Radio Test Report

FCC ID: TVR-RC380P1

Issued Date : Oct. 18, 2011
Project No. : R1108004
Equipment : INTERACTIVE PEN
Model Name : RC-380P1

Applicant : Hon Hai Precision Ind. Co., Ltd.
Nei-Hu Branch Office
Address : No. 32, JI-HU ROAD, NEI-HU, TAIPEI, TAIWAN, R.O.C.

Tested by: Neutron Engineering Inc. EMC Laboratory
Date of Receipt: Aug. 22, 2011
Date of Test: Aug. 22, 2011 ~ Sep. 09, 2011

Testing Engineer: Rush Kao
(Rush Kao)

Technical Manager: Jeff Yang
(Jeff Yang)

Authorized Signatory: Andy Chiu
(Andy Chiu)

Neutron Engineering Inc.
B1, No. 37, Lane 365, YangGuang St.,
NeiHu District 114, Taipei, Taiwan.
TEL: +886-2-2657-3299
FAX: +886-2-2657-3331

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

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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1. CERTIFICATION

Equipment: INTERACTIVE PEN
Brand Name: MITSUBISHI ELECTRIC; MITSUBISHI
Model Name: RC-380P1
Applicant: Hon Hai Precision Ind. Co., Ltd. Nei-Hu Branch Office
Date of Test: Aug. 22, 2011 ~ Sep. 09, 2011
Standards: FCC Part15, Subpart C(15.249) / 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-R1108004) 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 FCC Part15, Subpart C	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	
15.209	Radiated Emission	PASS	
15.249	Radiated Spurious Emission	PASS	

NOTE:

(1) ” N/A” denotes test is not applicable in this Test Report.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

CB08: (VCCI RN: G-91; FCC RN: 614388; FCC DN: TW1054;
IC Assigned Code: 4428C-1)
1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

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**%.
The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

Test Site	Item	Measurement Frequency Range		Uncertainty	NOTE
CB08	Radiated Emission at 3m	Horizontal Polarization	30 - 200MHz	3.35 dB	
			200 - 1000MHz	3.11 dB	
			1 - 18GHz	3.97 dB	
			18 - 40GHz	4.01 dB	
		Vertical Polarization	30 - 200MHz	3.22 dB	
			200 - 1000MHz	3.24 dB	
			1 - 18GHz	4.05 dB	
			18 - 40GHz	4.04 dB	

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.
Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR}, as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB
Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

It can be seen that our U_{lab} values are smaller than U_{CISPR}.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	INTERACTIVE PEN
Brand Name	MITSUBISHI ELECTRIC; MITSUBISHI
Model Name	RC-380P1
OEM Brand/Model Name	N/A
Model Difference	N/A
Product Description	The EUT is an INTERACTIVE PEN. Operation Frequency: 2402~2479 MHz Modulation Type: GFSK Bit Rate of Transmitter: 500K Number Of Channel Please see Note 2. Antenna Designation: Please see Note 3. Antenna Gain(Peak) Please see Note 3. Max Output Power 85.74 dBuV/m 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.
Power Source	Battery supplied.
Power Rating	DC 3V
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	N/A
EUT Modification(s)	N/A

Note:

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

2.

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

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PCB Antenna	N/A	-1.51

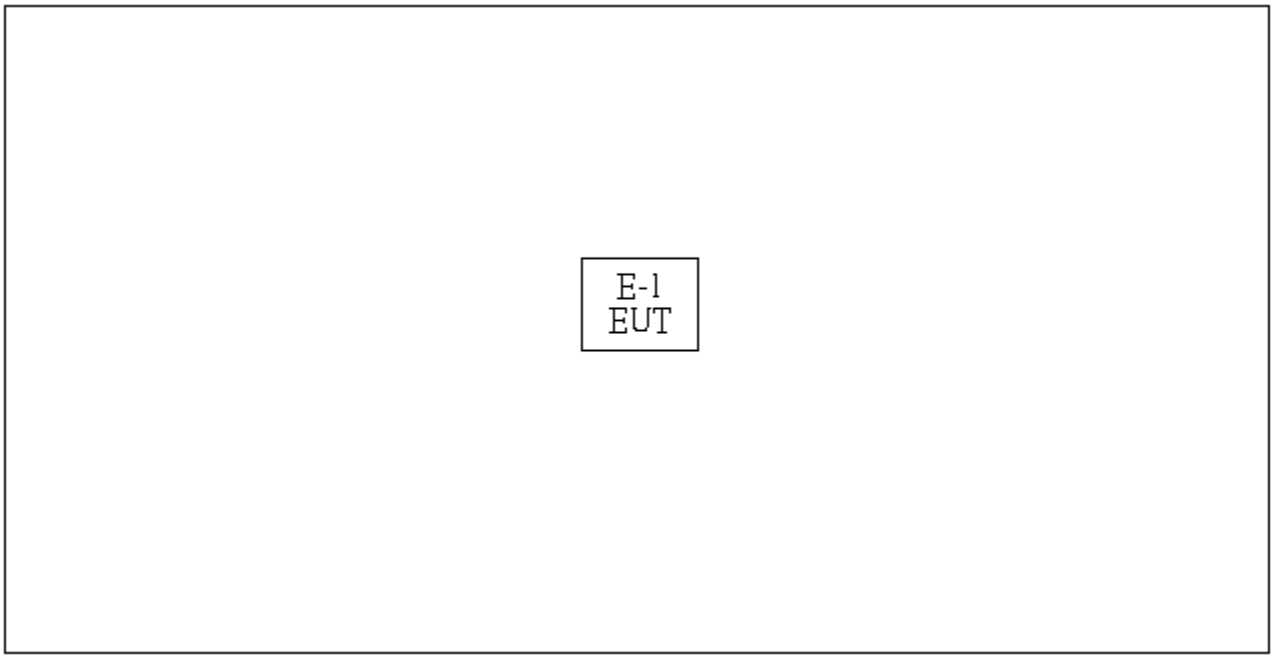
3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base 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	2402 MHz
Mode 2	2441 MHz
Mode 3	2479 MHz

For Radiated Test	
Final Test Mode	Description
Mode 1	2402 MHz
Mode 2	2441 MHz
Mode 3	2479 MHz

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



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	INTERACTIVE PEN	MITSUBISHI ELECTRIC; MITSUBISHI	RC-380P1	TVR-RC380P1	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
N/A	-	-	-	-

Note:

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

4. EMC EMISSION TEST

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 RADIATED EMISSION LIMITS (FCC 15.209)

Frequencies (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)	(dBuV/m) (at 3m)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

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

(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

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Aug. 30, 2012
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Dec. 08, 2011
3	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 18, 2012
4	Microflex Cable	N/A	N/A	1m	May. 18, 2012
5	Microflex Cable	AISI	S104-SMAP-1	10m	Aug. 21, 2012
6	Microflex Cable	N/A	N/A	3m	Aug. 21, 2012
7	Test Cable	N/A	LMR-400	966_12m	Jun. 16, 2012
8	Test Cable	N/A	LMR-400	966_3m	Jun. 16, 2012
9	Pre-Amplifier	EMC	EMC-330	980001	Jun. 02, 2012
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 20, 2012

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

4.1.3 TEST PROCEDURE

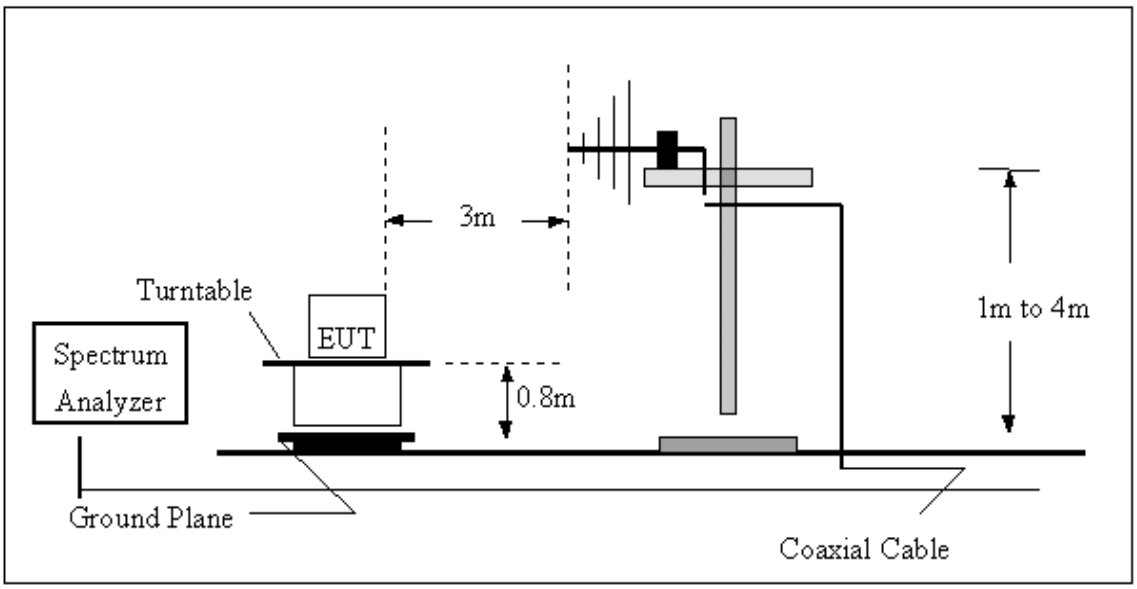
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m or 10 meter open area test site. The table was 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 radiated 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.

4.1.4 DEVIATION FROM TEST STANDARD

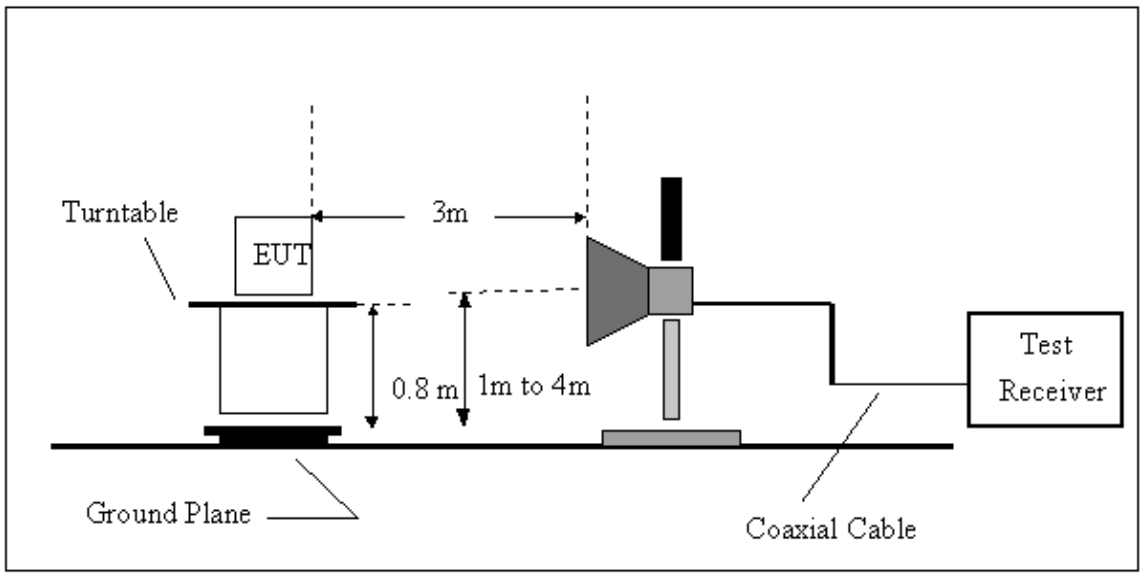
No deviation

4.1.5 TEST SETUP

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



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



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 and receive during test. This operating condition was tested and used to collect the included data.

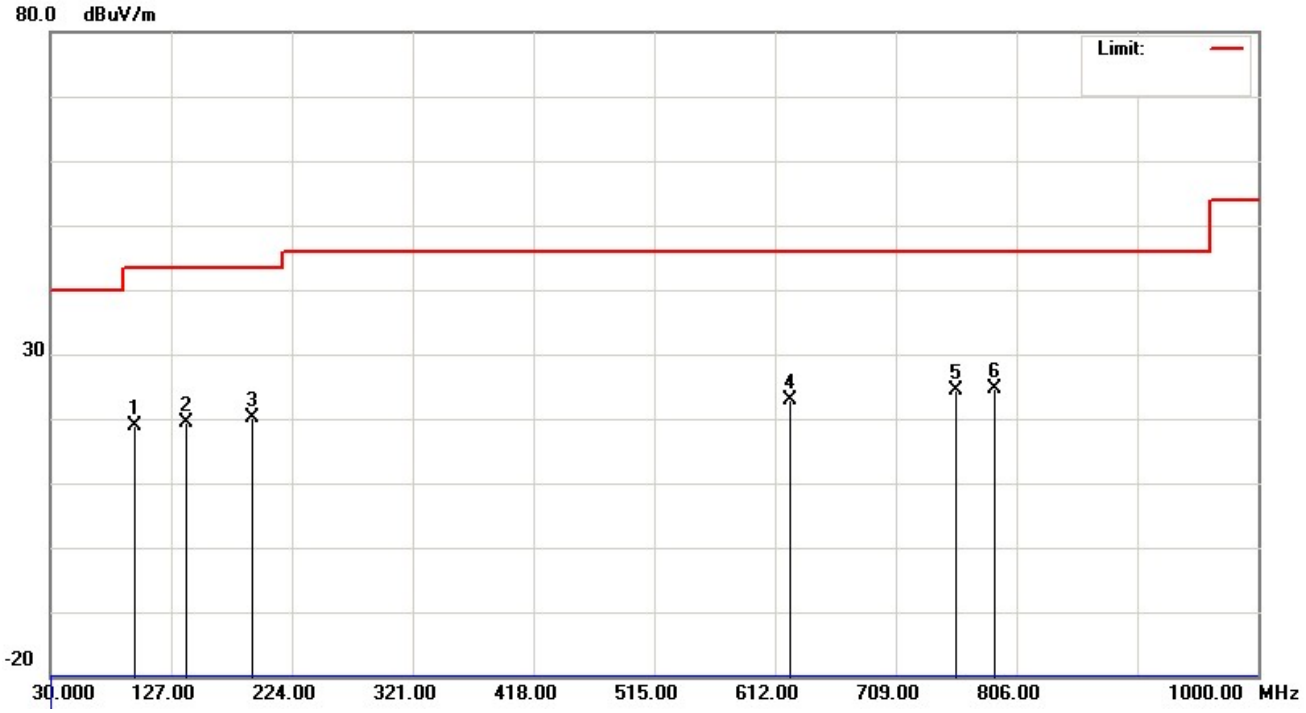
4.1.7 TEST RESULTS-BETWEEN 30MHZ AND 1000MHZ

E.U.T :	INTERACTIVE PEN	Model Name :	RC-380P1
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3V		
Test Mode :	2441 MHz		

Freq. (MHz)	Polarization H/V	Reading Level (dBuV)	Correct Factor(dB)	Measurement (dBuV/m)	Limit(Quasi-Peak) (dBuV/m)	Margin (dB)	Note
97.9000	V	37.12	-18.20	18.92	43.50	- 24.58	
139.1250	V	32.84	-13.44	19.40	43.50	- 24.10	
192.4750	V	36.21	-16.15	20.06	43.50	- 23.44	
624.1250	V	28.41	-5.59	22.82	46.00	- 23.18	
757.5000	V	27.66	-3.36	24.30	46.00	- 21.70	
789.0250	V	27.71	-2.97	24.74	46.00	- 21.26	

Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120 kHz; SPA setting in RBW=120 kHz, VBW =120 kHz, Swp. Time = 0.3 sec./ MHz.
(2) 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.
(3) Measuring frequency range from 30 MHz to 1000 MHz.
(4) If the peak scan value is under the limit for more than 20dB, the signal will not show in table.

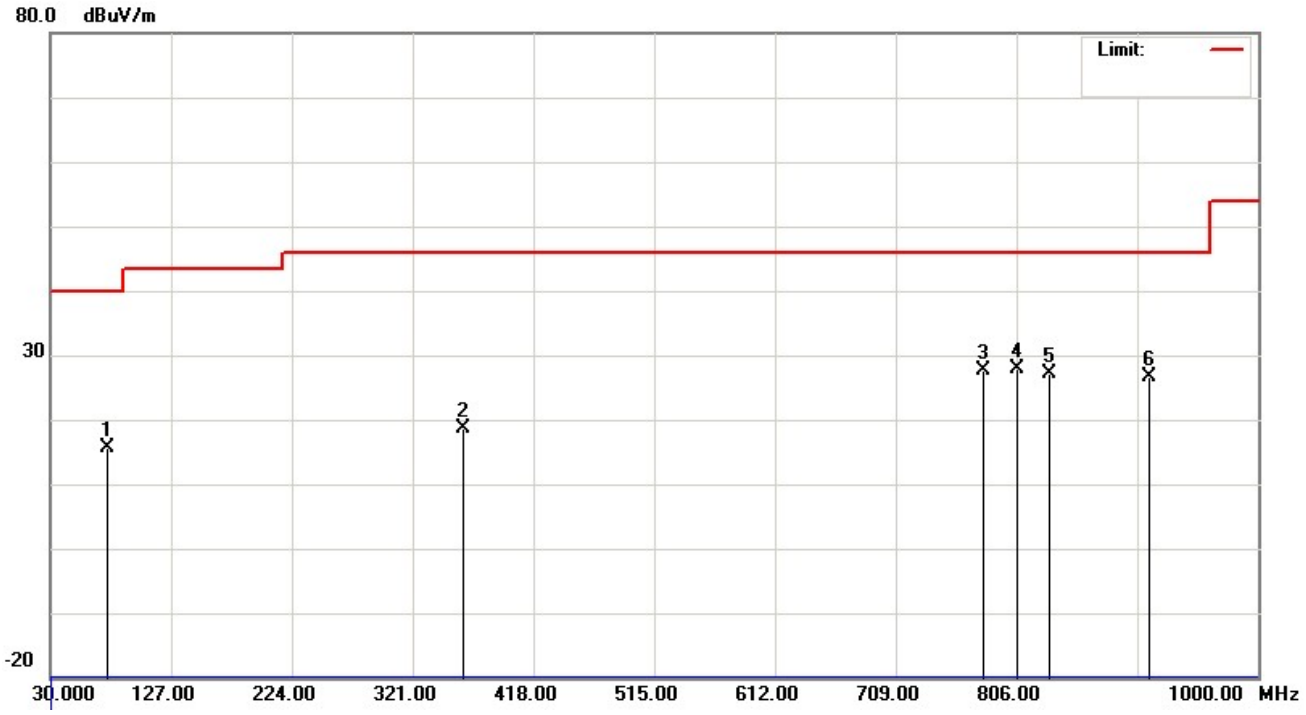


E.U.T :	INTERACTIVE PEN	Model Name :	RC-380P1
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3V		
Test Mode :	2441 MHz		

Freq. (MHz)	Polarization H/V	Reading Level (dBuV)	Correct Factor(dB)	Measurement (dBuV/m)	Limit(Quasi-Peak) (dBuV/m)	Margin (dB)	Note
76.0750	H	31.73	-16.10	15.63	40.00	- 24.37	
362.2250	H	29.79	-11.04	18.75	46.00	- 27.25	
779.3250	H	30.64	-3.09	27.55	46.00	- 18.45	
806.0000	H	30.80	-2.83	27.97	46.00	- 18.03	
832.6750	H	29.88	-2.84	27.04	46.00	- 18.96	
912.7000	H	29.20	-2.48	26.72	46.00	- 19.28	

Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120 kHz; SPA setting in RBW=120 kHz, VBW =120 kHz, Swp. Time = 0.3 sec./ MHz.
(2) 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.
(3) Measuring frequency range from 30 MHz to 1000 MHz.
(4) If the peak scan value is under the limit for more than 20dB, the signal will not show in table.



4.1.8 TEST RESULTS- FUNDAMENTAL FREQUENCY & ABOVE 1000MHZ

E.U.T :	INTERACTIVE PEN	Model Name :	RC-380P1
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3V	EUT Orthogonal Axis:	Y
Test Mode :	2402 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV)		Correct Factor(dB)	Measurement(dBuV/m)		Limit(dBuV/m)		Margin (dB)	Note
		Peak	AV		Peak	AV	Peak	AV		
2390.000	V	23.82	16.03	32.15	55.97	48.18	74.00	54.00	-5.82	AV/E
2400.000	V	24.47	14.09	32.19	56.66	46.28	74.00	54.00	-7.72	AV/E
2402.000	V	51.05	50.83	32.20	83.25	83.03	-	-	-	F
4804.075	V	47.65	42.49	2.90	50.55	45.39	74.00	54.00	-8.61	AV/H
7206.025	V	40.65	31.25	9.85	50.50	41.10	74.00	54.00	-12.90	AV/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 。

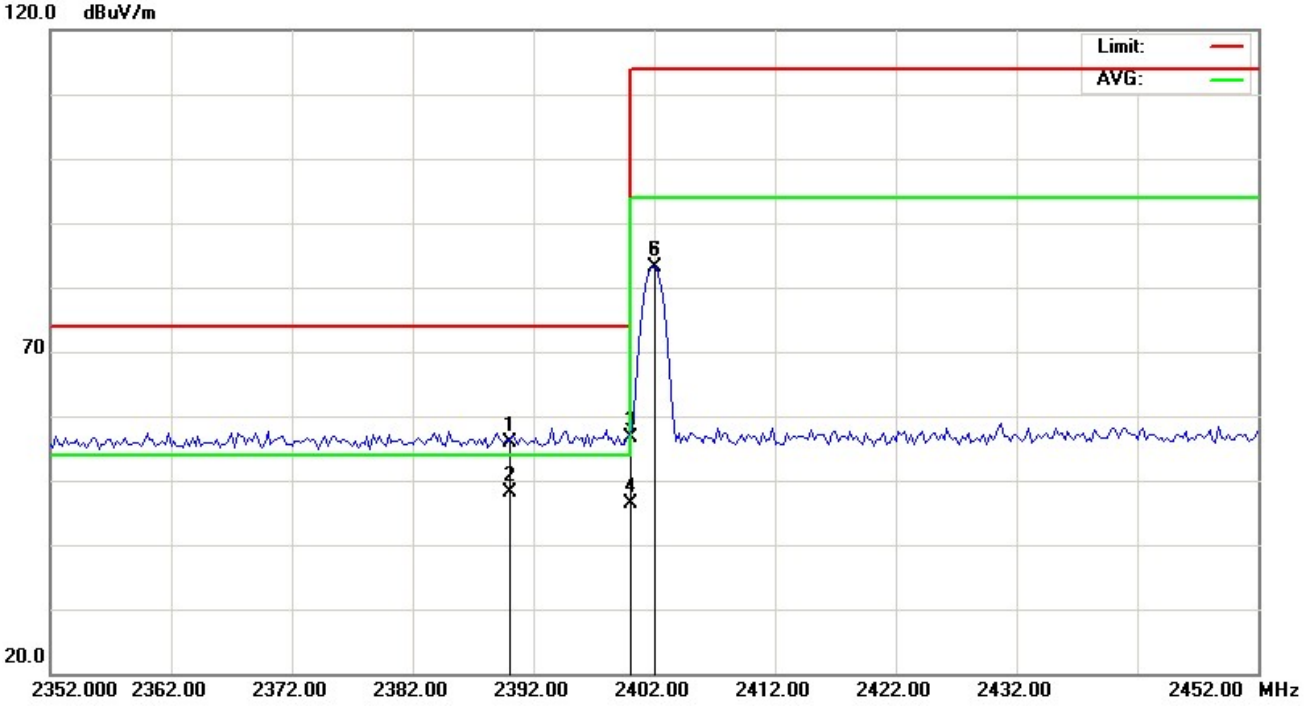
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

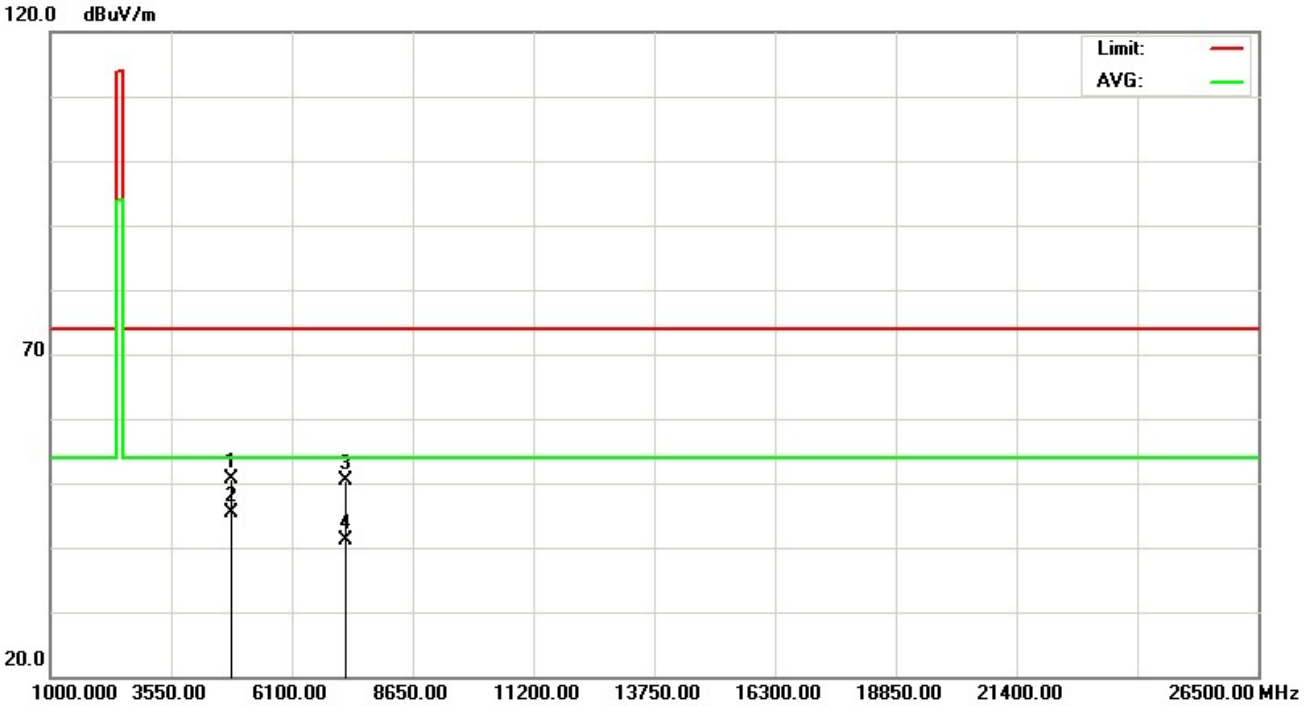
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"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 Axis：Y
2402 MHz (Vertical)





E.U.T :	INTERACTIVE PEN	Model Name :	RC-380P1
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3V	EUT Orthogonal Axis:	Y
Test Mode :	2402 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV)		Correct Factor(dB)	Measurement(dBuV/m)		Limit(dBuV/m)		Margin (dB)	Note
		Peak	AV		Peak	AV	Peak	AV		
2390.000	H	25.44	15.81	32.15	57.59	47.96	74.00	54.00	-6.04	AV/E
2400.000	H	24.91	17.36	32.19	57.10	49.55	74.00	54.00	-4.45	AV/E
2402.000	H	53.54	52.73	32.20	85.74	84.93	-	-	-	F
4803.950	H	50.78	48.35	2.90	53.68	51.25	74.00	54.00	-2.75	AV/H
7206.025	H	43.65	34.43	9.85	53.50	44.28	74.00	54.00	-9.72	AV/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 。

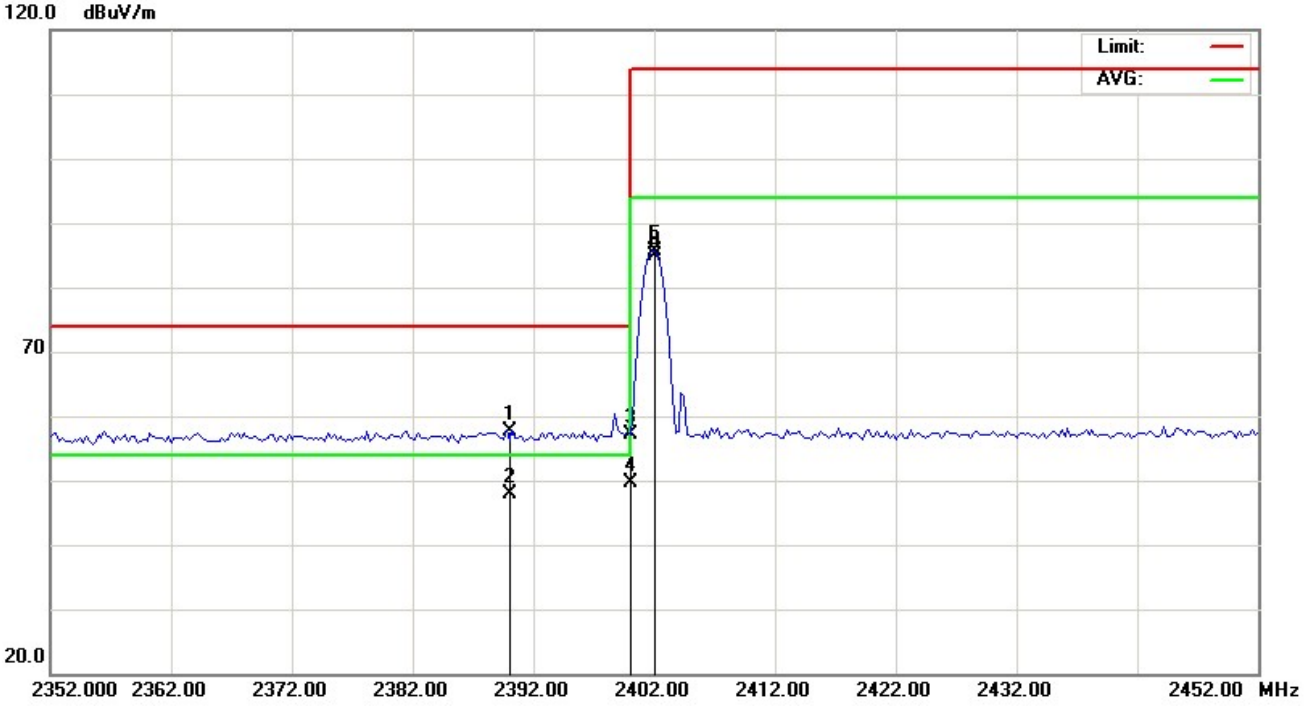
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

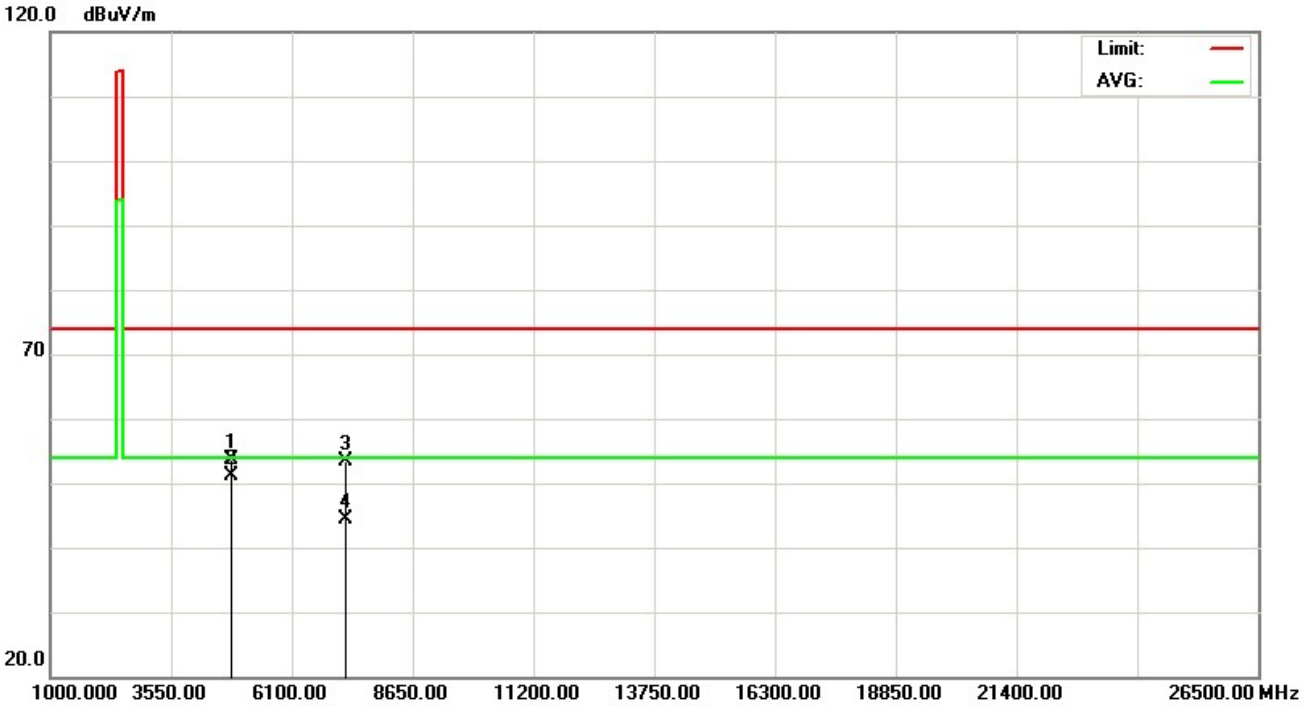
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"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 Axis：Y
2402 MHz (Horizontal)





E.U.T :	INTERACTIVE PEN	Model Name :	RC-380P1
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3V	EUT Orthogonal Axis:	Y
Test Mode :	2441 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV)		Correct Factor(dB)	Measurement(dBuV/m)		Limit(dBuV/m)		Margin (dB)	Note
		Peak	AV		Peak	AV	Peak	AV		
2441.000	V	50.22	49.90	32.39	82.61	82.29	-	-	-	F
4881.925	V	46.82	42.98	3.08	49.90	46.06	74.00	54.00	-7.94	AV/H
7319.450	V	39.47	31.55	10.00	49.47	41.55	74.00	54.00	-12.45	AV/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 。

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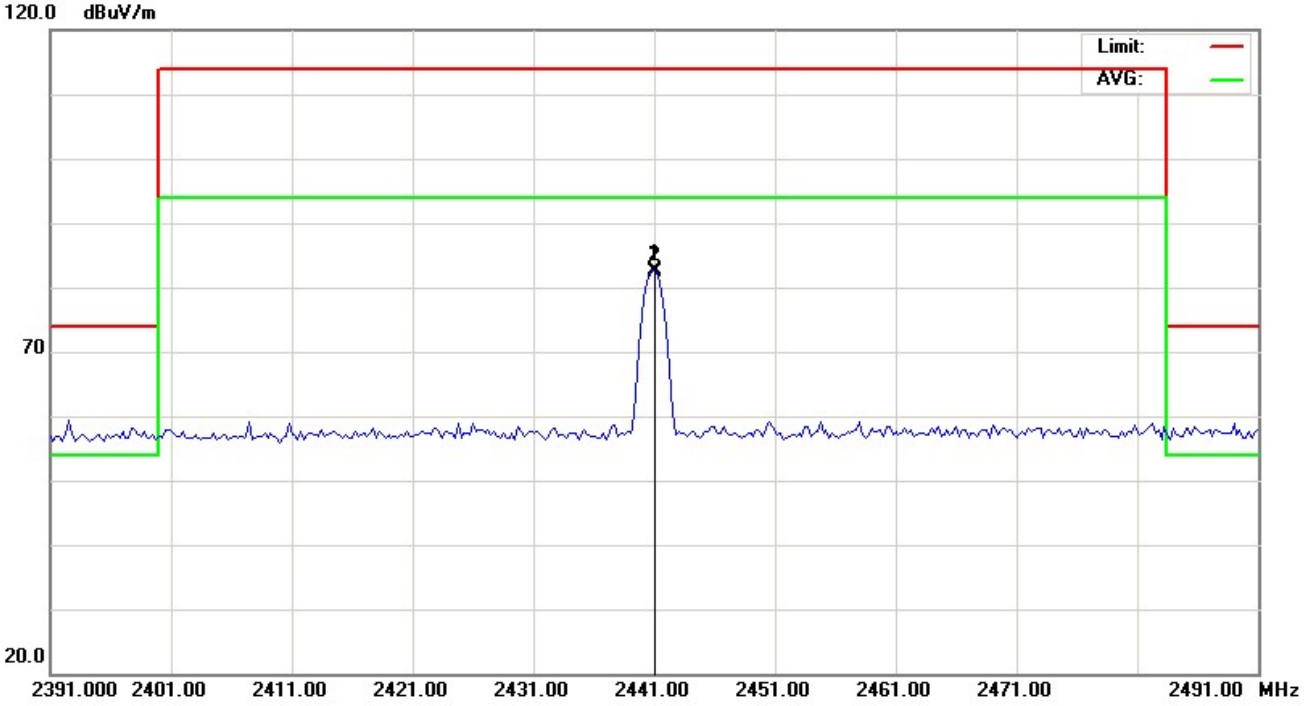
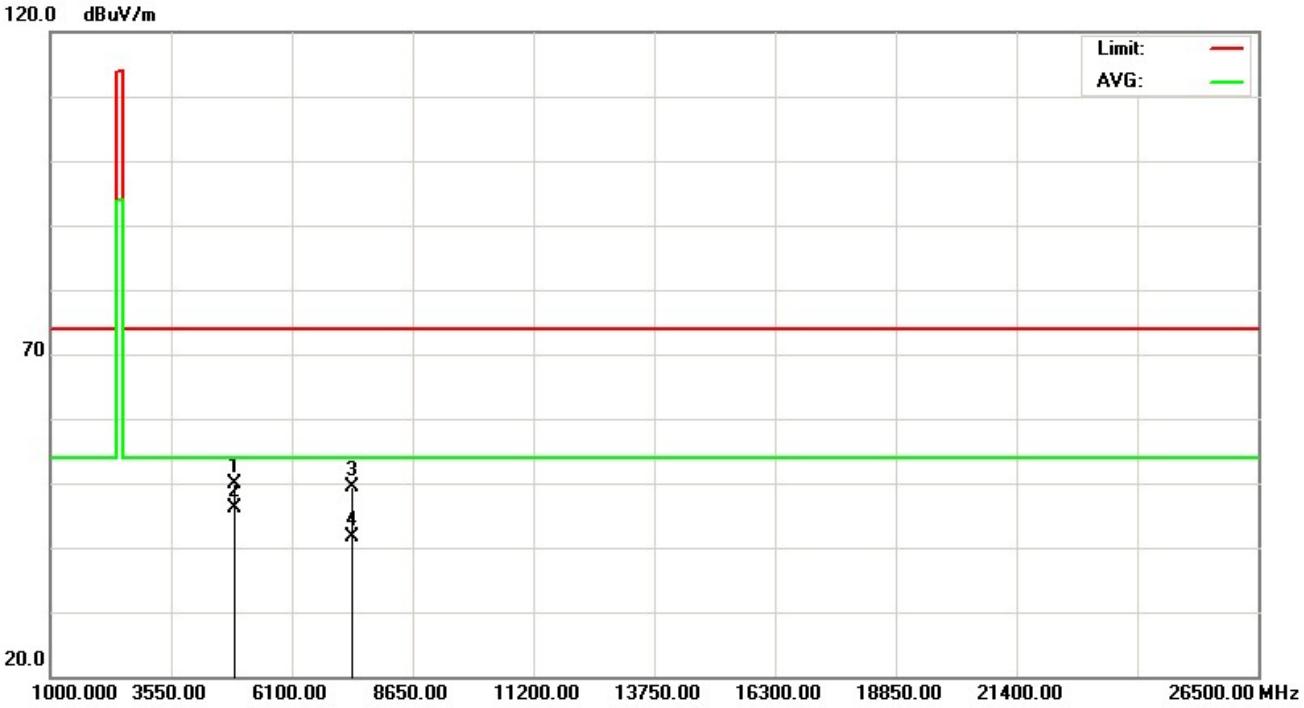
(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axis：Y
2441 MHz (Vertical)





E.U.T :	INTERACTIVE PEN	Model Name :	RC-380P1
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3V	EUT Orthogonal Axis:	Y
Test Mode :	2441 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV)		Correct Factor(dB)	Measurement(dBuV/m)		Limit(dBuV/m)		Margin (dB)	Note
		Peak	AV		Peak	AV	Peak	AV		
2441.000	H	51.93	51.61	32.39	84.32	84.00	-	-	-	F
4881.925	H	50.13	47.56	3.08	53.21	50.64	74.00	54.00	-3.36	AV/H
7322.825	H	42.00	34.99	10.01	52.01	45.00	74.00	54.00	-9.00	AV/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 。

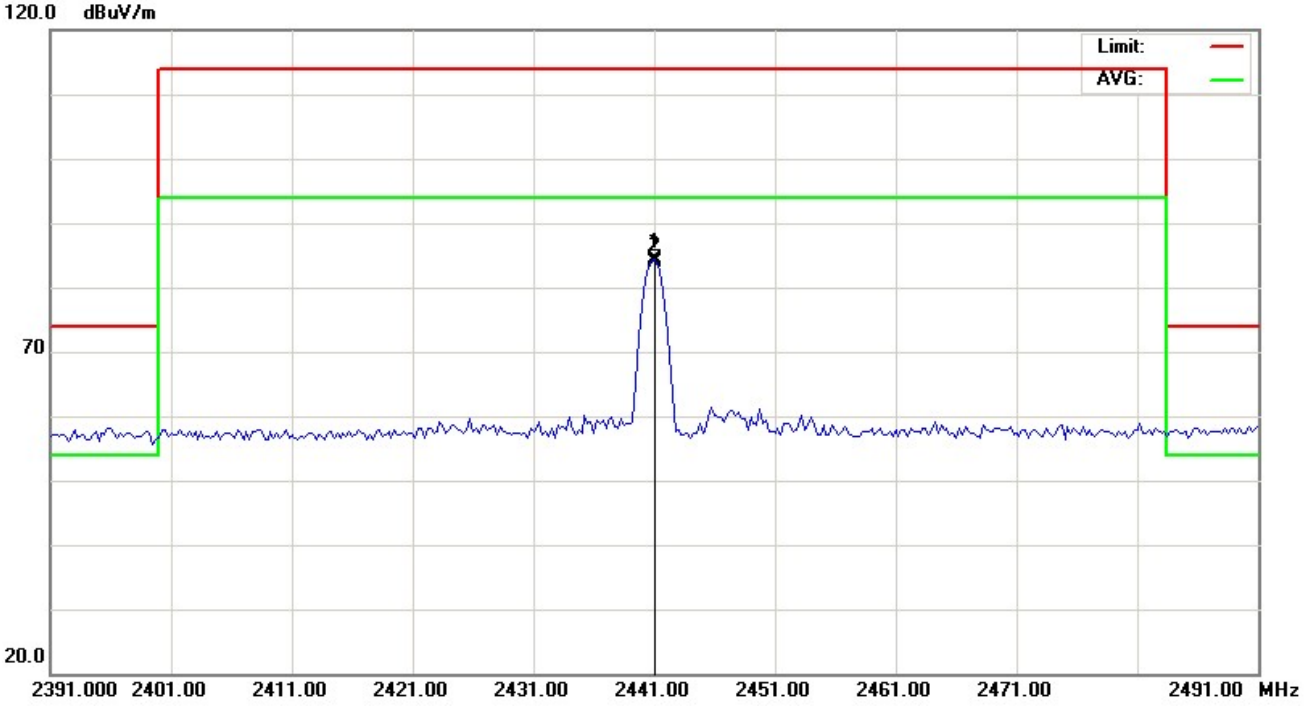
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

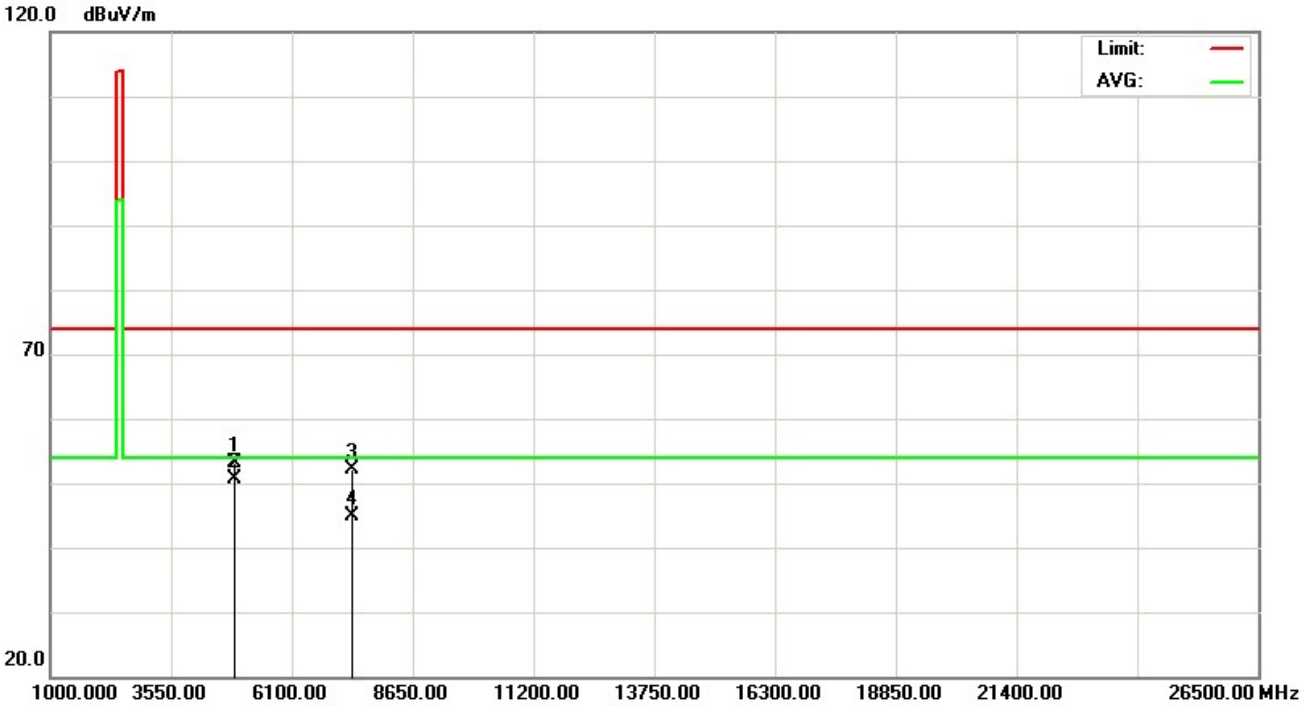
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"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 Axis：Y
2441 MHz (Horizontal)





E.U.T :	INTERACTIVE PEN	Model Name :	RC-380P1
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3V	EUT Orthogonal Axis:	Y
Test Mode :	2479 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV)		Correct Factor(dB)	Measurement(dBuV/m)		Limit(dBuV/m)		Margin (dB)	Note
		Peak	AV		Peak	AV	Peak	AV		
2478.750	V	48.78	47.67	32.57	81.35	80.24	-	-	-	F
2483.500	V	26.01	16.01	32.59	58.60	48.60	74.00	54.00	-5.40	AV/E
4957.875	V	47.33	43.42	3.25	50.58	46.67	74.00	54.00	-7.33	AV/H
7436.700	V	43.21	32.89	10.16	53.37	43.05	74.00	54.00	-10.95	AV/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 。

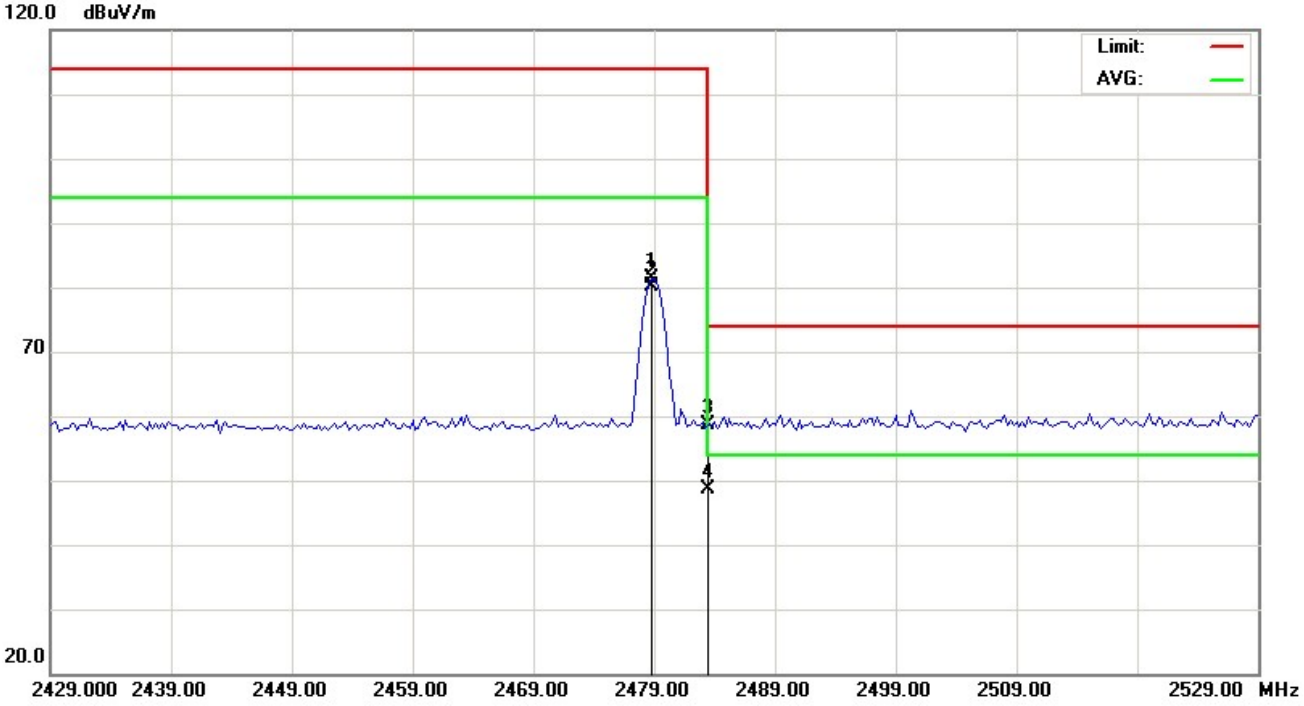
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

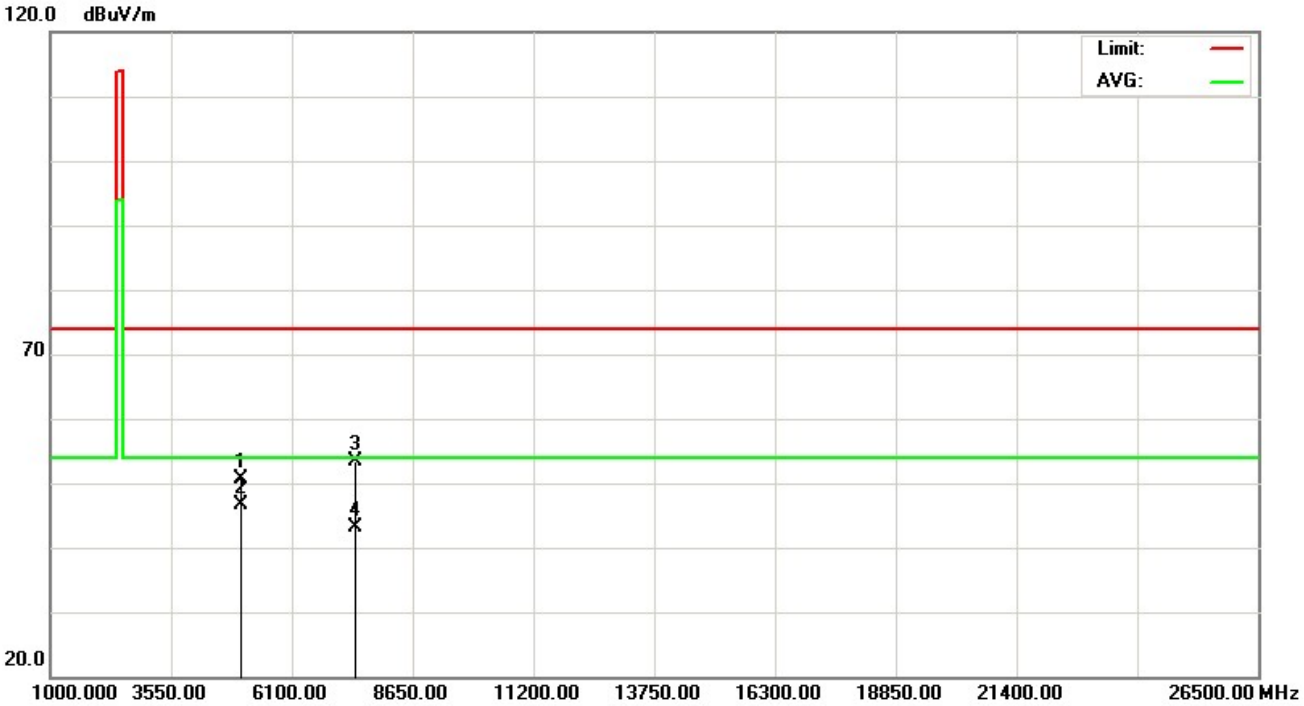
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"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 Axis：Y
2479 MHz (Vertical)





E.U.T :	INTERACTIVE PEN	Model Name :	RC-380P1
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3V	EUT Orthogonal Axis:	Y
Test Mode :	2479 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV)		Correct Factor(dB)	Measurement(dBuV/m)		Limit(dBuV/m)		Margin (dB)	Note
		Peak	AV		Peak	AV	Peak	AV		
2479.000	H	51.50	50.61	32.57	84.07	83.18	-	-	-	F
2483.500	H	26.20	16.10	32.59	58.79	48.69	74.00	54.00	-5.31	AV/E
4957.725	H	49.31	47.31	3.25	52.56	50.56	74.00	54.00	-3.44	AV/H
7436.675	H	44.52	32.48	10.16	54.68	42.64	74.00	54.00	-11.36	AV/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 。

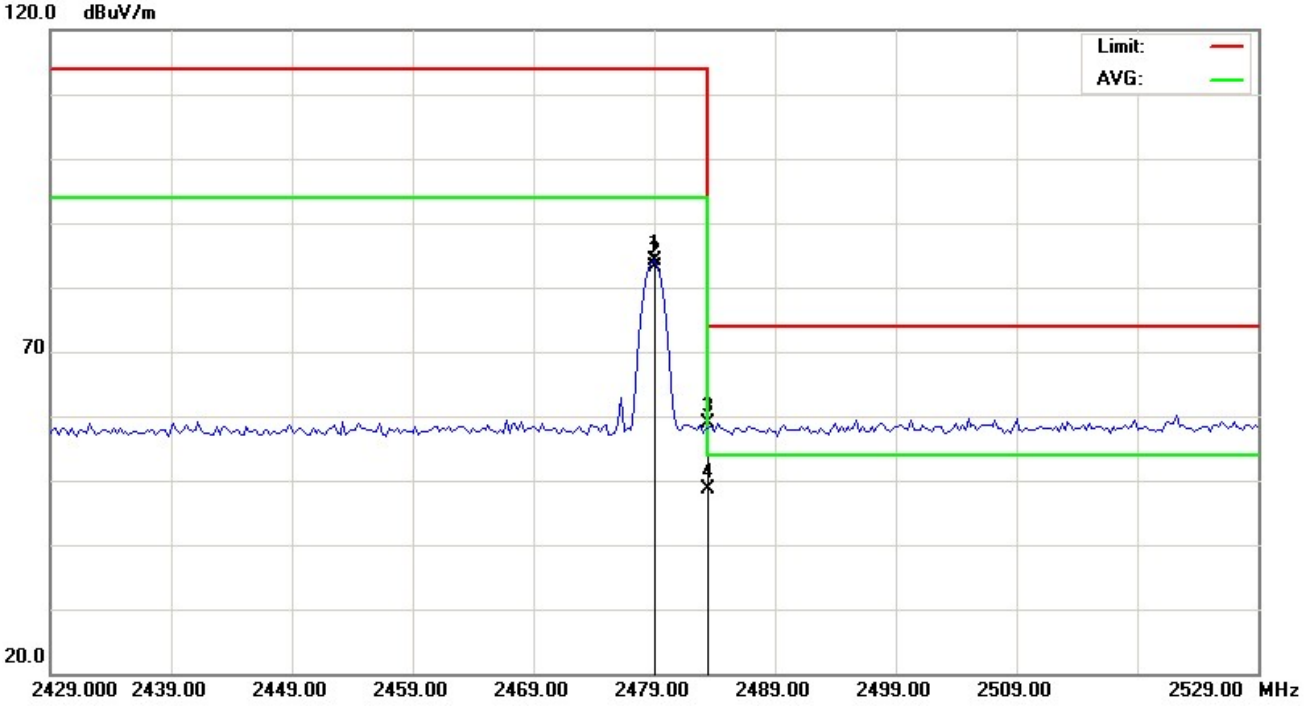
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

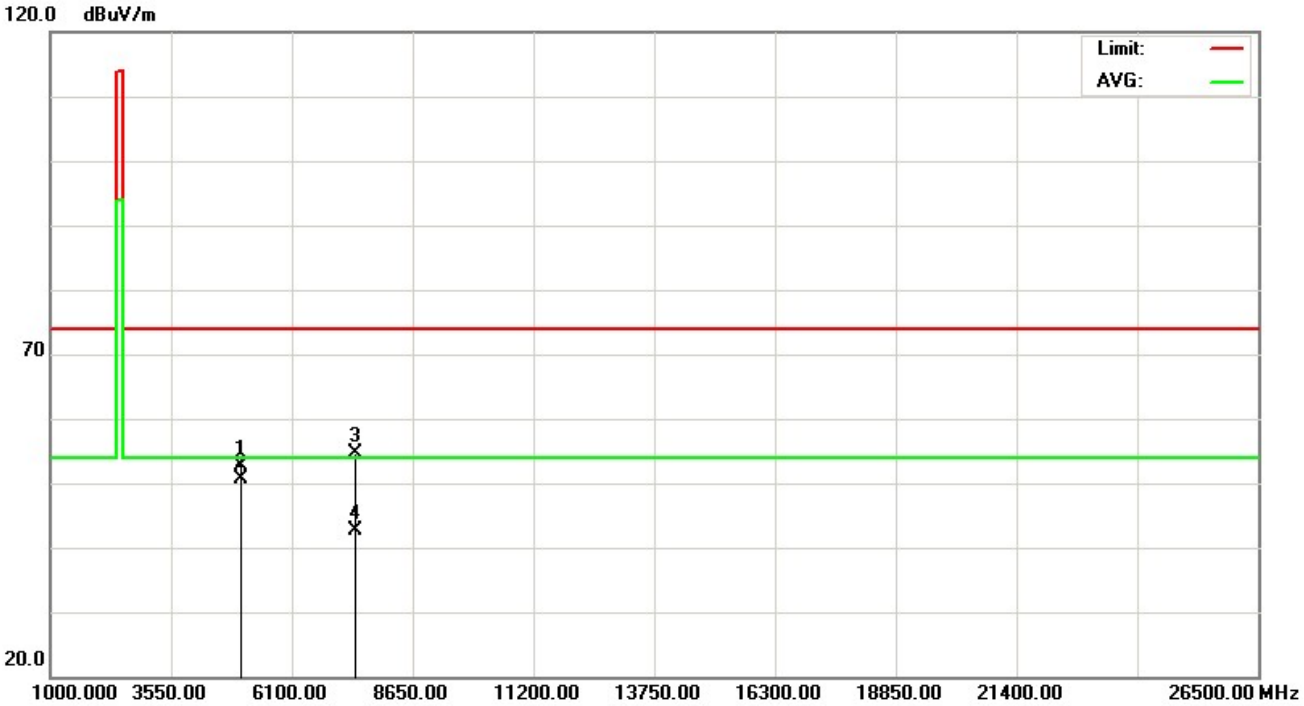
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"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 Axis：Y
2479 MHz (Horizontal)





5. ANTENNA CONDUCTED SPURIOUS EMISSION

5.1 APPLIED PROCEDURES / LIMIT

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (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

5.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Aug. 30, 2012

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

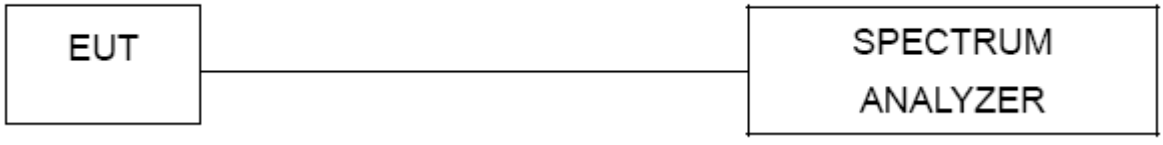
5.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.

5.1.3 DEVIATION FROM STANDARD

No deviation.

5.1.4 TEST SETUP



5.1.5 EUT OPERATION 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.

5.1.6 TEST RESULTS

EUT：	INTERACTIVE PEN	Model Name. ：	RC-380P1
Temperature：	26°C	Relative Humidity：	60%
Pressure：	DC 3V	Test Power ：	Y
Test Mode ：	2402MHz / 2479 MHz		

Channel of Worst Data			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2389.20	-65.07	2495.60	-62.56
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 50dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.			

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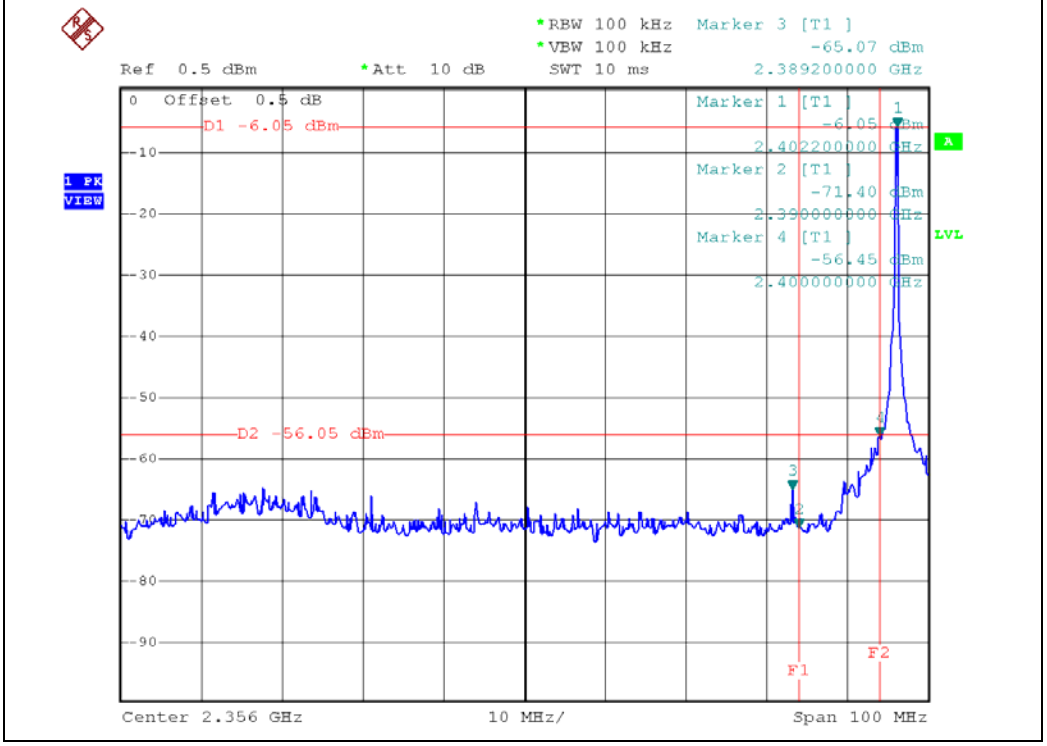

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