



## Test Report

Product Name : Mouse USB DONLE  
Model No. : WTU-M02, WTU-M03  
FCC ID. : O62WTU

Applicant : Darfon Electronics Corp.  
Address : 6, Feng-Shu Tsuen, Gueishan, Taoyuan 333, Taiwan, R.O.C.

Date of Receipt : July 27, 2006  
Issued Date : Aug. 02, 2006  
Report No. : 068L013-RF-US-P07V01

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

# Test Report Certification

Issued Date: Aug. 02, 2006

Report No. : 068L013-RF-US-P07V01



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

Product Name : Mouse USB DONLE

Applicant : Darfon Electronics Corp.

Address : 6, Feng-Shu Tsuen, Gueishan, Taoyuan 333, Taiwan, R.O.C.

Manufacturer : Darfon Electronics Corp.

Model No. : WTU-M02, WTU-M03

Rated Voltage : AC 120V/60Hz

Working Voltage : DC 5V (via USB)

Trade Name : ELECOM

Applicable Standard : FCC Part 15 Subpart C Paragraph 15.249: 2005  
ANSI C63.4: 2003

Test Result : Complied



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 ( Rita Huang )



Tested By : Dino Chen  
 ( Dino Chen )

Approved By : Georte Chen  
 ( Georte Chen )



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Attachment 2: EUT Detailed Photographs	

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name : Mouse USB DONLE  
 Trade Name : ELECOM  
 FCC ID. : O62WTU  
 Model No. : WTU-M02, WTU-M03  
 Frequency Range : 2402 – 2479MHz  
 Number of Channels : 78  
 Channel Separation : 1MHz  
 Type of Modulation : DSSS / GFSK  
 Antenna Type : Printed on the PCB  
 Channel Control : Manual  
 Antenna Gain : -9.23dBi

#### Frequency of Each Channel

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

## Note:

1. The EUT is a Mouse USB DONLE with a built-in 2.4GHz transceiver.
2. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.

EMI Test Mode	Mode 1: Transmitter
---------------	---------------------

**1.2. Operation Description**

The EUT is Mouse USB DONLE. The operation frequency is 2.402GHz to 2.479GHz. Seventy-eight manually selectable channels are built in the EUT. The signals modulated by DSSS / GFSK are transmitted from the printed antenna on the PCB of the EUT to a mouse. DC 5V (via USB) shall be provided for EUT operation.

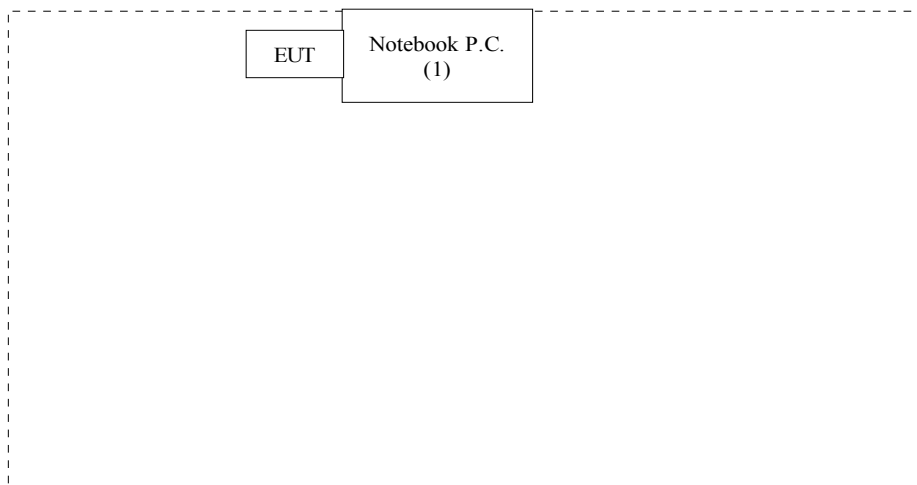
**1.3. Tested System Details**

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.	FCC ID	Power Cord
(1)	Notebook PC	DELL	PPT	N/A	DoC	Non-Shielded, 0.8m

	Signal Cable Type	Signal Cable Description
(A)	N/A	N/A

**1.4. Configuration of Test System**



## 1.5. EUT Exercise Software

- (1) Setup the EUT as shown in section 1.4.
- (2) Insert the EUT to the USB port of the notebook.
- (3) Execute WUSB-Test.exe on the notebook.
- (4) Setup the test channel.
- (5) Press “Transmit” to start the continuous transmission, or “Receive” to start the receiving.
- (6) Verify that the EUT works properly.

**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	50-65
Barometric pressure (mbar)	860-1060	950-1000

Site Description: File on  
 Federal Communications Commission  
 FCC Engineering Laboratory  
 7435 Oakland Mills Road  
 Columbia, MD 21046  
 Reference 31040/SIT1300F2



Accreditation on NVLAP  
 NVLAP Lab Code: 200533-0



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## 2. Conducted Emission

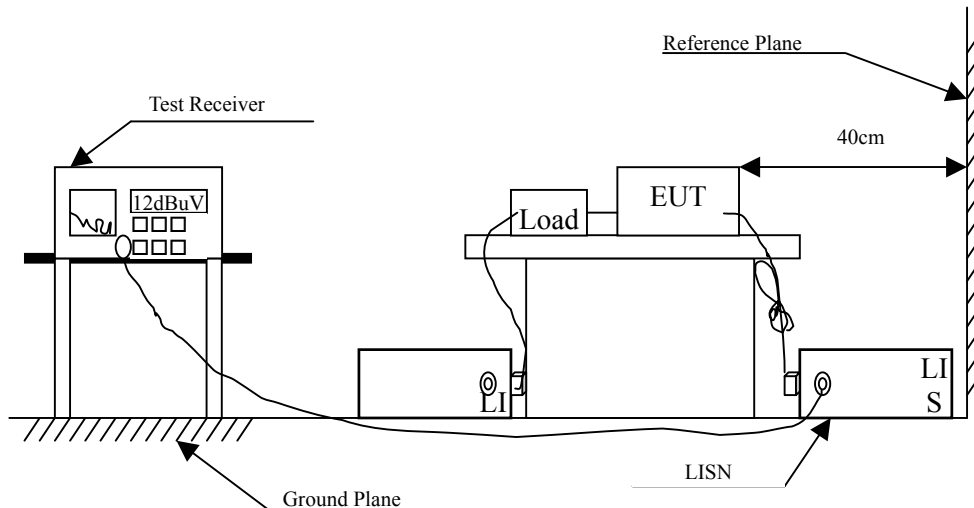
### 2.1. Test Equipment

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 30/825442/17	May, 2006	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2006	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2006	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2006	
5	No.4 Shielded Room			N/A	

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 (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 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. Uncertainty

$\pm 2.26$  dB

## 2.6. Test Result of Conducted Emission

Product : Mouse USB DONLE  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 1: Transmitter (2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Quasi-Peak</b>					
0.209	0.202	41.970	42.172	-22.142	64.314
0.364	0.214	34.750	34.964	-24.922	59.886
0.732	0.229	32.620	32.849	-23.151	56.000
1.212	0.246	35.020	35.266	-20.734	56.000
1.581	0.261	34.150	34.411	-21.589	56.000
1.939	0.276	30.530	30.806	-25.194	56.000
<b>Average</b>					
0.209	0.202	27.810	28.012	-26.302	54.314
0.364	0.214	30.240	30.454	-19.432	49.886
0.732	0.229	29.220	29.449	-16.551	46.000
1.212	0.246	31.540	31.786	-14.214	46.000
1.581	0.261	29.620	29.881	-16.119	46.000
1.939	0.276	25.100	25.376	-20.624	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 : Mouse USB DONLE  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 1: Transmitter (2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Quasi-Peak</b>					
0.154	0.202	44.880	45.082	-20.804	65.886
0.249	0.203	41.940	42.143	-21.028	63.171
0.364	0.214	35.430	35.644	-24.242	59.886
0.736	0.230	32.760	32.990	-23.010	56.000
1.216	0.246	35.450	35.696	-20.304	56.000
1.679	0.262	30.850	31.112	-24.888	56.000
<b>Average</b>					
0.154	0.202	32.560	32.762	-23.124	55.886
0.249	0.203	34.370	34.573	-18.598	53.171
0.364	0.214	31.170	31.384	-18.502	49.886
0.736	0.230	26.920	27.150	-18.850	46.000
1.216	0.246	30.180	30.426	-15.574	46.000
1.679	0.262	25.790	26.052	-19.948	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.

### 3. Radiated Emission

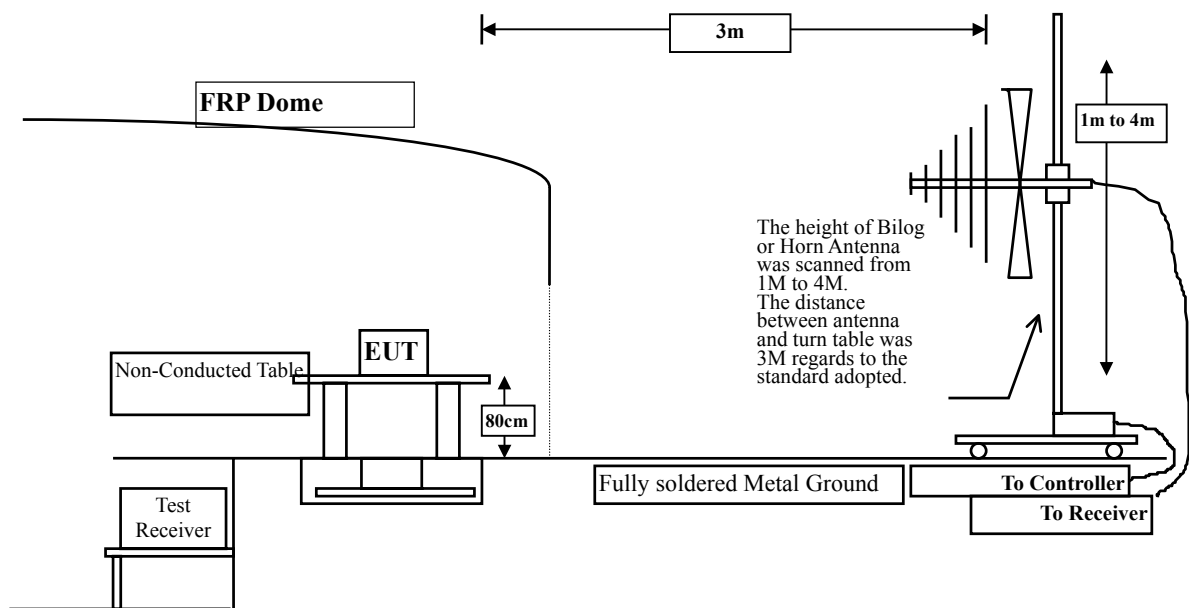
#### 3.1. Test Equipment

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

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 1	Test Receiver	R & S	ESCS 30 / 825442/14	May, 2006
	Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2006
	Pre-Amplifier	HP	8447D/3307A01812	May, 2006
	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2005
	Horn Antenna	EM	EM6917 / 103325	May, 2006
Site # 2	Test Receiver	R & S	ESCS 30 / 825442/17	May, 2006
	Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2006
	Pre-Amplifier	HP	8447D/3307A01814	May, 2006
	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2005
Site # 3	X Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2006
	X Test Receiver	R & S	ESCS 30 / 825442/14	May, 2006
	X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2006
	X Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2006
	X Horn Antenna	ETS	3115 / 0005-6160	July, 2006
	X Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2006

- 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.

#### 3.2. Test Setup



### 3.3. Limits

#### ➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart B Paragraph 15.249 Limits				
Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dBuV/m @3m)	(uV/m @3m)	(dBuV/m @3m)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54

- Remarks :
1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
  2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

#### ➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB 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 B 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/m) = 20 log RF Voltage (uV/m)
  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.

### 3.4. 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.

Radiated emissions were investigated over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 3 meters.

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

### 3.5. Uncertainty

± 3.9 dB above 1GHz

± 3.19 dB below 1GHz

### 3.6. Test Result of Radiated Emission

Product : Mouse USB DONLE  
 Test Item : Fundamental Radiated Emission  
 Test Site : No.3OATS  
 Test Mode : Mode 1: Transmitter

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Average Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
Channel 01					
2402.000	5.027	88.073	93.100	-20.900	114.000
Channel 40					
2441.000	5.246	86.934	92.180	-21.820	114.000
Channel 78					
2479.000	5.470	88.916	94.386	-19.614	114.000
<b>Average Detector</b>					
Channel 00					
2402.000	5.027	86.951	91.978	-2.022	94.000
Channel 40					
2441.000	5.246	85.927	91.173	-2.827	94.000
Channel 78					
2479.000	5.470	87.431	92.901	-1.099	94.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
Channel 01					
2402.000	5.027	85.987	91.014	-22.986	114.000
Channel 40					
2441.000	5.246	84.817	90.063	-23.937	114.000
Channel 78					
2479.000	5.470	85.795	91.265	-22.735	114.000
<b>Average Detector</b>					
Channel 01					
2402.000	5.027	84.859	89.886	-4.114	94.000
Channel 40					
2441.000	5.246	83.844	89.090	-4.910	94.000
Channel 78					
2479.000	5.470	84.836	90.306	-3.694	94.000

Note:

1. Emission Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.



Product : Mouse USB DONLE  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2402MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Average Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
2441.000	5.246	86.934	92.180	-21.820	114.000
Channel 78					
2479.000	5.470	88.916	94.386	-19.614	114.000
<b>Average Detector</b>					
Channel 00					
2402.000	5.027	86.951	91.978	-2.022	94.000
Channel 40					
2441.000	5.246	85.927	91.173	-2.827	94.000
Channel 78					
2479.000	5.470	87.431	92.901	-1.099	94.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
Channel 01					
2402.000	5.027	85.987	91.014	-22.986	114.000
Channel 40					
2441.000	5.246	84.817	90.063	-23.937	114.000
Channel 78					
2479.000	5.470	85.795	91.265	-22.735	114.000
<b>Average Detector</b>					
Channel 01					

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 : Mouse USB DONLE  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Average Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4882.000	12.281	39.306	51.586	-22.414	74.000
7323.000	18.756	40.624	59.380	-14.620	74.000
9764.000	23.110	39.969	63.079	-10.921	74.000
<b>Average Detector</b>					
7323.000	18.756	30.615	49.371	-4.629	54.000
9764.000	23.110	28.360	51.470	-2.530	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4882.000	12.281	39.011	51.291	-22.709	74.000
7323.000	18.756	41.008	59.764	-14.236	74.000
9764.000	23.110	39.958	63.068	-10.932	74.000
<b>Average Detector</b>					
7323.000	18.756	30.660	49.416	-4.584	54.000
9764.000	23.110	28.850	51.960	-2.040	54.000

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 : Mouse USB DONLE  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2479MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Average Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4958.000	12.397	40.957	53.353	-20.647	74.000
7437.000	19.132	40.171	59.303	-14.697	74.000
9916.000	23.095	39.630	62.724	-11.276	74.000
<b>Average Detector</b>					
7437.000	19.132	30.611	49.743	-4.257	54.000
9916.000	23.095	28.875	51.970	-2.030	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4958.000	12.397	39.771	52.167	-21.833	74.000
7437.000	19.132	40.628	59.760	-14.240	74.000
9916.000	23.095	38.235	61.329	-12.671	74.000
<b>Average Detector</b>					
7437.000	19.132	29.198	48.330	-5.670	54.000
9916.000	23.095	28.035	51.130	-2.870	54.000

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 : Mouse USB DONLE  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
<b>Horizontal</b>					
195.100	9.368	15.300	24.668	-18.832	43.500
250.500	13.323	14.400	27.723	-18.277	46.000
398.600	16.458	11.800	28.258	-17.742	46.000
530.100	18.653	8.000	26.653	-19.347	46.000
624.100	20.857	10.600	31.457	-14.543	46.000
660.400	20.942	10.100	31.042	-14.958	46.000
<b>Vertical</b>					
225.500	10.769	16.700	27.469	-18.531	46.000
295.100	13.785	10.900	24.685	-21.315	46.000
379.200	16.655	10.600	27.255	-18.745	46.000
500.400	18.358	15.800	34.158	-11.842	46.000
660.100	20.011	10.300	30.311	-15.689	46.000
876.300	22.614	9.100	31.713	-14.287	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. Band Edge

### 4.1. Test Equipment

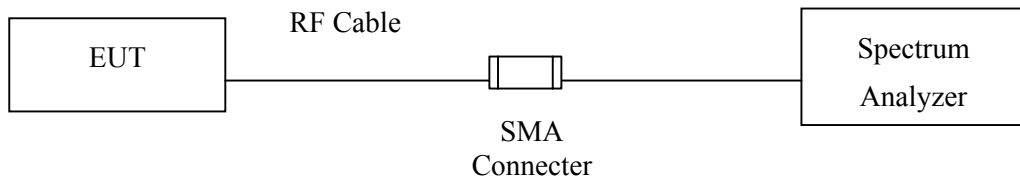
The following test equipments are used during the band edge tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2006
X Test Receiver	R & S	ESCS 30 / 825442/14	May, 2006
X Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2006
X Pre-Amplifier	HP	8447D/3307A01812	May, 2006
X Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2005
X Horn Antenna	EM	EM6917 / 103325	May, 2006

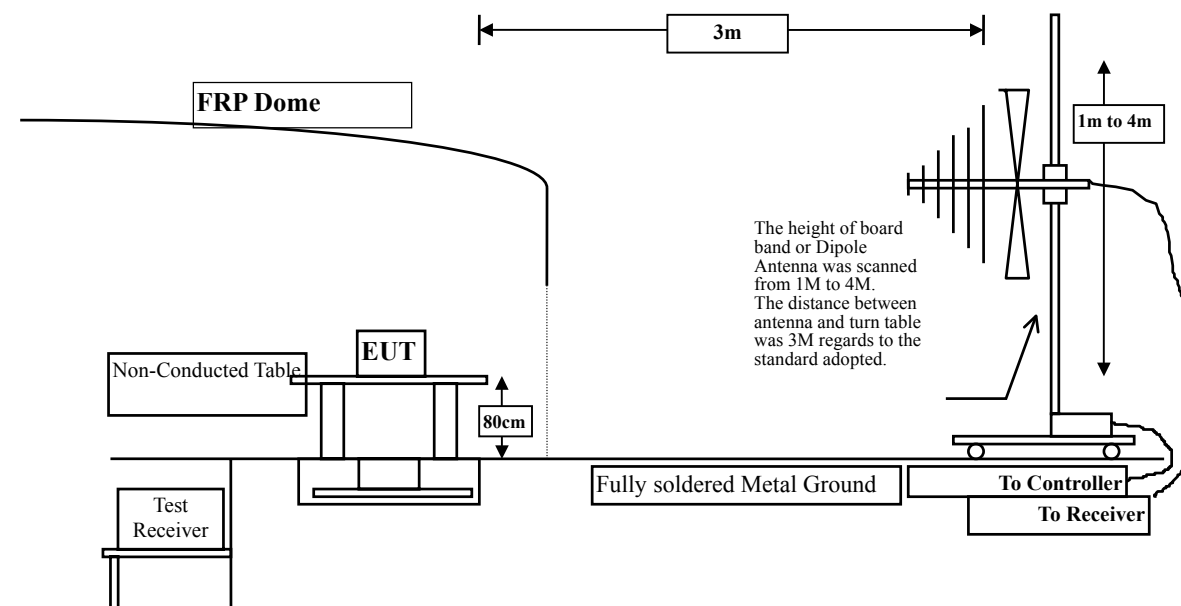
- Note: 1. All equipments that need to calibrate are with calibration period of 1 year.  
 2. Mark "X" test instruments are used to measure the final test results.

### 4.2. Test Setup

#### RF Conducted Measurement:



#### RF Radiated Measurement:



### 4.3. 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 50 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)).

### 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 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 (R&S Test Receiver ESCS 30 )is 120 kHz, above 1GHz are 1 MHz.

### 4.5. Uncertainty

Conducted is  $\pm 1.27$  dB

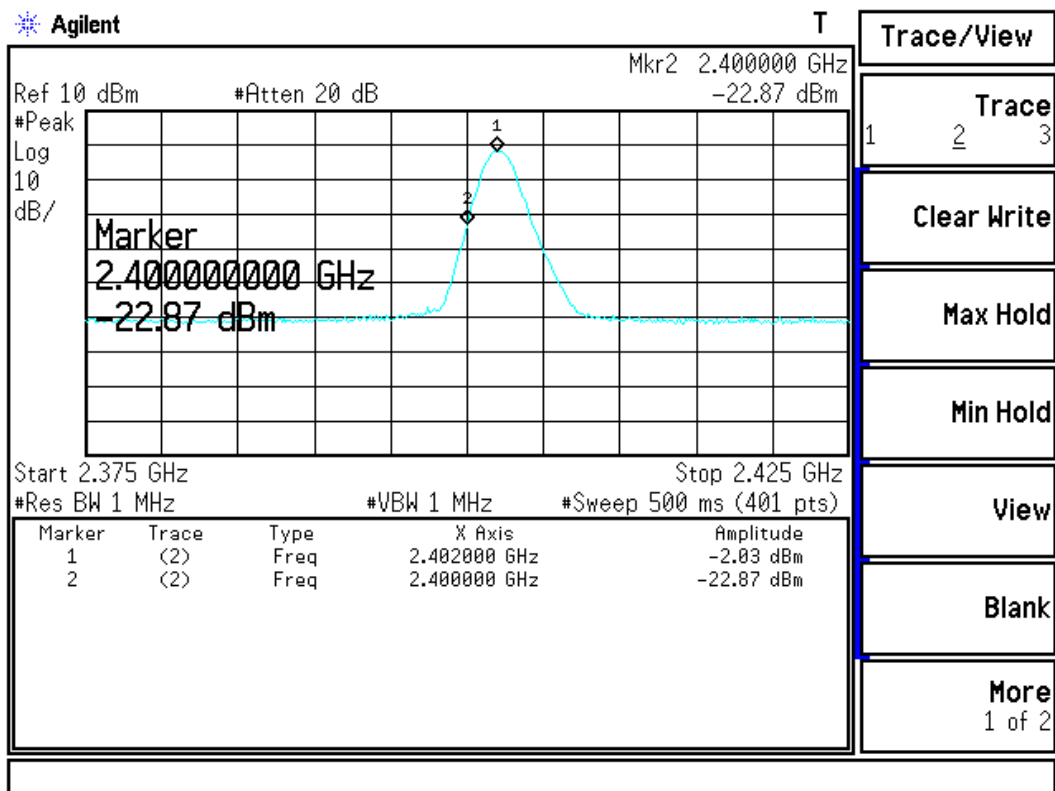
Radiated is  $\pm 3.9$  dB.

**4.6. Test Result of Band Edge**

Product : Mouse USB DONLE  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2402MHz)

**RF Conducted Measurement**

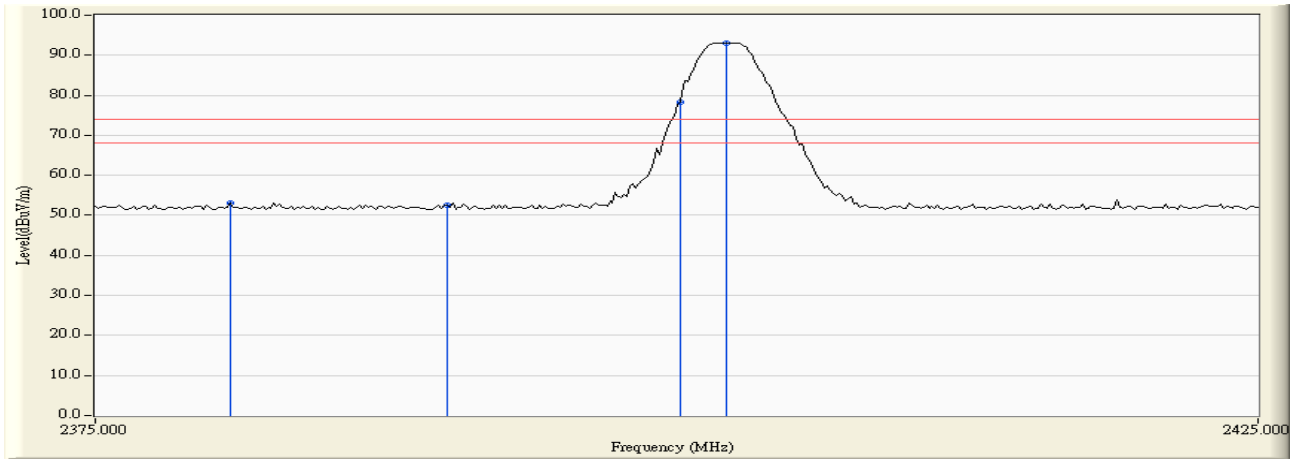
Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
01	<2400	>20	Pass



**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01(Peak)	2380.750	4.894	48.303	53.197	74.00	54.00	Pass
01(Avg)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 01:** Horizontal



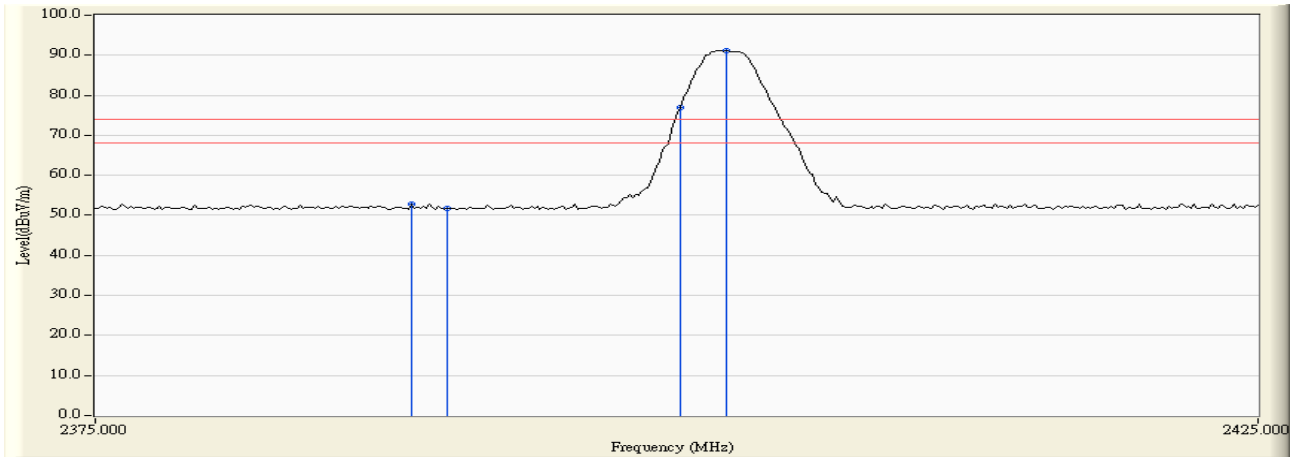
Note:  
 RBW=1MHz, VBW=1MHz, Sweep Time=500ms



**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01(Peak)	2388.500	4.945	47.920	52.864	74.00	54.00	Pass
01(Avg)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 01:** Vertical

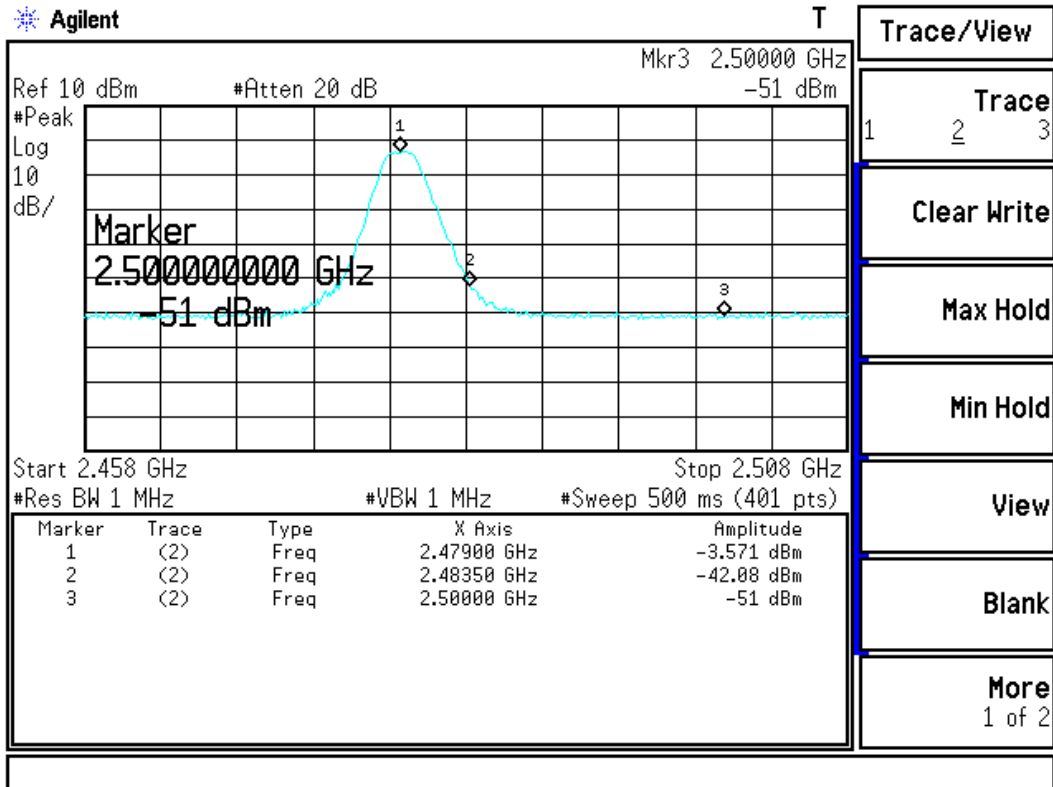


Note:  
 RBW=1MHz, VBW=1MHz, Sweep Time=500ms

Product : Mouse USB DONLE  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2479MHz)

**RF Conducted Measurement**

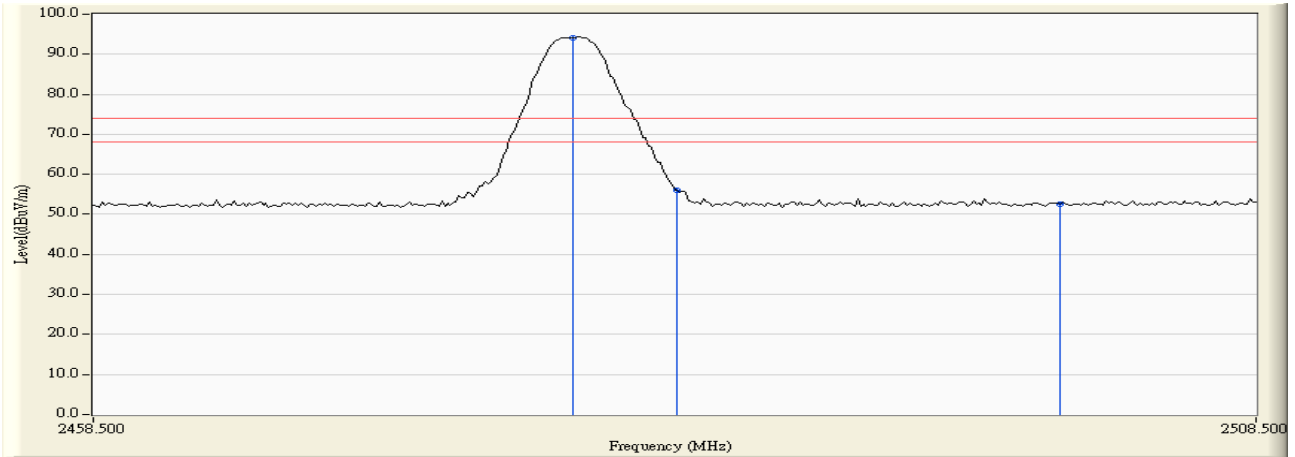
Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
78	>2483.5	>20	Pass



**RF Radiated Measurement (Horizontal):**

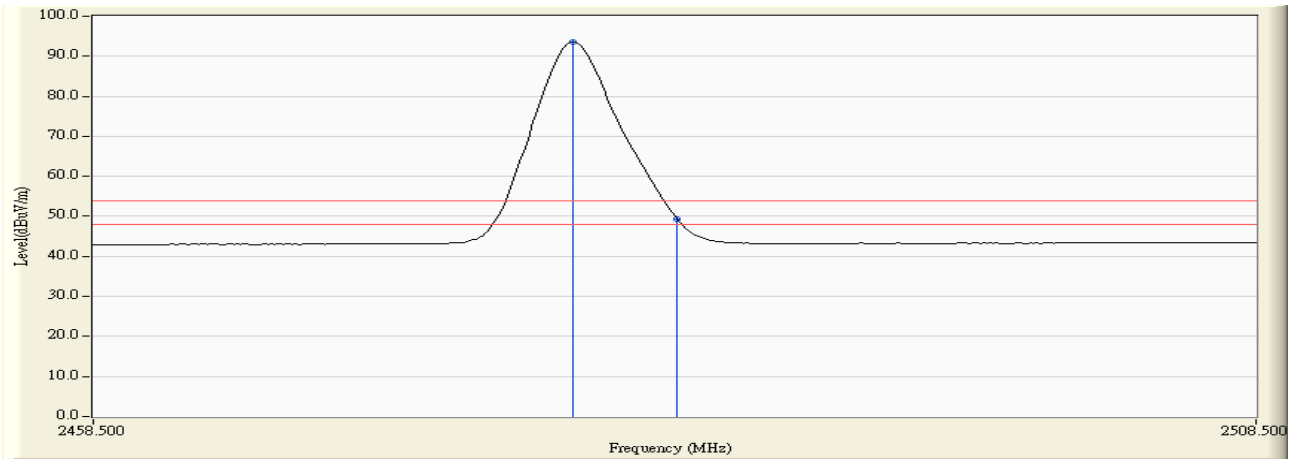
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2483.500	5.496	50.559	56.055	74.00	54.00	Pass
78(Avg)	2483.500	5.496	43.766	49.262	74.00	54.00	Pass

**Figure Channel 78:** Horizontal (Peak)



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

**Figure Channel 78:** Horizontal (Average)

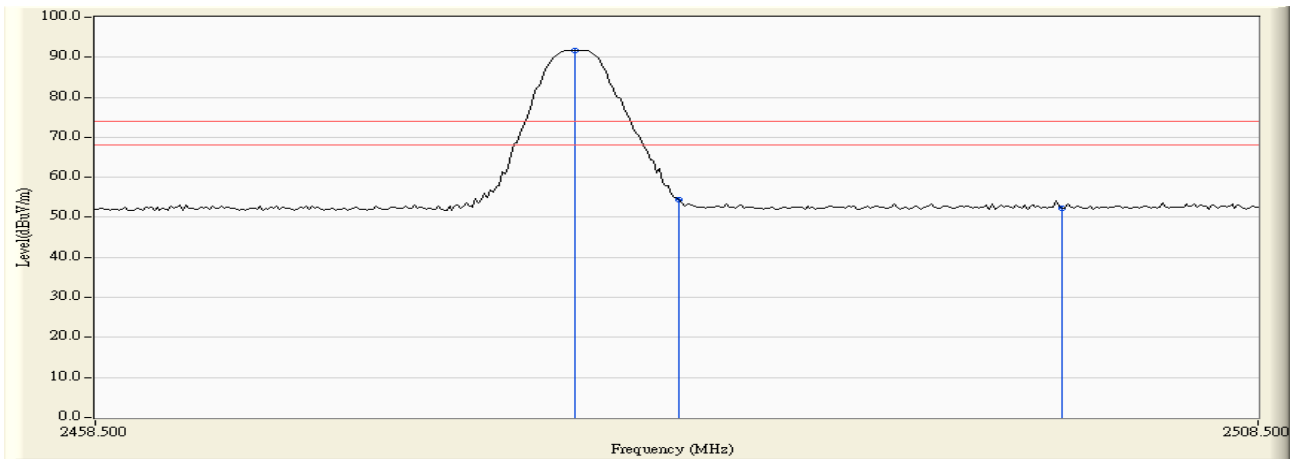


Note:  
RBW=1MHz, VBW=300Hz, Sweep Time=500ms

**RF Radiated Measurement (Vertical):**

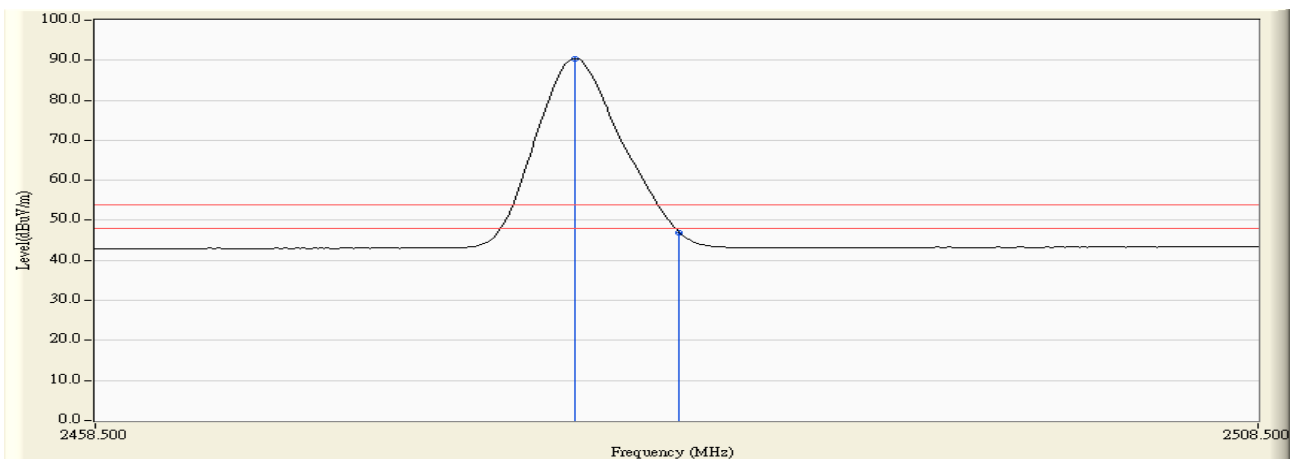
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2483.500	5.496	49.021	54.517	74.00	54.00	Pass
78(Avg)	2483.500	5.496	41.452	46.948	74.00	54.00	Pass

**Figure Channel 78: Vertical (Peak)**



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

**Figure Channel 78: Vertical (Average)**



Note:  
 RBW=1MHz, VBW=300Hz, Sweep Time=500ms

Note: 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. EMI Reduction Method During Compliance Testing

No modification was made during testing.