Test Report

Product Name	VA Mini Dongle
Model No.	VAMINI-0~9, A~Z
FCC ID	MSQVD001

Applicant	ASUSTeK COMPUTER INC.
Address	4FL., No. 15, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt	Mar. 19, 2009
Issued Date	June 03, 2009
Report No.	093303R-RFUSP07V01-A
Report Version	V1.0

Test Report Certification

Issued Date: June 03, 2009
Report No.: 093303R-RFUSP07V01-A

Product Name	VA Mini Dongle
Applicant	ASUSTeK COMPUTER INC.
Address	4FL., No. 15, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.
Manufacturer	Enertronix (Huizhou) inc.
Model No.	VAMINI-0~9, A~Z
Rated Voltage	AC 120V / 60Hz
Working Voltage	DC 5V
Trade Name	ASUS, Vento, Vento By ASUS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2008 ANSI C63.4: 2003 NVLAP Lab Code: 200533-0
Test Result	Complied

Test results relate only to the samples tested.

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

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(Engineering Adm. Specialist / Rita Huang)

Tested By : Eason Hung
(Engineer / Eason Hung)

Approved By :
(Manager / Vincent Lin)

Testing Laboratory
0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	VA Mini Dongle
Trade Name	ASUS, Vento, Vento By ASUS
Model No.	VAMINI-0~9, A~Z
FCC ID	MSQVD001
Frequency Range	2402~2480MHz
Type of Modulation	GFSK
Number of Channels	79
Channel Control	Auto
Antenna Type	Printed
Antenna Gain	Refer to the table “Antenna List”

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	Enertronix	N/A	1.8 dBi for 2.4 GHz

Frequency of Each Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2402 MHz	Channel 22:	2423 MHz	Channel 43:	2444 MHz	Channel 64:	2465 MHz
Channel 2:	2403 MHz	Channel 23:	2424 MHz	Channel 44:	2445 MHz	Channel 65:	2466 MHz
Channel 3:	2404 MHz	Channel 24:	2425 MHz	Channel 45:	2446 MHz	Channel 66:	2467 MHz
Channel 4:	2405 MHz	Channel 25:	2426 MHz	Channel 46:	2447 MHz	Channel 67:	2468 MHz
Channel 5:	2406 MHz	Channel 26:	2427 MHz	Channel 47:	2448 MHz	Channel 68:	2469 MHz
Channel 6:	2407 MHz	Channel 27:	2428 MHz	Channel 48:	2449 MHz	Channel 69:	2470 MHz
Channel 7:	2408 MHz	Channel 28:	2429 MHz	Channel 49:	2450 MHz	Channel 70:	2471 MHz
Channel 8:	2409 MHz	Channel 29:	2430 MHz	Channel 50:	2451 MHz	Channel 71:	2472 MHz
Channel 9:	2410 MHz	Channel 30:	2431 MHz	Channel 51:	2452 MHz	Channel 72:	2473 MHz
Channel 10:	2411 MHz	Channel 31:	2432 MHz	Channel 52:	2453 MHz	Channel 73:	2474 MHz
Channel 11:	2412 MHz	Channel 32:	2433 MHz	Channel 53:	2454 MHz	Channel 74:	2475 MHz
Channel 12:	2413 MHz	Channel 33:	2434 MHz	Channel 54:	2455 MHz	Channel 75:	2476 MHz
Channel 13:	2414 MHz	Channel 34:	2435 MHz	Channel 55:	2456 MHz	Channel 76:	2477 MHz
Channel 14:	2415 MHz	Channel 35:	2436 MHz	Channel 56:	2457 MHz	Channel 77:	2478 MHz
Channel 15:	2416 MHz	Channel 36:	2437 MHz	Channel 57:	2458 MHz	Channel 78:	2479 MHz
Channel 16:	2417 MHz	Channel 37:	2438 MHz	Channel 58:	2459 MHz	Channel 79:	2480 MHz
Channel 17:	2418 MHz	Channel 38:	2439 MHz	Channel 59:	2460 MHz		
Channel 18:	2419 MHz	Channel 39:	2440 MHz	Channel 60:	2461 MHz		
Channel 19:	2420 MHz	Channel 40:	2441 MHz	Channel 61:	2462 MHz		
Channel 20:	2421 MHz	Channel 41:	2442 MHz	Channel 62:	2463 MHz		
Channel 21:	2422 MHz	Channel 42:	2443 MHz	Channel 63:	2464 MHz		

Note:

1. The EUT is a VA Mini Dongle with a built-in 2.4GHz transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
4. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249 for spread spectrum devices.
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 2.4GHz VA Mini Dongle built-in 2.4GHz transceiver. The operation frequency is from 2402 MHz to 2480MHz with GFSK modulation. The signal will be transmitted through 2.4 GHz RF signal from the Printed antenna. DC 5V shall be provided for EUT operation.

Test Mode	Mode 1: Transmitter

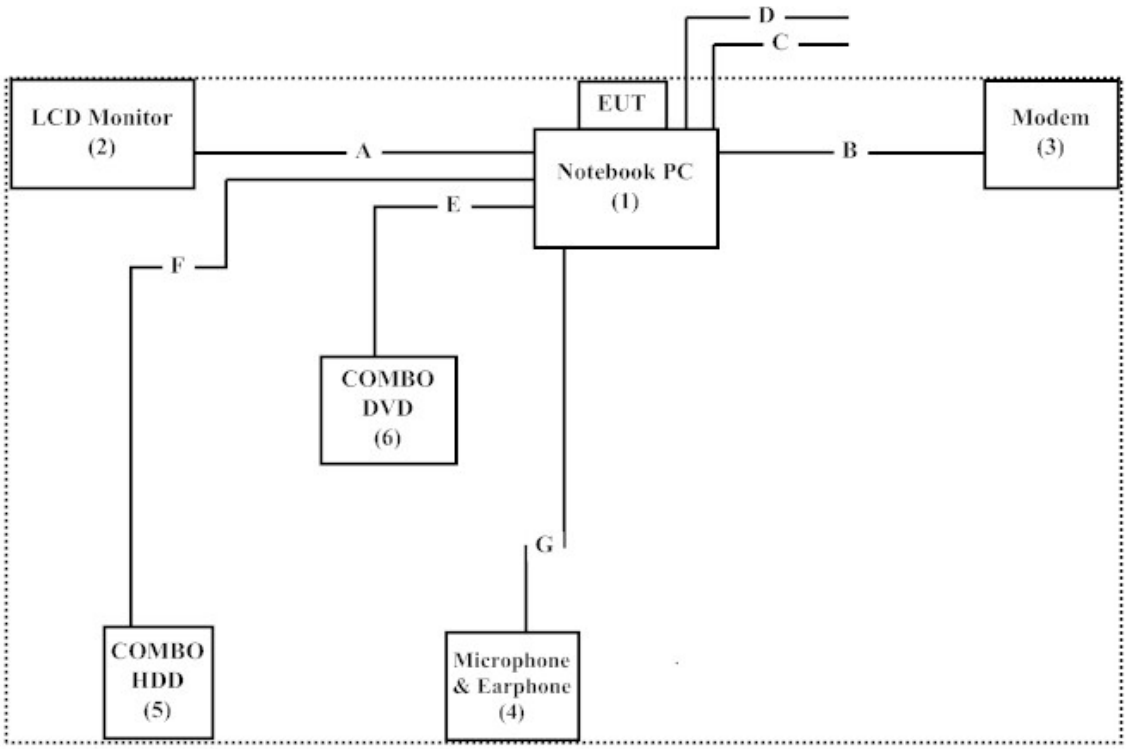
1.3. Tested System Datails

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)	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
(2)	LCD Monitor	CMV	CT-730D	FNC122F57BA1641	Non-Shielded, 1.8m
(3)	Modem	ACEEX	DM-1414	0102027533	Non-Shielded, 1.8m
(4)	Microphone & Earphone	PCHOME	N/A	N/A	N/A
(5)	COMBO HDD	TeraSys	F12-UF	A0100215-63m0031	Non-Shielded 1.8m
(6)	COMBO DVD	Dell	PD01S	N/A	Non-Shielded, 0.3m

Signal Cable Type		Signal cable Description
A.	VGA Cable	Shielded, 1.6m with two ferrite cores bonded
B.	RS-232 Cable	Non-Shielded, 1.2m
C.	RJ11 Cable	Non-Shielded, 1.5m
D.	RJ45 Cable	Non-Shielded, 1.8m
E.	Combo Cable	Non-Shielded, 0.3m
F.	1394 Cable	Non-Shielded, 1.6m
G.	Microphone & Earphone Cable	Non-Shielded, 1.2

1.4. Configuration of Test System



1.5. EUT Exercise Software

1	Setup the EUT as shown in section 1.4.
2	Insert the Dongle via USB port to Notebook.
3	Configure the test mode, the test channel, and the data rate.
4	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

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
FCC Engineering Laboratory
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,
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TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

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2. Conducted Emission

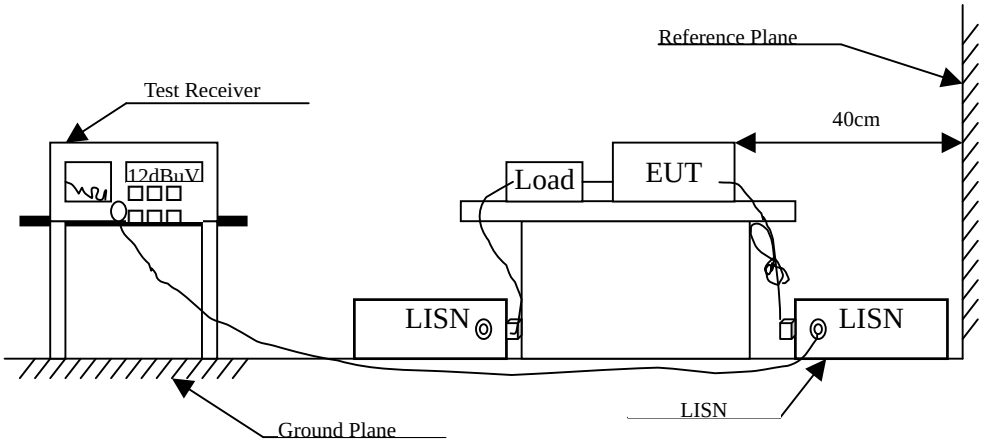
2.1. Test Equipment

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, 2009	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2009	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2009	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2009	
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 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 invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : VA Mini Dongle
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmitter (2440MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.170	9.740	20.720	30.460	-34.969	65.429
0.224	9.690	20.760	30.450	-33.436	63.886
0.341	9.650	26.890	36.540	-24.003	60.543
1.814	9.680	26.310	35.990	-20.010	56.000
3.513	9.698	22.680	32.378	-23.622	56.000
10.427	9.830	22.430	32.260	-27.740	60.000
Average					
0.170	9.740	7.560	17.300	-38.129	55.429
0.224	9.690	9.670	19.360	-34.526	53.886
0.341	9.650	15.310	24.960	-25.583	50.543
1.814	9.680	13.540	23.220	-22.780	46.000
3.513	9.698	7.630	17.328	-28.672	46.000
10.427	9.830	12.010	21.840	-28.160	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 : VA Mini Dongle
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmitter (2440MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.173	9.739	18.270	28.009	-37.334	65.343
0.228	9.698	22.010	31.708	-32.063	63.771
0.341	9.659	18.890	28.549	-31.994	60.543
2.490	9.680	13.800	23.480	-32.520	56.000
3.502	9.695	26.480	36.175	-19.825	56.000
17.154	10.000	19.770	29.770	-30.230	60.000
Average					
0.173	9.739	7.550	17.289	-38.054	55.343
0.228	9.698	9.550	19.248	-34.523	53.771
0.341	9.659	9.520	19.179	-31.364	50.543
2.490	9.680	2.820	12.500	-33.500	46.000
3.502	9.695	13.900	23.595	-22.405	46.000
17.154	10.000	10.220	20.220	-29.780	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. Radiated Emission

3.1. Test Equipment

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

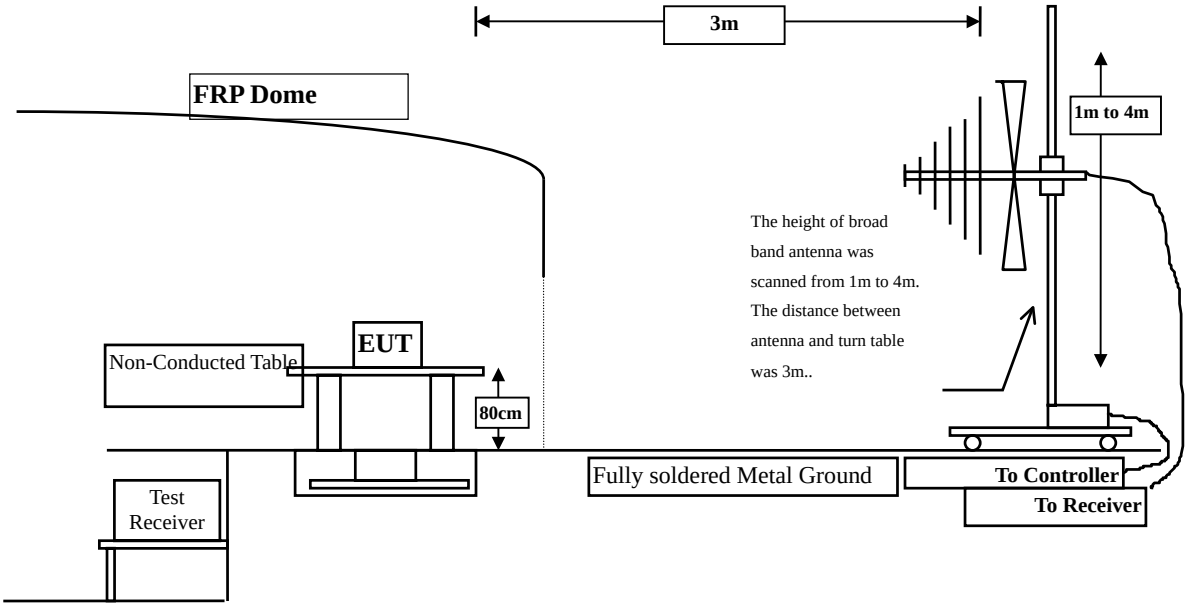
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2008
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

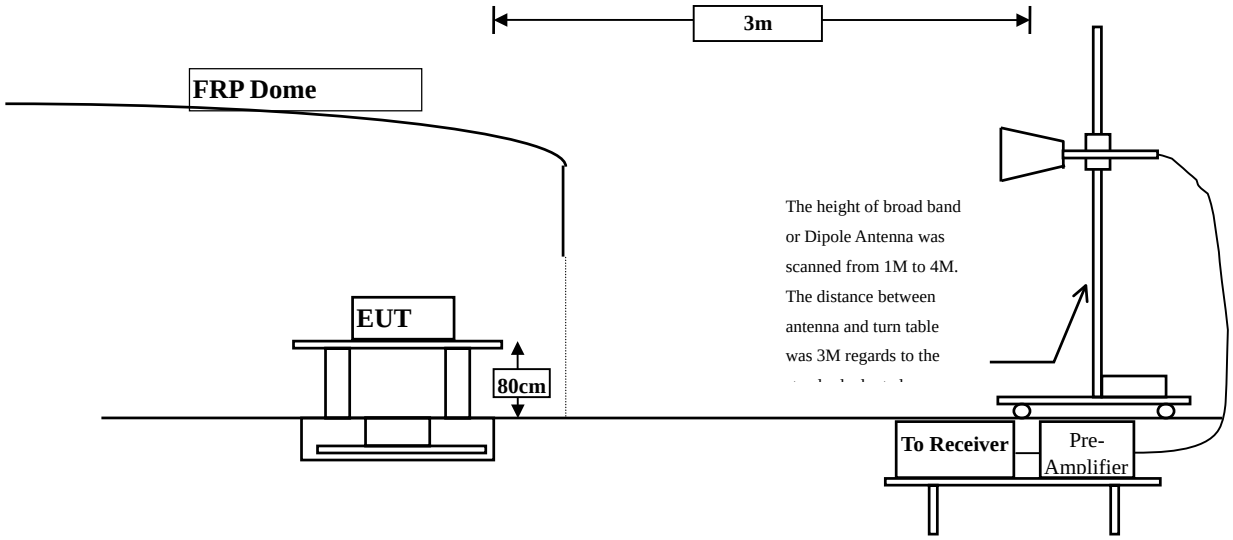
2. The test instruments marked with “X” are used to measure the final test results.

3.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.3. 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(a) 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: E field strength (dBuV/m) = 20 log E field strength (uV/m)

3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.249 requirements.
The EUT is placed on a turn table which is 0.8 meter above ground. The turntable 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 between 1 meter and 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 bandwidth of the antenna.
The worst radiated emission is measured on the Final Measurement.
The measurement frequency range form 30MHz - 10th Harmonic of fundamental was investigated.

3.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

3.6. Test Result of Radiated Emission

Product : VA Mini Dongle
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (2402MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
Channel 01					
2402.000	2.966	84.147	87.113	-26.887	114.000
Average Detector					
--					
Vertical					
Peak Detector:					
Channel 01					
2402.000	1.957	89.277	91.234	-22.766	114.000
Average Detector					
--					

Note:

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

Product : VA Mini Dongle
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (2440MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
Channel 39					
2440.000	2.979	84.630	87.609	-26.391	114.000
Average Detector					
--					
Vertical					
Peak Detector:					
Channel 39					
2440.000	2.177	90.590	92.767	-21.233	114.000
Average Detector					
--					

Note:

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

Product : VA Mini Dongle
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (2480MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
Channel 79					
2480.000	3.073	85.135	88.208	-25.792	114.000
Average Detector					
--					
Vertical					
Peak Detector:					
Channel 79					
2480.000	2.528	90.586	93.114	-20.886	114.000
Average Detector					
--					

Note:

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

Product : VA Mini Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (2402MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4804.000	9.612	39.050	48.662	-25.338	74.000
7206.000	14.293	37.140	51.432	-22.568	74.000
9608.000	19.660	35.610	55.270	-18.730	74.000
Average Detector:					
9608.000	19.660	22.420	42.080	-11.920	54.000
Vertical					
Peak Detector:					
4804.000	8.327	38.420	46.747	-27.253	74.000
7206.000	15.413	35.260	50.673	-23.327	74.000
9608.000	18.870	35.450	54.320	-19.680	74.000
Average Detector:					
9608.000	18.870	24.020	42.890	-11.110	54.000

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; 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.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : VA Mini Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (2440 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4880.000	9.481	36.180	45.660	-28.340	74.000
7320.000	14.559	36.640	51.200	-22.800	74.000
9760.000	20.046	36.620	56.666	-17.334	74.000
Average Detector:					
9760.000	20.046	24.550	44.596	-9.404	54.000
Vertical					
Peak Detector:					
4880.000	8.950	36.480	45.429	-28.571	74.000
7320.000	15.268	32.970	48.239	-25.761	74.000
9760.000	19.252	34.650	53.902	-20.098	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; 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.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : VA Mini Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (2480 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4960.000	9.413	37.620	47.033	-26.967	74.000
7440.000	15.016	34.060	49.076	-24.924	74.000
9920.000	19.752	34.320	54.072	-19.928	74.000
Average Detector:					
9920.000	19.752	23.070	42.822	-11.178	54.000
Vertical					
Peak Detector:					
4960.000	9.716	35.220	44.935	-29.065	74.000
7440.000	15.390	33.790	49.180	-24.820	74.000
9920.000	18.897	34.220	53.118	-20.882	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; 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.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : VA Mini Dongle
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (2440 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
39.700	-3.710	34.676	30.966	-9.034	40.000
130.880	-7.387	37.961	30.573	-12.927	43.500
256.980	-5.518	38.136	32.618	-13.382	46.000
396.660	0.573	34.665	35.237	-10.763	46.000
497.540	1.520	36.314	37.834	-8.166	46.000
1000.000	9.421	32.331	41.752	-12.248	54.000
Vertical					
179.380	-1.048	36.586	35.538	-7.962	43.500
398.600	-2.551	41.154	38.603	-7.397	46.000
499.480	-0.382	37.094	36.711	-9.289	46.000
530.520	0.972	33.735	34.707	-11.293	46.000
749.740	1.841	34.759	36.600	-9.400	46.000
930.160	3.590	30.431	34.021	-11.979	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. The emission levels of other frequencies are very lower than the limit and not show in test report.

4. Band Edge

4.1. Test Equipment

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

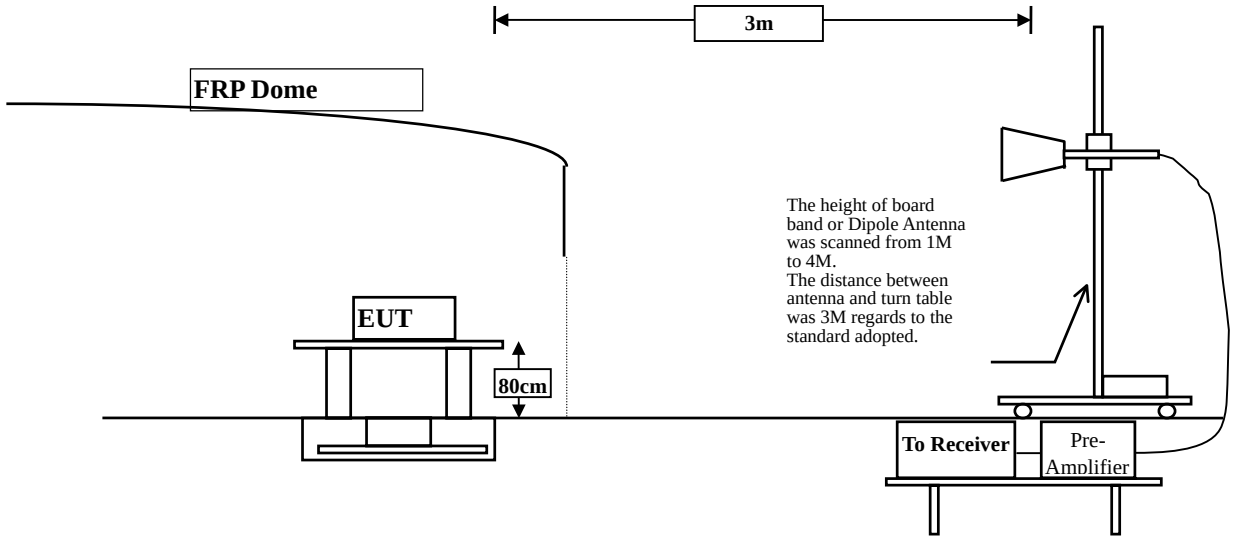
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr, 2009
		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	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 equipments marked by "X" are used to measure the final test results.

4.2. Test Setup

RF Radiated Measurement:



4.3. 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)).

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 setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

4.5. Uncertainty

Conducted is ± 1.27 dB
Radiated is ± 3.9 dB

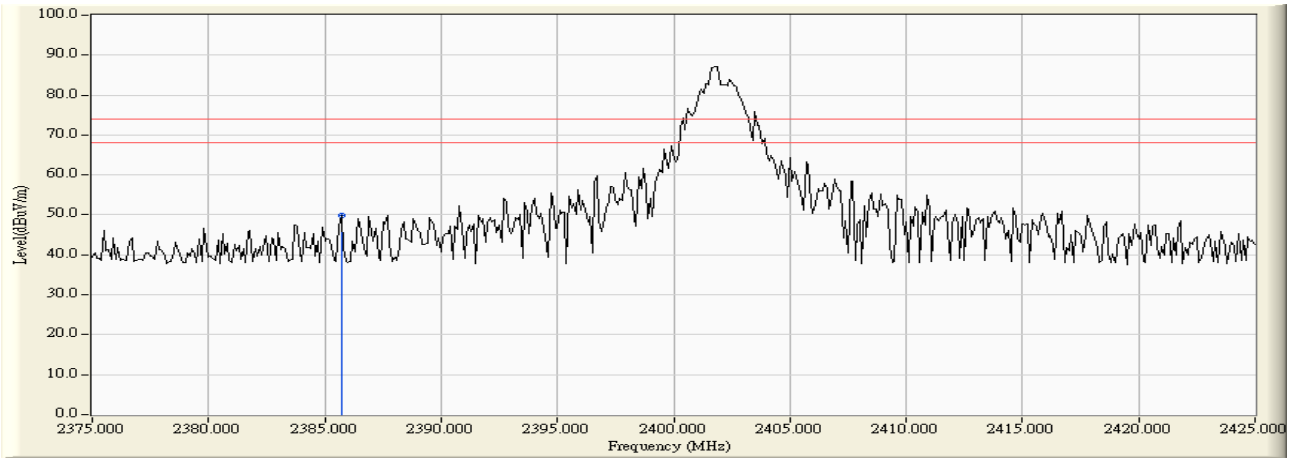
4.6. Test Result of Band Edge

Product : VA Mini Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter

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)	2385.700	2.921	47.011	49.932	74.00	54.00	Pass
01(Average)	--	--	--	--	74.00	54.00	Pass

Figure Channel 01: Horizontal (Peak)



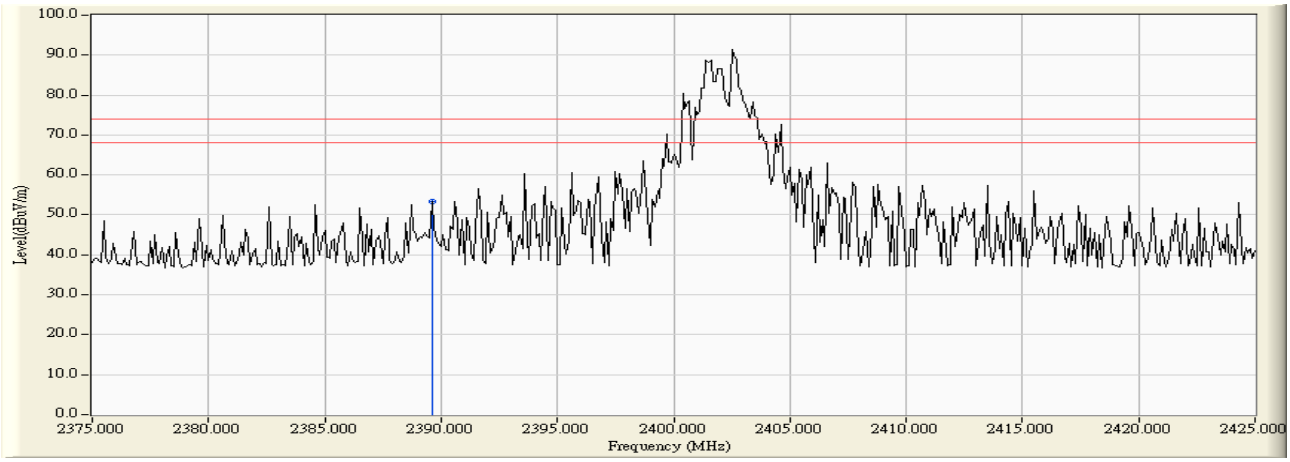
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : VA Mini Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter

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)	2389.600	1.930	51.398	53.328	74.00	54.00	Pass
01(Average)	--	--	--	--	74.00	54.00	Pass

Figure Channel 01: Vertical (Peak)



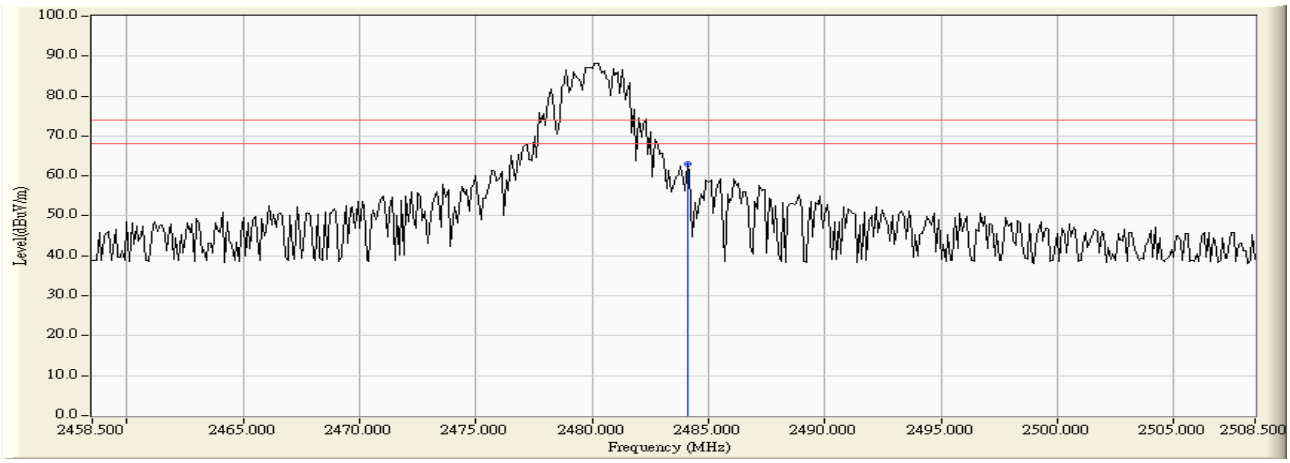
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : VA Mini Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter

RF Radiated Measurement (Horizontal):

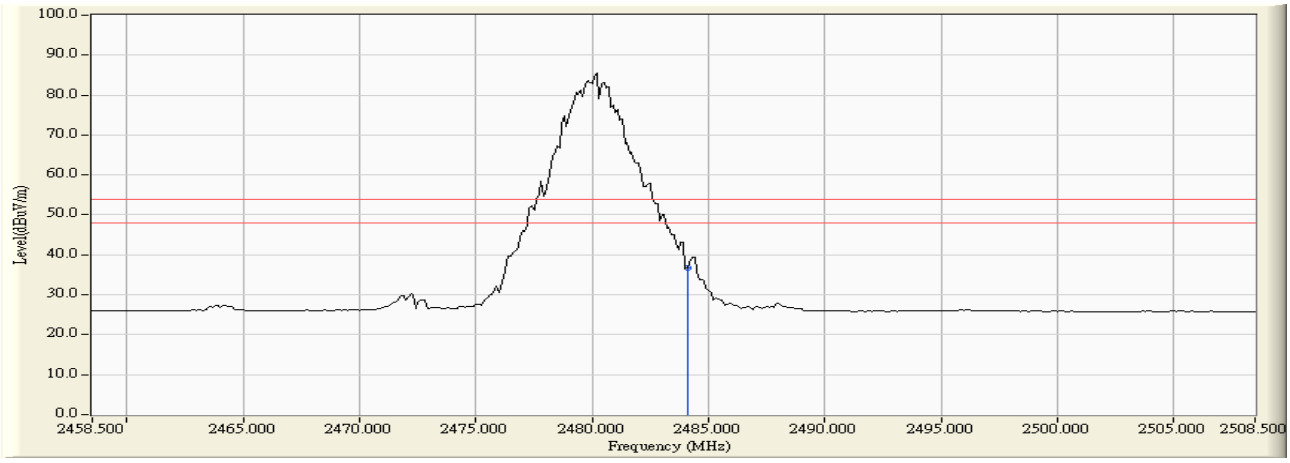
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
79(Peak)	2484.100	3.075	59.928	63.003	74.00	54.00	Pass
79(Average)	2484.100	3.075	33.703	36.778	74.00	54.00	Pass

Figure Channel 79: Horizontal (Peak)



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

Figure Channel 79: Horizontal (Average)



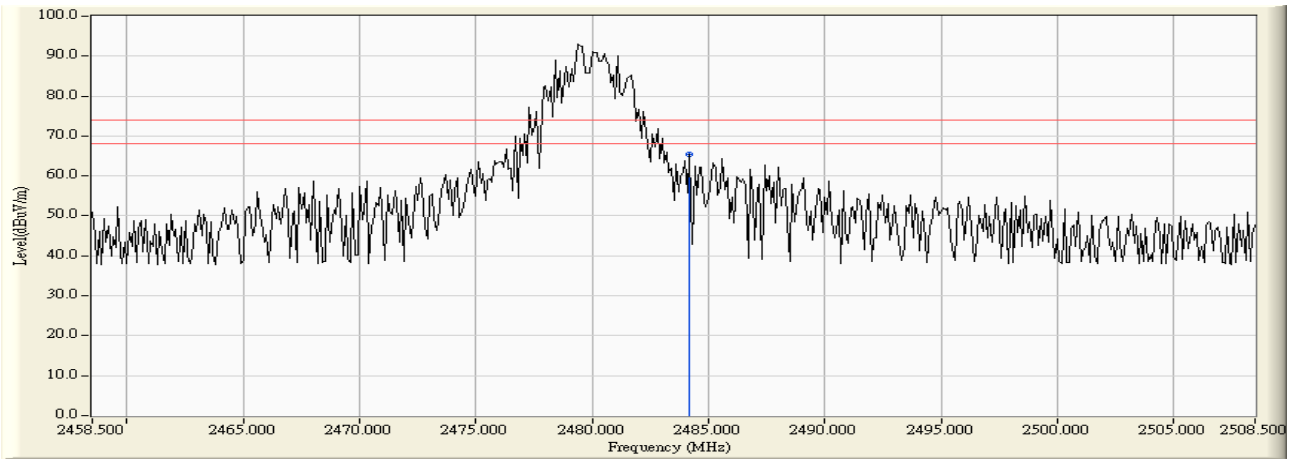
Note: RBW=1MHz, VBW=10Hz, Sweep=5S

Product : VA Mini Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter

RF Radiated Measurement (Vertical):

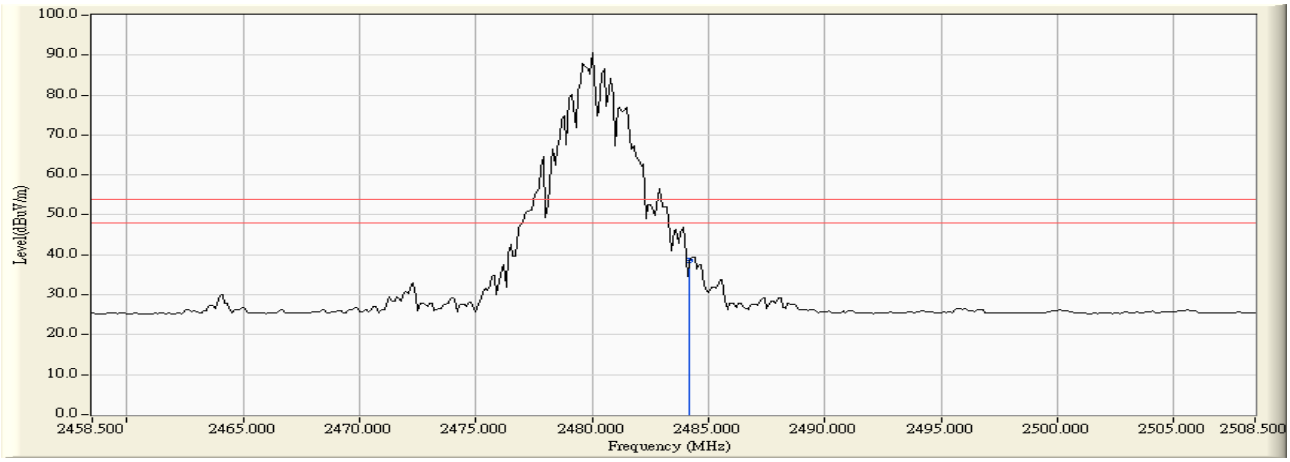
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
79(Peak)	2484.200	2.556	62.757	65.314	74.00	54.00	Pass
79(Average)	2484.200	2.556	36.113	38.670	74.00	54.00	Pass

Figure Channel 79: Vertical (Peak)



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

Figure Channel 79: Vertical (Average)



Note: RBW=1MHz, VBW=10Hz, Sweep=5S

5. EMI Reduction Method During Compliance Testing

No modification was made during testing.