Test Report

Product Name	Notebook
Model No.	MS-N011, U100, MS-N811, U90
FCC ID.	I4L-MS6837D1

Applicant	MICRO-STAR INTL Co., LTD.
Address	No. 69, Li-De St., Jung-He City, Taipei Hsien, Taiwan, R.O.C.

Date of Receipt	May 12, 2008
Issued Date	June 09, 2008
Report No.	085187R-RFUSP06V01
Version	V1.0

Test Report Certification

Issued Date: June 09, 2008
Report No.: 085187R-RFUSP06V01

Accredited by NIST (NVLAP)
NVLAP Lab Code: 200533-0

Product Name	Notebook
Applicant	MICRO-STAR INTL Co., LTD.
Address	No. 69, Li-De St., Jung-He City, Taipei Hsien, Taiwan, R.O.C.
Manufacturer	MICRO-STAR INTL Co., LTD.
Model No.	MS-N011, U100, MS-N811, U90
FCC ID.	I4L-MS6837D1
Rated Voltage	AC 120V/60Hz
Working Voltage	DC 5V(Power by USB)
Trade Name	MSI
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2007 ANSI C63.4: 2003
Test Result	Complied

NVLAP Lab Code: 200533-0

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.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

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Approved By :
(Deputy Manager /Vincent Lin)

Testing Laboratory
0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Notebook
Trade Name	MSI
FCC ID.	I4L-MS6837D1
Model No.	MS-N011, U100, MS-N811, U90
Frequency Range	2402 – 2480MHz
Channel Number	79
Type of Modulation	GFSK(1Mbps)/ π/4DQPSK(2Mbps) / 8DPSK(3Mbps)
Antenna Type	Printed on PCB
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	MSI	N/A	-0.54 dBi for 2.4 GHz

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 hopsets 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 an Notebook with a built-in 2.4GHz BluetoothVer.2.0+EDR transceiver.
2. The EUT is including four models for different marketing requirement.
3. These tests were conducted on a sample for the purpose of demonstrating compliance of bluetooth transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
4. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.2. Operational Description

The EUT is a Notebook with built-in 2.4GHz BluetoothVer.2.0+EDR transceiver. The number of the channels is 79 in 2402-2480MHz. The device adapts the frequency hopping spread spectrum modulation. The antenna is Printed on PCB and provides diversity function to improve the receiving function.

This device provides wireless technology that revolutionizes personal connectivity. It is the solution for the seamless integration of Bluetooth technology into personal computer enabling short-range wireless connections between desktop/laptop computers, Bluetooth-enabled peripherals, and portable handheld devices.

Test Mode	Mode 1: Transmitter - 1Mbps (GFSK) Mode 2: Transmitter - 3Mbps (8DPSK)

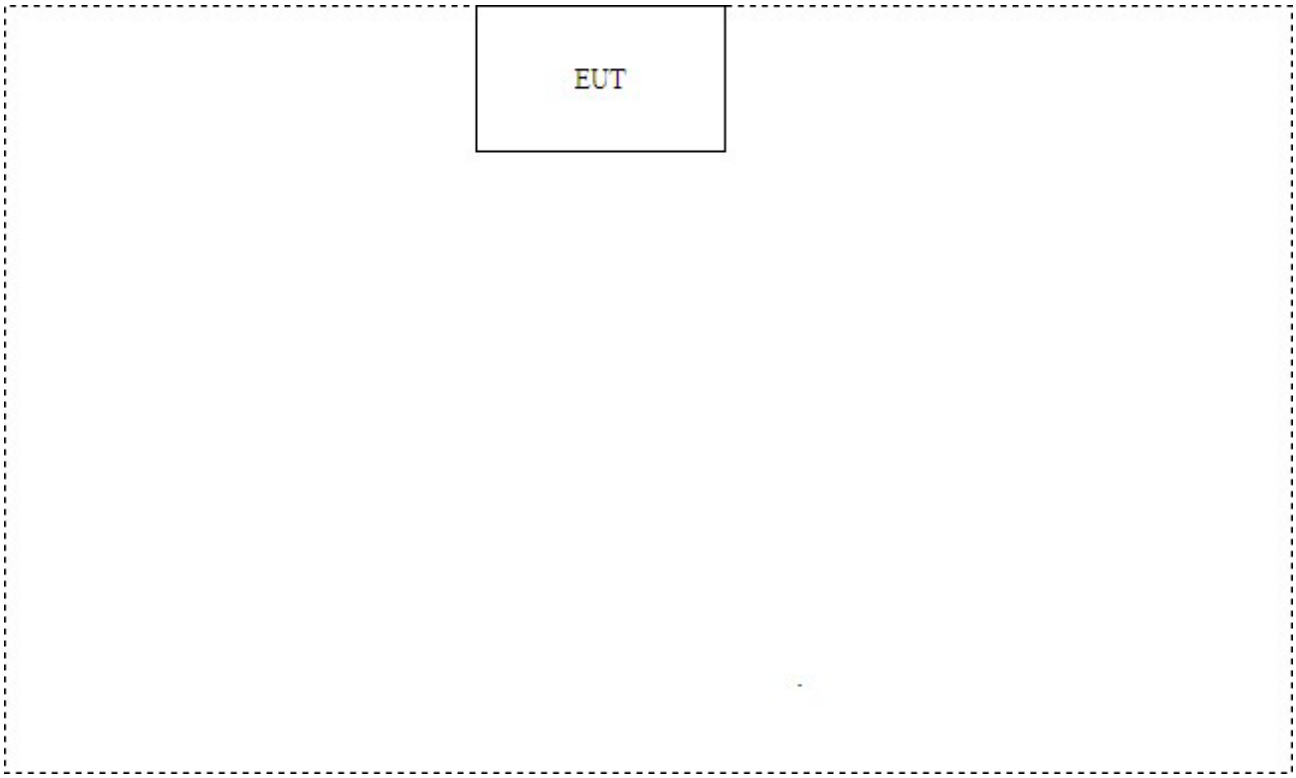
1.3. Tested System Details

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

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1.	N/A	N/A	N/A	N/A	N/A

	Signal Cable Type	Signal cable Description
A.	N/A	N/A

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1 Setup the EUT and simulators as shown on 1.4.

2 Turn on the power of all equipment.

3 Messages will be transmitted and received through EUT.

4 Test is based on the mandatory continuous transmitter.

5 Repeat the above procedure (3) to (4).

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	30-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://tw.quietek.com/modules/myalbum/
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

Site Description:

File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation
Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

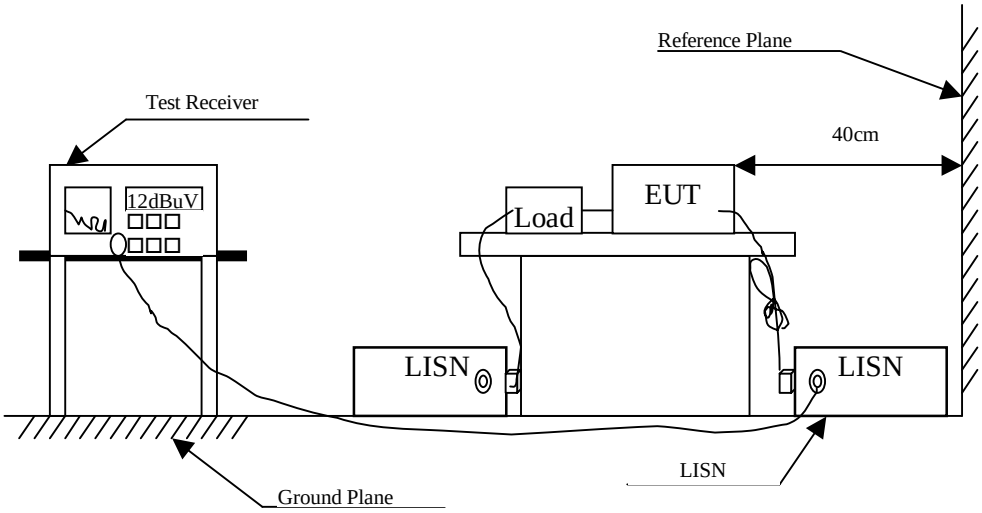
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/014	Feb., 2008	
2	L.I.S.N.	R & S	ESH3-Z5/825562/002	Feb., 2008	EUT
3	L.I.S.N.	R & S	ENV4200/848411/010	Feb., 2008	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2/100410	July, 2007	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	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 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 refer 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 the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

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

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

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : Notebook
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK) (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.181	0.780	40.780	41.560	-23.554	65.114
0.341	0.300	43.000	43.300	-17.243	60.543
1.716	0.335	40.170	40.505	-15.495	56.000
3.365	0.380	41.720	42.100	-13.900	56.000
3.982	0.400	44.320	44.720	-11.280	56.000
24.189	1.180	37.160	38.340	-21.660	60.000
Average					
0.181	0.780	18.780	19.560	-35.554	55.114
0.341	0.300	41.390	41.690	-8.853	50.543
1.716	0.335	39.470	39.805	-6.195	46.000
3.365	0.380	36.390	36.770	-9.230	46.000
3.982	0.400	37.910	38.310	-7.690	46.000
24.189	1.180	28.560	29.740	-20.260	50.000

Note:

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

Product : Notebook
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK) (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.220	0.300	35.760	36.060	-27.940	64.000
1.029	0.320	39.820	40.140	-15.860	56.000
1.236	0.330	39.950	40.280	-15.720	56.000
3.572	0.390	42.680	43.070	-12.930	56.000
4.052	0.400	45.750	46.150	-9.850	56.000
23.904	1.058	39.910	40.968	-19.032	60.000
Average					
0.220	0.300	18.480	18.780	-35.220	54.000
1.029	0.320	39.370	39.690	-6.310	46.000
1.236	0.330	39.230	39.560	-6.440	46.000
3.572	0.390	38.120	38.510	-7.490	46.000
4.052	0.400	37.170	37.570	-8.430	46.000
23.904	1.058	33.120	34.178	-15.822	50.000

Note:

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

Product : Notebook
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK) (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.150	0.300	43.580	43.880	-22.120	66.000
0.162	0.492	41.300	41.792	-23.865	65.657
0.205	0.615	45.540	46.155	-18.274	64.429
0.412	0.300	44.630	44.930	-13.584	58.514
2.404	0.350	40.970	41.320	-14.680	56.000
4.052	0.400	45.890	46.290	-9.710	56.000
Average					
0.150	0.300	24.360	24.660	-31.340	56.000
0.162	0.492	18.920	19.412	-36.245	55.657
0.205	0.615	39.790	40.405	-14.024	54.429
0.412	0.300	44.290	44.590	-3.924	48.514
2.404	0.350	39.930	40.280	-5.720	46.000
4.052	0.400	37.650	38.050	-7.950	46.000

Note:

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

Product : Notebook
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK) (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.412	0.310	45.400	45.710	-12.804	58.514
0.548	0.310	39.570	39.880	-16.120	56.000
1.716	0.340	40.930	41.270	-14.730	56.000
4.052	0.400	45.970	46.370	-9.630	56.000
23.498	1.040	39.280	40.320	-19.680	60.000
24.388	1.080	39.820	40.900	-19.100	60.000
Average					
0.412	0.310	44.990	45.300	-3.214	48.514
0.548	0.310	38.700	39.010	-6.990	46.000
1.716	0.340	40.270	40.610	-5.390	46.000
4.052	0.400	37.480	37.880	-8.120	46.000
23.498	1.040	32.620	33.660	-16.340	50.000
24.388	1.080	33.790	34.870	-15.130	50.000

Note:

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

3. Peak Power Output

3.1. Test Equipment

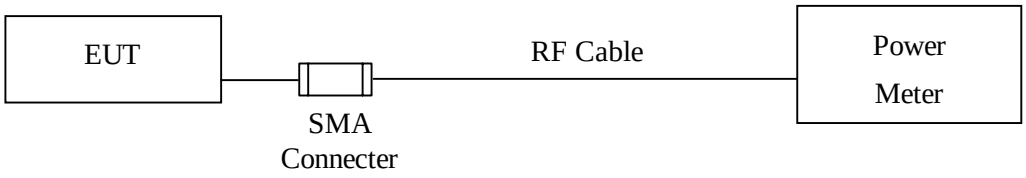
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2008
X	Power Sensor	Anritsu	MA2491A/034457	May, 2008

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

3.2. Test Setup



3.3. Limit

The maximum peak power shall be less 1Watt.

3.4. Test Procedure

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

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Power Output

Product : Notebook
Test Item : Peak Power Output
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

Channel No.	Frequency (MHz)	Measurement	Required Limit	Result
Channel 00	2402.00	1.16dBm	1 Watt= 30 dBm	Pass
Channel 39	2441.00	2.01dBm	1 Watt= 30 dBm	Pass
Channel 78	2480.00	2.64dBm	1 Watt= 30 dBm	Pass

Product : Notebook
Test Item : Peak Power Output
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

Channel No.	Frequency (MHz)	Measurement	Required Limit	Result
Channel 00	2402.00	1.36dBm	1 Watt= 30 dBm	Pass
Channel 39	2441.00	1.63dBm	1 Watt= 30 dBm	Pass
Channel 78	2480.00	1.88dBm	1 Watt= 30 dBm	Pass

4. Radiated Emission

4.1. Test Equipment

The following test equipments are used during the radiated emission test:

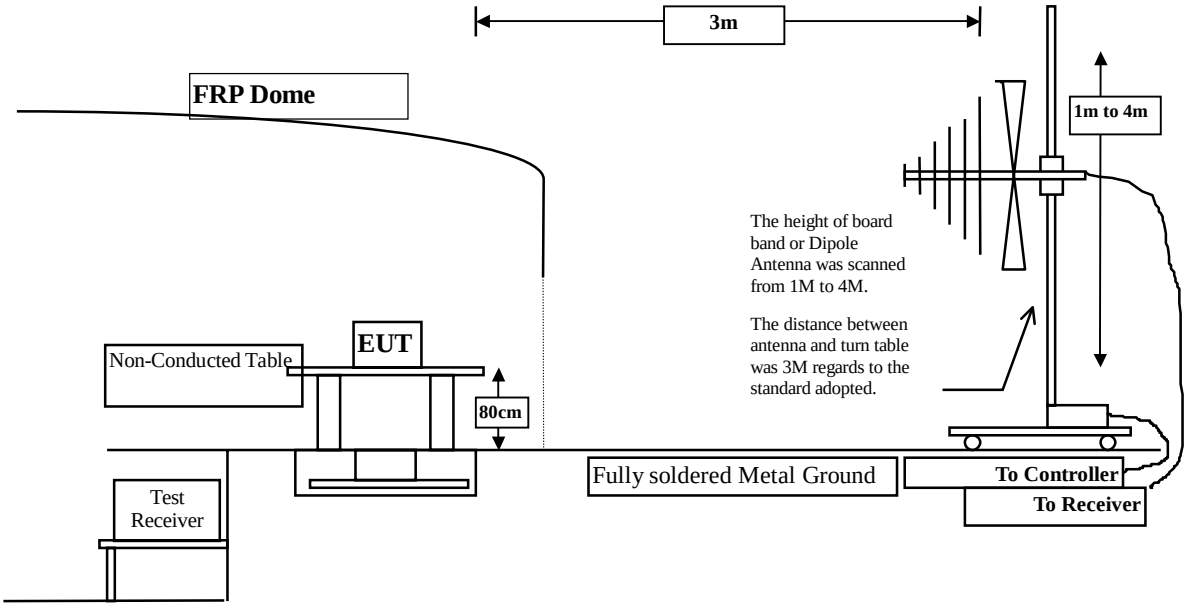
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2007
	X	Pre-Amplifier	HP	8447D/2944A09549	Sep., 2007
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2007
	X	Spectrum Analyzer	HP	E4407B / US39440758	May, 2008
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2008
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated every one year.

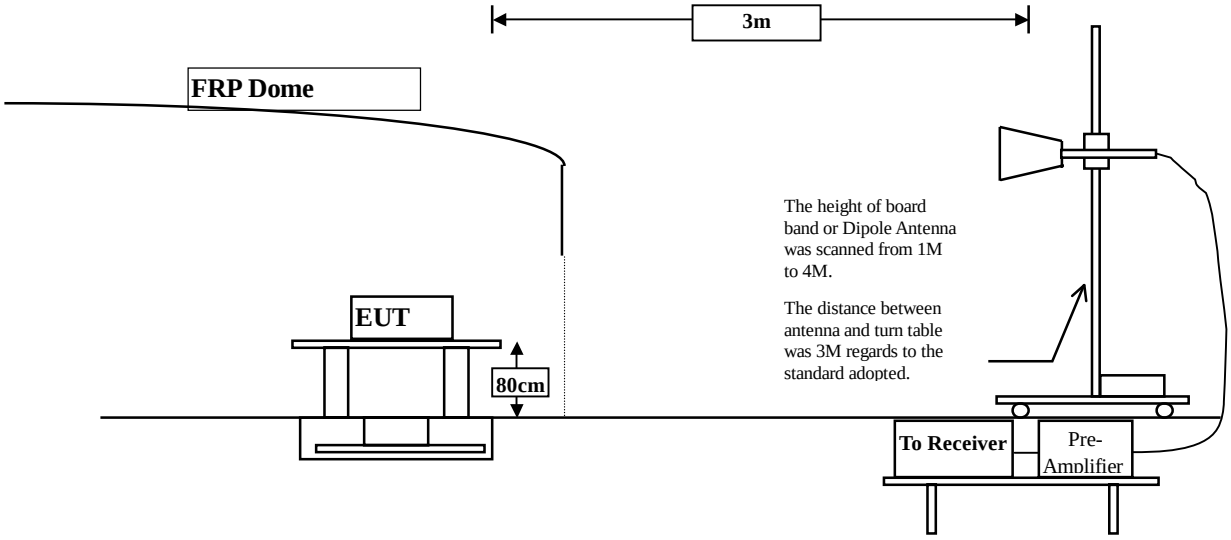
2. The test instruments marked by "X" are used to measure the final test results.

4.2. Test Setup

Below 1GHz



Above 1GHz



4.3. Limits

➢ **General Radiated Emission 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 @3m	dBuV/m@3m
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 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 is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 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 is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The frequency range from 30MHz to 10th harminics is checked.

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : Notebook
Test Item : Harmonic Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)(2402MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4804.000	-0.205	45.630	45.425	-28.575	74.000
7206.000	3.294	41.870	45.164	-28.836	74.000
9608.000	5.696	42.070	47.766	-26.234	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4804.000	-0.205	41.950	41.745	-32.255	74.000
7206.000	3.294	41.790	45.084	-28.916	74.000
9608.000	5.696	45.190	50.886	-23.114	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. 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.

Product : Notebook
Test Item : Harmonic Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)(2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4882.000	-0.276	44.590	44.314	-29.686	74.000
7323.000	3.330	41.360	44.689	-29.311	74.000
9764.000	6.262	43.500	49.763	-24.237	74.000
Average Detector:					
--					
Vertical Peak Detector:					
4882.000	-0.276	42.020	41.744	-32.256	74.000
7323.000	3.330	41.420	44.749	-29.251	74.000
9764.000	6.262	43.810	50.073	-23.927	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. 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.

Product : Notebook
Test Item : Harmonic Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)(2480MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4960.000	0.591	45.230	45.821	-28.179	74.000
7440.000	3.924	41.070	44.994	-29.006	74.000
9920.000	6.468	43.020	49.488	-24.512	74.000
Average Detector:					
--					
Vertical Peak Detector:					
4960.000	0.591	41.710	42.301	-31.699	74.000
7440.000	3.924	41.250	45.174	-28.826	74.000
9920.000	6.468	44.590	51.058	-22.942	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. 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.

Product : Notebook
Test Item : Harmonic Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)(2402MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4804.000	-0.205	43.220	43.015	-30.985	74.000
7206.000	3.294	41.950	45.244	-28.756	74.000
9608.000	5.696	42.330	48.026	-25.974	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4804.000	-0.205	42.490	42.285	-31.715	74.000
7206.000	3.294	42.350	45.644	-28.356	74.000
9608.000	5.696	44.566	50.262	-23.738	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. 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.

Product : Notebook
Test Item : Harmonic Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK) (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4882.000	-0.276	42.250	41.974	-32.026	74.000
7323.000	3.330	43.560	46.889	-27.111	74.000
9764.000	6.262	44.100	50.363	-23.637	74.000
Average Detector:					
--					
Vertical Peak Detector:					
4882.000	-0.276	42.890	42.614	-31.386	74.000
7323.000	3.330	44.266	47.595	-26.405	74.000
9764.000	6.262	44.570	50.833	-23.167	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. 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.

Product : Notebook
Test Item : Harmonic Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK) (2480MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4960.000	0.591	42.470	43.061	-30.939	74.000
7440.000	3.924	42.260	46.184	-27.816	74.000
9920.000	6.468	43.500	49.968	-24.032	74.000
Average Detector:					
--					
Vertical Peak Detector:					
4960.000	0.591	43.590	44.181	-29.819	74.000
7440.000	3.924	42.560	46.484	-27.516	74.000
9920.000	6.468	44.860	51.328	-22.672	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. 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.

Product : Notebook
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)(2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
214.590	9.346	17.153	26.500	-17.000	43.500
358.740	15.284	5.295	20.580	-25.420	46.000
369.850	15.806	10.774	26.580	-19.420	46.000
547.600	20.446	4.153	24.600	-21.400	46.000
741.600	20.878	5.972	26.850	-19.150	46.000
825.600	21.864	2.735	24.600	-21.400	46.000
Vertical					
159.600	9.858	15.942	25.800	-17.700	43.500
357.400	15.921	8.879	24.800	-21.200	46.000
514.600	18.713	4.868	23.580	-22.420	46.000
625.400	21.140	4.160	25.300	-20.700	46.000
741.500	23.261	3.589	26.850	-19.150	46.000
852.400	21.777	-0.037	21.740	-24.260	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product : Notebook
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
152.800	11.375	14.925	26.300	-17.200	43.500
296.300	13.966	9.613	23.580	-22.420	46.000
478.500	18.930	7.470	26.400	-19.600	46.000
638.400	20.997	3.903	24.900	-21.100	46.000
714.300	20.577	2.983	23.560	-22.440	46.000
812.580	21.612	3.278	24.890	-21.110	46.000
Vertical					
158.960	9.837	14.013	23.850	-19.650	43.500
269.500	14.019	7.181	21.200	-24.800	46.000
452.600	18.733	7.467	26.200	-19.800	46.000
488.960	18.524	8.360	26.885	-19.115	46.000
654.250	20.035	3.365	23.400	-22.600	46.000
775.600	22.344	2.456	24.800	-21.200	46.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

5. RF Antenna Conducted Test

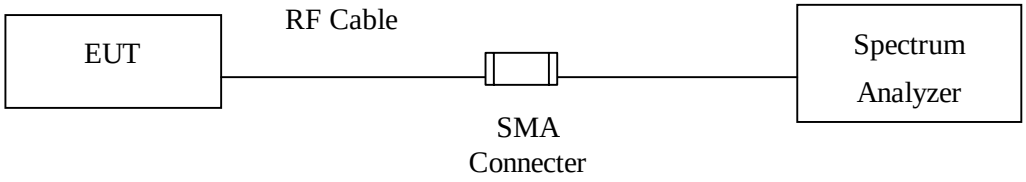
5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R & S	FSP40 / 100170	Nov, 2007

Note: 1. All equipments are calibrated every one year.

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

5.2. Test Setup



5.3. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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 measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.4. Test Procedure

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

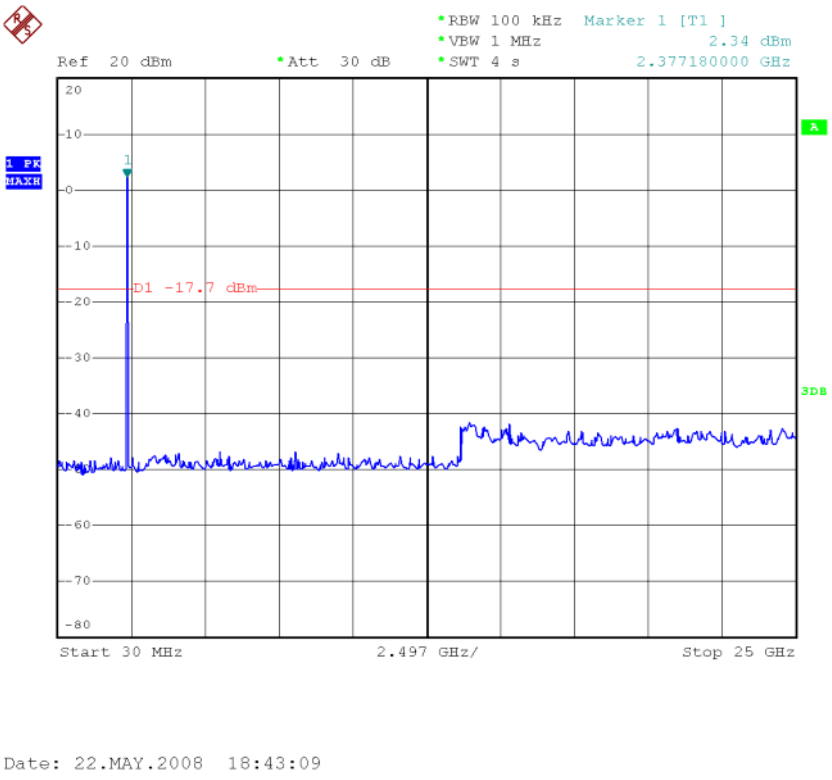
5.5. Uncertainty

± 150Hz

5.6. Test Result of RF Antenna Conducted Test

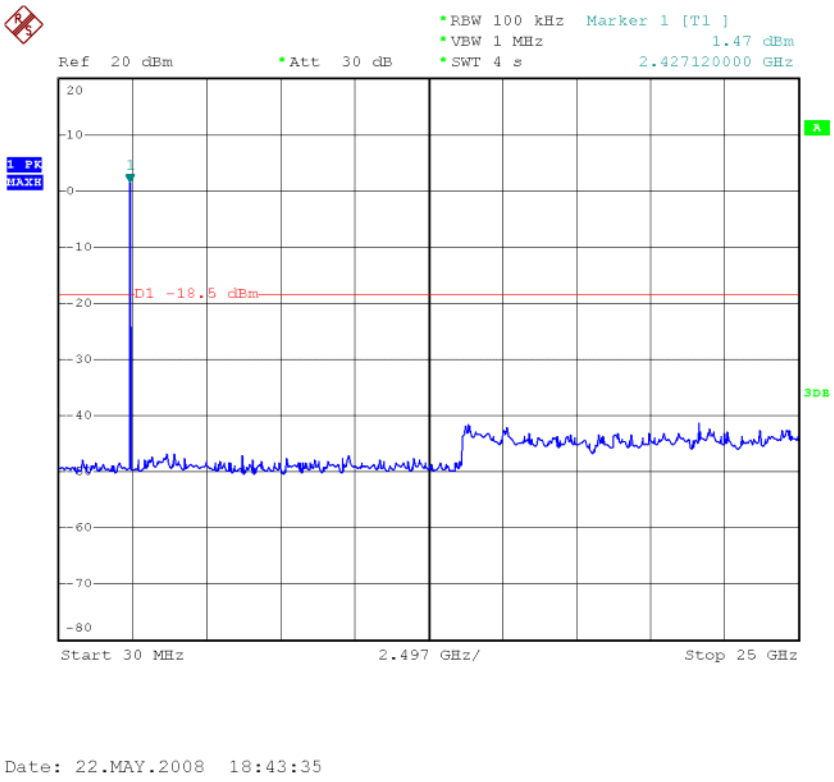
Product : Notebook
Test Item : RF Antenna Conducted Test
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

Figure Channel 00: 30MHz-25GHz



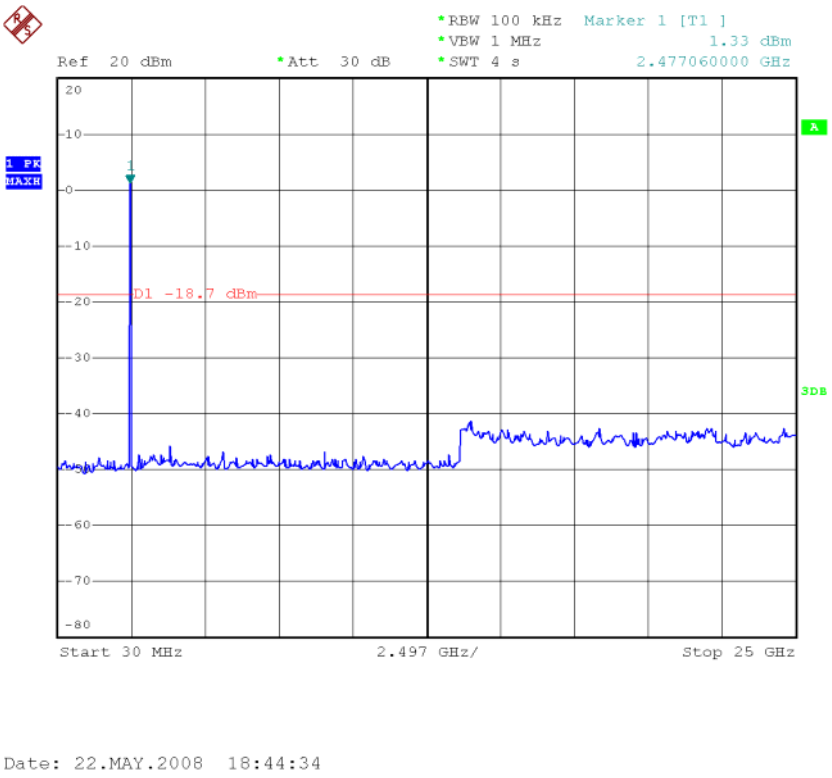
Product : Notebook
Test Item : RF Antenna Conducted Test
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

Figure Channel 39: 30MHz-25GHz



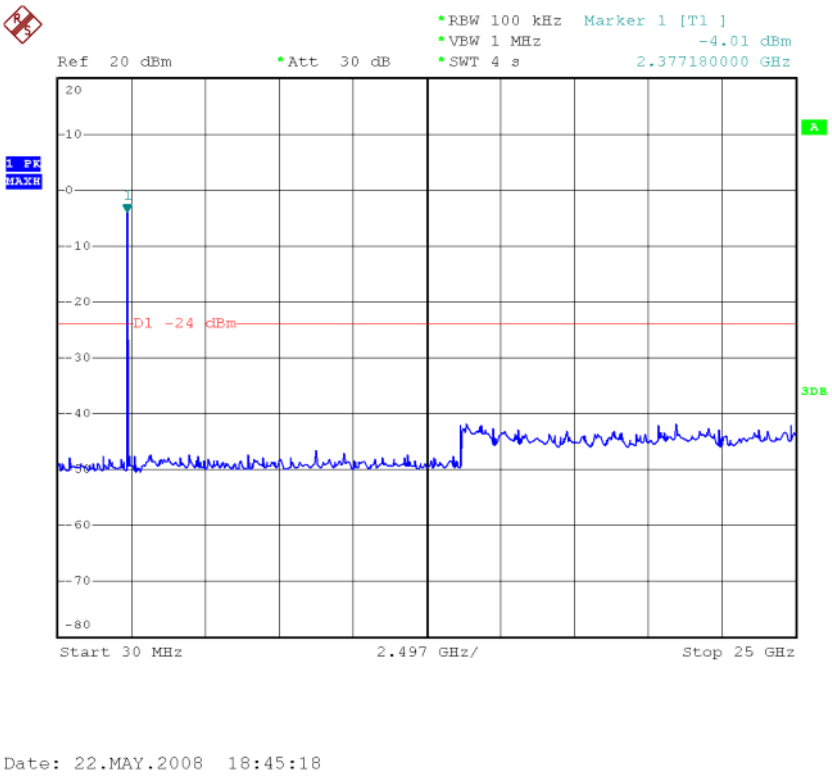
Product : Notebook
Test Item : RF Antenna Conducted Test
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

Figure Channel 78: 30MHz-25GHz



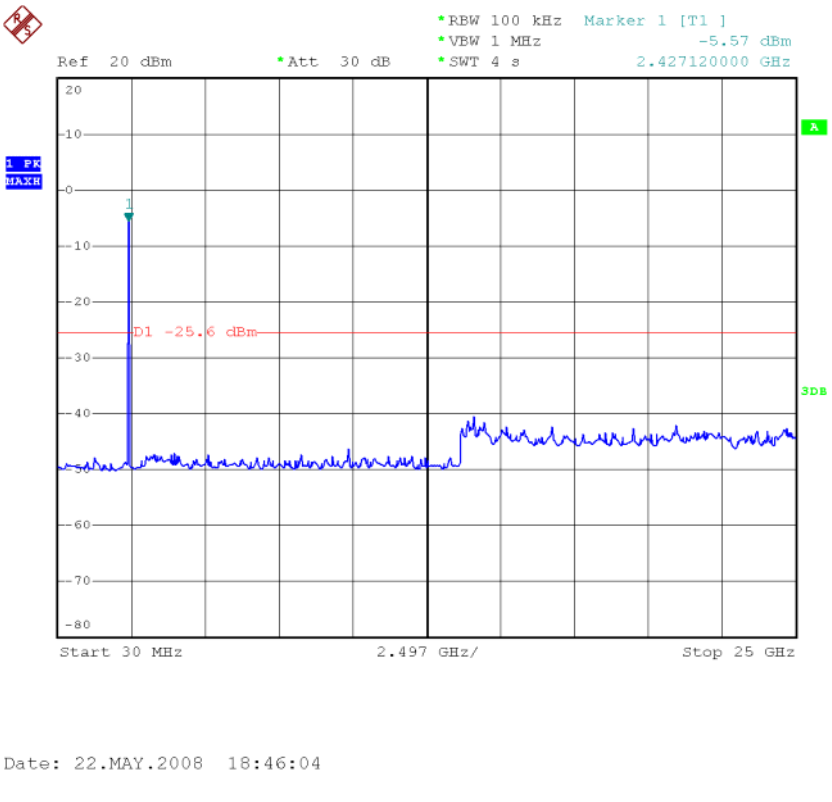
Product : Notebook
Test Item : RF Antenna Conducted Test
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

Figure Channel 00: 30MHz-25GHz



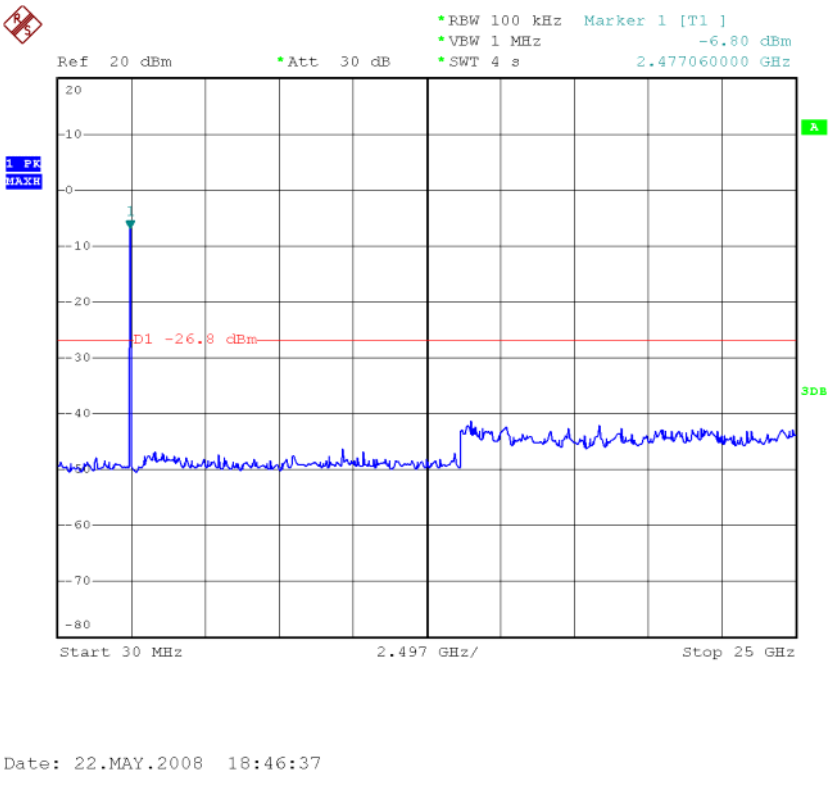
Product : Notebook
Test Item : RF Antenna Conducted Test
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

Figure Channel 39: 30MHz-25GHz



Product : Notebook
Test Item : RF Antenna Conducted Test
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

Figure Channel 78: 30MHz-25GHz



6. Band Edge

6.1. Test Equipment

The following test equipments are used during the band edge tests:

Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2007
	X	Pre-Amplifier	HP	8447D/2944A09549	Sep., 2007
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2007
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2008
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

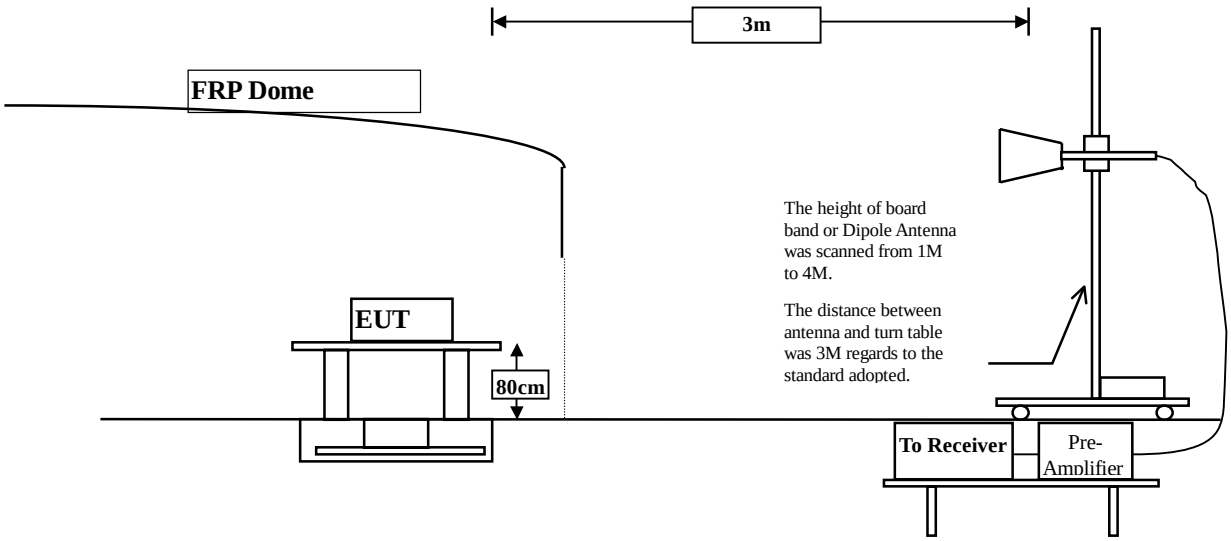
Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Radiated Measurement:

Above 1GHz



6.3. Limit

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)).

6.4. 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 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.
The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.
The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

6.5. Uncertainty

± 3.9 dB above 1GHz
± 3.8 dB below 1GHz

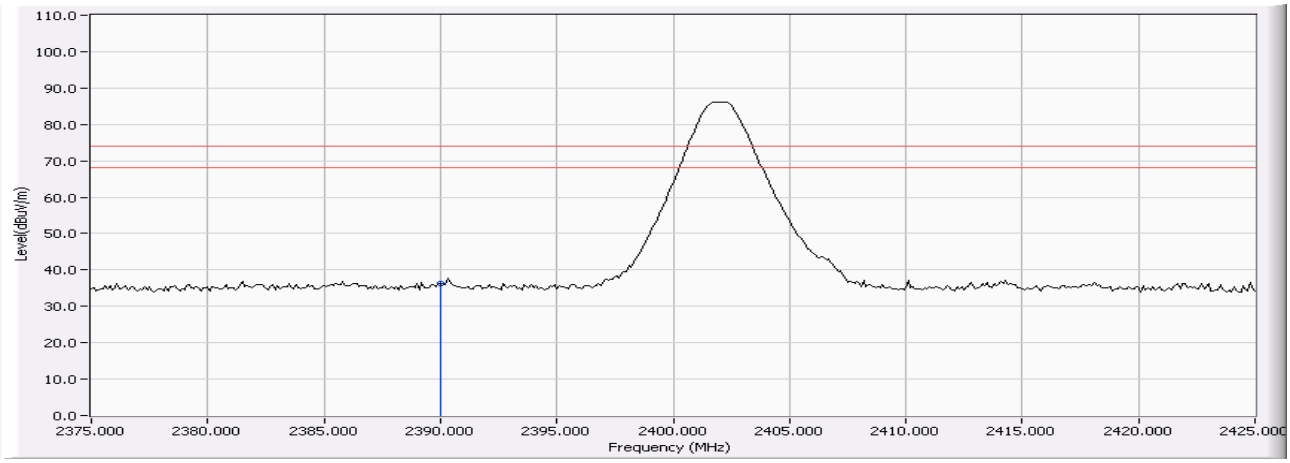
6.6. Test Result of Band Edge

Product : Notebook
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
00 (Peak)	2390.000	-6.769	42.950	36.182	74.00	54.00	Pass

Figure Channel 00: Horizontal (Peak)



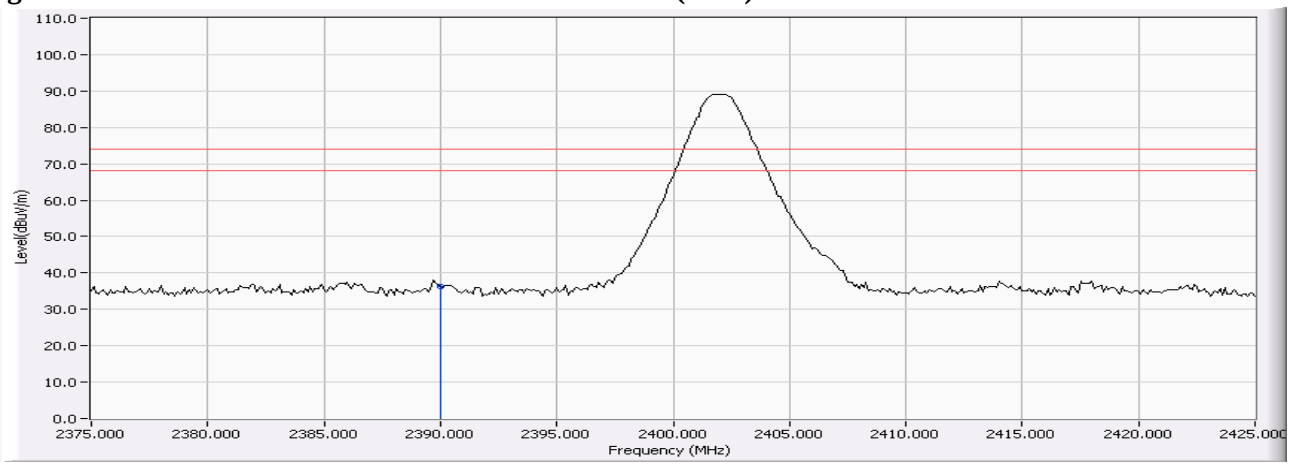
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
00 (Peak)	2390.000	-6.769	43.076	36.308	74.00	54.00	Pass

Figure Channel 00: Vertical (Peak)



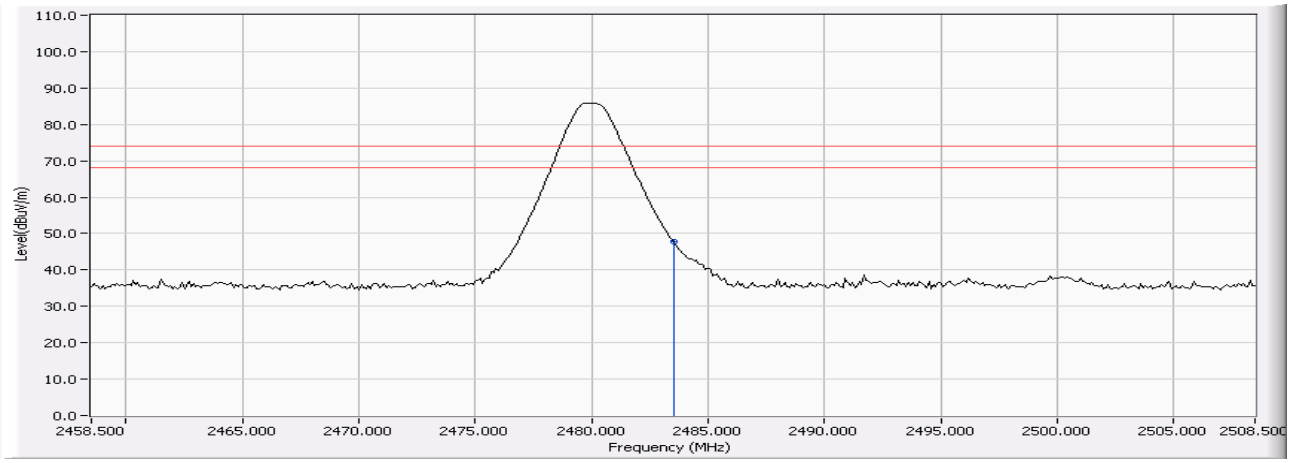
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
78 (Peak)	2483.500	-6.469	54.284	47.816	74.00	54.00	Pass

Figure Channel 78: Horizontal (Peak)



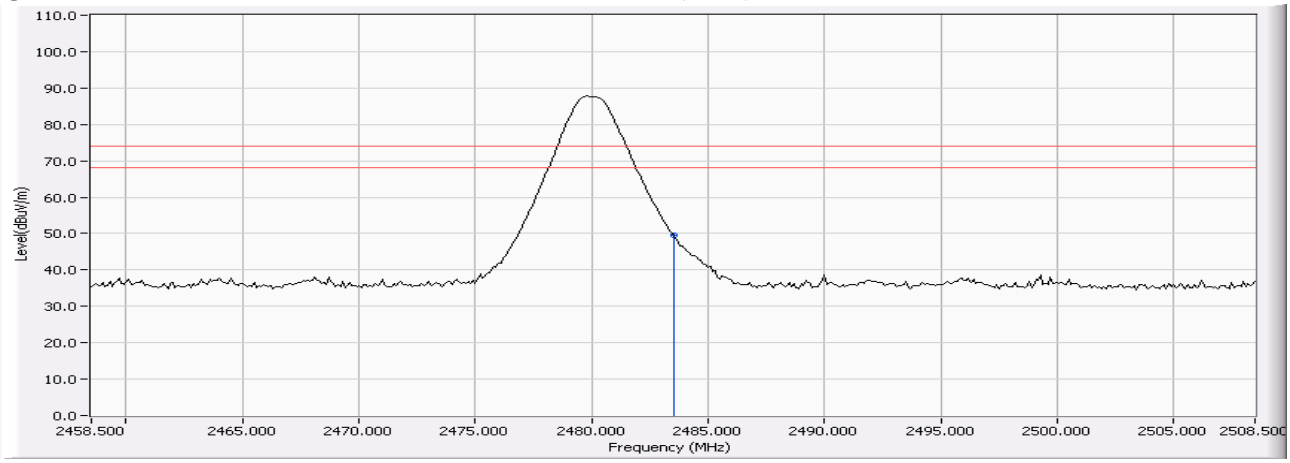
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
78 (Peak)	2483.500	-6.469	55.872	49.404	74.00	54.00	Pass

Figure Channel 78: Vertical (Peak)



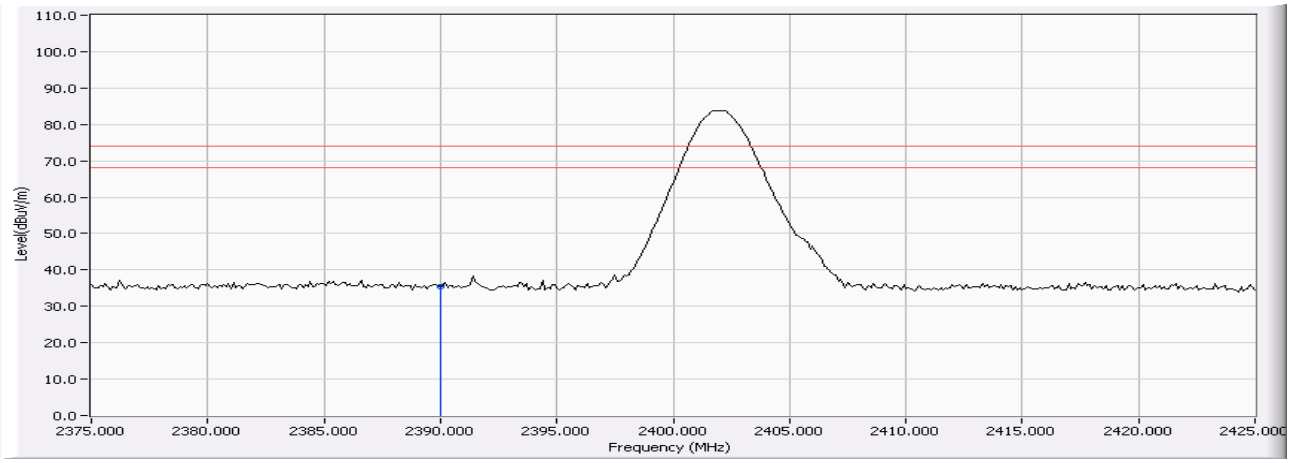
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
00 (Peak)	2390.000	-6.769	42.209	35.441	74.00	54.00	Pass

Figure Channel 00: Horizontal (Peak)



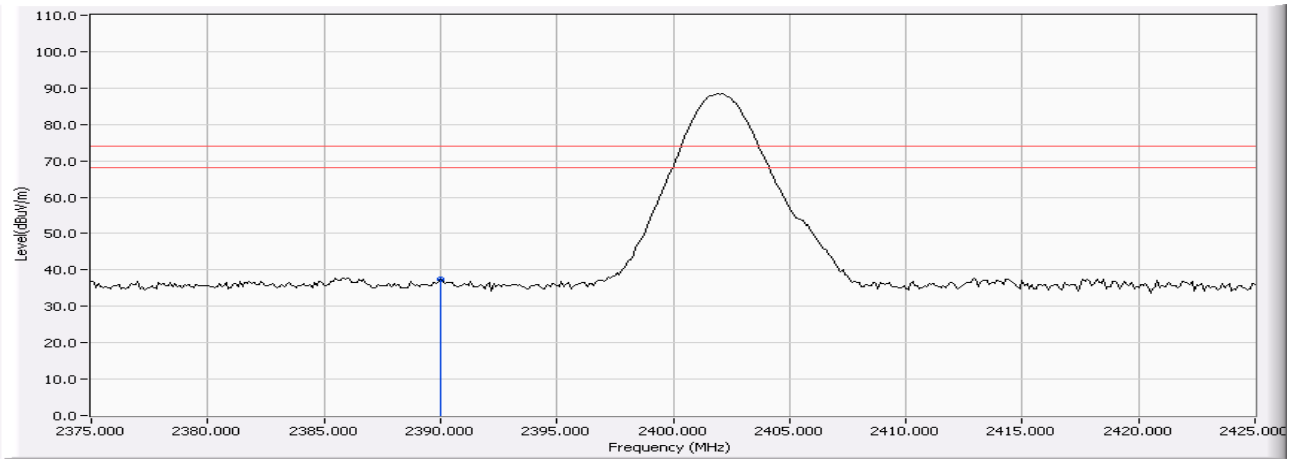
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
00 (Peak)	2390.000	-6.769	44.336	37.568	74.00	54.00	Pass

Figure Channel 00: Vertical (Peak)



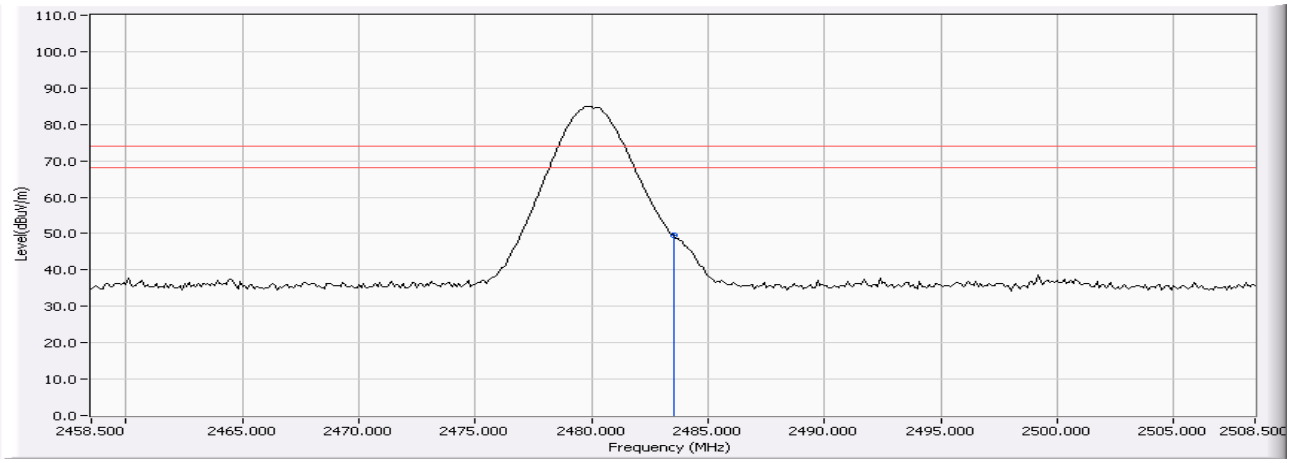
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
78 (Peak)	2483.500	-6.469	55.974	49.506	74.00	54.00	Pass

Figure Channel 78: Horizontal (Peak)



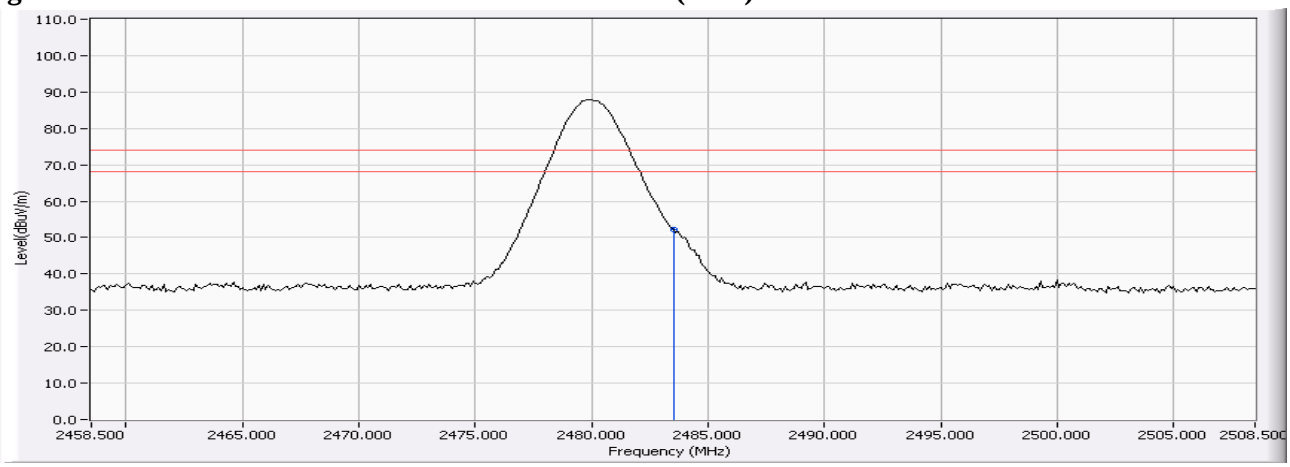
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
78 (Peak)	2483.500	-6.469	58.629	52.161	74.00	54.00	Pass

Figure Channel 78: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

7. Channel Number

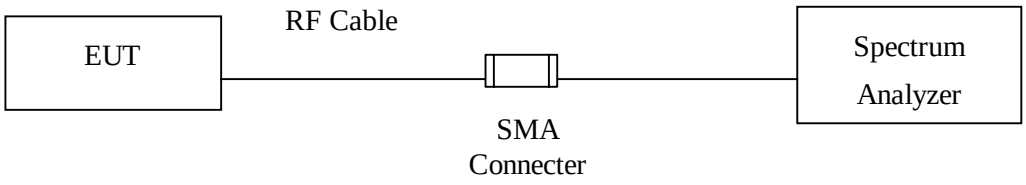
7.1. Test Equipment

The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R & S	FSP40 / 100170	Nov, 2007
	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008

Note: 1. All equipments are calibrated every one year.
2. The test instruments marked by "X" are used to measure the final test results.

7.2. Test Setup



7.3. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 75 hopping frequencies.

7.4. Test Procedure

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

7.5. Uncertainty

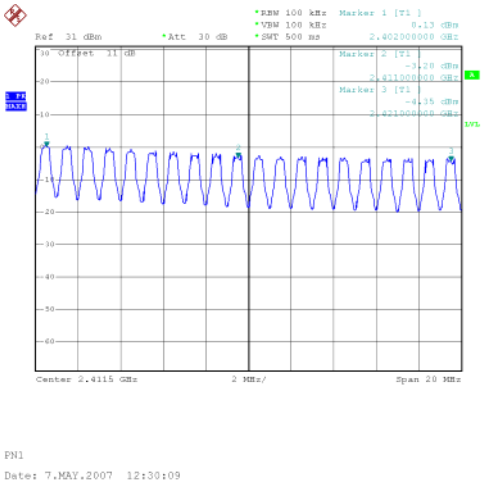
N/A

7.6. Test Result of Channel Number

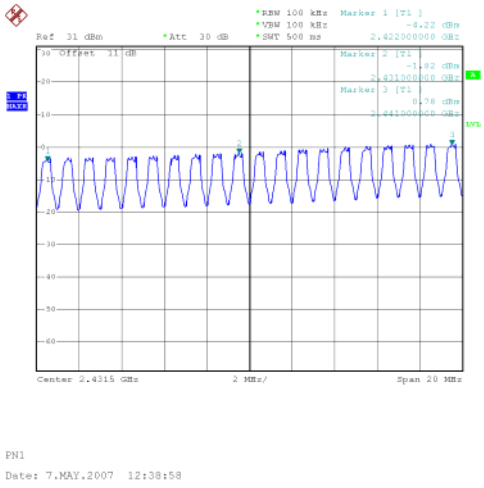
Product : Notebook
Test Item : Channel Number
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

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

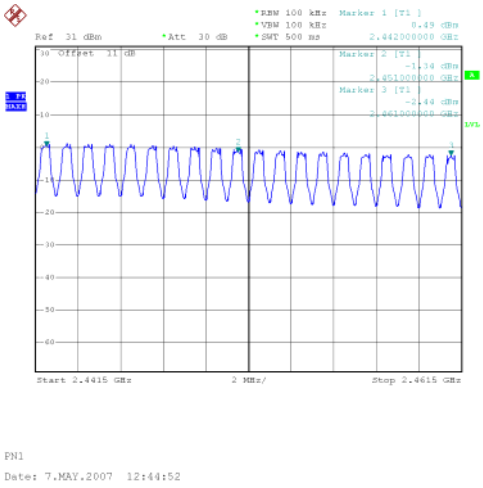
2402-2421MHz



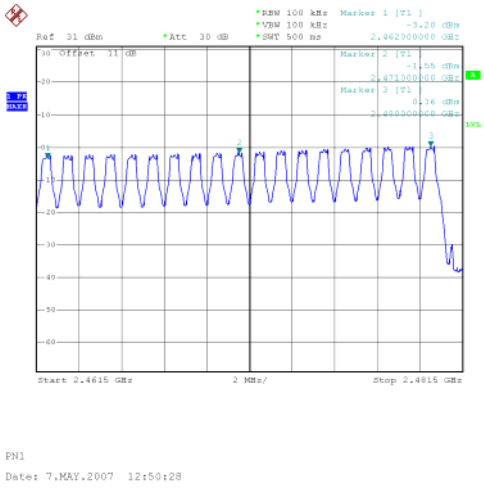
2422-2441MHz



2442-2461MHz



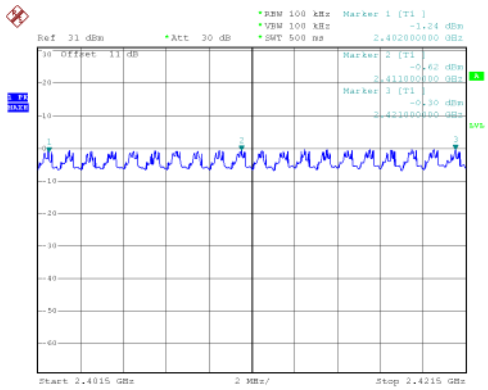
2462-2480MHz



Product : Notebook
Test Item : Channel Number
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

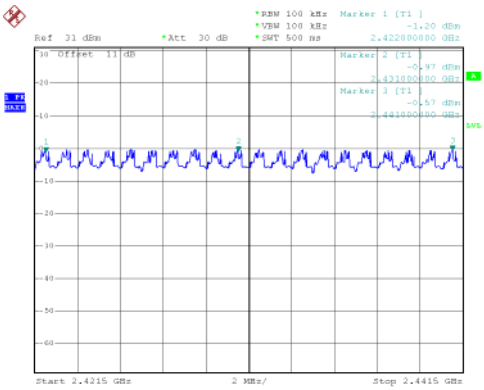
Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

2402-2421MHz



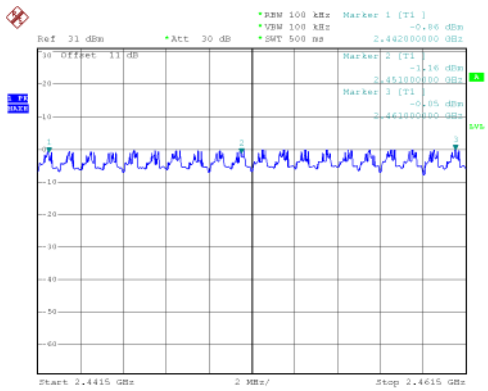
PN1
Date: 8.MAY.2007 16:21:43

2422-2441MHz



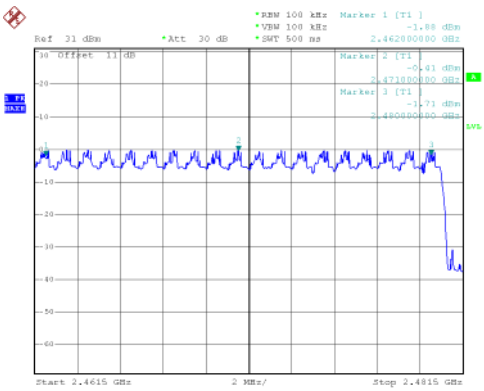
PN1
Date: 8.MAY.2007 16:27:01

2442-2461MHz



PN1
Date: 8.MAY.2007 16:31:59

2462-2480MHz



PN1
Date: 8.MAY.2007 16:37:06

8. Channel Separation

8.1. Test Equipment

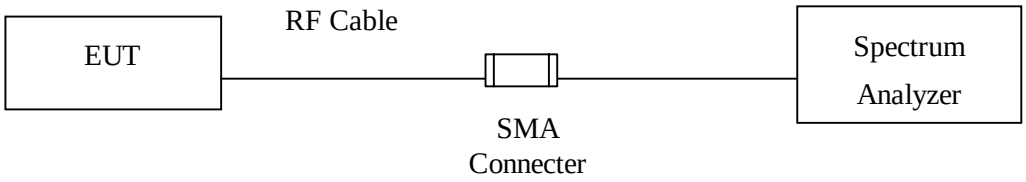
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R & S	FSP40 / 100170	Nov, 2007
	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008

Note: 1. All equipments are calibrated every one year.

2. The test instruments mark by "X" are used to measure the final test results.

8.2. Test Setup



8.3. Limit

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.

8.4. Test Procedure

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

8.5. Uncertainty

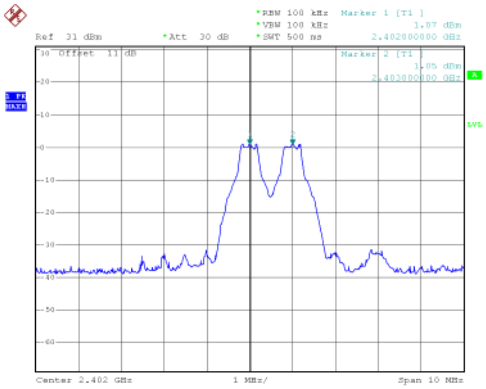
± 150Hz

8.6. Test Result of Channel Separation

Product : Notebook
Test Item : Channel Separation
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)

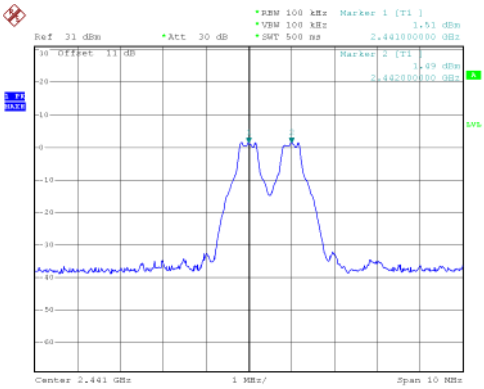
Frequency (MHz)	Measurement Level (MHz)	Required Limit	Result
2402	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2441	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2480	1.00	>25 kHz or 2/3 * 20 dB BW	Pass

Channel 00 2402MHz



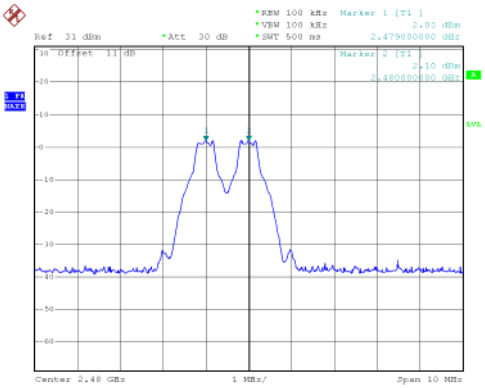
PN1
Date: 7.MAY.2007 11:30:29

Channel 39 2441MHz



PN1
Date: 7.MAY.2007 11:32:49

Channel 78 2480 MHz

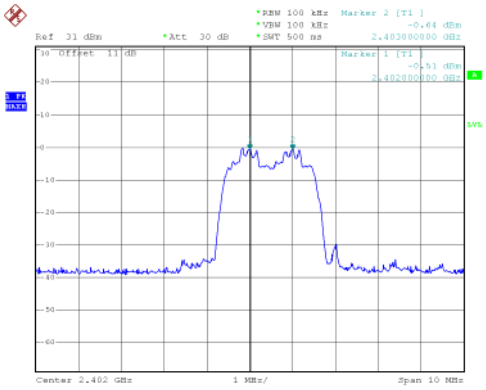


PN1
Date: 7.MAY.2007 11:34:07

Product : Notebook
Test Item : Channel Separation
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)

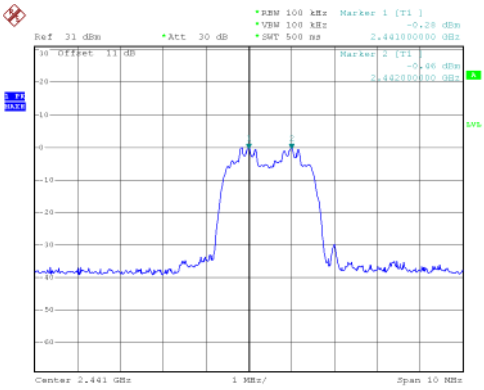
Frequency (MHz)	Measurement Level (MHz)	Required Limit	Result
2402	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2441	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2480	1.00	>25 kHz or 2/3 * 20 dB BW	Pass

Channel 00 2402MHz



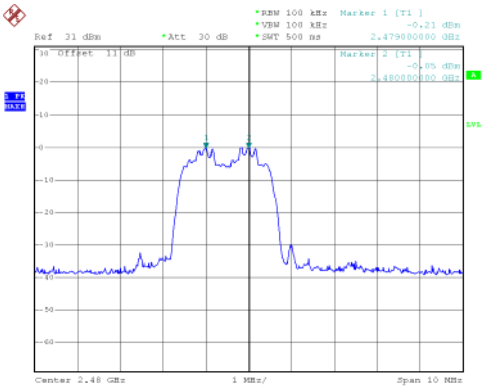
PN1
Date: 7.MAY.2007 11:38:35

Channel 39 2441MHz



PN1
Date: 7.MAY.2007 11:39:39

Channel 78 2480 MHz



PN1
Date: 7.MAY.2007 11:40:51

9. Dwell Time

9.1. Test Equipment

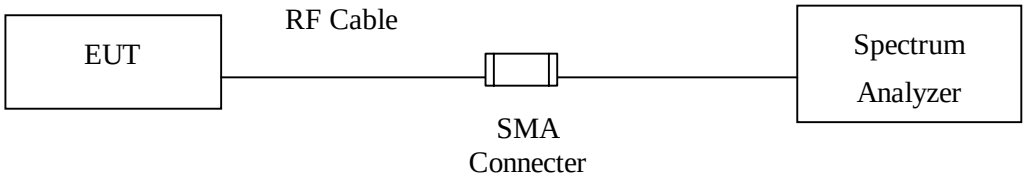
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R & S	FSP40 / 100170	Nov, 2007
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

9.2. Test Setup



9.3. Limit

The dwell time shall be the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

9.4. Test Procedure

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

9.5. Uncertainty

± 25msec

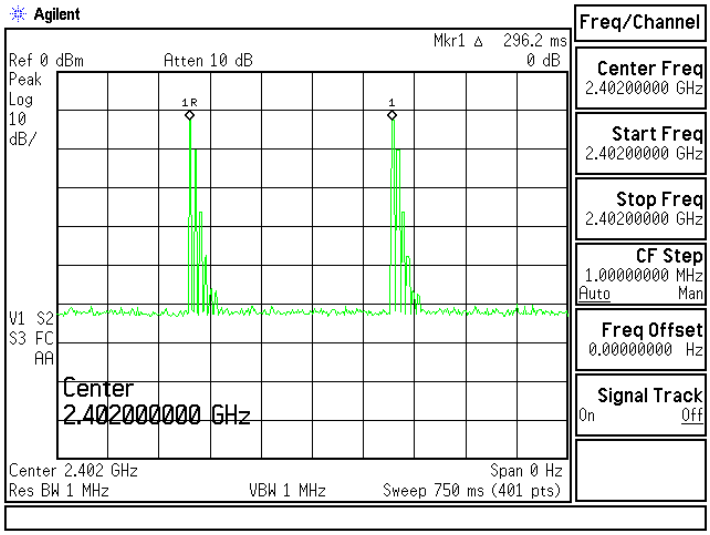
9.6. Test Result of Dwell Time

Product : Notebook
Test Item : Dwell Time
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK) (Channel 00,39,78 –DH5)

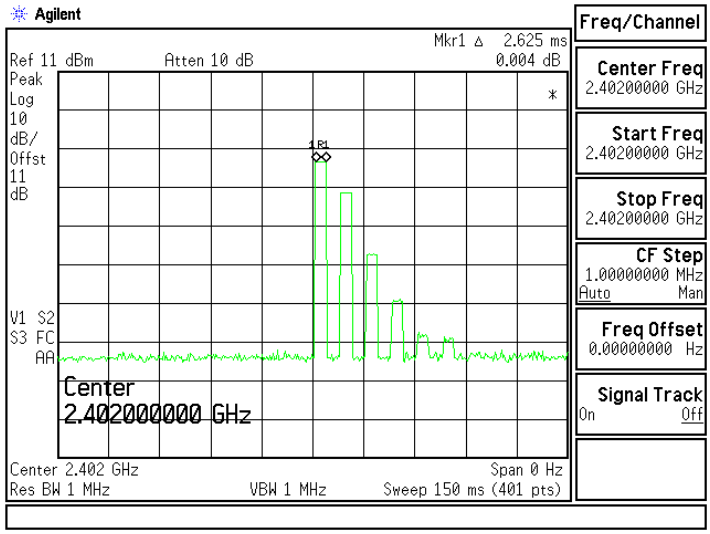
Channel No.	Frequency (MHz)	Time Interval between hops (ms)	Transmission Time (us)	Dwell Time (ms)	Limit (ms)	Result
00	2402	296.2	2625	280	400	Pass
39	2441	296.2	3000	320	400	Pass
78	2480	296.2	2750	293	400	Pass

Note: Dwell Time = 79 * 400 / Time Interval Between Hops * Transmission Time / 1000

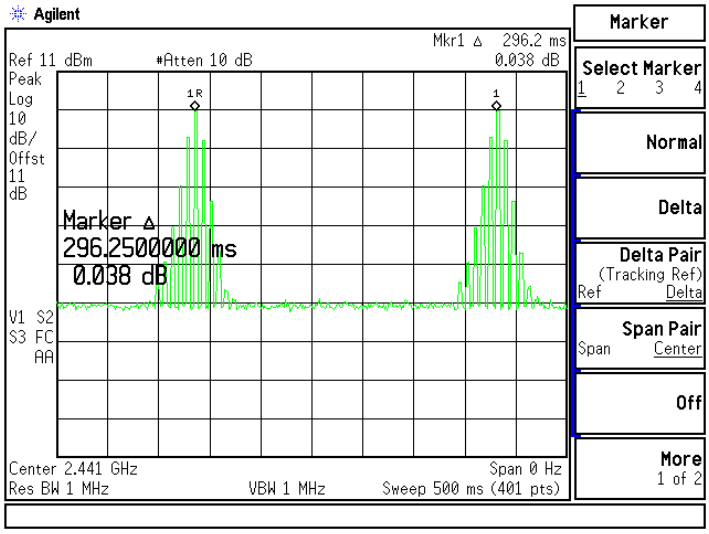
CH 00 Time Interval between hops



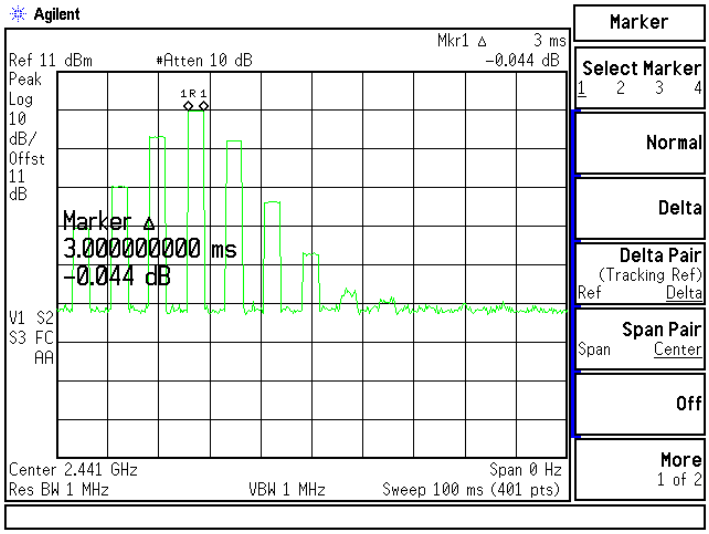
CH 00 Transmission Time



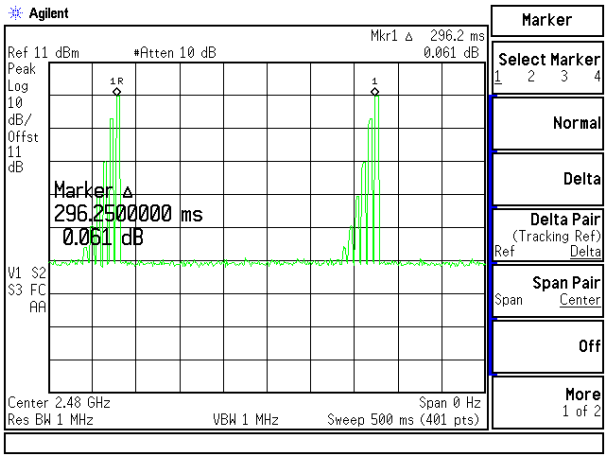
CH39 Time Interval between hops



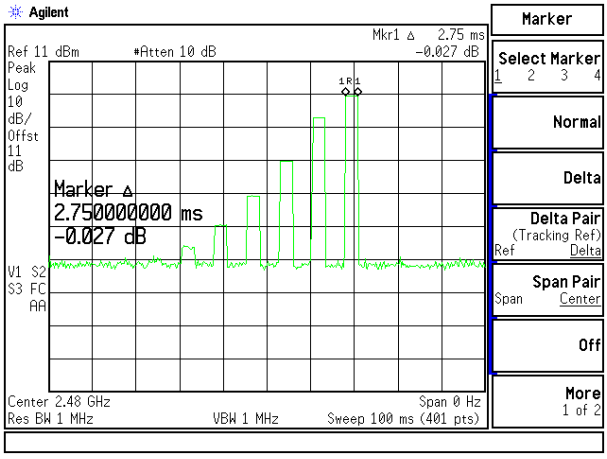
CH 39Transmission Time



CH 78 Time Interval between hops



CH 78 Transmission Time



Note:

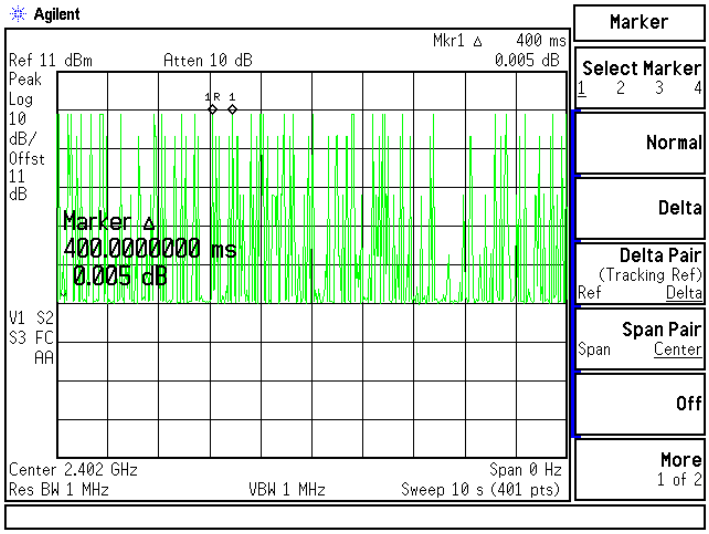
The dwell times of the packet type of DH1, DH3, and DH3 are tested. Only the worst case is shown on the report.

Product : Notebook
Test Item : Dwell Time
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)(Channel 00,39,78 –DH5)

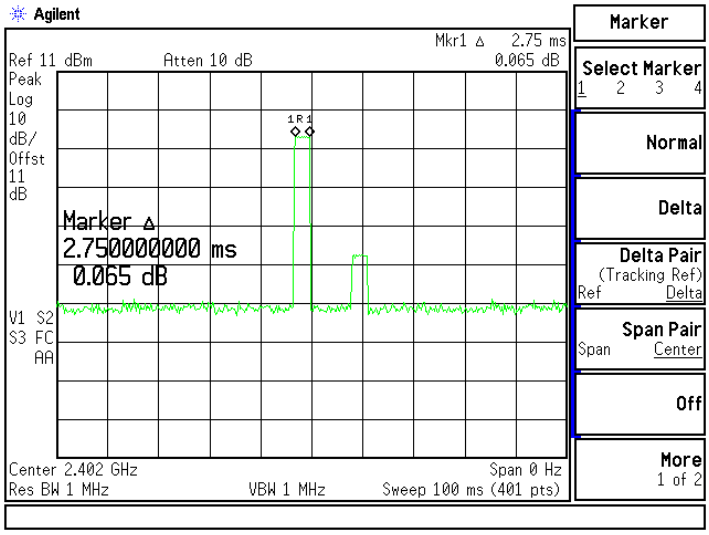
Channel No.	Frequency (MHz)	Time Interval between hops (ms)	Transmission Time (us)	Dwell Time (ms)	Limit (ms)	Result
00	2402	400	2750	217	400	Pass
39	2441	600	2750	145	400	Pass
78	2480	775	3000	122	400	Pass

Note: Dwell Time = 79 * 400 / Time Interval Between Hops * Transmission Time / 1000

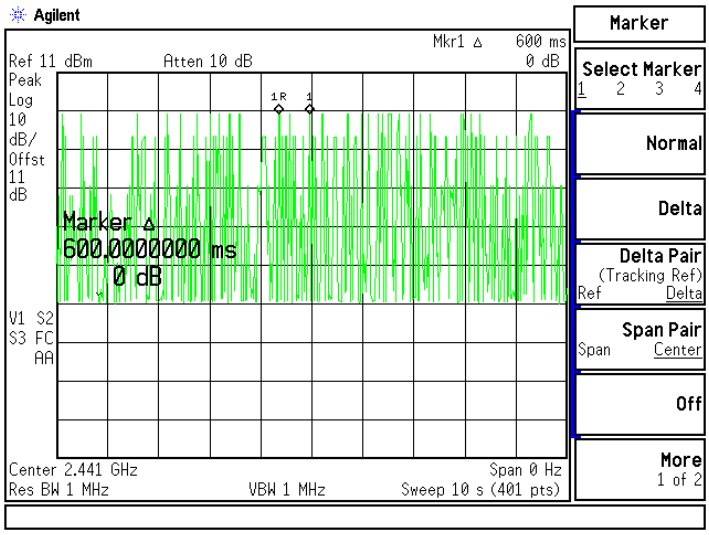
CH00 Time Interval between hops



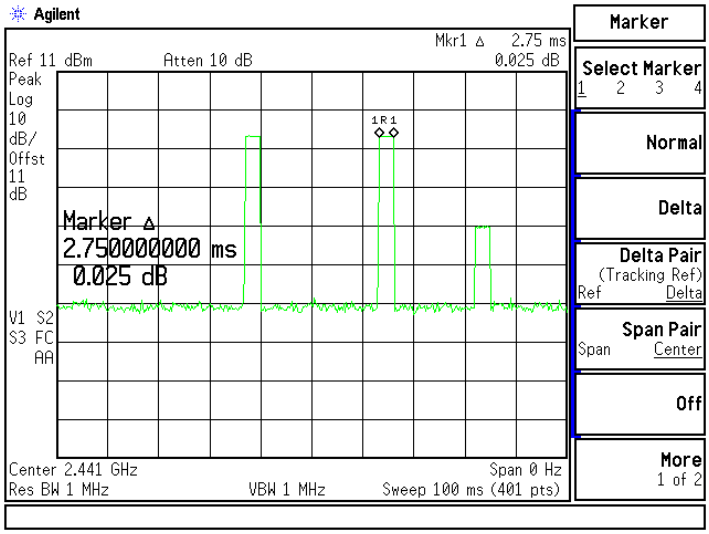
CH 00 Transmission Time



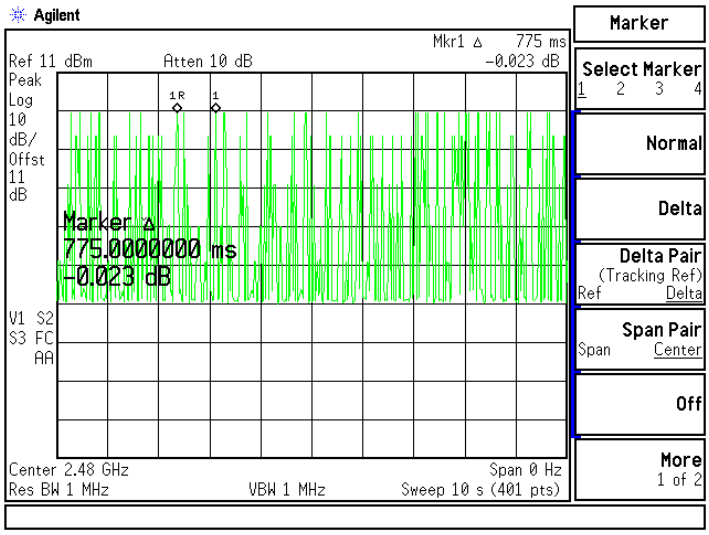
CH 39 Time Interval between hops



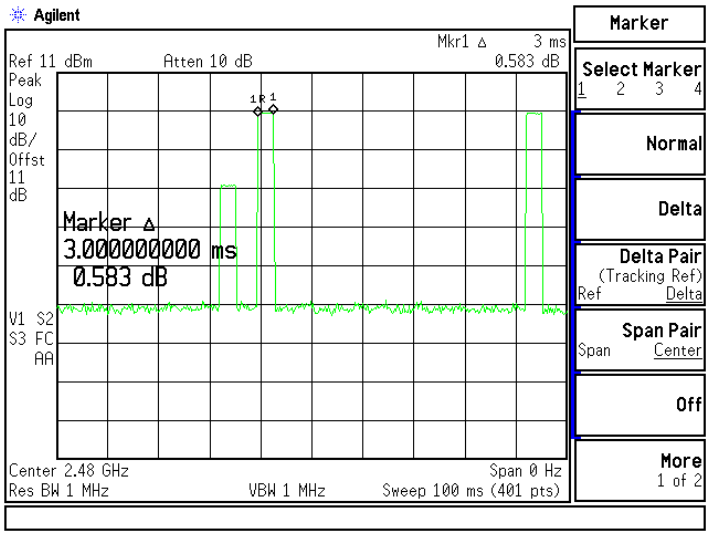
CH39 Transmission Time



CH 78 Time Interval between hops



CH 78Transmission Time



Note:

The dwell times of the packet type of DH1, DH3, and DH3 are tested. Only the worst case is shown on the report.

10. Occupied Bandwidth

10.1. Test Equipment

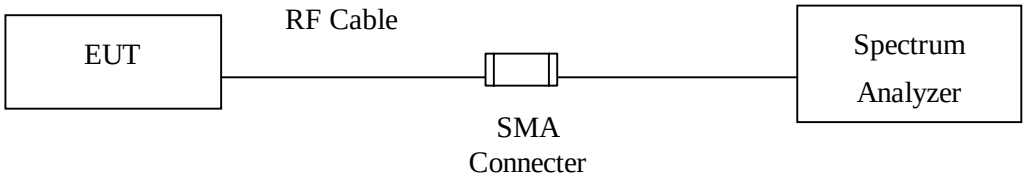
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R & S	FSP40 / 100170	Nov, 2007
	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

10.2. Test Setup



10.3. Limits

N/A

10.4. Test Procedure

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

10.5. Uncertainty

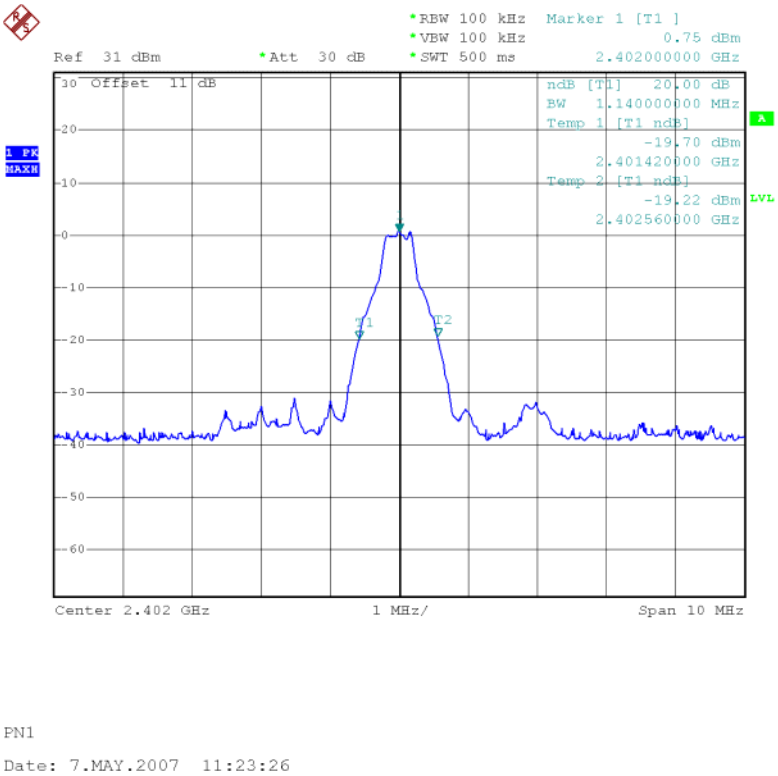
± 150Hz

10.6. Test Result of Occupied Bandwidth

Product : Notebook
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)(2402MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1140	--	NA

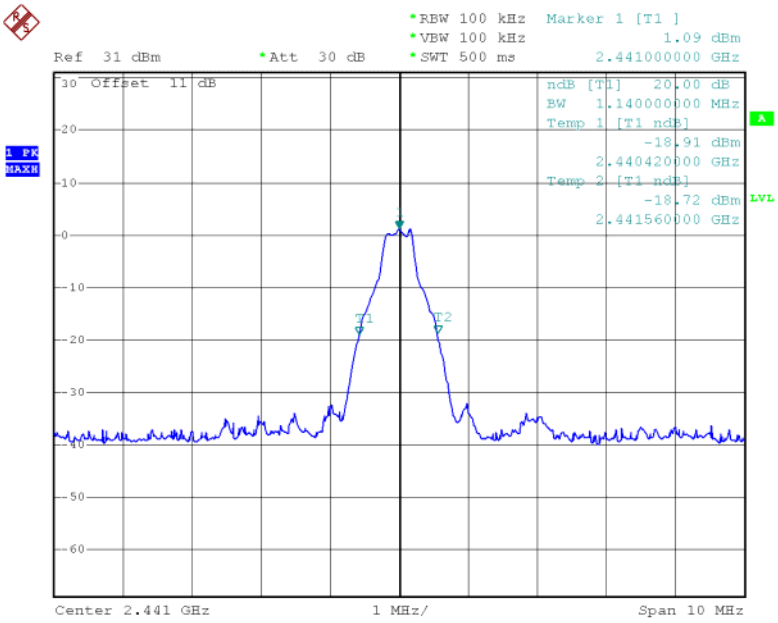
Figure Channel 00:



Product : Notebook
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)(2441MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2441	1140	--	NA

Figure Channel 39:



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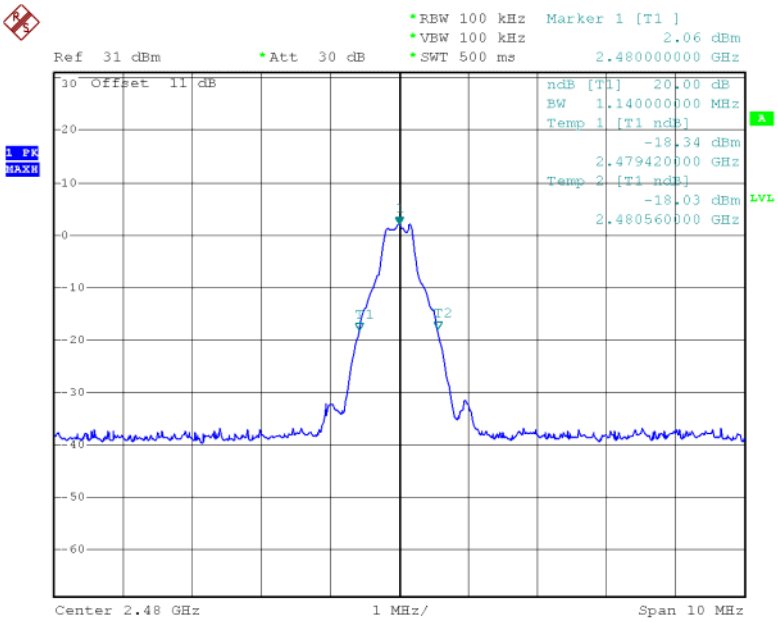
Date: 7.MAY.2007 11:24:29

Product : Notebook
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 1Mbps (GFSK)(2480MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
78	2480	1140	--	NA

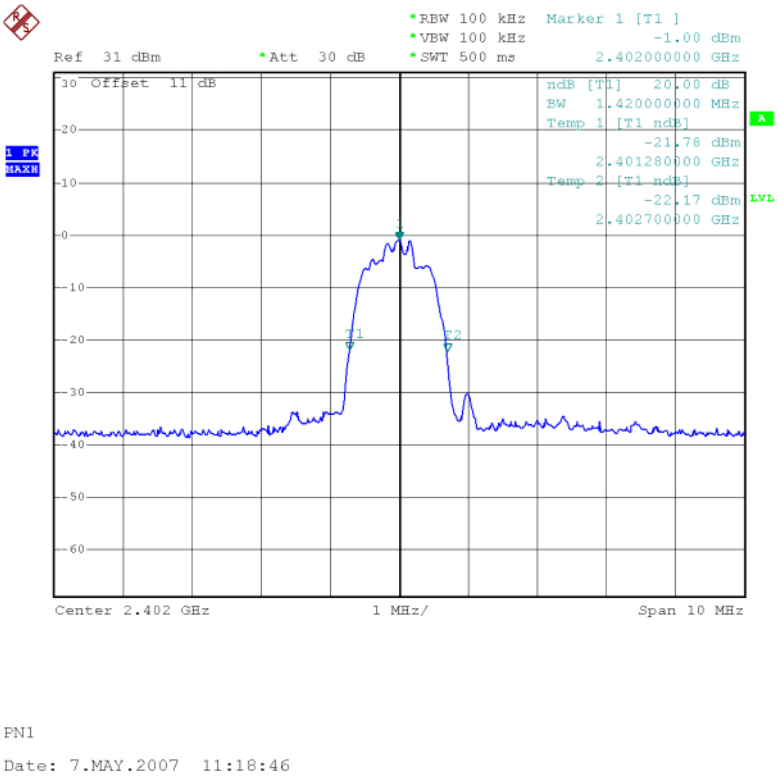
Figure Channel 78:



Product : Notebook
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK) (2402MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1420	--	NA

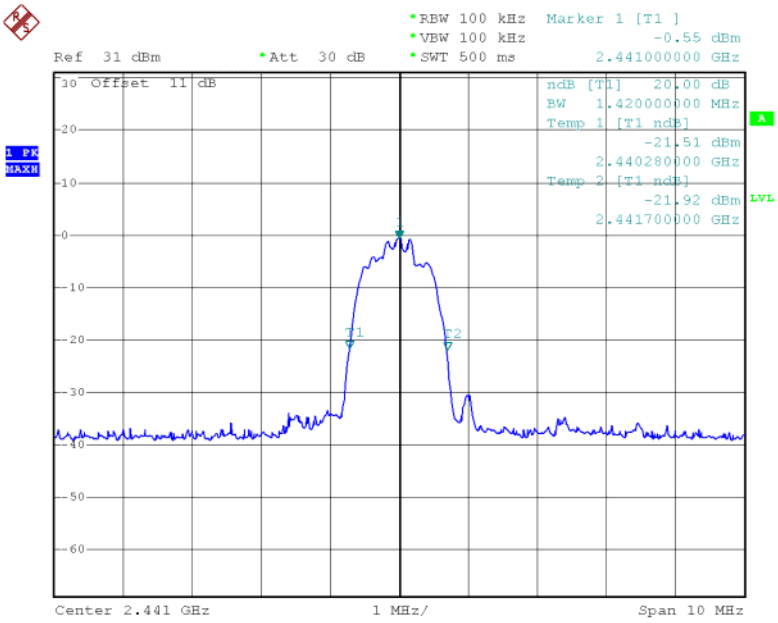
Figure Channel 00:



Product : Notebook
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK) (2441MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2441	1420	--	NA

Figure Channel 39:

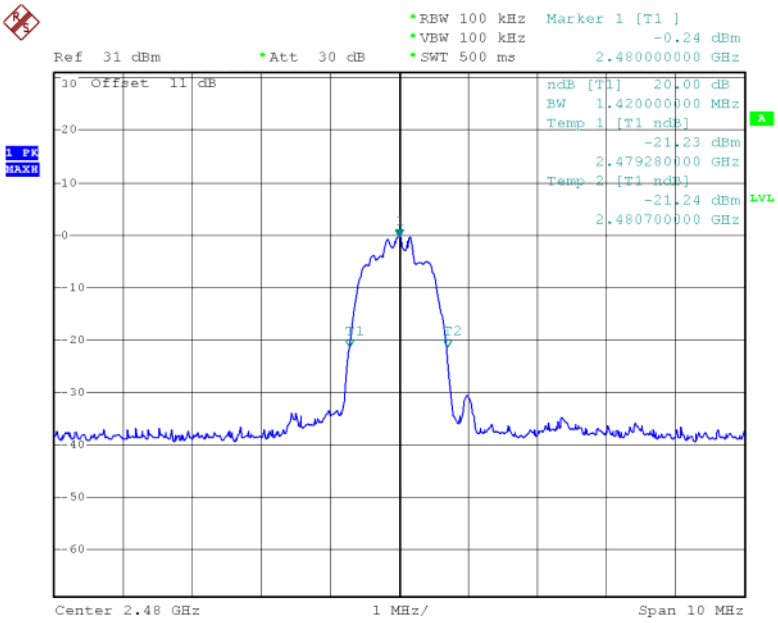


PN1
Date: 7.MAY.2007 11:19:58

Product : Notebook
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter - 3Mbps (8DPSK)(2480MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
78	2480	1420	--	NA

Figure Channel 78:



11. EMI Reduction Method During Compliance Testing

No modification was made during testing.