FCC Radio Test Report

FCC ID: VXX-24WP01R

This report concerns (check one) : ■ **Original Grant** □ **Class I Change**

Issued Date	:	Sep. 05, 2008
Project No.	:	R0807003
Equipment	:	2.4G Wireless Partner
Model Name	:	24WP01R
Applicant	:	Martel Electronics Sales Inc.
Address	:	23221 E. La Palma Ave.Yorba Linda, CA 92887

Tested by:

Neutron Engineering Inc. EMC Laboratory

Date of Test:

Jul. 16, 2008 ~ Sep. 05, 2008

Testing Engineer : Rush Kao
(Rush Kao)

Technical Manager : Jeff Yang
(Jeff Yang)

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(Andy Chiu)

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NVLAP Lab Code: 200145-0 ilac-MRA TAF Testing Laboratory 0659

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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Limitation

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1. CERTIFICATION

Equipment : 2.4G Wireless Partner
Brand Name : Martel
Model No. : 24WP01R
Applicant : Martel Electronics Sales Inc.
Data of Test : Jul. 16, 2008 ~ Sep. 05, 2008
Test Item : ENGINEERING SAMPLE
Standards : FCC Part15, Subpart C(15.249) / RSS-210: 2004/ ANCI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-R0807003) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15, Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.249	Radiated Spurious Emission	PASS	Note(1)

NOTE:

(1) About the emissions radiated outside of the specified frequency bands, except for harmonics, below the level of the general radiated emission limits in Section 15.209.

(2) This test report covers EUT radio function only. Its receive function testing is covered in another DOC test report: NEI-FCCE-1-R0807003.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **C01/OS01(FCC R.N.: 95335)** at the location of No.132-1, Lane 329, Sec. 2, Palian Road, Shijr City, Taipei, Taiwan.
Neutron's test firm number is 95335

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
OS-01	ANSI	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
OS-02	ANSI	30MHz ~ 200MHz	V	2.48	
		30MHz ~ 200MHz	H	2.16	
		200MHz ~ 1,000MHz	V	2.50	
		200MHz ~ 1,000MHz	H	2.66	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	2.4G Wireless Partner
Brand Name	Martel
Model No.	24WP01R
OEM Brand/Model No.	N/A
Model Difference	N/A
Product Description	The EUT is a 2.4G Wireless Partner. Operation Frequency: 2402.784~2477.952MHz Modulation Type: GFSK Number Of Channel 88CH Antenna Designation: Please see Note 2. Antenna Gain(Peak) Please see Note 2. Output Power: 105.26dBuV/m (Max.) Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Channel List	Please refer to the Note 3.
Power Source	Please refer to the User's Manual
Power Rating	DC 12V
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	NA

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
N/A	N/A	N/A	Monopole	N/A	-3.4

2. **Channel List**

CH	Freq
0	2402.784
1	2403.648
2	2404.512
3	2405.376
4	2406.240
5	2407.104
6	2407.968
7	2408.832
8	2409.696
9	2410.560
10	2411.424
11	2412.288
12	2413.152
13	2414.016
14	2414.880
15	2415.744
16	2416.608
17	2417.472
18	2418.336
19	2419.200
20	2420.064
21	2420.928
22	2421.792
23	2422.656
24	2423.520
25	2424.384
26	2425.248
27	2426.112
28	2426.976
29	2427.840
30	2428.704

CH	Freq
31	2429.568
32	2430.432
33	2431.296
34	2432.160
35	2433.024
36	2433.888
37	2434.752
38	2435.616
39	2436.480
40	2437.344
41	2438.208
42	**2439.072**
43	2439.936
44	2440.800
45	2441.664
46	2442.528
47	2443.392
48	2444.256
48	2445.120
50	2445.984
51	2446.848
52	2447.712
53	2448.576
54	2449.440
55	2450.304
56	2451.168
57	2452.032
58	2452.896
59	2453.760
60	2454.624
61	2455.488

CH	Freq
62	2456.352
63	2457.216
64	2458.080
65	2458.944
66	2459.808
67	2460.672
68	2461.536
69	2462.400
70	2463.264
71	2464.128
72	2464.992
73	2465.856
74	2466.720
75	2467.584
76	2468.448
77	2469.312
78	2470.176
79	2471.040
80	2471.904
81	2472.768
82	2473.632
83	2474.496
84	2475.360
85	2476.224
86	2477.088
87	**2477.952**

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

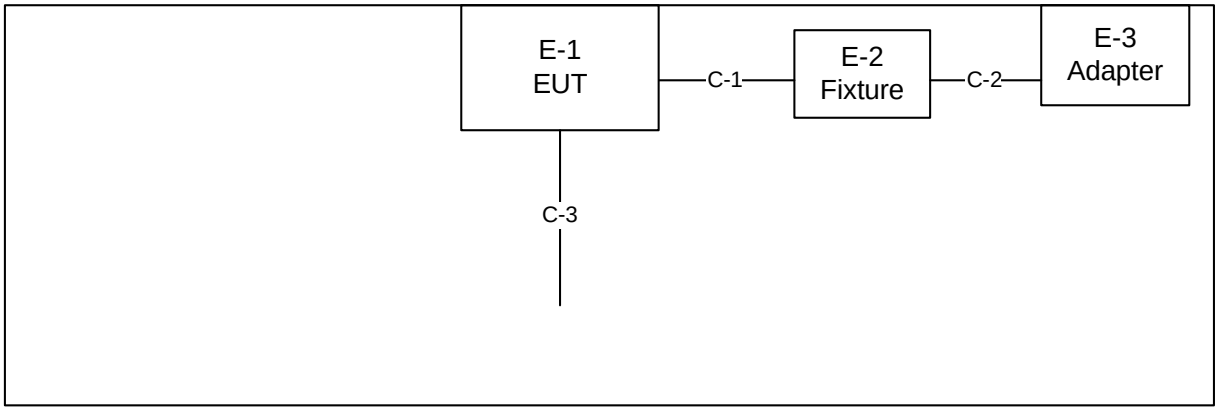
Pretest Test Mode	Description
Mode 1	CH00 :2402.784MHz
Mode 2	CH42 :2439.072MHz
Mode 3	CH87 :2477.952MHz

For Conducted Test	
Final Test Mode	Description
Mode 2	CH42 :2439.072MHz

For Radiated Test (30 -1000MHz)	
Final Test Mode	Description
Mode 2	CH42 :2439.072MHz

For Radiated Test (Above 1000MHz)	
Final Test Mode	Description
Mode 1	CH00 :2402.784MHz
Mode 2	CH42 :2439.072MHz
Mode 3	CH87 :2477.952MHz

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



C-1 Power Cable
C-2 Power Cable
C-3 Audio Cable

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	2.4G Wireless Partner	Martel	24WP01R	VXX-24WP01R	N/A	EUT
E-2	Fixture	N/A	N/A	N/A	N/A	
E-3	Adapter	DEER	AD2512B	N/A	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.2M	
C-2	NO	NO	1.5M	
C-3	NO	YES	0.9M	
C-4	NO	NO	0.7M	

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Test Cable	N/A	C01	N/A	Oct. 10, 2008
2	Pulse Limiter	Electro-Metrics	EM-7600	112647	Oct. 10, 2008
3	EMI Test Receiver	R&S	ESCI	100082	Feb. 23, 2009

Remark: ” N/A” denotes No Model No. , Serial No. or No Calibration specified.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

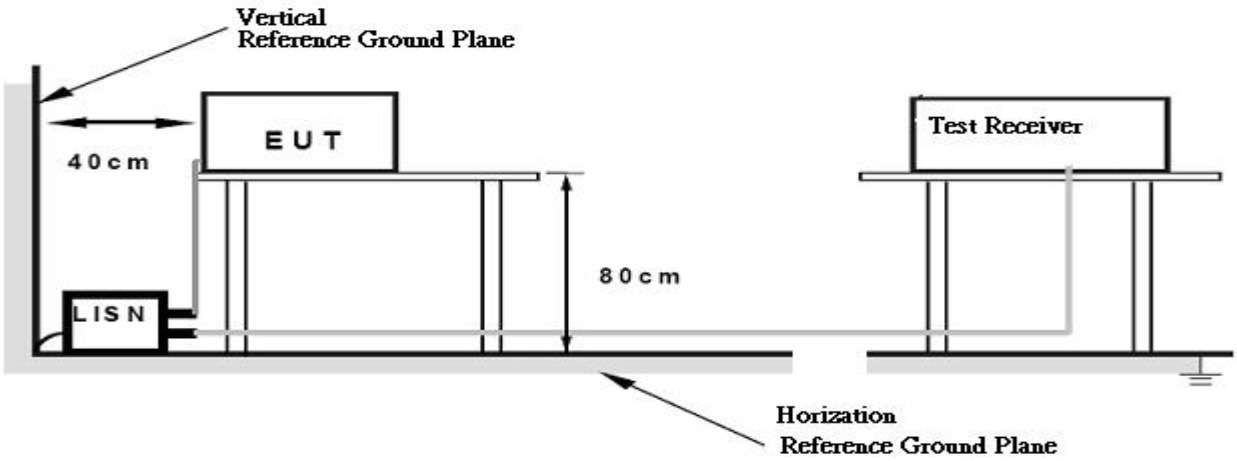
4.1.3 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



4.1.6 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.1.7 TEST RESULTS

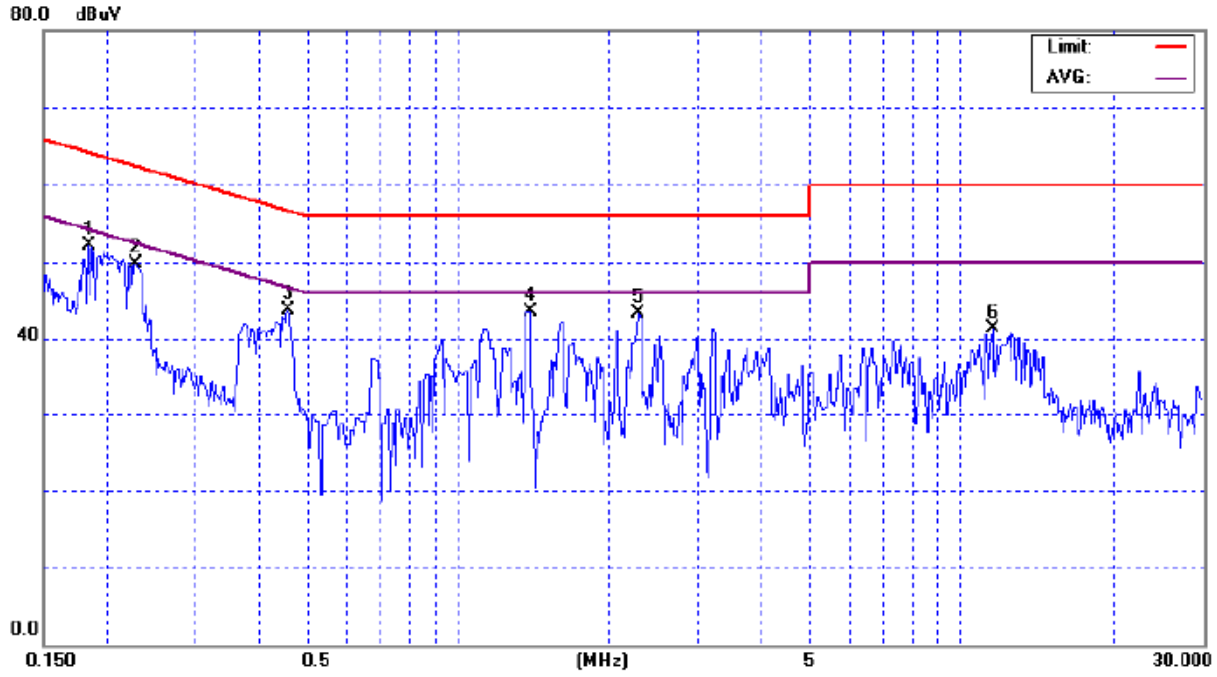
E.U.T :	2.4G Wireless Partner	Model Name :	24WP01R
Temperature :	26°C	Relative Humidity :	52%
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH42 (2439.072MHz)		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.18	Line	52.12	*	64.32	54.32	-12.20	(QP)
0.23	Line	49.70	*	62.56	52.56	-12.86	(QP)
0.46	Line	43.65	*	56.74	46.74	-13.09	(QP)
1.38	Line	43.53	*	56.00	46.00	-12.47	(QP)
2.28	Line	43.25	*	56.00	46.00	-12.75	(QP)
11.55	Line	41.28	*	60.00	50.00	-18.72	(QP)

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(2) Measuring frequency range from 150KHz to 30MHz。



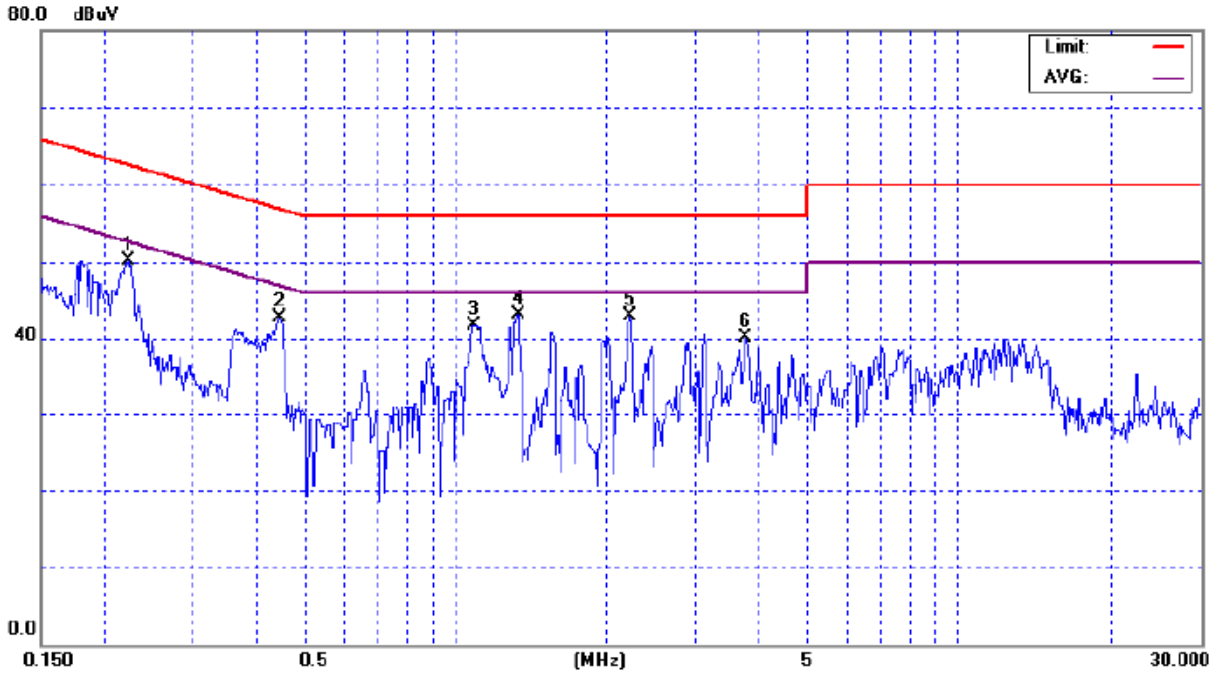
E.U.T :	2.4G Wireless Partner	Model Name :	24WP01R
Temperature :	26°C	Relative Humidity :	52%
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH42 (2439.072MHz)		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.22	Neutral	50.12	*	62.71	52.71	-12.59	(QP)
0.45	Neutral	42.64	*	56.95	46.95	-14.31	(QP)
1.09	Neutral	41.76	*	56.00	46.00	-14.24	(QP)
1.33	Neutral	43.14	*	56.00	46.00	-12.86	(QP)
2.22	Neutral	42.84	*	56.00	46.00	-13.16	(QP)
3.77	Neutral	40.08	*	56.00	46.00	-15.92	(QP)

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(2) Measuring frequency range from 150KHz to 30MHz。



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS (FCC 15.209)

requencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Note:

(1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.209)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15B.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC Part 15.249)

FCC Part15 (15.249) , Subpart C	
Limit	Frequency Range (MHz)
Field strength of fundamental 50000 μV/m (94 dBμV/m) @ 3 m	2400-2483.5
Field strength of harmonics 500 μV/m (54 dBμV/m) @ 3 m	Above 2483.5

4.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Log-Bicon Antenna	Schwarzbeck	VULB 9160	3176	Jul. 01, 2009
2	Test Cable	N/A	10M_OS01	N/A	Oct. 10, 2008
3	Test Cable	N/A	OS01-1/-2	N/A	Oct. 10, 2008
4	Pre-Amplifier	Anritsu	MH648A(OS01)	M09961	Oct. 10, 2008
5	EMI Test Receiver	R&S	ESCI	100082	Mar. 08, 2009
6	Antenna Mast	Chance Most	CMTB-1.5	N/A	N/A
7	Turn Table	Chance Most	CMTB-1.5	N/A	N/A
8	Spectrum Analyzer	ADVAN TEST	R3132	81700025	Mar. 30. 2009
9	Spectrum Analyzer	R&S	FSP_30	100854	Apr. 14, 2009
10	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-546	May. 27, 2009
11	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 23, 2009
12	Microflex Cable	NA	NA	1m	Sep. 16, 2008
13	Microflex Cable	United Microwave	A30A30-5006	10M	Feb. 20, 2009

Remark: ” N/A” denotes No Model No. / Serial No. and No Calibration specified.

4.2.3 TEST PROCEDURE

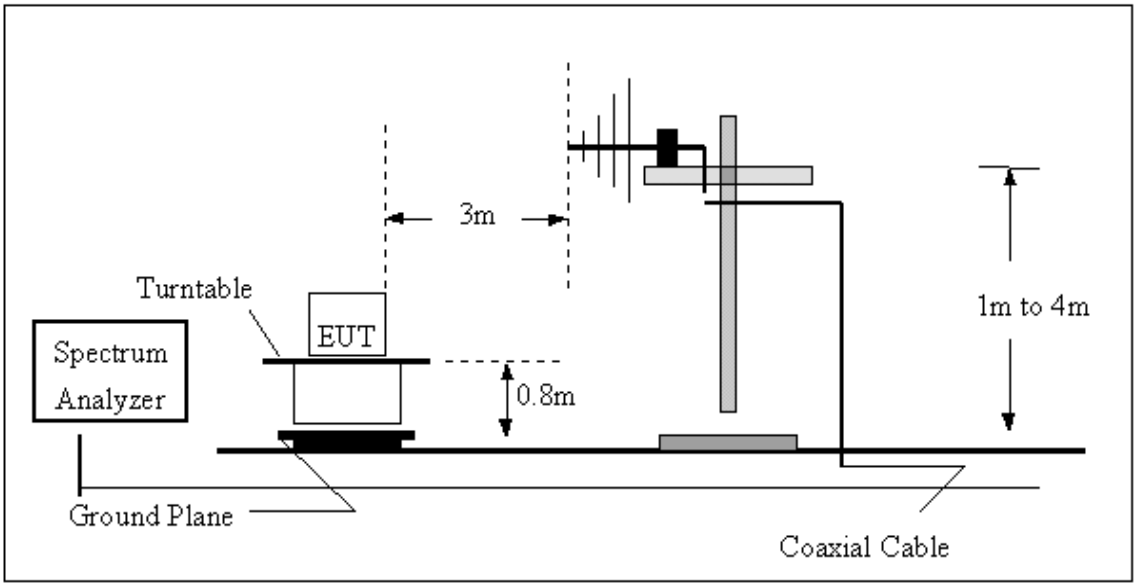
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.4 DEVIATION FROM TEST STANDARD

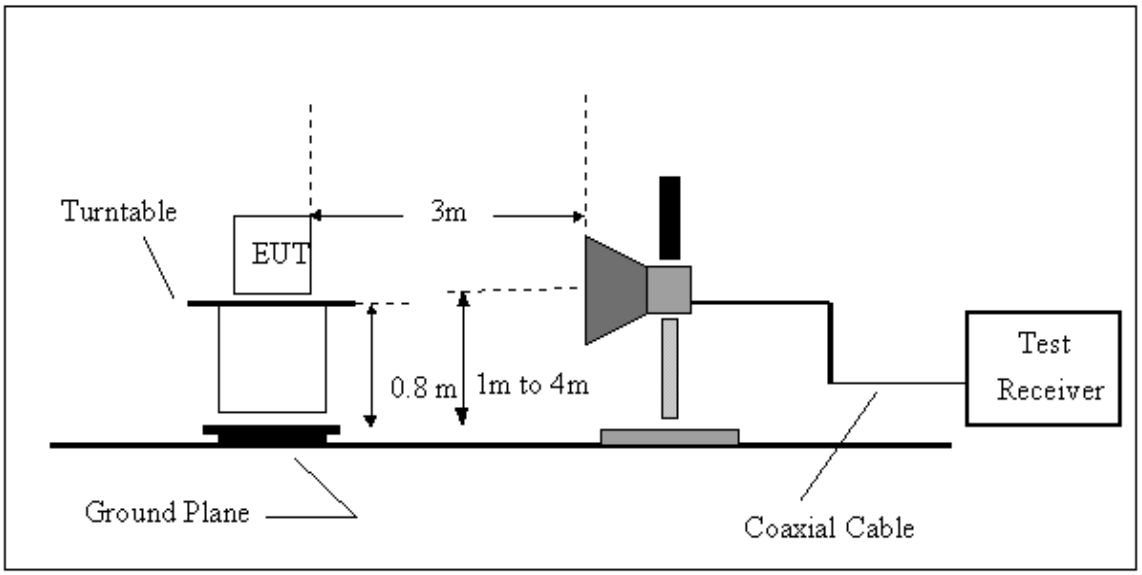
No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.7 TEST RESULTS (Between 30 – 1000 MHz)

EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	22℃	Relative Humidity：	75%
Pressure：	1016 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH42 (2439.072MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
111.48	V	39.05	-4.92	34.13	43.50	- 9.37	
198.78	V	32.40	-4.38	28.02	43.50	- 15.48	
528.58	V	29.92	5.24	35.16	46.00	- 10.84	
559.62	V	29.39	5.82	35.21	46.00	- 10.79	
627.52	V	28.83	7.10	35.93	46.00	- 10.07	
794.36	V	27.56	10.32	37.88	46.00	- 8.12	

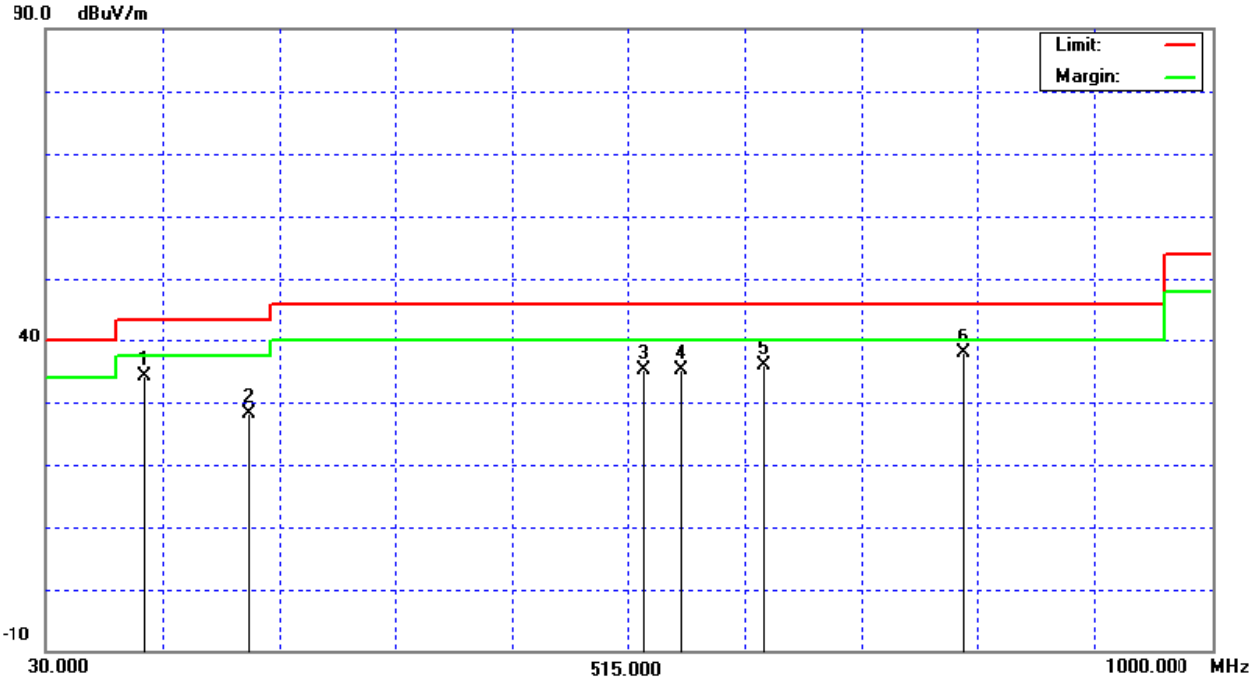
Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

(3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

(4) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	22℃	Relative Humidity：	75%
Pressure：	1016 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH42 (2439.072MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
111.48	H	36.06	-4.92	31.14	43.50	- 12.36	
198.78	H	38.74	-4.38	34.36	43.50	- 9.14	
311.30	H	30.39	-0.36	30.03	46.00	- 15.97	
520.82	H	30.72	5.12	35.84	46.00	- 10.16	
559.62	H	29.86	5.82	35.68	46.00	- 10.32	
627.52	H	31.57	7.10	38.67	46.00	- 7.33	

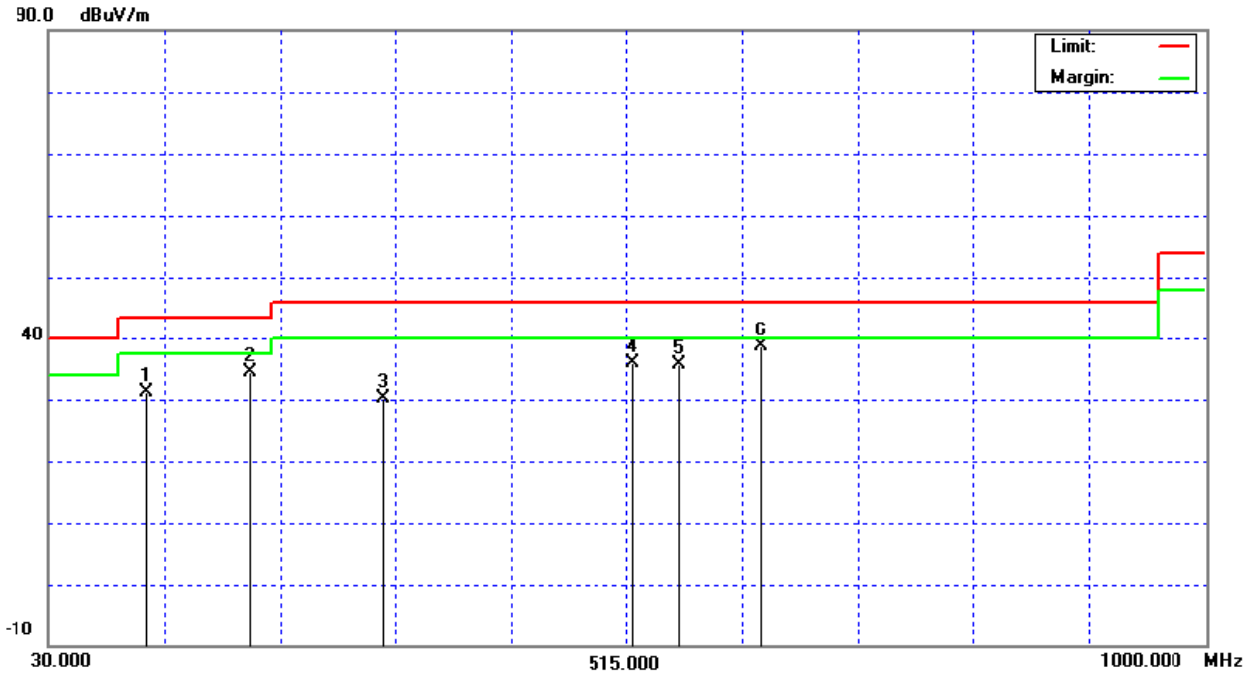
Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

(3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

(4) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



4.2.8 TEST RESULTS (Above 1000 MHz)

EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	26°C	Relative Humidity：	66 %
Pressure：	1012 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH00 (2402.784MHz)		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	22.62	1.12	32.24	54.86	33.36	74.00	54.00	X/H
2400.00	V	38.66	17.16	32.28	70.94	49.44	74.00	54.00	X/E
2402.82	**V**	**Please refer to the item 4.2.9 (Page 38)**							**X/F**
4805.86	V	53.98	32.48	3.38	57.36	35.86	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

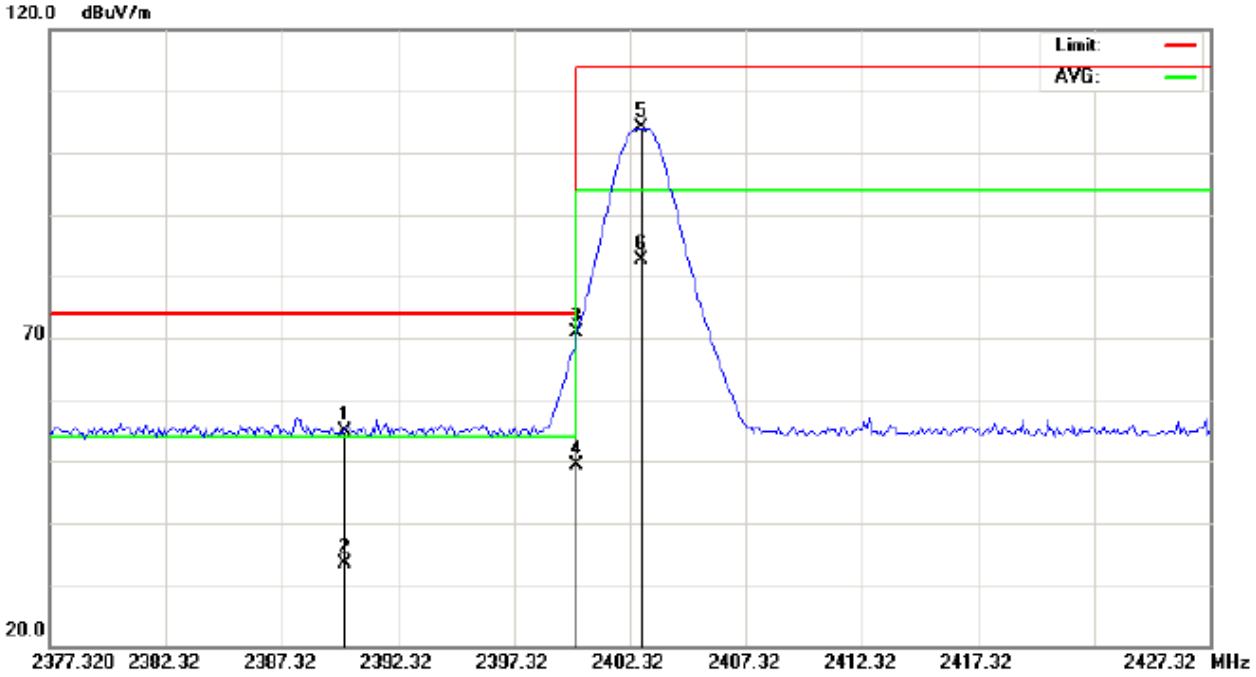
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

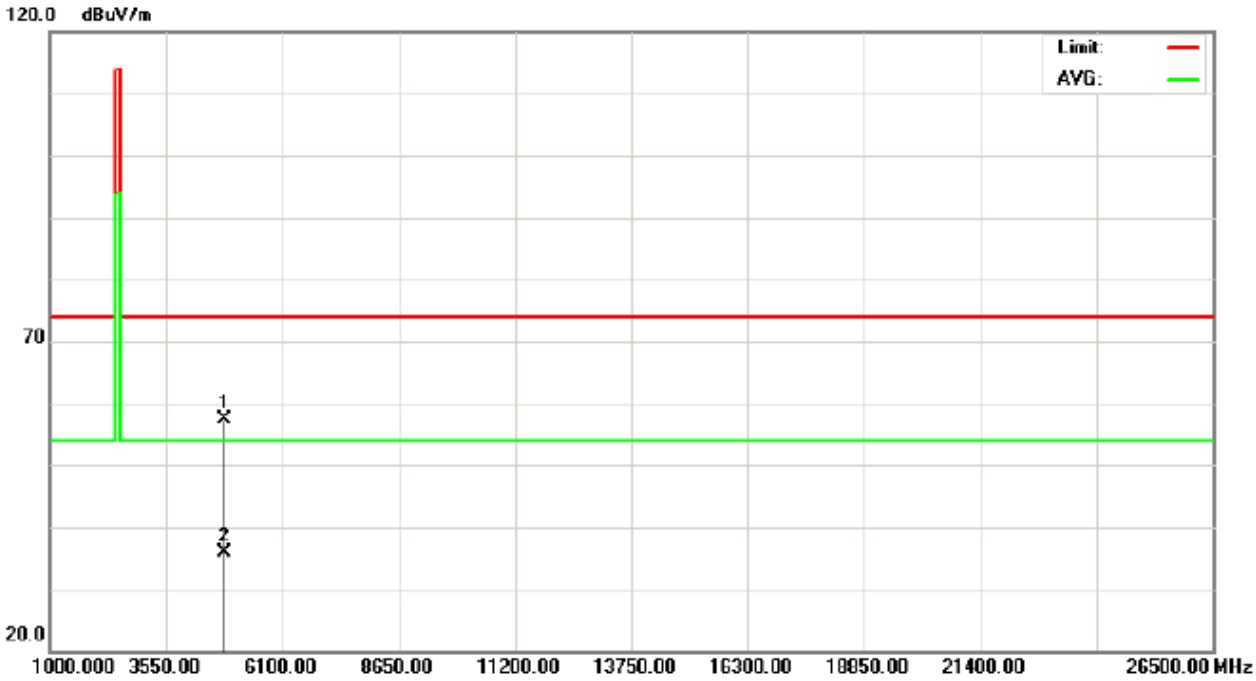
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axes：X
CH00 (2402.784MHz) (Above 1000 MHz, Vertical)





EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	26°C	Relative Humidity：	66 %
Pressure：	1012 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH00 (2402.784MHz)		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	H	23.52	2.02	32.24	55.76	34.26	74.00	54.00	X/H
2400.00	H	35.41	13.91	32.28	67.69	46.19	74.00	54.00	X/E
2402.76	**H**	**Please refer to the item 4.2.9 (Page 38)**							**X/F**
4805.74	H	53.76	32.26	3.38	57.14	35.64	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

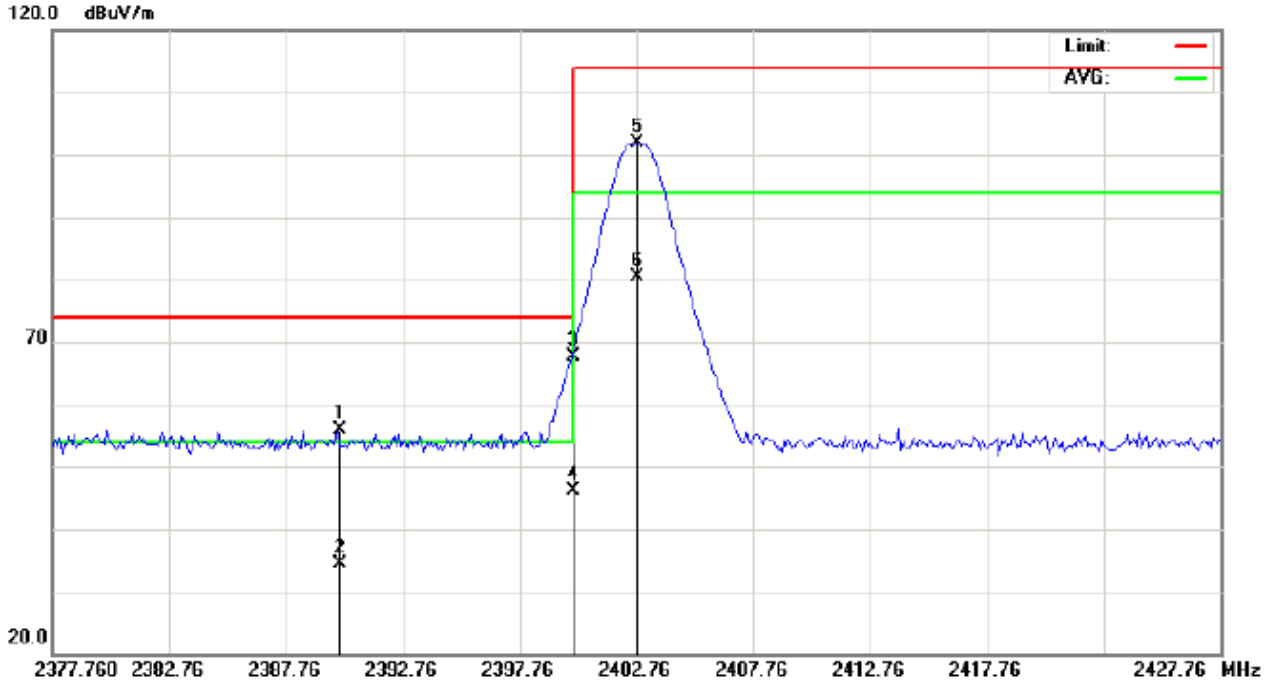
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

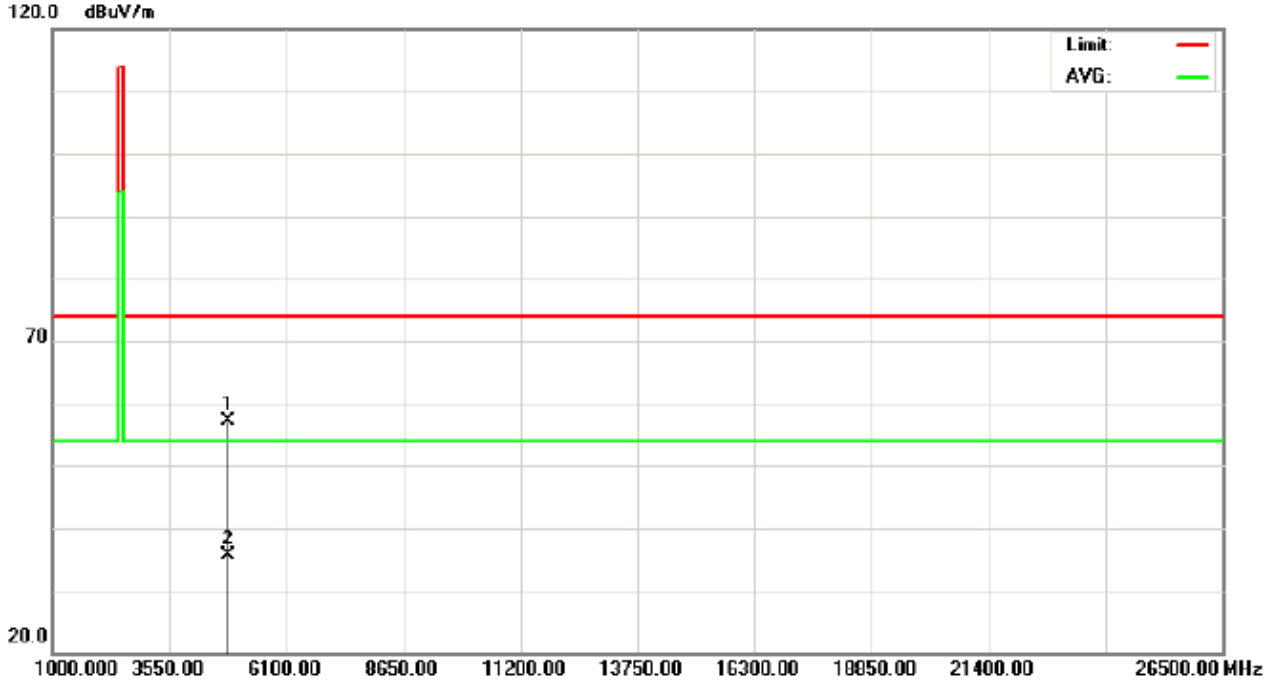
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axes：X
CH00 (2402.784MHz) (Above 1000 MHz, Horizontal)





EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	26°C	Relative Humidity：	66 %
Pressure：	1012 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH42 (2439.072MHz)		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2439.30	**V**	**Please refer to the item 4.2.9 (Page 38)**							**X/F**
4878.15	V	50.60	29.10	3.68	54.28	32.78	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

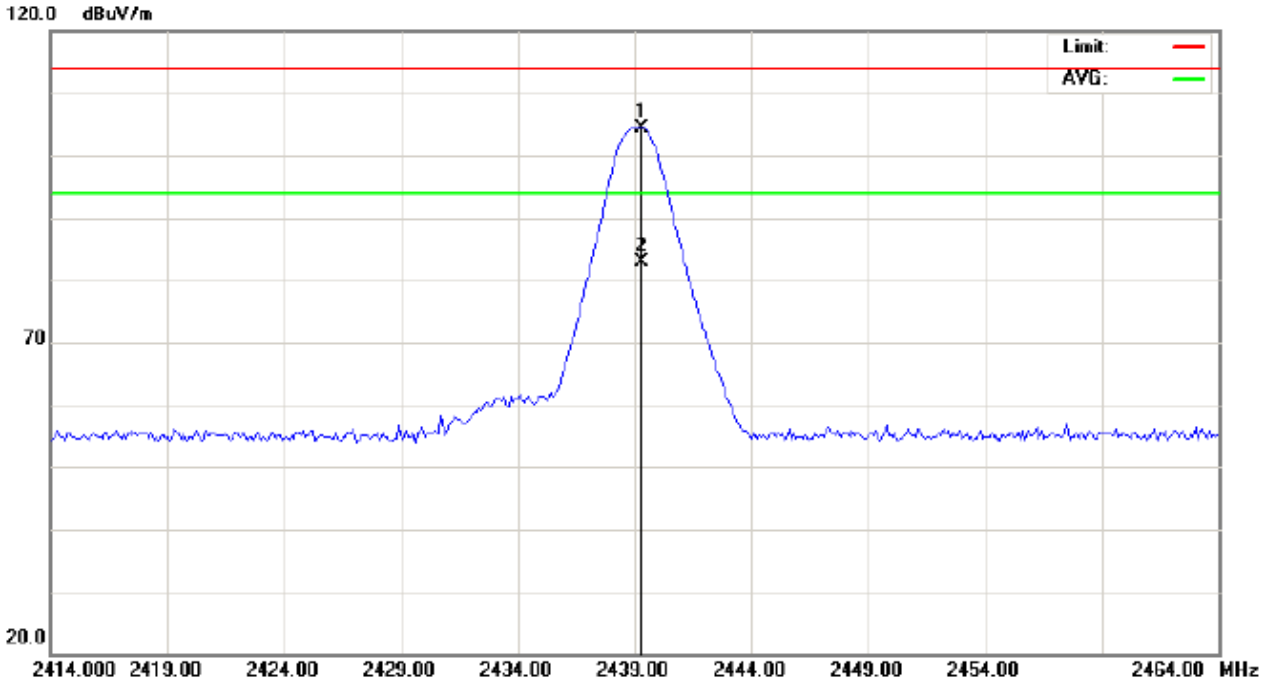
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

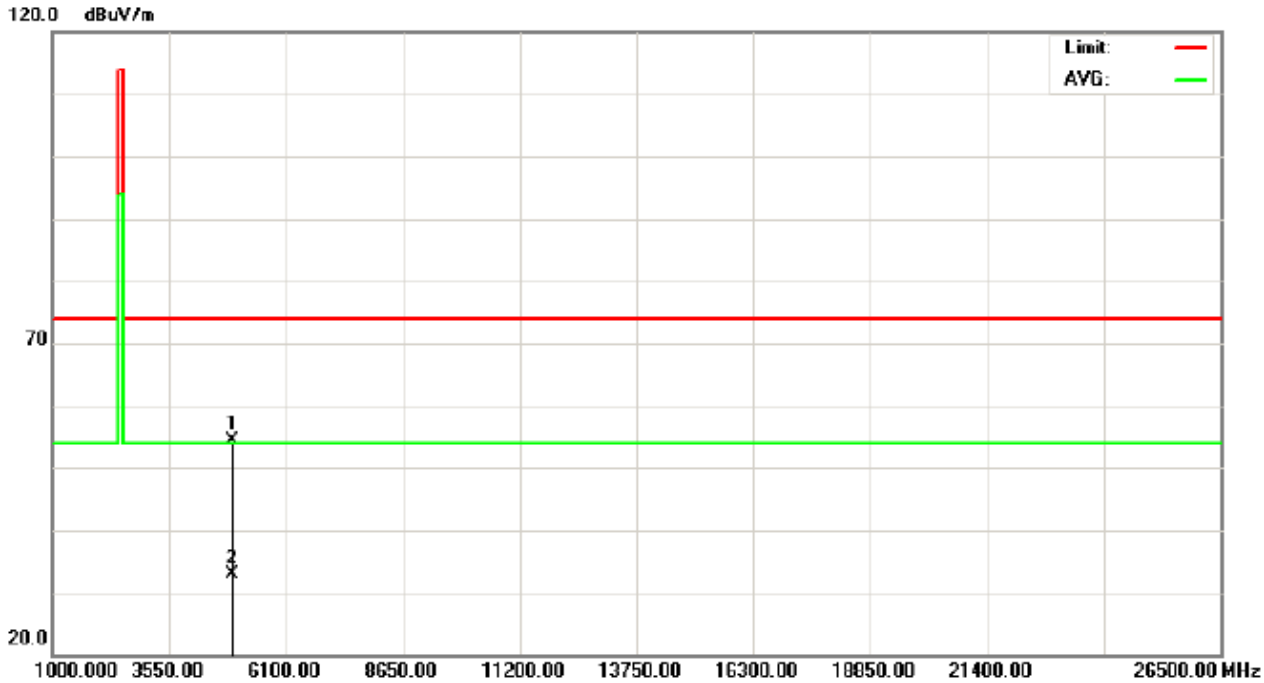
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axes：X
CH42 (2439.072MHz) (Above 1000 MHz, Vertical)





EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	26°C	Relative Humidity：	66 %
Pressure：	1012 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH42 (2439.072MHz)		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2439.30	**H**	**Please refer to the item 4.2.9 (Page 38)**							**X/F**
4878.05	H	50.92	29.42	3.68	54.60	33.10	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

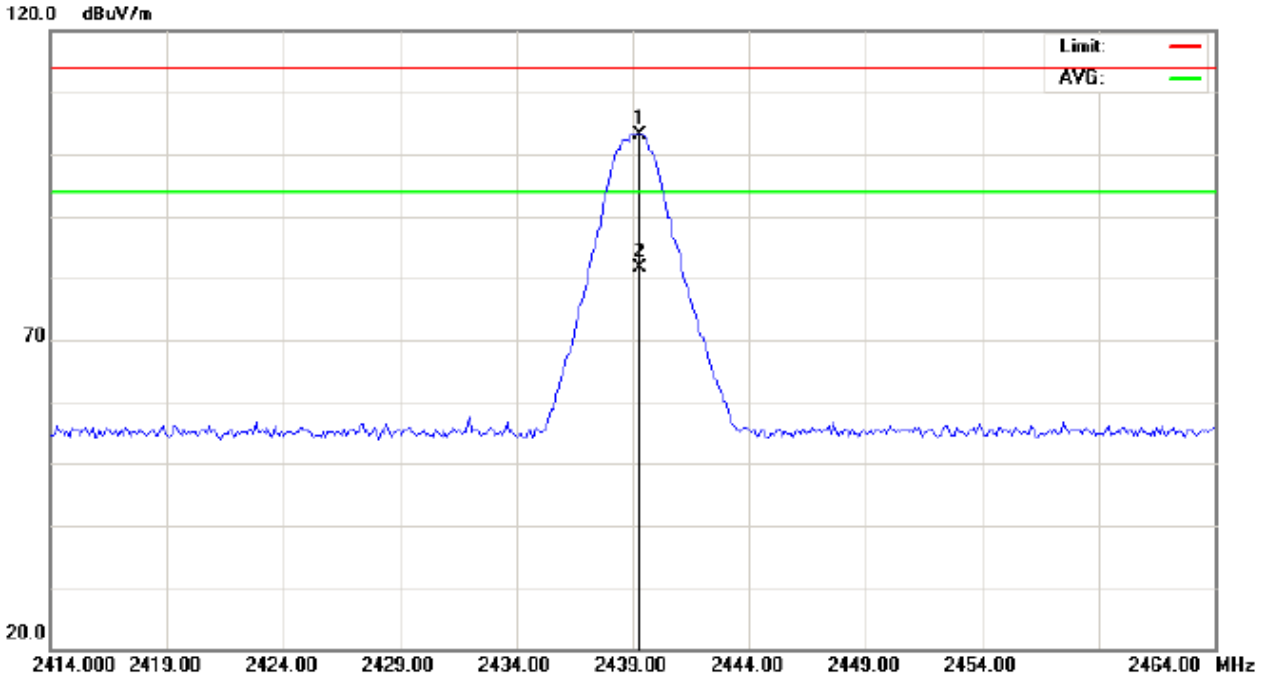
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

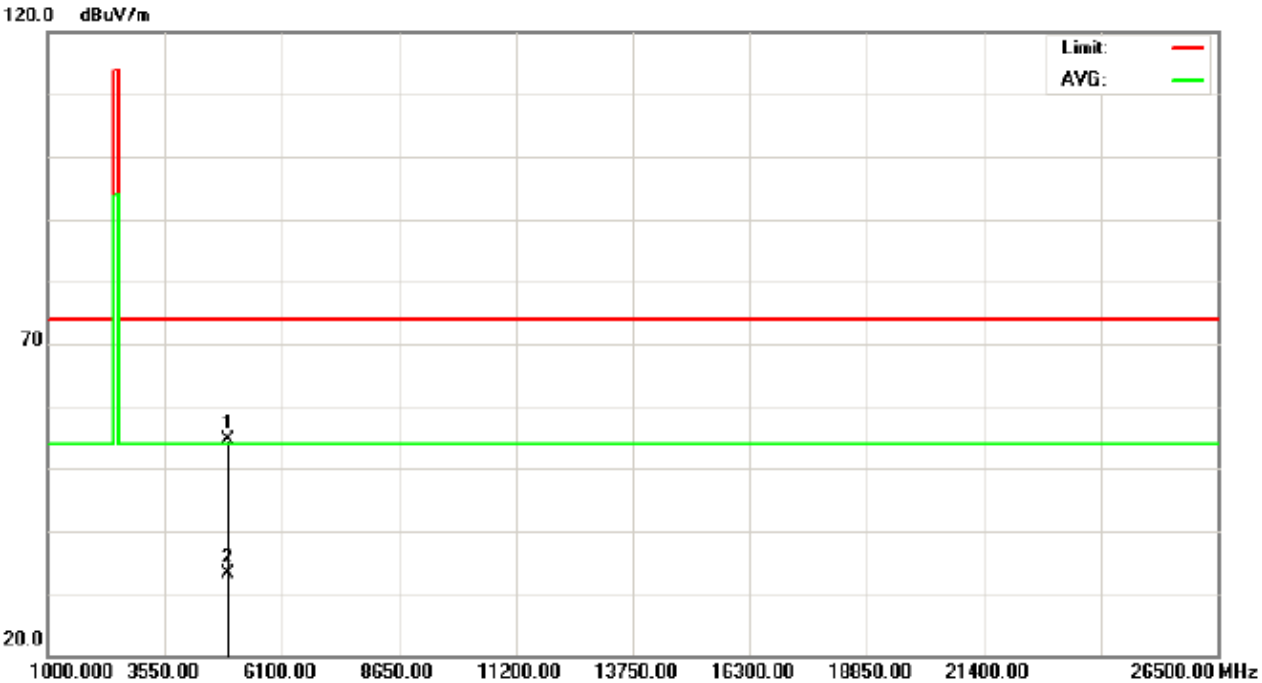
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axes：X
CH42 (2439.072MHz) (Above 1000 MHz, Horizontal)





EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	26°C	Relative Humidity：	66 %
Pressure：	1012 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH87 (2477.952MHz)		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2478.20	**V**	**Please refer to the item 4.2.9 (Page 38)**							**X/F**
2483.50	V	22.73	1.23	32.59	55.32	33.82	74.00	54.00	X/E
4955.92	V	49.59	28.09	3.99	53.58	32.08	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

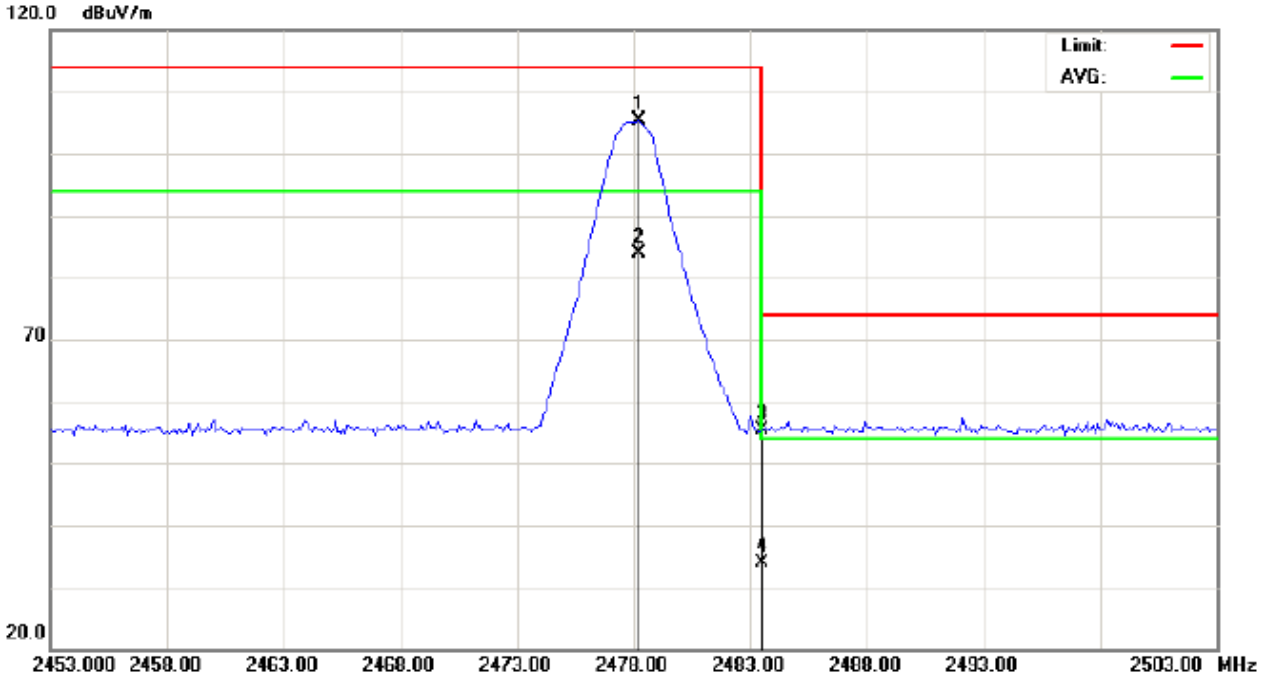
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

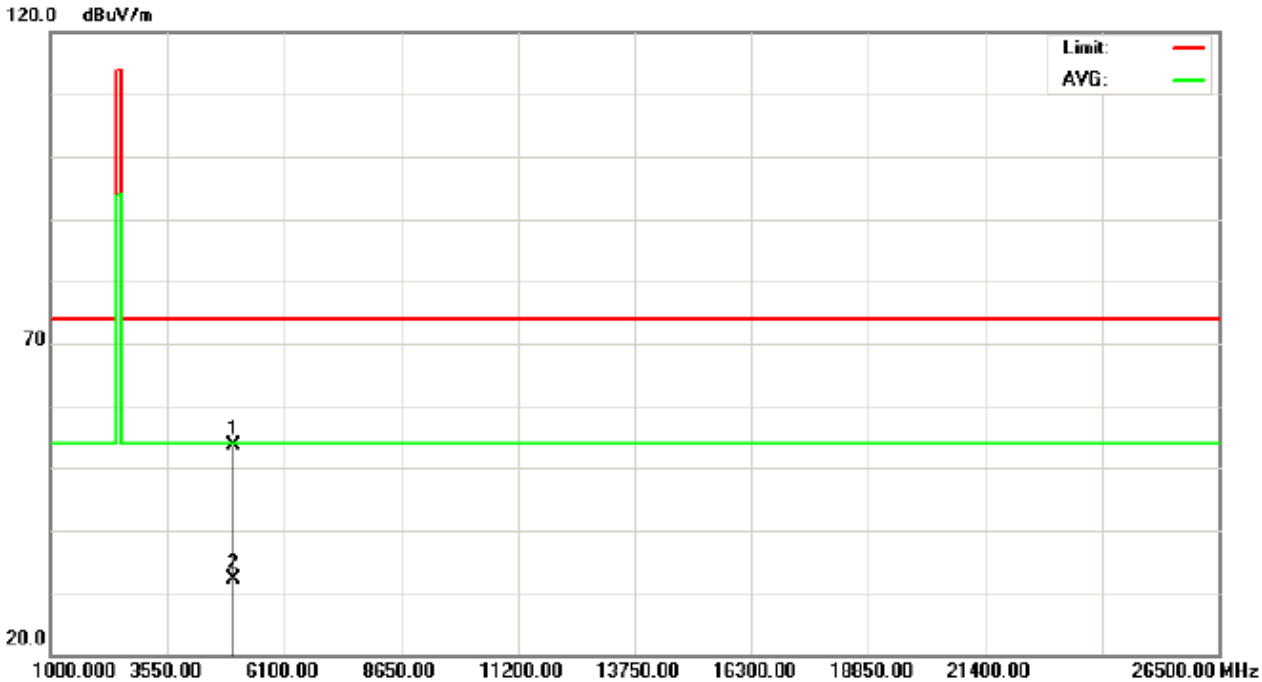
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axes：X
CH87 (2477.952MHz) (Above 1000 MHz, Vertical)





EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	26°C	Relative Humidity：	66 %
Pressure：	1012 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH87 (2477.952MHz)		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2478.20	**H**	**Please refer to the item 4.2.9 (Page 38)**							**X/F**
2483.50	H	22.72	1.22	32.59	55.31	33.81	74.00	54.00	X/E
4955.87	H	51.06	29.56	3.99	55.05	33.55	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

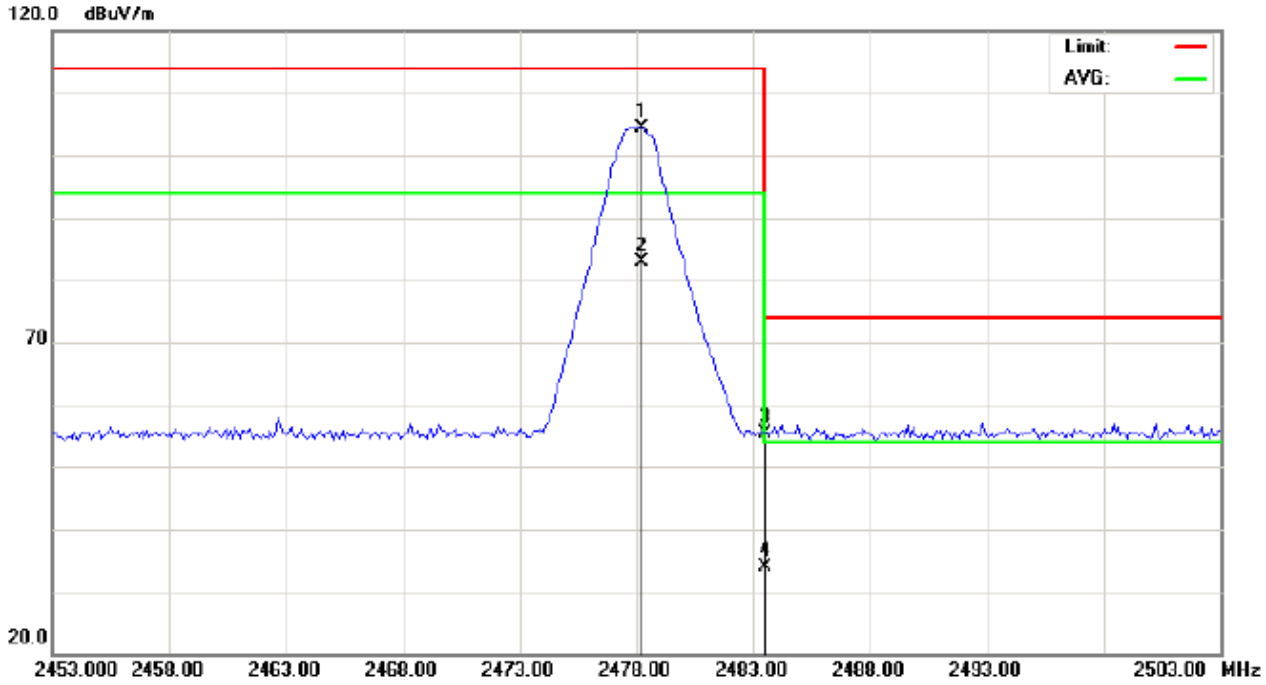
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

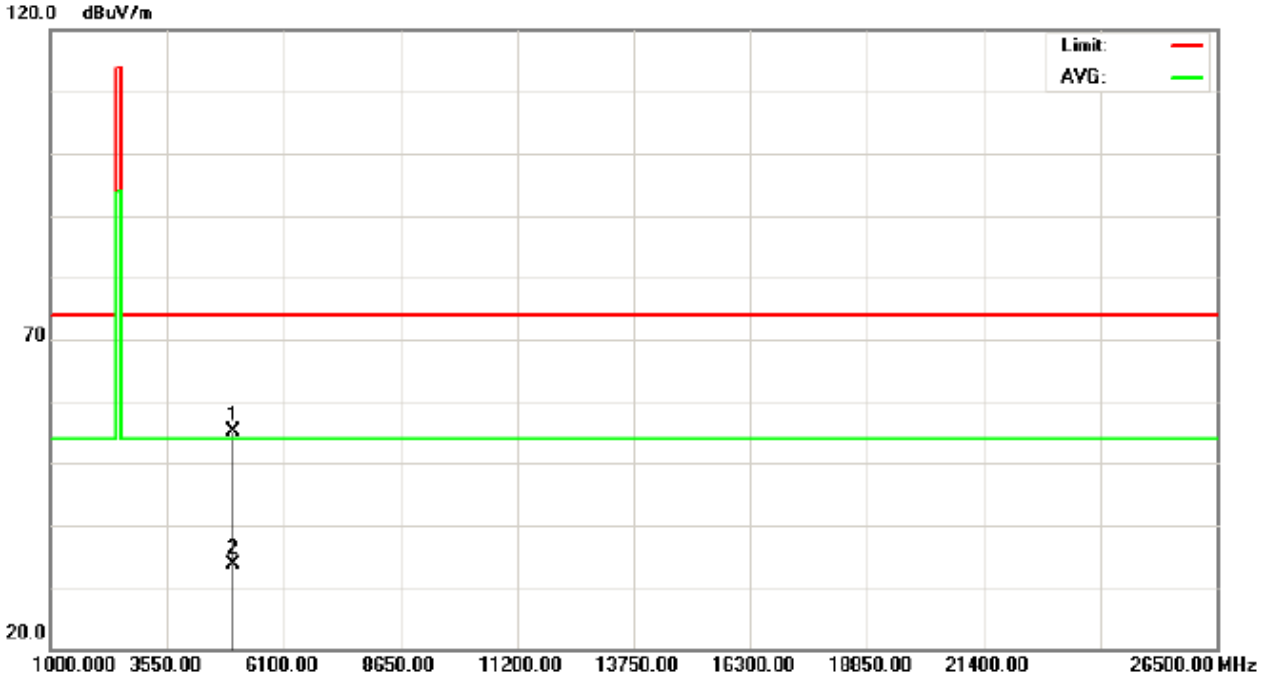
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axes：X
CH87 (2477.952MHz) (Above 1000 MHz, Horizontal)





4.2.9 TEST RESULTS (2400 – 2483.5 MHz)

EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	26°C	Relative Humidity：	66 %
Pressure：	1009 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH 2402.784MHz /2439.072MHz /2477.952MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Actual FS		Limit3m		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	(H/V)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2402.82	V	71.93	50.43	32.29	104.22	82.72	114.00	94.00	CH00
2402.76	H	69.63	48.13	32.29	101.92	80.42	114.00	94.00	CH00
2439.30	V	72.00	50.50	32.42	104.42	82.92	114.00	94.00	CH42
2439.30	H	70.74	49.24	32.42	103.16	81.66	114.00	94.00	CH42
2478.20	V	72.69	51.19	32.57	105.26	83.76	114.00	94.00	CH87
2478.20	H	71.86	50.36	32.57	104.43	82.93	114.00	94.00	CH87

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(3) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(4) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

4.2.10 TEST RESULTS (Restricted Bands Requirements)

EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	26°C	Relative Humidity：	66 %
Pressure：	1009 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH 2402.784MHz /2477.952MHz (Vertical)		
Note：	The emission of the carrier radiated field strength is measured for (Peak and AV) as following: 1. The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel (CH00 (2402.784MHz)). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was configured with the worst case antenna and setup to transmit at the highest channel (CH89 (2477.952MHz)). Then the field strength was measured at 2483.5-2500 MHz. 3. About the emissions radiated outside of the specified frequency bands, except for harmonics, below the level of the general radiated emission limits in Section 15.209.		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	22.62	1.12	32.24	54.86	33.36	74.00	54.00	CH00
2483.50	V	22.73	1.23	32.59	55.32	33.82	74.00	54.00	CH87

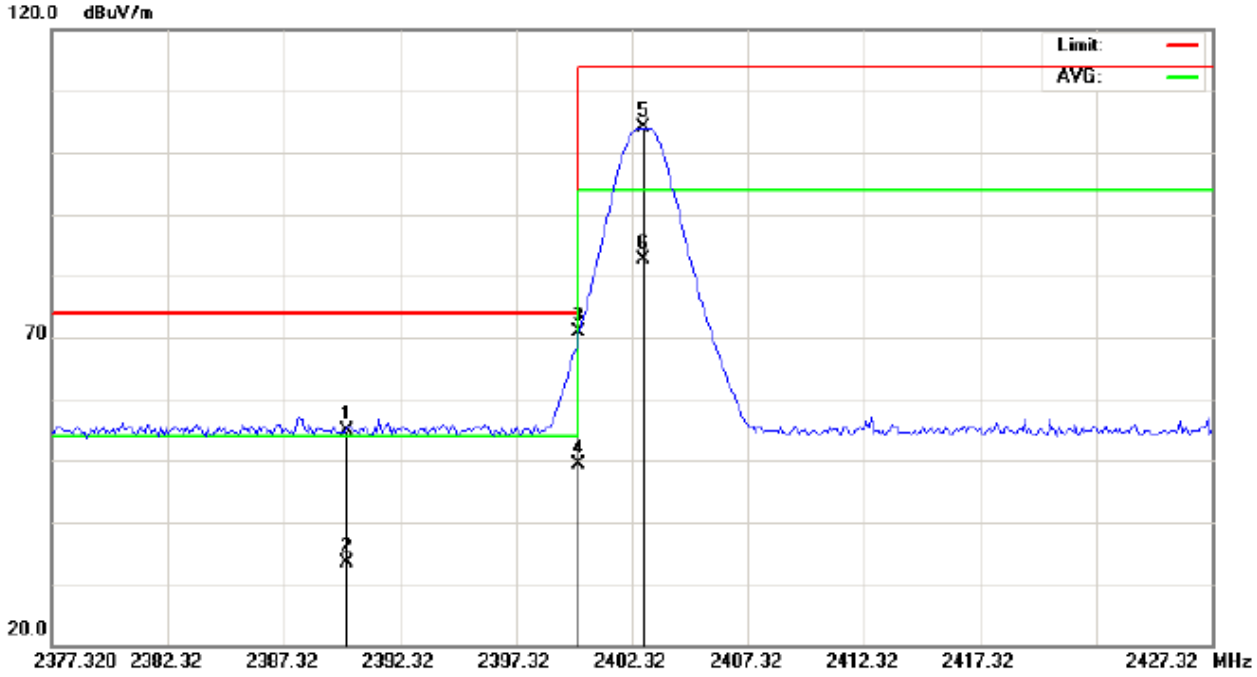
Remark：

(1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

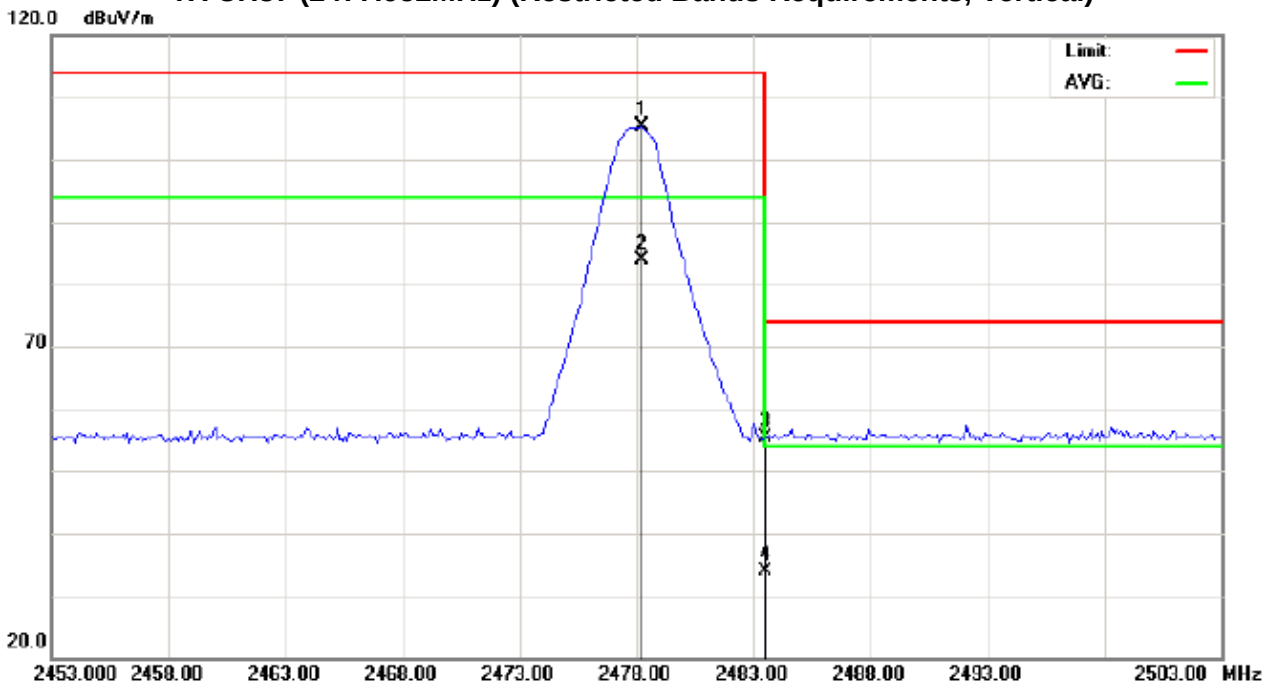
(2) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

TX CH00 (2402.784MHz) (Restricted Bands Requirements, Vertical)



TX CH87 (2477.952MHz) (Restricted Bands Requirements, Vertical)



EUT：	2.4G Wireless Partner	Model No. ：	24WP01R
Temperature：	26°C	Relative Humidity：	66 %
Pressure：	1009 hPa	Test Power ：	AC 120V/60Hz
Test Mode ：	TX CH 2402.784MHz /2477.952MHz (Horizontal)		
Note：	The emission of the carrier radiated field strength is measured for (Peak and AV) as following: 1. The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel (CH00 (2402.784MHz)). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was configured with the worst case antenna and setup to transmit at the highest channel (CH89 (2477.952MHz)). Then the field strength was measured at 2483.5-2500 MHz. 3. About the emissions radiated outside of the specified frequency bands, except for harmonics, below the level of the general radiated emission limits in Section 15.209.		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	H	23.52	2.02	32.24	55.76	34.26	74.00	54.00	CH00
2483.50	H	22.72	1.22	32.59	55.31	33.81	74.00	54.00	CH87

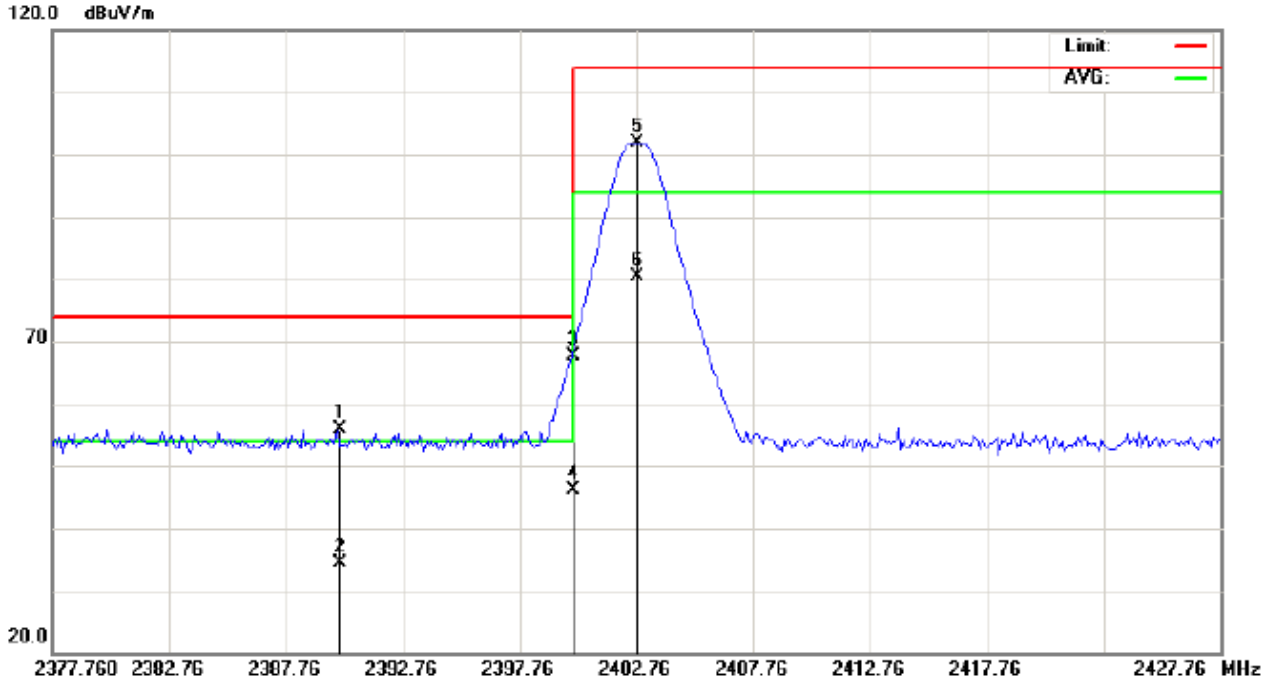
Remark：

(1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦

(2) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

TX CH00 (2402.784MHz) (Restricted Bands Requirements, Horizontal)



TX CH87 (2477.952MHz) (Restricted Bands Requirements, Horizontal)