Test Report

Product Name : RF 2.4G PRESENTER

Model No. : PS2400A01

FCC ID. : TPWPS0806A01

Applicant : T-WINS ELECTRONICS CO.,LTD

Address : 6F., No. 9, Guangcyuan Rd., Banciao City,
Taipei County 220, Taiwan, R.O.C.

Date of Receipt : Oct. 18, 2005

Issued Date : Dec. 19, 2005

Report No. : 05AL117FI

Test Report Certification

Issued Date: Dec. 19, 2005
Report No. : 05AL117FI

Product Name	:	RF 2.4G PRESENTER
Applicant	:	T-WINS ELECTRONICS CO.,LTD
Address	:	6F., No. 9, Guangcyuan Rd., Banciao City, Taipei County 220, Taiwan, R.O.C.
Manufacturer	:	T-WINS ELECTRONICS CO.,LTD
Model No.	:	PS2400A01
Rated Voltage	:	AC 120V/60Hz
Trade Name	:	TWINS
Applicable Standard	:	FCC Part 15 Subpart C Paragraph 15.249: 2005 ANSI C63.4: 2003
Test Result	:	Complied

NVLAP Lab Code : 200347-0

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

Documented By : Rita Huang
(Rita Huang)

Tested By : LEO HUANG
(Leo Huang)

Approved By : Gene Chang
(Gene Chang)

CNLA 0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	:	RF 2.4G PRESENTER
Trade Name	:	TWINS
FCC ID.	:	TPWPS0806A01
Model No.	:	PS2400A01
Frequency Range	:	2402 - 2481MHz
Type of Modulation	:	GFSK
Antenna type	:	Printed on PCB
Channel Control	:	N/A

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	Channel 79:	2481 MHz

Note:

1. This device is a RF 2.4G PRESENTER included a 2.4GHz transmitter and a 2.4GHz receiver.
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.

1.2. Operation Description

The EUT is RF 2.4G PRESENTER. The operation frequency is from 2.402GHz to 2.481GHz with FM modulation. Three manually selectable channels were built in the EUT. The signal will be transmitted through GFSK signal from the soldered on PCB antenna from EUT to receiver. DC 3V shall be provided for EUT operation.

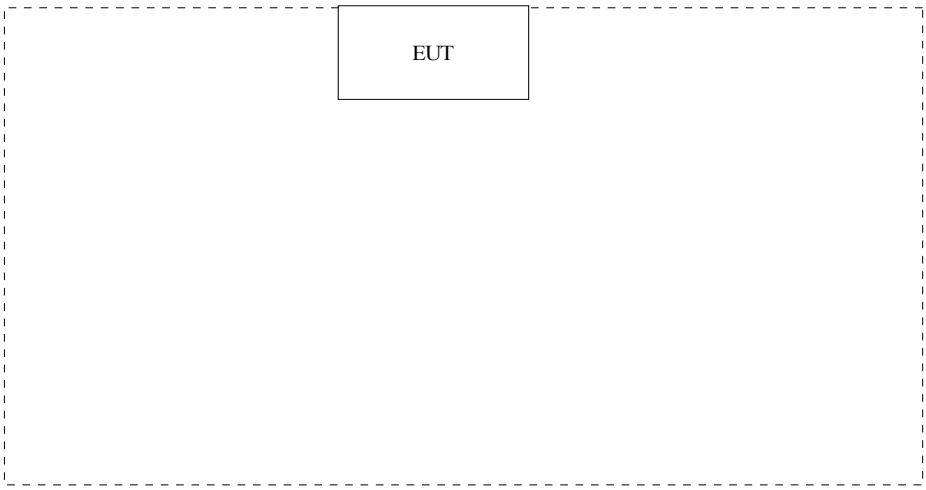
1.3. Tested System Details

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.	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

1.5.1 Setup the EUT as shown in Section 1.4.

1.5.2 Press an up/down button to enable the continuous transmitting of the EUT

1.5.3 Use a spectrum analyzer to verify the signal is generated.

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: June 22, 2001 File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2

July 03, 2001 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

2. Conducted Emission

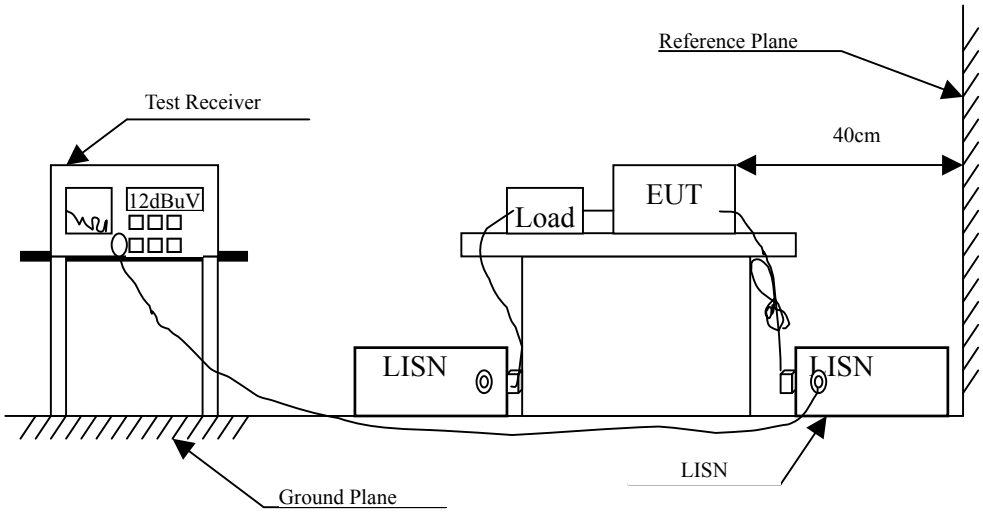
2.1. Test Equipment

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, 2005	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2005	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2005	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2005	
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 invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB

2.6. Test Result of Conducted Emission

The EUT uses batteries. This test item is not performed.

3. Radiated Emission

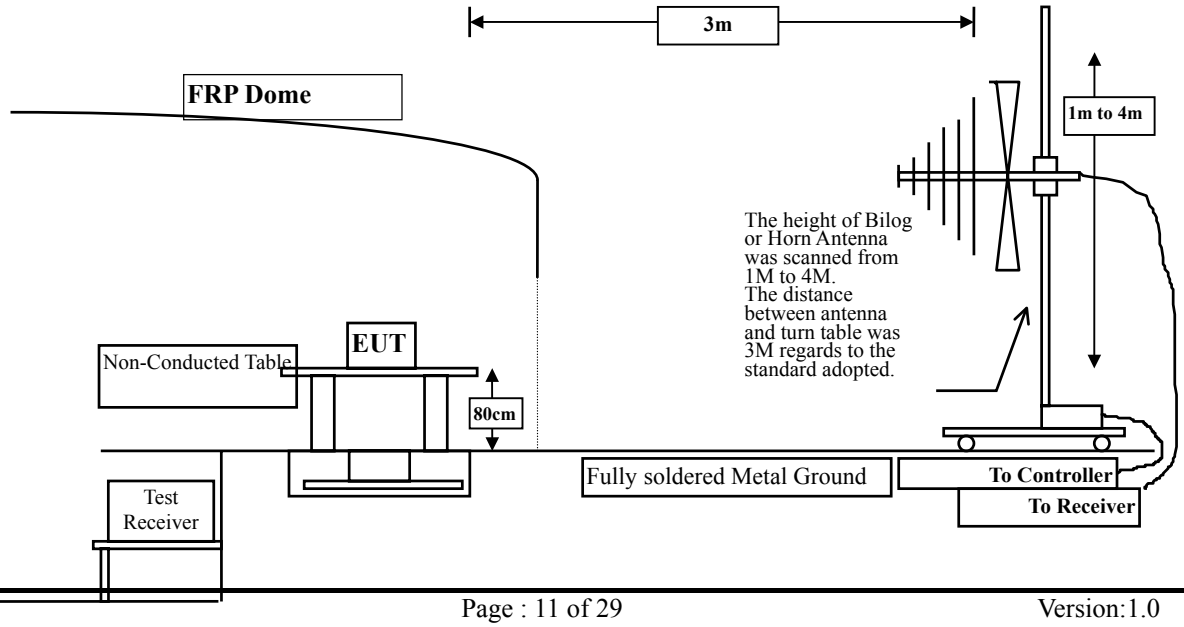
3.1. Test Equipment

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, 2005
		Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2005
		Pre-Amplifier	HP	8447D/3307A01812	May, 2005
		Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2005
		Horn Antenna	EM	EM6917 / 103325	May, 2005
		Test Receiver	R & S	ESCS 30 / 825442/17	May, 2005
Site # 2		Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2005
		Pre-Amplifier	HP	8447D/3307A01814	May, 2005
		Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2005
		Horn Antenna	EM	EM6917 / 103325	May, 2005
Site # 3	X	Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2005
	X	Spectrum Analyzer	Advantest	R3162 / 100803480	May, 2005
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2005
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2005
	X	Horn Antenna	ETS	3115 / 0005-6160	July, 2005
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2005

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 invested over the frequency range from 30MHz to1GHz 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 harminics is checked.

3.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
under 1G is defined as ± 3.19 dB

3.6. Test Result of Radiated Emission

Product : RF 2.4G PRESENTER
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Normal Operation

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Average Limit dBuV/m
Horizontal					
Peak Detector:					
Channel 00					
2402.000	-2.318	85.962	83.644	-30.356	114.000
Channel 45					
2447.000	-2.102	86.610	84.509	-29.491	114.000
Channel 79					
2481.000	-1.946	87.440	85.493	-28.507	114.000
Average Detector					
Channel 00					
2402.000	-2.318	65.440	63.122	-30.878	94.000
Channel 45					
2447.000	-2.102	65.620	63.519	-30.481	94.000
Channel 79					
2481.000	-1.946	67.140	65.193	-28.807	94.000
Vertical					
Peak Detector:					
Channel 00					
2402.000	-2.318	88.530	86.212	-27.788	114.000
Channel 45					
2447.000	-2.102	87.610	85.509	-28.491	114.000
Channel 79					
2481.000	-1.946	89.730	87.783	-26.217	114.000
Average Detector					
Channel 00					
2402.000	-2.318	67.370	65.052	-28.948	94.000
Channel 45					
2447.000	-2.102	66.220	64.119	-29.881	94.000
Channel 79					
2481.000	-1.946	68.170	66.223	-27.777	94.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. 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 : RF 2.4G PRESENTER
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Channel 00 (2402MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Average Limit dBuV/m
Horizontal					
Peak Detector:					
4804.000	3.663	63.910	67.573	-6.427	74.000
7206.000	9.357	48.670	58.026	-15.974	74.000
9608.000	11.842	42.670	54.512	-19.488	74.000
Average Detector					
4804.000	3.663	48.904	52.567	-1.403	53.970
7206.000	9.357	38.140	47.496	-6.474	53.970
9608.000	11.842	31.740	43.582	-10.388	53.970
Vertical					
Peak Detector:					
4804.000	3.663	61.250	64.913	-9.087	74.000
7206.000	9.357	51.570	60.926	-13.074	74.000
9608.000	11.842	44.850	56.692	-17.308	74.000
Average Detector					
4804.000	3.663	49.357	53.020	-0.950	53.970
7206.000	9.357	40.800	50.156	-3.814	53.970
9608.000	11.842	33.250	45.092	-8.878	53.970

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 : RF 2.4G PRESENTER
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Channel 45 (2447MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Average Limit dBuV/m
Horizontal					
Peak Detector:					
4894.000	3.966	62.230	66.195	-7.805	74.000
7341.000	9.706	46.840	56.546	-17.454	74.000
9788.000	11.794	44.610	56.404	-17.596	74.000
Average Detector					
4894.000	3.966	48.911	52.876	-1.094	53.970
7341.000	9.706	35.860	45.566	-8.404	53.970
9788.000	11.794	32.530	44.324	-9.646	53.970
Vertical					
Peak Detector:					
4894.000	3.966	60.090	64.055	-9.945	74.000
7341.000	9.706	49.710	59.416	-14.584	74.000
9788.000	11.794	45.770	57.564	-16.436	74.000
Average Detector					
4894.000	3.966	49.130	53.095	-0.875	53.970
7341.000	9.706	39.550	49.256	-4.714	53.970
9788.000	11.794	33.510	45.304	-8.666	53.970

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 : RF 2.4G PRESENTER
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Channel 79 (2481MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Average Limit dBuV/m
Horizontal					
Peak Detector:					
4962.000	4.203	61.560	65.764	-8.236	74.000
7443.000	9.956	45.500	55.457	-18.543	74.000
9924.000	11.858	44.910	56.767	-17.233	74.000
Average Detector					
4962.000	4.203	48.559	52.763	-1.207	53.970
7443.000	9.956	34.020	43.977	-9.993	53.970
9924.000	11.858	33.920	45.777	-8.193	53.970
Vertical					
Peak Detector:					
4962.000	4.203	60.810	65.014	-8.986	74.000
7443.000	9.956	48.960	58.917	-15.083	74.000
9924.000	11.858	46.370	58.227	-15.773	74.000
Average Detector					
4962.000	4.203	48.719	52.923	-1.047	53.970
7443.000	9.956	38.280	48.237	-5.733	53.970
9924.000	11.858	33.640	45.497	-8.473	53.970

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 : RF 2.4G PRESENTER
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Channel 00 (2402MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
459.230	18.563	3.779	22.342	-23.658	46.000
544.100	19.945	5.588	25.533	-20.467	46.000
604.720	20.211	4.138	24.349	-21.651	46.000
745.380	20.852	5.652	26.505	-19.495	46.000
798.720	21.908	4.412	26.320	-19.680	46.000
903.000	22.061	5.073	27.134	-18.866	46.000
Vertical					
376.770	16.581	4.249	20.830	-25.170	46.000
544.100	20.532	5.735	26.267	-19.733	46.000
689.600	20.441	4.456	24.897	-21.103	46.000
755.080	23.113	4.921	28.034	-17.966	46.000
881.170	22.702	8.266	30.968	-15.032	46.000
966.050	22.938	4.795	27.733	-26.267	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " " means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : RF 2.4G PRESENTER
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Channel 45 (2447MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
357.380	15.207	4.915	20.122	-25.878	46.000
461.650	18.642	4.369	23.011	-22.989	46.000
544.100	19.945	5.328	25.273	-20.727	46.000
745.380	20.852	5.592	26.445	-19.555	46.000
827.830	21.884	4.290	26.174	-19.826	46.000
929.670	22.978	3.996	26.973	-19.027	46.000
Vertical					
510.150	18.751	4.243	22.994	-23.006	46.000
687.170	20.371	3.908	24.280	-21.720	46.000
755.080	23.113	5.001	28.114	-17.886	46.000
839.950	21.403	5.100	26.503	-19.497	46.000
941.800	23.800	4.701	28.501	-17.499	46.000
968.470	22.949	4.171	27.120	-26.880	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " " means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : RF 2.4G PRESENTER
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Channel 79

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
381.620	15.715	4.234	19.948	-26.052	46.000
544.100	19.945	5.188	25.133	-20.867	46.000
604.720	20.211	4.618	24.829	-21.171	46.000
713.850	20.577	4.753	25.330	-20.670	46.000
830.250	21.907	4.628	26.535	-19.465	46.000
932.100	22.840	4.700	27.540	-18.460	46.000
Vertical					
374.350	16.714	4.513	21.227	-24.773	46.000
544.100	20.532	5.168	25.700	-20.300	46.000
619.280	21.591	5.802	27.393	-18.607	46.000
687.170	20.371	4.028	24.400	-21.600	46.000
842.380	21.416	4.690	26.106	-19.894	46.000
966.050	22.938	4.062	27.000	-27.000	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " " means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

4. Band Edge

4.1. Test Equipment

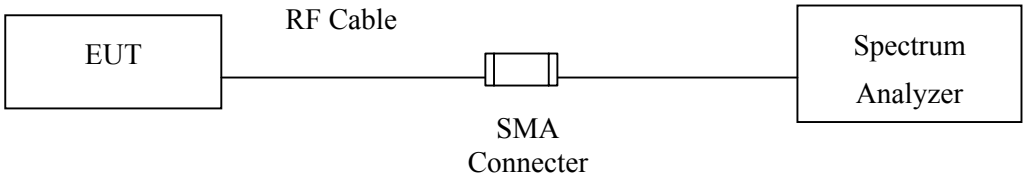
The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Advantest	R3272 / 72421194	May, 2005
X	Test Receiver	R & S	ESCS 30 / 825442/14	May, 2005
X	Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2005
X	Pre-Amplifier	HP	8447D/3307A01812	May, 2005
X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2005
X	Horn Antenna	EM	EM6917 / 103325	May, 2005

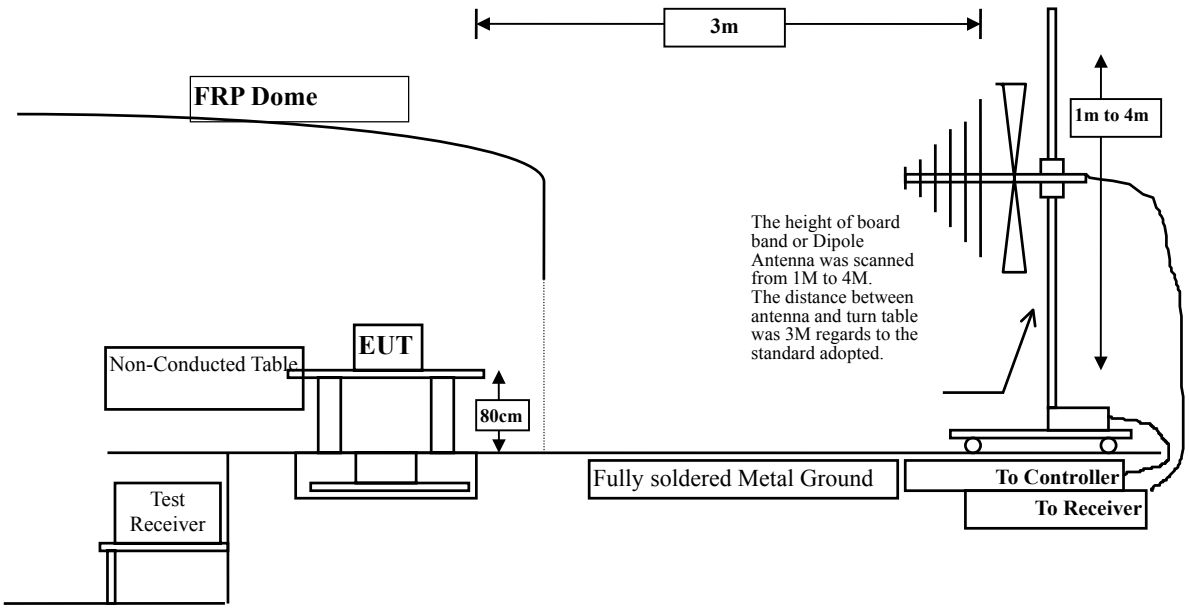
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. Mark "X" test instruments are used to measure the final test results.

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

The measurement uncertainty Conducted is defined as ± 1 MHz and Radiated above 1GHz as ± 3.9 dB.

4.6. Test Result of Band Edge

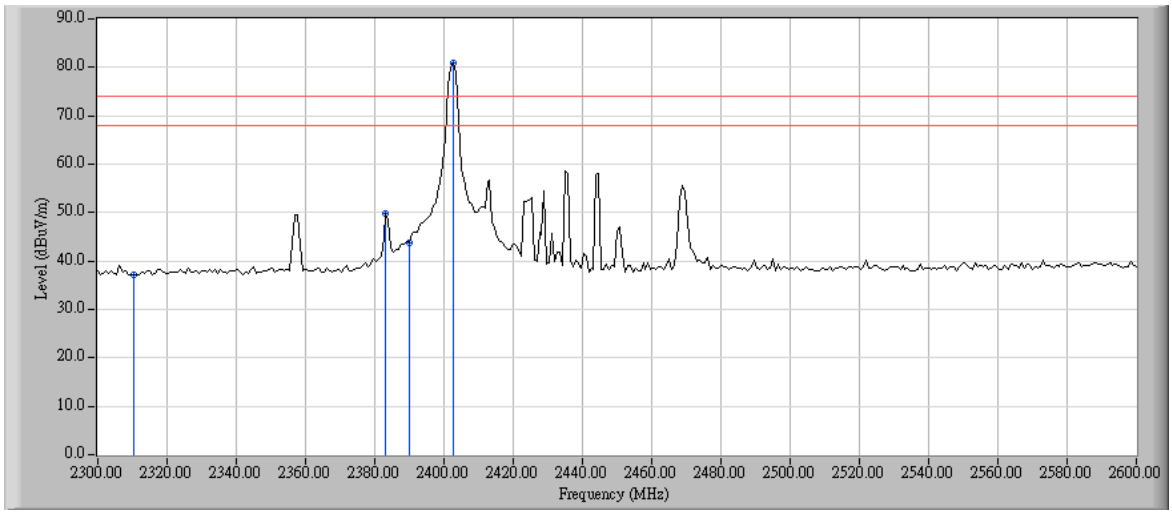
Product : RF 2.4G PRESENTER
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Channel 00 (2402MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2383.250	52.110	49.700	74.00	54.00	Pass
00 (Average)	--	--	--	74.00	54.00	Pass

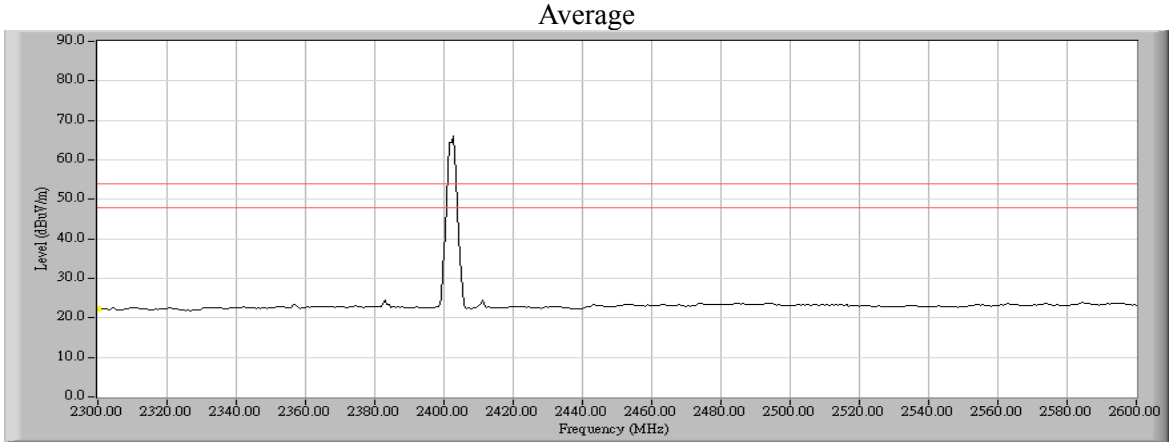
Figure Channel 00: (Horizontal)

Peak



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

Average



RBW=1MHz, VBW=2kHz, Sweep Time=500ms

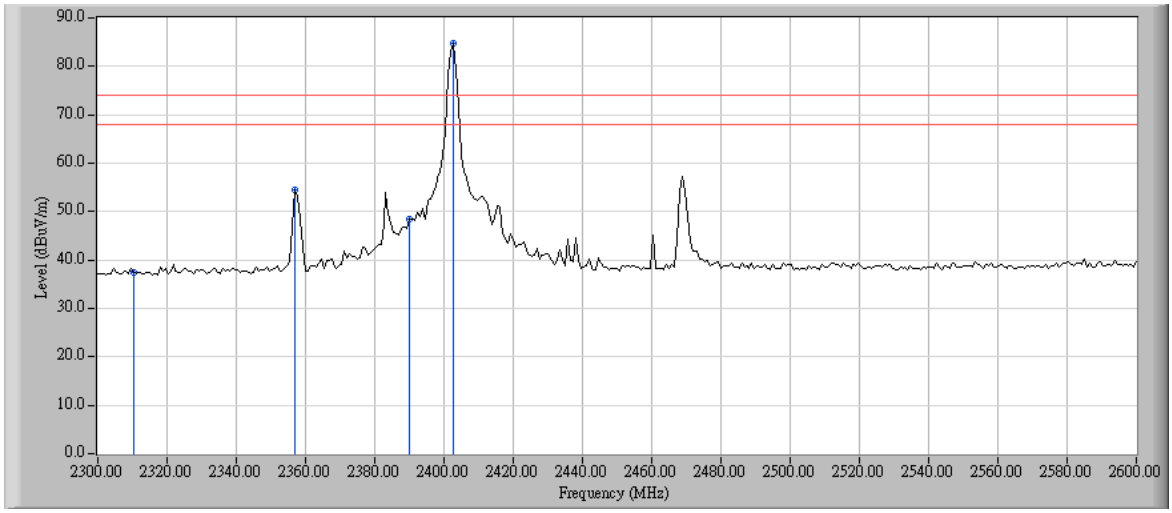
Product : RF 2.4G PRESENTER
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Channel 00

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2357.000	57.120	54.590	74.00	54.00	Pass
00(Average)	2357.110	25.455	23.580	74.00	54.00	Pass

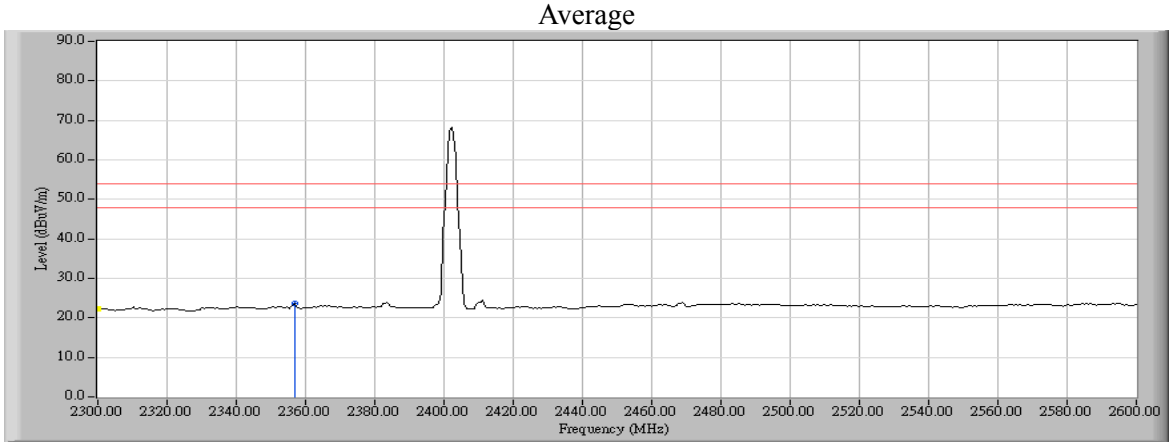
Figure Channel 00: (Vertical)

Peak



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

Average



RBW=1MHz, VBW=2kHz, Sweep Time=500ms

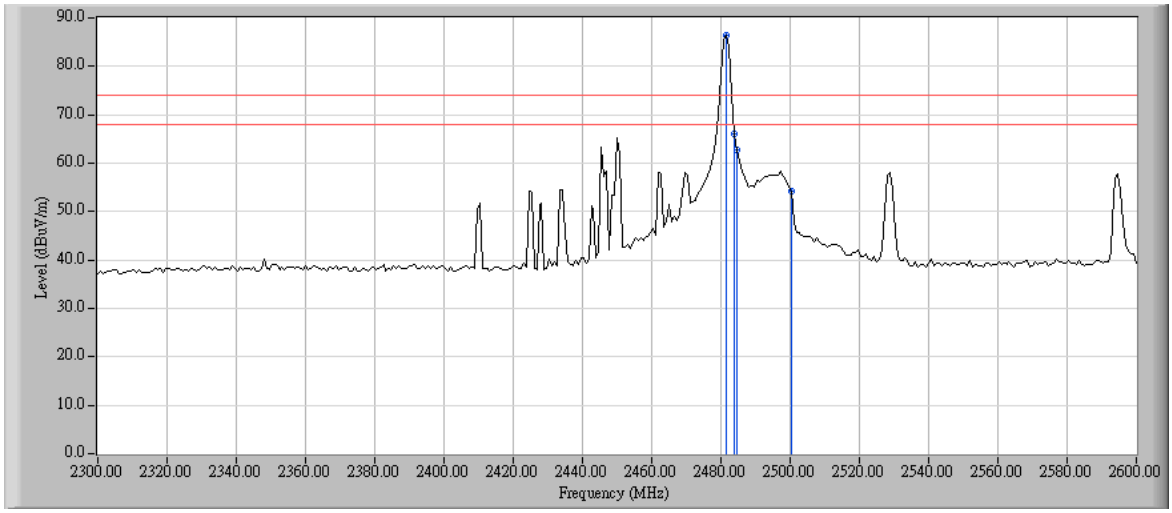
Product : RF 2.4G PRESENTER
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Channel 78

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2484.500	64.644	62.710	74.00	54.00	Pass
78(Average)	2484.570	25.408	24.020	74.00	54.00	Pass

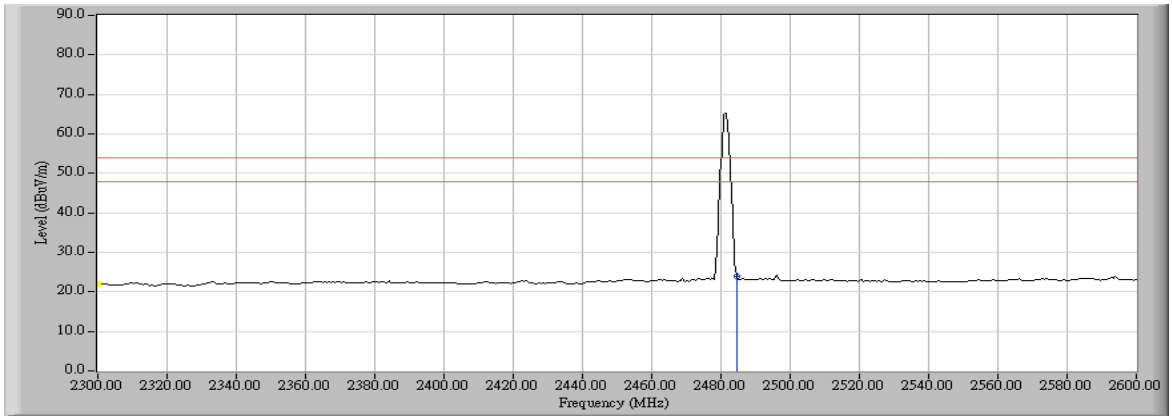
Figure Channel 78: (Horizontal)

Peak



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

Average



RBW=1MHz, VBW=2kHz, Sweep Time=500ms

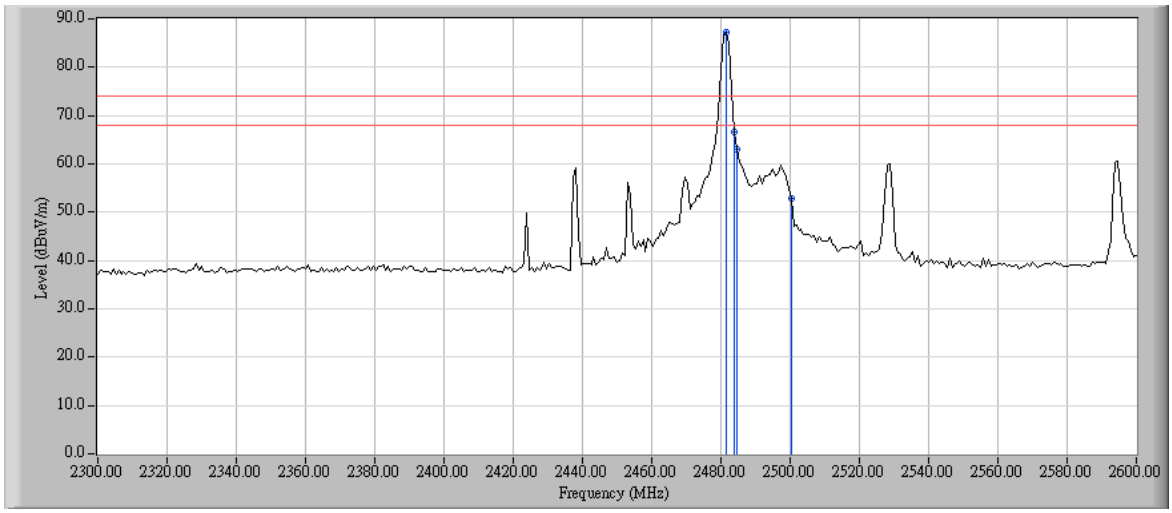
Product : RF 2.4G PRESENTER
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Channel 78

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2484.500	65.044	63.110	74.00	54.00	Pass
78(Average)	2484.570	25.888	24.500	74.00	54.00	Pass

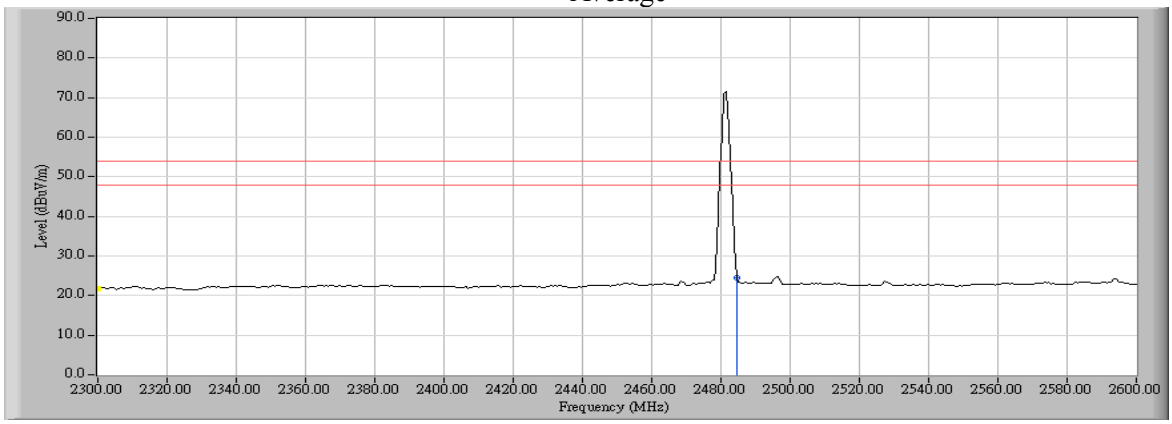
Figure Channel 78: (Vertical)

Peak



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

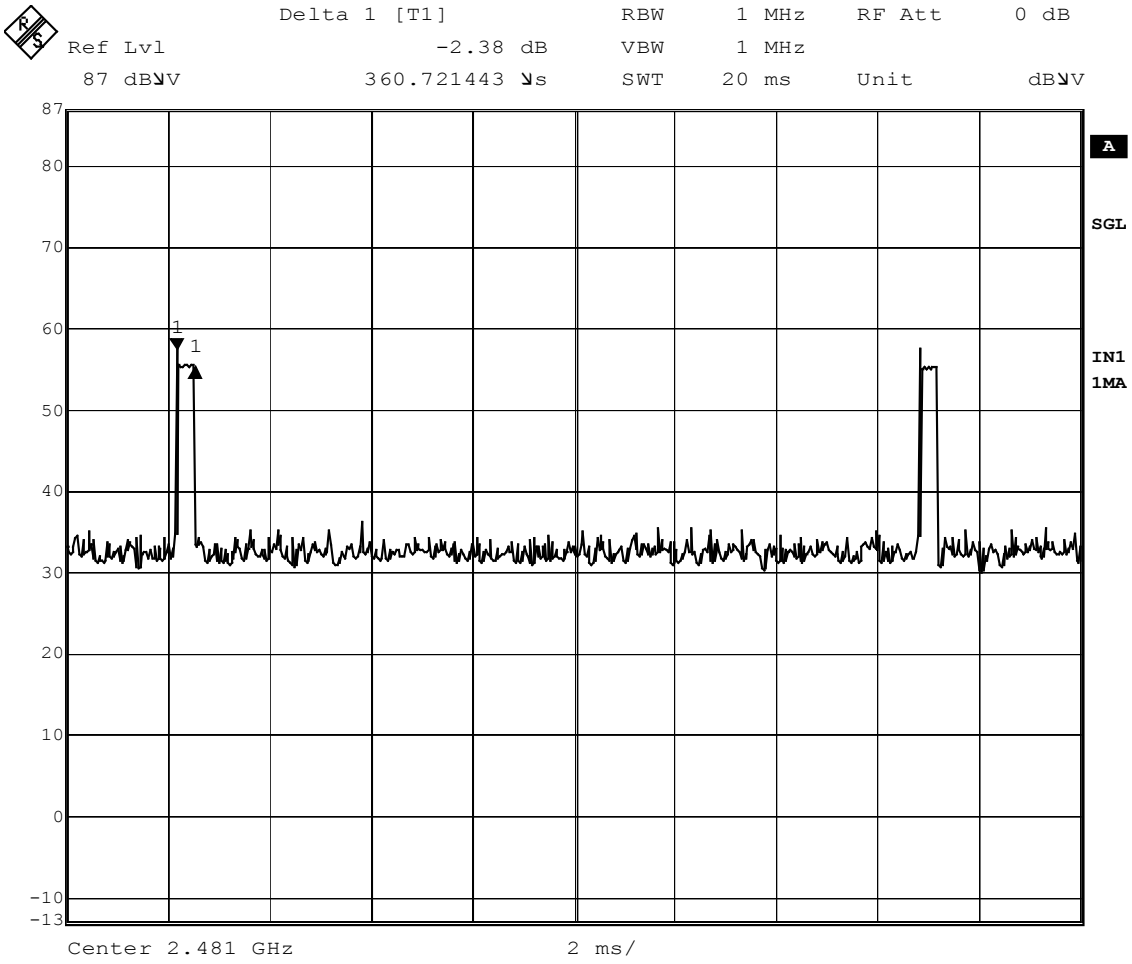
Average



RBW=1MHz, VBW=2kHz, 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.

Justification for using VBW=2kHz



On duration of the transmitter Ton = 360.72us
VBW < 1/Ton = 2.77kHz

5. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1 : EUT Test Photographs

Attachment 2 : EUT Detailed Photographs