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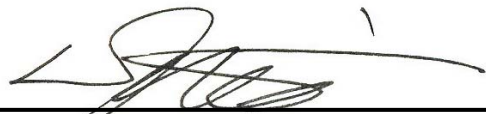
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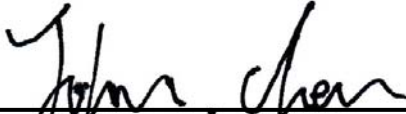
P15C Measurement Report



Report No.	: 0907FR16
Applicant	: SMK-Link Electronics
Product Type	: BLU-LINK™ UNIVERSAL REMOTE CONTROL
Trade Mark	: 
Model No	: VP3700
FCC ID	: IE3VP37XX09
IC ID	: 3683C-VP37XX09
Dates of Test	: Jul. 14 ~ 24, 2009
Test Specification	: FCC Part 15 Subpart C (15.247) Canada RSS-210 Issue 7(June 2007) Canada RSS-Gen Issue 2(June 2007) ANSI C63.4-2003
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.
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4. This document may be altered or revised by A Test Lab Techno. Corp. personnel only, and shall be noted in the revision section of the document.


Kevin Wang 20090804
Approve Signer


John Cheng 20090804
Testing Engineer



CERTIFICATION

We hereby 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.

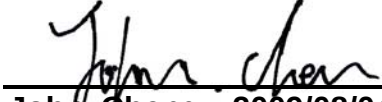
We further submit that the energy emitted by the sample EUT tested as described in the report is in compliance with Class B radiated and conducted emission limit of FCC Rules Part 15 Subpart C (15.247) & Canada RSS-210 Issue 6(September 2005) & Canada RSS-Gen Issue 1(September 2005).

EUT : BLU-LINK™ UNIVERSAL REMOTE CONTROL
Applicant : SMK-Link Electronics
3601-B Calle Tecate, Camarillo, California 93012, United States
Trade Mark : 
Model No : VP3700
FCC ID : IE3VP37XX09
IC ID : 3683C-VP37XX09

Approved by :


Kevin Wang 2009/08/04

Prepared by :


John Cheng 2009/08/04

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 :

SMK-Link Electronics

3601-B Calle Tecate, Camarillo, California 93012, United States

Manufacturer : SMK-LINK
Manufacturer Address : SMK-M Av. Ferrocarril Km.14.5 Centro Ind. Los Pinos Naves
3 y 4 Tijuana, B.C. 22680
Trade Mark : 
Product Model : VP3700
Product Type : BLU-LINK™ UNIVERSAL REMOTE CONTROL
FCC ID : IE3VP37XX09
IC ID : 3683C-VP37XX09
Frequency of Channel : See Table 1
Type of Modulation : GFSK for 1Mbps
Type of Antenna : Print antenna
Antenna Gain : -3.25268 dBi

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.	CH No.	Freq.	CH No.	Freq.	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 **SMK-Link Electronics** In support of a Class B Digital Device certification in accordance with Part2 Subpart J and Part 15 Subpart A And B&C and RSS-210 、 RSS-Gen of the Commission's and Regulations.

1.3 Summary of Tests

Applied Standard : FCC Part 15, Subpart C (Section 15.247); RSS-210; RSS-Gen				
Reference		Test	Results	Note
RSS-Gen	FCC Part 15			
7.2.2	15.207	AC Power Conducted Emission	N/A	
6	-	Receiver Radiated Emissions Rss-Gen Limit Table 1	PASS	
Reference		Test	Results	Note
RSS-210	FCC Part 15			
A8.5	15.247(c),15.209	Transmitter Radiated Emissions	PASS	
A8.4 (2)	15.247(b)(1)	Max. Output Power	PASS	
A8.1 (1)	15.247(a)(1)	20dB RF Bandwidth	PASS	
A8.1 (2)	15.247(a)(1)	Carrier Frequency Separation	PASS	
A8.1 (4)	15.247(a)(1)(iii)	Number of Hopping	PASS	
A8.1 (4)	15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	PASS	
A8.5	15.247(c),15.209	Out of Band Conducted Spurious Emission	PASS	
A8.5	15.247(c)	Band Edge and Occupied Bandwidth Measurement	PASS	
-	15.203	Antenna Requirement	PASS	



1.4 Description of Support Equipment

Describe	Manufacturer	Model	Serial No.	FCC ID
N/A	-----	-----	-----	-----

1.5 Configuration of System under Test

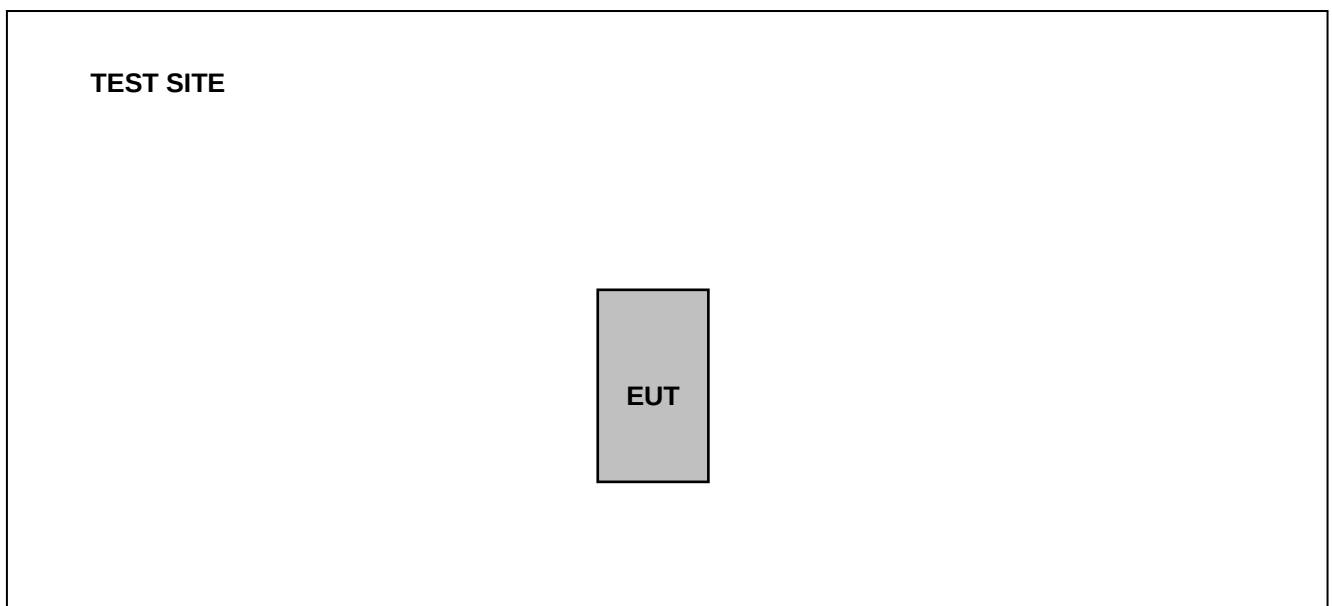


Figure 1. Configuration of System Under Test

During testing (LINK) put the EUT's on the table.

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. 10, 2009	Mar. 10, 2010
Test Receiver	R&S	ESCI	100367	Jul. 01, 2009	Jul. 01, 2010
LISN	EMCO	3816/2 SH	00060110	Jun. 17, 2009	Jun. 17, 2010
LISN	EMCO	3816/2 SH	00060111	Jun. 29, 2009	Jun. 29, 2010
Transient Limiter	ELECTRO-METRICS	EM-7600	777	Sep. 22, 2008	Sep. 22, 2009

2.3 Test condition:

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

2.4 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

2.5 Measurement Data of Conducted Emissions:

2.5.1 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 : SMK-Link Electronics
 Model No : VP3700
 EUT : BLU-LINK™ UNIVERSAL REMOTE CONTROL
 Test Mode : N/A
 Test Date : N/A

Not Appliance

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.



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 per 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 decibels 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.

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

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

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

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. 03, 2009	Jun. 03, 2010
Pre Amplifier	Agilent	8449B	3008A02455	Feb. 25, 2009	Feb. 25, 2010
Pre Amplifier	Agilent	8447D	2944A10961	Jun. 30, 2009	Jun. 30, 2010
Test Receiver	R&S	ESCI	100367	Jun. 03, 2009	Jun. 03, 2010
Biconilog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	Jun. 26, 2009	Jun. 26, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	Jul. 01, 2009	Jul. 01, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	Jun. 30, 2009	Jun. 30, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120E	0899	Jun. 23, 2009	Jun. 23, 2010



3.3 Test condition:

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

3.4 Radiated Emissions Limits:

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

3.5 Measurement Data of Radiated Emissions:

3.5.1 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 : SMK-Link Electronics
Model No : VP3700
EUT : BLU-LINK™ UNIVERSAL REMOTE CONTROL
Test Mode : TX Link Mode _ Bluetooth 2.0 Low CH / Middle CH / Light CH
Test Date : 07/24/2009

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 ambit noise.
8. All frequencies from 30MHz to 26.5GHz have been tested



Radiated Emission Measurement

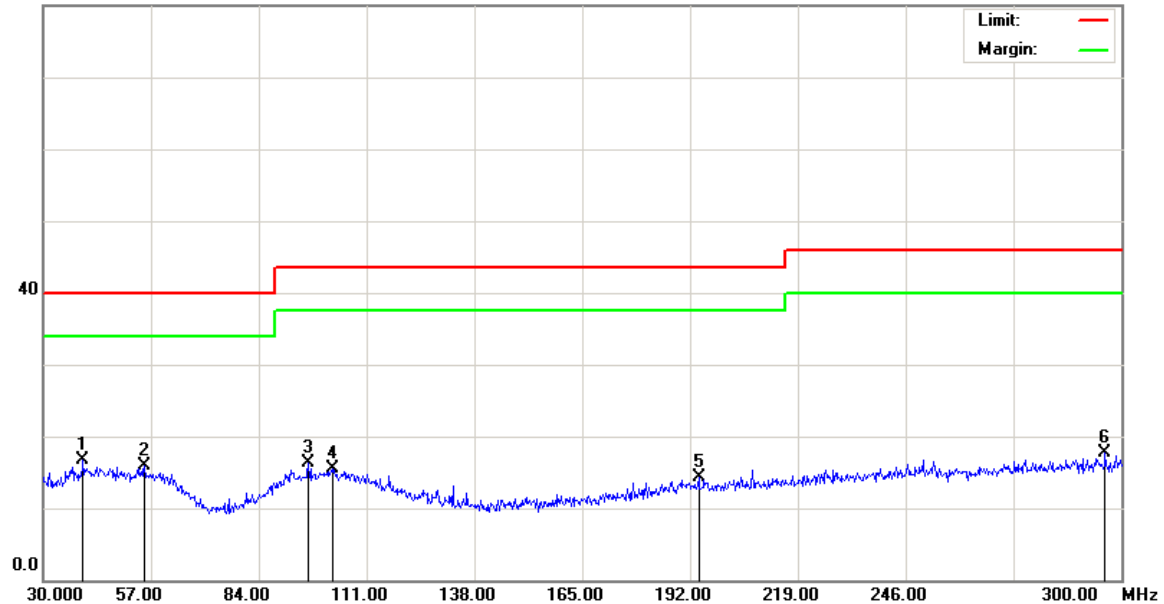
File :1(BT) new

Data :#1

Date: 2009/7/24

Time: 下午 02:41:25

80.0 dBuV



Site site#1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0186-EO

Mode: BT

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree	Comment
1	*	39.9900	28.61	-11.89	16.72	40.00	-23.28	peak	101	110
2		55.3800	28.24	-12.24	16.00	40.00	-24.00	peak	138	241
3		96.4200	28.30	-11.96	16.34	43.50	-27.16	peak	126	274
4		102.3600	27.49	-11.91	15.58	43.50	-27.92	peak	163	92
5		194.1600	27.50	-13.15	14.35	43.50	-29.15	peak	192	231
6		295.9500	27.89	-10.16	17.73	46.00	-28.27	peak	210	176

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

●Reference Only



Radiated Emission Measurement

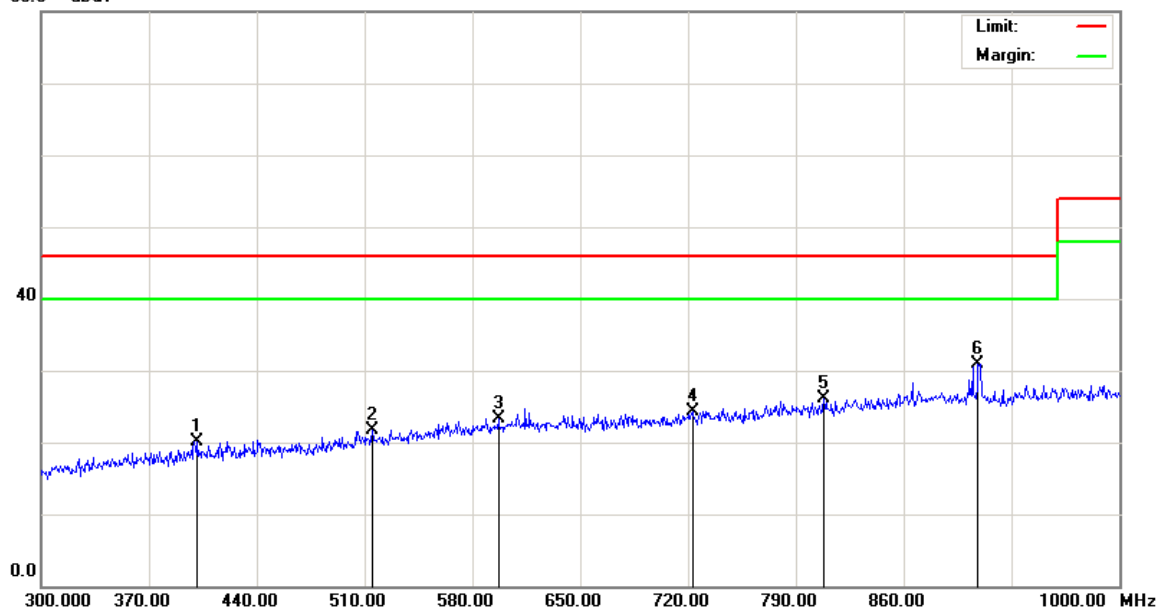
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Data :#2

Date: 2009/7/24

Time: 下午 02:47:50

80.0 dBuV



Site site#1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0186-EO

Mode: BT

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree	
							Detector		degree	Comment
1		401.5000	28.47	-8.31	20.16	46.00	-25.84	peak	110	320
2		514.9000	28.16	-6.43	21.73	46.00	-24.27	peak	102	359
3		596.8000	28.10	-4.88	23.22	46.00	-22.78	peak	142	249
4		722.8000	27.76	-3.55	24.21	46.00	-21.79	peak	179	230
5		808.2000	28.02	-1.83	26.19	46.00	-19.81	peak	210	149
6	*	908.3000	31.01	-0.08	30.93	46.00	-15.07	peak	147	210

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

●Reference Only



Radiated Emission Measurement

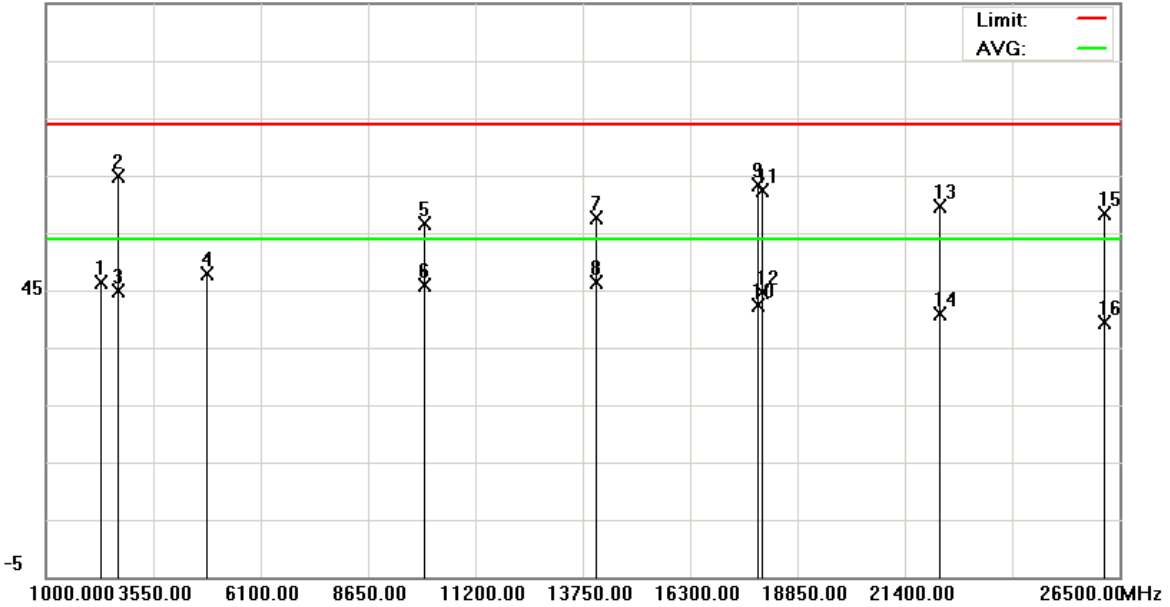
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Data :#8

Date: 2009/7/24

Time: 上午 12:57:30

95.0 dBuV



Site site #1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance:

M/N: 09-0186-EO

Mode: BT

Note: 2402MHz

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		2295.400	45.82	0.48	46.30	74.00	-27.70	peak		
2		2700.000	42.30	22.58	64.88	74.00	-9.12	peak		
3		2700.000	22.22	22.58	44.80	54.00	-9.20	AVG		
4		4804.000	40.46	7.32	47.78	74.00	-26.22	peak		
5		9963.500	38.87	17.82	56.69	74.00	-17.31	peak		
6		9963.500	27.95	17.82	45.77	54.00	-8.23	AVG		
7		14080.00	38.80	18.81	57.61	74.00	-16.39	peak		
8	*	14080.00	27.61	18.81	46.42	54.00	-7.58	AVG		
9		17900.00	38.38	24.96	63.34	74.00	-10.66	peak		
10		17900.00	17.52	24.96	42.48	54.00	-11.52	AVG		
11		18000.00	37.82	24.46	62.28	74.00	-11.72	peak		
12		18000.00	20.28	24.46	44.74	54.00	-9.26	AVG		
13		22228.75	38.52	21.01	59.53	74.00	-14.47	peak		

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

●Reference Only



Site site #1	Polarization: Vertical	Temperature: 22 °C
Limit: FCC part 15 (PK)	Power:	Humidity: 60 %
EUT:	Distance:	
M/N: 09-0186-EO		
Mode: BT		
Note: 2402MHz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree
14		22228.75	19.77	21.01	40.78	54.00	-13.22	AVG		
15		26138.75	39.94	18.47	58.41	74.00	-15.59	peak		
16		26138.75	20.93	18.47	39.40	54.00	-14.60	AVG		

*:Maximum data x:Over limit !:over margin ●Reference Only



Radiated Emission Measurement

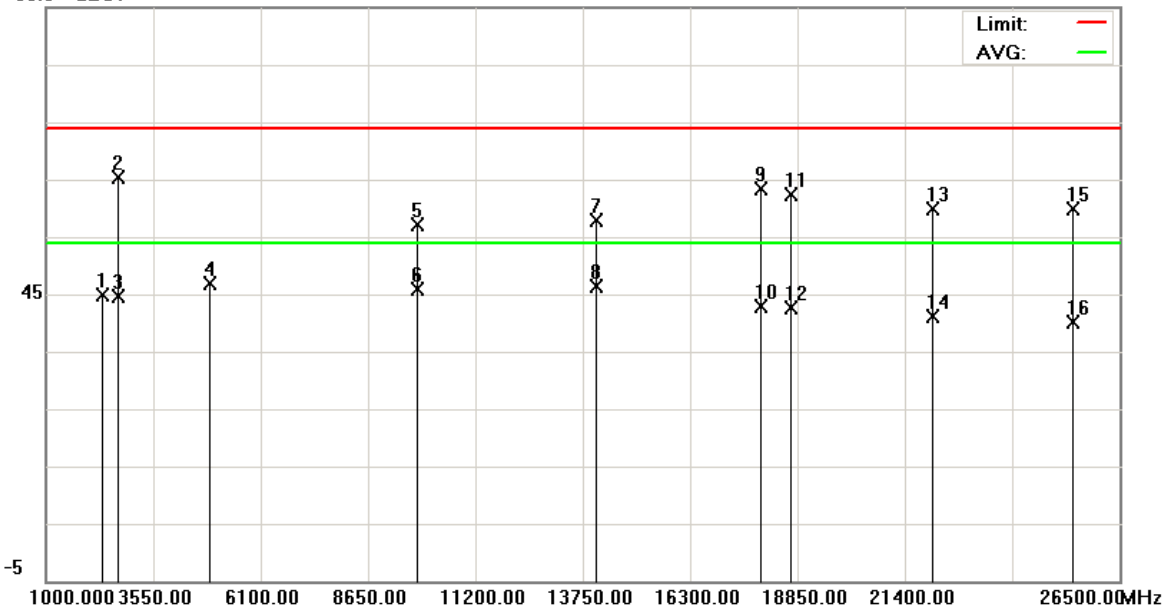
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Data :#8

Date: 2009/7/24

Time: 上午 01:00:10

95.0 dBuV



Site site #1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance:

M/N: 09-0186-EO

Mode: BT

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		2327.700	44.81	0.00	44.81	74.00	-29.19	peak		
2		2700.000	42.89	22.58	65.47	74.00	-8.53	peak		
3		2700.000	22.15	22.58	44.73	54.00	-9.27	AVG		
4		4882.000	39.10	7.74	46.84	74.00	-27.16	peak		
5		9817.500	39.45	17.75	57.20	74.00	-16.80	peak		
6		9817.500	28.14	17.75	45.89	54.00	-8.11	AVG		
7		14080.00	39.04	18.81	57.85	74.00	-16.15	peak		
8	*	14080.00	27.64	18.81	46.45	54.00	-7.55	AVG		
9		17980.00	38.18	25.21	63.39	74.00	-10.61	peak		
10		17980.00	17.66	25.21	42.87	54.00	-11.13	AVG		
11		18680.00	39.21	23.09	62.30	74.00	-11.70	peak		
12		18680.00	19.52	23.09	42.61	54.00	-11.39	AVG		
13		22058.75	38.78	21.09	59.87	74.00	-14.13	peak		

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

●Reference Only



Site site #1	Polarization: Vertical	Temperature: 22 °C
Limit: FCC part 15 (PK)	Power:	Humidity: 60 %
EUT:	Distance:	
M/N: 09-0186-EO		
Mode: BT		
Note: 2441MHz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree
14		22058.75	20.05	21.09	41.14	54.00	-12.86	AVG		
15		25373.75	40.71	19.05	59.76	74.00	-14.24	peak		
16		25373.75	21.08	19.05	40.13	54.00	-13.87	AVG		

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

●Reference Only



Radiated Emission Measurement

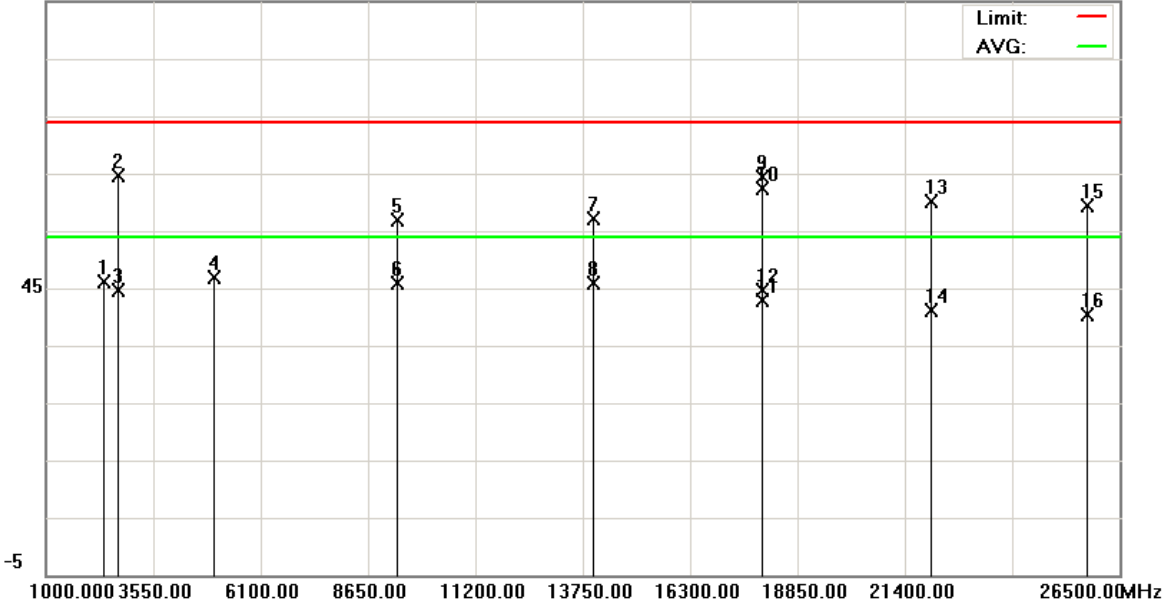
File :1(2480MHz)_tmp

Data :#8

Date: 2009/7/24

Time: 上午 01:02:26

95.0 dBuV



Site site #1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance:

M/N: 09-0186-EO

Mode: BT

Note: 2480MHz

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		2363.400	45.93	0.21	46.14	74.00	-27.86	peak		
2		2700.000	42.05	22.58	64.63	74.00	-9.37	peak		
3		2700.000	21.97	22.58	44.55	54.00	-9.45	AVG		
4		4960.000	38.98	7.80	46.78	74.00	-27.22	peak		
5		9324.750	39.98	16.91	56.89	74.00	-17.11	peak		
6		9324.750	28.87	16.91	45.78	54.00	-8.22	AVG		
7		14000.00	38.56	18.67	57.23	74.00	-16.77	peak		
8	*	14000.00	27.32	18.67	45.99	54.00	-8.01	AVG		
9		18000.00	38.82	25.57	64.39	74.00	-9.61	peak		
10		18000.00	36.76	25.57	62.33	74.00	-11.67	peak		
11		18000.00	17.34	25.57	42.91	54.00	-11.09	AVG		
12		18000.00	19.07	25.57	44.64	54.00	-9.36	AVG		
13		22037.50	38.99	21.09	60.08	74.00	-13.92	peak		

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

●Reference Only



Site site #1	Polarization: Vertical	Temperature: 22 °C
Limit: FCC part 15 (PK)	Power:	Humidity: 60 %
EUT:	Distance:	
M/N: 09-0186-EO		
Mode: BT		
Note: 2480MHz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree
14		22037.50	19.96	21.09	41.05	54.00	-12.95	AVG		
15		25713.75	40.67	18.82	59.49	74.00	-14.51	peak		
16		25713.75	21.44	18.82	40.26	54.00	-13.74	AVG		

*:Maximum data x:Over limit !:over margin ●Reference Only



Radiated Emission Measurement

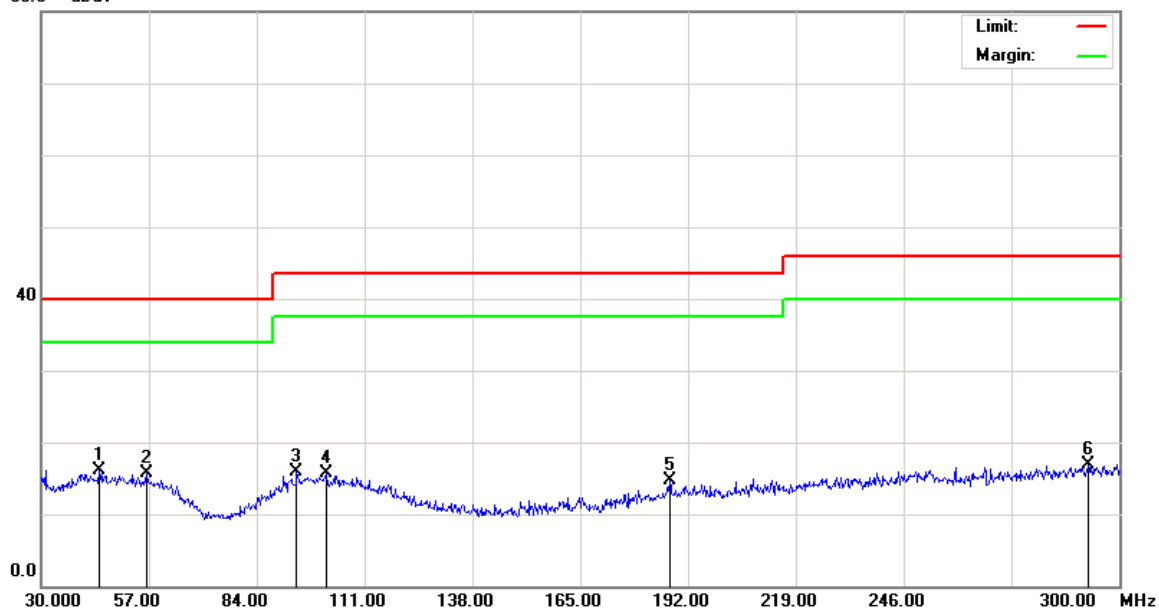
File :1(BT) new

Data :#3

Date: 2009/7/24

Time: 下午 02:53:28

80.0 dBuV



Site site#1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0186-EO

Mode: BT

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree	
							Detector		degree	Comment
1	*	44.5800	28.00	-11.84	16.16	40.00	-23.84	peak	302	321
2		56.4600	27.96	-12.31	15.65	40.00	-24.35	peak	392	246
3		93.9900	28.09	-12.27	15.82	43.50	-27.68	peak	361	0
4		101.5500	27.48	-11.86	15.62	43.50	-27.88	peak	239	256
5		187.4100	28.37	-13.60	14.77	43.50	-28.73	peak	217	145
6		292.1700	27.00	-10.09	16.91	46.00	-29.09	peak	326	168

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

●Reference Only



Radiated Emission Measurement

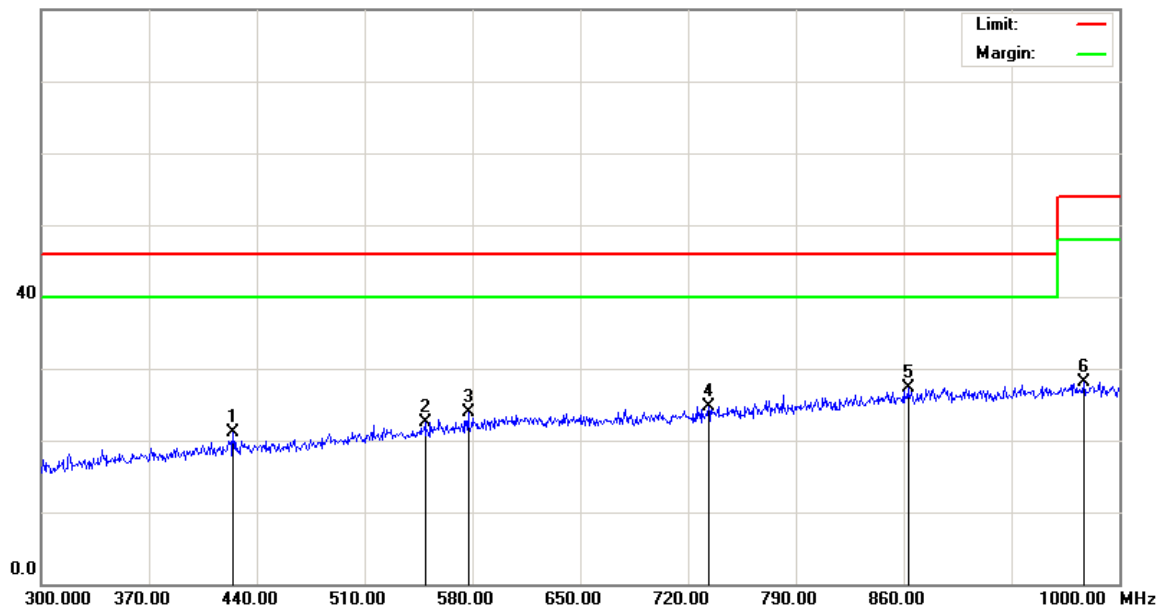
File :1(BT) new

Data :#4

Date: 2009/7/24

Time: 下午 02:57:43

80.0 dBuV



Site site#1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0186-EO

Mode: BT

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree	Comment
1		424.6000	29.09	-8.08	21.01	46.00	-24.99	peak	364	103
2		549.2000	28.50	-6.01	22.49	46.00	-23.51	peak	382	241
3		577.2000	29.32	-5.33	23.99	46.00	-22.01	peak	369	145
4		733.3000	28.08	-3.37	24.71	46.00	-21.29	peak	284	85
5	*	862.8000	28.13	-0.74	27.39	46.00	-18.61	peak	263	186
6		976.9000	27.51	0.57	28.08	54.00	-25.92	peak	219	37

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

●Reference Only



Radiated Emission Measurement

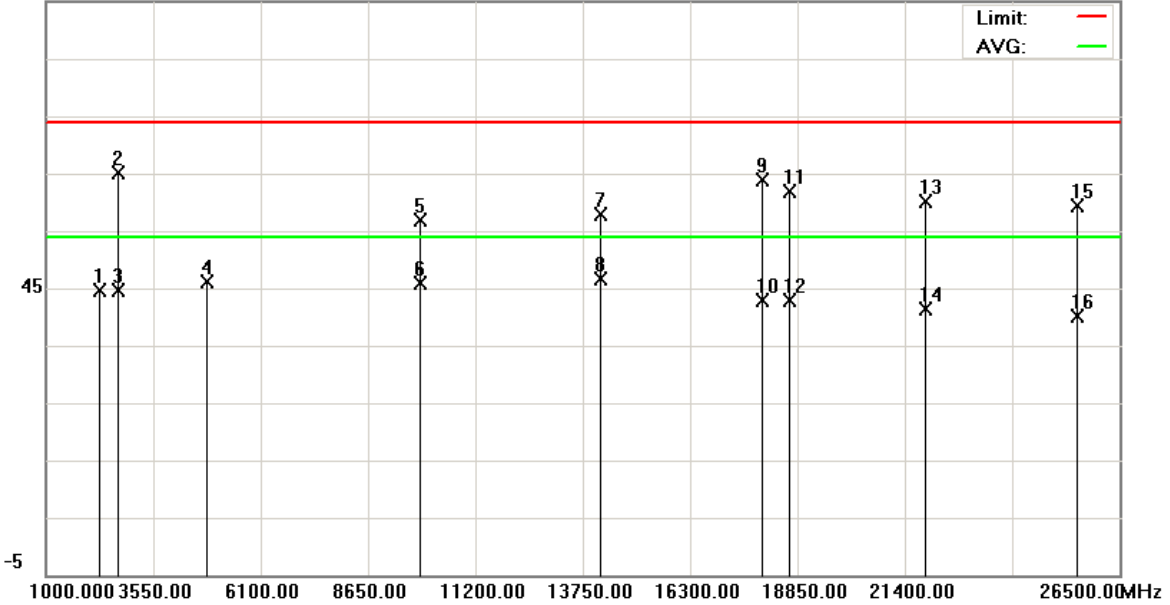
File :1(2402MHz)_tmp_tmp

Data :#5

Date: 2009/7/24

Time: 上午 01:10:31

95.0 dBuV



Site site #1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance:

M/N: 09-0186-EO

Mode: BT

Note: 2402MHz

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		2268.200	44.75	0.00	44.75	74.00	-29.25	peak		
2		2700.000	42.63	22.58	65.21	74.00	-8.79	peak		
3		2700.000	21.96	22.58	44.54	54.00	-9.46	AVG		
4		4804.000	38.81	7.32	46.13	74.00	-27.87	peak		
5		9854.000	38.99	17.89	56.88	74.00	-17.12	peak		
6		9854.000	28.05	17.89	45.94	54.00	-8.06	AVG		
7		14180.00	38.99	18.85	57.84	74.00	-16.16	peak		
8	*	14180.00	27.68	18.85	46.53	54.00	-7.47	AVG		
9		18000.00	38.23	25.57	63.80	74.00	-10.20	peak		
10		18000.00	17.30	25.57	42.87	54.00	-11.13	AVG		
11		18637.50	38.81	23.08	61.89	74.00	-12.11	peak		
12		18637.50	19.78	23.08	42.86	54.00	-11.14	AVG		
13		21867.50	39.04	21.19	60.23	74.00	-13.77	peak		

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

●Reference Only



Site site #1	Polarization: Horizontal	Temperature: 22 °C
Limit: FCC part 15 (PK)	Power:	Humidity: 60 %
EUT:	Distance:	
M/N: 09-0186-EO		
Mode: BT		
Note: 2402MHz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree
14		21867.50	20.31	21.19	41.50	54.00	-12.50	AVG		
15		25458.75	40.49	19.01	59.50	74.00	-14.50	peak		
16		25458.75	21.08	19.01	40.09	54.00	-13.91	AVG		

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

●Reference Only



Radiated Emission Measurement

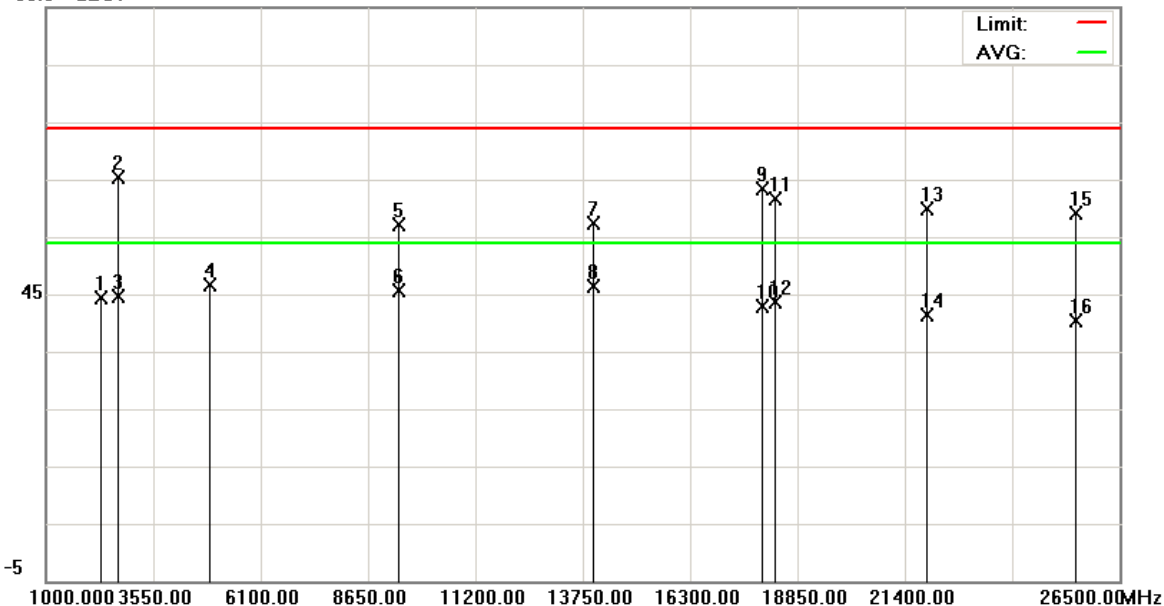
File :1(2441MHz)_tmp_tmp

Data :#5

Date: 2009/7/24

Time: 上午 01:08:02

95.0 dBuV



Site site #1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance:

M/N: 09-0186-EO

Mode: BT

Note: 2441MHz

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		2297.100	44.29	0.00	44.29	74.00	-29.71	peak		
2		2700.000	42.68	22.58	65.26	74.00	-8.74	peak		
3		2700.000	22.05	22.58	44.63	54.00	-9.37	AVG		
4		4882.000	38.94	7.74	46.68	74.00	-27.32	peak		
5		9379.500	40.05	17.03	57.08	74.00	-16.92	peak		
6		9379.500	28.54	17.03	45.57	54.00	-8.43	AVG		
7		14000.00	38.64	18.67	57.31	74.00	-16.69	peak		
8	*	14000.00	27.61	18.67	46.28	54.00	-7.72	AVG		
9		18000.00	37.80	25.57	63.37	74.00	-10.63	peak		
10		18000.00	17.29	25.57	42.86	54.00	-11.14	AVG		
11		18297.50	38.53	23.20	61.73	74.00	-12.27	peak		
12		18297.50	20.48	23.20	43.68	54.00	-10.32	AVG		
13		21888.75	38.64	21.18	59.82	74.00	-14.18	peak		

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

●Reference Only



Site site #1	Polarization: Horizontal	Temperature: 22 °C
Limit: FCC part 15 (PK)	Power:	Humidity: 60 %
EUT:	Distance:	
M/N: 09-0186-EO		
Mode: BT		
Note: 2441MHz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree
14		21888.75	20.22	21.18	41.40	54.00	-12.60	AVG		
15		25437.50	40.13	19.02	59.15	74.00	-14.85	peak		
16		25437.50	21.42	19.02	40.44	54.00	-13.56	AVG		

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

●Reference Only



Radiated Emission Measurement

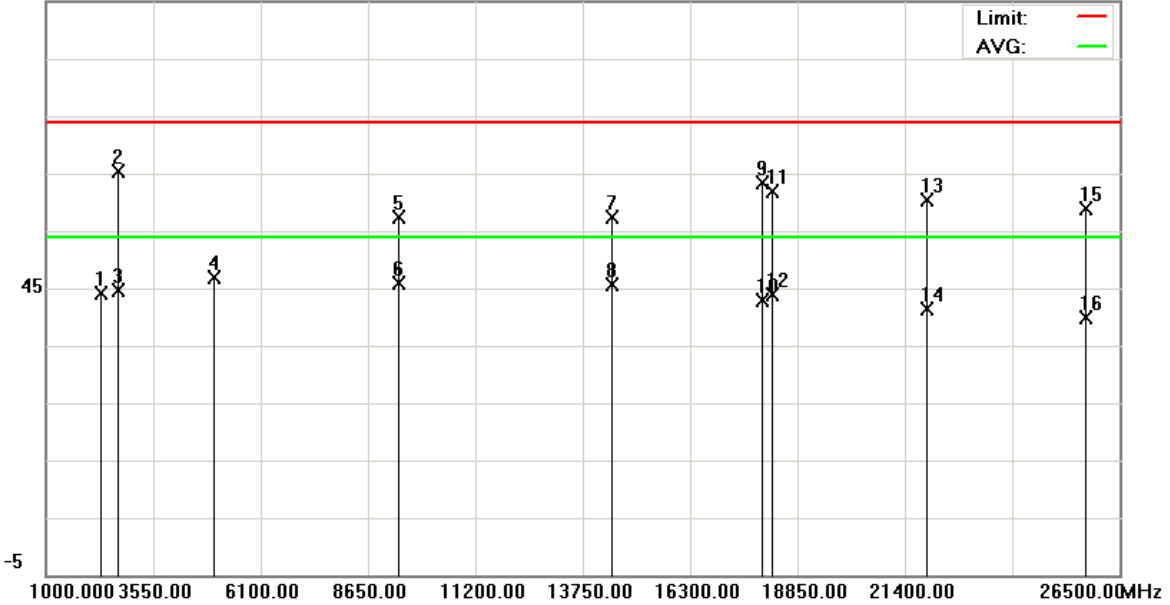
File :1(2480MHz)_tmp_tmp

Data :#5

Date: 2009/7/24

Time: 上午 01:05:49

95.0 dBuV



Site site #1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance:

M/N: 09-0186-EO

Mode: BT

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		2288.600	44.10	0.00	44.10	74.00	-29.90	peak		
2		2700.000	42.73	22.58	65.31	74.00	-8.69	peak		
3		2700.000	21.96	22.58	44.54	54.00	-9.46	AVG		
4		4960.000	39.04	7.80	46.84	74.00	-27.16	peak		
5		9343.000	40.51	16.93	57.44	74.00	-16.56	peak		
6	*	9343.000	28.89	16.93	45.82	54.00	-8.18	AVG		
7		14420.00	39.34	17.97	57.31	74.00	-16.69	peak		
8		14420.00	27.66	17.97	45.63	54.00	-8.37	AVG		
9		18000.00	37.71	25.57	63.28	74.00	-10.72	peak		
10		18000.00	17.32	25.57	42.89	54.00	-11.11	AVG		
11		18233.75	38.61	23.21	61.82	74.00	-12.18	peak		
12		18233.75	20.73	23.21	43.94	54.00	-10.06	AVG		
13		21888.75	39.21	21.18	60.39	74.00	-13.61	peak		

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

●Reference Only



Site site #1	Polarization: Horizontal	Temperature: 22 °C
Limit: FCC part 15 (PK)	Power:	Humidity: 60 %
EUT:	Distance:	
M/N: 09-0186-EO		
Mode: BT		
Note: 2480MHz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree
14		21888.75	20.29	21.18	41.47	54.00	-12.53	AVG		
15		25692.50	40.15	18.83	58.98	74.00	-15.02	peak		
16		25692.50	21.17	18.83	40.00	54.00	-14.00	AVG		

*:Maximum data x:Over limit !:over margin ●Reference Only

4. Maximum Conducted Output Power Requirements

4.1 Test Condition & Setup:

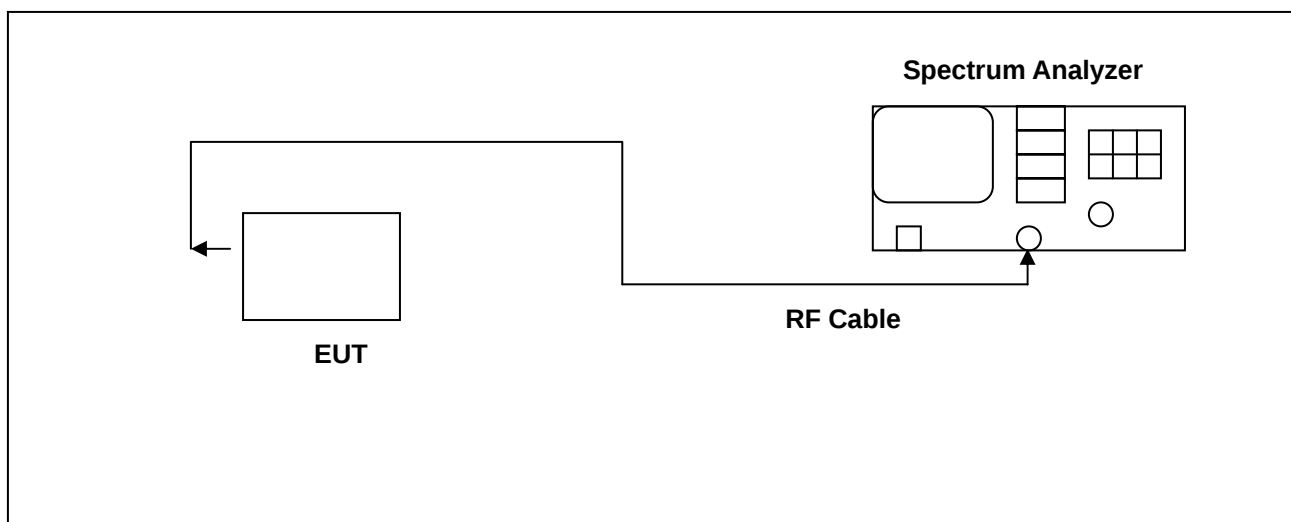
The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to spectrum analyzer. 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	MY46181986	May. 07, 2008	May. 07, 2009

4.4 Test Result

Bluetooth 2.0

Frequency (MHz)	Output (dBm)	Required Limit
2402	2.94	<30dBm
2441	3.50	<30dBm
2480	2.27	<30dBm

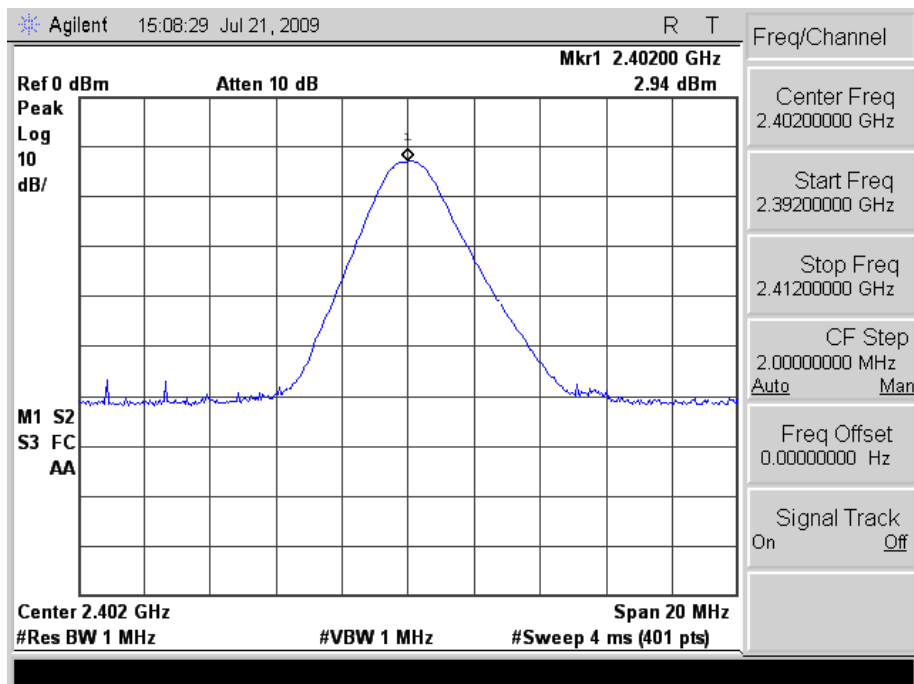
Note: Test Graphs See next page.



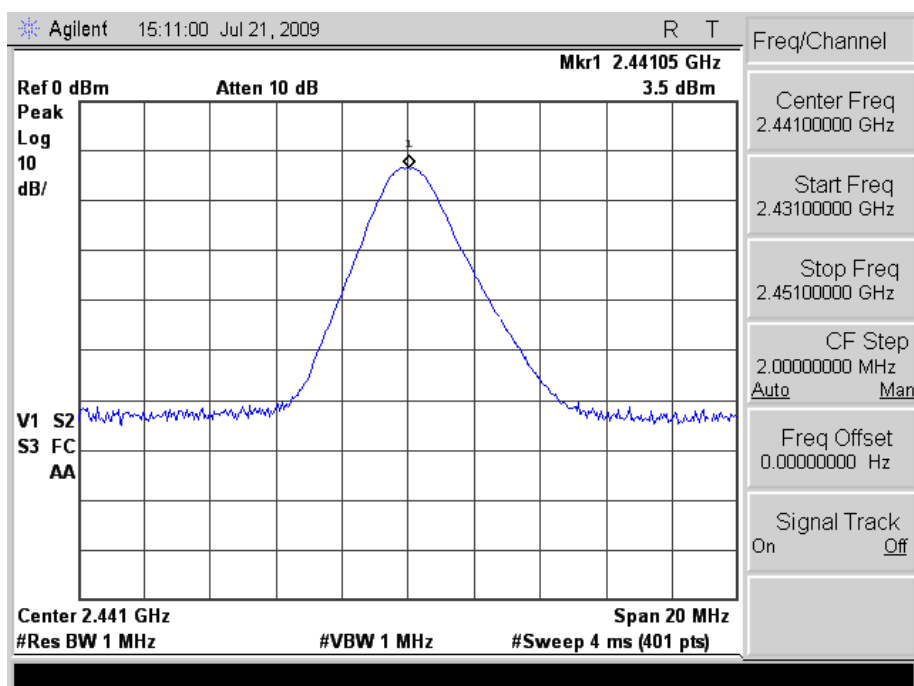
4.5 Test Graphs

4.5.1 Bluetooth 2.0 Mode:

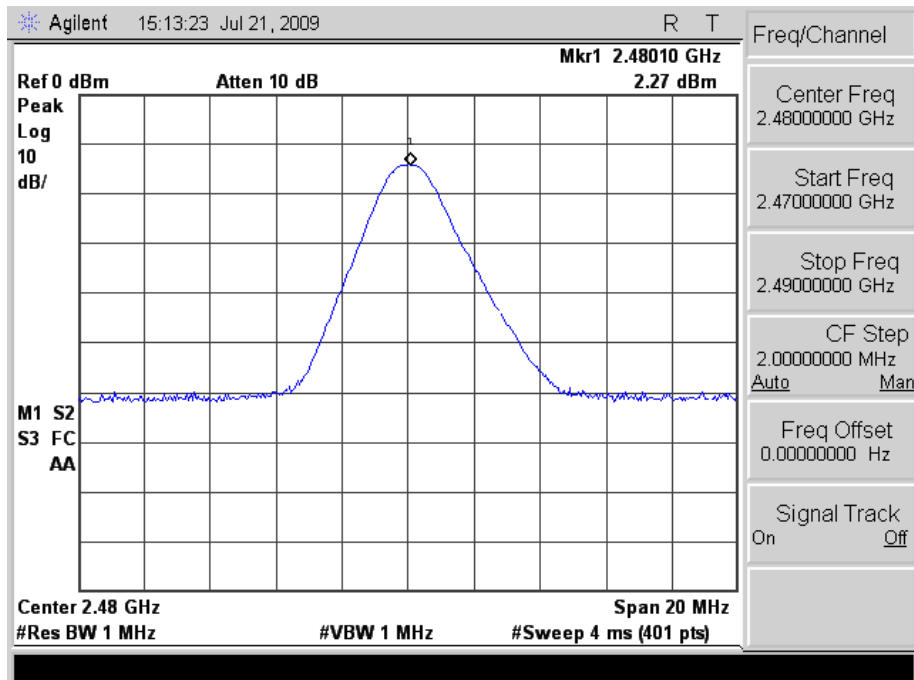
Bluetooth 2.0 CH00 (2402MHz)



Bluetooth 2.0 CH39 (2441MHz)



Bluetooth 2.0 CH78 (2480MHz)



5. Minimum 20dB RF Bandwidth Requirements

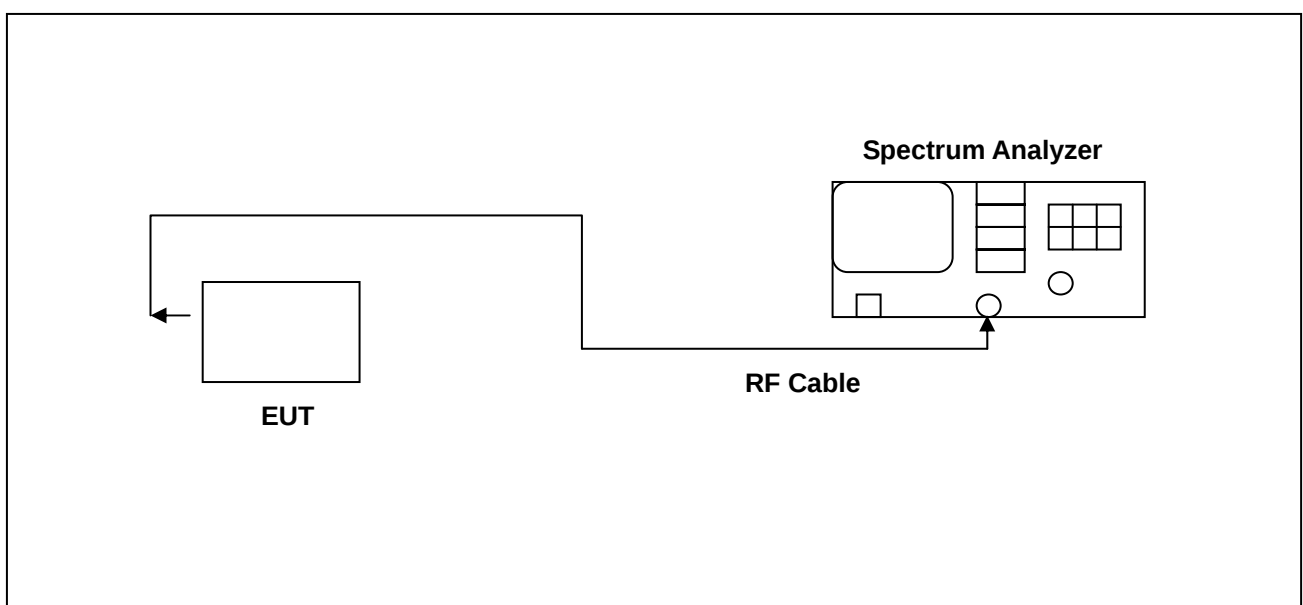
5.1 Test Condition & Setup:

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	MY46181986	May. 14, 2009	May. 14, 2010

5.4 Test Result

Bluetooth 2.0

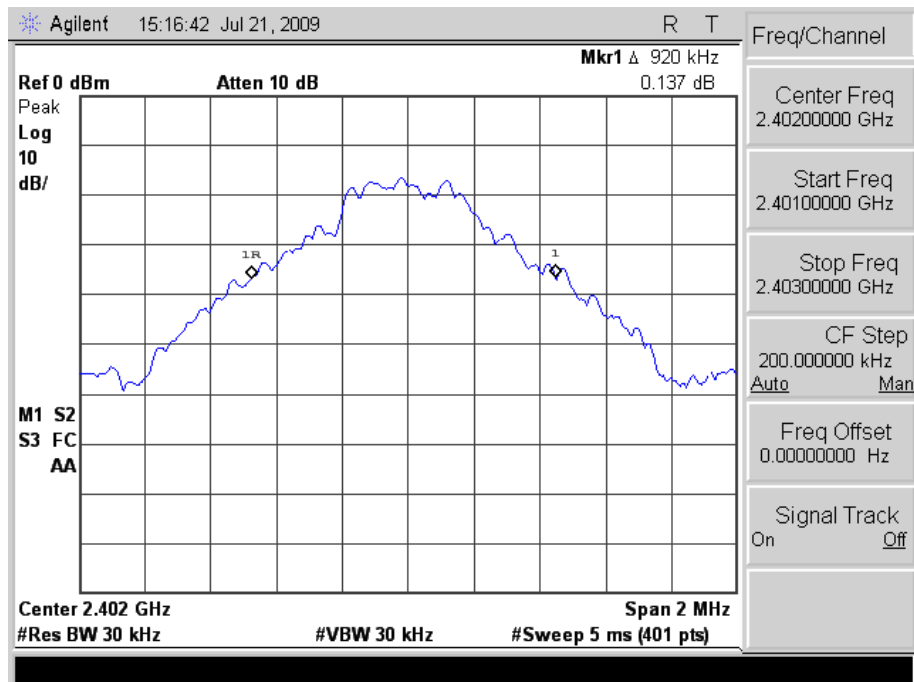
Frequency (MHz)	Max 20dB Bandwidth (MHz)	2/3 Max 20dB Bandwidth (MHz)	Required Limit
2402	0.920	0.613	<1MHz
2441	0.925	0.616	<1MHz
2480	0.975	0.650	<1MHz



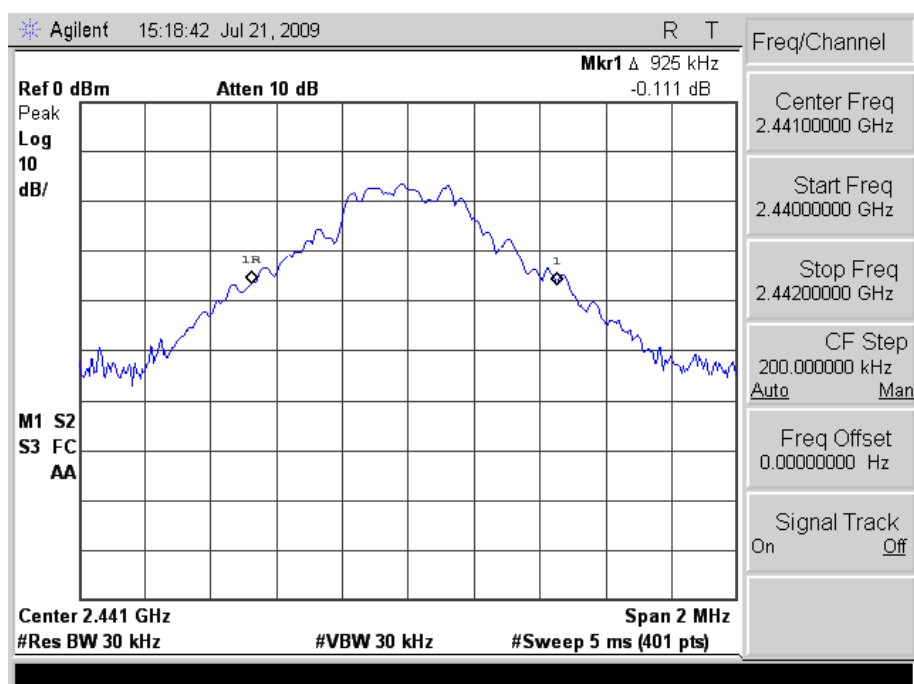
5.5 Test Graphs

5.5.1 Bluetooth 2.0 Mode:

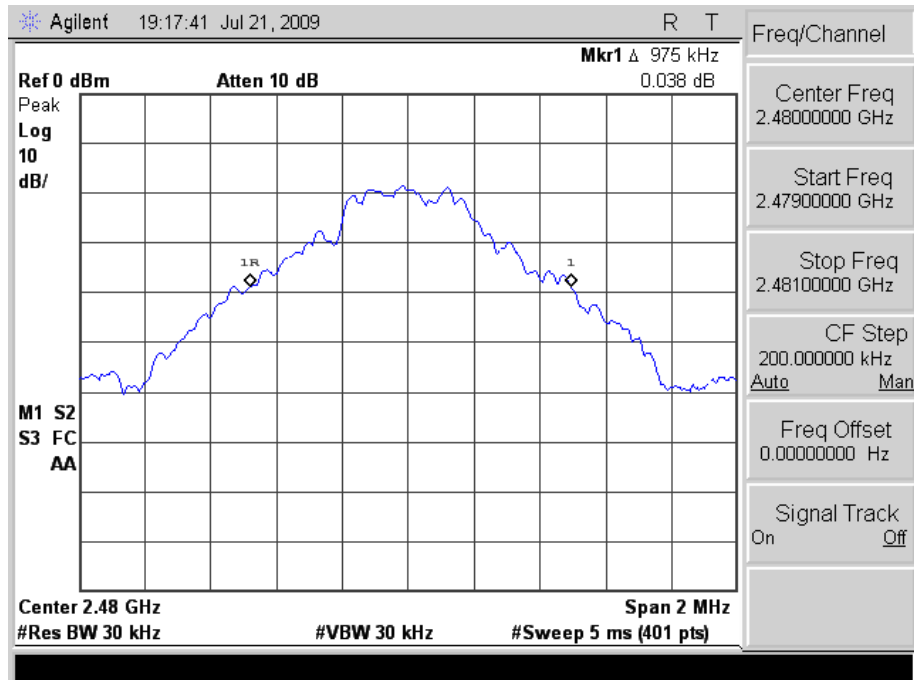
Bluetooth 2.0 CH00 (2412MHz)



Bluetooth 2.0 CH39 (2441MHz)



Bluetooth 2.0 CH78 (2480MHz)



6. Carrier Frequency Separation Requirements

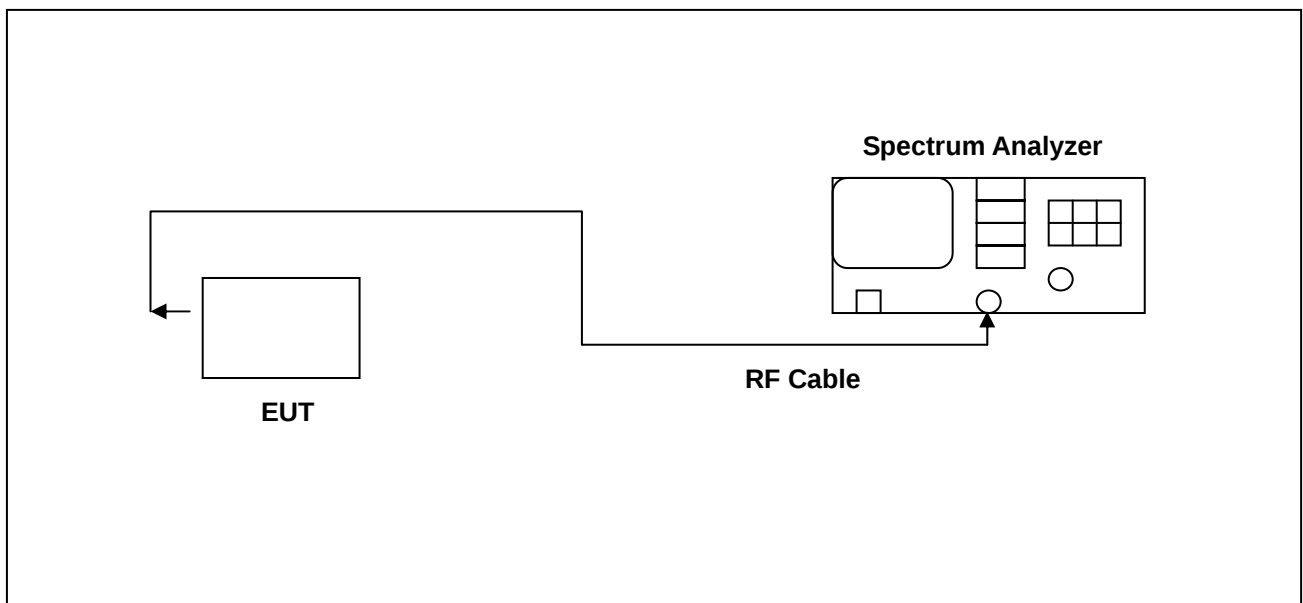
6.1 Test Condition & Setup:

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	MY46181986	May. 14, 2009	May. 14, 2010
Attenuator	RADIALL	R41572000	0603033073	NA	NA

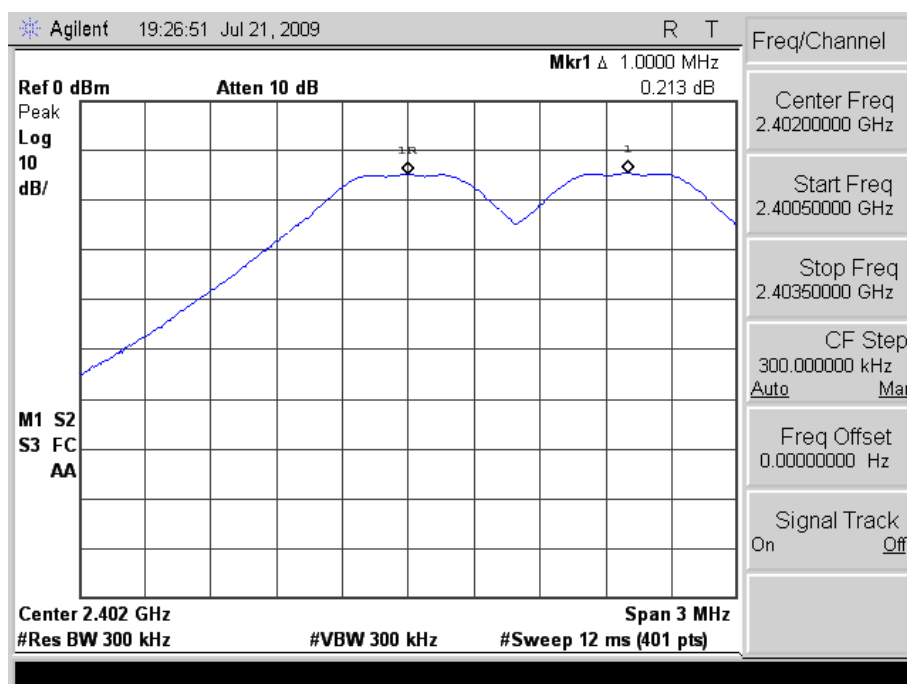
6.4 Test Result:

Carrier Frequency Separation Measure:	1 MHz
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6.5 Test Graphs

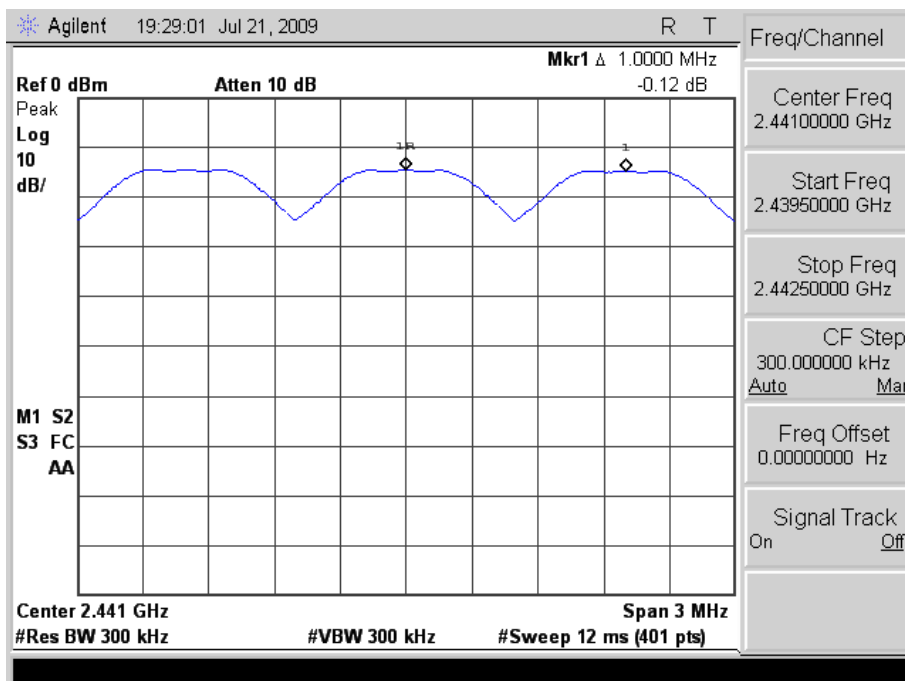
6.5.1 Bluetooth 2.0 Mode:

Bluetooth 2.0 CH00 (2412MHz)

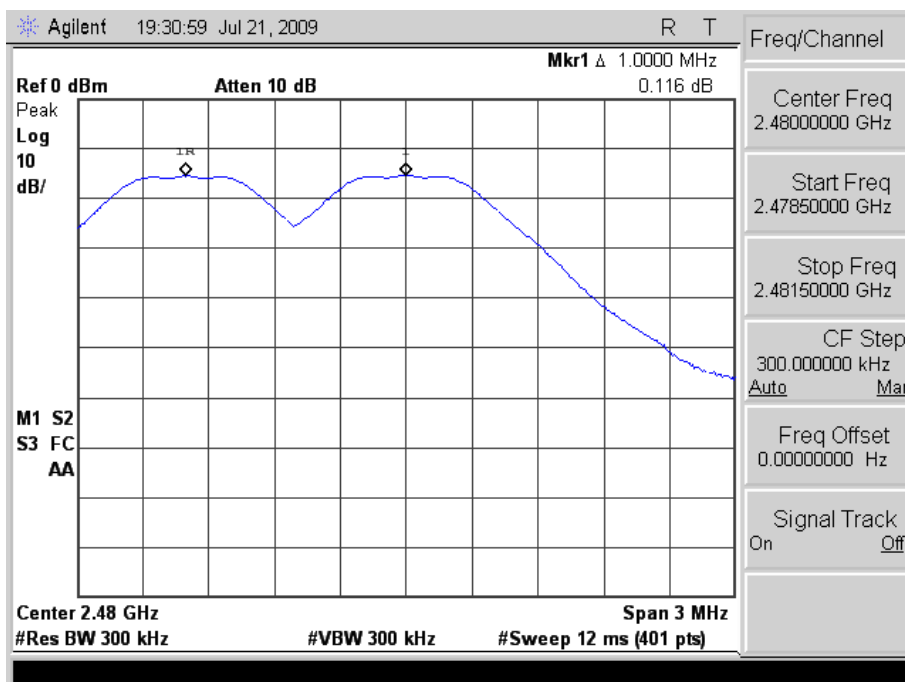




Bluetooth 2.0 CH39 (2441MHz)



Bluetooth 2.0 CH78 (2480MHz)



7. Number of Hopping Requirements

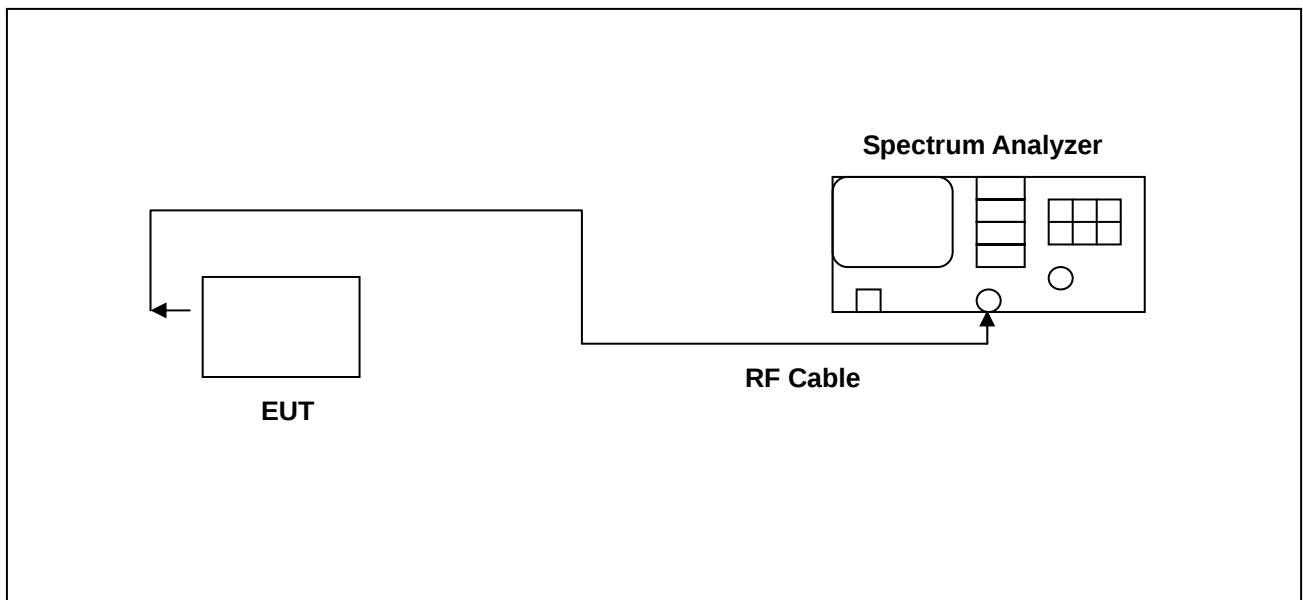
7.1 Test Condition & Setup:

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	MY46181986	May. 14, 2009	May. 01, 2010
Attenuator	RADIALL	R41572000	0603033073	NA	NA

7.4 Test Result:

Number of Hopping Measure:	79 CH
----------------------------	-------

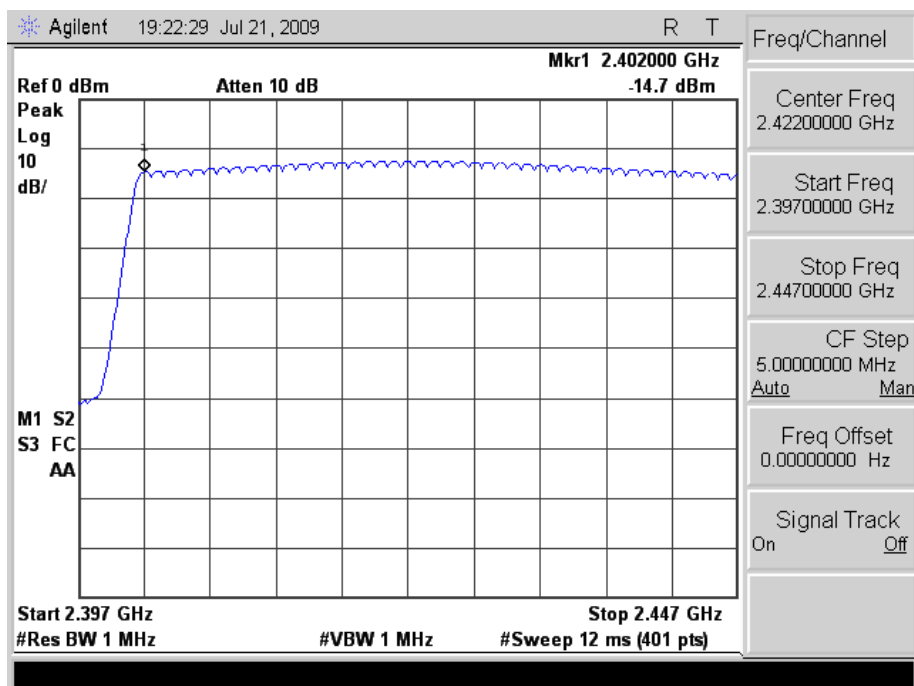
Note: Test Graphs See next page.



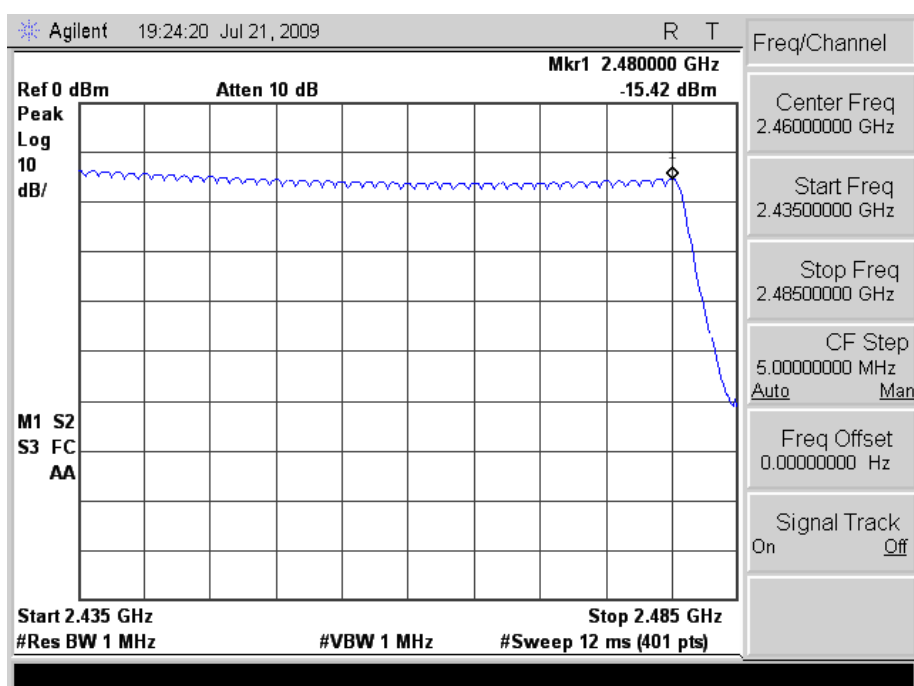
7.5 Test Graphs

7.5.1 Bluetooth 2.0 Mode:

Bluetooth 2.0 Mode CH0~CH39



Bluetooth 2.0 Mode CH40~CH78



8. Time of Occupancy (Dwell Time) Requirements

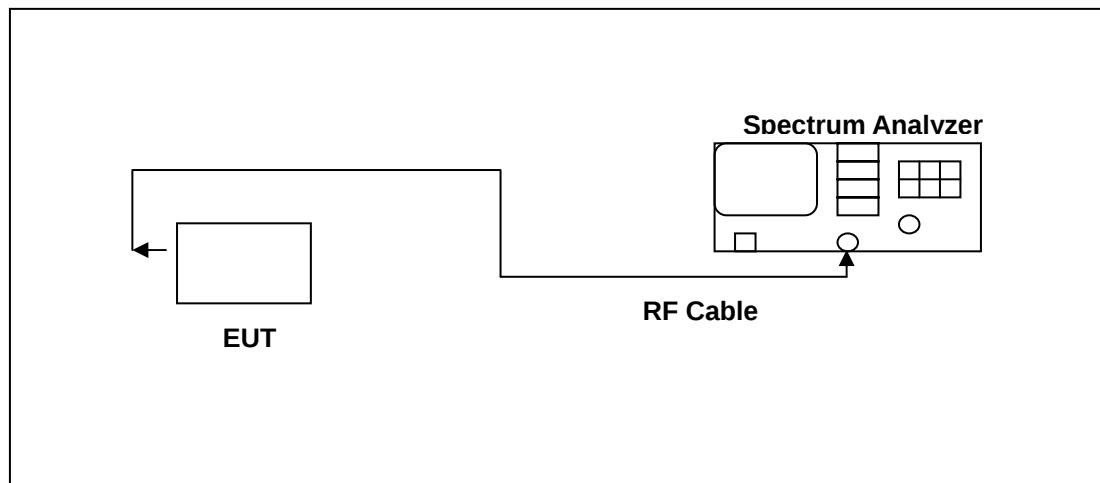
8.1 Test Condition & Setup:

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	MY46181986	May. 14, 2009	May. 14, 2010
Attenuator	RADIALL	R41572000	0603033073	NA	NA

8.4 Test Result

8.4.1 Bluetooth 2.0 Mode:

Bluetooth 2.0 DH1 Mode

Cycle Calculate	$79CH * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$800/79CH = 10.13(\text{times/sec})$
Each Channel Dwell Times (1)	0.370 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6 * 10.13 = 320.108(\text{times})$
Dwell Times on Cycle (1) * (2)	128.43996 ms (sec)
LIMIT(msec)	≤ 400

Bluetooth 2.0 DH3 Mode

Cycle Calculate	$79CH * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$400/79CH=5.1(\text{times/sec})$
Each Channel Dwell Times (1)	1.620 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6*5.1=161.16(\text{times})$
Dwell Times on Cycle (1) * (2)	261.0792 ms (sec)
LIMIT(msec)	≤ 400

Bluetooth 2.0 DH5 Mode

Cycle Calculate	$79CH * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$266.7/79CH=3.37 \text{ (times/sec)}$
Each Channel Dwell Times (1)	2.880 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6*3.37=106.492 \text{ (times)}$
Dwell Times on Cycle (1) * (2)	306.69696 ms (sec)
LIMIT(msec)	≤ 400

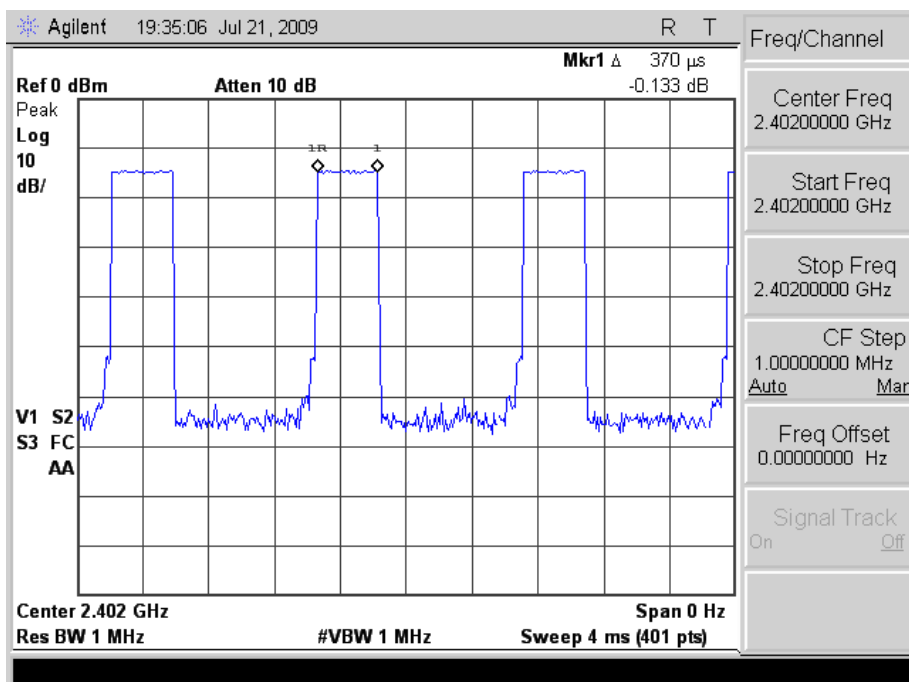
Note: RB=1MHz; VB=1MHz; SPAN=0MHz; Sweep Time=20msec



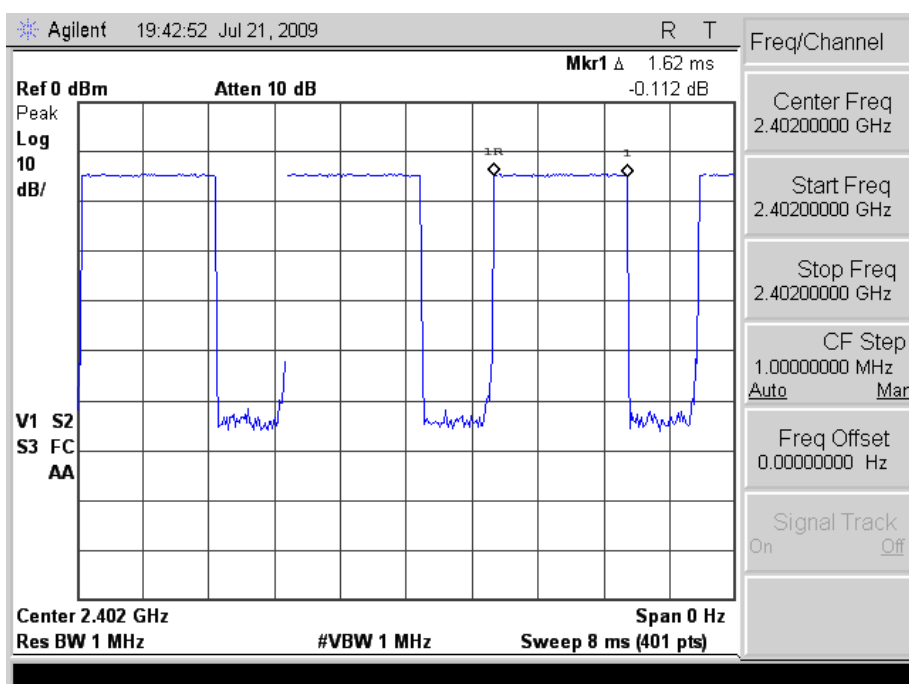
8.5 Test Graphs

8.5.1 Bluetooth 2.0 Mode:

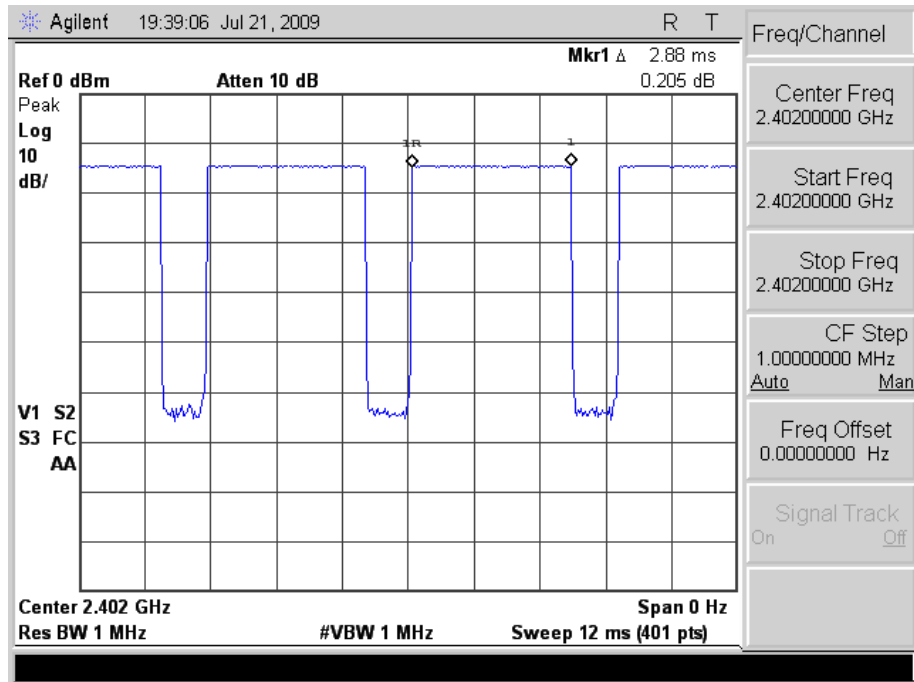
Bluetooth 2.0 DH1



Bluetooth 2.0 DH3



Bluetooth 2.0 DH5



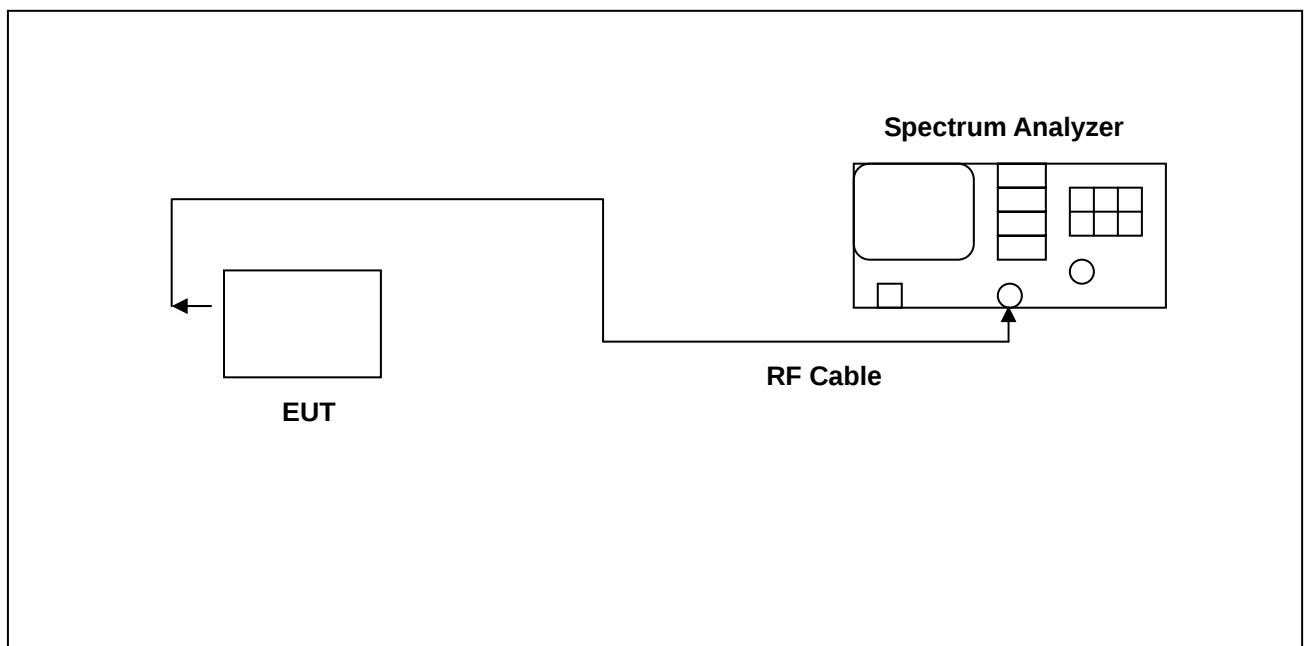
9. Out of Band Conducted Emissions Requirements

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	MY46181986	May. 14, 2009	May. 14, 2010



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.

9.5 Test Graphs

9.5.1 Bluetooth 2.0 Mode:

Applicant : SMK-Link Electronics

Model No : VP3700

EUT : controller

Test Mode : Bluetooth 2.0

Test Date : 07/25/2009

Please refer to next pager of detail testing data.



Radiated Emission Measurement

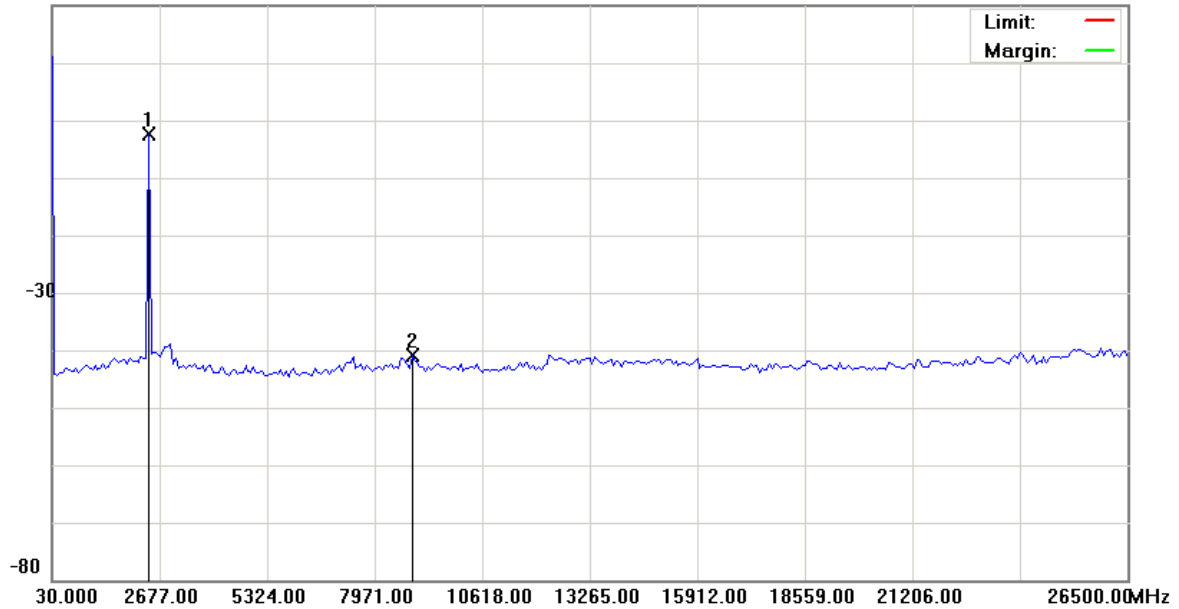
File :09-0177-SEO(BT)

Data :#1

Date: 2009/07/25

Time:

20.0 dBm



Site: site #1

Polarization: **Vertical**

Temperature: 22 °C

Limit:

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-SEO

Mode: BT

Note: 2402MHZ

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	*	2412.300	-8.49	6.09	-2.40			peak		TX
2		8897.450	-47.15	6.34	-40.81			peak		

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



Radiated Emission Measurement

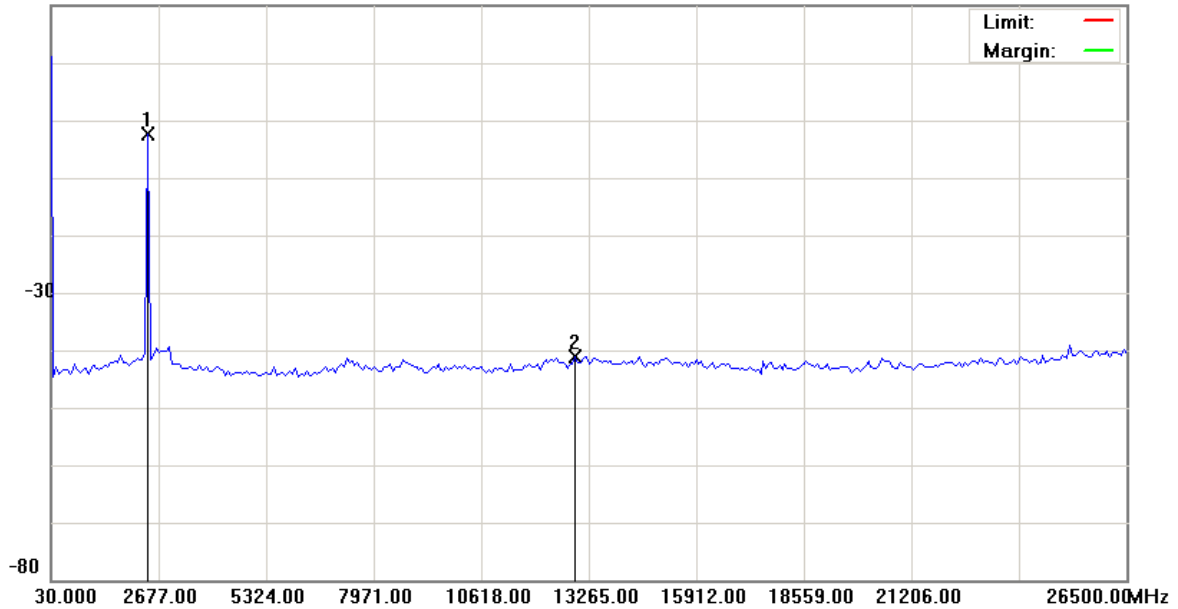
File :09-0177-SEO(BT)

Data :#2

Date: 2009/07/25

Time:

20.0 dBm



Site: site #1

Polarization: **Vertical**

Temperature: 22 °C

Limit:

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-SEO

Mode: BT

Note: 2441MHZ

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	*	2412.300	-8.45	6.09	-2.36			peak		TX
2		12934.125	-47.50	6.49	-41.01			peak		

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



Radiated Emission Measurement

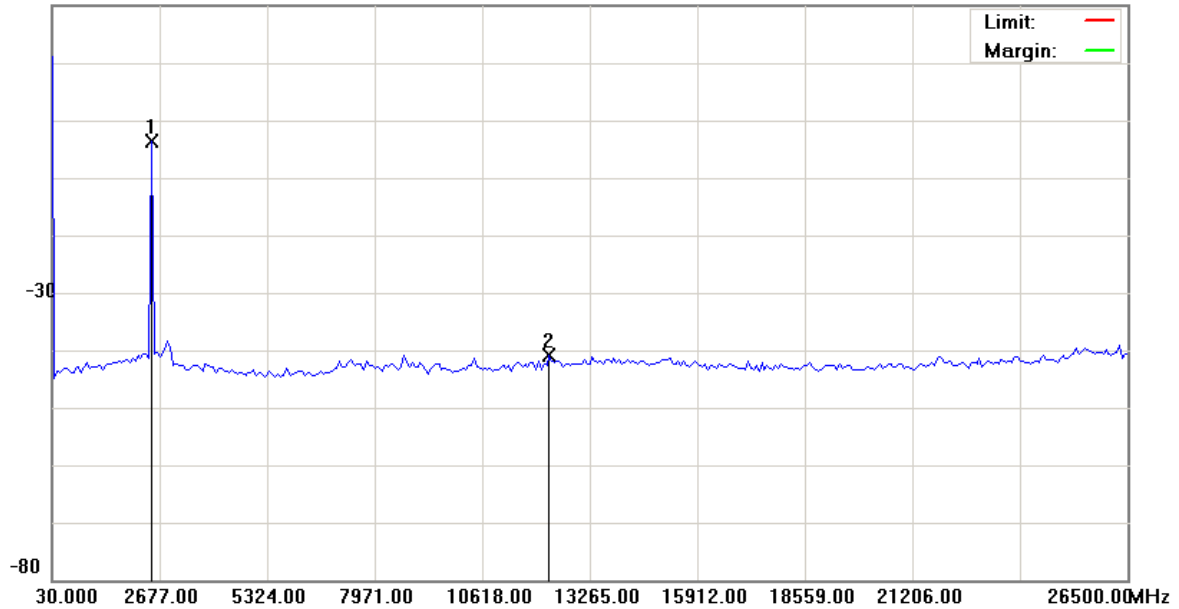
File :09-0177-SEO(BT)

Data :#3

Date: 2009/07/25

Time:

20.0 dBm



Site: site #1

Polarization: **Vertical**

Temperature: 22 °C

Limit:

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-SEO

Mode: BT

Note: 2480MHZ

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	*	2478.475	-9.67	6.09	-3.58			peak		TX
2		12272.375	-47.31	6.46	-40.85			peak		

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

10. Band Edges Requirements

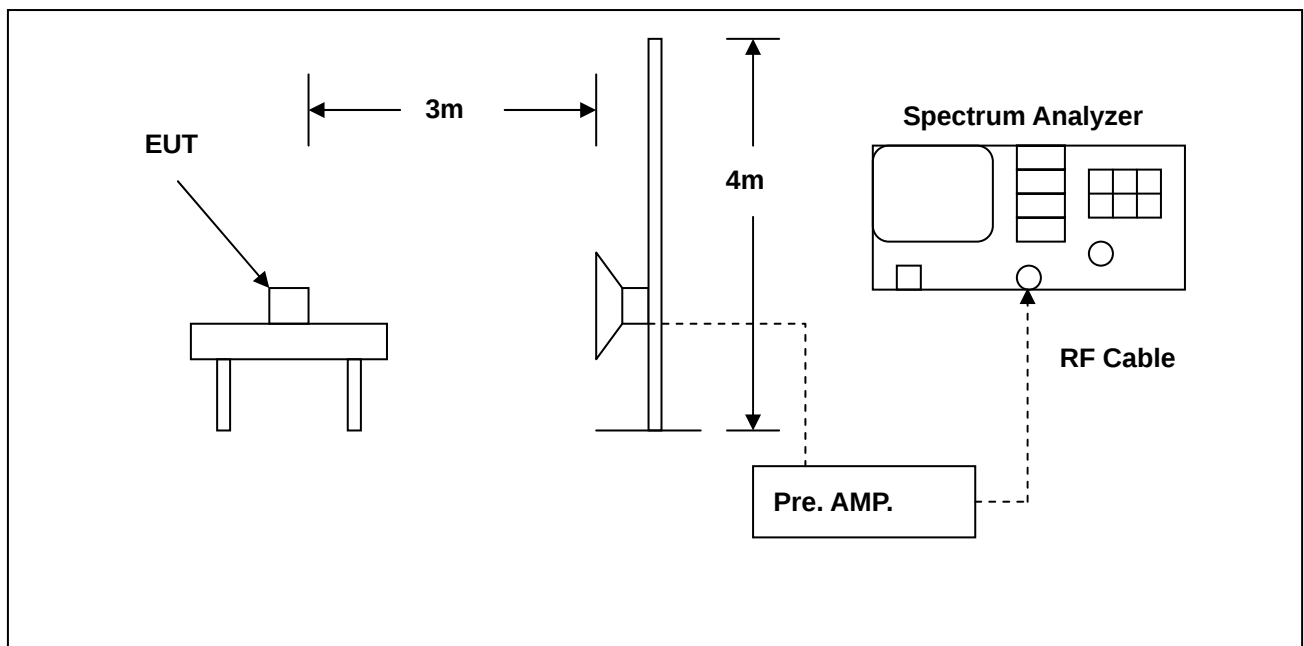
10.1 Test Condition & Setup:

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. 23, 2009	Jun. 23, 2010
Pre Amplifier	Agilent	8449B	3008A02237	Jul. 01, 2009	Jul. 01, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	9120D	9120D-550	Jul. 01, 2009	Jul. 01, 2010

10.4 Test Result

10.4.1 Bluetooth 2.0 Mode:

Applicant : SMK-Link Electronics
Model No : VP3700
EUT : controller
Test Mode : Bluetooth 2.0 Link Mode _ Low CH & High CH
Test Date : 07/23/2009

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.



Radiated Emission Measurement

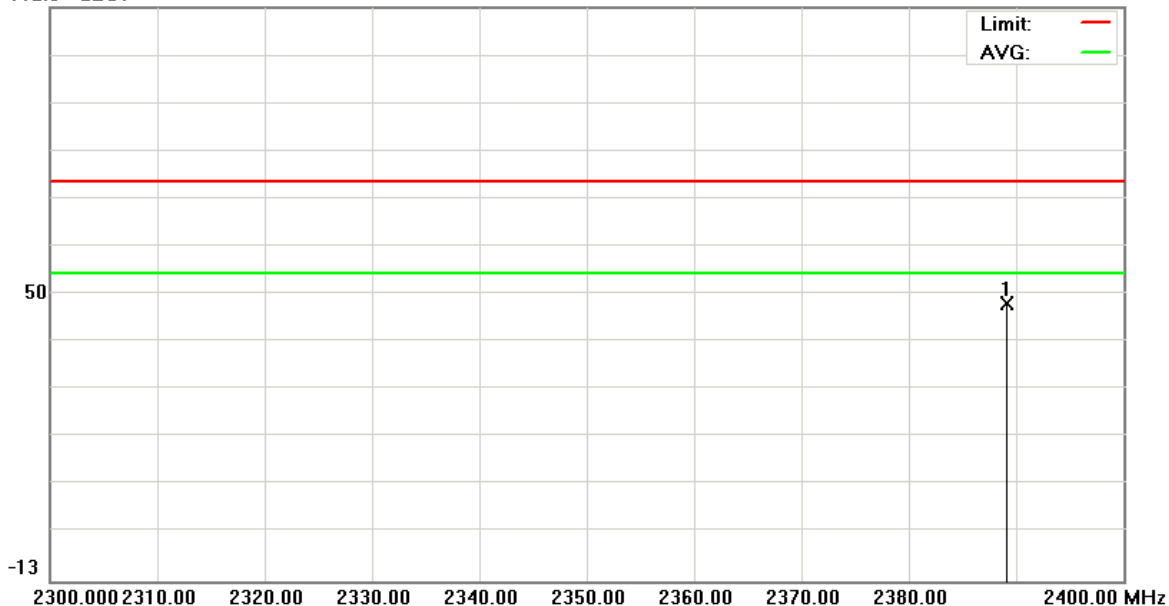
File :1(BAND EDGE)loopback

Data :#9

Date: 2009/7/23

Time: 上午 01:31:46

112.0 dBuV



Site

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0186-EO

Mode: BAND EDGE

Note: 2402MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	2389.100	47.22	0.19	47.41	74.00	-26.59	peak		

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

●Reference Only



Radiated Emission Measurement

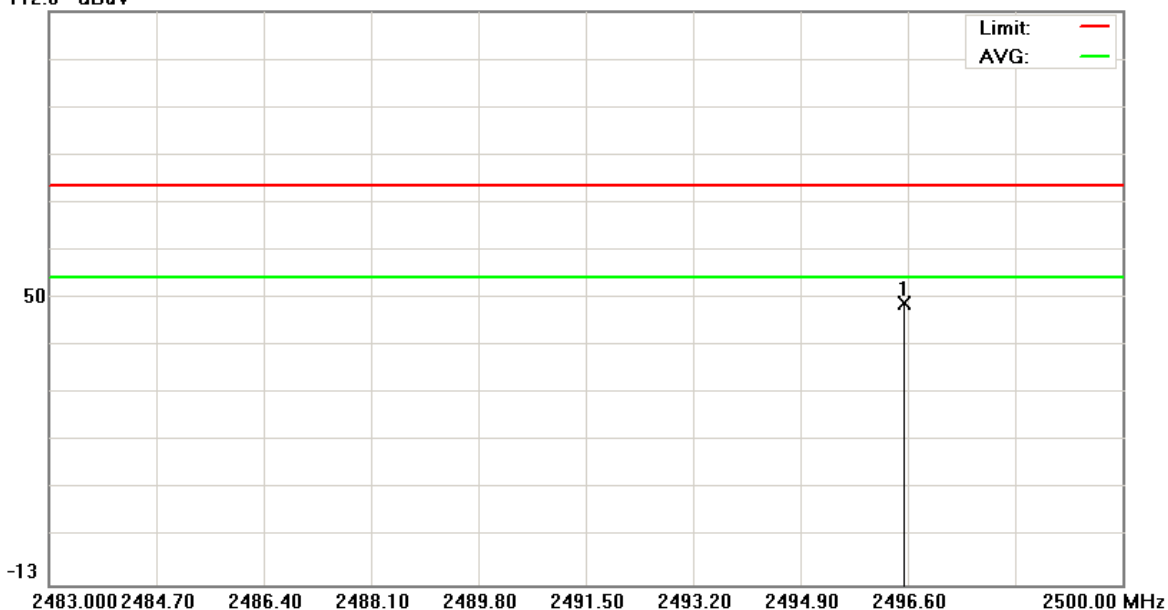
File :1(BAND EDGE)loopback

Data :#10

Date: 2009/7/23

Time: 上午 01:35:09

112.0 dBuV



Site

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0186-EO

Mode: BAND EDGE

Note: 2480MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	2496.532	48.24	0.21	48.45	74.00	-25.55	peak		

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

●Reference Only



Radiated Emission Measurement

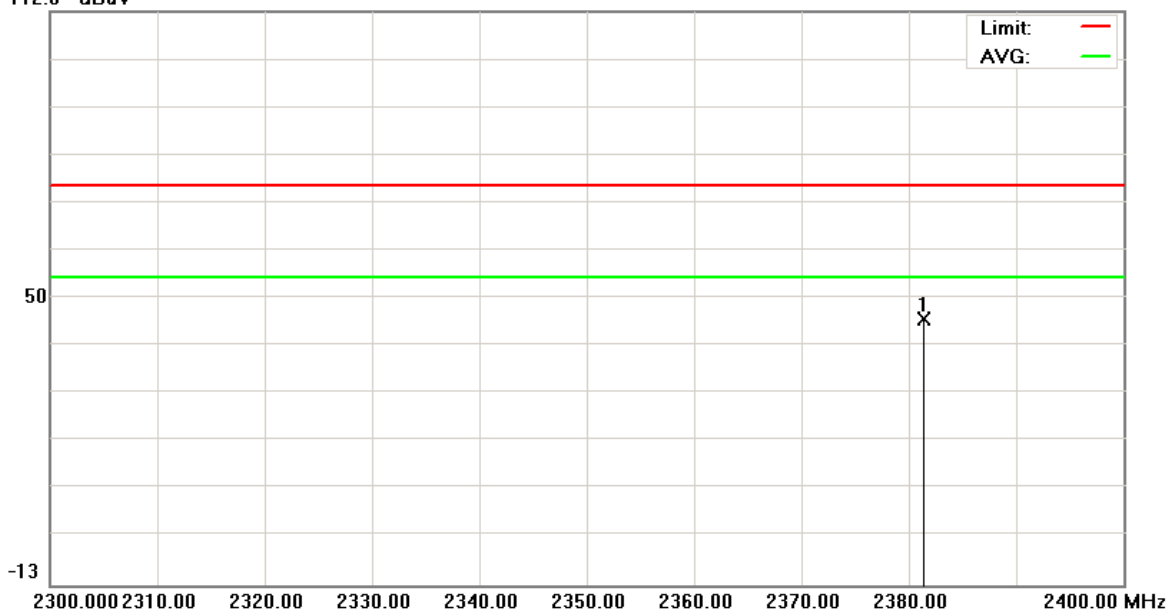
File :1(BAND EDGE)loopback

Data :#11

Date: 2009/7/23

Time: 上午 01:38:04

112.0 dBuV



Site

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0186-EO

Mode: BAND EDGE

Note: 2402MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	2381.400	44.75	0.17	44.92	74.00	-29.08	peak		

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

●Reference Only



Radiated Emission Measurement

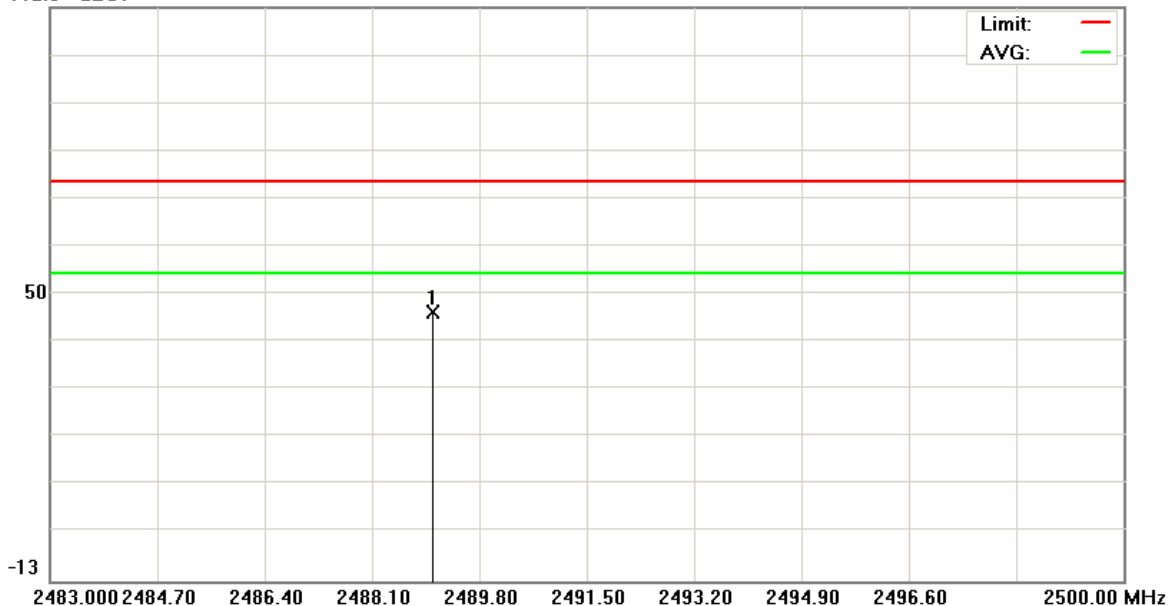
File :1(BAND EDGE)loopback

Data :#12

Date: 2009/7/23

Time: 上午 01:41:04

112.0 dBuV



Site

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0186-EO

Mode: BAND EDGE

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	*	2489.069	45.29	0.23	45.52	74.00	-28.48	peak		

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

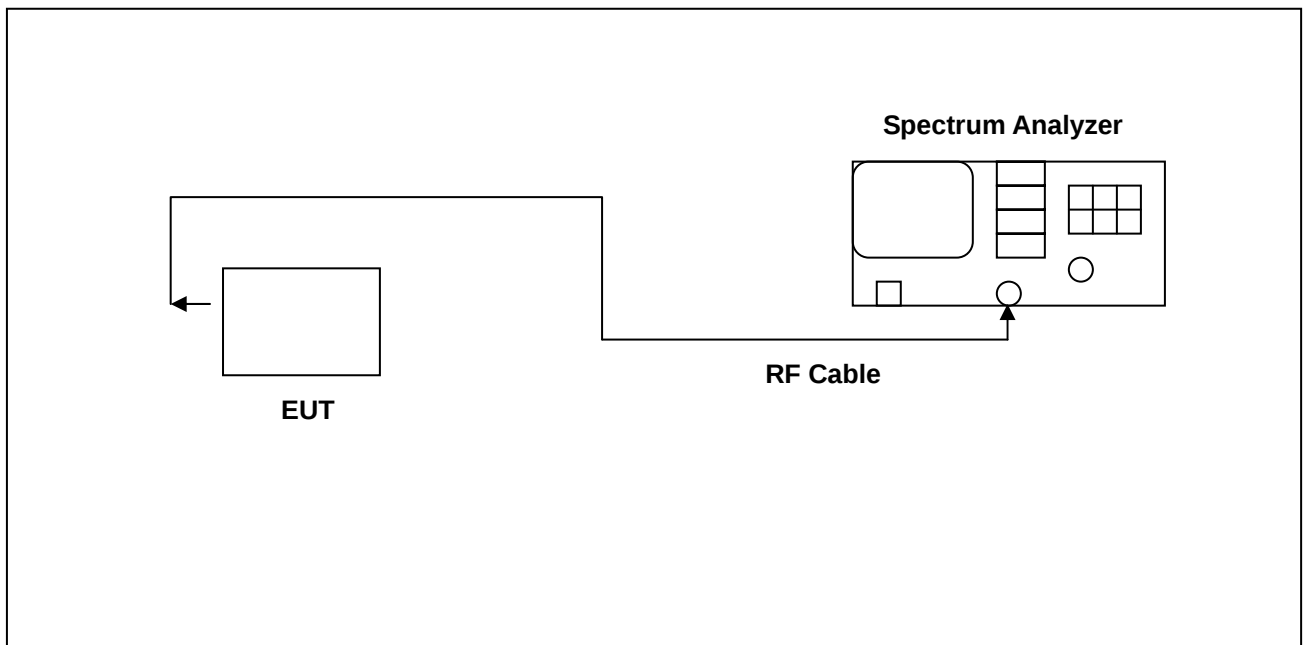
●Reference Only

11. 99 % Occupied Bandwidth Requirements

11.1 Test Condition & Setup:

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

11.2 Test Instruments Configuration:



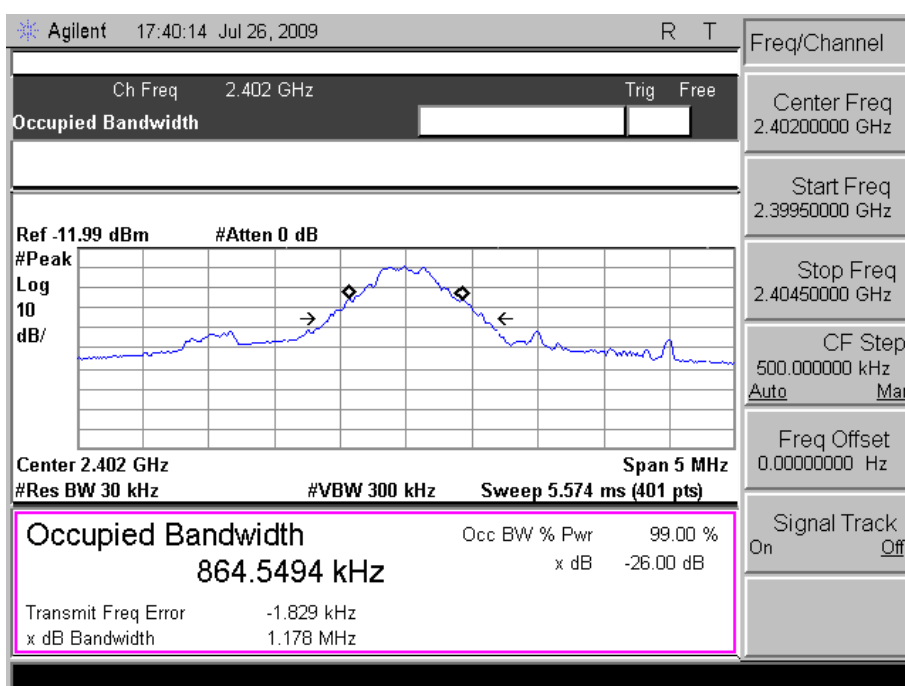
11.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	May. 14, 2009	May. 14, 2010

11.4 Test Result (99 % Occupied Bandwidth)

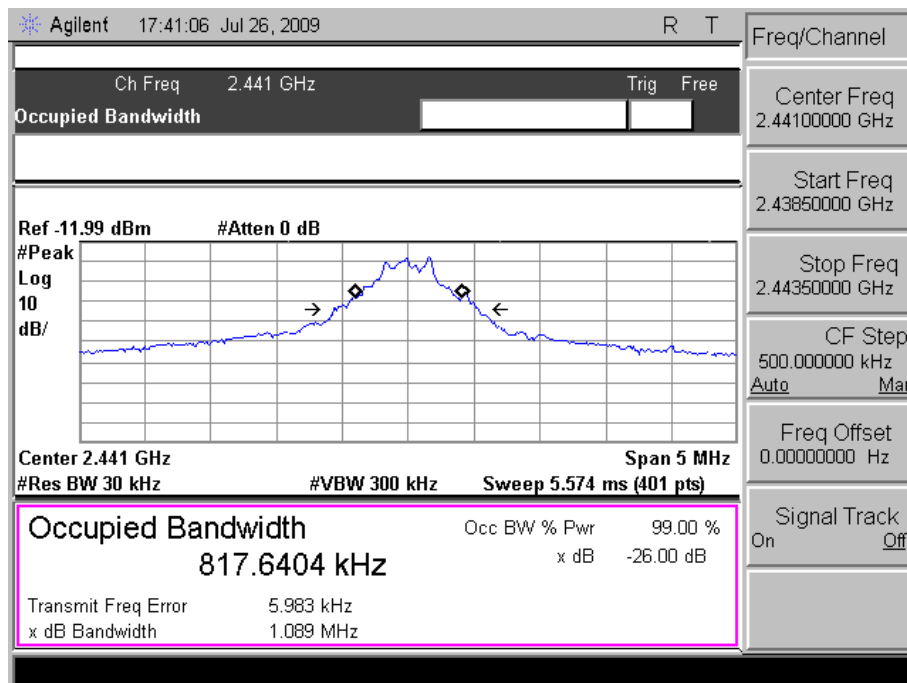
Bluetooth 2.0		
Channel	Frequency (MHz)	Bandwidth (kHz)
00	2402	864.5494
38	2441	817.6404
79	2480	845.6666
RB:30KHz , VBW:300KHz		

Test Mode: Bluetooth 2.0 2402 MHz 99% Occupied Bandwidth

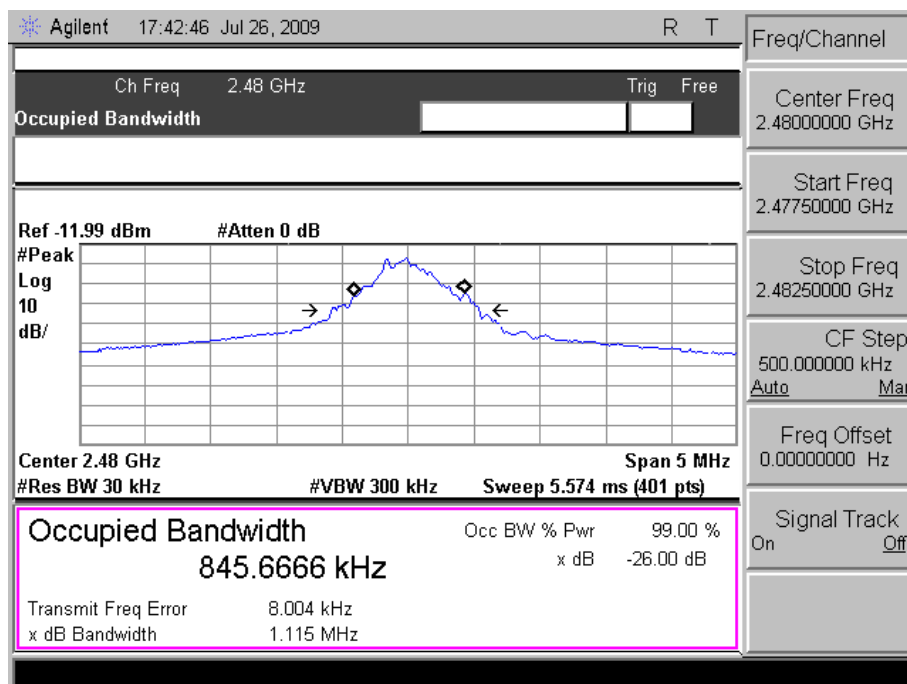




Test Mode: Bluetooth 2.0 2441 MHz 99% Occupied Bandwidth



Test Mode: Bluetooth 2.0 2480 MHz 99% Occupied Bandwidth





12. Antenna Requirements

12.1 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.

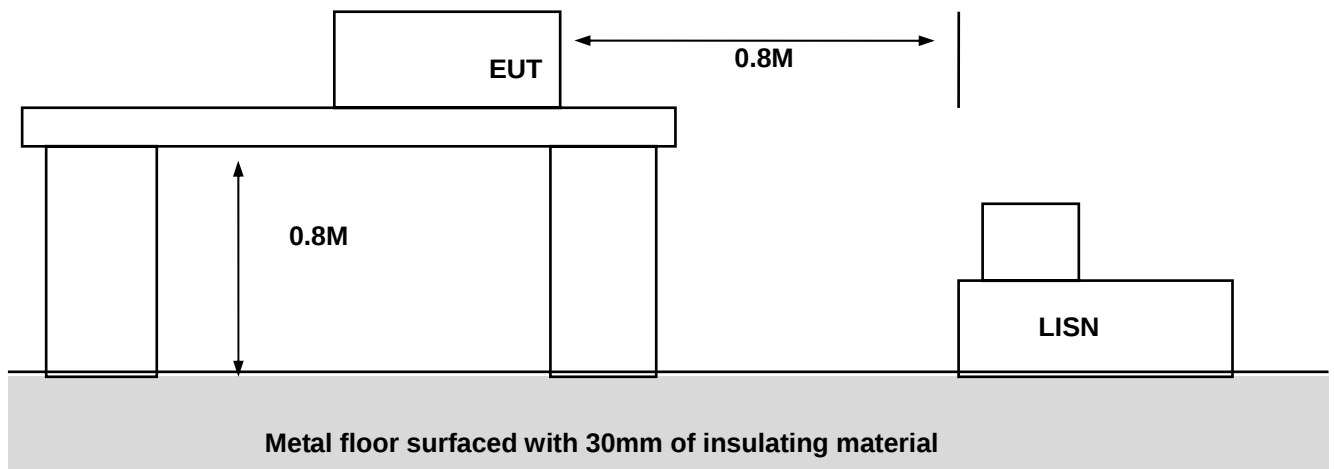
And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

12.2 Antenna Connector Construction

The antenna used in this product is Print antenna. And the maximum Gain of this antenna is only **-3.25268** dBi.

Appendix A - EUT Test SETUP

MEASUREMENT OF POWER LINE CONDUCTED RFI VOLTAGE



MEASUREMENT OF RADIATED EMISSION

