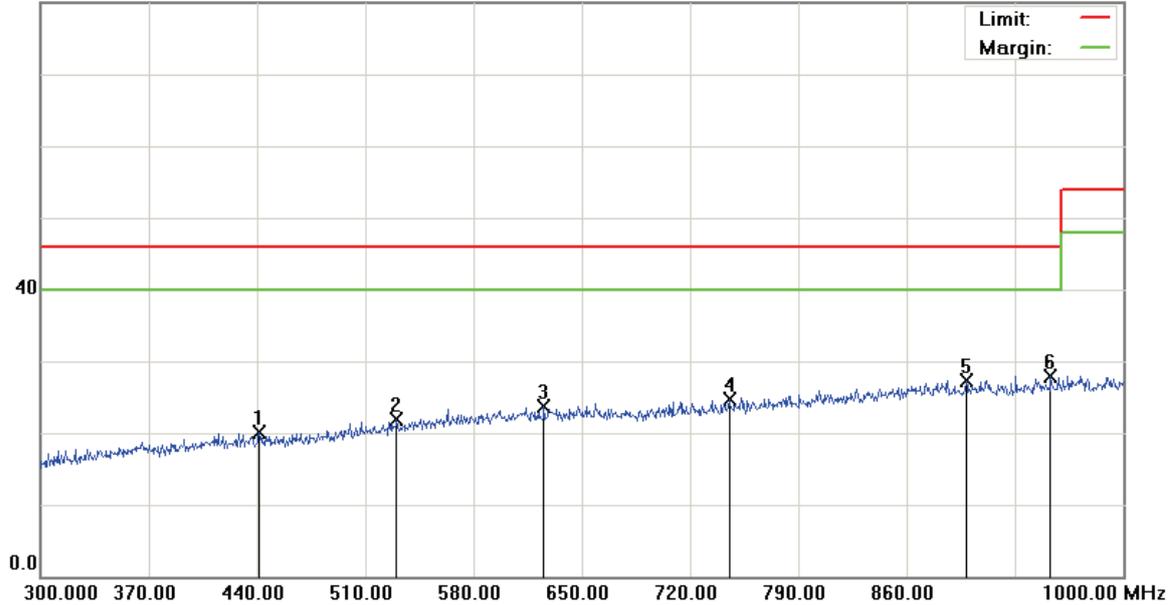
File :VE3(BT)

Data :#10

Date: 2009/2/19

Time: 上午 02:56:08

80.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2480MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree
1		441.4000	28.07	-8.01	20.06	46.00	-25.94	peak	Comment
2		530.3000	28.08	-6.26	21.82	46.00	-24.18	peak	
3		625.5000	28.33	-4.62	23.71	46.00	-22.29	peak	
4		745.2000	27.74	-3.10	24.64	46.00	-21.36	peak	
5		898.5000	27.74	-0.42	27.32	46.00	-18.68	peak	
6	*	953.1000	27.69	0.23	27.92	46.00	-18.08	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



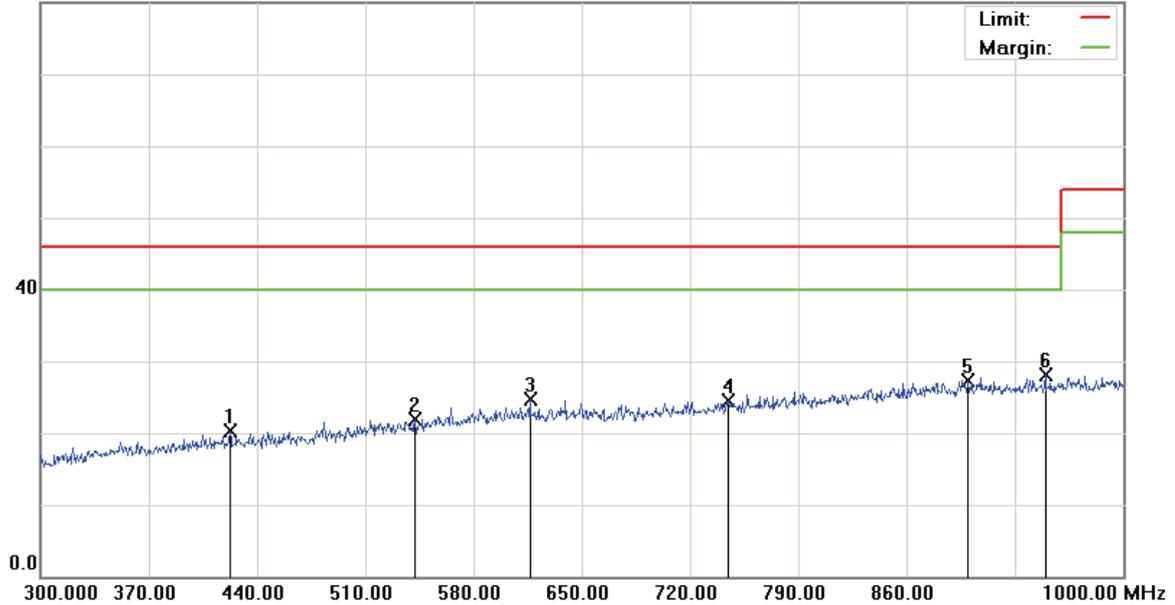
File :VE3(BT)

Data :#12

Date: 2009/2/19

Time: 上午 03:04:34

80.0 dBuV



Site Polarization: *Horizontal* Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2480MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		422.5000	28.29	-8.08	20.21	46.00	-25.79			peak
2		542.2000	27.98	-6.04	21.94	46.00	-24.06			peak
3		616.4000	29.15	-4.39	24.76	46.00	-21.24			peak
4		744.5000	27.54	-3.12	24.42	46.00	-21.58			peak
5		899.9000	27.69	-0.37	27.32	46.00	-18.68			peak
6	*	949.6000	27.84	0.21	28.05	46.00	-17.95			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



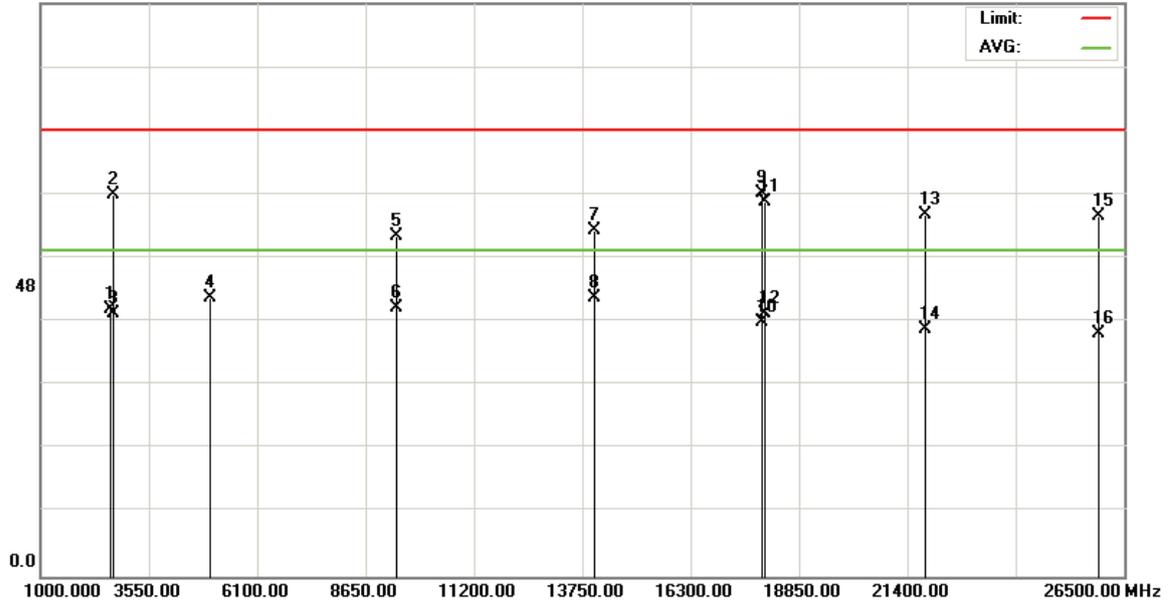
File :VE3(2480)X軸

Data :#14

Date: 2009/2/19

Time: 下午 10:01:58

95.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2480MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		2642.200	43.32	0.97	44.29	74.00	-29.71			peak
2		2700.000	40.75	22.58	63.33	74.00	-10.67			peak
3		2700.000	21.05	22.58	43.63	54.00	-10.37			AVG
4		4960.000	38.40	7.80	46.20	74.00	-27.80			peak
5		9343.000	39.50	16.93	56.43	74.00	-17.57			peak
6		9343.000	27.52	16.93	44.45	54.00	-9.55			AVG
7		14020.00	38.72	18.67	57.39	74.00	-16.61			peak
8	*	14020.00	27.45	18.67	46.12	54.00	-7.88			AVG
9		17980.00	38.27	25.21	63.48	74.00	-10.52			peak
10		17980.00	17.00	25.21	42.21	54.00	-11.79			AVG
11		18042.50	38.73	23.27	62.00	74.00	-12.00			peak
12		18042.50	20.23	23.27	43.50	54.00	-10.50			AVG
13		21825.00	38.80	21.20	60.00	74.00	-14.00			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



Site: Polarization: **Vertical** Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2480MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
14		21825.00	19.72	21.20	40.92	54.00	-13.08			AVG
15		25883.75	40.97	18.65	59.62	74.00	-14.38			peak
16		25883.75	21.64	18.65	40.29	54.00	-13.71			AVG

*:Maximum data x:Over limit !:over margin

●Reference Only



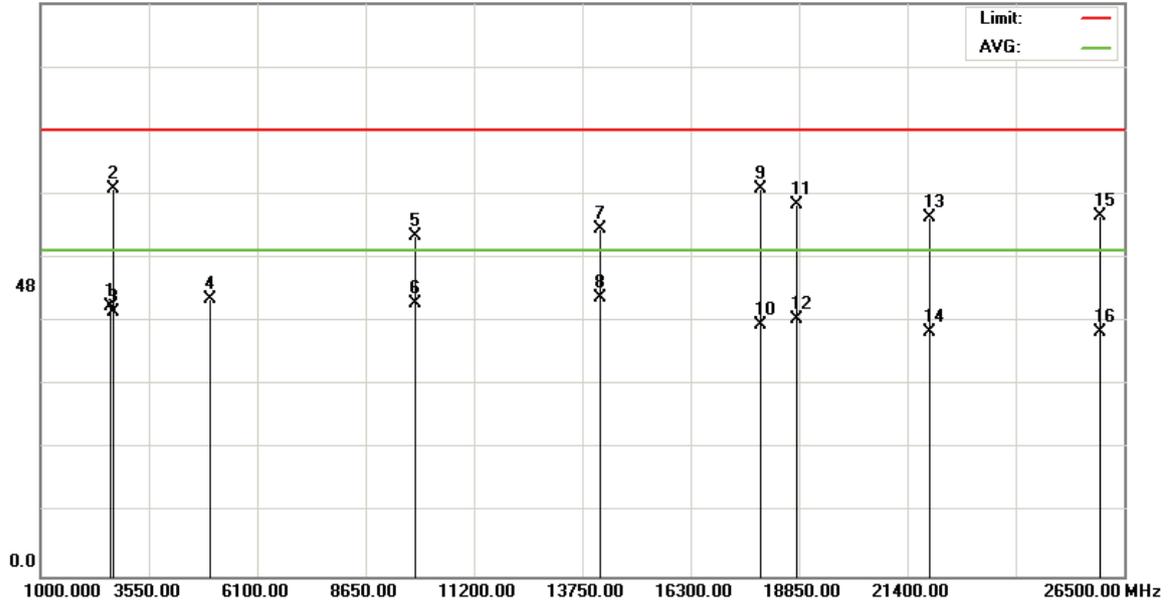
File :VE3(2480)X軸_tmp

Data :#5

Date: 2009/2/19

Time: 下午 10:06:10

95.0 dBuV



Site Polarization: **Horizontal** Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2480MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		2642.200	43.72	0.97	44.69	74.00	-29.31			peak
2		2700.000	41.67	22.58	64.25	74.00	-9.75			peak
3		2700.000	21.15	22.58	43.73	54.00	-10.27			AVG
4		4960.000	38.25	7.80	46.05	74.00	-27.95			peak
5		9817.500	38.71	17.75	56.46	74.00	-17.54			peak
6		9817.500	27.41	17.75	45.16	54.00	-8.84			AVG
7		14160.00	29.11	28.37	57.48	74.00	-16.52			peak
8	*	14160.00	17.93	28.37	46.30	54.00	-7.70			AVG
9		17940.00	30.07	34.25	64.32	74.00	-9.68			peak
10		17940.00	7.43	34.25	41.68	54.00	-12.32			AVG
11		18786.25	38.59	23.14	61.73	74.00	-12.27			peak
12		18786.25	19.40	23.14	42.54	54.00	-11.46			AVG
13		21931.25	38.33	21.15	59.48	74.00	-14.52			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



Site: Polarization: *Horizontal* Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT(2.0)
 Note: 2480MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
14		21931.25	19.35	21.15	40.50	54.00	-13.50			AVG
15		25926.25	41.17	18.62	59.79	74.00	-14.21			peak
16		25926.25	21.78	18.62	40.40	54.00	-13.60			AVG

*:Maximum data x:Over limit !:over margin

●Reference Only

4. Maximum Conducted Output Power Requirements

4.1 Test Condition & Setup:

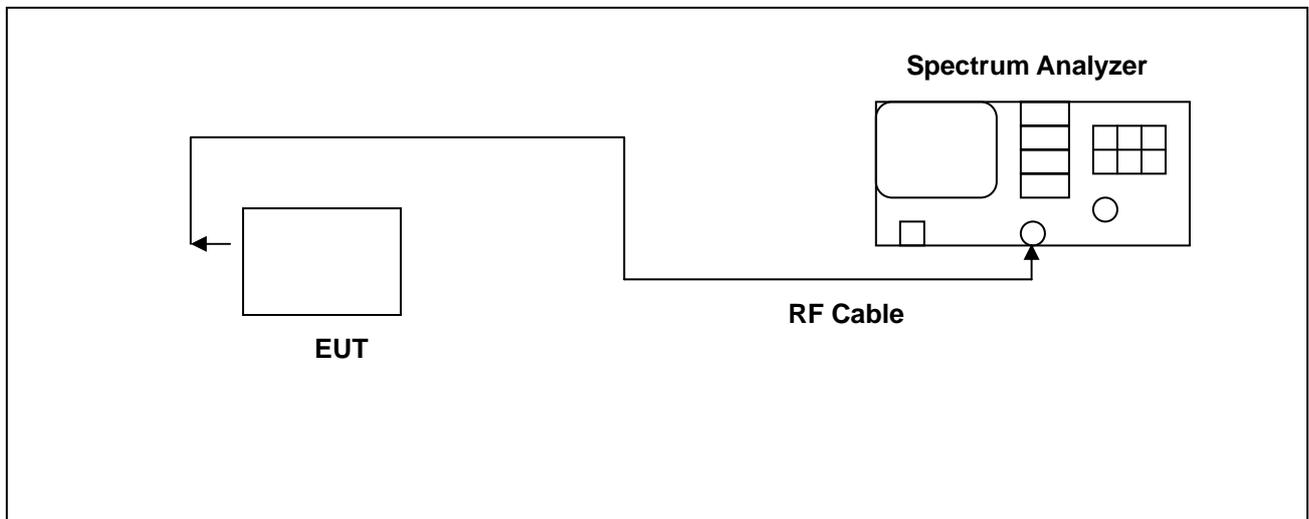
The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to spectrum analyzer. The maximum peak output power shall not exceed 1 watt.

Use a direct connection between the antenna port of transmitter and the spectrum Analyzer, for prevent the spectrum analyzer input attenuation 40-50 dB. Set the RBW Bandwidth of the emission or use a channel power meter mode.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to $(\text{GAIN} - 6)/3$ dBm.

The antenna port of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

4.2 Test Instruments Configuration:





4.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009

4.4 Test Result

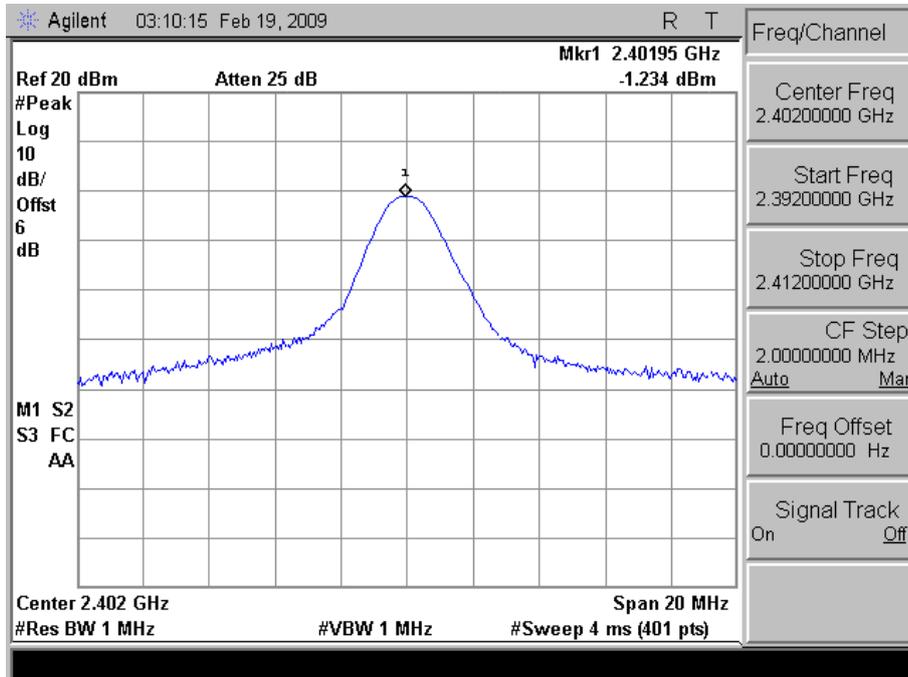
Frequency (MHz)	Output (dBm)	Required Limit
2402	-1.234	<30dBm
2441	-1.517	<30dBm
2480	-4.170	<30dBm

Note: Test Graphs See next page.

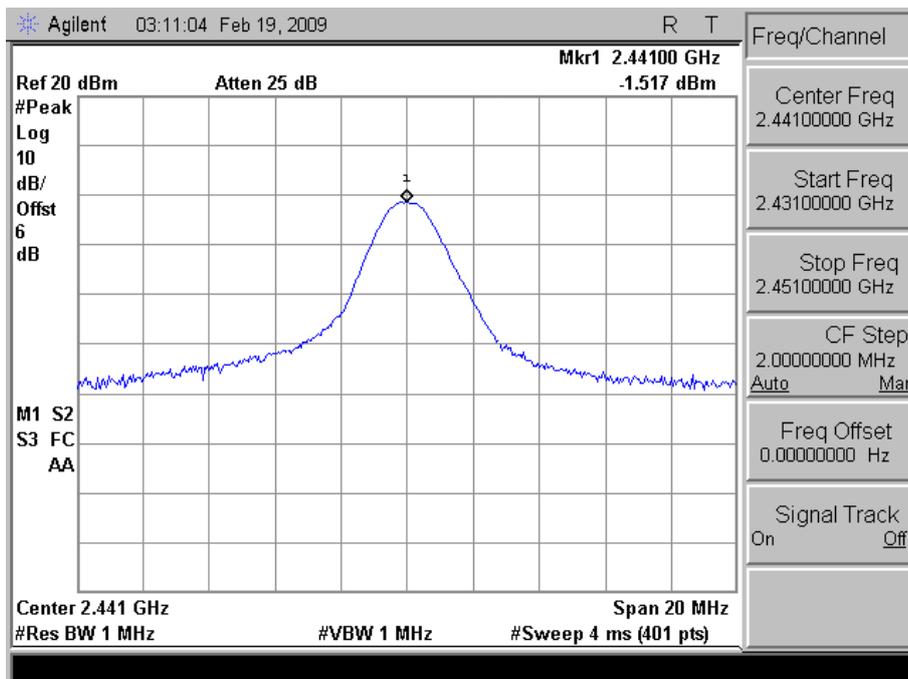


4.5 Test Graphs

CH00 (2402MHz)

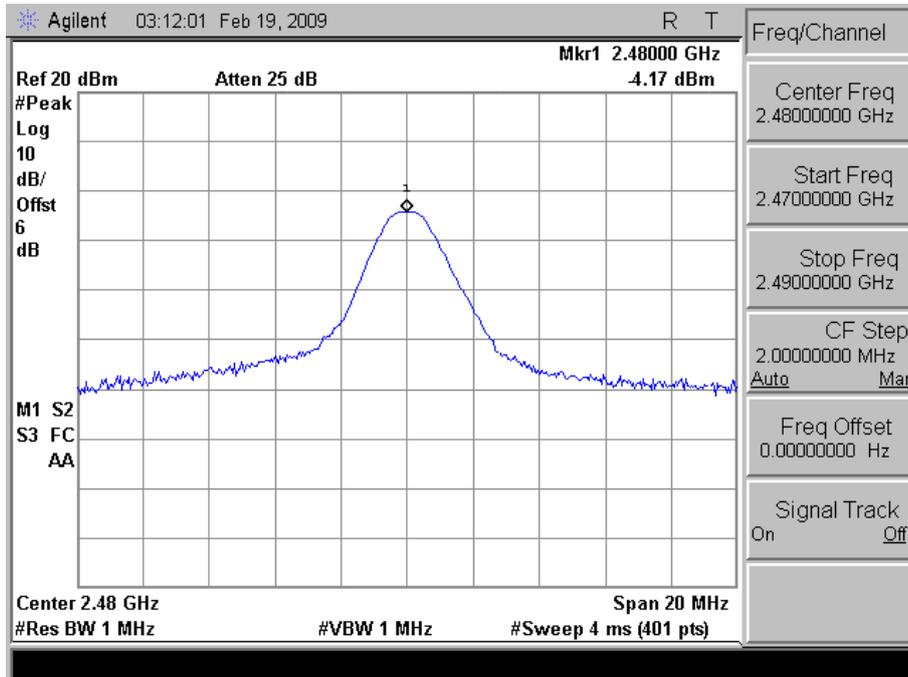


CH39 (2441MHz)





CH78 (2480MHz)



5. Minimum 20dB RF Bandwidth Requirements

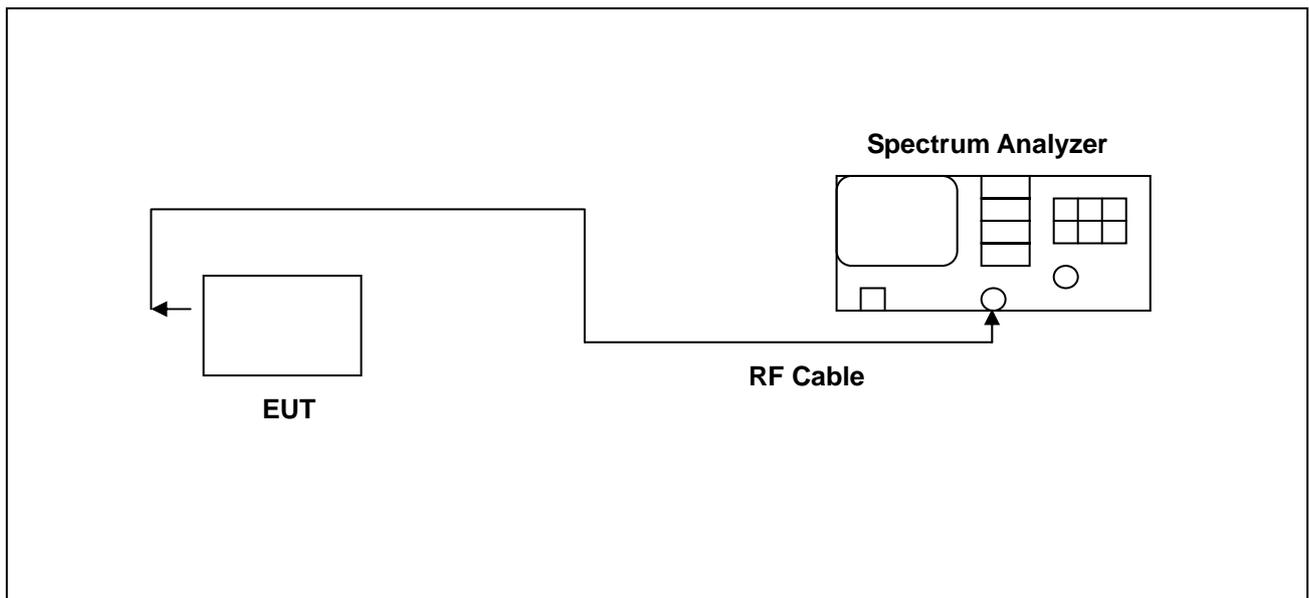
5.1 Test Condition & Setup:

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = approx. 2 to 3 times the 20dB bandwidth, centered on a hopping frequency
2. RBW \geq 1% of the 20dB span
3. VBW \geq RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The EUT was transmitting at its maximum data rate. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20dB down one side of the emission. The marker-delta function and marker was moved to the other side of the emission until it was even with the reference marker. The marker-delta reading at this point was the 20dB bandwidth of the emission.

5.2 Test Instruments Configuration:





5.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 22, 2008	Nov. 22, 2009

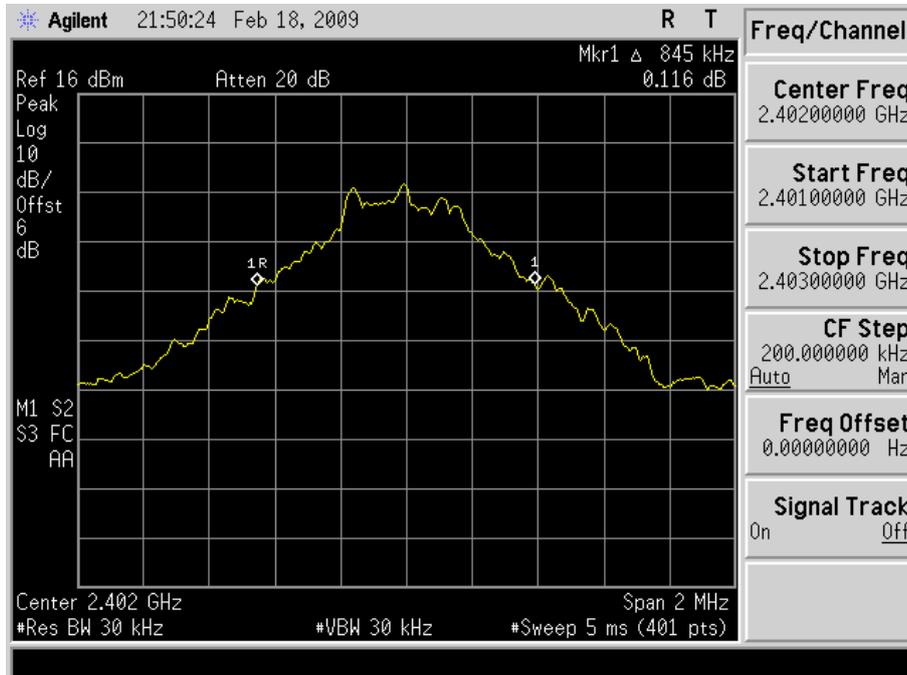
5.4 Test Result

Frequency (MHz)	Max 20dB Bandwidth (MHz)	Required Limit
2402	0.845	<1MHz
2441	0.765	<1MHz
2480	0.790	<1MHz

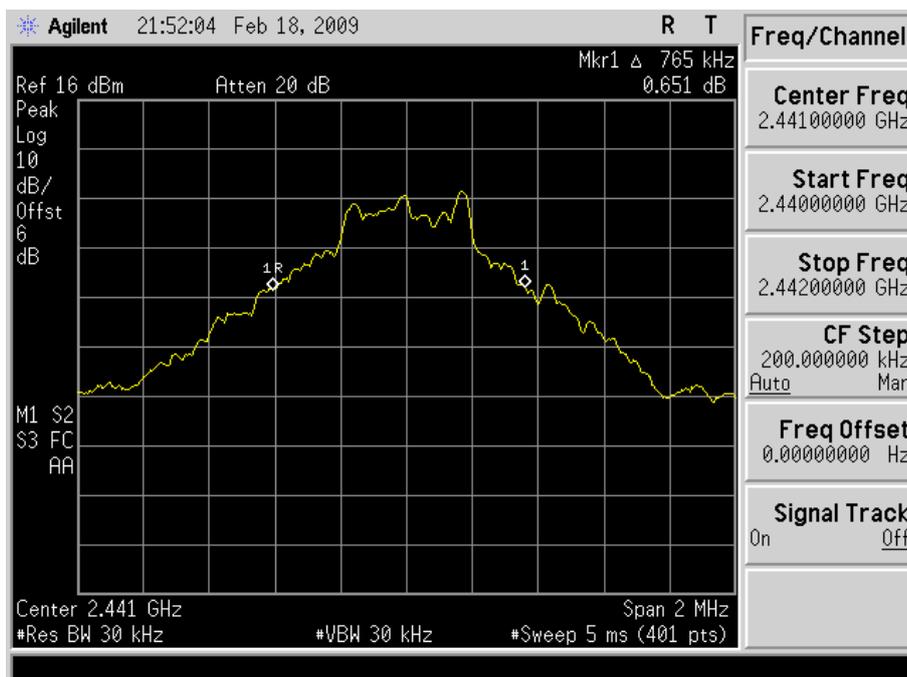


5.5 Test Graphs

CH00 (2412MHz)

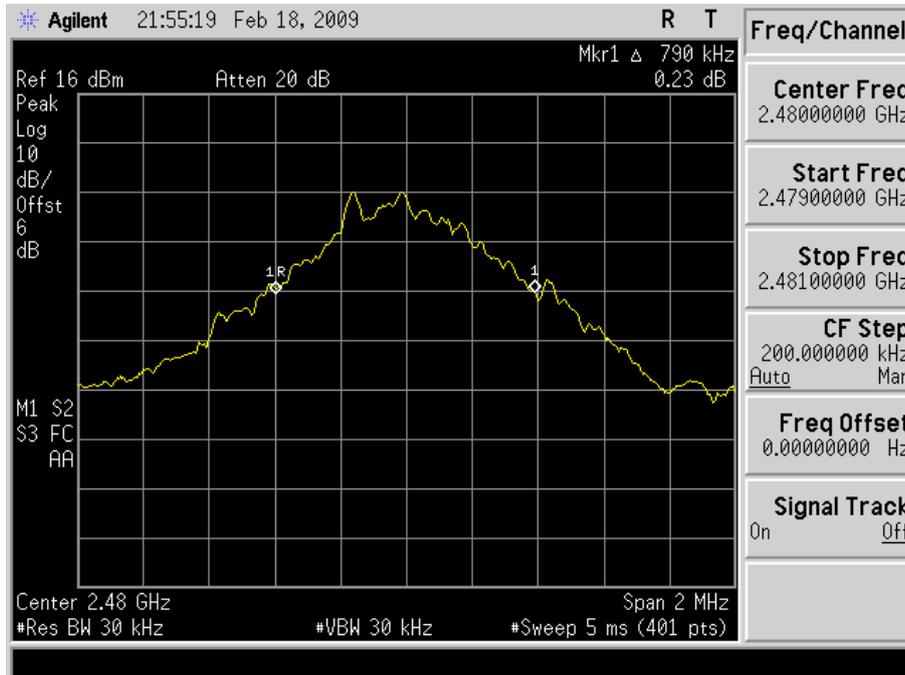


CH39 (2441MHz)





CH78 (2480MHz)



6. Carrier Frequency Separation Requirements

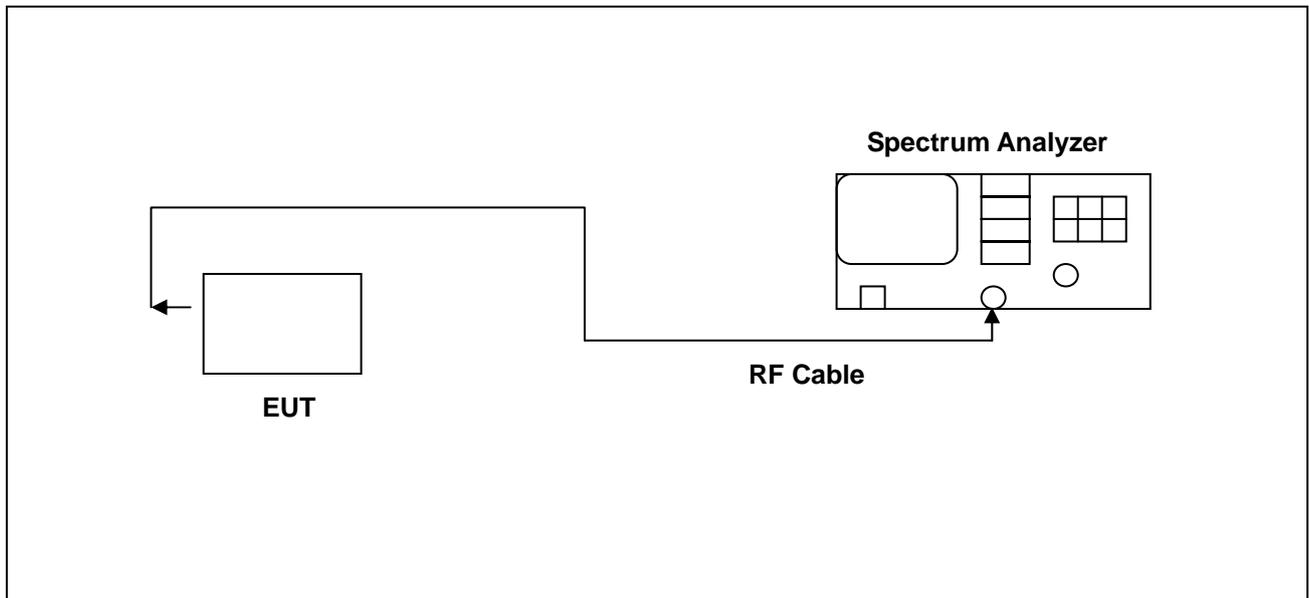
6.1 Test Condition & Setup:

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth transmitter of the V6 had its hopping function enabled. The following spectrum analyzer settings were used:

1. Span = wide enough to capture the peaks of two adjacent channels
2. Resolution (or IF) Bandwidth (RBW) \geq 1% of the span
3. Video (or Average) Bandwidth (VBW) \geq RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The marker-delta function was used to determine the separation between the peaks of the adjacent channels.

6.2 Test Instruments Configuration:





6.3 Test Equipment List:

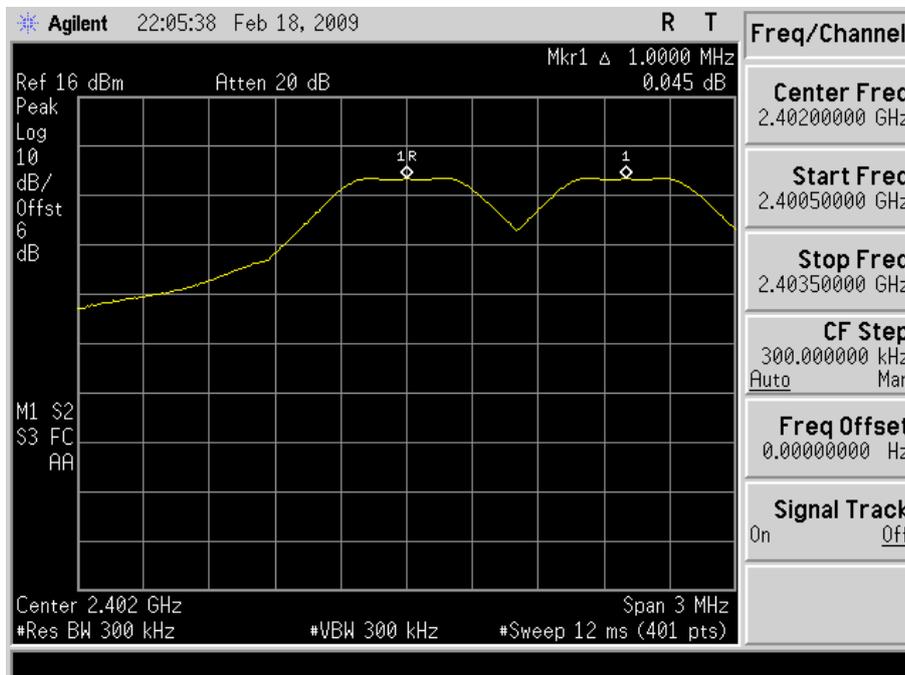
Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009
Attenuator	RADIALL	R41572000	0603033073	NA	NA

6.4 Test Result:

Carrier Frequency Separation Measure:	1 MHz
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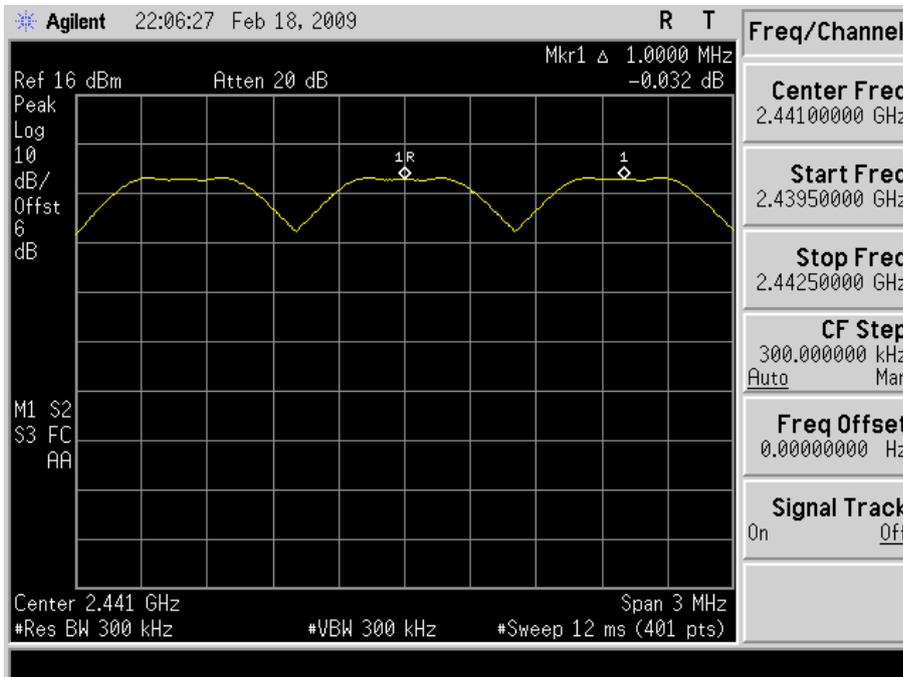
6.5 Test Graphs

CH00 (2412MHz)

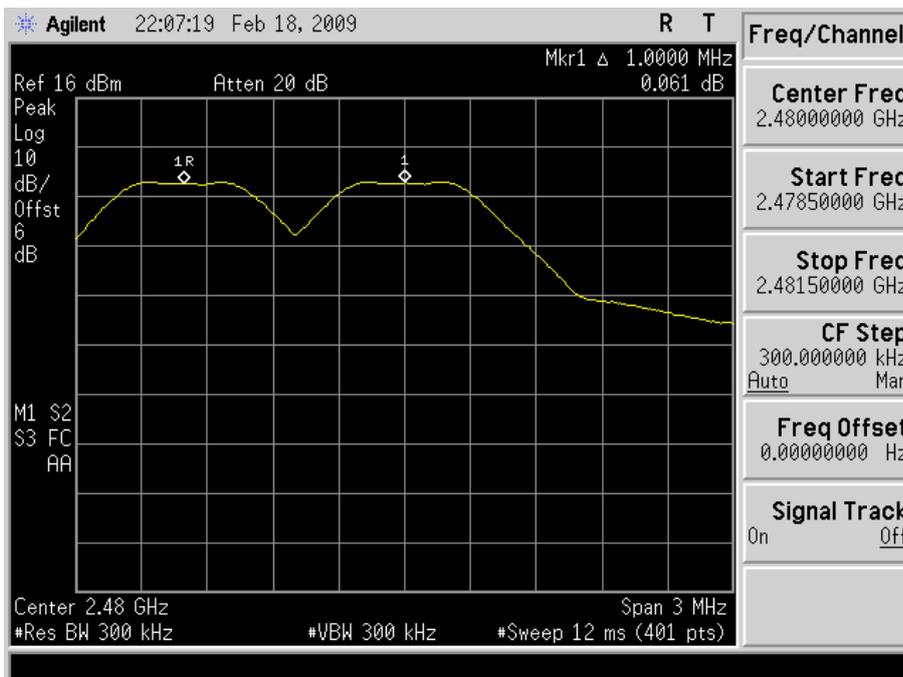




CH39 (2441MHz)



CH78 (2480MHz)



7. Number of Hopping Requirements

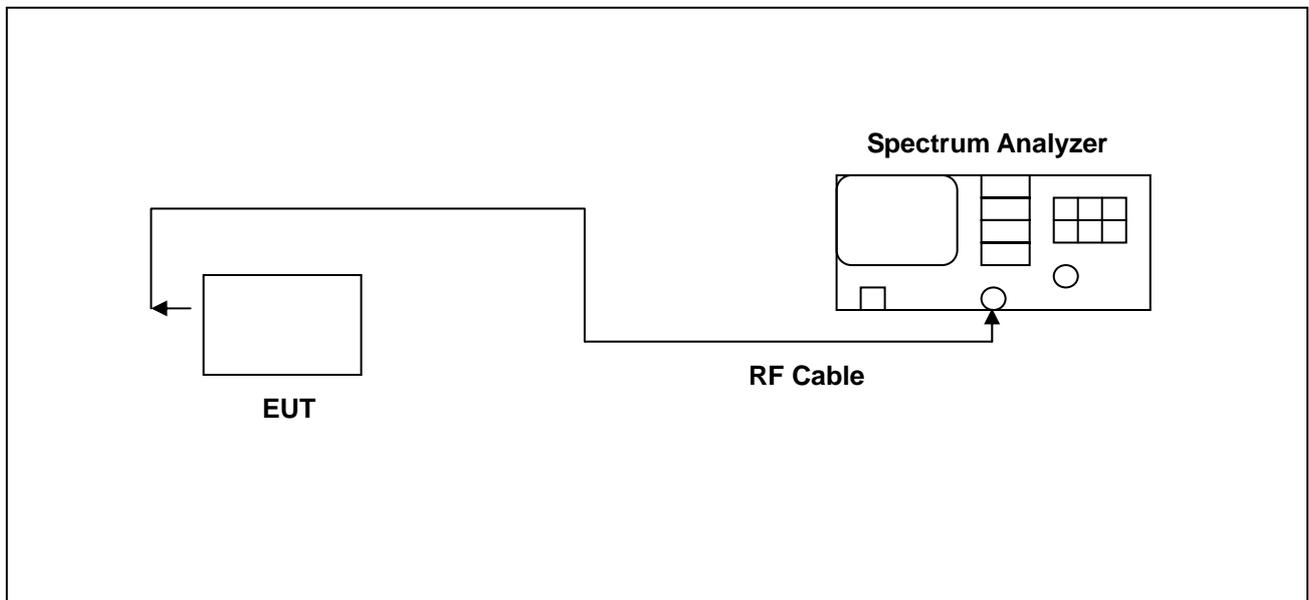
7.1 Test Condition & Setup:

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = the frequency band of operation
2. RBW \geq 1% of the span
3. VBW \geq RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize.

7.2 Test Instruments Configuration:





7.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009
Attenuator	RADIALL	R41572000	0603033073	NA	NA

7.4 Test Result:

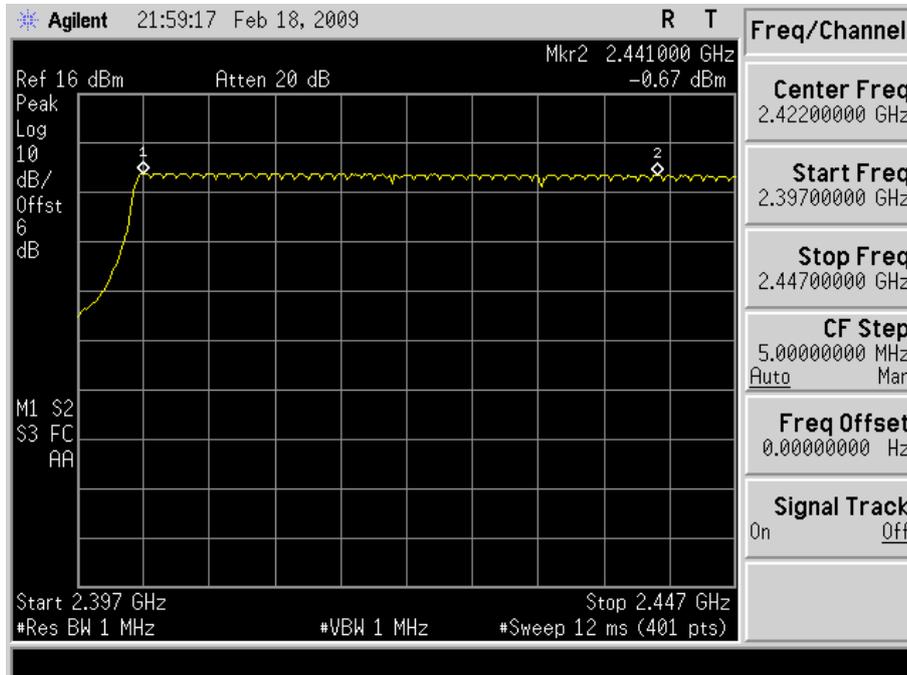
Number of Hopping Measure:	79 CH
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Note: Test Graphs See next page.

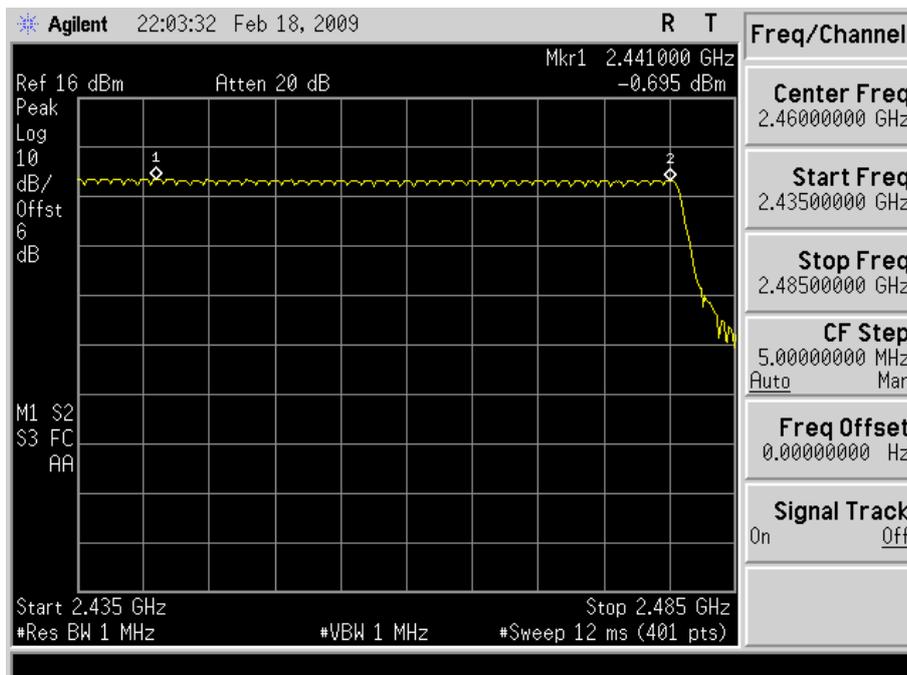


7.5 Test Graphs

CH0~CH39



CH40~CH78



8. Time of Occupancy (Dwell Time) Requirements

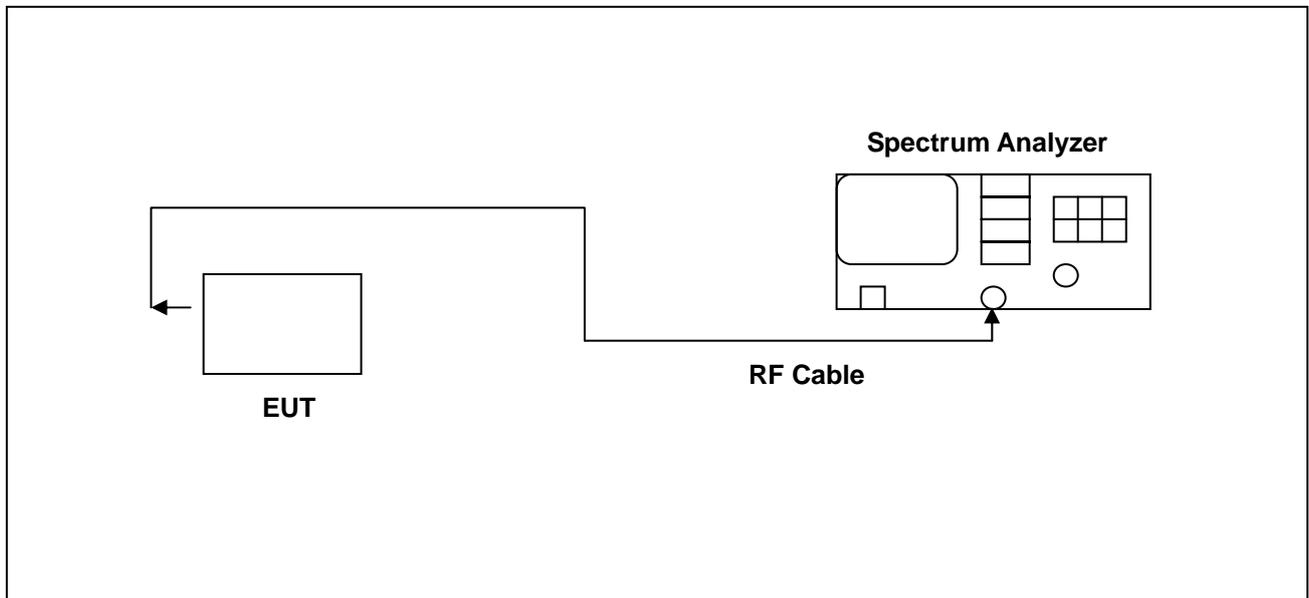
8.1 Test Condition & Setup:

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth hopping function of the EUT was enabled. The following spectrum analyzer settings were used:

1. Span = zero span, centered on a hopping channel
2. RBW = 1 MHz
3. VBW \geq RBW
4. Sweep = as necessary to capture the entire dwell time per hopping channel
5. Detector function = peak
6. Trace = max hold

The marker-delta function was used to determine the dwell time.

8.2 Test Instruments Configuration:





8.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009
Attenuator	RADIALL	R41572000	0603033073	NA	NA



8.4 Test Result

Bluetooth 2.0 DH1 Mode

Cycle Calculate	$79\text{CH} * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$800/79\text{CH} = 10.13(\text{times/sec})$
Each Channel Dwell Times (1)	0.440 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6 * 10.13 = 320.108(\text{times})$
Dwell Times on Cycle (1) * (2)	140.84752 ms (sec)
LIMIT(msec)	$< = 400$

Bluetooth 2.0 DH3 Mode

Cycle Calculate	$79\text{CH} * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$400/79\text{CH}=5.1(\text{times/sec})$
Each Channel Dwell Times (1)	1.7 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6*5.1=161.16(\text{times})$
Dwell Times on Cycle (1) * (2)	273.972 ms (sec)
LIMIT(msec)	$< = 400$

Bluetooth 2.0 DH5 Mode

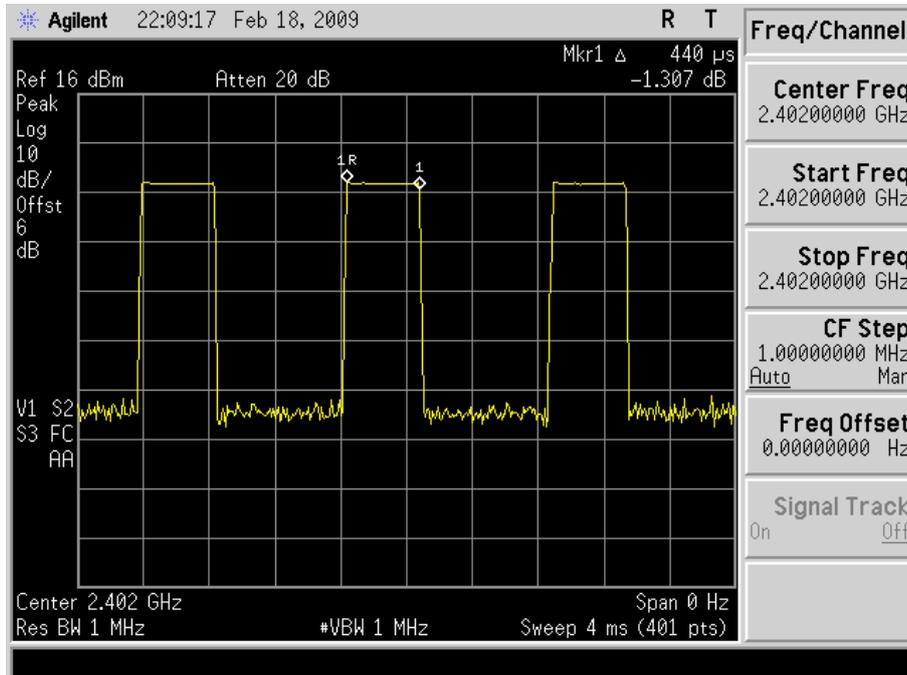
Cycle Calculate	$79\text{CH} * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$266.7/79\text{CH}=3.37 \text{ (times/sec)}$
Each Channel Dwell Times (1)	2.94 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6*2.82=106.492 \text{ (times)}$
Dwell Times on Cycle (1) * (2)	313.08648 ms (sec)
LIMIT(msec)	$< = 400$

Note: RB=1MHz; VB=1MHz; SPAN=0MHz; Sweep Time=20msec

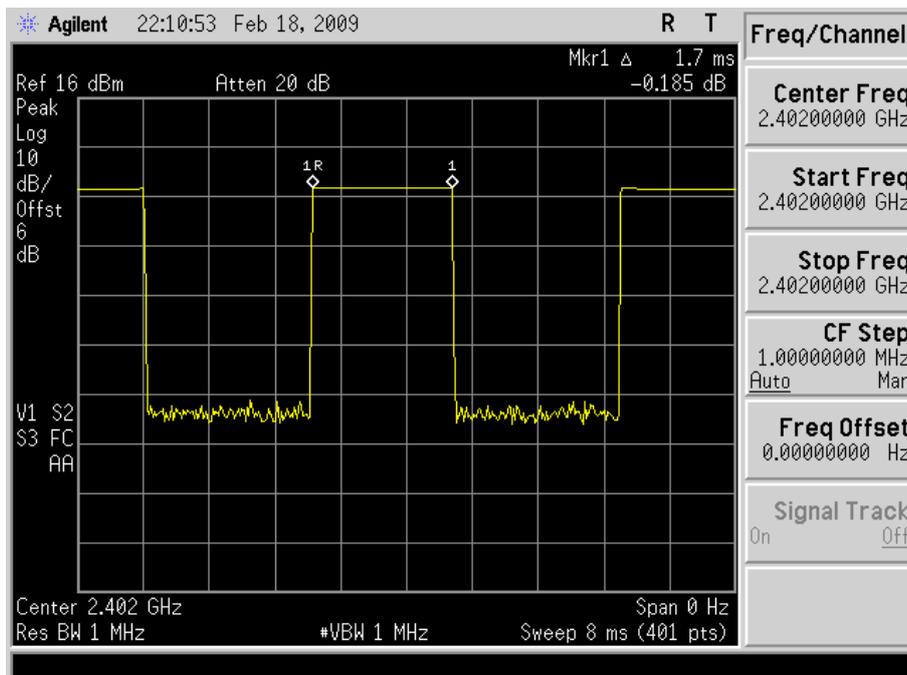


8.5 Test Graphs

DH1

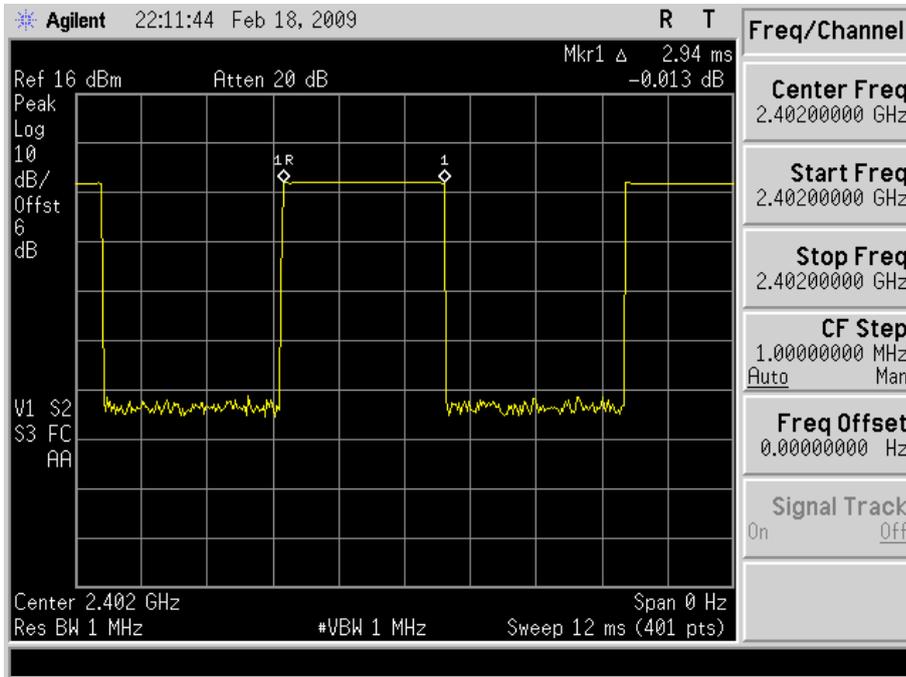


DH3





DH5



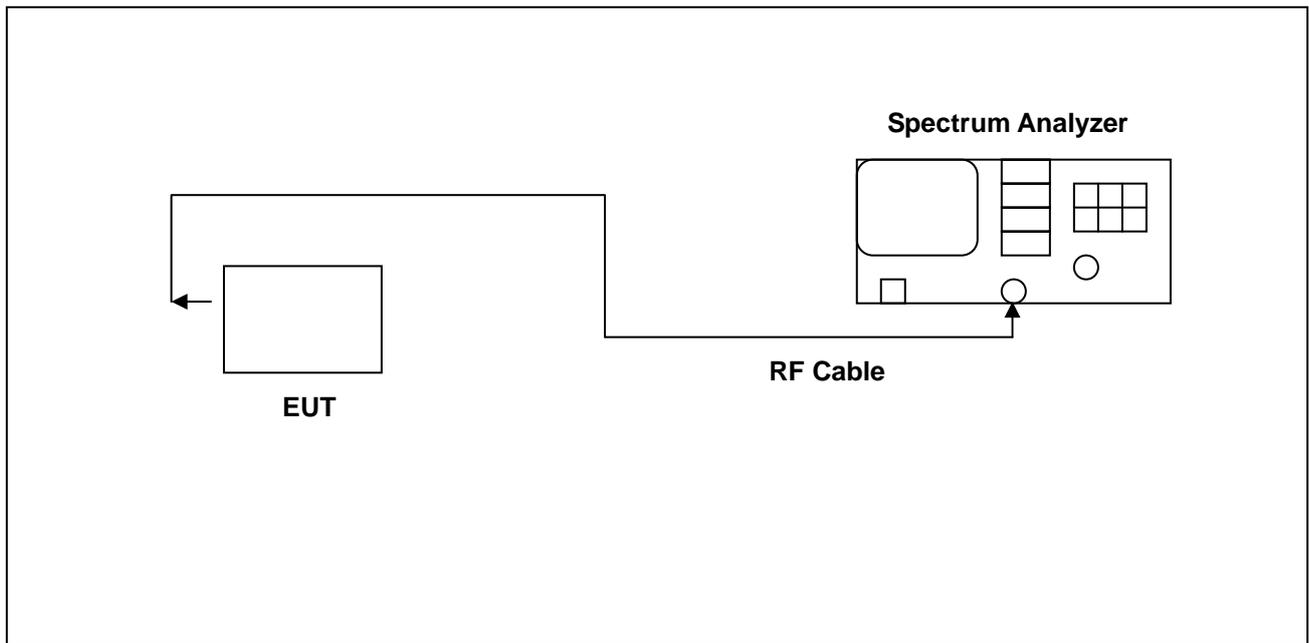
9. Out of Band Conducted Emissions Requirements

9.1 Test Condition & Setup:

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels (Channel 1, 6, 11)

9.2 Test Instruments Configuration:





9.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009

9.4 Test Result:

Refer to attached data sheets. Data shows out of band emissions are suppressed well below the -20 dBc minimum required by the Rules.

Note: Test Graphs See next page.

9.5 Test Graphs

Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
Model No : G5720
EUT : HUAWEI G5720
Test Mode : Bluetooth 2.0 Link Mode
Test Date : 02/18/2009

Please refer to next pager of detail testing data.



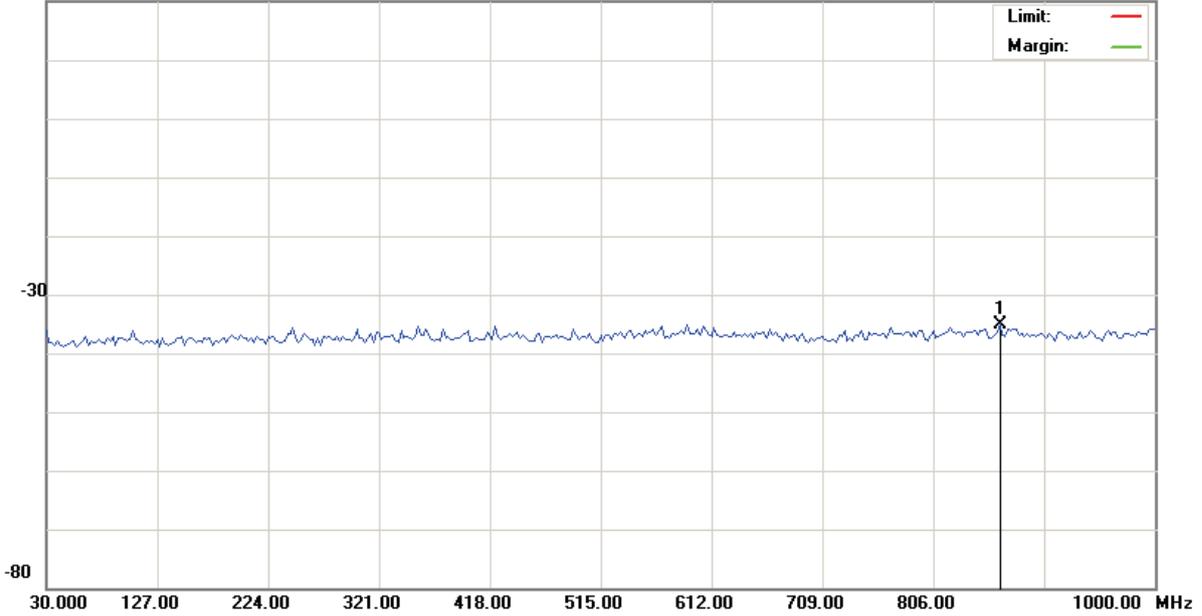
File :BT

Data :#1

Date: 2009/2/18

Time: 下午 10:26:24

20.0 dBm



Site site#1 Polarization: Temperature: 26 °C
 Limit: Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT
 Note: 2402MHz
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	864.2000	-41.03	6.03	-35.00			peak		Comment

*:Maximum data x:Over limit !:over margin

●Reference Only



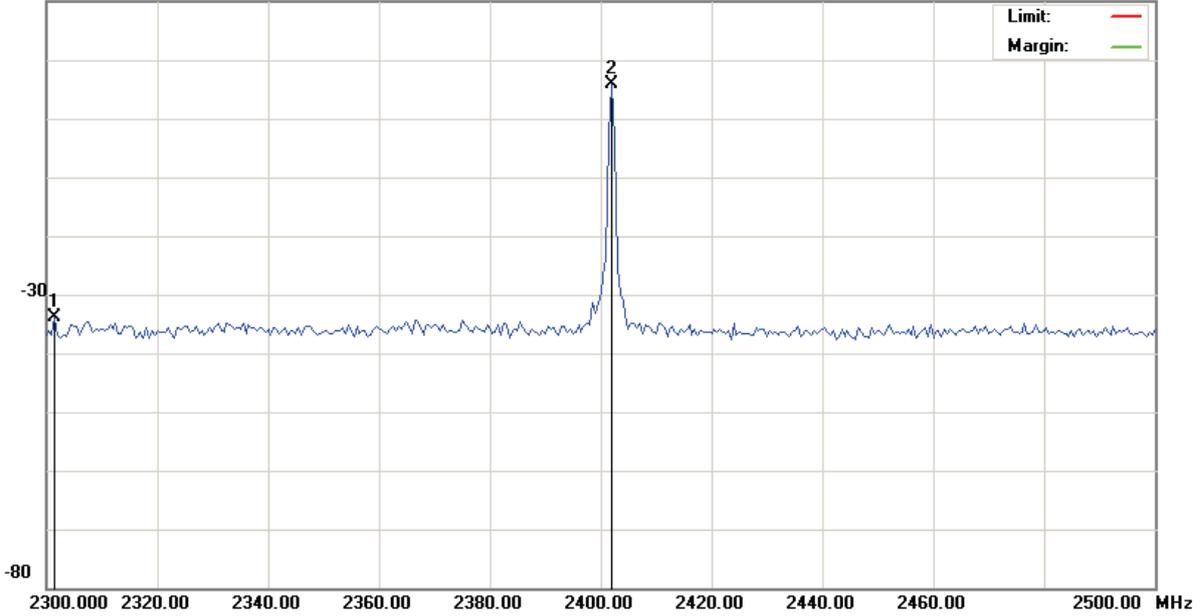
File :BT

Data :#3

Date: 2009/2/18

Time: 下午 10:26:52

20.0 dBm



Site site#1

Polarization:

Temperature: 26 °C

Limit:

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:

M/N: 09-0064-SEO

Mode: BT

Note: 2402MHz

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1		2301.500	-39.96	6.09	-33.87					peak
2	*	2402.000	-0.25	6.09	5.84					peak

*:Maximum data x:Over limit !:over margin

●Reference Only



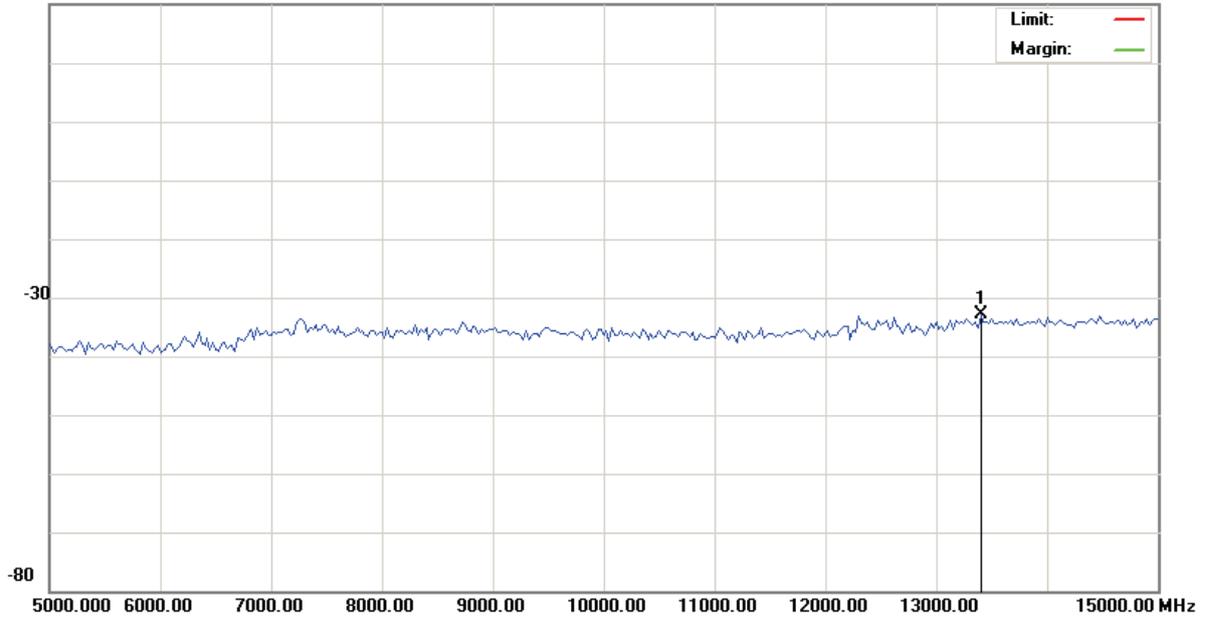
File :BT

Data :#4

Date: 2009/2/18

Time: 下午 10:27:06

20.0 dBm



Site site#1	Polarization:	Temperature: 26 °C
Limit:	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	
M/N: 09-0064-SEO		
Mode: BT		
Note: 2402MHz		
加10db衰減器		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	13400.00	-39.27	6.51	-32.76					peak

*:Maximum data x:Over limit !:over margin

●Reference Only



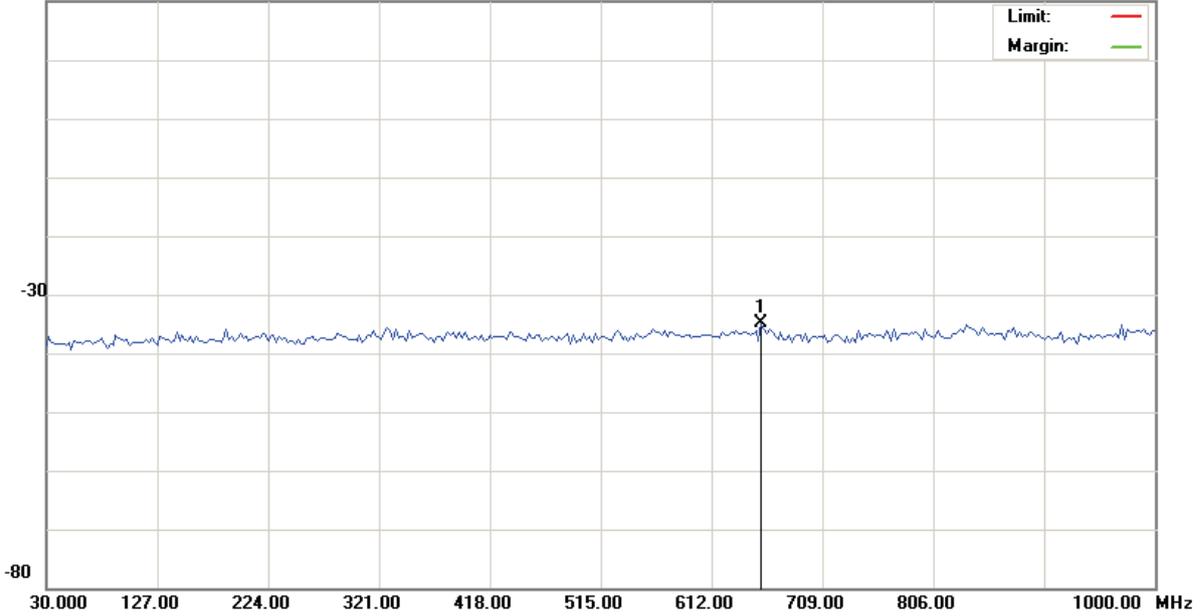
File :BT

Data :#6

Date: 2009/2/18

Time: 下午 10:33:25

20.0 dBm



Site site#1 Polarization: Temperature: 26 °C
 Limit: Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT
 Note: 2441MHz
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	655.6500	-40.92	6.02	-34.90					peak

*:Maximum data x:Over limit !:over margin

●Reference Only



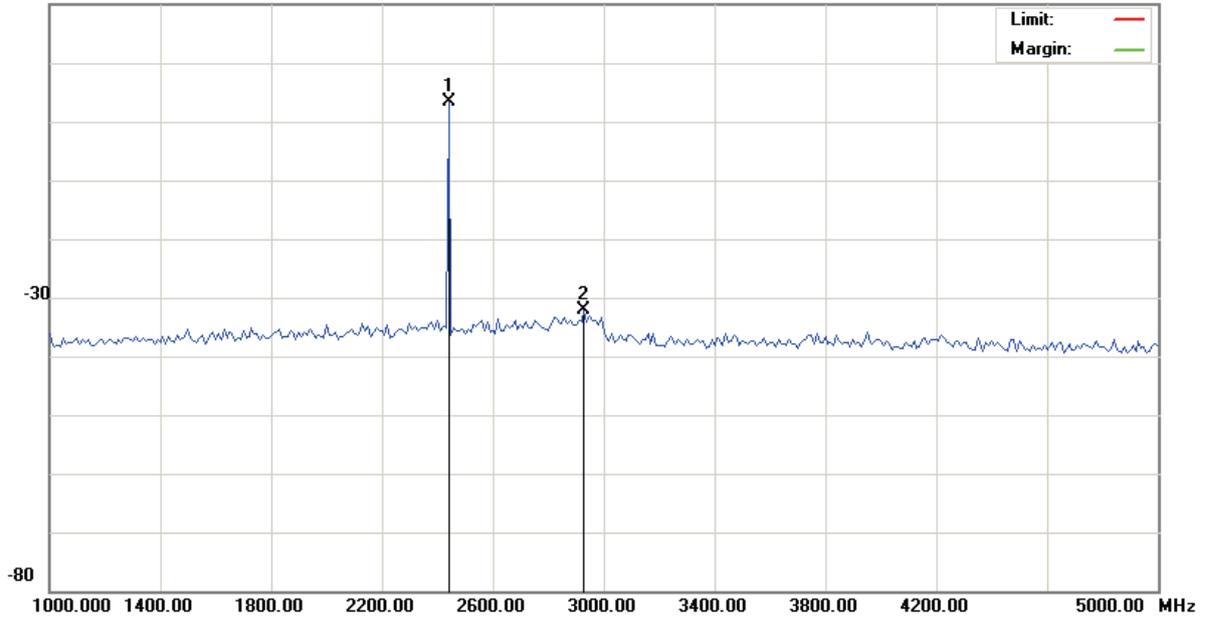
File :BT

Data :#7

Date: 2009/2/18

Time: 下午 10:33:39

20.0 dBm



Site site#1 Polarization: Temperature: 26 °C
 Limit: Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT
 Note: 2441MHz
 加10db衰減器

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2440.000	-2.78	6.09	3.31					peak
2		2930.000	-38.14	6.11	-32.03					peak

*:Maximum data x:Over limit !:over margin

●Reference Only



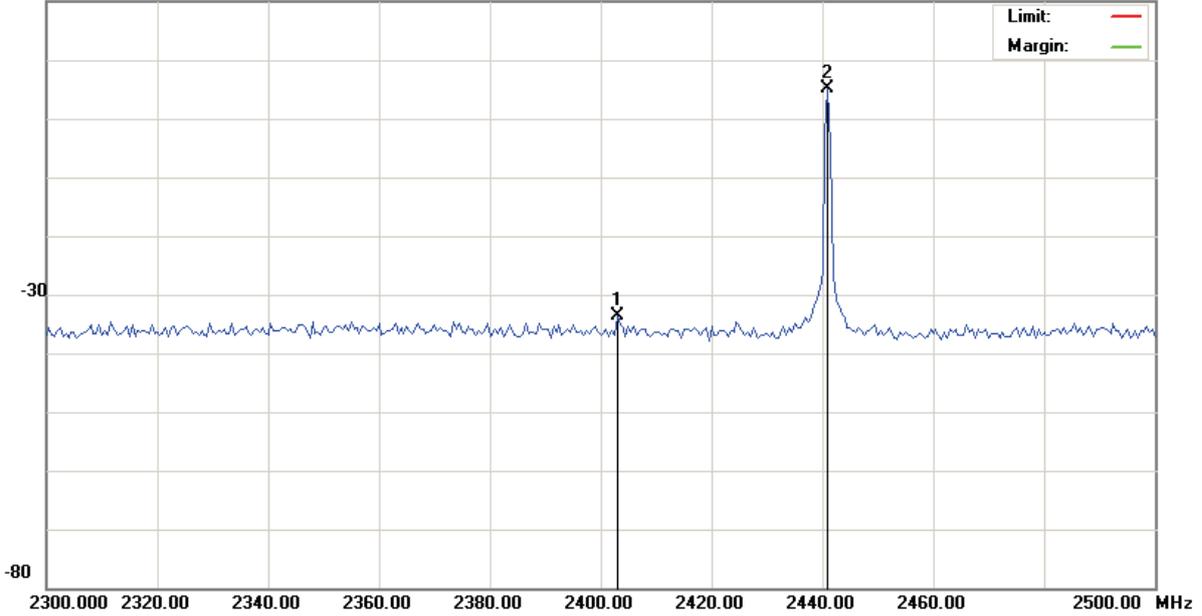
File :BT

Data :#8

Date: 2009/2/18

Time: 下午 10:33:52

20.0 dBm



Site site#1 Polarization: Temperature: 26 °C
 Limit: Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT
 Note: 2441MHz
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1		2403.000	-39.76	6.09	-33.67					peak
2	*	2441.000	-0.94	6.09	5.15					peak

*:Maximum data x:Over limit !:over margin

●Reference Only



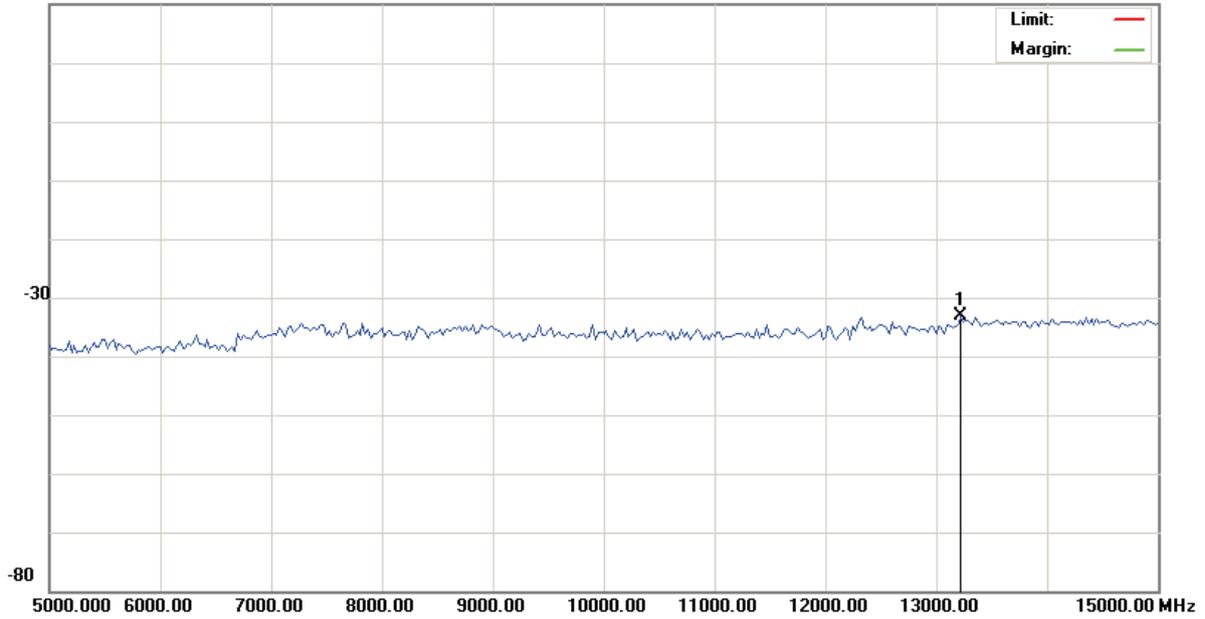
File :BT

Data :#9

Date: 2009/2/18

Time: 下午 10:34:06

20.0 dBm



Site site#1	Polarization:	Temperature: 26 °C
Limit:	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	
M/N: 09-0064-SEO		
Mode: BT		
Note: 2441MHz		
加10db衰減器		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	13225.00	-39.51	6.50	-33.01					peak

*:Maximum data x:Over limit !:over margin

●Reference Only



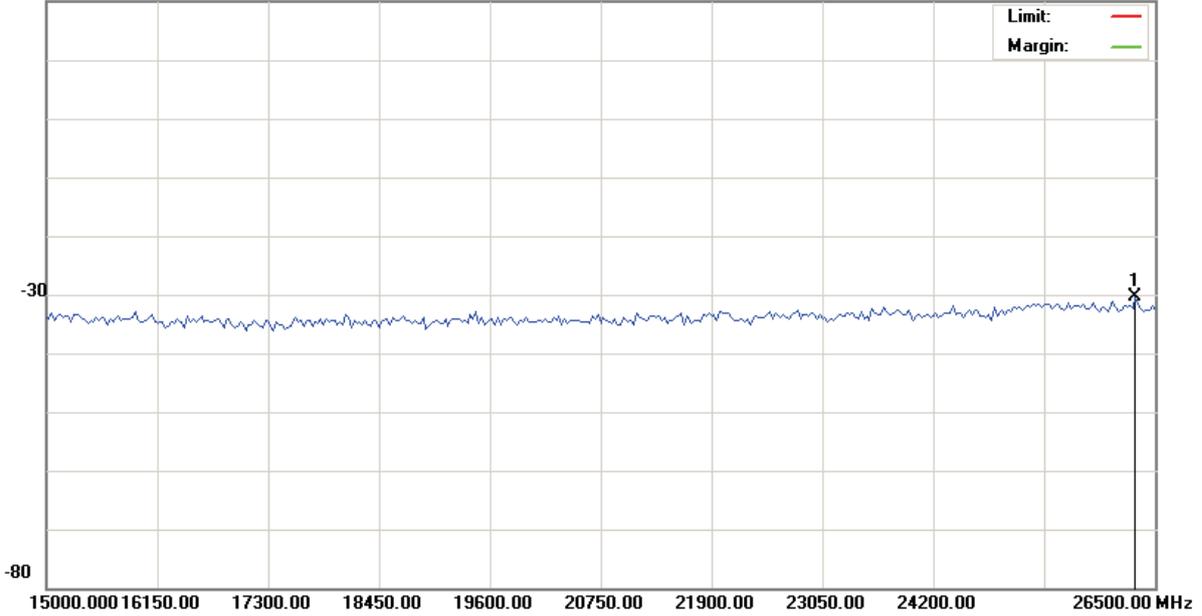
File :BT

Data :#10

Date: 2009/2/18

Time: 下午 10:34:20

20.0 dBm



Site site#1 Polarization: Temperature: 26 °C
 Limit: Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT
 Note: 2441MHz
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	26298.75	-37.43	6.99	-30.44			peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



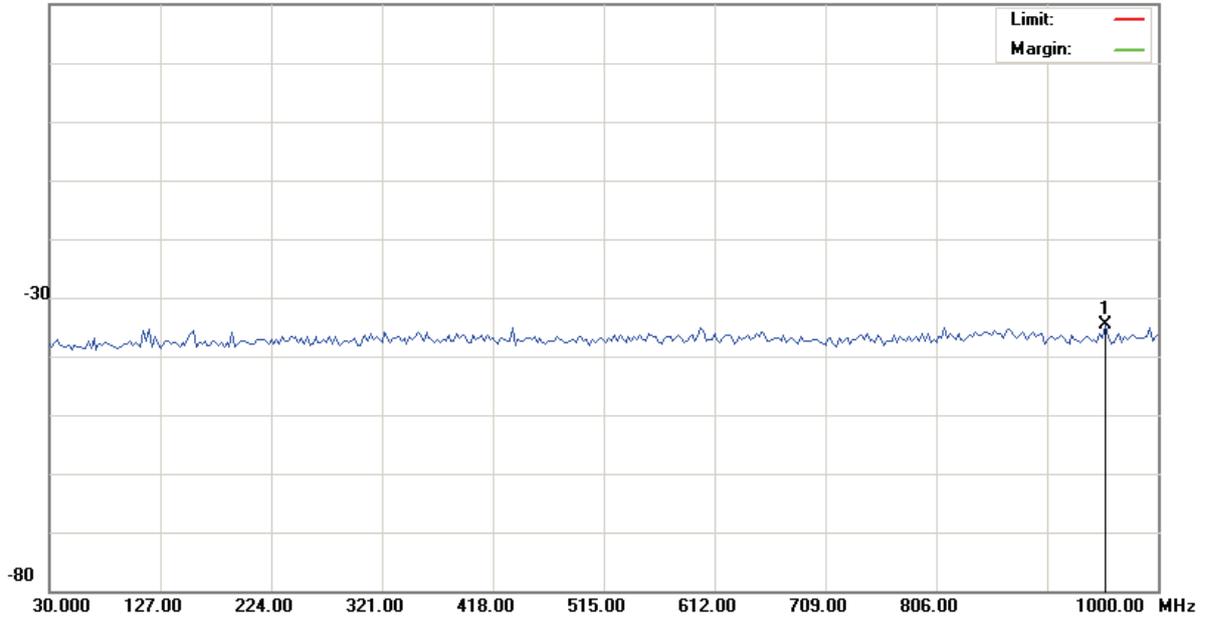
File :BT

Data :#11

Date: 2009/2/18

Time: 下午 10:34:50

20.0 dBm



Site site#1 Polarization: Temperature: 26 °C
 Limit: Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT
 Note: 2480MHz
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	953.9250	-40.77	6.03	-34.74					peak

*:Maximum data x:Over limit !:over margin

●Reference Only



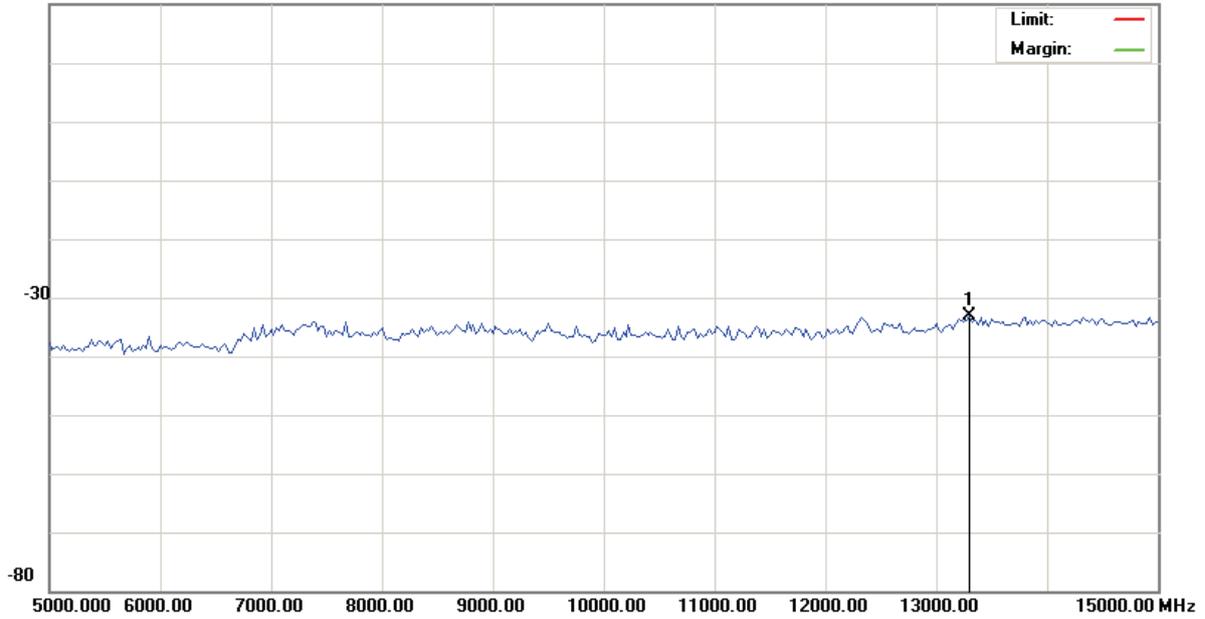
File :BT

Data :#14

Date: 2009/2/18

Time: 下午 10:35:31

20.0 dBm



Site site#1 Polarization: Temperature: 26 °C
 Limit: Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT
 Note: 2480MHz
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree		
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	13300.00	-39.64	6.50	-33.14			peak			

*:Maximum data x:Over limit !:over margin

●Reference Only



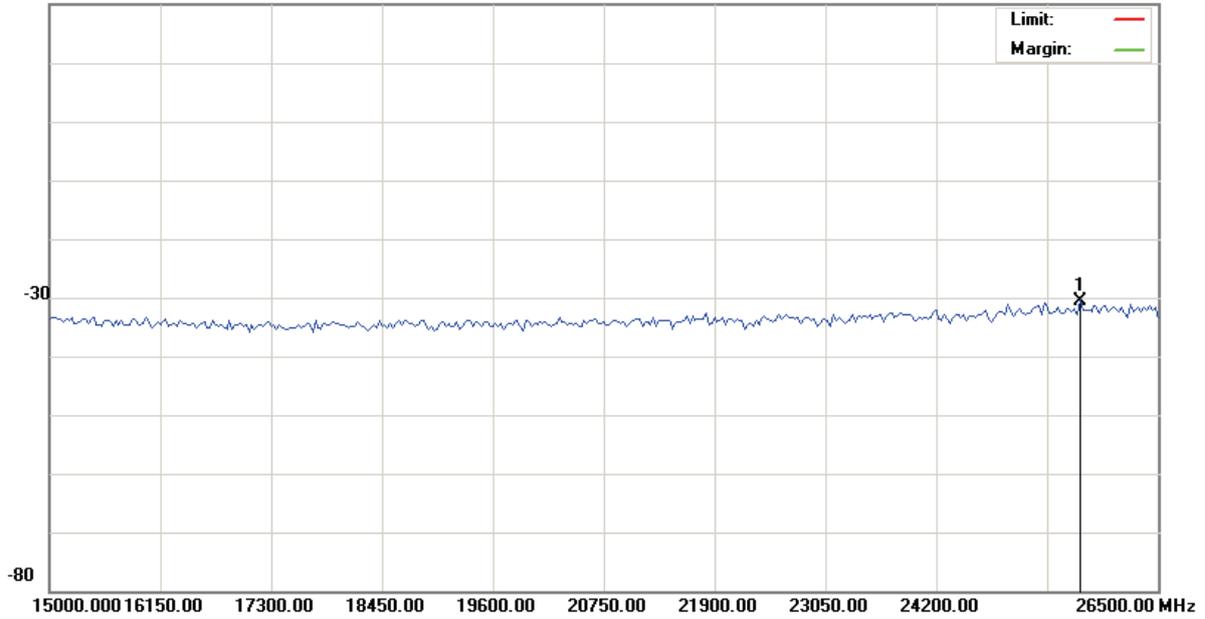
File :BT

Data :#15

Date: 2009/2/18

Time: 下午 10:35:45

20.0 dBm



Site site#1 Polarization: Temperature: 26 °C
 Limit: Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance:
 M/N: 09-0064-SEO
 Mode: BT
 Note: 2480MHz
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	25695.00	-37.47	6.97	-30.50					peak

*:Maximum data x:Over limit !:over margin

●Reference Only

10. Band Edges Requirements

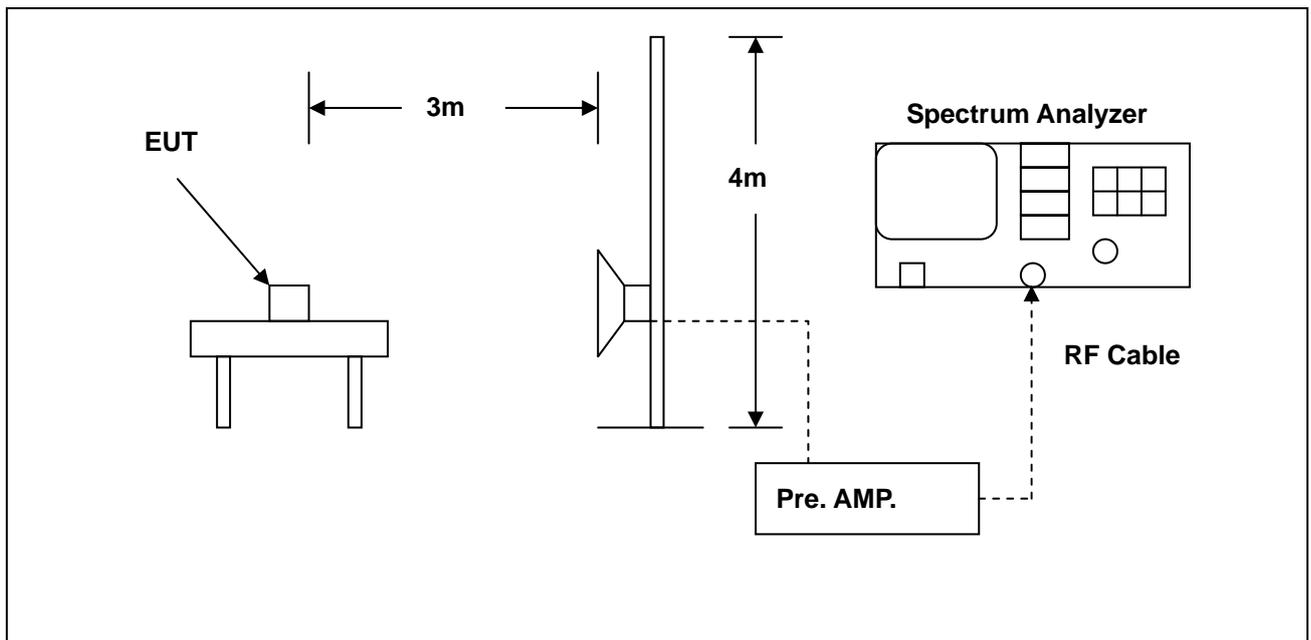
10.1 Test Condition & Setup:

The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz and at 2390.0 MHz.

The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 2390.0 MHz. These tests were performed at 4 different bit rates.

10.2 Test Instruments Configuration:





10.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4408B	MY45107753	Jun. 05, 2008	Jun. 05, 2009
Pre Amplifier	Agilent	8449B	3008A02237	Jun. 03, 2008	Jun. 03, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	Jun. 26, 2008	Jun. 26, 2009

10.4 Test Result

Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
Model No : G5720
EUT : HUAWEI G5720
Test Mode : Low CH & High CH
Test Date : 02/19/2009

Test Graphs See next page.

Notes:

1. Margin= Amplitude - Limits
2. Height of table for EUT placed: 0.8 Meter.
3. ANT= Antenna height.
4. Duty= Duty cycle correction factor.
5. Dis= Distance extrapolation factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
7. Actual Amp= Amplitude – Duty – Dis.



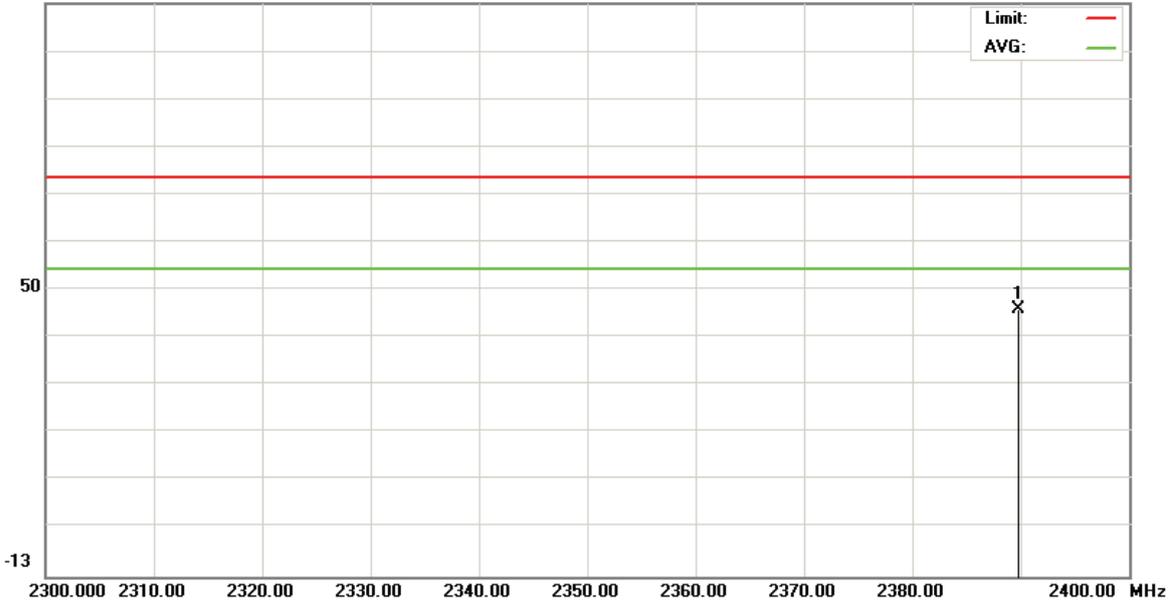
File :VE3(BandEdge)

Data :#1

Date: 2009/2/19

Time: 上午 11:43:00

112.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BAND EDGE(BT2.0)
 Note: 2402MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	2389.800	44.95	0.19	45.14	74.00	-28.86			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



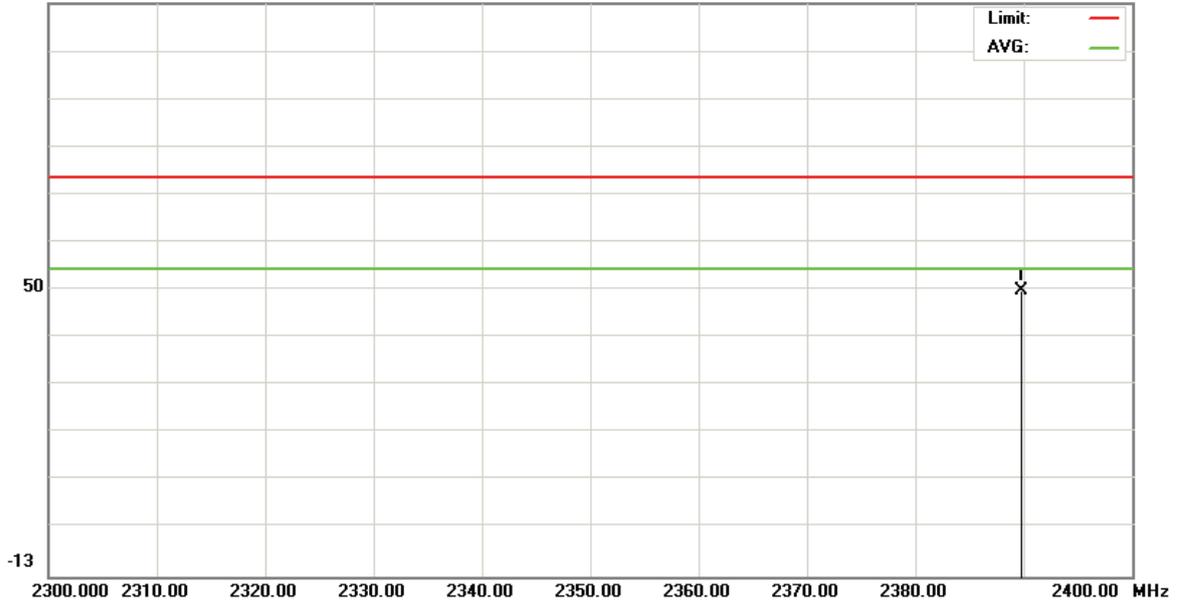
File :VE3(BandEdge)

Data :#5

Date: 2009/2/19

Time: 下午 12:02:38

112.0 dBuV



Site Polarization: *Horizontal* Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BAND EDGE(BT2.0)
 Note: 2402MHz · Antenna 164cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	2389.800	49.06	0.19	49.25	74.00	-24.75	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



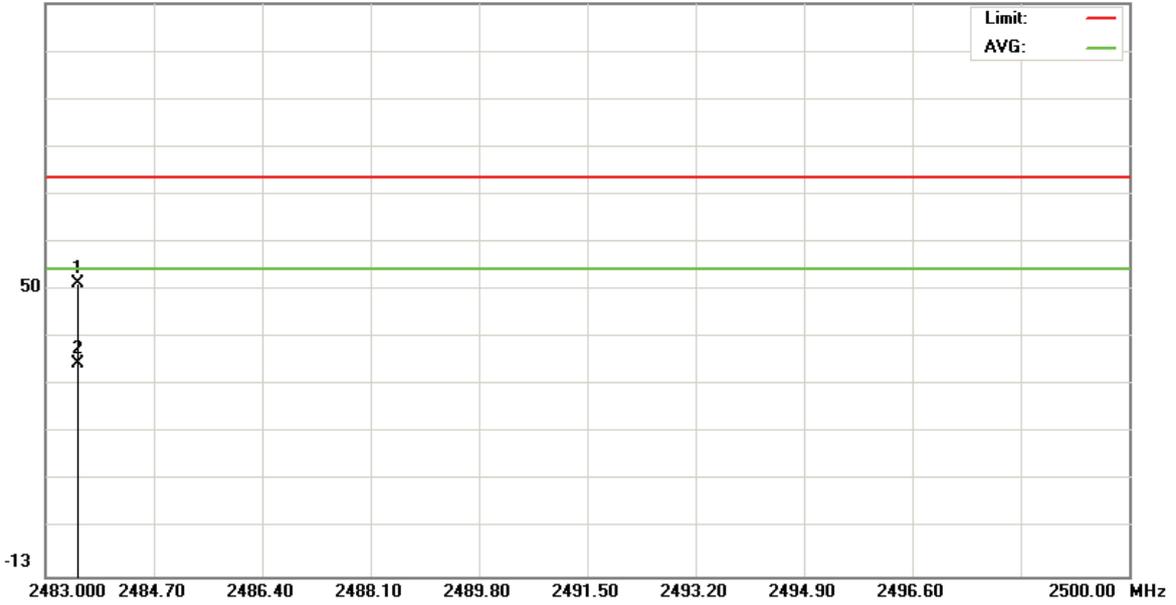
File :VE3(BandEdge)

Data :#3

Date: 2009/2/19

Time: 上午 11:49:49

112.0 dBuV



Site Polarization: *Vertical* Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BAND EDGE(BT2.0)
 Note: 2480MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		2483.510	50.80	0.25	51.05	74.00	-22.95			peak
2	*	2483.510	33.21	0.25	33.46	54.00	-20.54			AVG

*:Maximum data x:Over limit !:over margin

●Reference Only



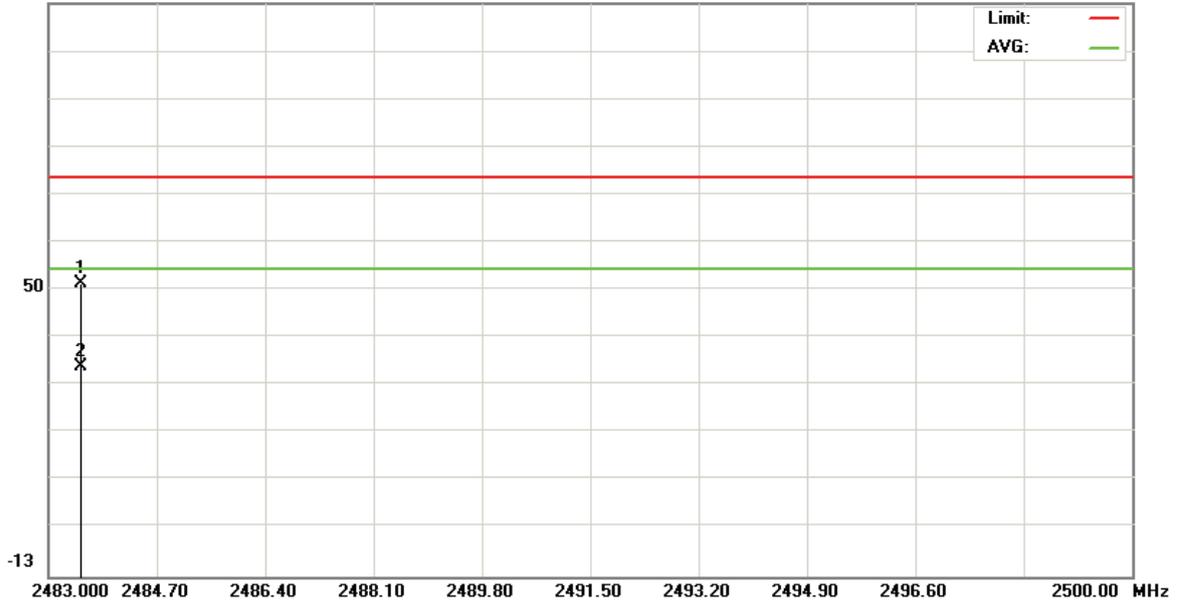
File :VE3(BandEdge)

Data :#7

Date: 2009/2/19

Time: 下午 12:09:37

112.0 dBuV



Site Polarization: *Horizontal* Temperature: 22 °C
 Limit: FCC part 15 (PK) Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: 09-0064-SEO
 Mode: BAND EDGE(BT2.0)
 Note: 2480MHz · Antenna 100cm

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		2483.510	50.72	0.25	50.97	74.00	-23.03			peak
2	*	2483.510	32.68	0.25	32.93	54.00	-21.07			AVG

*:Maximum data x:Over limit !:over margin

●Reference Only



11. Antenna Requirements

11.1 Standard Applicable:

For intentional device, according to 15.203, 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.

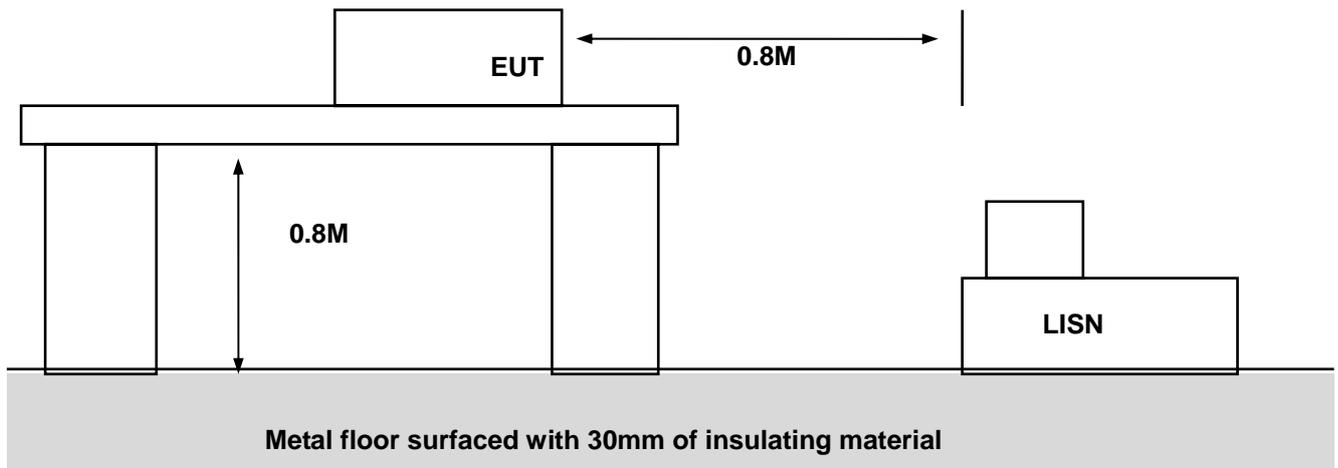
And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2 Antenna Connector Construction

The antenna used in this product is internal antenna. And the maximum Gain of this antenna is only **0.5dBi**.

Appendix A - EUT Test SETUP

MEASUREMENT OF POWER LINE CONDUCTED RFI VOLTAGE



MEASUREMENT OF RADIATED EMISSION

