FCC TEST REPORT

for

47 CFR Part 15 Subpart C

Equipment	**:**	**Bluetooth USB Dongle**
Trade Name	**:**	**LIYUH**
Model No.	**:**	**LBT313**
FCC ID	**:**	**VIBLBT313**
Filing Type	**:**	**Certification**
Applicant	**:**	**Liyuh Technology Ltd.** 7F, No. 13, Alley 23, Lane 796, Jhong Sino E. Rd, Taipie, R.O.C

- The test result refers exclusively to the test presented test model / sample.
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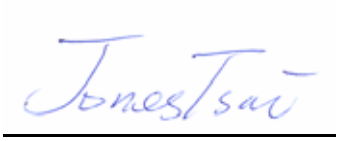
- **Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**
- The data shown in this test report were carried out on Aug. 12, 2007 at **Sporton International Inc. LAB.**
- Report No.: FR772516, Report Version: Rev. 01.



Jones Tsai
Manager

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

Table of Contents

History of this test report

Report Issue Date: Aug. 22, 2007

Report No.	Description

1. General Description of Equipment under Test

1.1. Applicant

Liyuh Technology Ltd.

7F, No. 13, Alley 23, Lane 796, Jhong Sino E. Rd, Taipie, R.O.C

1.2. Manufacturer

Liyuh Technology Ltd.

7F, No. 13, Alley 23, Lane 796, Jhong Sino E. Rd, Taipie, R.O.C

1.3. Basic Description of Equipment under Test

Equipment	Bluetooth USB Dongle
Trade Name	LIYUH
Model Name	LBT313
Power Supply Type	From system

Remark: Above EUT's information was declared by manufacturer. Please refer to the specifications of manufacturer or User's Manual for more detailed features description.

1.4. Feature of Equipment under Test

Product Feature & Specification				
1. Modulation Type/Data Rate	GFSK			
2. Frequency Range.	2400 MHz ~ 2483.5 MHz			
3. Number of Channels	79			
4. Carrier Frequency of each channel	2402 + n x 1 MHz, n= 0~78			
5. Channel Spacing	1 MHz			
6. Maximum Output Power to Antenna (Normal condition)	12.55 dBm			
7. Type of Antenna Connector	N/A			
8. Antenna Type	PCB Antenna			
9. Antenna Gain	0.42 dBi			
10. Function Type	Transmitter		Transceiver	V

2. Test Configuration of Equipment under Test

2.1. Test Manner

a. The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.
b. For spurious emission below 1GHz, only one channel of each application was tested because it is not related to channel selection.
c. The EUT is programmed to transmit signal continuously for all testings.
d. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.

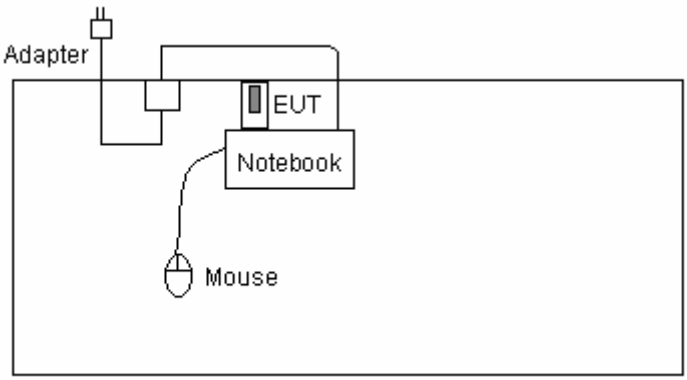
2.2. Test Mode

Application	Bluetooth
Radiated Emission	Mode 1: Tx_CH00_2402 MHz Mode 2: Tx_CH39_2441 MHz Mode 3: Tx_CH78_2480 MHz
Conducted Emission	Mode 1: BT Link Mode

2.3. Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Power Cord / Cable
1.	Notebook	DELL	D400	E2K24GBRL	1.2m
2.	RS-232 Mouse	State	MS-303	DoC	N/A

2.4. Connection Diagram of Test System



3. RF Utility

The programmed RF Utility “WDS” is installed in notebook to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all tasting.

4. General Information of Test

Test Site Location	:	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
Test Site No	:	CO01-HY, 03CH06-HY

4.1. Test Voltage

AC 120V / 60Hz

4.2. Standard for Methods of Measurement

ANSI C63.4-2003

4.3. Test Compliance

47 CFR Part 15 Subpart C

4.4. Frequency Range

Conduction: from 150 kHz to 30 MHz
Radiation: from 30 MHz to 25000MHz

4.5. Test Distance

The test distance of radiated emission from antenna to EUT is 3 m.

5. Report of Measurements and Examinations

5.1. List of Measurements and Examinations

FCC Rule	Description of Test	Result	Section
15.247(a)(1)	Hopping Channel Separation	Pass	5.2
15.247(a)(1)(iii)	Number of Hopping Frequency Used	Pass	5.3
15.247(a)(1)	Hopping Channel Bandwidth	Pass	5.4
15.247(a)(1)(iii)	Dwell Time of Each Frequency	Pass	5.5
15.247(b)(1)	Output Power	Pass	5.6
15.247(c)	100kHz Bandwidth of Frequency Band Edges	Pass	5.7
15.207	Conducted Emission	Pass	5.8
15.209	Radiated Emission	Pass	5.9
15.203	Antenna Requirement	Pass	5.10

5.2. Hopping Channel Separation

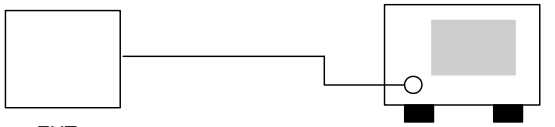
5.2.1. Measuring Instruments：

As described in chapter 6 of this test report.

5.2.2. Test Procedure：

1. The output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Set RBW of spectrum analyzer to ≧1% of the span and VBW ≧ RBW.
3. The Hopping Channel Separation is defined as the channel is separated with the next channel.

5.2.3. Test Setup Layout：



5.2.4. Test Result：The spectrum analyzer plots are attached as below

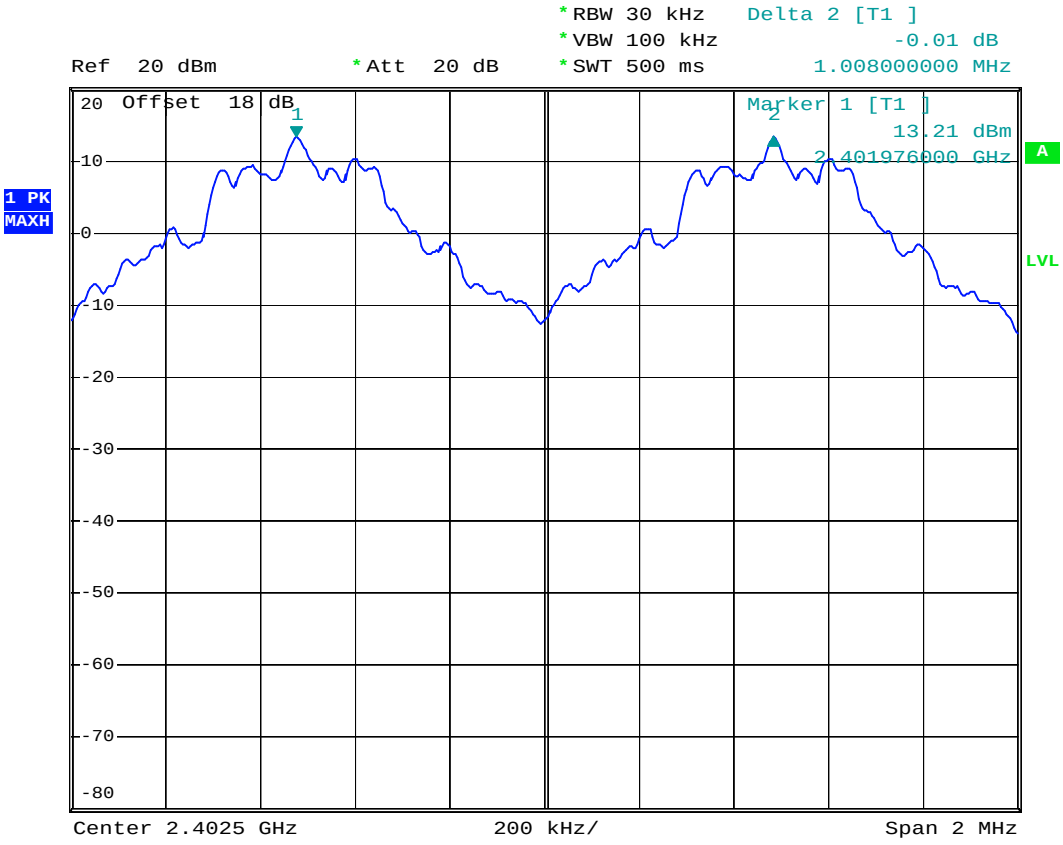
- Temperature: 26~27°C
- Relative Humidity: 59~60%
- Test Engineer : Andy

Channel	Frequency (MHz)	Hopping Channel Separation (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	1.008	0.488	Mode 1
39	2441	0.996	0.492	Mode 2
78	2480	0.996	0.495	Mode 3

Note: Hopping Channel Separation shall be greater 2/3 of 20dB bandwidth. Refer the result of 20dB bandwidth to section 5.4.

5.2.5 Hopping Channel Separation

Mode 1: CH00 (2402MHz)



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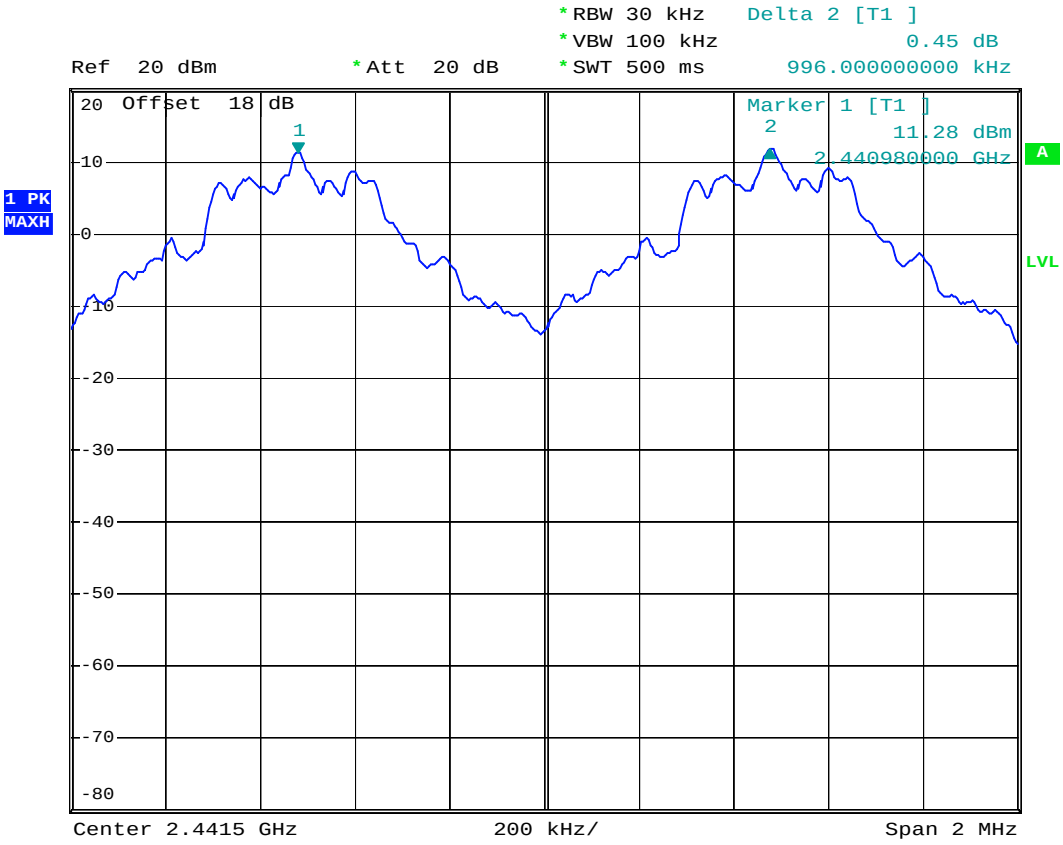
Mode 2: CH39 (2441MHz)



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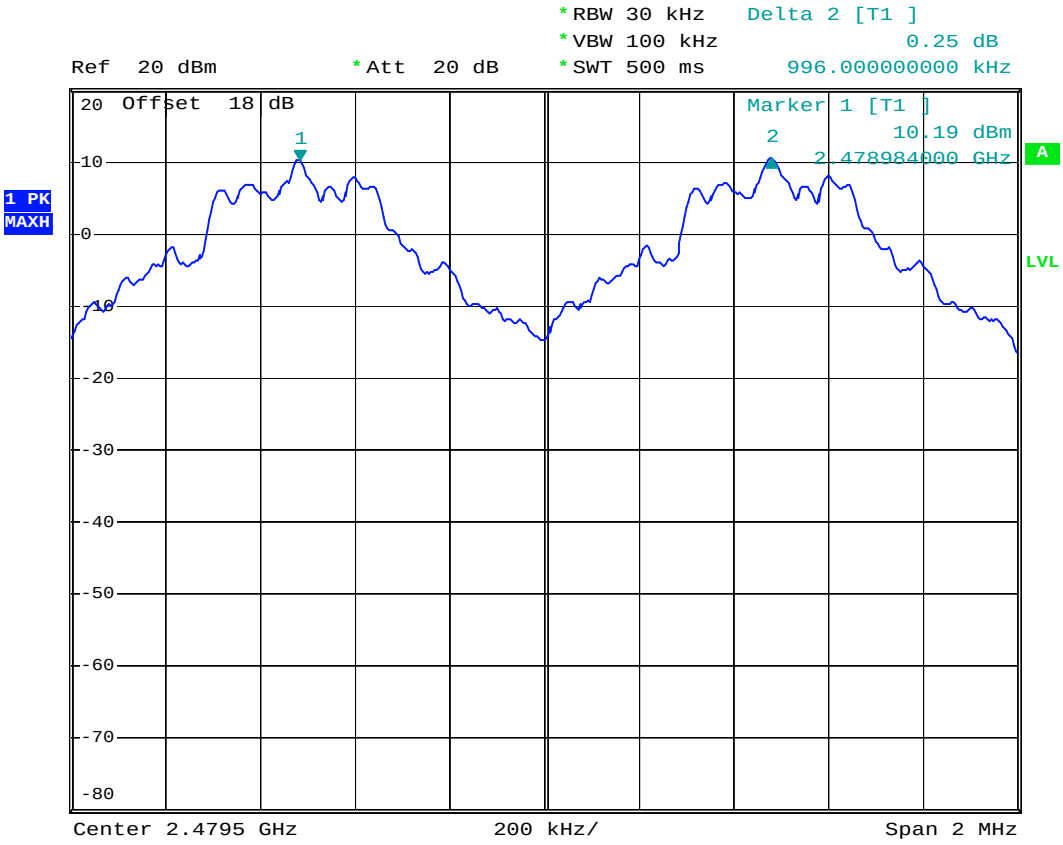
Mode 3: CH78 (2480MHz)



5.3. Number of Hopping Frequency

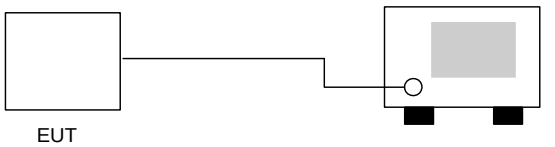
5.3.1. Measuring Instruments：

As described in chapter 6 of this test report.

5.3.2. Test Procedure：

1. The transmitter output was connected to the spectrum analyzer directly.
2. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
3. The number of hopping frequency used is defined as the device has the numbers of total channel.

5.3.3. Test Setup Layout：

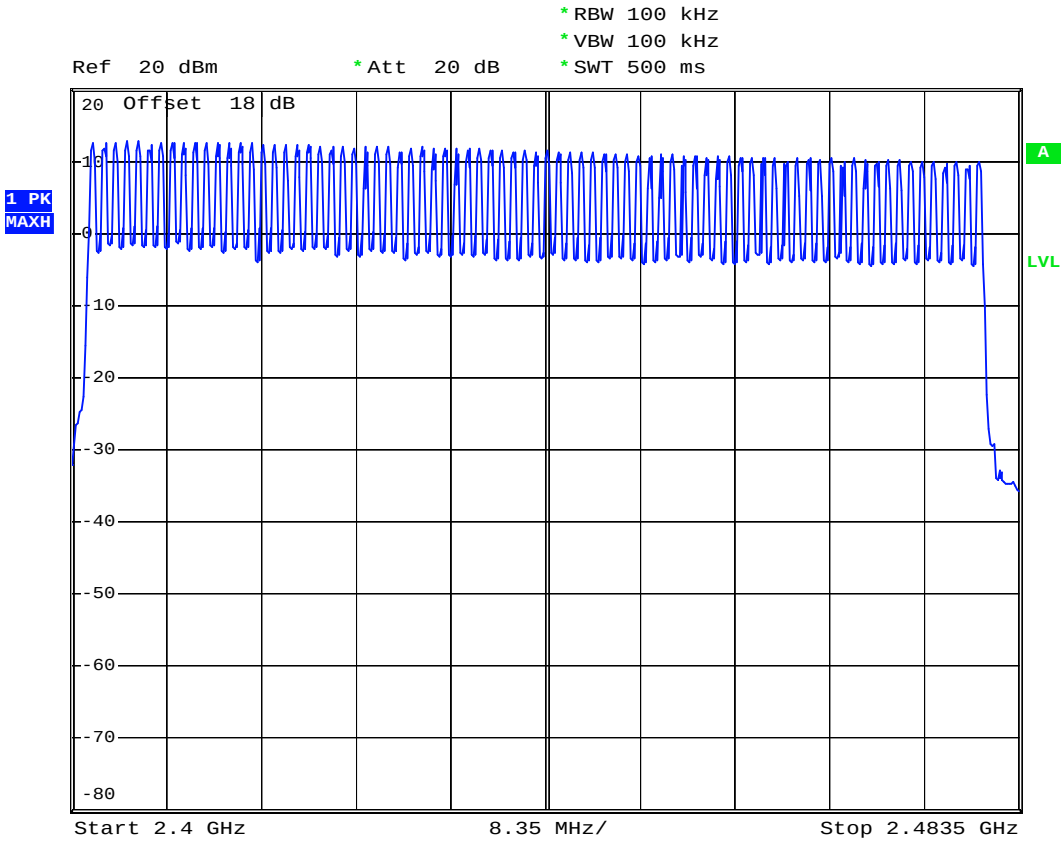


5.3.4. Test Result：See spectrum analyzer plots below

- Temperature: 26~27°C
- Relative Humidity: 59~60%
- Test Engineer : Andy

Number of Hopping Frequency (Channel)	Limits (Channel)
79	15

5.3.5 Number of Hopping Frequency



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5.4 Hopping Channel Bandwidth

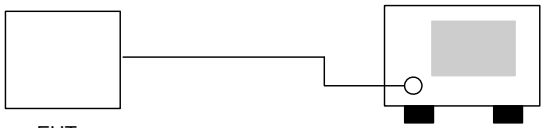
5.4.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.4.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer directly.
2. Set RBW of spectrum analyzer to 30kHz and VBW to 300kHz.
3. The Hopping Channel bandwidth is defined as the frequency range where the power is higher than peak power minus 20dB.

5.4.3 Test Setup Layout：



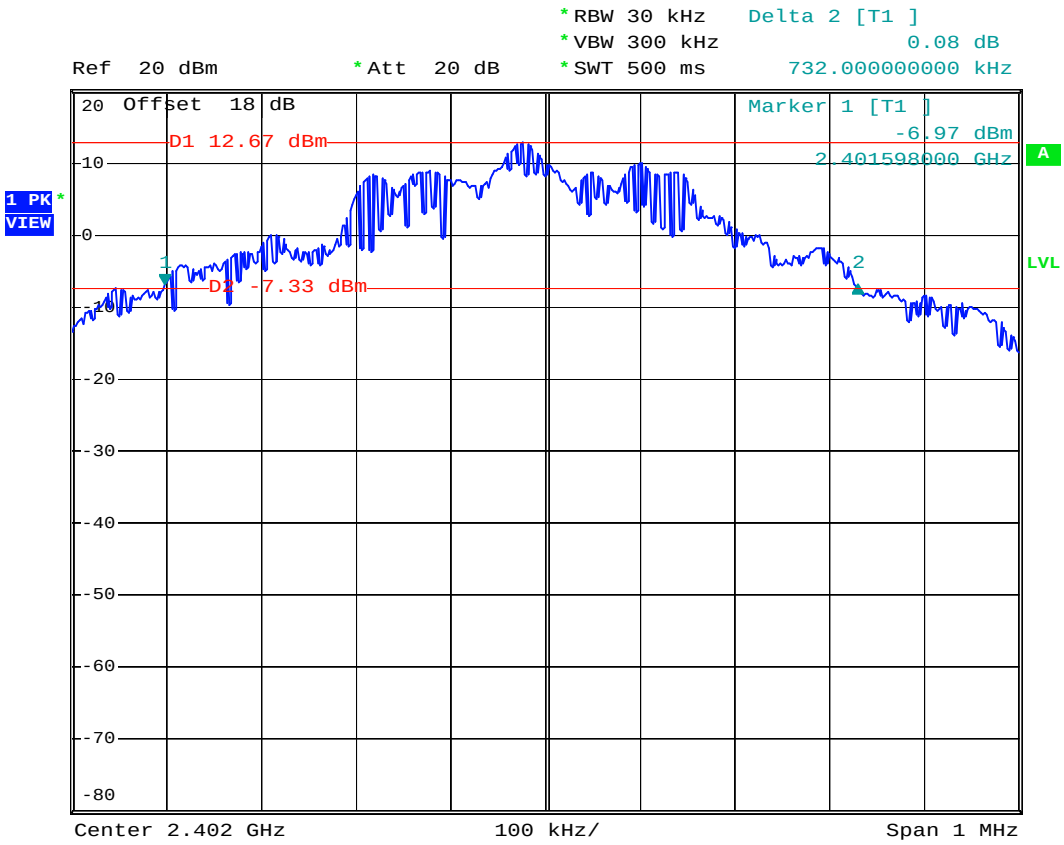
5.4.4 Test Result：See spectrum analyzer plots below

- Temperature: 26~27°C
- Relative Humidity: 59~60%
- Test Engineer : Andy

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	0.732	1.0	Mode 1
39	2441	0.738	1.0	Mode 2
78	2480	0.742	1.0	Mode 3

5.4.5 Hopping Channel Bandwidth

Mode 1: CH00 (2402MHz)



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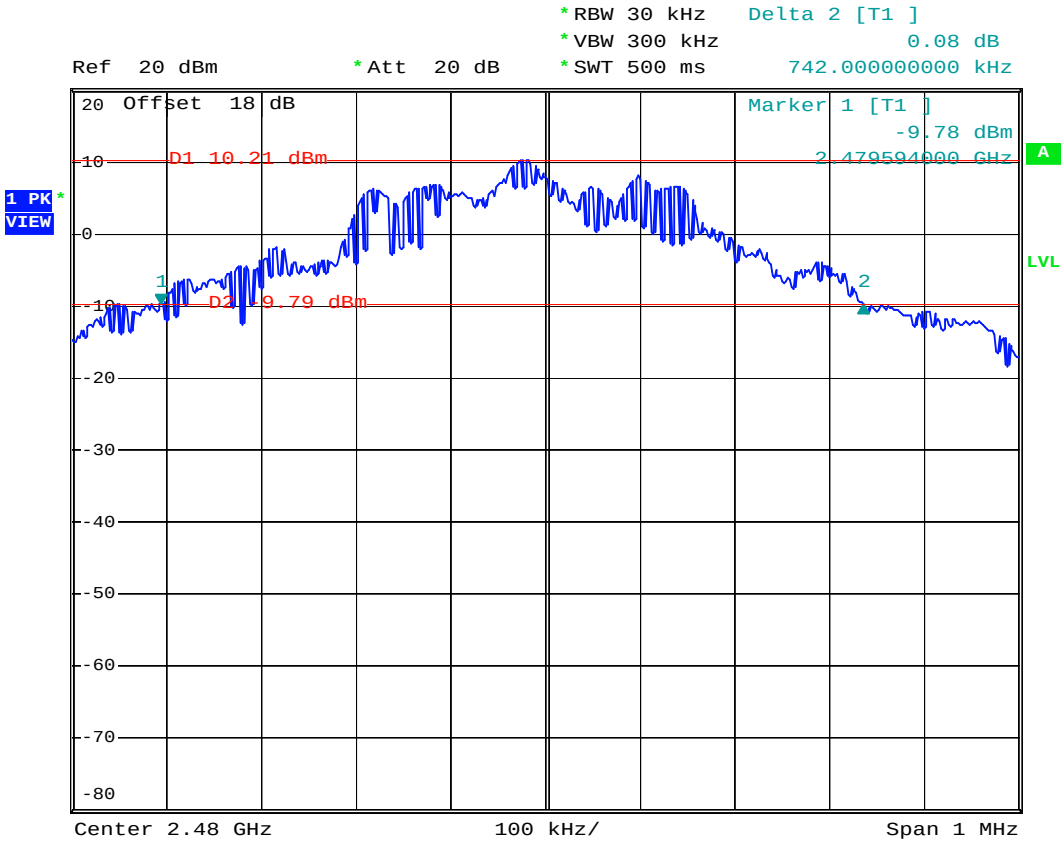
Mode 2: CH39 (2441MHz)

Date: 7.AUG.2007 16:56:48

Mode 3: CH78 (2480MHz)



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5.5 Dwell Time of Each Frequency

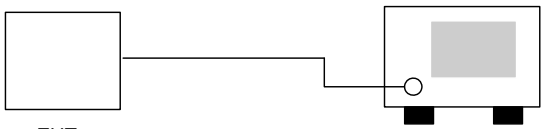
5.5.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.5.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer directly.
2. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
3. Set the center frequency on any frequency would be measured and set the frequency span to zero span.
4. The calculate equals 79 * 0.4 * (1600/79) * t (t = the time duration of one single pulse)

5.5.3 Test Setup Layout：



5.5.4 Test Result：See spectrum analyzer plots below

- Temperature: 26~27°C
- Relative Humidity: 59~60%
- Test Engineer : Andy

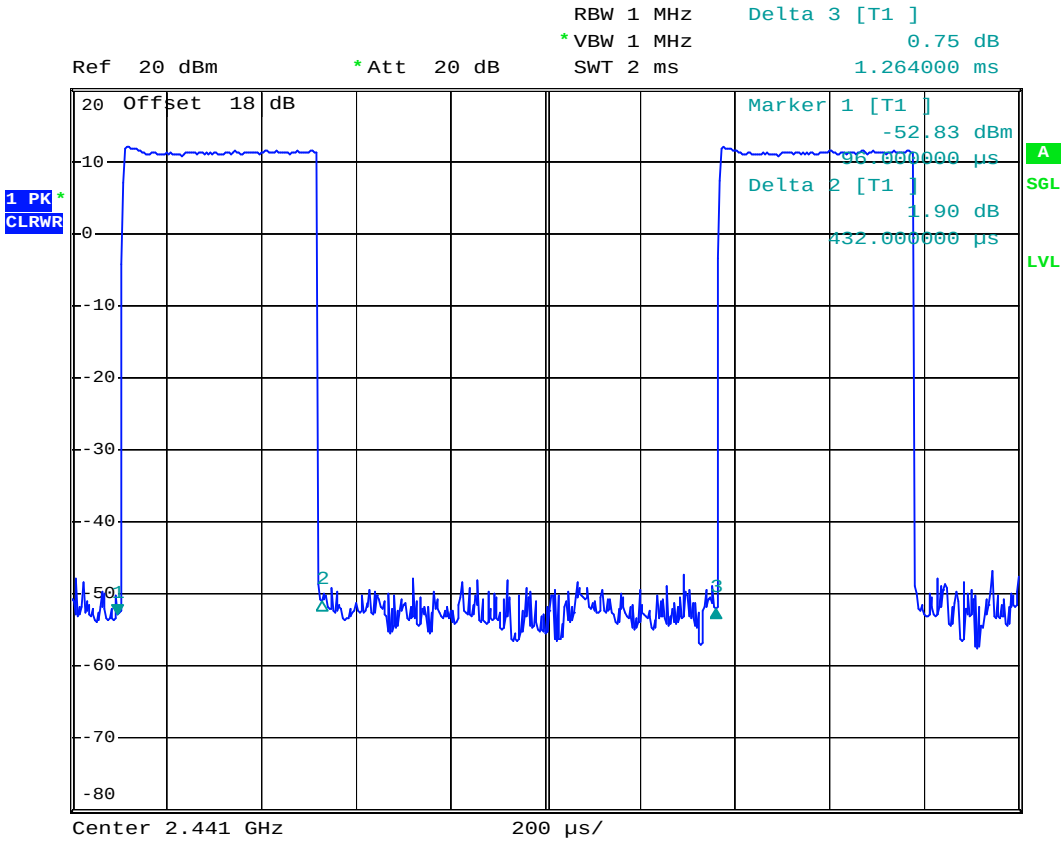
CH39

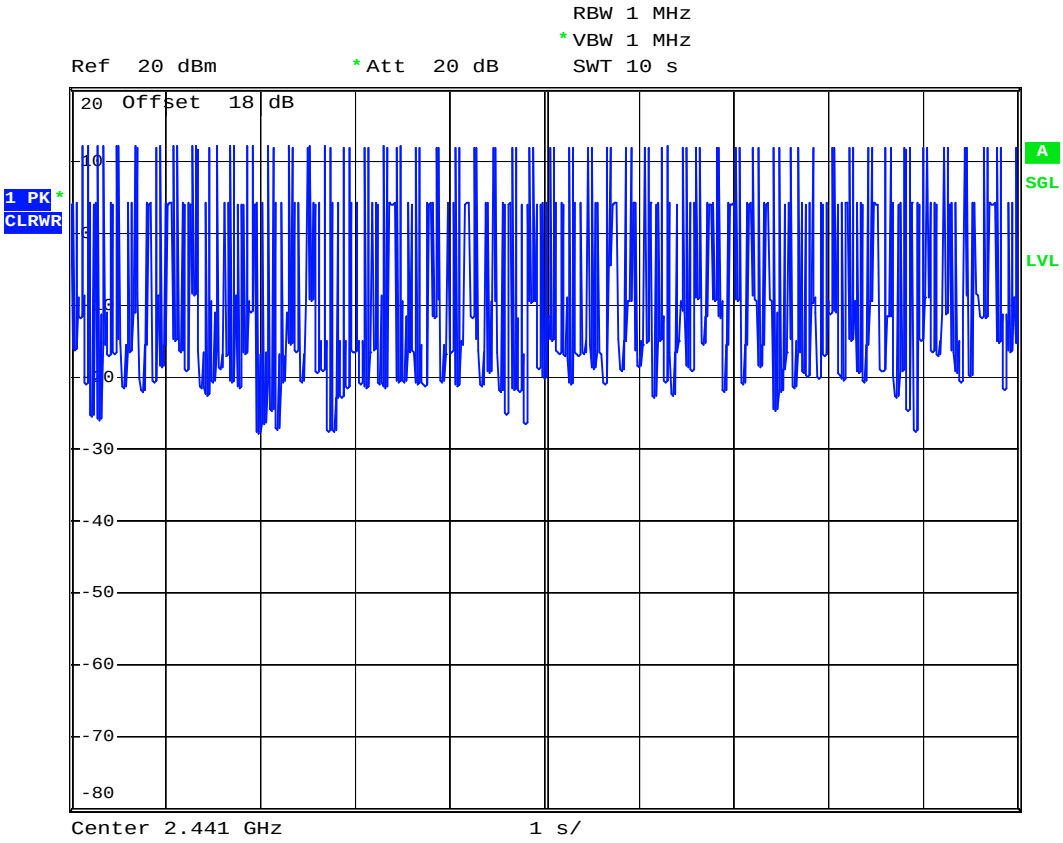
Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	9.5	432	0.130	0.4
DH3	4.5	1710	0.243	0.4
DH5	3.4	2980	0.320	0.4

※ Remark:
1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time
2. 79channels come from the Hopping Channel number.
3. Average Hopping Channel = hops/sweep time
4. t: Package Transfer Time(us)

5.5.5 Dwell Time

DH1 (CH39)





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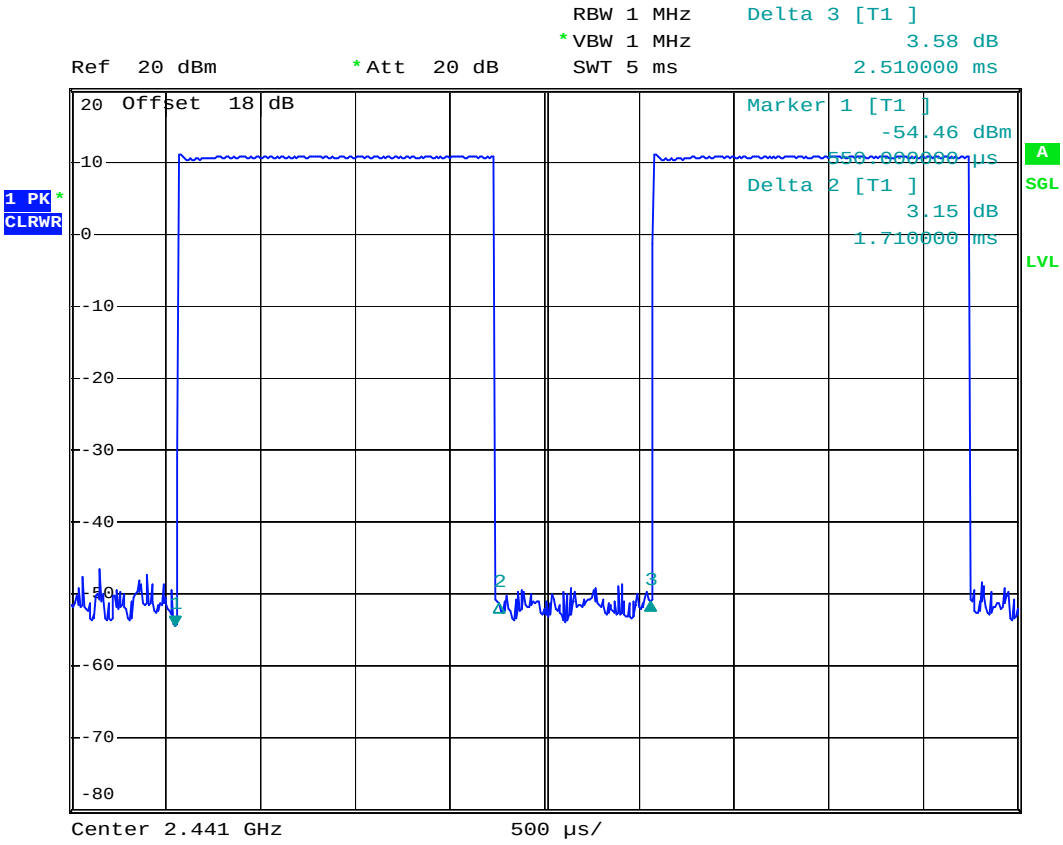
DH3 (CH39)



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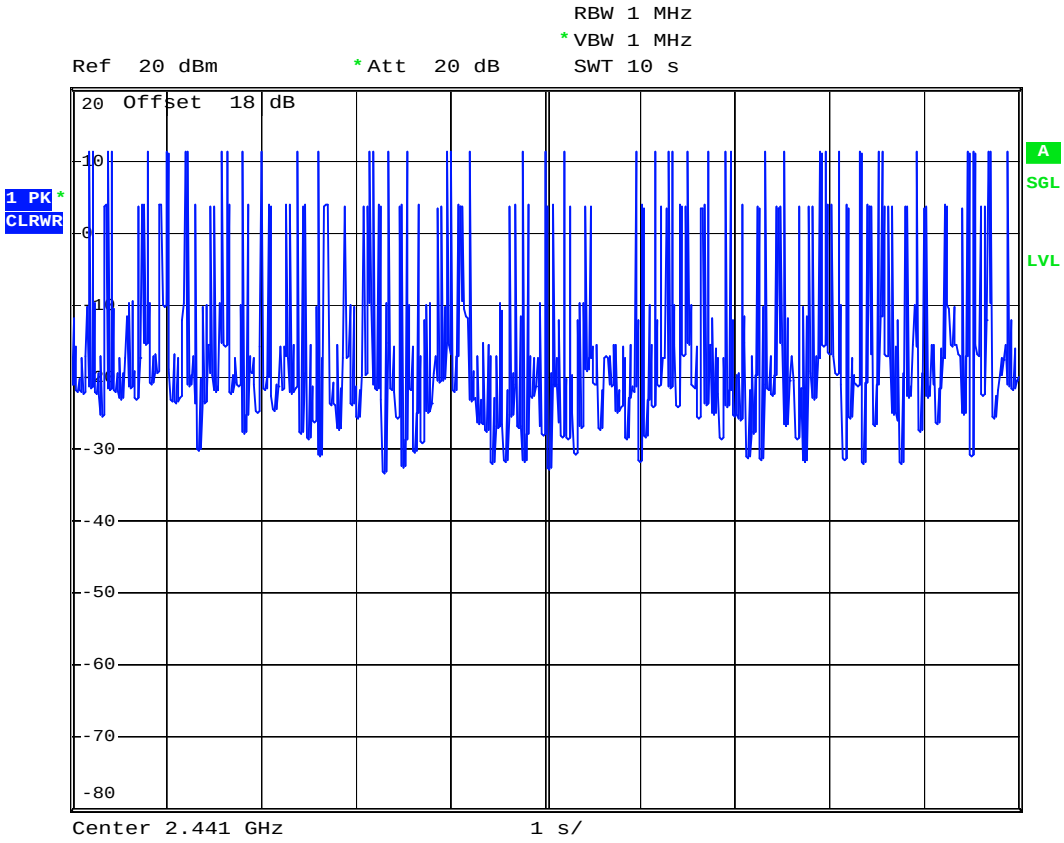
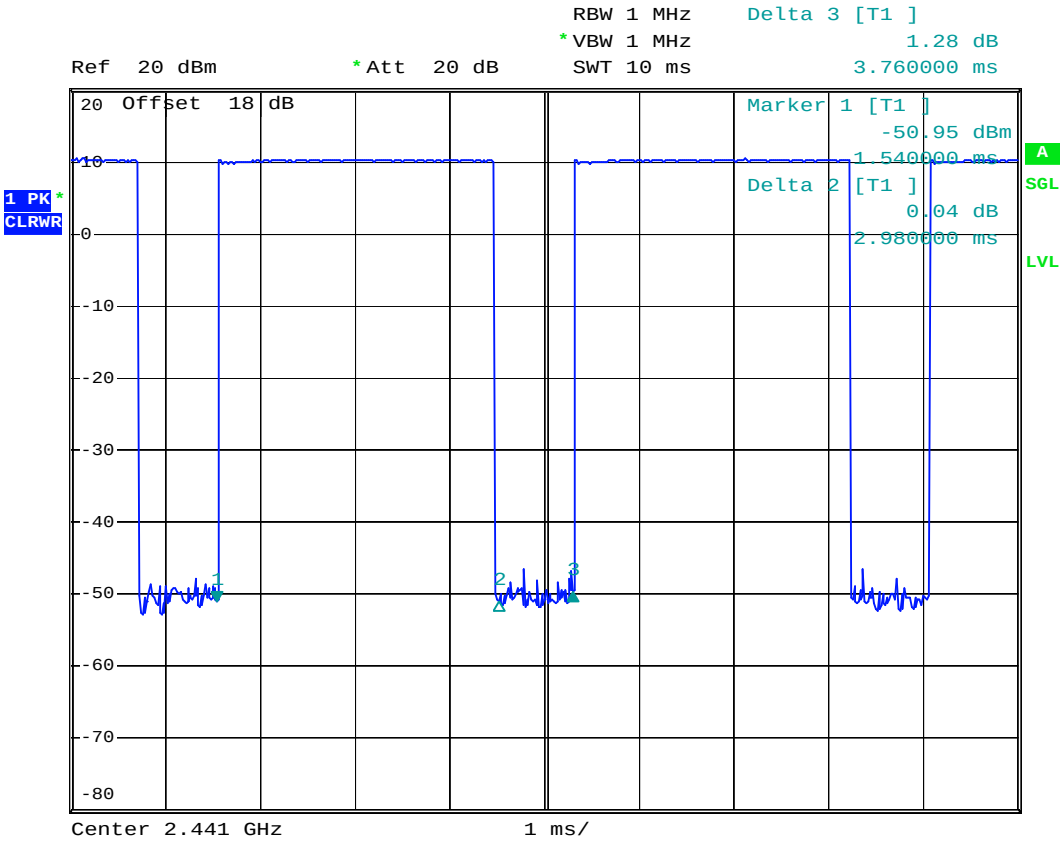


Date: 7.AUG.2007 17:47:17

DH5 (CH39)



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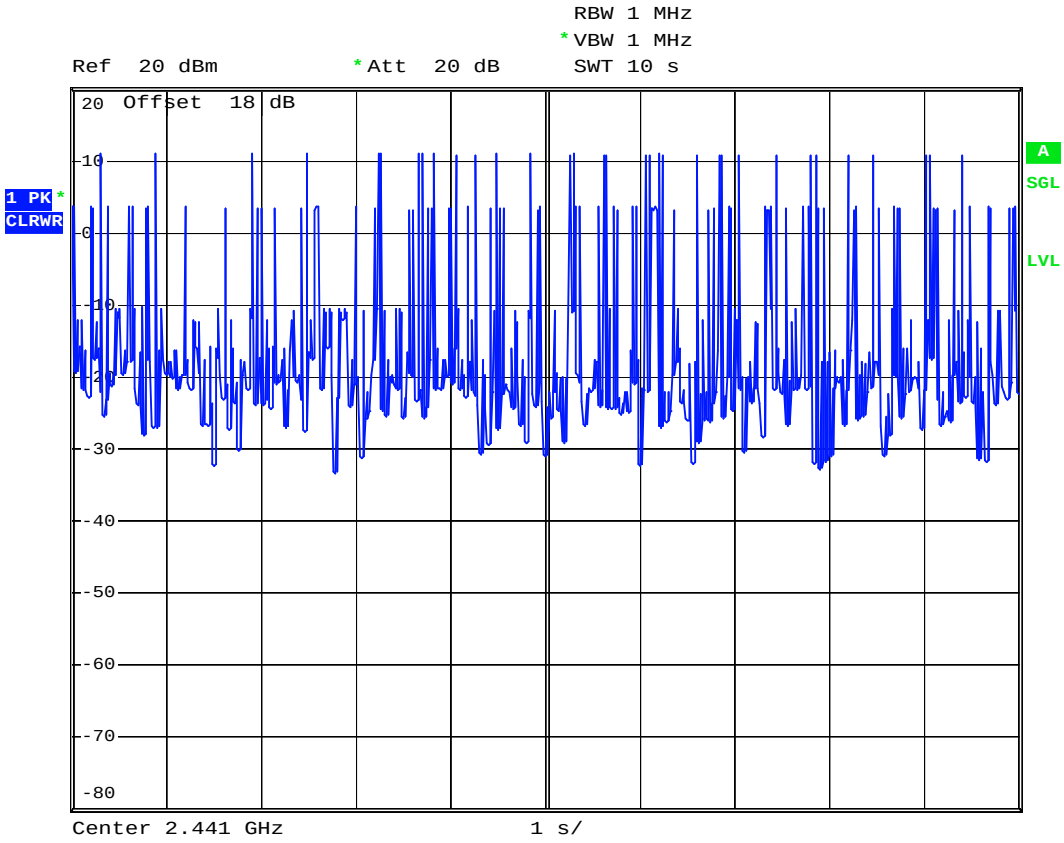

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5.6 Output Power

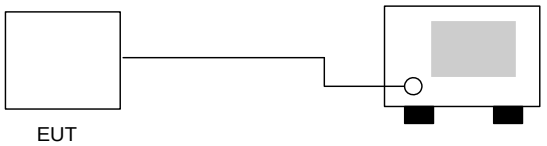
5.6.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.6.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer directly.
2. The center frequency of the spectrum analyzer was set to the fundamental frequency and set RBW to 3MHz and VBW to 3MHz.

5.6.3 Test Setup Layout：



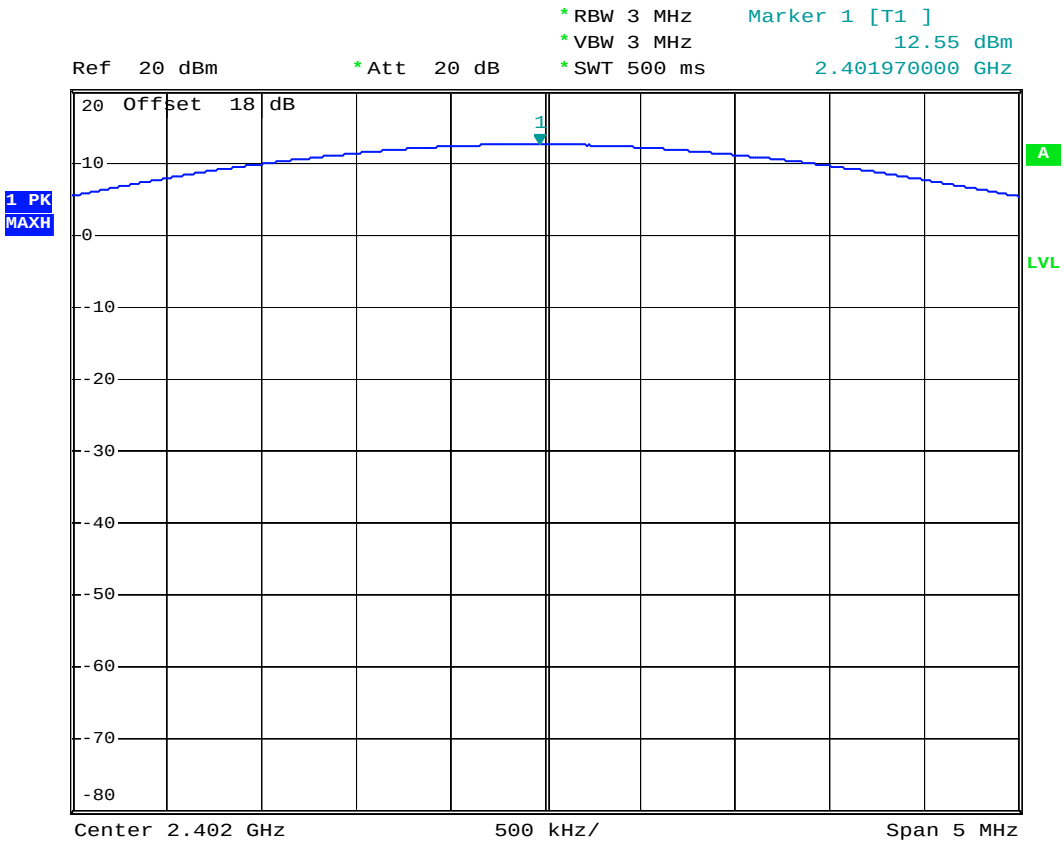
5.6.4 Test Result：See spectrum analyzer plots below

- Temperature: 26~27°C
- Relative Humidity: 59~60%
- Test Engineer : Andy

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)	Plot Ref. No.
00	2402	12.55	1W/30 dBm	Mode 1
39	2441	12.02	1W/30 dBm	Mode 2
78	2480	10.97	1W/30 dBm	Mode 3

5.6.5 Output Power

Mode 1: CH00 (2402MHz)



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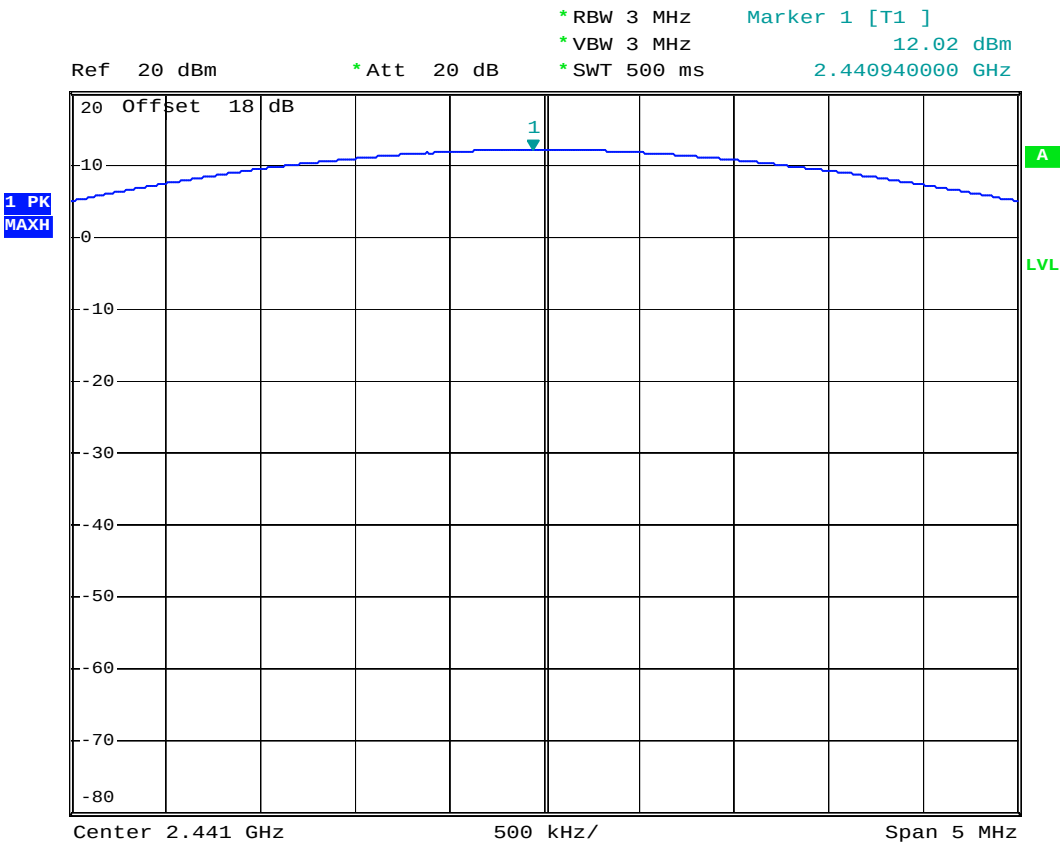
Mode 2: CH39 (2441MHz)



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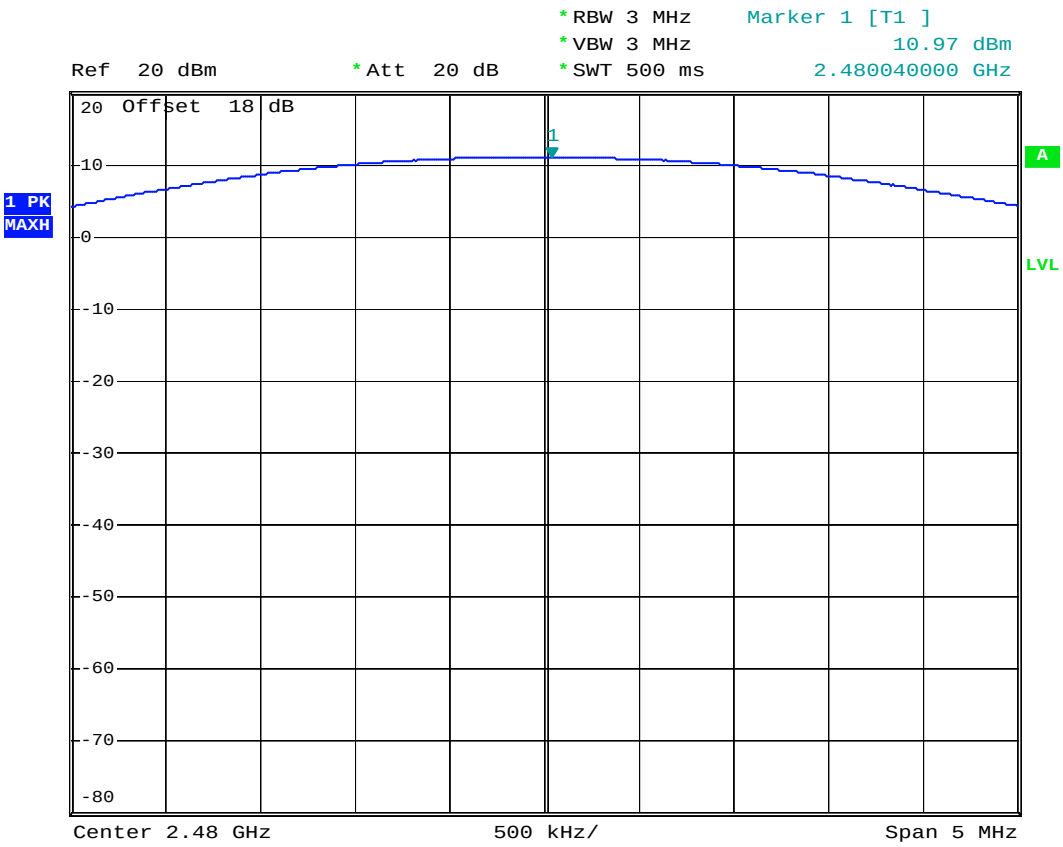
Mode 3: CH78 (2480MHz)



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5.7 100kHz Bandwidth of Frequency Band Edges

5.7.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.7.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span for the conducted measurement, and RBW/VBW=1MHz/1MHz for peak measurement and RBW/VBW=1MHz/300Hz for average measurement in the radiated measurement.
3. The band edges was measured and recorded.

5.7.3 Test Result：

- Temperature: 26~27°C
- Relative Humidity: 59~60%
- Test Engineer : Andy

Test Result in lower band (Channel 00)： PASS

Test Result in higher band(Channel 39)： PASS

Test Result in higher band(Channel 78)： PASS

5.7.4 Note on Band Edge Emission

CH00 (Horizontal)

Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Detect
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB)	(cm)	(deg)	Mode
2386.4	64.50	-9.50	74.00	65.93	30.26	3.75	35.44	100	0	Peak
2386.4	42.12	-11.88	54.00	43.55	30.26	3.75	35.44	100	180	Average

CH00 (Vertical)

Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Detect
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB)	(cm)	(deg)	Mode
2386.4	70.72	-3.28	74.00	72.15	30.26	3.75	35.44	100	0	Peak
2386.4	41.05	-12.95	54.00	42.48	30.26	3.75	35.44	100	146	Average

CH78 (Horizontal)

Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Detect
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB)	(cm)	(deg)	Mode
2483.5	67.11	-6.89	74.00	68.47	30.29	3.86	35.51	100	0	Peak
2483.5	52.47	-1.53	54.00	53.83	30.29	3.86	35.51	100	160	Average

CH78 (Vertical)

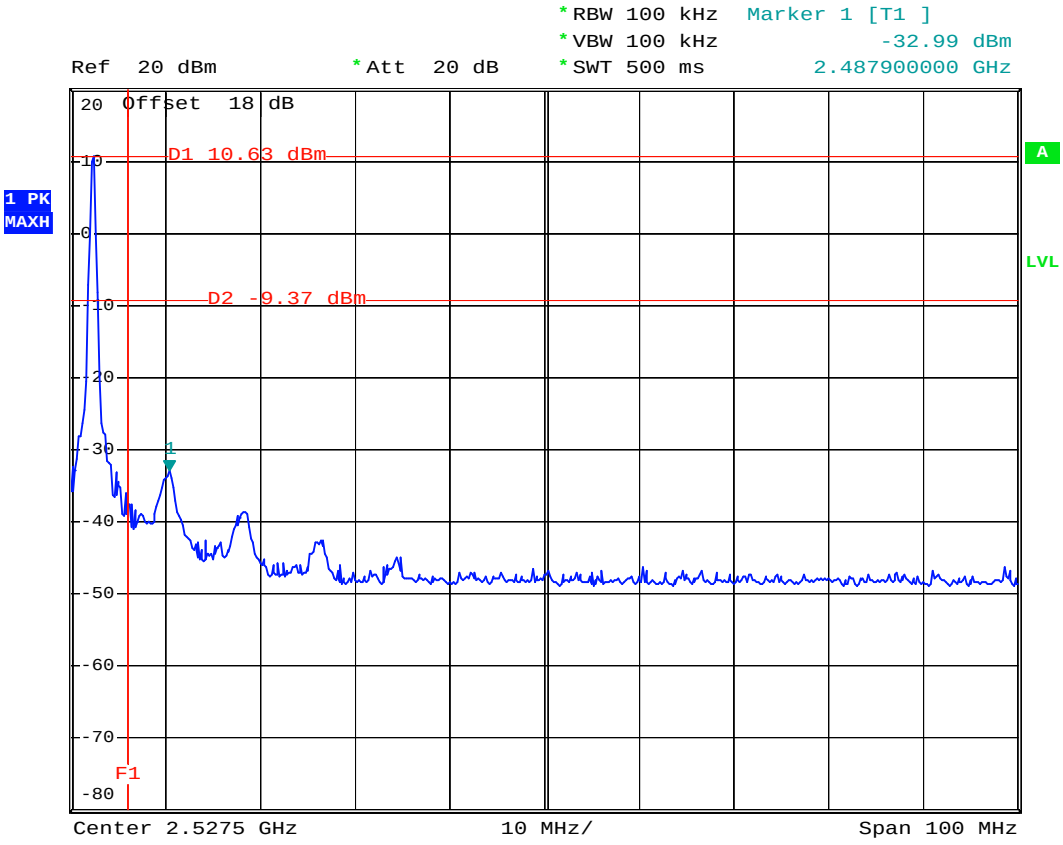
Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Detect
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB)	(cm)	(deg)	Mode
2483.5	71.60	-2.40	74.00	72.96	30.29	3.86	35.51	100	0	Peak
2483.5	52.92	-1.08	54.00	54.28	30.29	3.86	35.51	100	180	Average

5.7.5 Frequency Band Edge

CH00 (2402 MHz)

Date: 7.AUG.2007 17:13:42

CH78 (2480 MHz)



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5.8 Conducted Emission

5.8.1 Measuring Instruments

As described in chapter 6 of this test Report.

The receiver setting :

150 KHz ~ 30 MHz	Detector : Quasi – Peak and Average Bandwidth : 9 KHz

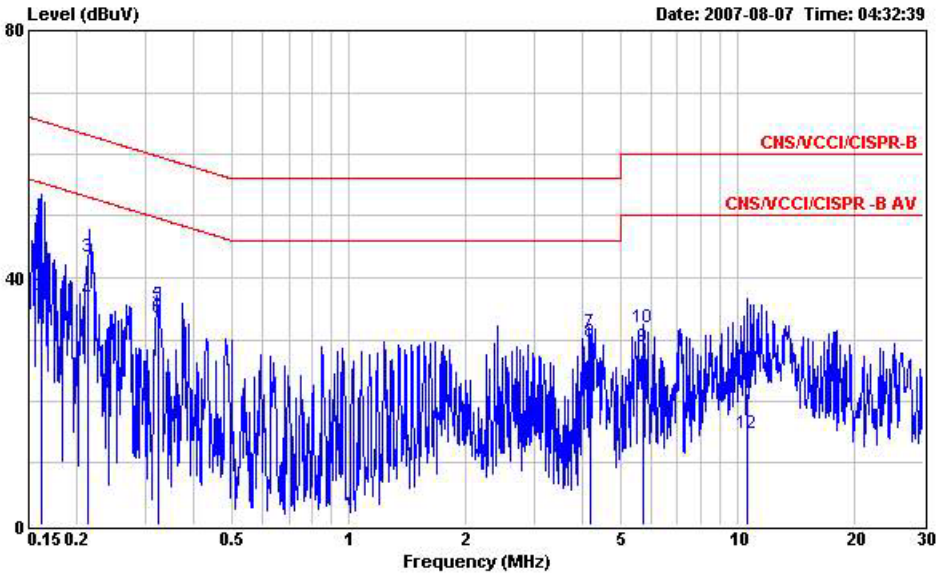
5.8.2 Test Procedures：

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power port of a line impedance stabilization network (LISN).
c. All the support units are connected to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

5.8.3 Test Data

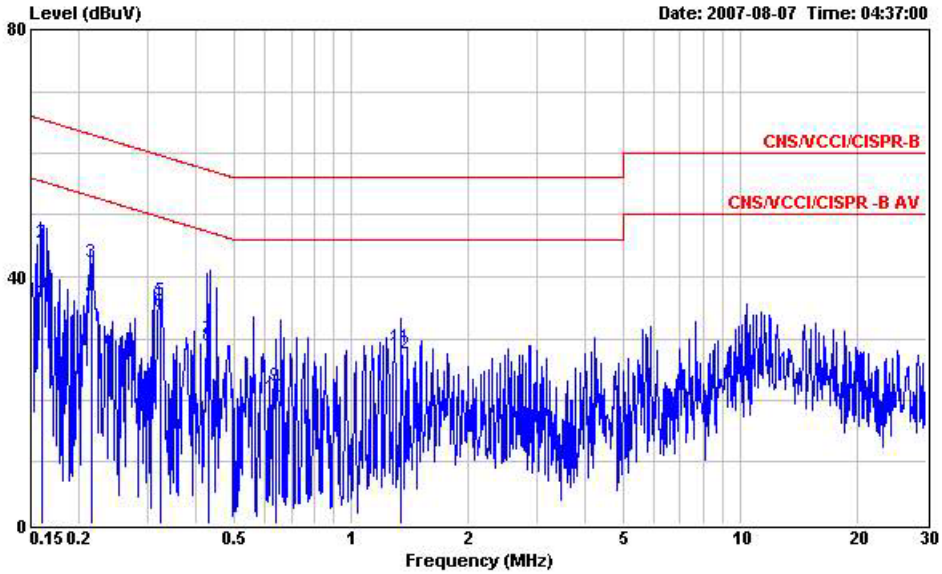
- Temperature : 26~27°C
- Relating Humidity : 59~60%
- Test Engineer : Andy
- Test Mode : Mode 1

■ The test that passed at minimum margin was marked by the frame in the following table.



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 LINE
EUT : 藍芽產品
Power : 120Vac/60Hz
Model : FD 772516
Memo : BT Rx

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Probe Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.161	48.73	-16.67	65.40	48.55	0.08	0.10	QP
2	0.161	37.15	-18.25	55.40	36.97	0.08	0.10	Average
3	0.214	43.50	-19.56	63.06	43.31	0.09	0.10	QP
4	0.214	36.33	-16.73	53.06	36.14	0.09	0.10	Average
5	0.322	35.55	-24.11	59.66	35.39	0.06	0.10	QP
6	0.322	33.46	-16.20	49.66	33.30	0.06	0.10	Average
7	4.188	31.17	-24.83	56.00	30.80	0.17	0.20	QP
8	4.188	29.66	-16.34	46.00	29.29	0.17	0.20	Average
9	5.694	28.87	-21.13	50.00	28.40	0.23	0.24	Average
10	5.694	31.91	-28.09	60.00	31.44	0.23	0.24	QP
11	10.559	21.39	-38.61	60.00	20.76	0.33	0.30	QP
12	10.559	14.70	-35.30	50.00	14.07	0.33	0.30	Average



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : 藍芽產品
Power : 120Vac/60Hz
Model : FD 772516
Memo : BT Rx

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Probe Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.160	35.85	-19.60	55.45	35.67	0.08	0.10	Average
2	0.160	45.42	-20.03	65.45	45.24	0.08	0.10	QP
3	0.215	42.35	-20.68	63.03	42.16	0.09	0.10	QP
4	0.215	36.42	-16.61	53.03	36.23	0.09	0.10	Average
5	0.322	36.01	-23.65	59.66	35.85	0.06	0.10	QP
6	0.322	34.30	-15.36	49.66	34.14	0.06	0.10	Average
7	0.429	29.87	-27.40	57.27	29.72	0.05	0.10	QP
8	0.429	28.78	-18.49	47.27	28.63	0.05	0.10	Average
9	0.639	22.22	-33.78	56.00	22.01	0.11	0.10	QP
10	0.639	20.58	-25.42	46.00	20.37	0.11	0.10	Average
11	1.341	28.68	-27.32	56.00	28.38	0.20	0.10	QP
12	1.341	27.50	-18.50	46.00	27.20	0.20	0.10	Average

5.9 Radiated Emission Measurement

5.9.1 Measuring Instruments

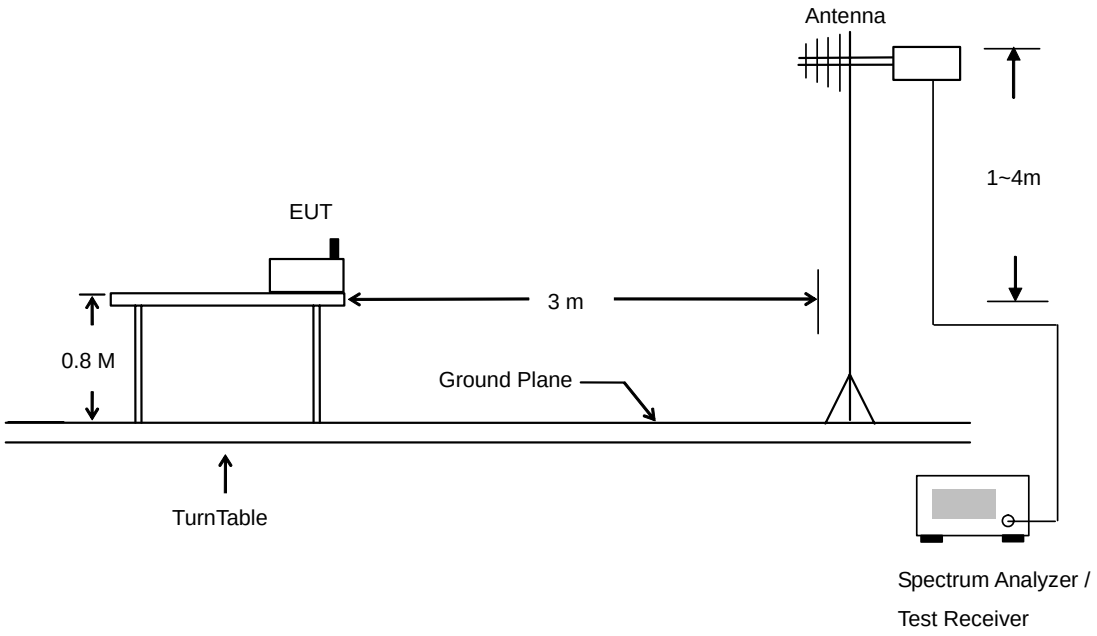
As described in chapter 6 of this Report.
The spectrum analyzer setting :

30 ~ 1000 MHz	Detector : Quasi – Peak Bandwidth : 120 KHz
1 ~ 25 GHz	Detector : Peak and Average Bandwidth : 1 MHz

5.9.2 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. For testing below 1GHz, If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.
8. 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 average 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.

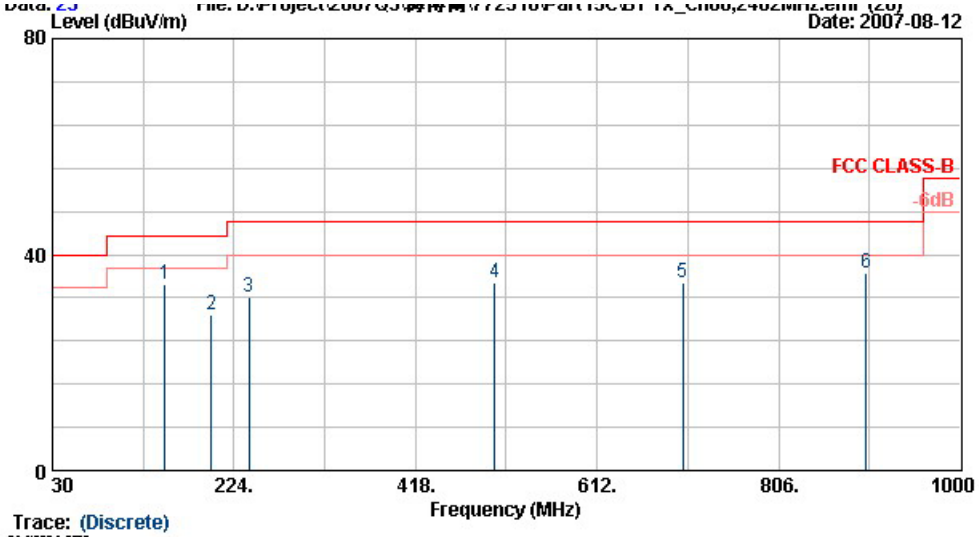
5.9.3 Typical Test Setup Layout of Radiated Emission



5.9.4 Test Data

- Temperature : 26~27°C
- Relating Humidity : 59~60%
- Test Engineer : Andy
- Test Mode : Mode 1
- Polarization : Horizontal (30MHz-1GHz)

■ The test that passed at the minimum margin was marked by the frame in the following test record

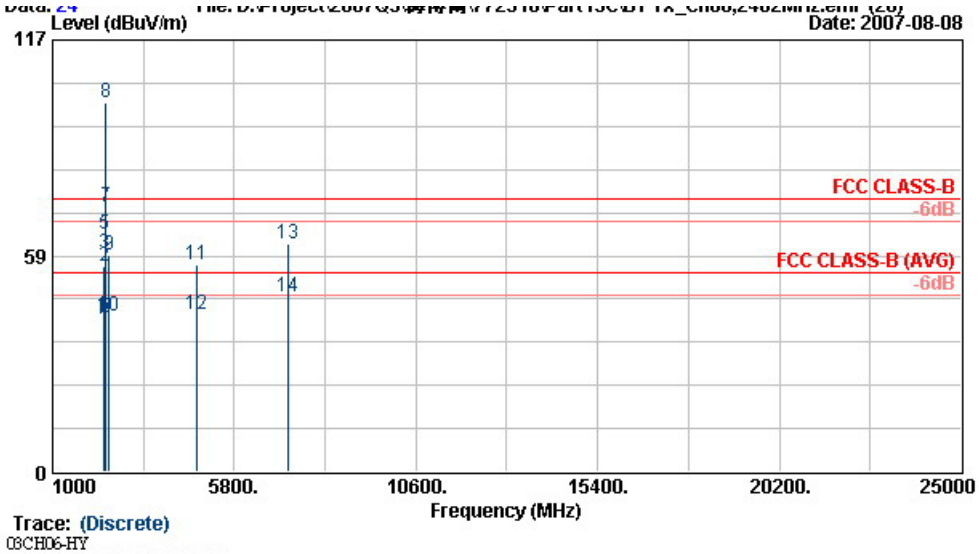


Site : 03CH06-HY
Condition : LF-ANT(951121) HORIZONTAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_CH00;2402MHz
Data Rate : DH1
: POWER : 5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	149.9	34.38	-9.12	43.50	53.70	10.40	1.35	31.07	100	328	Peak
2	199.8	28.82	-14.68	43.50	49.00	9.30	1.54	31.02	---	---	Peak
3	239.8	32.24	-13.76	46.00	49.84	11.64	1.69	30.93	---	---	Peak
4	502.3	34.94	-11.06	46.00	45.66	17.45	2.62	30.79	---	---	Peak
5	703.9	34.86	-11.14	46.00	43.26	18.93	3.26	30.59	---	---	Peak
6	899.9	36.61	-9.39	46.00	42.63	20.53	3.82	30.37	---	---	Peak

- Polarization : Horizontal (1GHz-25GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.



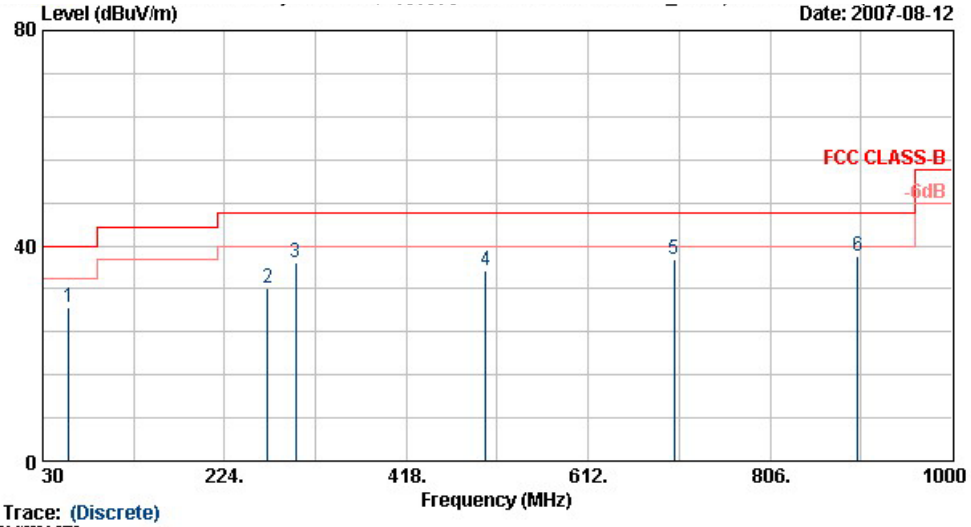
Site : 03CH06-HY
Condition : SHF-EHF HORN HORIZONTAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch00;2402MHz
Data Rate : DH1
: POWER : 5

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2370.6	38.64	-15.36	54.00	40.10	30.25	3.73	35.44	100	180	Average
2		2370.6	55.62	-18.38	74.00	57.08	30.25	3.73	35.44	100	0	Peak
3		2378.2	59.29	-14.71	74.00	60.73	30.25	3.75	35.44	100	0	Peak
4		2378.2	40.81	-13.19	54.00	42.25	30.25	3.75	35.44	100	180	Average
5		2386.4	64.50	-9.50	74.00	65.93	30.26	3.75	35.44	100	0	Peak
6		2386.4	42.12	-11.88	54.00	43.55	30.26	3.75	35.44	100	180	Average
7	X	2402.0	71.74			73.17	30.26	3.77	35.46	100	180	Average
8	@	2402.0	99.90			101.32	30.27	3.77	35.46	100	0	Peak
9		2483.5	58.69	-15.31	74.00	60.05	30.29	3.86	35.51	100	0	Peak
10		2483.5	42.21	-11.79	54.00	43.57	30.29	3.86	35.51	100	180	Average
11		4806.0	56.03	-17.97	74.00	53.42	32.88	5.83	36.10	100	0	Peak
12		4806.0	42.80	-11.20	54.00	40.19	32.88	5.83	36.10	100	306	Average
13		7206.0	61.76	-12.24	74.00	51.60	38.26	7.79	35.88	100	0	Peak
14		7206.0	47.48	-6.52	54.00	37.32	38.26	7.79	35.88	100	306	Average

Remark: #7, #8 represents the Fundamental Signal

- Polarization : Vertical (30MHz-1GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.

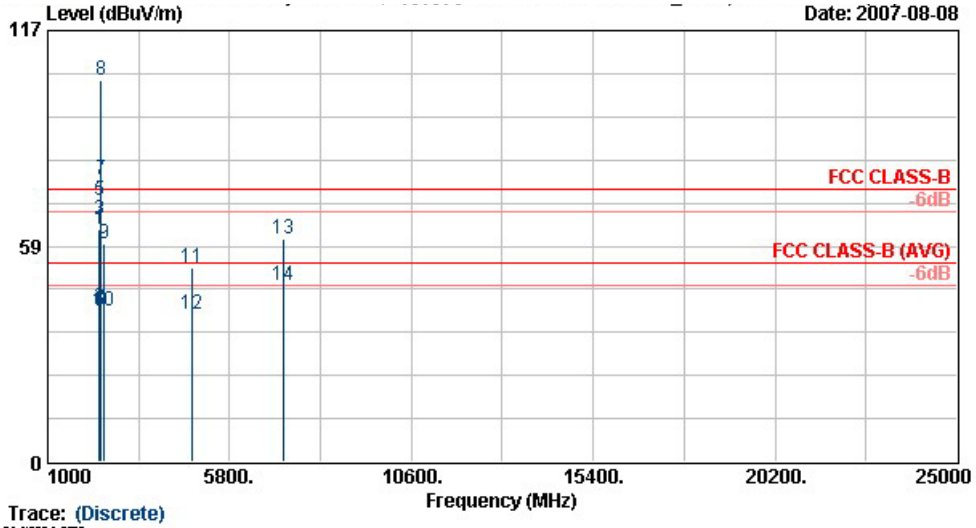


Site : 03CH06-HY
Condition : LF-ANT(951121) VERTICAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch00;2402MHz
Data Rate : DH1
: POWER : 5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	57.5	28.41	-11.59	40.00	51.70	7.06	0.84	31.18	---	---	Peak
2	270.0	31.99	-14.01	46.00	48.50	12.64	1.81	30.96	---	---	Peak
3	299.7	37.00	-9.00	46.00	52.78	13.21	1.94	30.93	---	---	Peak
4	502.3	35.49	-10.51	46.00	46.21	17.45	2.62	30.79	---	---	Peak
5	703.9	37.42	-8.58	46.00	45.83	18.93	3.26	30.59	221	28	Peak
6	899.9	38.03	-7.97	46.00	44.05	20.53	3.82	30.37	---	---	Peak

- Polarization : Vertical (1GHz-25GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.



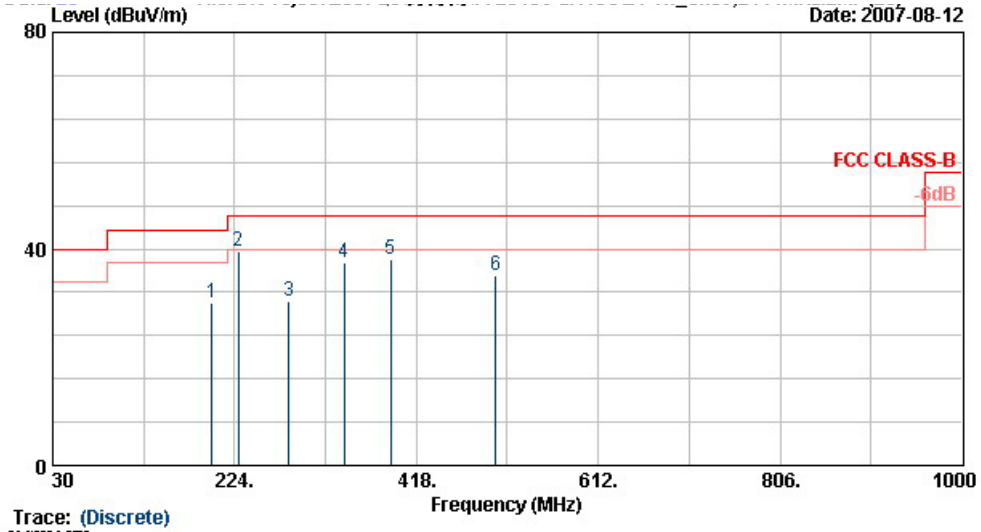
Site : 03CH06-HY
Condition : SHF-EHF HORN VERTICAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_CH00;2402MHz
Data Rate : DH1
: POWER : 5

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2370.6	62.90	-11.10	74.00	64.36	30.25	3.73	35.44	100	0	Peak
2		2370.6	41.79	-12.21	54.00	43.25	30.25	3.73	35.44	100	146	Average
3		2378.2	65.79	-8.21	74.00	67.23	30.25	3.75	35.44	100	0	Peak
4		2378.2	40.95	-13.05	54.00	42.39	30.25	3.75	35.44	100	146	Average
5	!	2386.4	70.72	-3.28	74.00	72.15	30.26	3.75	35.44	100	0	Peak
6		2386.4	41.05	-12.95	54.00	42.48	30.26	3.75	35.44	100	146	Average
7	X	2402.0	76.73			78.16	30.26	3.77	35.46	100	146	Average
8	@	2402.0	103.58			105.00	30.27	3.77	35.46	100	0	Peak
9		2488.0	59.06	-14.94	74.00	60.41	30.30	3.86	35.51	100	0	Peak
10		2488.0	40.83	-13.17	54.00	42.18	30.30	3.86	35.51	100	146	Average
11		4806.0	52.47	-21.53	74.00	49.86	32.88	5.83	36.10	100	0	Peak
12		4806.0	39.94	-14.06	54.00	37.33	32.88	5.83	36.10	100	336	Average
13		7206.0	60.36	-13.64	74.00	50.20	38.26	7.79	35.88	100	0	Peak
14		7206.0	47.65	-6.35	54.00	37.49	38.26	7.79	35.88	100	35	Average

Remark: #7, #8 represents the Fundamental Signal

- Test Mode : Mode 2
- Polarization : Horizontal (30MHz-1GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.



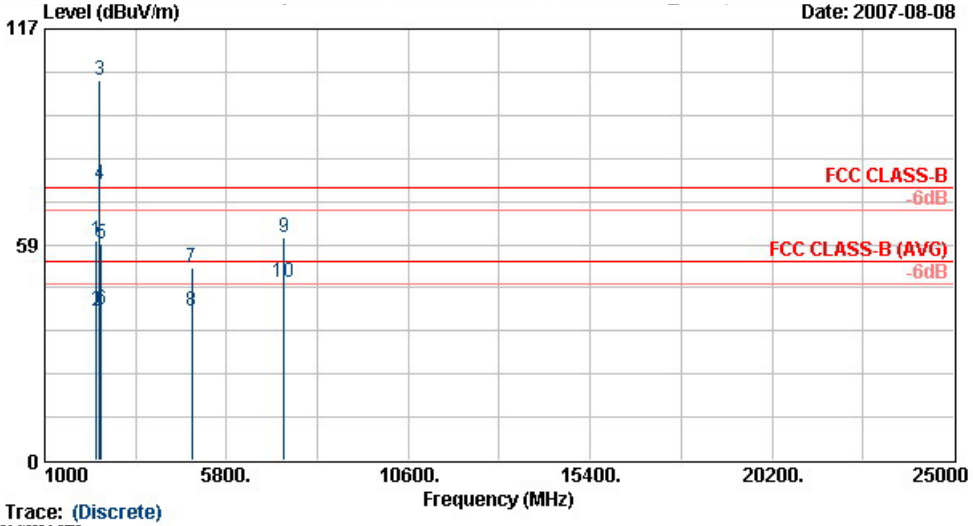
Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-ANT(951121) HORIZONTAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch39;2441MHz
Data Rate : DH1
: POWER : 5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	199.8	30.14	-13.36	43.50	50.32	9.30	1.54	31.02	---	---	Peak
2 @	227.6	39.66	-6.34	46.00	58.00	10.96	1.65	30.95	100	334	Peak
3	281.6	30.20	-15.80	46.00	46.45	12.86	1.86	30.97	---	---	Peak
4	341.3	37.49	-8.51	46.00	52.05	14.27	2.07	30.90	---	---	Peak
5	390.3	38.12	-7.88	46.00	51.27	15.51	2.20	30.87	100	280	QP
6	502.3	35.04	-10.96	46.00	45.76	17.45	2.62	30.79	---	---	Peak

- Polarization : Horizontal (1GHz-25GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.



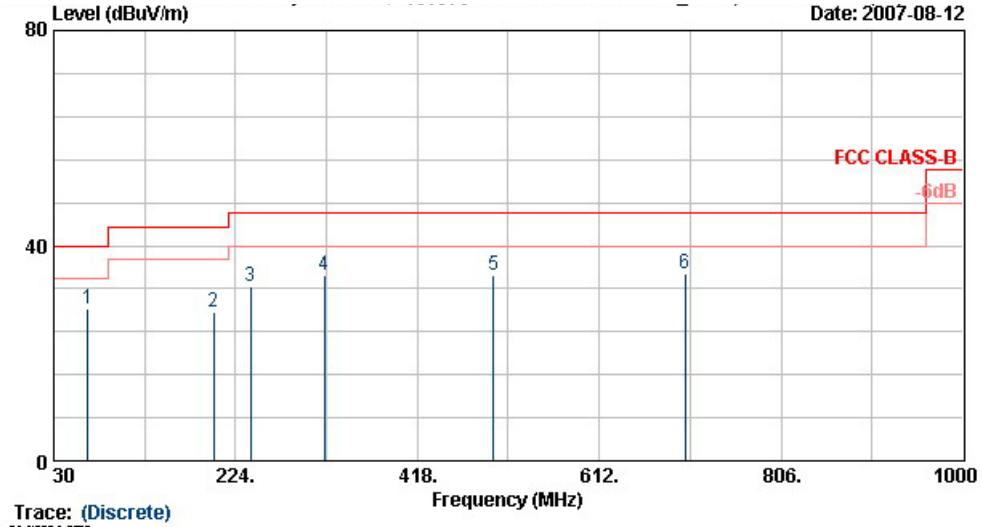
Site : 03CH06-HY
Condition : SHF-EHF HORN HORIZONTAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch39;2441MHz
Data Rate : DH1
: POWER : 5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2358.0	59.79	-14.21	74.00	61.26	30.24	3.71	35.42	100	0	Peak
2	2358.0	40.59	-13.41	54.00	42.06	30.24	3.71	35.42	100	147	Average
3 @	2441.0	103.27			104.65	30.28	3.82	35.47	100	0	Peak
4 @	2441.0	74.75			76.15	30.28	3.82	35.49	100	147	Average
5	2484.0	58.79	-15.22	74.00	60.14	30.29	3.86	35.51	100	0	Peak
6	2484.0	40.75	-13.25	54.00	42.11	30.29	3.86	35.51	100	147	Average
7	4881.0	52.05	-21.95	74.00	49.19	33.14	5.88	36.16	100	0	Peak
8	4881.0	40.24	-13.76	54.00	37.38	33.14	5.88	36.16	100	343	Average
9	7317.0	60.26	-13.74	74.00	49.98	38.52	7.73	35.97	100	0	Peak
10 @	7317.0	48.26	-5.74	54.00	37.98	38.52	7.73	35.97	100	29	Average

Remark: #3, #4 represents the Fundamental Signal

- Polarization : Vertical (30MHz-1GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.

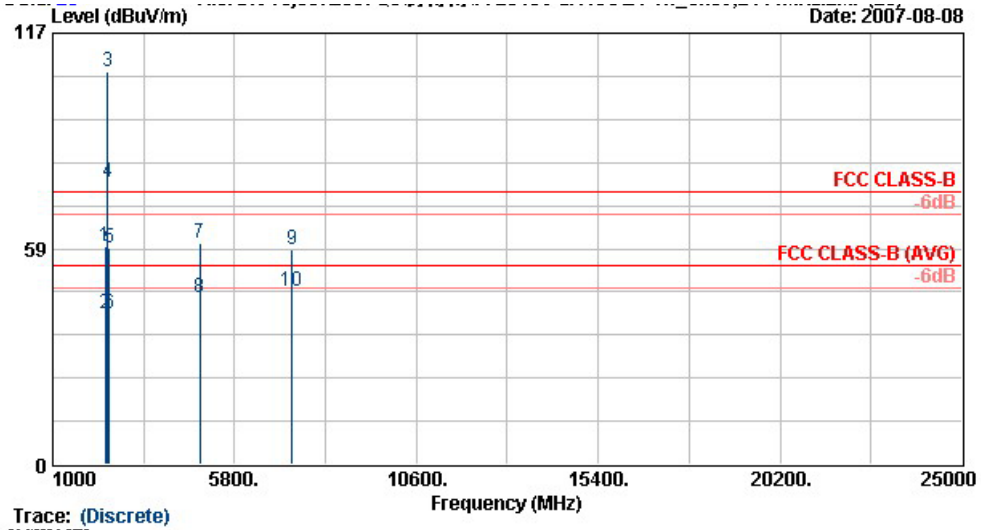


Site : 08CH06-HY
Condition : LF-ANT(951121) VERTICAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch39;2441MHz
Data Rate : DH1
: POWER : 5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	66.2	28.33	-11.67	40.00	51.79	6.78	0.90	31.13	---	---	Peak
2	200.6	27.79	-15.71	43.50	47.91	9.36	1.54	31.02	---	---	Peak
3	239.8	32.28	-13.72	46.00	49.87	11.64	1.69	30.93	---	---	Peak
4	318.9	34.59	-11.41	46.00	49.81	13.71	2.00	30.92	---	---	Peak
5	498.8	34.36	-11.64	46.00	45.16	17.40	2.60	30.79	---	---	Peak
6	703.9	34.68	-11.32	46.00	43.08	18.93	3.26	30.59	128	224	Peak

- Polarization : Vertical (1GHz-25GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.



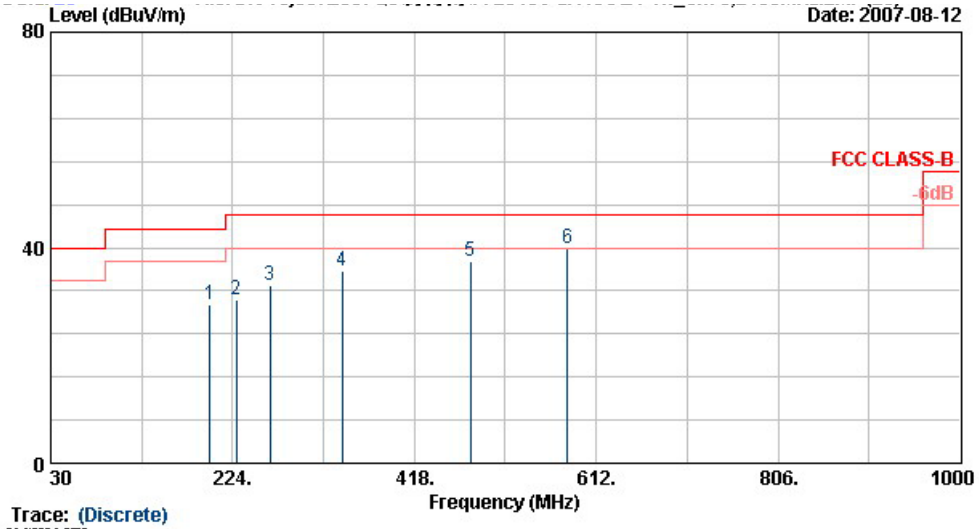
Site : 03CH06-HY
Condition : SHF-EHF HORN VERTICAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch39;2441MHz
Data Rate : DH1
: POWER : 5

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2384.0	59.34	-14.66	74.00	60.77	30.25	3.75	35.44	100	0	Peak
2		2384.0	40.89	-13.11	54.00	42.33	30.25	3.75	35.44	100	180	Average
3	@	2441.0	106.39			107.77	30.28	3.82	35.47	100	0	Peak
4	@	2441.0	76.45			77.85	30.28	3.82	35.49	100	180	Average
5		2488.0	58.80	-15.20	74.00	60.15	30.30	3.86	35.51	100	0	Peak
6		2488.0	40.95	-13.05	54.00	42.30	30.30	3.86	35.51	100	180	Average
7		4881.0	60.19	-13.81	74.00	57.33	33.14	5.88	36.16	100	0	Peak
8		4881.0	45.29	-8.71	54.00	42.43	33.14	5.88	36.16	100	304	Average
9		7326.0	58.46	-15.54	74.00	48.19	38.52	7.72	35.97	100	0	Peak
10		7326.0	47.04	-6.96	54.00	36.77	38.52	7.72	35.97	100	333	Average

Remark: #3, #4 represents the Fundamental Signal

- Test Mode : Mode 3
- Polarization : Horizontal (30MHz-1GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.

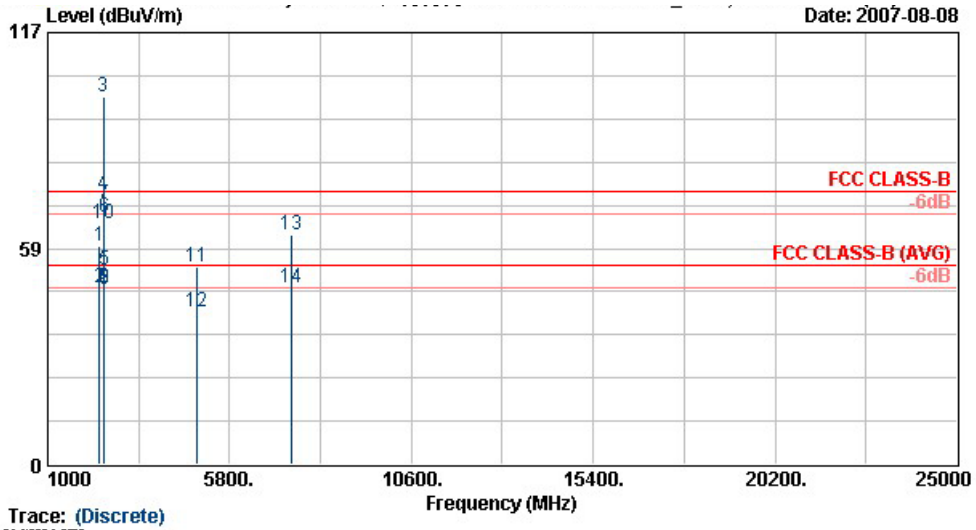


Site : 03CH06-HY
Condition : LF-ANT(951121) HORIZONTAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch78;2480MHz
Data Rate : DH1
: POWER : 5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	199.8	29.46	-14.04	43.50	49.64	9.30	1.54	31.02	---	---	Peak
2	228.2	30.25	-15.75	46.00	48.60	10.96	1.65	30.95	---	---	Peak
3	264.1	32.90	-13.10	46.00	49.54	12.53	1.79	30.95	---	---	Peak
4	341.3	35.77	-10.23	46.00	50.32	14.27	2.07	30.90	---	---	Peak
5	477.8	37.53	-8.47	46.00	48.76	17.06	2.52	30.81	---	---	Peak
6	581.4	39.77	-6.23	46.00	49.29	18.27	2.89	30.69	100	241	Peak

- Polarization : Horizontal (1GHz-25GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.



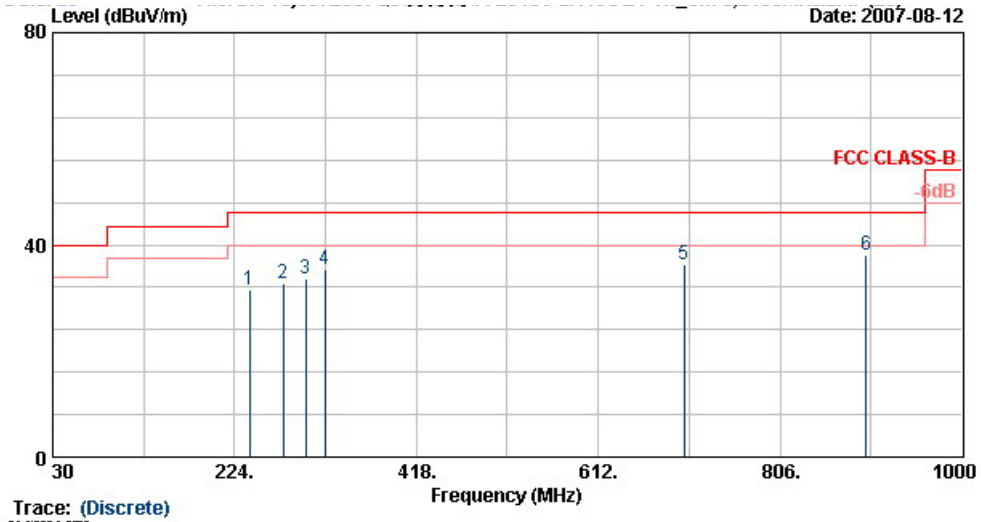
Site : 03CH06-HY
Condition : SHF-EHF HORN HORIZONTAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch78;2480MHz
Data Rate : DH1
: POWER : 5

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2364.0	59.24	-14.76	74.00	60.69	30.24	3.73	35.42	100	0	Peak
2	!	2364.0	48.05	-5.95	54.00	49.50	30.24	3.73	35.42	100	160	Average
3	X	2480.0	99.43			100.79	30.29	3.86	35.51	100	0	Peak
4	X	2480.0	72.94			74.30	30.29	3.86	35.51	100	160	Average
5	!	2483.5	52.47	-1.53	54.00	53.83	30.29	3.86	35.51	100	160	Average
6		2483.5	67.11	-6.89	74.00	68.47	30.29	3.86	35.51	100	0	Peak
7	!	2488.0	70.38	-3.62	74.00	71.73	30.30	3.86	35.51	100	0	Peak
8		2488.0	47.67	-6.33	54.00	49.02	30.30	3.86	35.51	100	160	Average
9		2495.6	47.47	-6.53	54.00	48.82	30.30	3.88	35.53	100	160	Average
10		2495.6	65.16	-8.84	74.00	66.51	30.30	3.88	35.53	100	0	Peak
11		4956.0	53.63	-20.37	74.00	50.46	33.47	5.93	36.23	100	0	Peak
12		4956.0	41.20	-12.80	54.00	38.03	33.47	5.93	36.23	100	339	Average
13		7437.0	62.02	-11.98	74.00	51.62	38.79	7.65	36.04	100	0	Peak
14		7437.0	47.95	-6.05	54.00	37.55	38.79	7.65	36.04	100	304	Average

Remark: #3, #4 represents the Fundamental Signal

- Polarization : Vertical (30MHz-1GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.

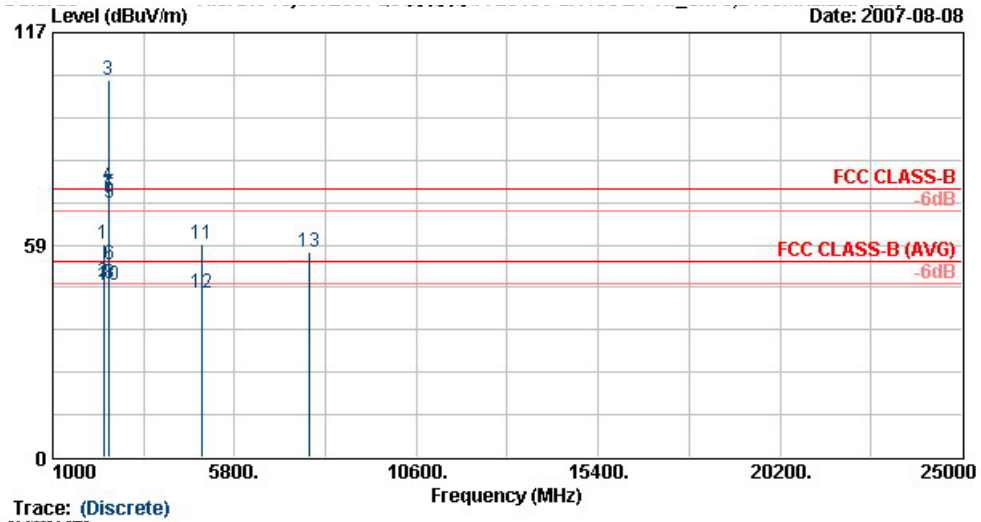


Site : 03CH06-HY
Condition : LF-ANT(951121) VERTICAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch78;2480MHz
Data Rate : DH1
: POWER : 5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	239.8	31.58	-14.42	46.00	49.18	11.64	1.69	30.93	---	---	Peak
2	276.2	32.61	-13.39	46.00	48.97	12.77	1.84	30.97	---	---	Peak
3	299.7	33.67	-12.33	46.00	49.45	13.21	1.94	30.93	---	---	Peak
4	320.3	35.53	-10.47	46.00	50.72	13.73	2.00	30.92	---	---	Peak
5	703.9	36.21	-9.79	46.00	44.61	18.93	3.26	30.59	---	---	Peak
6	897.8	38.19	-7.81	46.00	44.23	20.52	3.81	30.37	100	284	Peak

- Polarization : Vertical (1GHz-25GHz)

■ The test that passed at minimum margin was marked by the boldface in the following table.



Site : 03CH06-HY
Condition : SHF-EHF HORN VERTICAL
EUT : 藍芽產品
Power : From System
Model : FR 772516
Mode : BT Tx_Ch78;2480MHz
Data Rate : DH1
: POWER : 5

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2348.0	58.90	-15.10	74.00	60.35	30.26	3.75	35.46	100	0	Peak
2	!	2348.0	48.07	-5.93	54.00	49.52	30.26	3.75	35.46	100	180	Average
3	@	2480.0	103.75			105.10	30.29	3.86	35.51	100	0	Peak
4	X	2480.0	74.91			76.27	30.29	3.86	35.51	100	180	Average
5	!	2483.5	71.60	-2.40	74.00	72.96	30.29	3.86	35.51	100	0	Peak
6	!	2483.5	52.92	-1.08	54.00	54.28	30.29	3.86	35.51	100	180	Average
7	!	2488.0	72.62	-1.38	74.00	73.97	30.30	3.86	35.51	100	0	Peak
8		2488.0	47.97	-6.03	54.00	49.32	30.30	3.86	35.51	100	180	Average
9	!	2495.6	70.07	-3.93	74.00	71.42	30.30	3.88	35.53	100	0	Peak
10		2495.6	47.51	-6.49	54.00	48.86	30.30	3.88	35.53	100	180	Average
11		4956.0	58.85	-15.15	74.00	55.68	33.47	5.93	36.23	100	0	Peak
12		4956.0	45.21	-8.79	54.00	42.04	33.47	5.93	36.23	100	303	Average
13		7776.0	56.35	-17.65	74.00	45.27	39.30	7.71	35.94	---	---	Peak

Remark: #3, #4 represents the Fundamental Signal

5.10 Antenna Requirements

5.10.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no other antenna except assembled by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

5.10.2 Antenna Connected Construction

The antenna used in this product is a PCB antenna without connecter and it is considered to meet antenna requirement of FCC.

5.10.3 Antenna Gain

The antenna gain of EUT is less than 6dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

6. List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz – 2.75GHz	Aug. 30, 2006	Aug. 29, 2007	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/004	9kHz – 30MHz	Mar. 30, 2007	Mar. 29, 2008	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	9kHz – 30MHz	Mar. 30, 2007	Mar. 29, 2008	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450Hz	N/A	N/A	Conduction (CO01-HY)
EMI Filter	LINDGREN	N6006	201052	0 – 60Hz	N/A	N/A	Conduction (CO01-HY)
RF Cable-CON	Suhner Switzerland	RG223/U	CB029	9kHz – 30MHz	Dec. 04, 2006	Dec. 03, 2007	Conduction (CO01-HY)
Isolation Transformer	Erika Fiedler OHG	D-65396 Walluf	58	45MHz-2.15GHz	N/A	N/A	Conduction (CO01-HY)
Spectrum analyzer	Agilent	E4408B	MY44211030	9KHz-26.5GHz	Oct. 05, 2006	Oct. 04, 2007	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 26, 200	Jul. 25, 2008	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Com-Power	AH118	071025	1G~18G	Jun. 04, 2007	Jun. 03, 2008	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-249	14G - 40G	Nov. 20, 2006	Nov. 19, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Pre Amplifier	Mini Circuits	ZKL-2	D092004-1	10~2500MHz	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Base Station Simulator	R & S	CMU200	106656	WCDMA	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)
Controller	INN-CO	CO2000	N/A	N/A	N/A	N/A	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0 ~ 360 degree	N/A	N/A	Radiation (03CH06-HY)
Antenna Mast	INN-CO	MM3000	114/8000604/L	1 m - 4 m	N/A	N/A	Radiation (03CH06-HY)

7. Uncertainty Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.10	Normal(k=2)	0.05
Cable loss	0.10	Normal(k=2)	0.05
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.39	Rectangular	0.80
Mismatch	+0.34/-0.35	U-shape	0.24
combined standard uncertainty Uc(y)	**1.13**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**2.26**		

Uncertainty of Radiated Emission Evaluation (30MHz ~ 1000MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.15	Normal(k=2)	0.08
Antenna factor calibration	1.12	Normal(k=2)	0.56
Cable loss calibration	0.12	Normal(k=2)	0.06
Pre Amplifier Gain calibration	0.13	Normal(k=2)	0.07
RCV/SPA specification	2.5	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1	Rectangular	0.29
Site imperfection	2.1	Rectangular	1.21
Mismatch	+0.39/-0.41	U-shaped	0.28
combined standard uncertainty Uc(y)	**1.58**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**3.16**		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of x_i		$u(x_i)$	Ci	$Ci*u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1= 0.197 Antenna VSWR Γ2= 0.194 Uncertainty=20log(1-Γ1*Γ2*Γ3)	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	**2.36**				
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	**4.72**				