



Test Report

Product Name : Class2 USB Bluetooth adapter
Model No. : GUBTI2I
FCC ID. : NLF-GUBTI2I

Applicant : Billionton Systems, Inc.
Address : No.21, Sui-Lih Rd., Hsin-Chu, 300, Taiwan

Date of Receipt : 2008/07/18
Issued Date : 2008/08/20
Report No. : 087322R-RFUSP06V0101
Version : V1.0

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Test Report Certification

Issued Date : 2008/08/20

Report No. : 087322R-RFUSP06V01



Product Name : Class2 USB Bluetooth adapter
 Applicant : Billionton Systems, Inc.
 Address : No.21, Sui-Lih Rd., Hsin-Chu, 300, Taiwan
 Manufacturer : Billionton Systems, Inc.
 Model No. : GUBTI2I
 FCC ID. : NLF-GUBTI2I
 Rated Voltage : AC 120 V / 60 Hz
 EUT Voltage : USB DC 5V
 Trade Name : billionton
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247
 Test Result : Complied

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

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 (Roy Wang / Manager)

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1. General Information

1.1. EUT Description

Product Name	Class2 USB Bluetooth adapter
Trade Name	billionton
Model No.	GUBTI2I
Frequency Range	2400~2483.5MHz
Channel Number	79
Type of Modulation	FHSS
Channel Control	Auto
Antenna Type	Printed
Antenna Gain	0dBi

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00	2402 MHz	Channel 20	2422 MHz	Channel 40	2442 MHz	Channel 60	2462 MHz
Channel 01	2403 MHz	Channel 21	2423 MHz	Channel 41	2443 MHz	Channel 61	2463 MHz
Channel 02	2404 MHz	Channel 22	2424 MHz	Channel 42	2444 MHz	Channel 62	2464 MHz
Channel 03	2405 MHz	Channel 23	2425 MHz	Channel 43	2445 MHz	Channel 63	2465 MHz
Channel 04	2406 MHz	Channel 24	2426 MHz	Channel 44	2446 MHz	Channel 64	2466 MHz
Channel 05	2407 MHz	Channel 25	2427 MHz	Channel 45	2447 MHz	Channel 65	2467 MHz
Channel 06	2408 MHz	Channel 26	2428 MHz	Channel 46	2448 MHz	Channel 66	2468 MHz
Channel 07	2409 MHz	Channel 27	2429 MHz	Channel 47	2449 MHz	Channel 67	2469 MHz
Channel 08	2410 MHz	Channel 28	2430 MHz	Channel 48	2450 MHz	Channel 68	2470 MHz
Channel 09	2411 MHz	Channel 29	2431 MHz	Channel 49	2451 MHz	Channel 69	2471 MHz
Channel 10	2412 MHz	Channel 30	2432 MHz	Channel 50	2452 MHz	Channel 70	2472 MHz
Channel 11	2413 MHz	Channel 31	2433 MHz	Channel 51	2453 MHz	Channel 71	2473 MHz
Channel 12	2414 MHz	Channel 32	2434 MHz	Channel 52	2454 MHz	Channel 72	2474 MHz
Channel 13	2415 MHz	Channel 33	2435 MHz	Channel 53	2455 MHz	Channel 73	2475 MHz
Channel 14	2416 MHz	Channel 34	2436 MHz	Channel 54	2456 MHz	Channel 74	2476 MHz
Channel 15	2417 MHz	Channel 35	2437 MHz	Channel 55	2457 MHz	Channel 75	2477 MHz
Channel 16	2418 MHz	Channel 36	2438 MHz	Channel 56	2458 MHz	Channel 76	2478 MHz
Channel 17	2419 MHz	Channel 37	2439 MHz	Channel 57	2459 MHz	Channel 77	2479 MHz
Channel 18	2420 MHz	Channel 38	2440 MHz	Channel 58	2460 MHz	Channel 78	2480 MHz
Channel 19	2421 MHz	Channel 39	2441 MHz	Channel 59	2461 MHz		

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals. Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. The transmitter is presented with a continuous data stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its 79 channels and over the minimum number of hopping channels (75 channels).

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

Note:

1. This device is a Class2 USB Bluetooth adapter included a 2.4GHz receiving function, and 2.4GHz transmitting function.
2. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
3. Regards to the frequency band operation; the lowest 、middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. This device is a composite device in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 087322R-RFUSP01V02under Declaration of Conformity.

1.2. Operational Description

The EUT is 2.4GHz Bluetooth Class2 USB Bluetooth adapter. Bluetooth technology operates in the unlicensed industrial, scientific and medical (ISM) band at 2402MHz to 2480MHz, using a spread spectrum, frequency hopping, full-duplex signal at a nominal rate of 1600 hops/sec. The 2.4 GHz ISM band is available and unlicensed in most countries. The functions have automatic golf course search 、 automatic hole information display 、 distance display 、 registering mark and flying distance display.

This is done by detecting other devices in the spectrum and avoiding the frequencies they are using. This adaptive hopping allows for more efficient transmission within the spectrum, providing users with greater performance even if using other technologies along with Bluetooth technology. The signal hops among 79 frequencies at 1 MHz intervals to give a high degree of interference immunity.

1.3. Test Mode

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-Test Mode	
EMI	Mode 1: Transmit
Final Test Mode	
EMI	Mode 1: Transmit

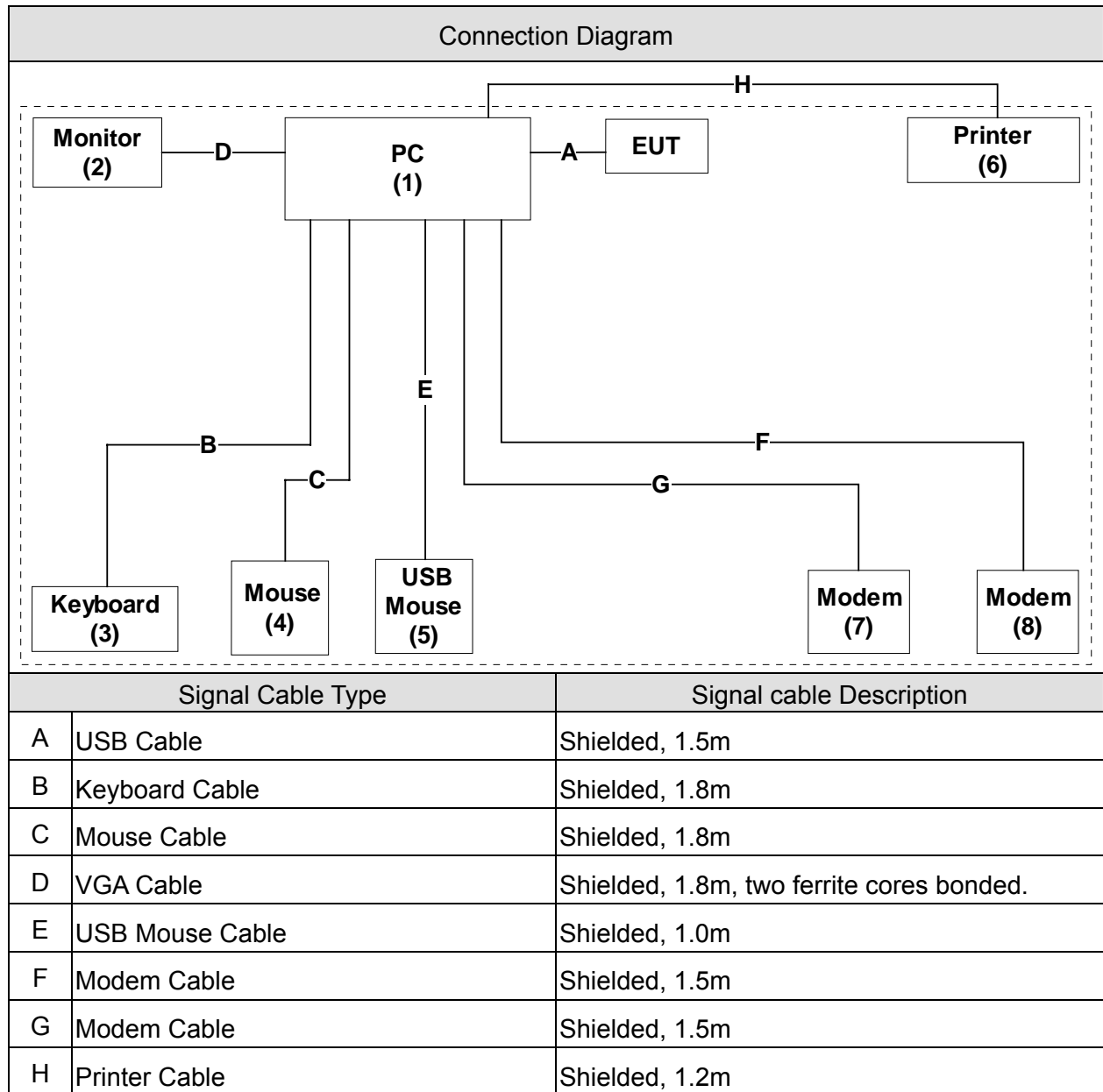
Emission	
Conducted Emission	Yes
Peak Power Output	Yes
Radiated Emission	Yes
Band Edge	Yes
Channel of Number	Yes
Channel Separation	Yes
Occupied Bandwidth	Yes
Dwell Time	Yes

1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	PC	Gigabyte	GA-6VX7B-4X	103039 04728	DoC	Non-Shielded, 1.8m
2	Monitor	CHI MEI	A170E1-09	3UC120955CA0101	DoC	Non-Shielded, 1.8m
3	Keyboard	Logitech	Y-SM46	SY525U18106	DoC	--
4	Mouse	Logitech	M-SBF83	HCA52200318	DoC	--
5	USB Mouse	Logitech	M-UV83	LZE35006091	DoC	--
6	Printer	HP	C2642A	MY75J1D1D0	DoC	Non-Shielded, 0.7m
7	Modem	ACEEX	DM-1414	0102027548	DoC	Non-Shielded, 1.6m
8	Modem	ACEEX	DM-1414	980033035	DoC	Non-Shielded, 1.6m

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.5.
2	Turn on the power of all equipment.
3	The EUT will play the function from Bluetooth program.
4	Verify the model operation.
5	Repeat the above procedure (3) to (4).

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 B 15.107 Conducted Emission	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	54
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Band Edge (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Channel Of Number (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	53
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Channel Separation (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	54
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth (FHSS)	15 - 35	24
Humidity (%RH)		25 - 75	57
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Dwell Time (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2008



Accredited by TAF
Accreditation Number: 1313
Effective through: December 27, 2010



February 23, 1999 Accreditation on DNV
Statement No. : 413-99-LAB11



February 02, 2007 Accreditation on TUV Rheinland
Certificate No.: 10011438-2-2005



October 31, 2007 Accreditation on Nemko
Certificate No.: ELA 165



Site Name: Quietek Corporation
Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
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TEL : 886-3-5928858 / FAX : 886-3-5928859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment

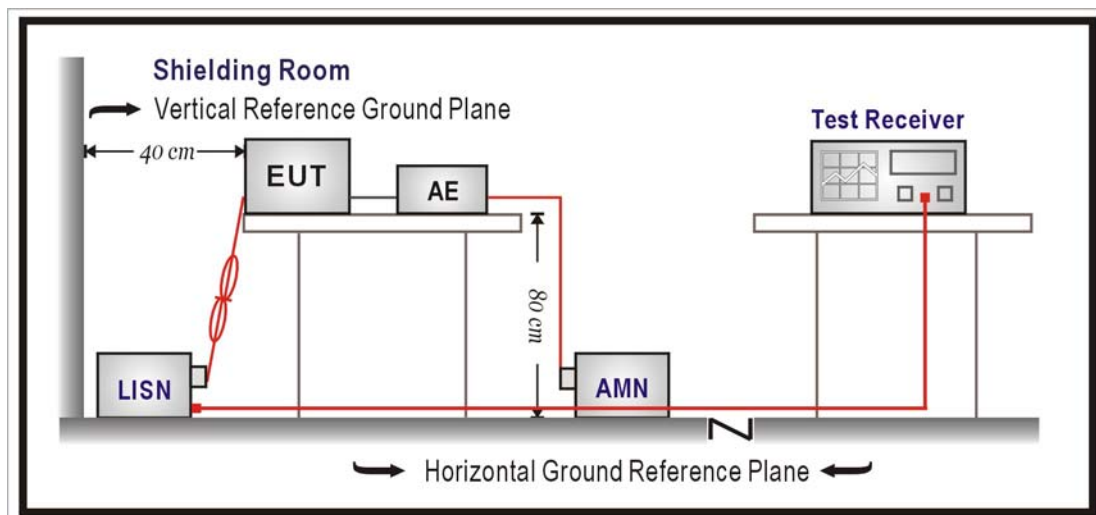
The following test equipment are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
4-Wire ISN	R & S	ENY 41	837032/001	2008/04/15
Double 2-Wire ISN	R & S	ENY 22	835354/008	2008/04/15
LISN	R & S	ESH3-Z5	836679/022	2008/06/17
LISN	R & S	ESH3-Z5	836679/013	2007/12/30
Pulse Limiter	R & S	ESH3-Z2	100411	2007/11/16
Test Receiver	R & S	ESCS 30	100149	2007/11/15

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT was setup and tested according to ANSI C63.4, 2003.

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

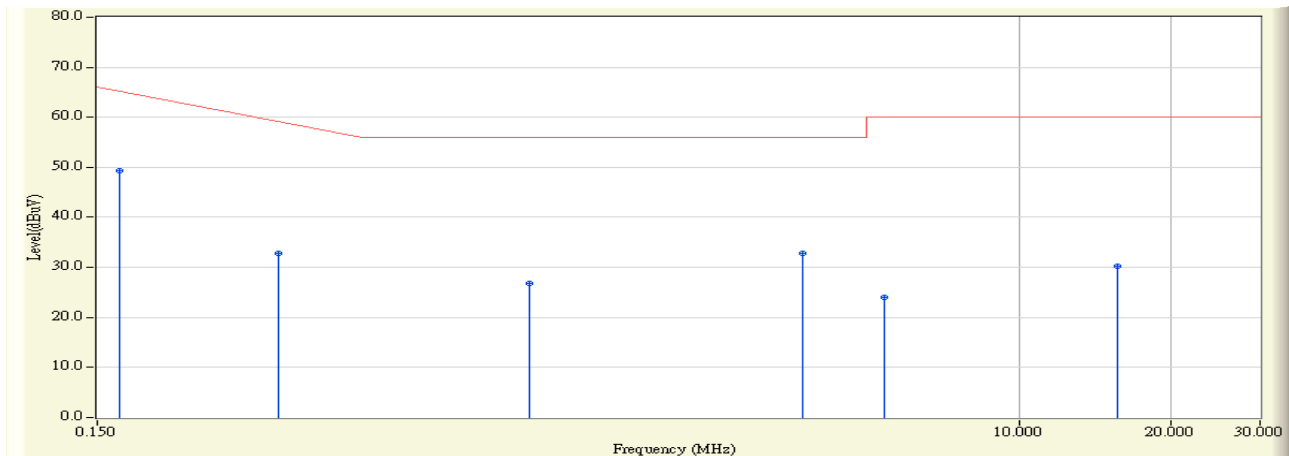
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207: 2006

2.6. Test Result

Site : ShieldingRoom3	Time : 2008/07/25 - 11:25
Limit : CISPR_B_00M_QP	Margin : 0
Probe : SR3_LISN(16A) - Line1	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX

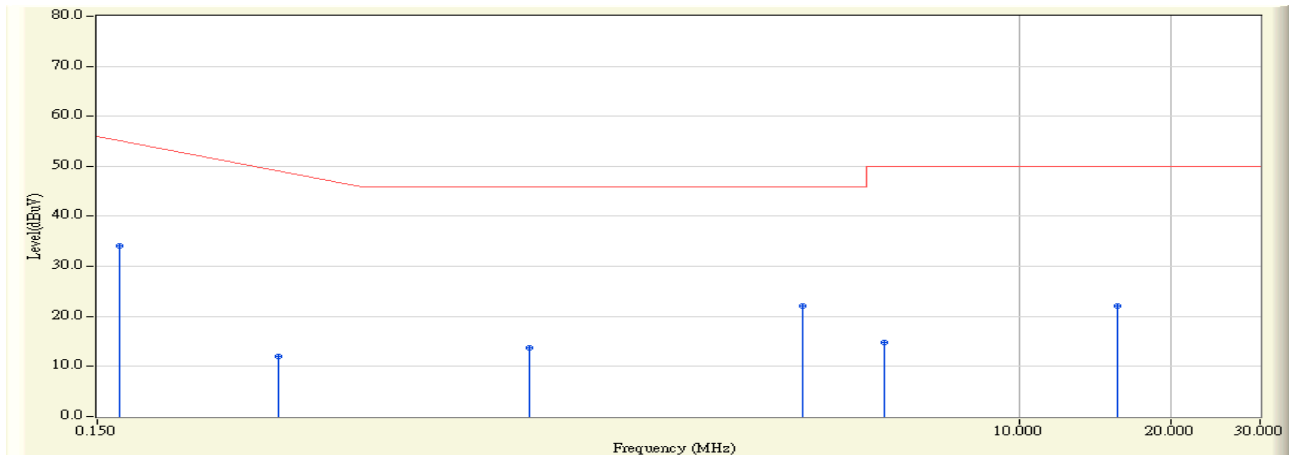


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.166	-0.030	49.277	49.247	-16.296	65.543	QUASIPeAK
2		0.342	0.001	32.871	32.872	-27.642	60.514	QUASIPeAK
3		1.078	0.067	26.771	26.838	-29.162	56.000	QUASIPeAK
4		3.730	0.190	32.589	32.779	-23.221	56.000	QUASIPeAK
5		5.410	0.280	23.843	24.123	-35.877	60.000	QUASIPeAK
6		15.634	0.720	29.528	30.248	-29.752	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : ShieldingRoom3	Time : 2008/07/25 - 11:25
Limit : CISPR_B_00M_AV	Margin : 0
Probe : SR3_LISN(16A) - Line1	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX

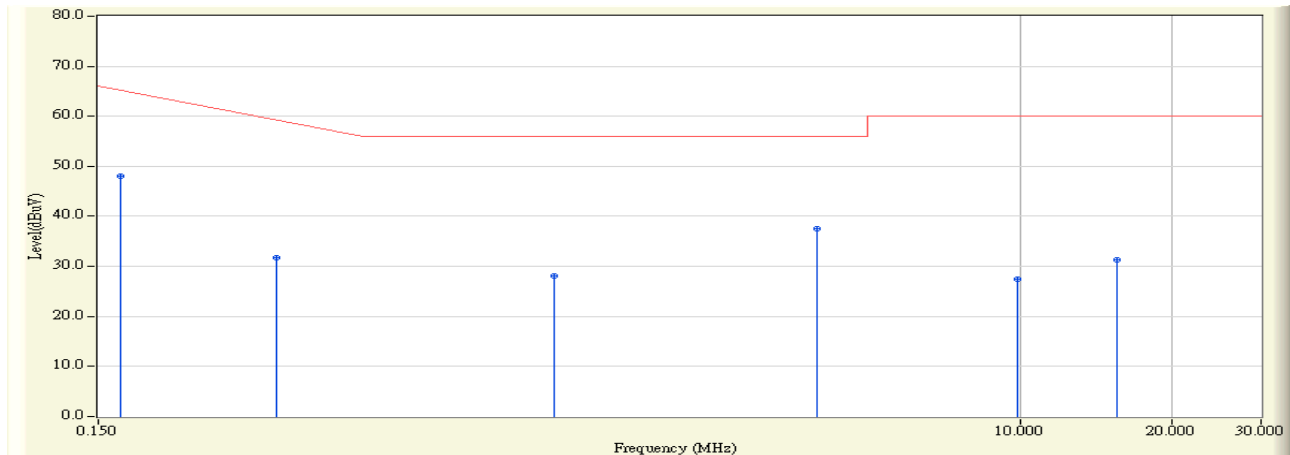


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.166	-0.030	34.178	34.148	-21.395	55.543	AVERAGE
2		0.342	0.001	12.053	12.054	-38.460	50.514	AVERAGE
3		1.078	0.067	13.567	13.634	-32.366	46.000	AVERAGE
4		3.730	0.190	21.821	22.011	-23.989	46.000	AVERAGE
5		5.410	0.280	14.581	14.861	-35.139	50.000	AVERAGE
6		15.634	0.720	21.432	22.152	-27.848	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : ShieldingRoom3	Time : 2008/07/25 - 11:30
Limit : CISPR_B_00M_QP	Margin : 0
Probe : SR3_LISN(16A) - Line2	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX

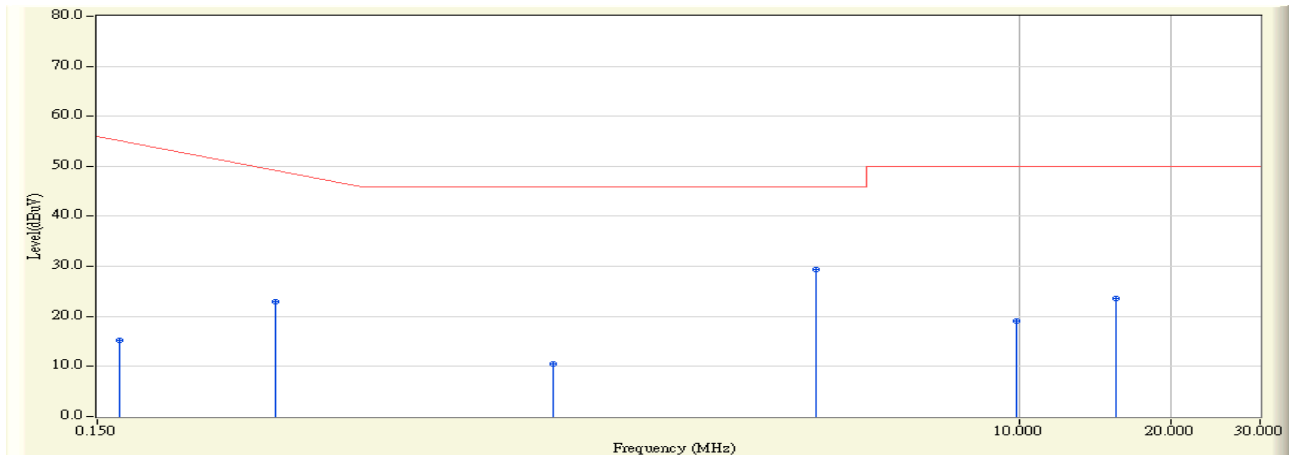


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.166	-0.030	48.047	48.017	-17.526	65.543	QUASIPeAK
2		0.338	0.010	31.636	31.646	-28.983	60.629	QUASIPeAK
3		1.198	0.090	27.951	28.041	-27.959	56.000	QUASIPeAK
4		3.958	0.250	37.382	37.632	-18.368	56.000	QUASIPeAK
5		9.886	0.530	26.996	27.526	-32.474	60.000	QUASIPeAK
6		15.574	0.830	30.500	31.330	-28.670	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : ShieldingRoom3	Time : 2008/07/25 - 11:30
Limit : CISPR_B_00M_AV	Margin : 0
Probe : SR3_LISN(16A) - Line2	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.166	-0.030	15.169	15.139	-40.404	55.543	AVERAGE
2		0.338	0.010	22.987	22.997	-27.632	50.629	AVERAGE
3		1.198	0.090	10.379	10.469	-35.531	46.000	AVERAGE
4	*	3.958	0.250	29.134	29.384	-16.616	46.000	AVERAGE
5		9.886	0.530	18.632	19.162	-30.838	50.000	AVERAGE
6		15.574	0.830	22.791	23.621	-26.379	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

3. Peak Power Output

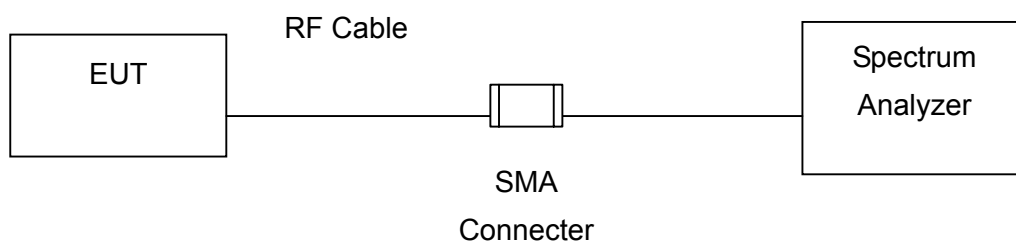
3.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R&S	FSP/ 100005	Oct., 2007
2	No.1 OATS			Sep., 2007

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

3.2. Test Setup



3.3. Test procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

3.4. Limits

For frequency hopping systems operating in the 902-928 MHz band: 1 Watt for systems employing at least 50 hopping channels; and, 0.25 Watts for systems employing less than 50 hopping channels.

For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1Watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watt.

3.5. Test Specification

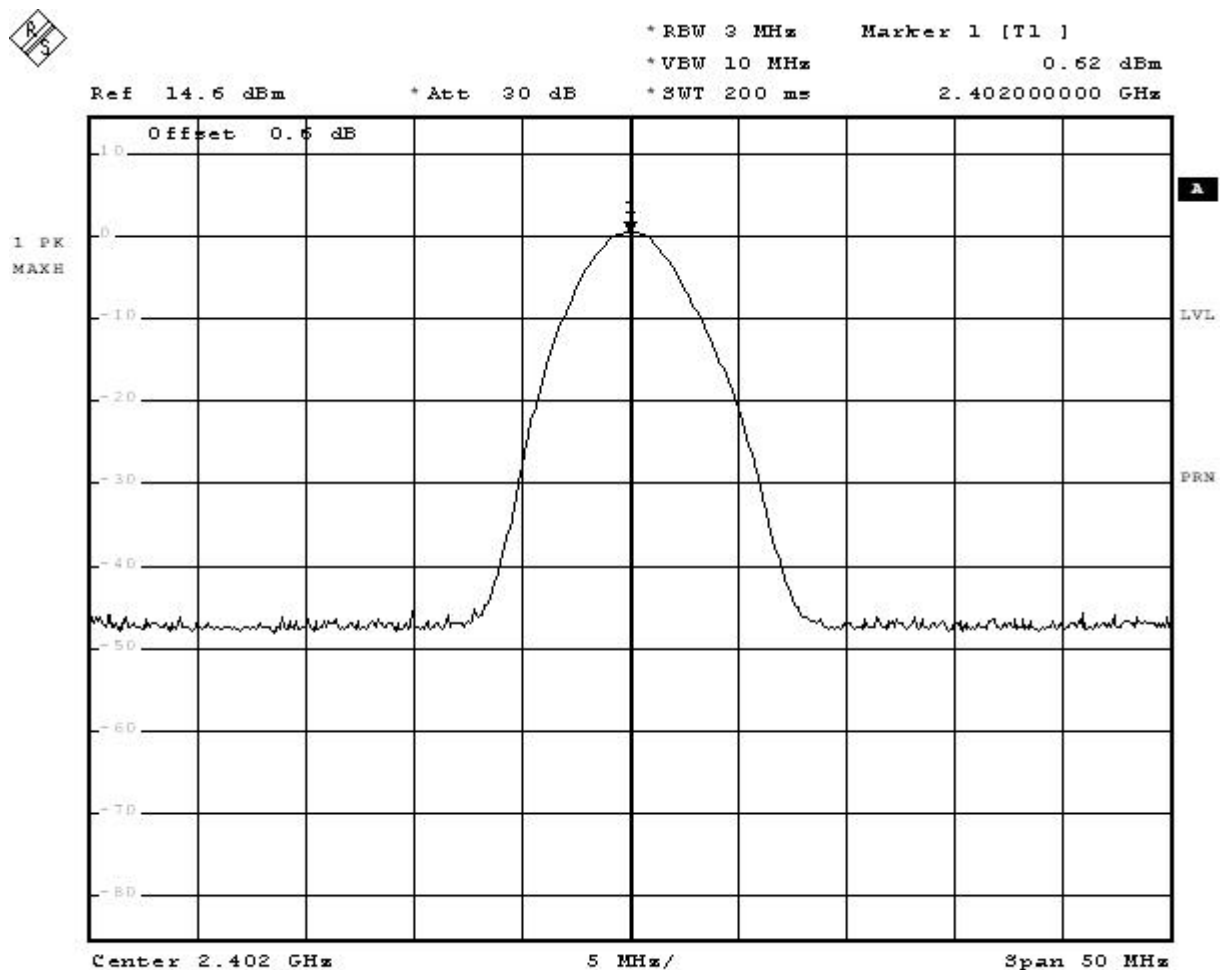
According to FCC Part 15 Subpart C Paragraph 15.247: 2006

3.6. Test Result

Product	Class2 USB Bluetooth adapter		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2008/09/02	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402.00	0.62	1Watt= 30 dBm	Pass

Channel 00

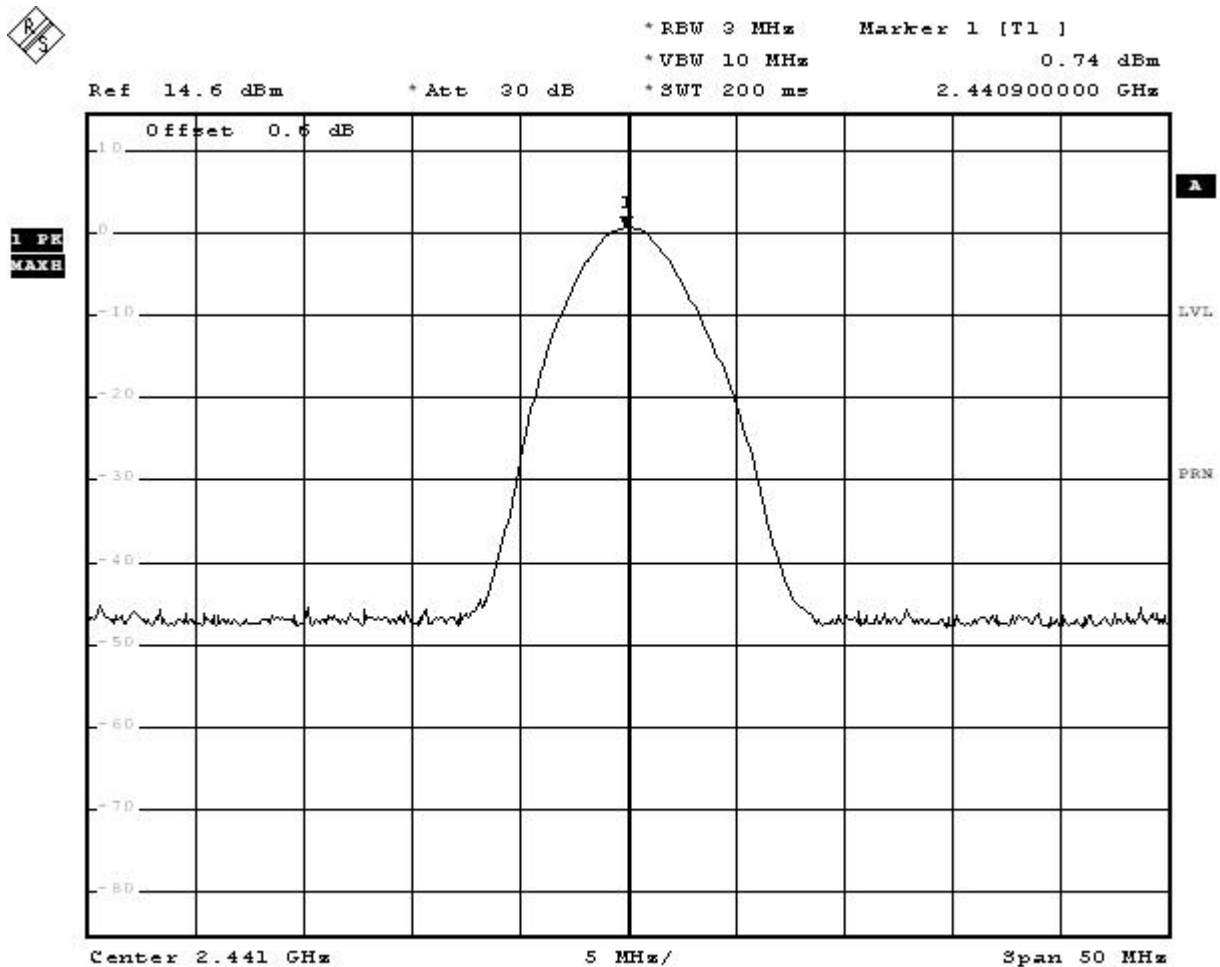


Date: 2.SEP.2008 20:45:13

Product	Class2 USB Bluetooth adapter		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2008/09/02	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
39	2441.00	0.74	1Watt= 30 dBm	Pass

Channel 39

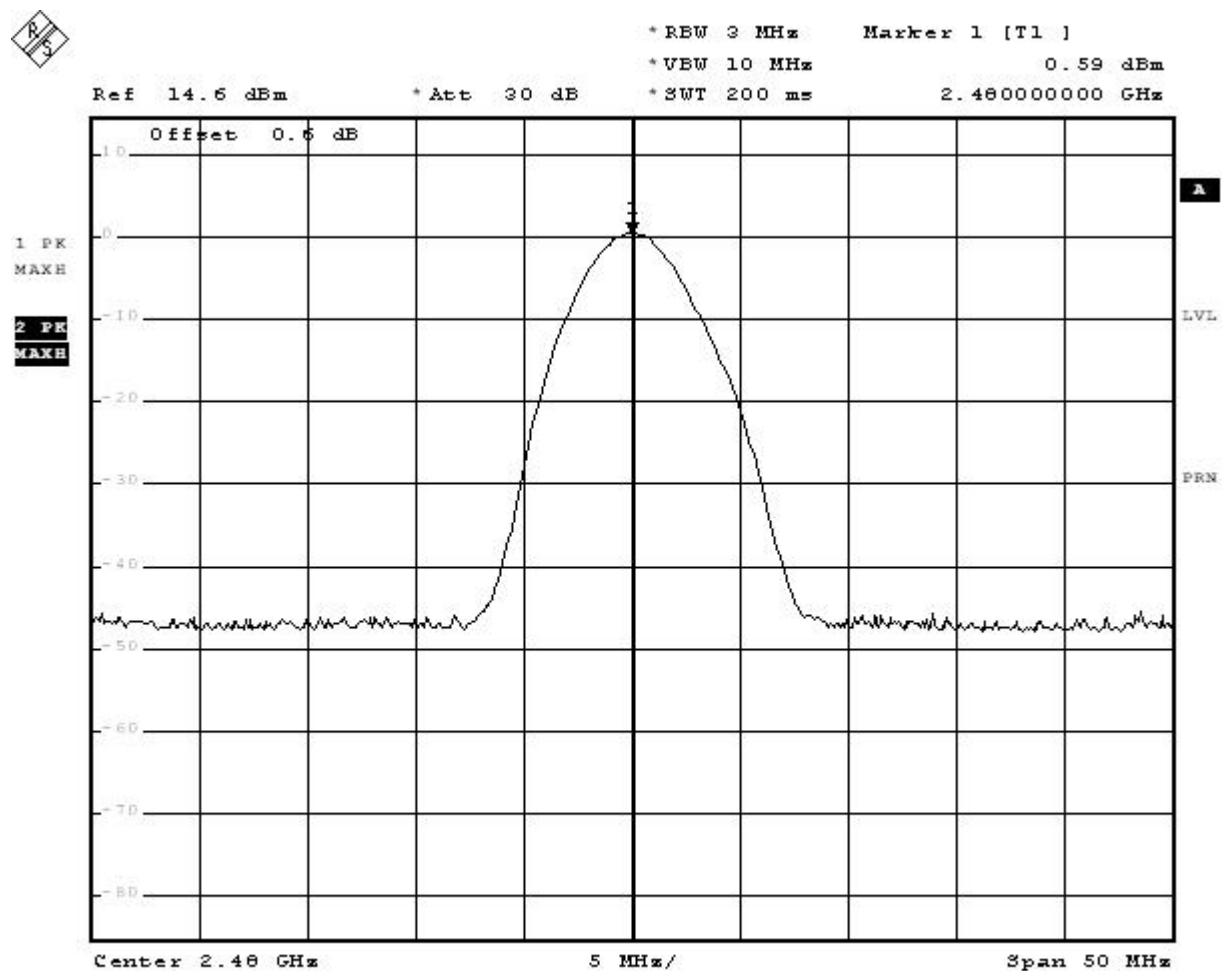


Date: 2.3EP.2008 20:46:40

Product	Class2 USB Bluetooth adapter		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2008/09/02	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
78	2480.00	0.59	1Watt= 30 dBm	Pass

Channel 78



Date: 2.3EP.2008 20:42:46

4. Radiated Emission

4.1. Test Equipment

The following test equipment are used during the test:

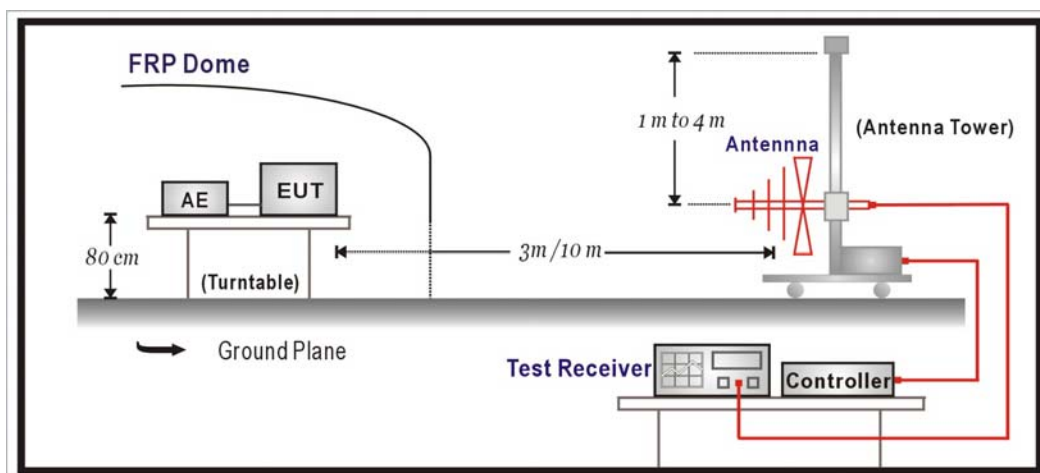
Radiated Emission / Site1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2895	2007/09/03
Horn Antenna	Electro Metrics	EM-6961	103325	2008/03/15
Pre-Amplifier	HP	8449B	3008A01123	2007/11/15
Pre-Amplifier	Quietek	AP-025C	N/A	N/A
Spectrum Analyzer	R & S	FSP40	100005	2007/08/25
Spectrum Analyzer	Advantest	R3162	120300649	2007/11/24
Test Receiver	R & S	ESCS 30	825442/017	2008/02/13

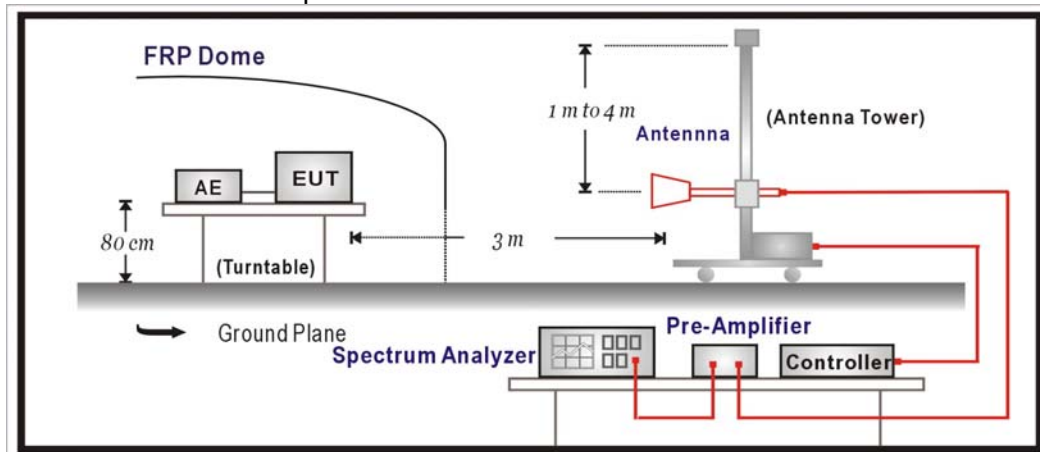
- Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. "N/A" Ca1.Date is used to Pre-test, not final test.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m	dBuV/m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

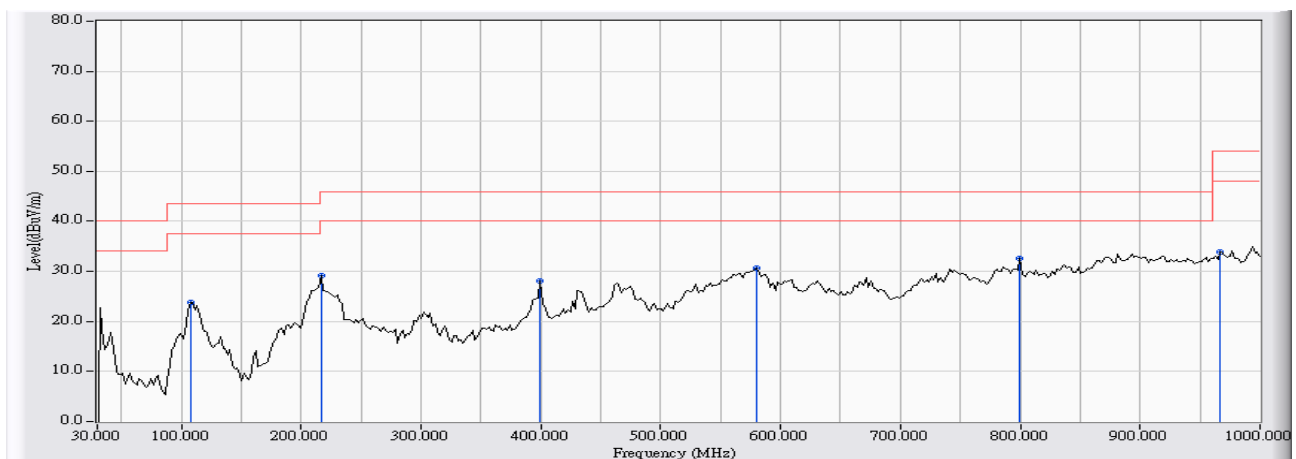
4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2006

4.6. Test Result

30MHz-1GHz Spurious:

Site : Site 1	Time : 2008/07/22 - 12:03
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_30-1G(2007) - HORIZONTAL	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX

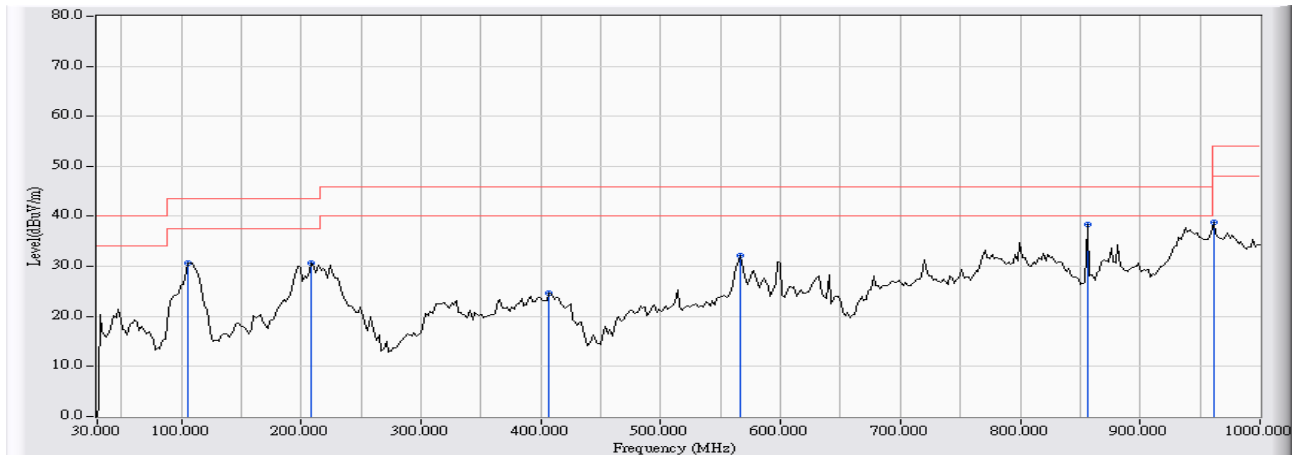


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		107.756	-6.812	30.536	23.724	-19.776	43.500	QUASIPeAK
2		216.613	-10.285	39.479	29.194	-16.806	46.000	QUASIPeAK
3		399.339	5.189	22.821	28.010	-17.990	46.000	QUASIPeAK
4		580.120	10.129	20.497	30.626	-15.374	46.000	QUASIPeAK
5	*	799.780	9.412	23.206	32.618	-13.382	46.000	QUASIPeAK
6		966.954	11.615	22.288	33.904	-20.096	54.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : Site 1	Time : 2008/07/22 - 12:08
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_30-1G(2007) - VERTICAL	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX



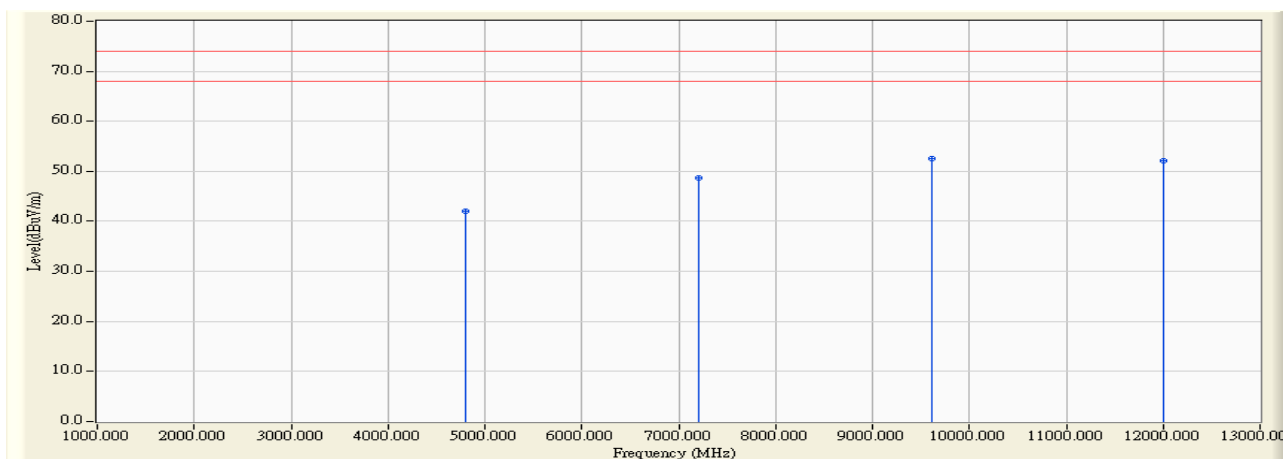
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		105.812	1.859	28.876	30.735	-12.765	43.500	QUASIPeAK
2		208.838	-2.116	32.759	30.642	-12.858	43.500	QUASIPeAK
3		407.114	3.811	20.751	24.562	-21.438	46.000	QUASIPeAK
4		566.513	8.033	24.121	32.154	-13.846	46.000	QUASIPeAK
5	*	856.152	6.256	32.144	38.400	-7.600	46.000	QUASIPeAK
6		961.122	13.856	24.945	38.801	-15.199	54.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Harmonic & Spurious:

Site : Site 1	Time : 2008/05/19 - 13:26
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - HORIZONTAL	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX-CH00

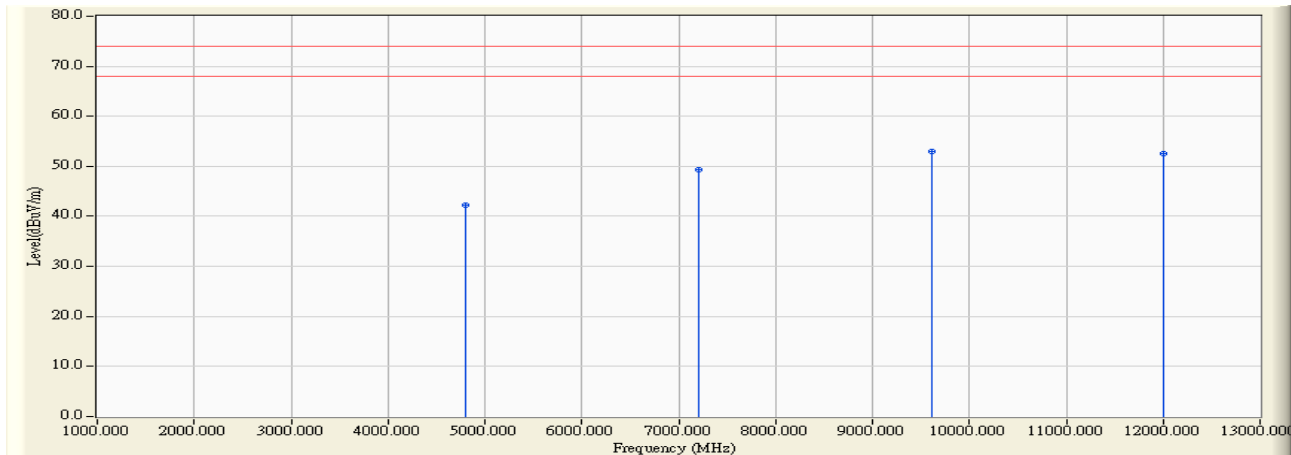


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4803.980	3.899	38.120	42.018	-31.982	74.000	PEAK
2		7205.980	11.362	37.320	48.682	-25.318	74.000	PEAK
3	*	9607.980	15.952	36.590	52.541	-21.459	74.000	PEAK
4		12009.980	17.382	34.760	52.142	-21.858	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/05/19 - 13:33
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - VERTICAL	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX-CH00

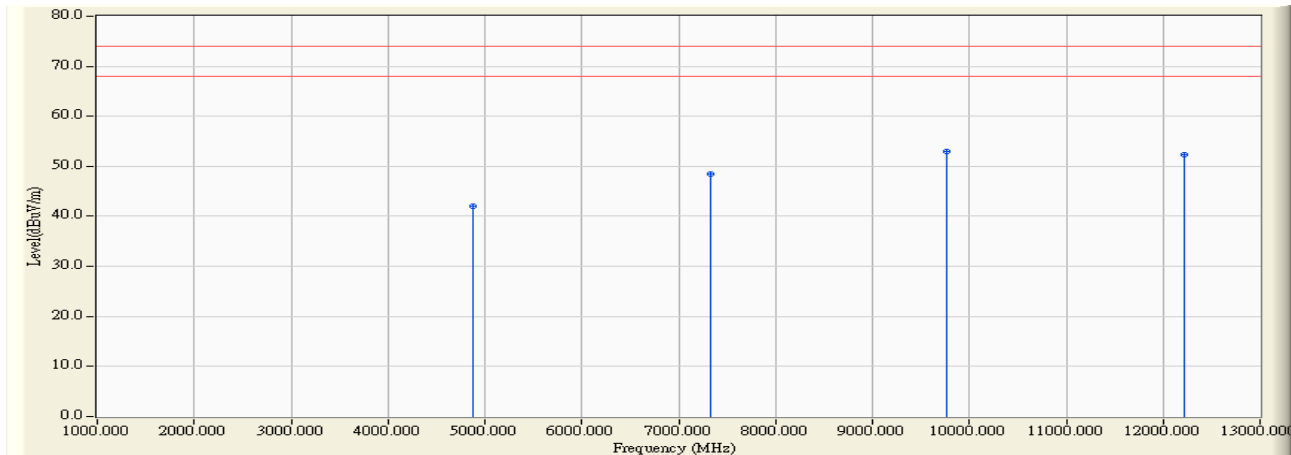


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4803.980	3.899	38.410	42.308	-31.692	74.000	PEAK
2		7205.980	11.774	37.500	49.274	-24.726	74.000	PEAK
3	*	9607.980	14.738	38.200	52.937	-21.063	74.000	PEAK
4		12009.980	17.363	35.280	52.643	-21.357	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/05/19 - 13:51
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - HORIZONTAL	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX-CH39

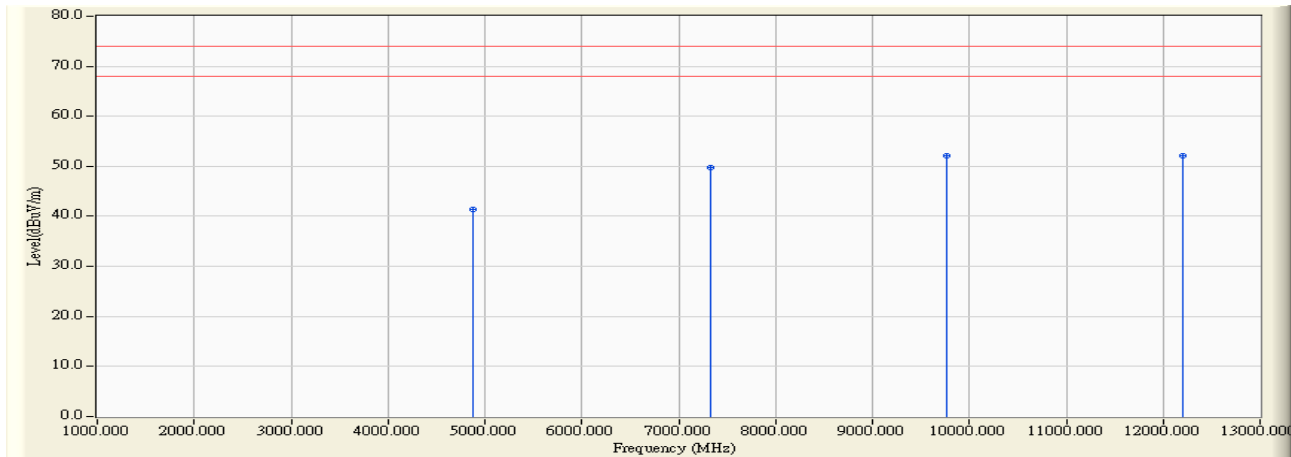


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4882.020	4.168	37.810	41.978	-32.022	74.000	PEAK
2	7323.000	11.668	36.860	48.528	-25.472	74.000	PEAK
3	* 9764.000	16.461	36.490	52.951	-21.049	74.000	PEAK
4	12225.000	18.005	34.290	52.295	-21.705	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/05/19 - 14:13
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - VERTICAL	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX-CH39

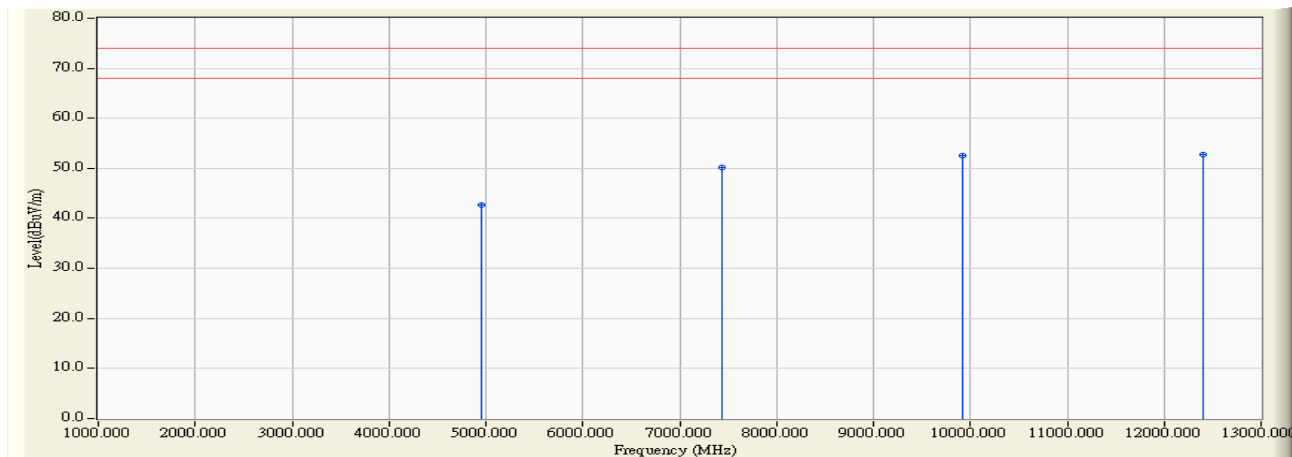


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4882.000	4.168	37.280	41.448	-32.552	74.000	PEAK
2		7323.000	12.315	37.540	49.855	-24.145	74.000	PEAK
3		9764.000	14.935	37.120	52.055	-21.945	74.000	PEAK
4	*	12205.000	17.532	34.530	52.062	-21.938	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/08/04 - 10:07
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - HORIZONTAL	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX-CH78

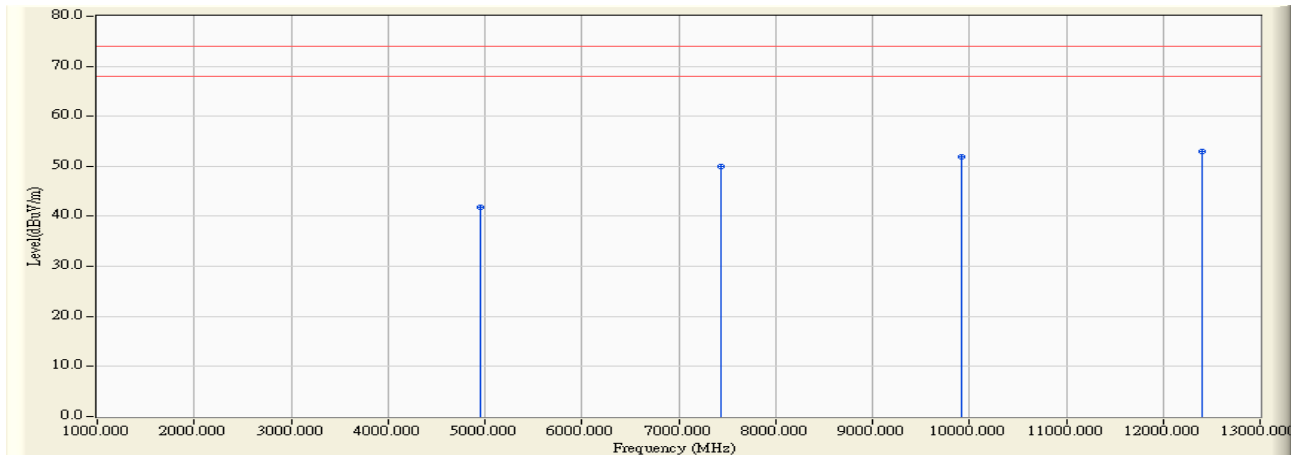


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.400	4.429	38.280	42.708	-31.292	74.000	PEAK
2		7440.400	12.003	38.140	50.142	-23.858	74.000	PEAK
3		9920.000	17.930	34.584	52.515	-21.485	74.000	PEAK
4	*	12399.600	18.000	34.698	52.698	-21.302	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/05/19 - 14:38
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - VERTICAL	Power : AC 120V/60Hz
EUT : Class2 USB Bluetooth adapter	Note : TX-CH78



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.400	4.429	37.480	41.908	-32.092	74.000	PEAK
2		7440.400	12.887	37.150	50.036	-23.964	74.000	PEAK
3		9920.000	15.134	36.780	51.914	-22.086	74.000	PEAK
4	*	12399.600	17.721	35.190	52.911	-21.089	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

5. RF Antenna Conducted Emission

5.1. Test Equipment

The following test equipments are used during the test:

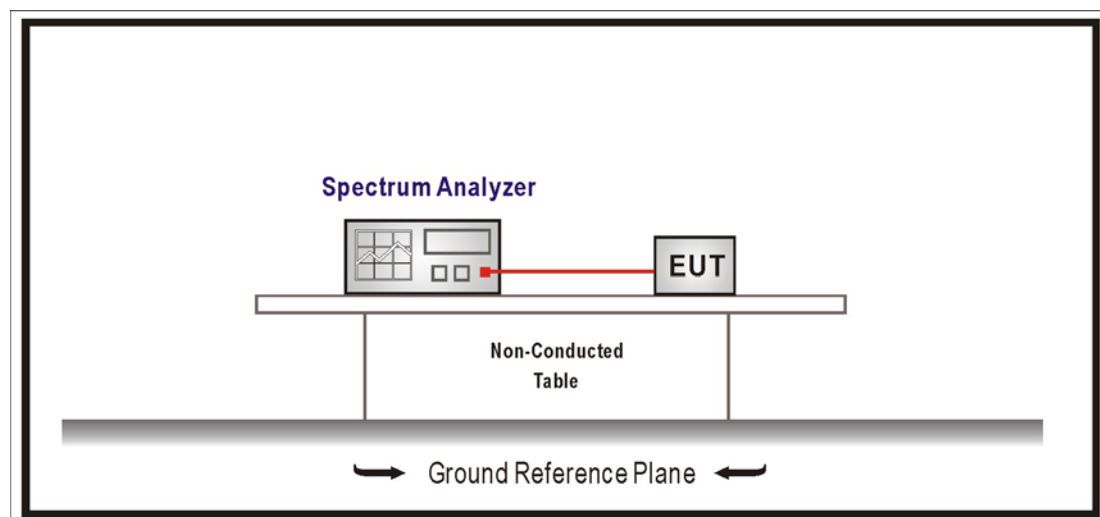
RF Conducted Measurement:				
Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2008
2	No.1 OATS			Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

2. Mark "X" test instruments are used to measure the final test results.

5.2. Test Setup

RF Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2006

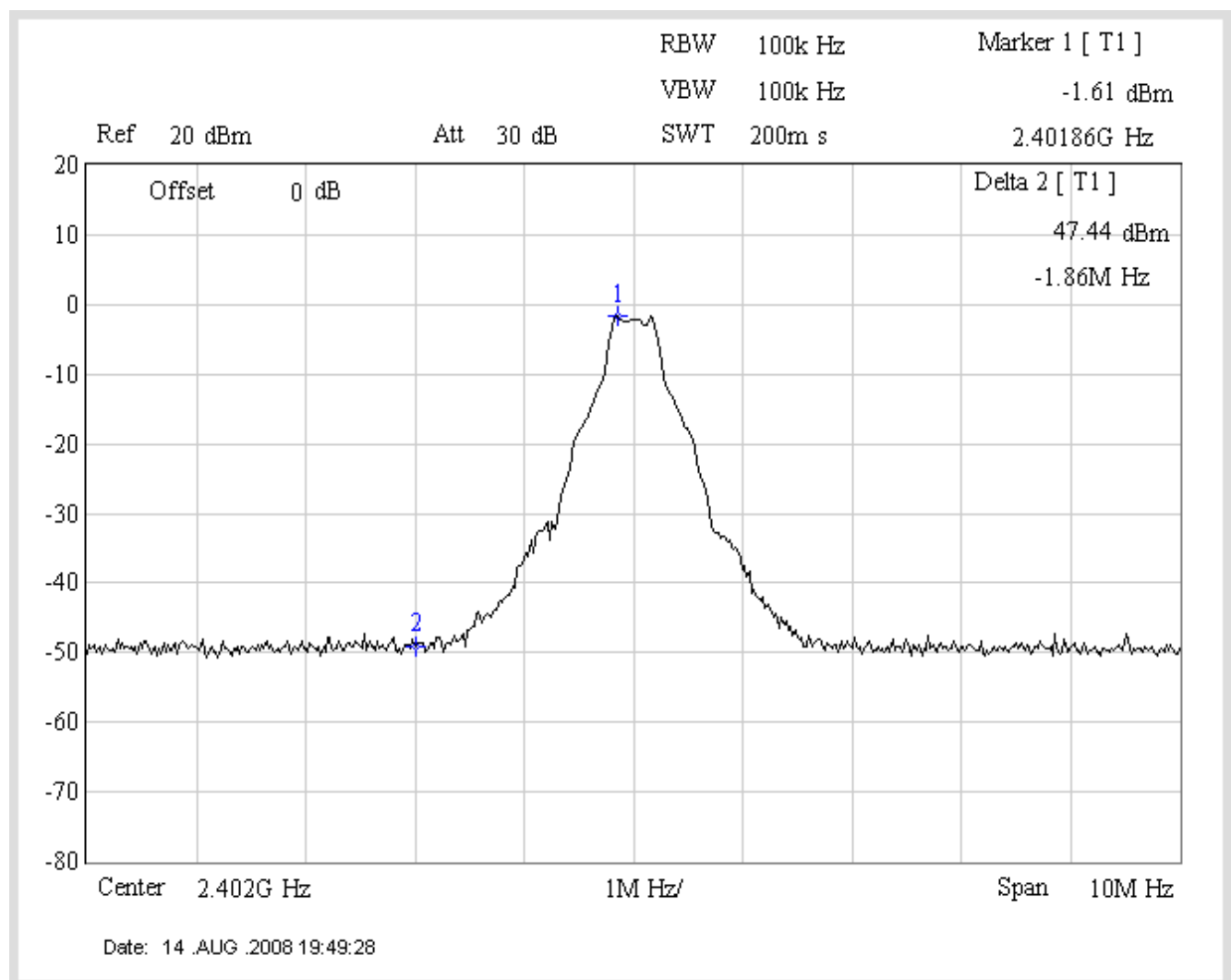
5.6. Test Result

Product	Class2 USB Bluetooth adapter		
Test Item	RF Antenna Conducted Emissions		
Test Mode	Mode 1: Transmit		
Date of Test	2008/08/14	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
00	2402	47.44	>20	Pass

Figure Channel 1:

Channel 1

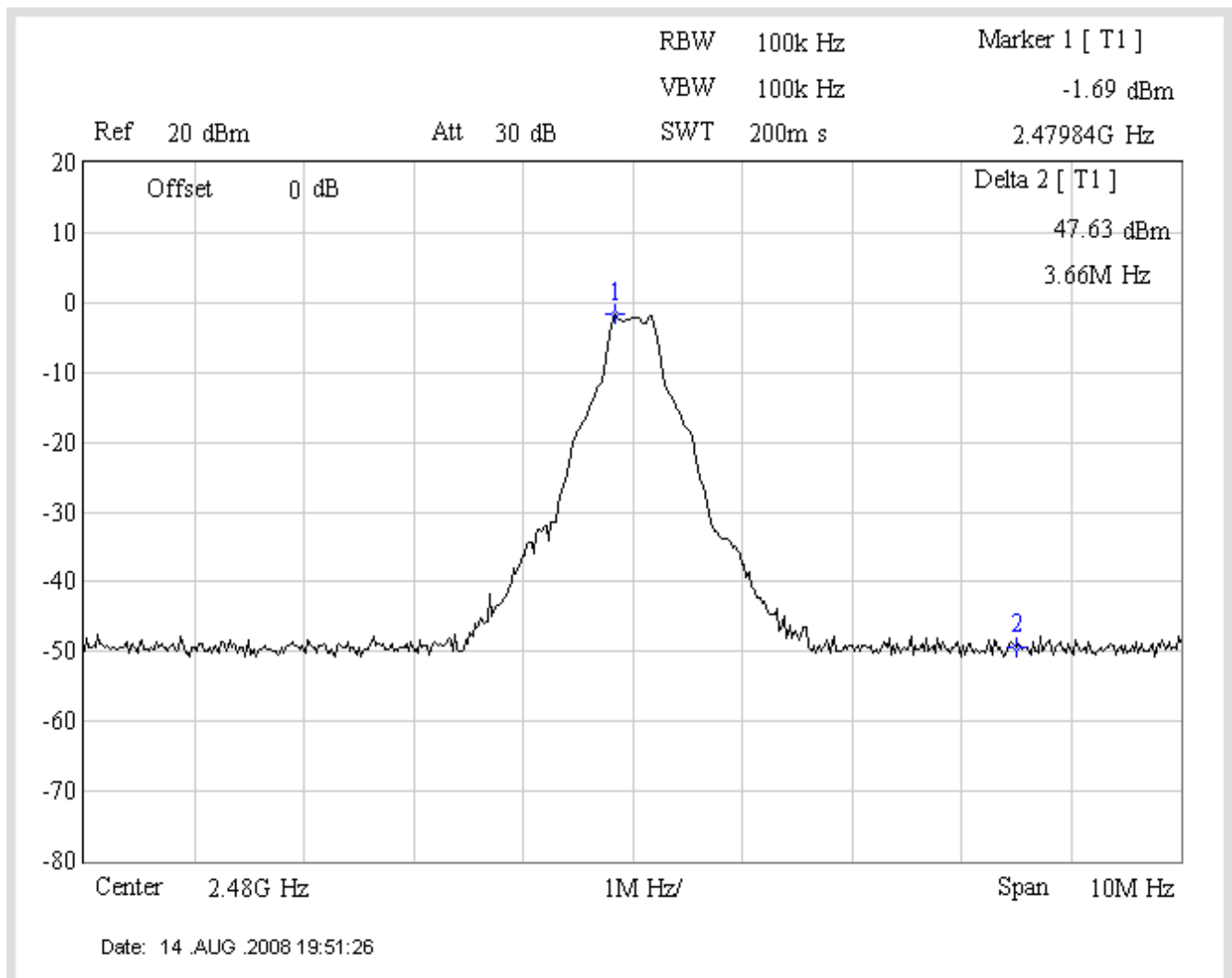


Product	Class2 USB Bluetooth adapter		
Test Item	RF Conducted Emissions		
Test Mode	Mode 1: Transmit		
Date of Test	2008/08/14	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
78	2480	47.63	>20	Pass

Figure Channel 78:

Channel 78



6. Band Edge

6.1. Test Equipment

The following test equipments are used during the test:

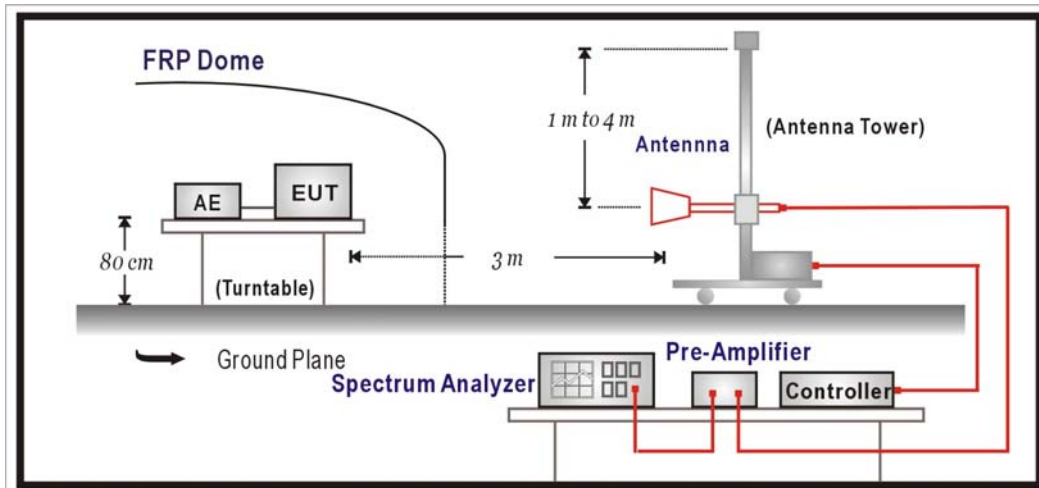
RF Radiated Measurement:					
Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2008
2	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2008
3		Loop Antenna	R & S	HFH2-Z2 / 833799/004	Sep., 2007
4		BiconiLog Antenna	Schwarzbeck	VULB 9166 / 1061	Sep., 2007
5		Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2007
6	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Sep., 2007
7	No.1 OATS				Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

2. Mark "X" test instruments are used to measure the final test results.

6.2. Test Setup

RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

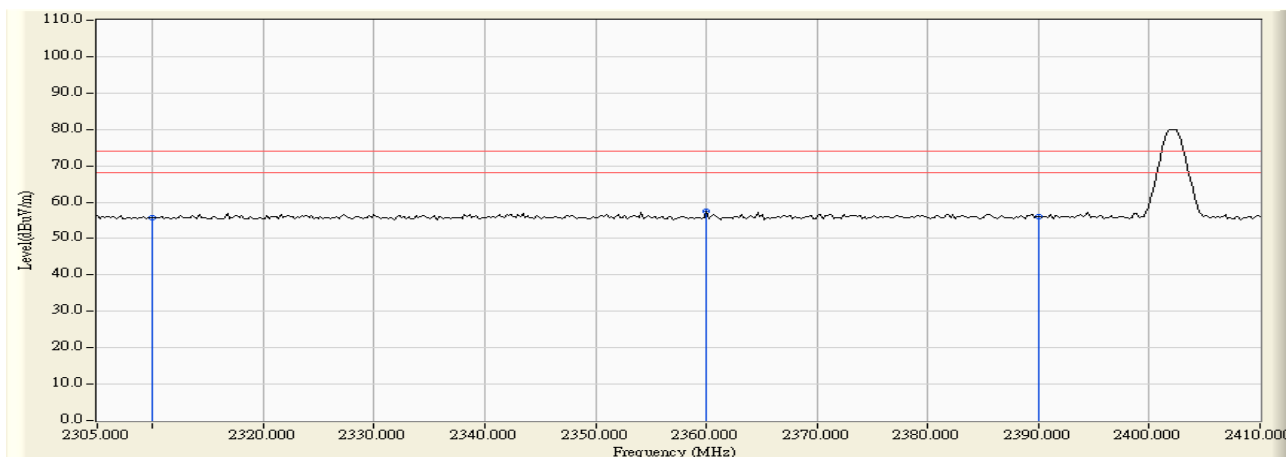
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

6.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2006

6.6. Test Result

Site : Site 1	Time : 2008/07/23 - 14:02
Limit : FCC_15.209(961011)_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - HORIZONTAL	Power :
EUT : Class2 USB Bluetooth adapter	Note : CH00

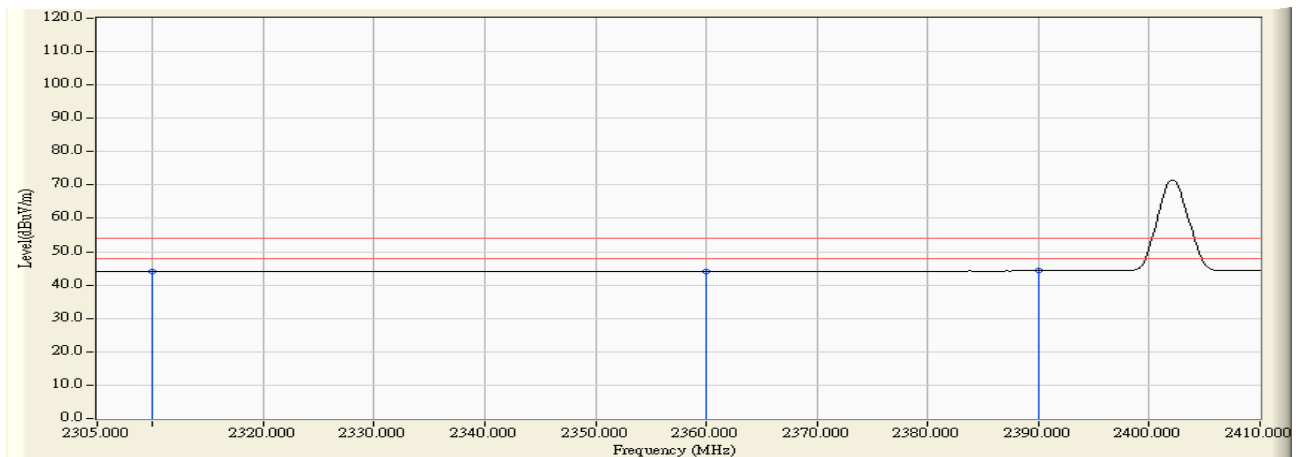


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	31.114	24.579	55.693	-18.307	74.000	PEAK
2	*	2360.020	31.290	26.131	57.421	-16.579	74.000	PEAK
3		2390.000	31.396	24.629	56.025	-17.975	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/07/23 - 14:04
Limit : FCC_15.209(961011)_03M_AV	Margin : 6
Probe : CB4_FCC_1-18G(2007) - HORIZONTAL	Power :
EUT : Class2 USB Bluetooth adapter	Note : CH00

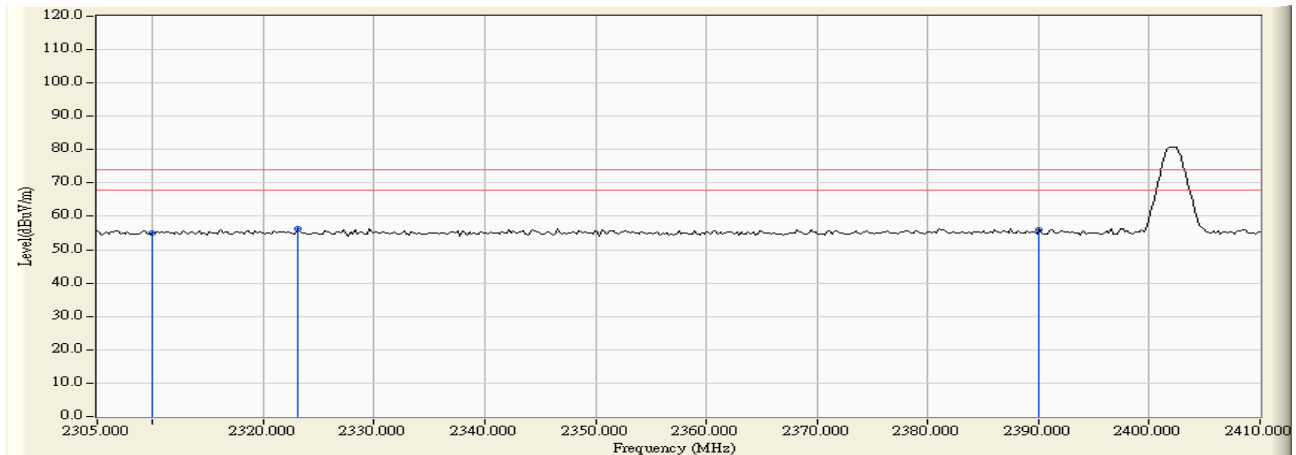


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	31.114	12.955	44.069	-9.931	54.000	AVERAGE
2	*	2360.020	31.290	12.844	44.134	-9.866	54.000	AVERAGE
3		2390.000	31.396	12.883	44.279	-9.721	54.000	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/07/23 - 14:32
Limit : FCC_15.209(961011)_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - VERTICAL	Power :
EUT : Class2 USB Bluetooth adapter	Note : CH00

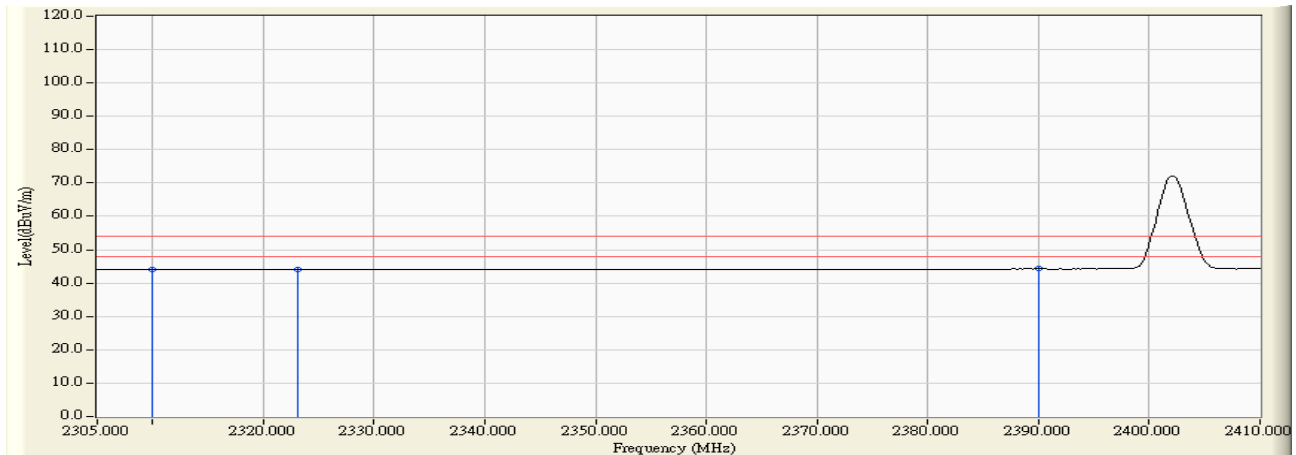


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	31.114	23.789	54.903	-19.097	74.000	PEAK
2	*	2323.060	31.159	25.258	56.418	-17.582	74.000	PEAK
3		2390.000	31.396	24.460	55.856	-18.144	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/07/23 - 14:36
Limit : FCC_15.209(961011)_03M_AV	Margin : 6
Probe : CB4_FCC_1-18G(2007) - VERTICAL	Power :
EUT : Class2 USB Bluetooth adapter	Note : CH00

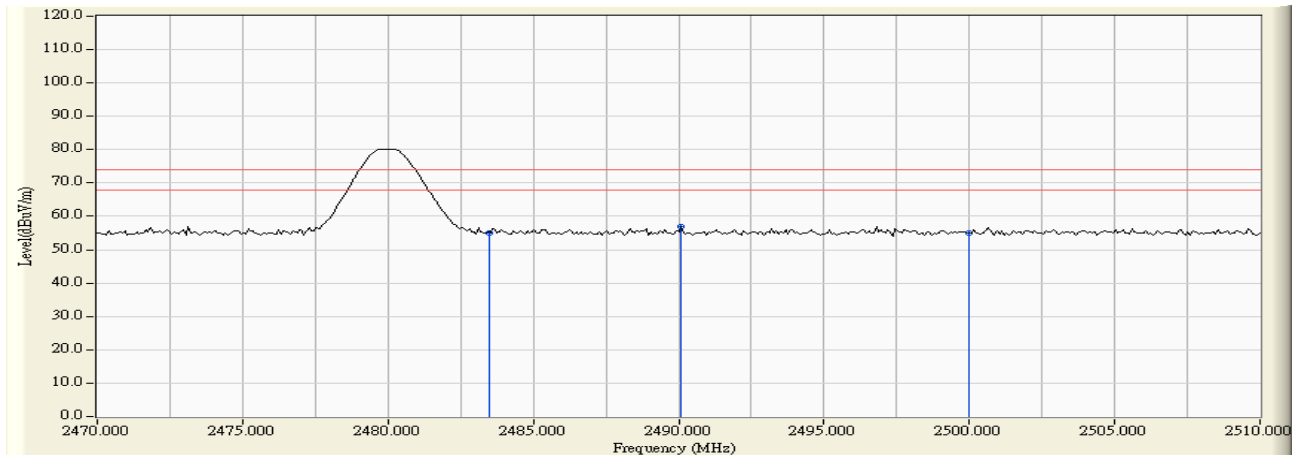


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	31.114	12.954	44.068	-9.932	54.000	AVERAGE
2	*	2323.060	31.159	12.927	44.087	-9.913	54.000	AVERAGE
3		2390.000	31.396	12.857	44.253	-9.747	54.000	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/07/23 - 14:08
Limit : FCC_15.209(961011)_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - HORIZONTAL	Power :
EUT : Class2 USB Bluetooth adapter	Note : CH78

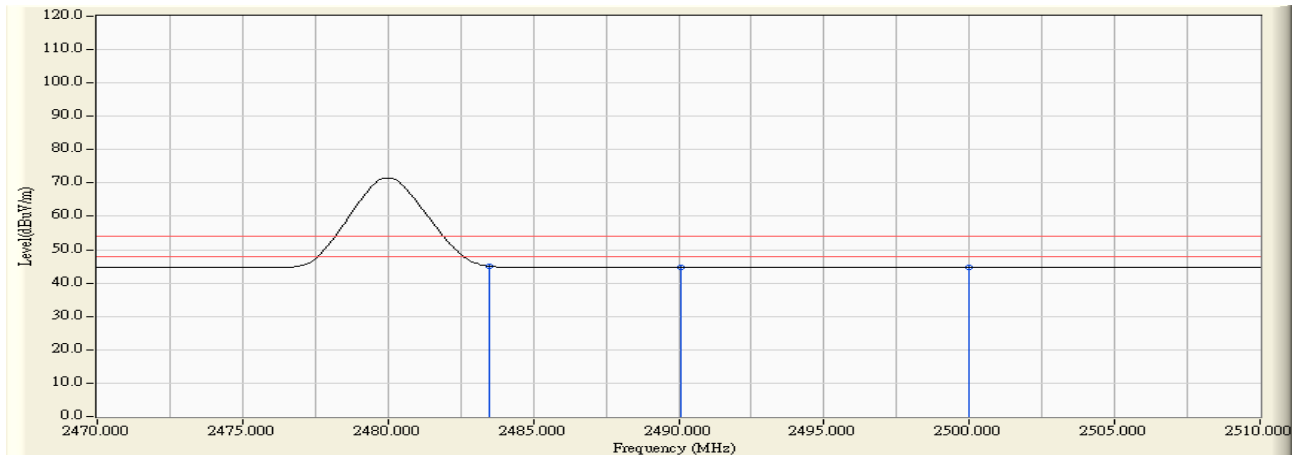


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2483.500	31.736	23.369	55.105	-18.895	74.000	PEAK
2	*	2490.080	31.760	25.215	56.974	-17.026	74.000	PEAK
3		2500.000	31.789	23.135	54.924	-19.076	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/07/23 - 14:09
Limit : FCC_15.209(961011)_03M_AV	Margin : 6
Probe : CB4_FCC_1-18G(2007) - HORIZONTAL	Power :
EUT : Class2 USB Bluetooth adapter	Note : CH78

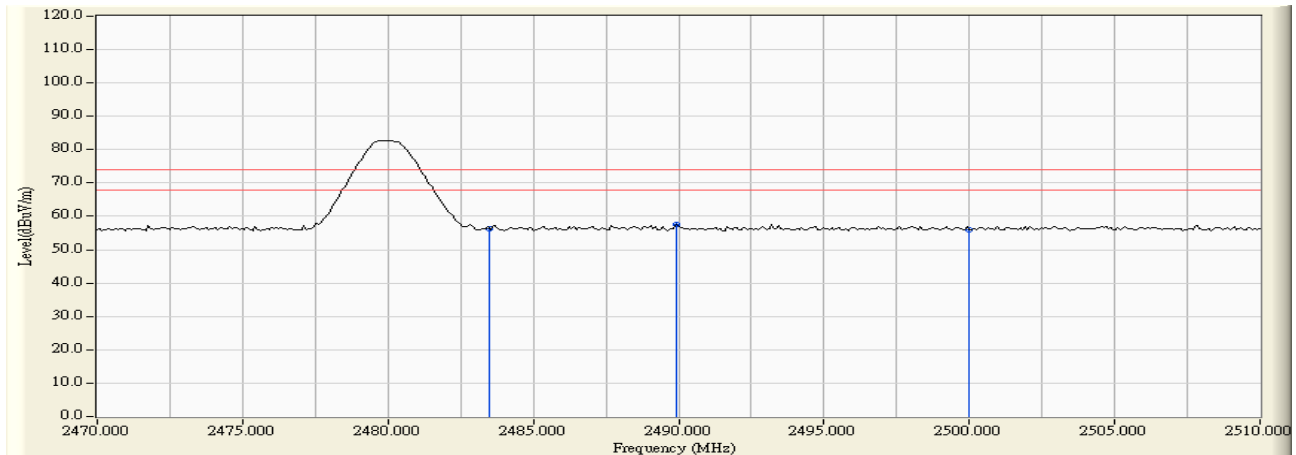


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2483.500	31.736	13.303	45.039	-8.961	54.000	AVERAGE
2	*	2490.080	31.760	12.876	44.635	-9.365	54.000	AVERAGE
3		2500.000	31.789	12.860	44.649	-9.351	54.000	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/07/23 - 14:17
Limit : FCC_15.209(961011)_03M_PK	Margin : 6
Probe : CB4_FCC_1-18G(2007) - VERTICAL	Power :
EUT : Class2 USB Bluetooth adapter	Note : CH78

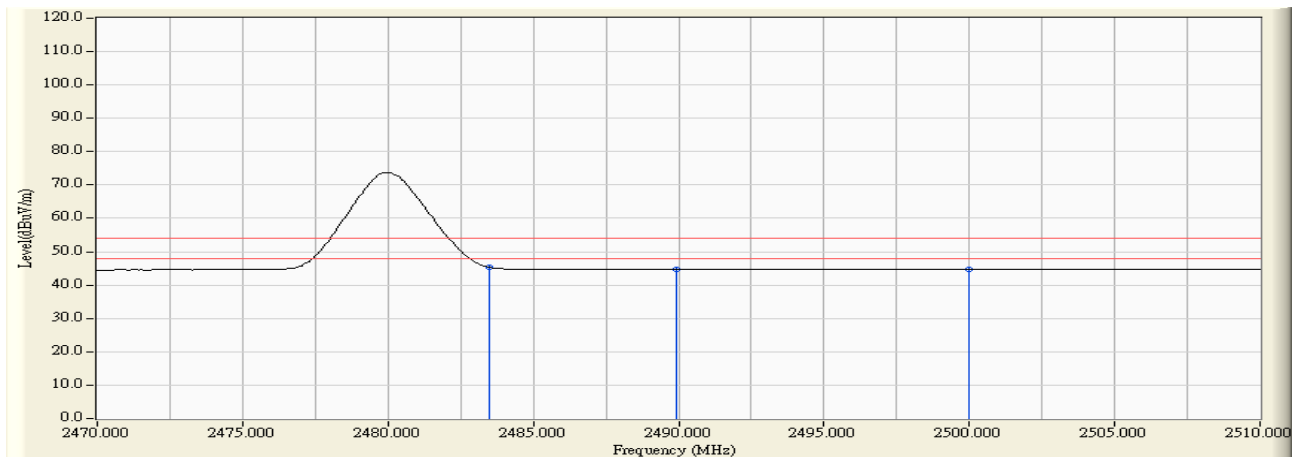


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2483.500	31.736	24.586	56.322	-17.678	74.000	PEAK
2	*	2489.920	31.758	25.745	57.504	-16.496	74.000	PEAK
3		2500.000	31.789	24.173	55.962	-18.038	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site 1	Time : 2008/07/23 - 14:19
Limit : FCC_15.209(961011)_03M_AV	Margin : 6
Probe : CB4_FCC_1-18G(2007) - VERTICAL	Power :
EUT : Class2 USB Bluetooth adapter	Note : CH78



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2483.500	31.736	13.598	45.334	-8.666	54.000	AVERAGE
2	*	2489.920	31.758	12.863	44.622	-9.378	54.000	AVERAGE
3		2500.000	31.789	12.857	44.646	-9.354	54.000	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

7. Number of hopping frequency

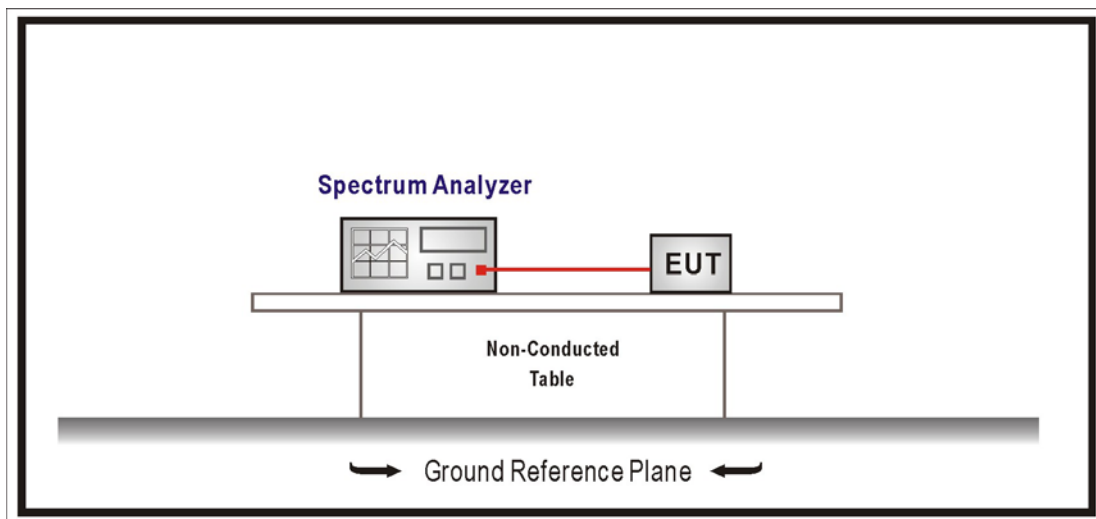
7.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2008
2	No.1 OATS			Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 2400-2483.5 MHz bands, which use fewer than 75 hopping frequencies, may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels are used.

For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

7.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = the frequency band of operation

$RBW \geq 1\%$ of the span , $VBW \geq RBW$

Sweep = auto, Detector function = peak, Trace = max hold

7.5. Test Specification

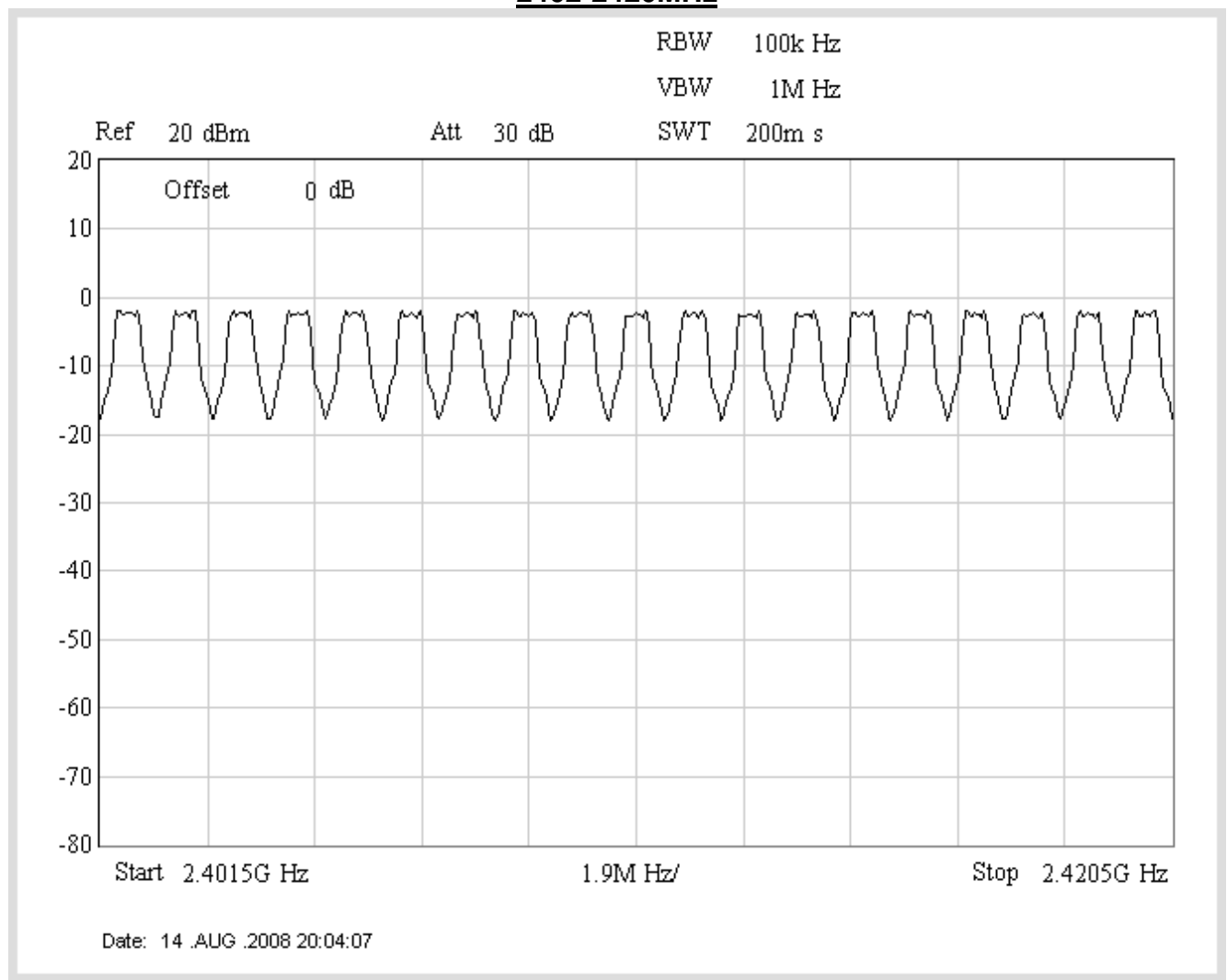
According to FCC Part 15 Subpart C Paragraph 15.247: 2006

7.6. Test Result

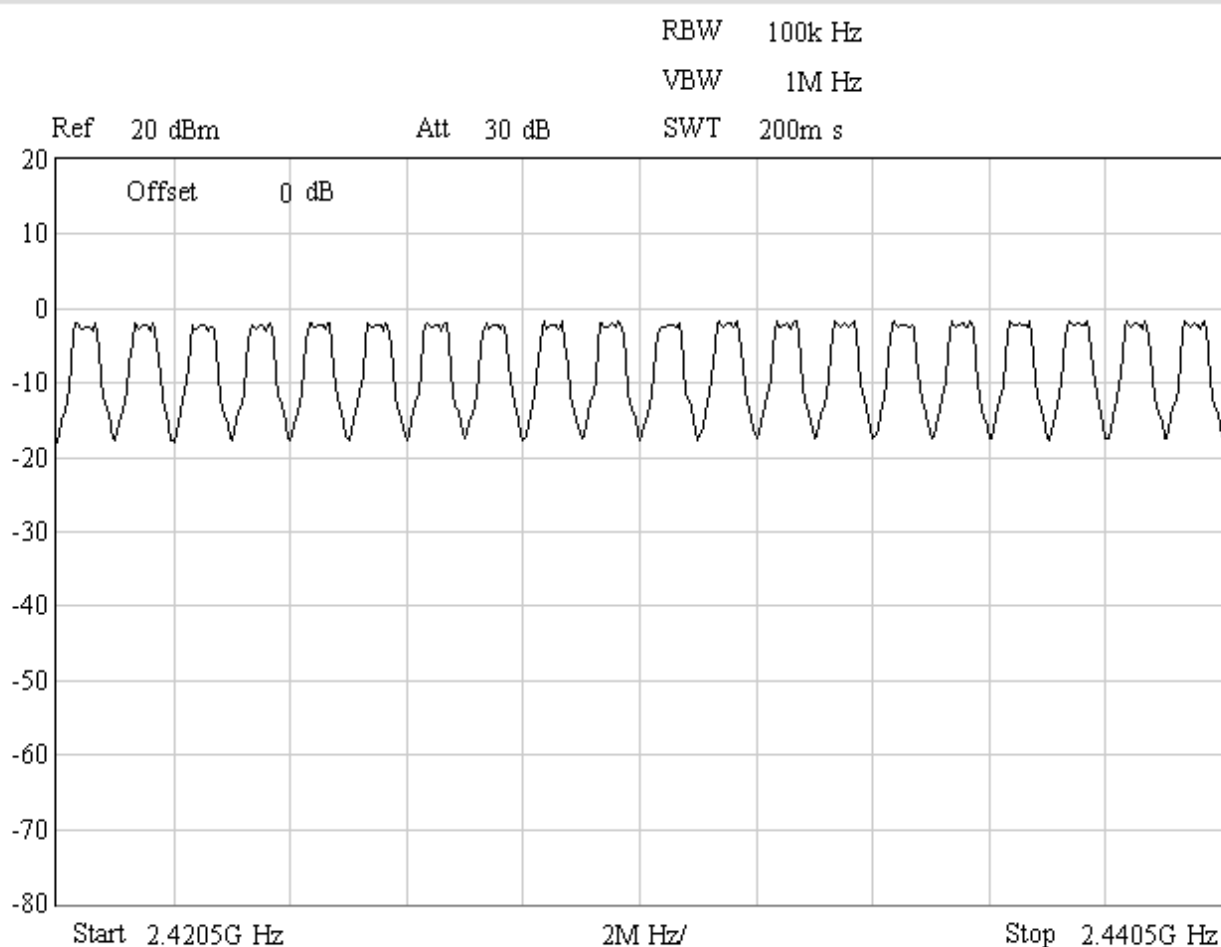
Product	Class2 USB Bluetooth adapter		
Test Item	Number of hopping frequency		
Test Mode	Mode 1: Transmit		
Date of Test	2008/08/14	Test Site	No.1 OATS

Frequency Range (MHz)	Measure Level (Hopping Channel)	Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

2402-2420MHz

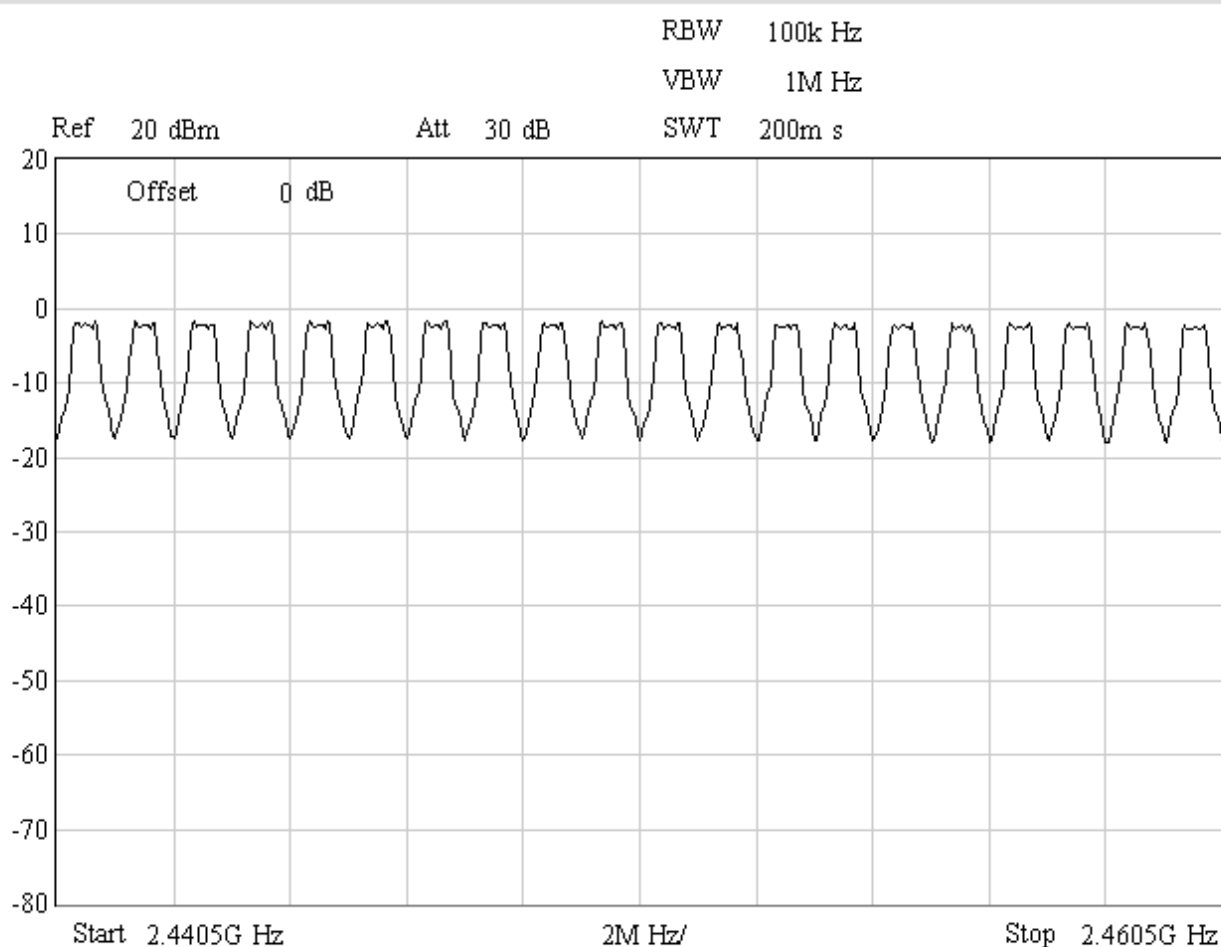


2421-2440MHz



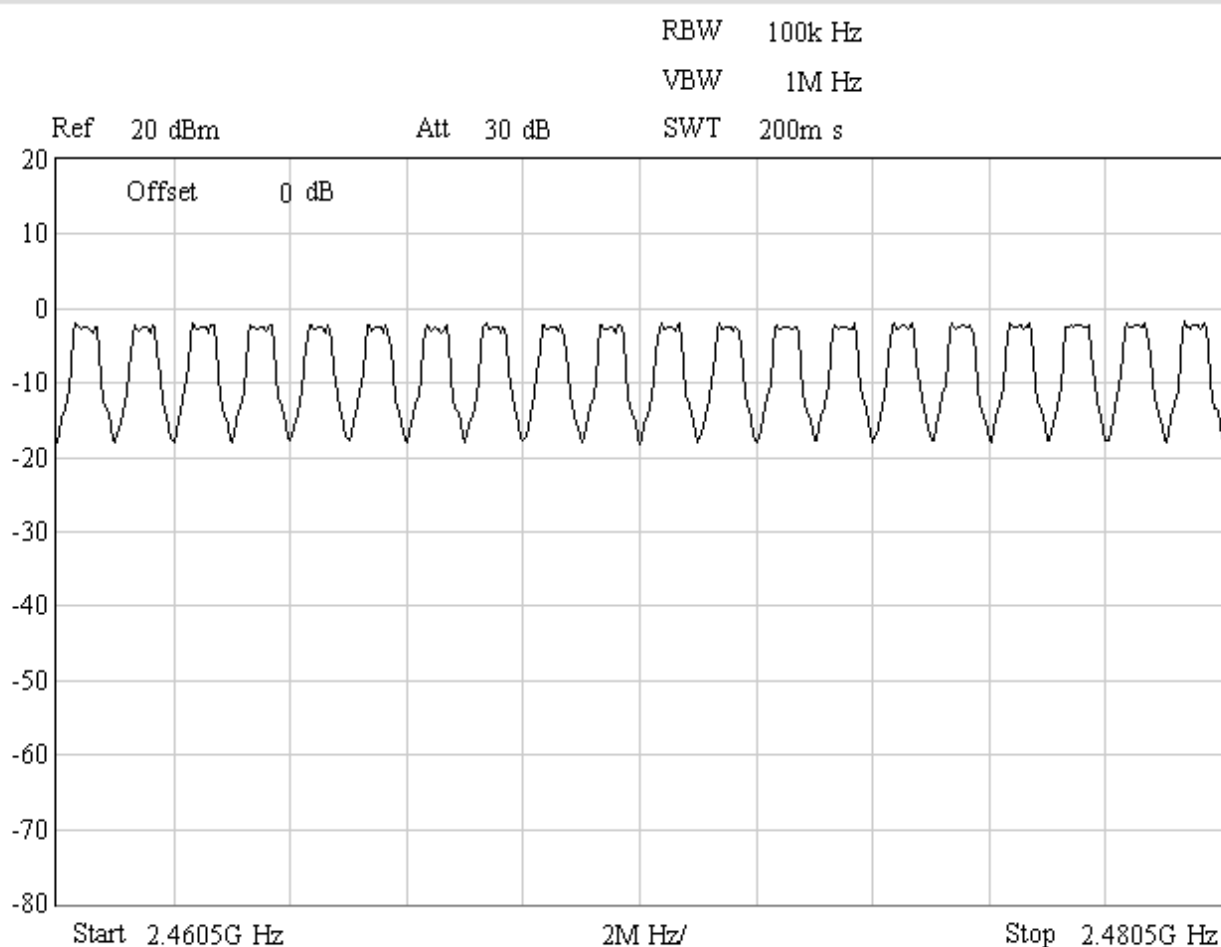
Date: 14 .AUG .2008 20:08:12

2441-2460MHz



Date: 14 .AUG .2008 20:10:32

2461-2480MHz



Date: 14 .AUG .2008 20:12:52

8. Carrier Frequency Separation

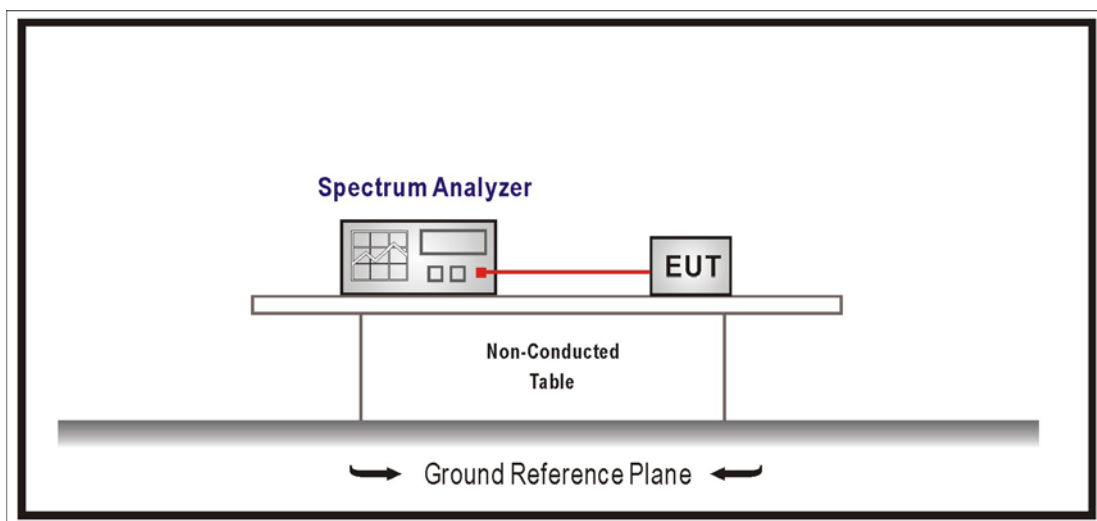
8.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2008
2	No.1 OATS			Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup



8.3. Limits

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

8.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = wide enough to capture the peaks of two adjacent channels

Resolution Bandwidth (RBW) \geq 1% of the span, VBW \geq RBW

Sweep = auto, Detector function = peak, Trace = max hold

8.5. Test Specification

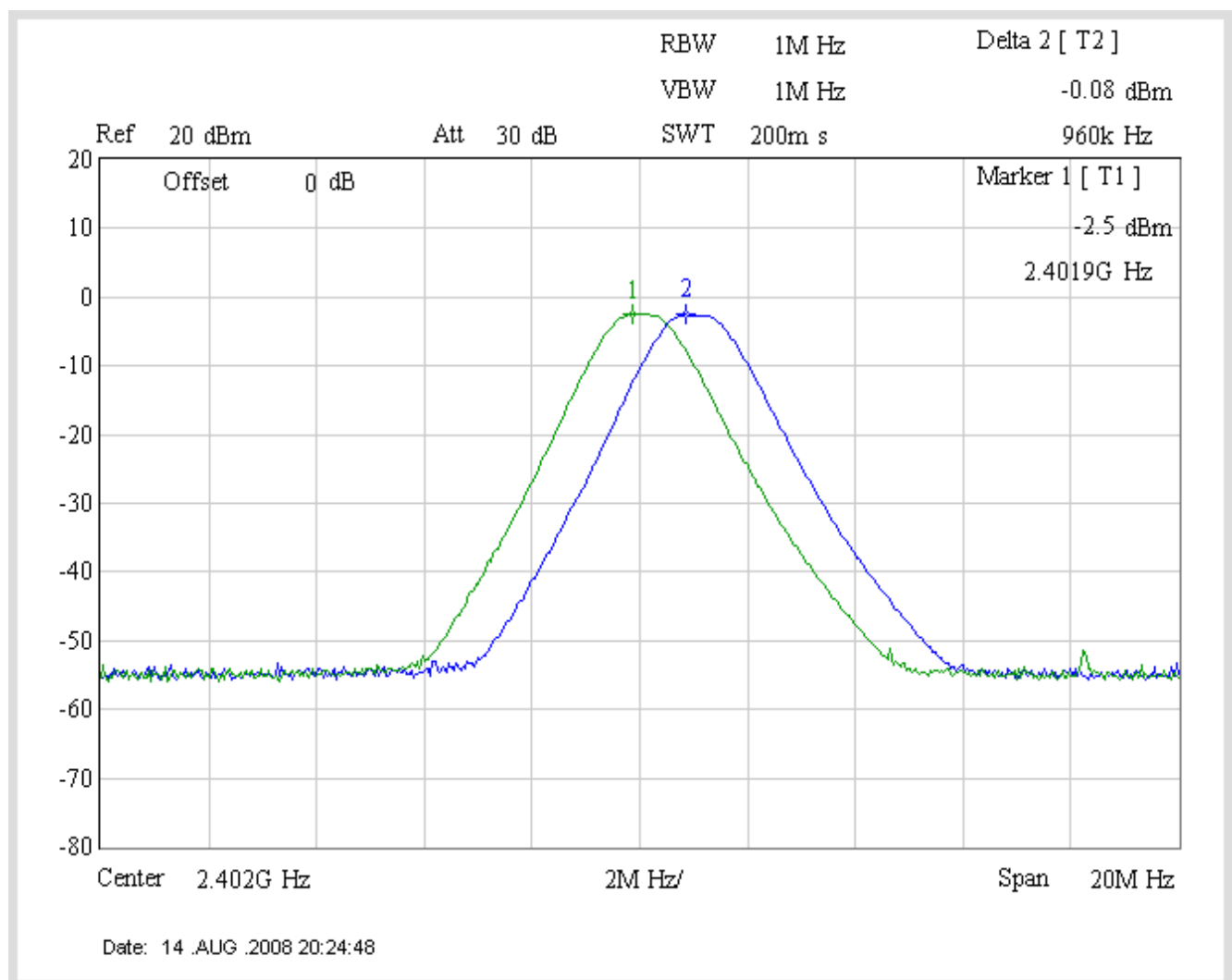
According to FCC Part 15 Subpart C Paragraph 15.247: 2006

8.6. Test Result

Product	Class2 USB Bluetooth adapter		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit		
Date of Test	2008/08/14	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
00	2402.00	960	>750.7	Pass

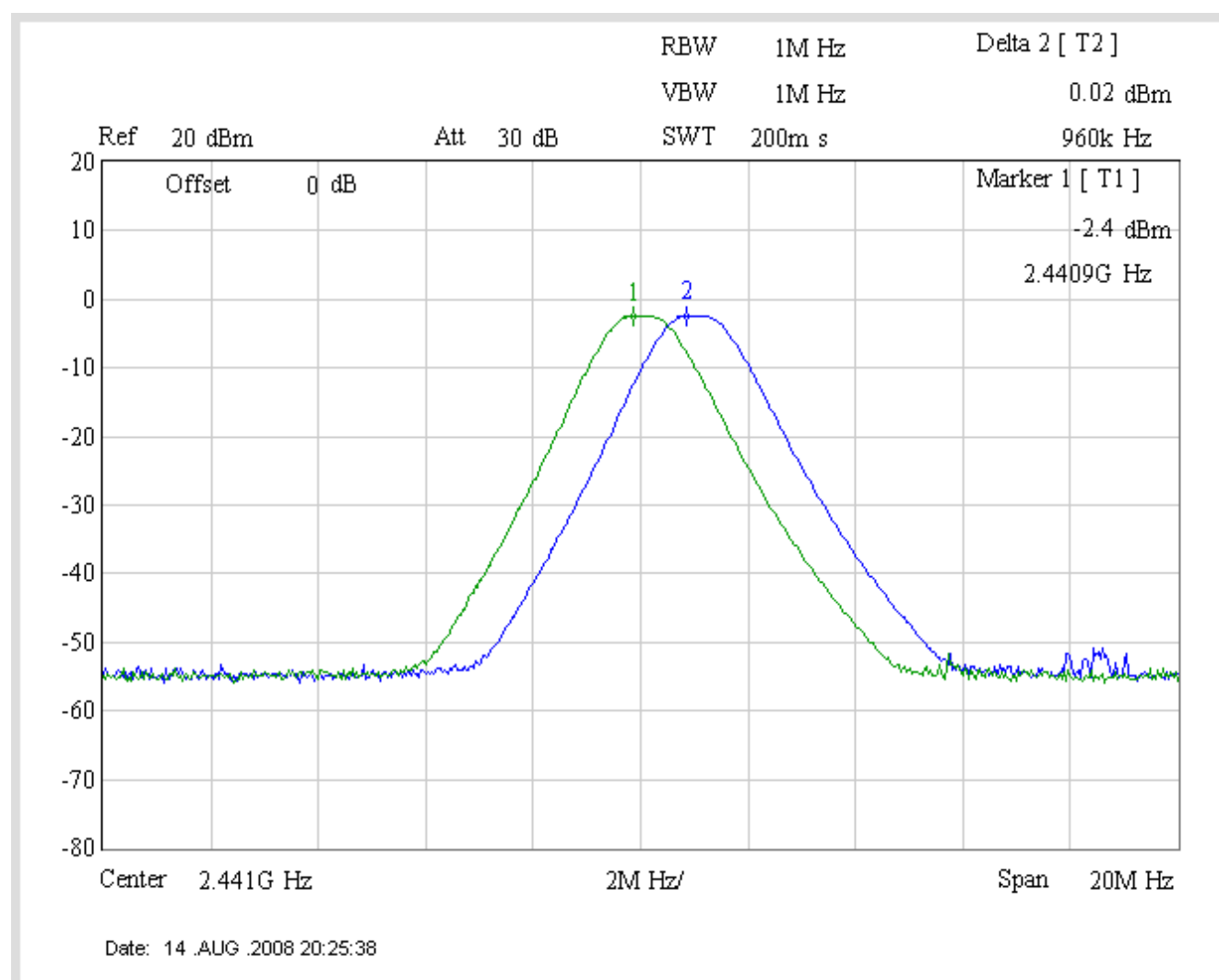
Channel 00



Product	Class2 USB Bluetooth adapter		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit		
Date of Test	2008/08/14	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
39	2441.00	960	>751.6	Pass

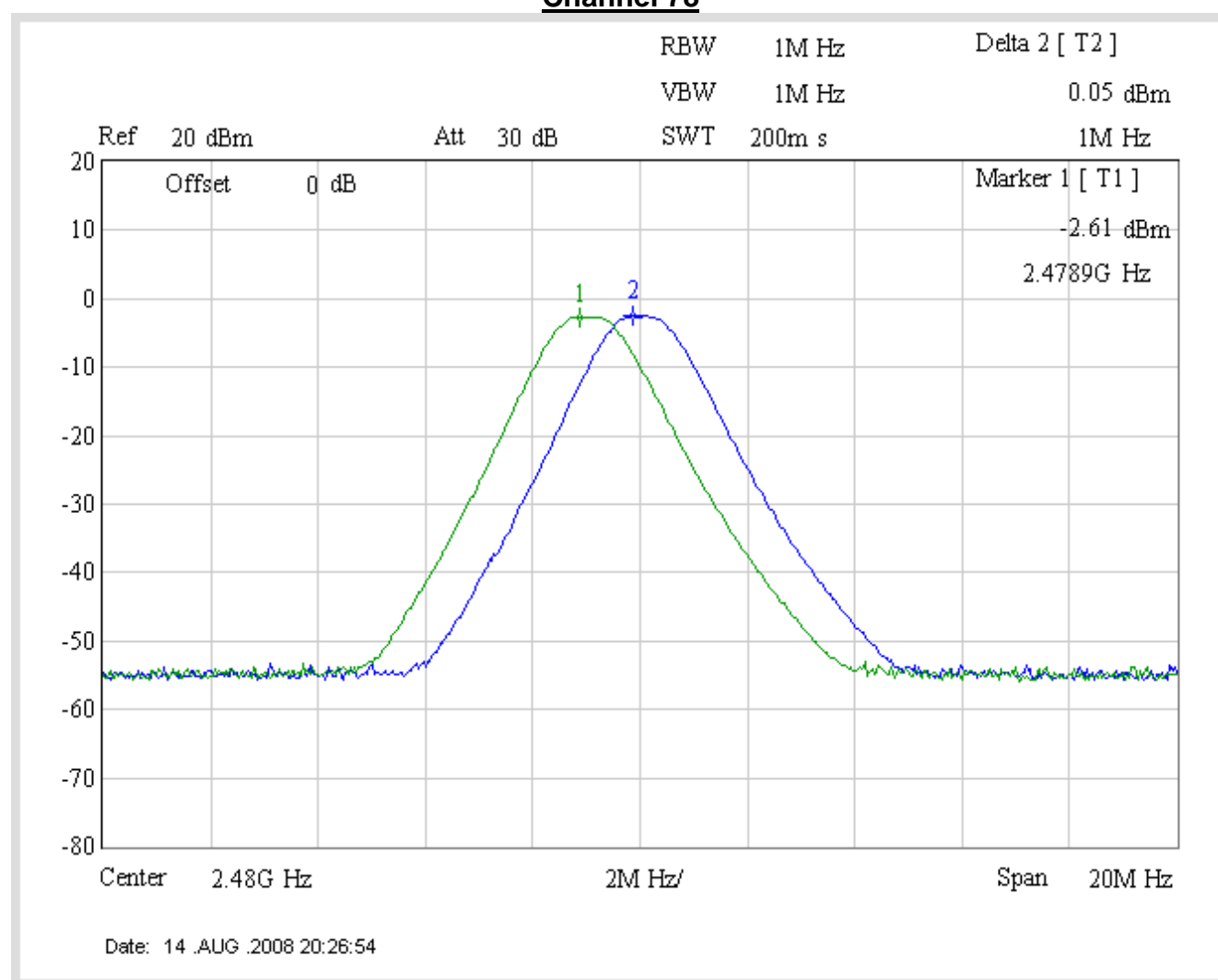
Channel 39



Product	Class2 USB Bluetooth adapter		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit		
Date of Test	2008/08/14	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
78	2480.00	1000	>750.4	Pass

Channel 78



9. Occupied Bandwidth

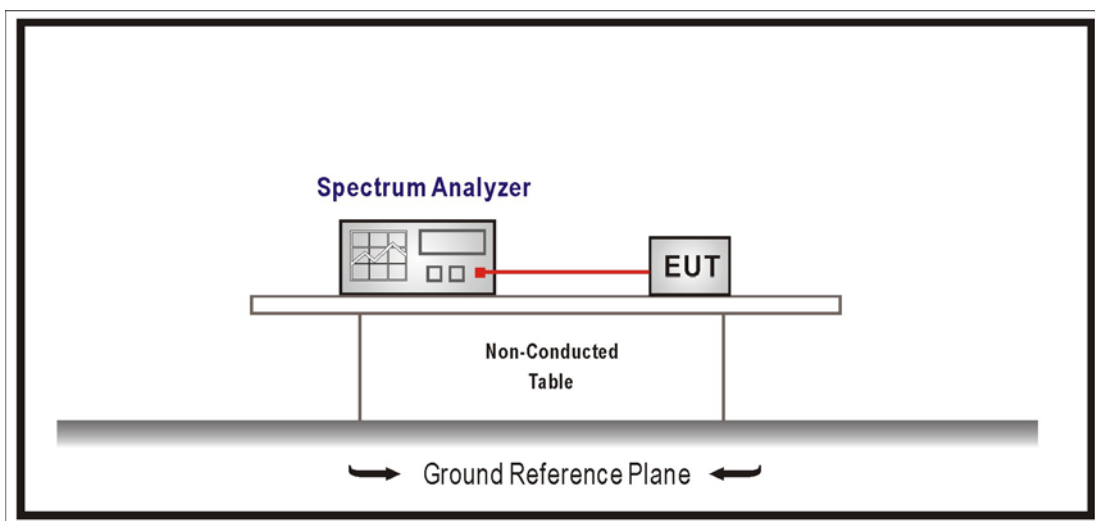
9.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2008
2	No.1 OATS			Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

9.2. Test Setup



9.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 5725-5850 MHz bands. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

9.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW \geq 1% of the 20 dB bandwidth, VBW \geq RBW

Sweep = auto, Detector function = peak, Trace = max hold

The EUT should be transmitting at its maximum data rate.

9.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2006

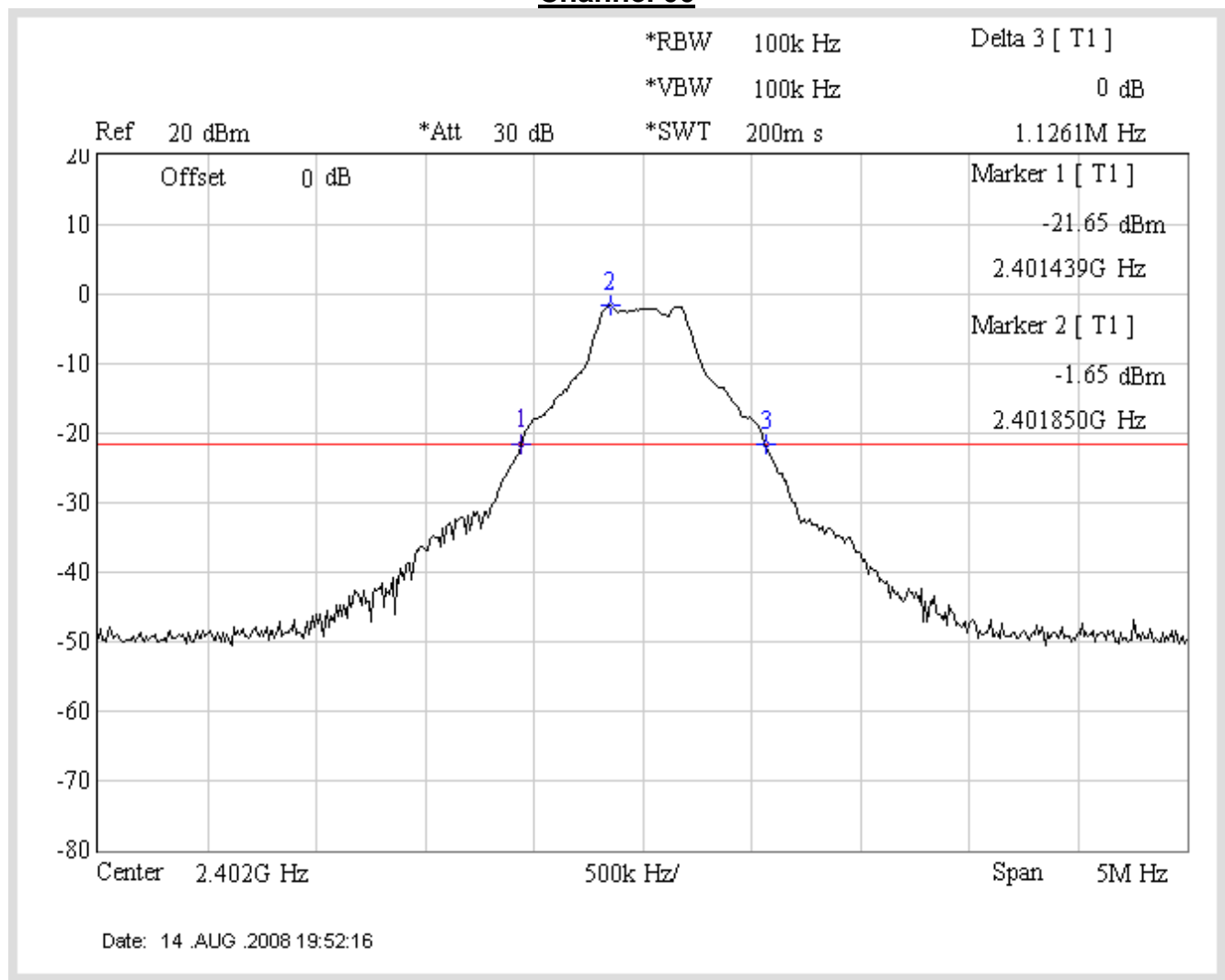
9.6. Test Result

Product	Class2 USB Bluetooth adapter		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2008/08/14	Test Site	No.1 OATS

1M-GFSK Modulation, PRBS Packet Type

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402.00	1.1261	--	Pass

Channel 00

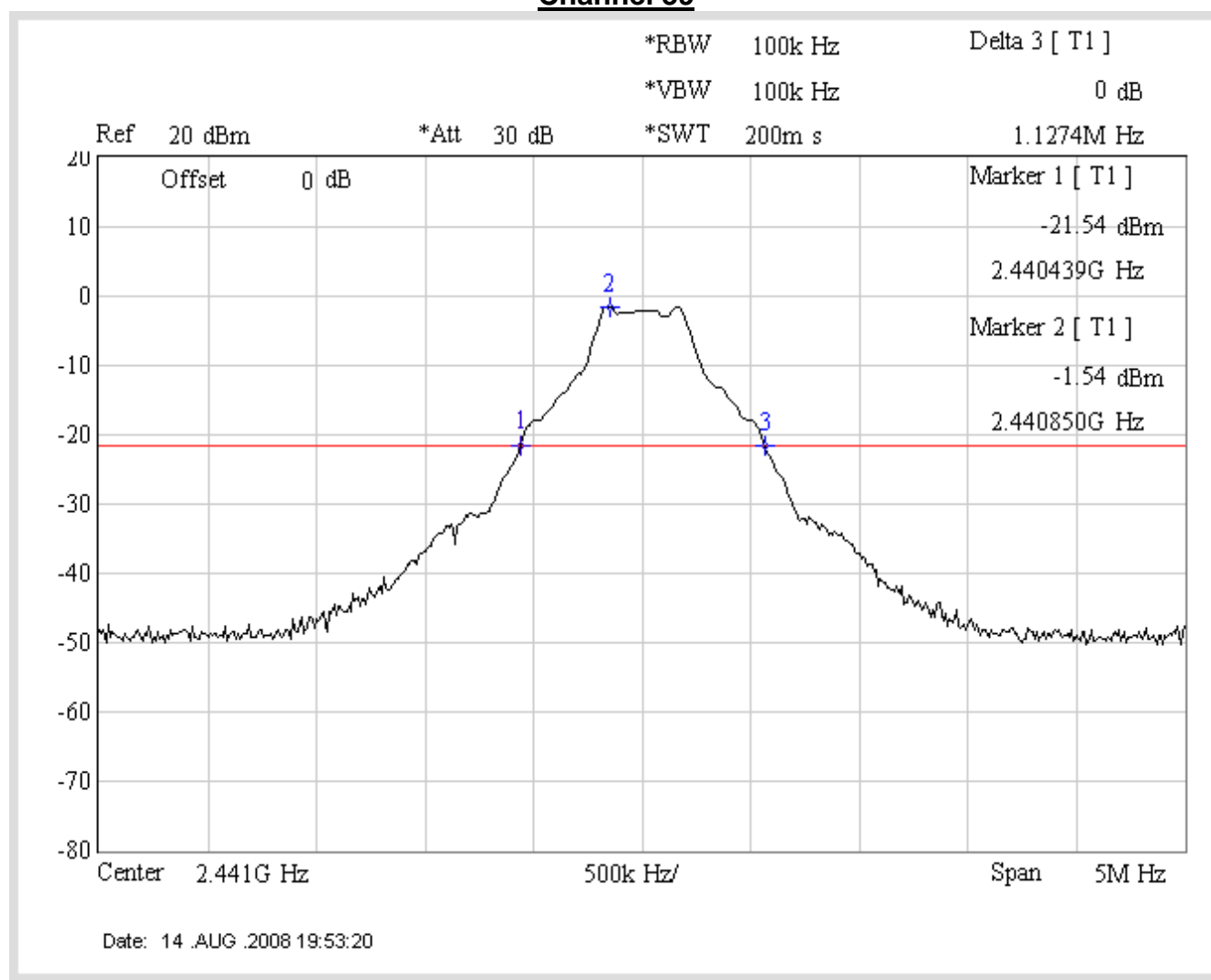


Product	Class2 USB Bluetooth adapter		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2008/08/14	Test Site	No.1 OATS

1M-GFSK Modulation, PRBS Packet Type (99%)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
39	2441.00	1.1274	--	Pass

Channel 39

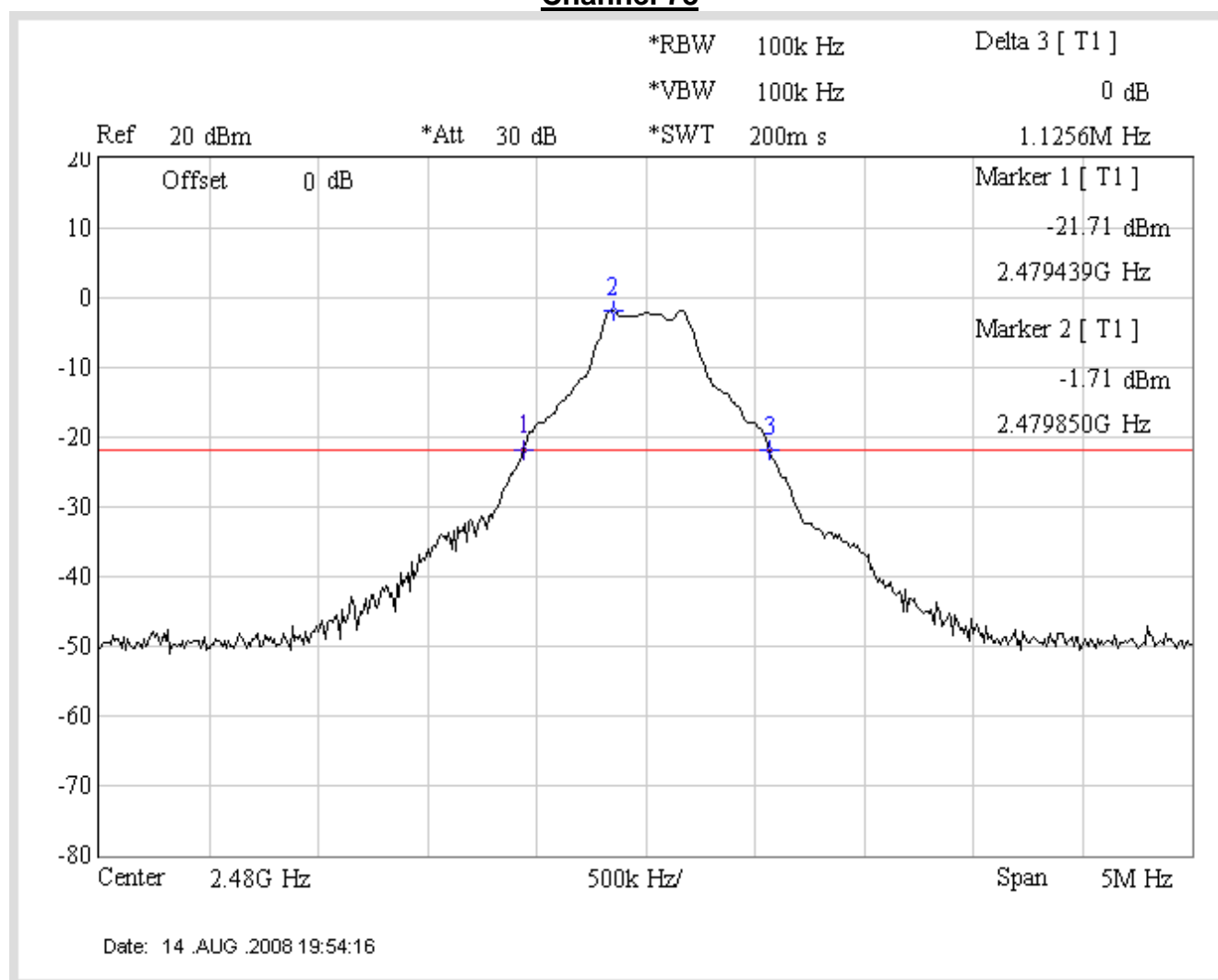


Product	Class2 USB Bluetooth adapter		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2008/02/18	Test Site	No.1 OATS

1M-GFSK Modulation, PRBS Packet Type

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
78	2480.00	1.1256	--	Pass

Channel 78



10. Dwell Time

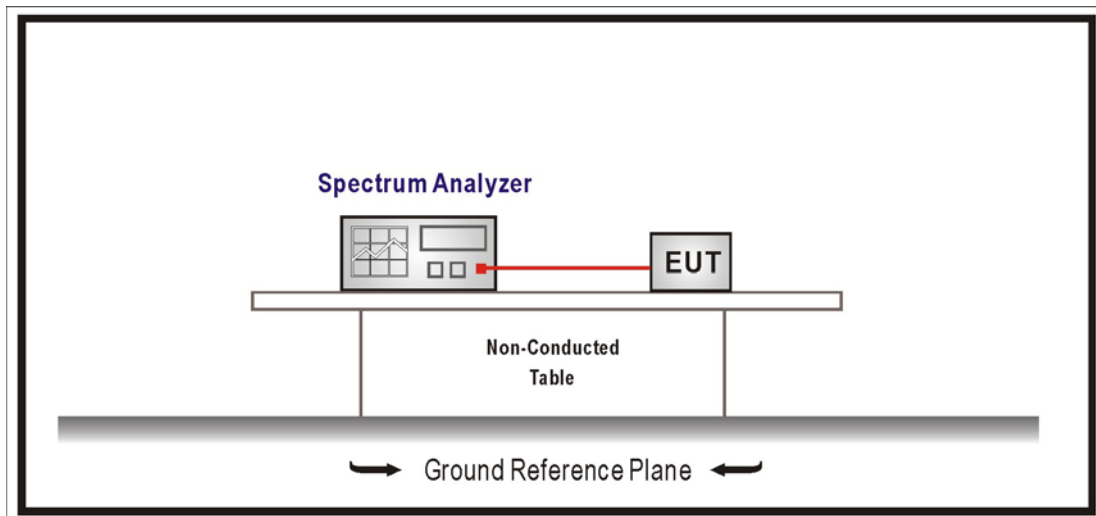
10.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2008
2	No.1 OATS			Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

10.2. Test Setup



10.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. For frequency hopping systems operating in the 2400-2483.5 MHz bands. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. For frequency hopping systems operating in the 5725-5850 MHz bands. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

10.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = zero span, centered on a hopping channel

RBW = 1 MHz, VBW \geq RBW

Sweep = as necessary to capture the entire dwell time per hopping channel

Detector function = peak, Trace = max hold

10.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2006

10.6. Test Result

Product	Class2 USB Bluetooth adapter		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit		
Date of Test	2008/08/14	Test Site	No.1 OATS

Occupancy Time of Frequency Hopping System-DH 5

A) 2402MHz Test Time Period: $0.4 \times 79 = 31.6\text{sec}$, Hopping Times Within 1sec: $5/20\text{msec} = 250 / \text{sec}$

The Maximum Occupancy Time Within 31.6sec: $0.00296 \times (250/79) \times 31.6 = 0.296\text{sec}$.

B) 2441MHz Test Time Period: $0.4 \times 79 = 31.6\text{sec}$, Hopping Times Within 1sec: $5/20\text{msec} = 250 / \text{sec}$

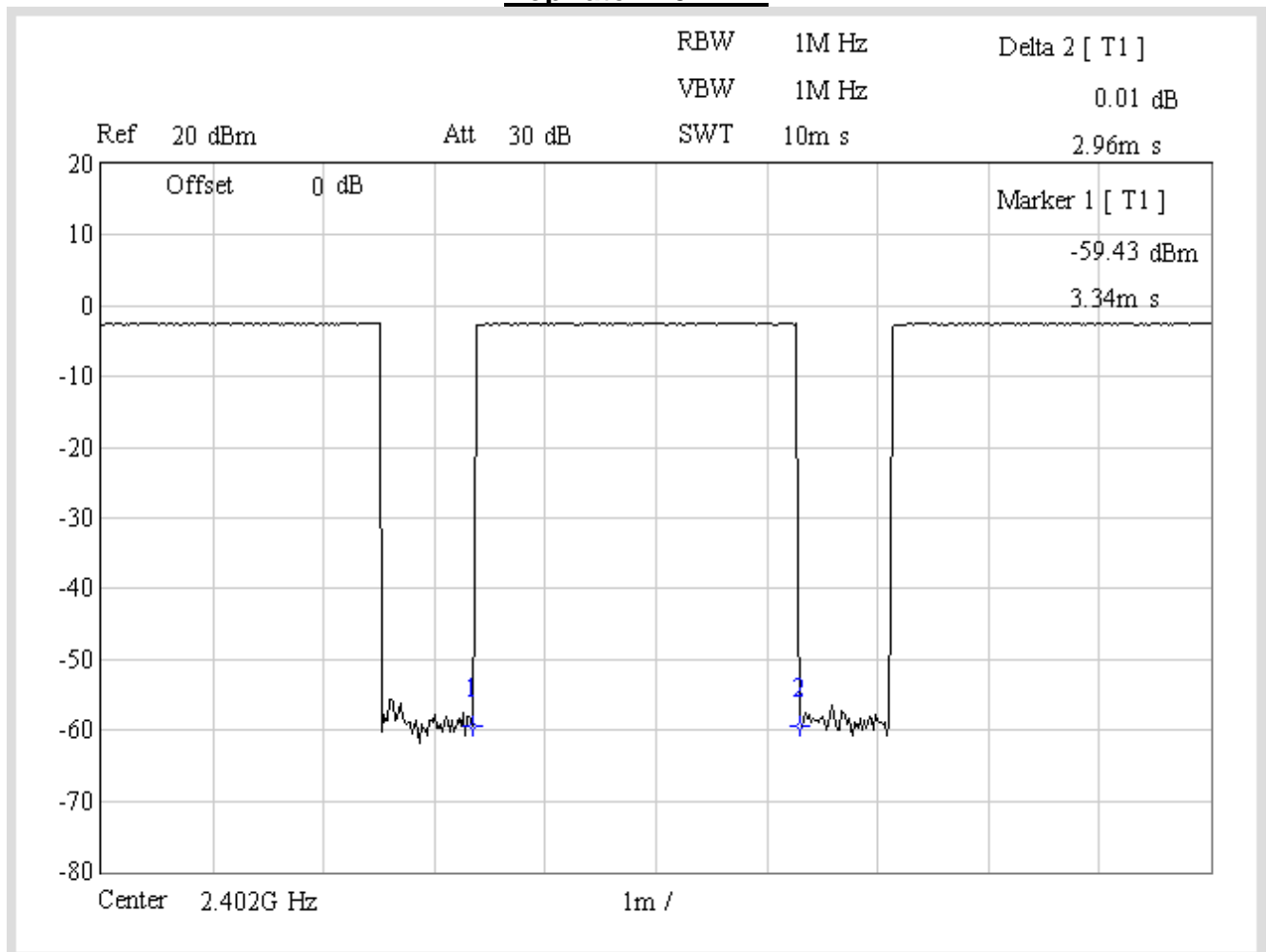
The Maximum Occupancy Time Within 31.6sec: $0.003 \times (250/79) \times 31.6 = 0.3\text{sec}$.

C) 2480MHz Test Time Period: $0.4 \times 79 = 31.6\text{sec}$, Hopping Times Within 1sec: $5/20\text{msec} = 250 / \text{sec}$

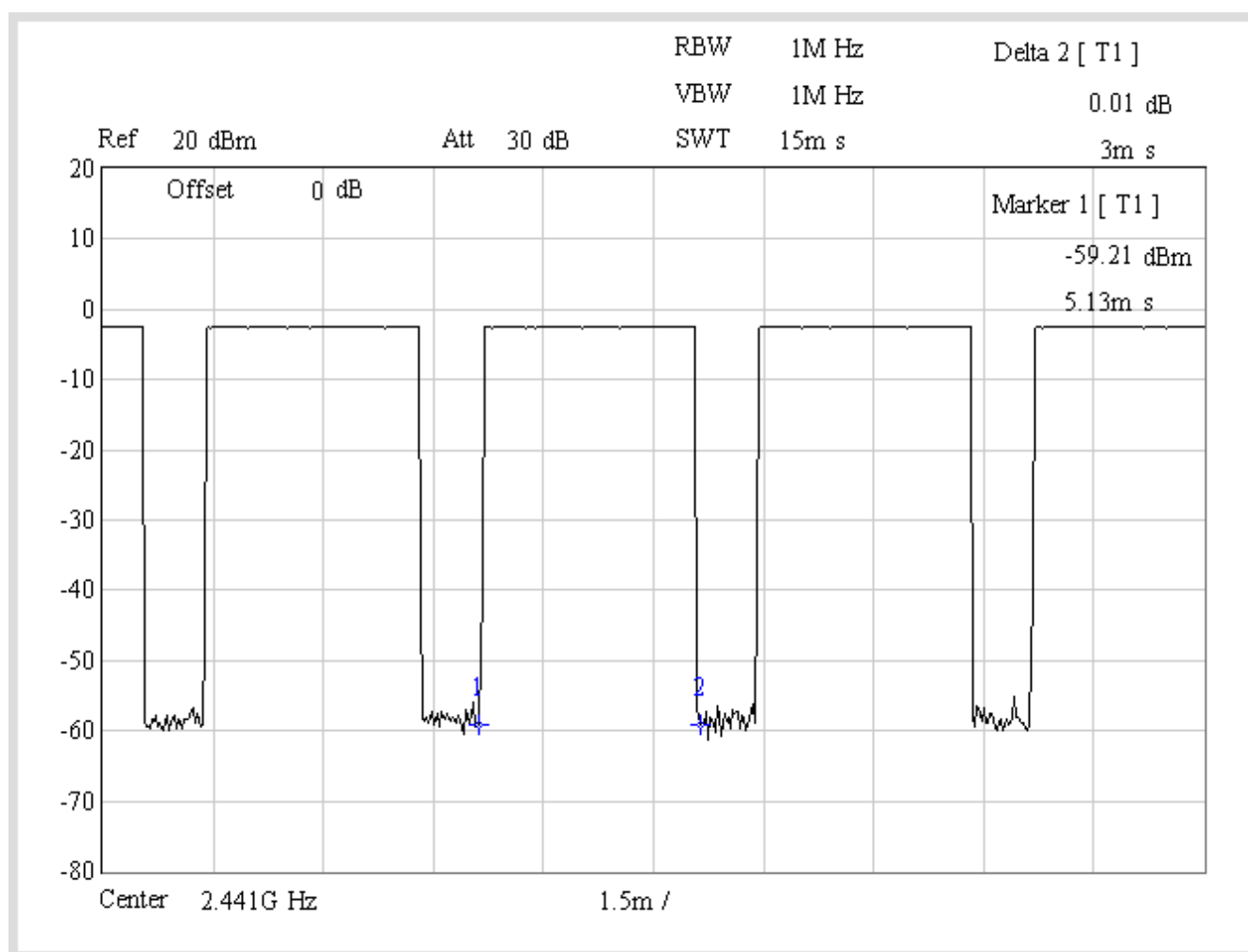
The Maximum Occupancy Time Within 31.6sec: $0.00293 \times (250/79) \times 31.6 = 0.293\text{sec}$.

Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard .

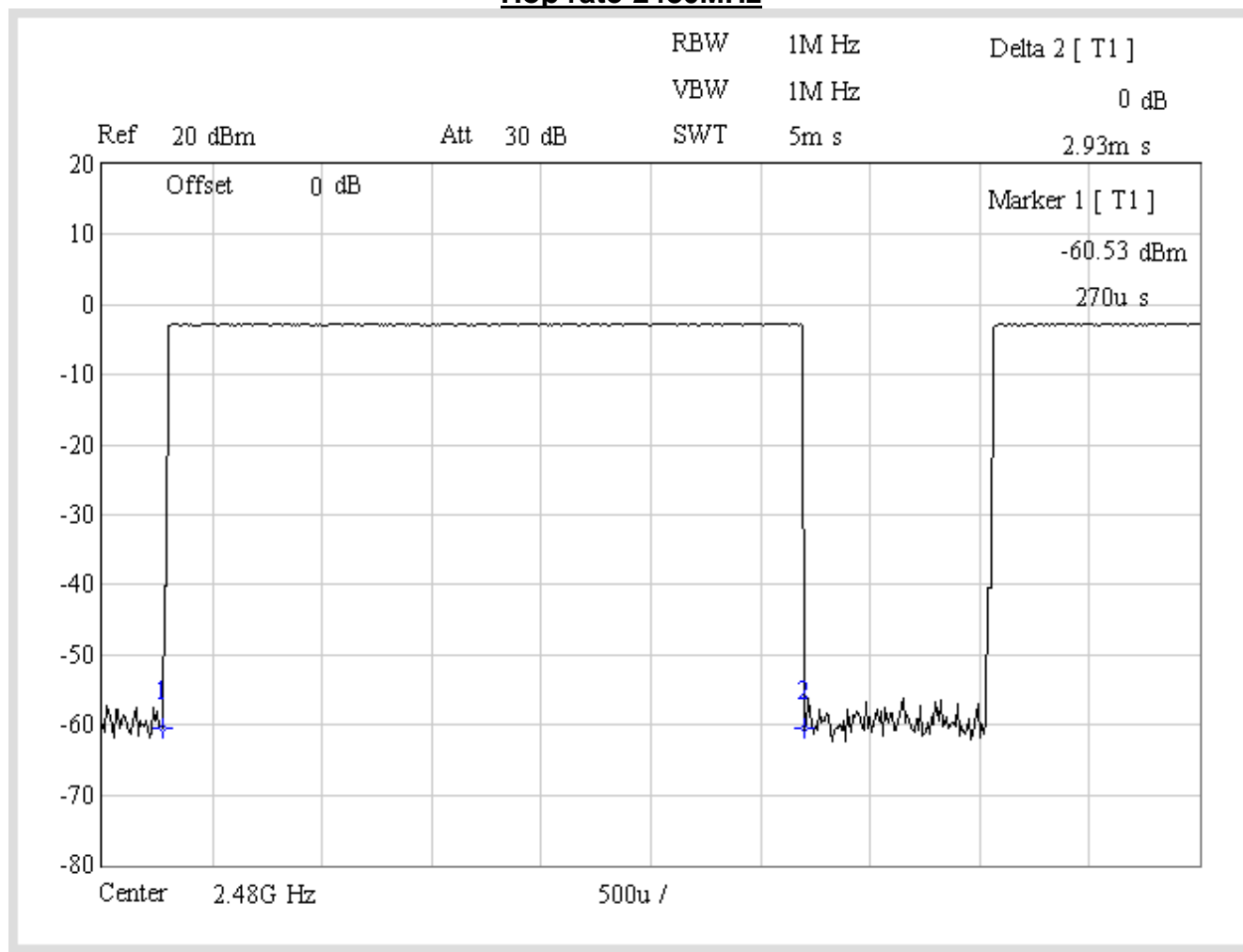
Hop rate-2402MHz



Hop rate-2441MHz



Hop rate-2480MHz



Note: Dwell time = time slot length * hop rate / number of hopping channels * period

Time slot length

