Radio Test Report

FCC ID: UFOOPI3301

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

Issued Date : Jun. 29, 2011
Project No. : R1104009
Equipment : Wireless Handheld 2D Scanner
Model Name : OPI-3301

Applicant : OPTOELECTRONICS CO., LTD.
Address : 4-12-17, Tsukagoshi, Warabi-Shi, Saitama-ken, 335-0002, Japan

Tested by: Neutron Engineering Inc. EMC Laboratory
Date of Receipt: May 03, 2011
Date of Test: May 03, 2011 ~ Jun. 02, 2011

Testing Engineer: Gary Chou
(Gary Chou)

Technical Manager: Jeff Yang
(Jeff Yang)

Authorized Signatory: Andy Chiu
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NVLAP Lab Code: 200145-0

ilac-MRA TAF Testing Laboratory 0659

VCCI C-2918 G-91 R-2669 R-2829 T-1666 T-1667

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 : Wireless Handheld 2D Scanner
Brand Name : OPTICON
Model Name : OPI-3301
Applicant : OPTOELECTRONICS CO., LTD.
Date of Test : May 03, 2011 ~ Jun. 02, 2011
Standards : FCC Part15, Subpart C / ANSI 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-R1104009) 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	N/A	
15.247 (c)	Antenna conducted Spurious Emission	PASS	
15.247 (a)(1)	Hopping Channel Separation	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (b)(1)	Number of Hopping Frequency	PASS	
15.247 (a)(1)	Dwell Time	PASS	
15.205	Restricted Bands	PASS	
15.203	Antenna Requirement	PASS	
1.1307 1.1310 2.1091 2.1093	RF Exposure Compliance	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; 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.

Radiated Measurement :

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	Wireless Handheld 2D Scanner
Brand Name	OPTICON
Model Name	OPI-3301
OEM Brand/Model Name	N/A
Model Difference	N/A
Product Description	The EUT is a Wireless Handheld 2D Scanner. Operation Frequency: 2402-2480MHz. Modulation Type: FHSS(GFSK) Bit Rate of Transmitter 1Mbps Number Of Channel 79CH Antenna Designation: Please see Note 3. Antenna Gain(Peak) Please see Note 3. Output Power: -3.05 dBm (Max.)(3M) 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	Battery: DC 3.7V 1100mAh 4.07Wh
Connecting I/O Port(s)	Please refer to the User s Manual
Products Covered	1 * RECHARGEABLE LITHIUM-ION BATTERY: OPTICON P9017

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)
00	**2402**	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	**39**	**2441**	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	**78**	**2480**
25	2427	52	2454		
26	2428	53	2455		

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	FURUKAWA	SF2450-01	CHIP	N/A	2.1

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	BT (1M) CH00/CH39/CH78
Mode 2	BT (3M) CH00/CH39/CH78

For Radiated Emission	
Final Test Mode	Description
Mode 1	BT (1M) CH00/CH39/CH78
Mode 2	BT (3M) CH00/CH39/CH78

Note:
(1) The measurements are performed at the highest, middle, lowest available channels.

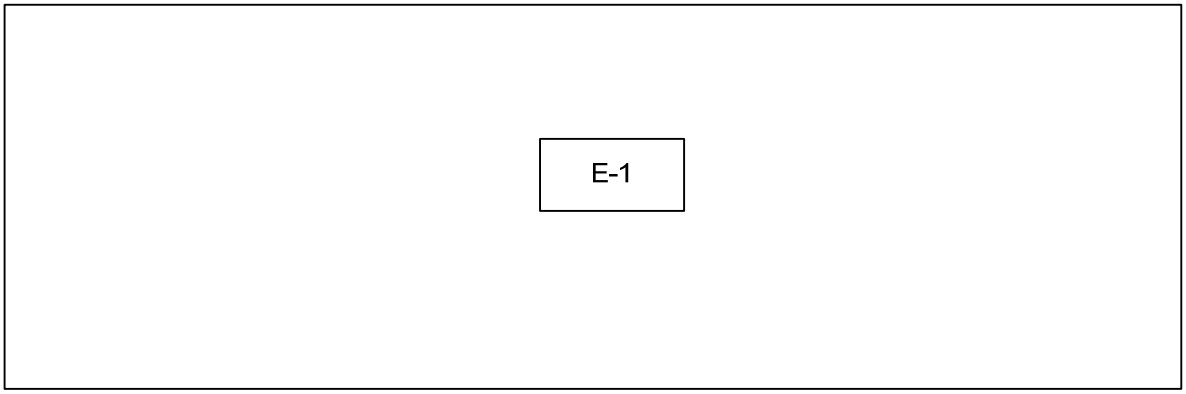
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

Data Rate	1M		
Test software Version	N/A		
Frequency	2402 MHz	2441 MHz	2480 MHz
Power Parameters	default	default	default

Data Rate	3M		
Test software Version	N/A		
Frequency	2402 MHz	2441 MHz	2480 MHz
Power Parameters	default	default	default

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 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	Wireless Handheld 2D Scanner	OPTICON	OPI-3301	UFOOPI3301	N/A	EUT

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

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 RADIATED EMISSION MEASUREMENT

4.1.1 RADIATED EMISSION LIMITS (Frequency Range 9KHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on15.205(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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

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).

(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain(if use)
Margin Level = Measurement Value – Limit Value

4.1.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Aug. 31, 2011
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. 22, 2011
6	Microflex Cable	N/A	N/A	3m	Aug. 22, 2011
7	Test Cable	N/A	LMR-400	966_12m	Jun. 17, 2011
8	Test Cable	N/A	LMR-400	966_3m	Jun. 17, 2011
9	Pre-Amplifier	EMC	EMC-330	980001	Jun. 03, 2011
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 17, 2011

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

Spectrum Parameter	**Setting**
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100KHz / 100KHz for peak

Receiver Parameter	**Setting**
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.1.3 TEST PROCEDURE

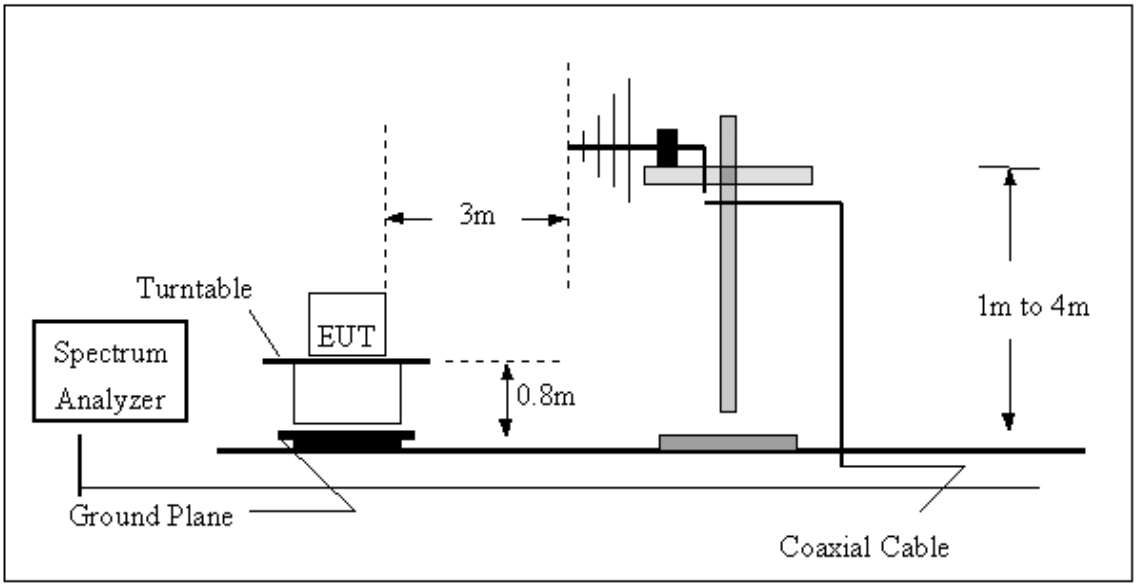
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 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.
g. The testing follows the guidelines in ANSI C63.4-2003 and FCC Public Notice DA 00-705 Measurement Guidelines. In case the emission is fail due to the used RBW / VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

4.1.4 DEVIATION FROM TEST STANDARD

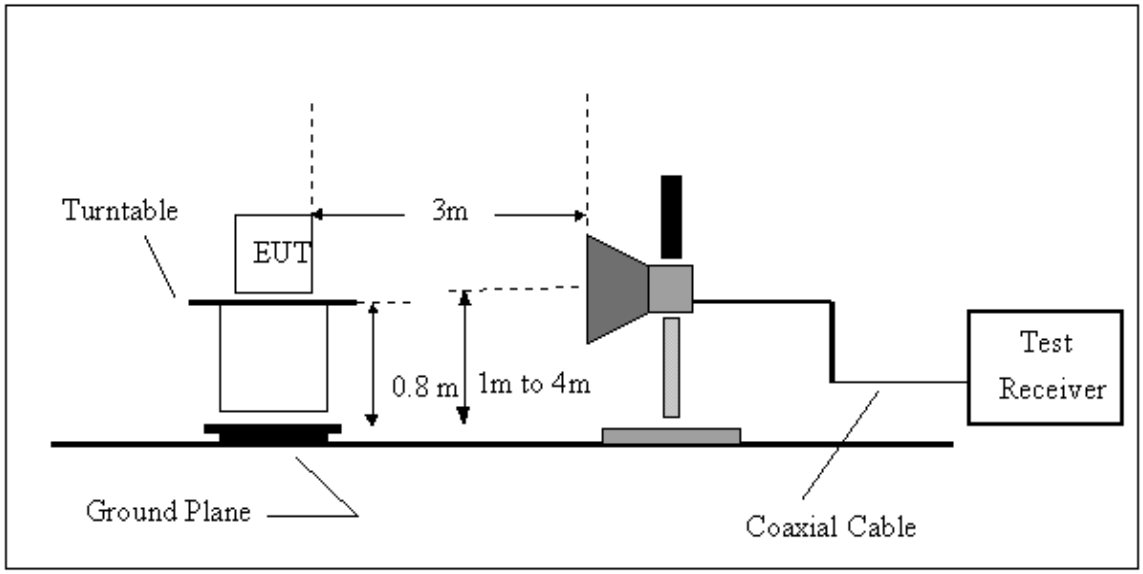
No deviation

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 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.

4.1.7 TEST RESULTS-BETWEEN 30MHZ – 1000MHZ

EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage ：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	1M_CH39		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
66.86	V	48.40	-18.37	30.03	40.00	- 9.97	
148.34	V	42.35	-16.67	25.68	43.50	- 17.82	
363.68	V	40.52	-13.99	26.53	46.00	- 19.47	
456.80	V	39.63	-11.57	28.06	46.00	- 17.94	
507.24	V	40.23	-10.67	29.56	46.00	- 16.44	
594.54	V	39.60	-8.62	30.98	46.00	- 15.02	

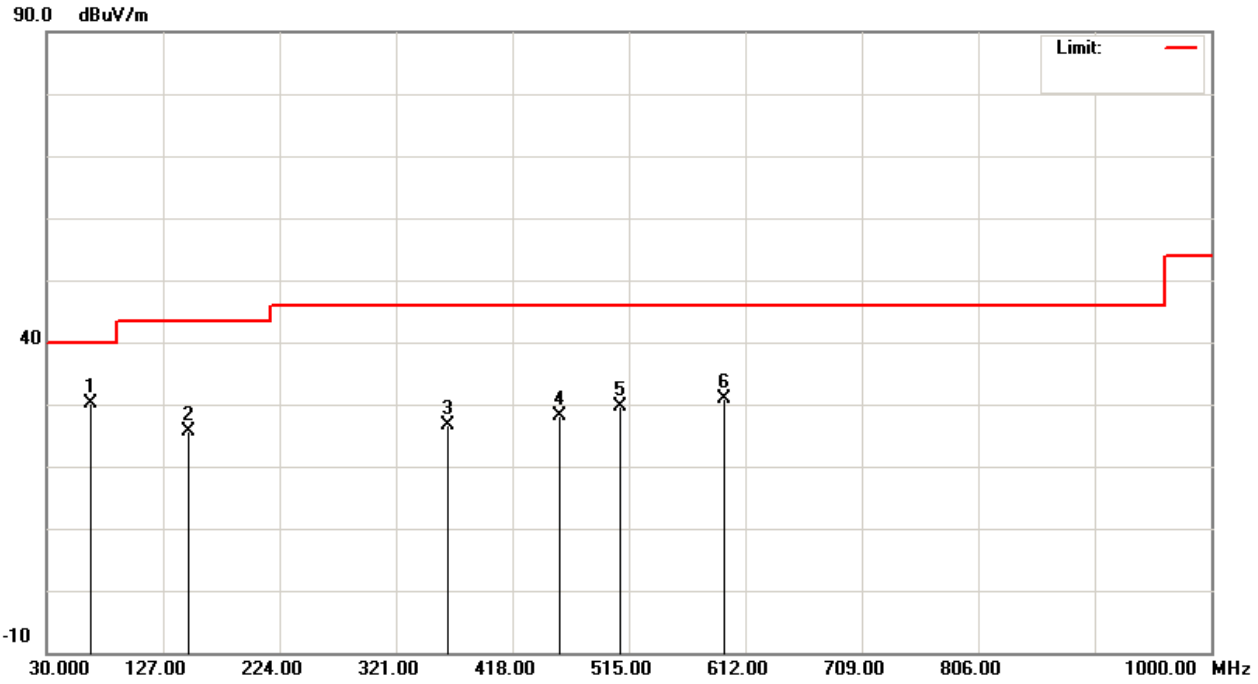
Remark：

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

(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：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage ：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	1M_CH39		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
76.56	H	47.54	-20.08	27.46	40.00	- 12.54	
319.06	H	43.45	-15.12	28.33	46.00	- 17.67	
400.54	H	40.72	-13.06	27.66	46.00	- 18.34	
464.56	H	40.24	-11.43	28.81	46.00	- 17.19	
546.04	H	39.64	-9.89	29.75	46.00	- 16.25	
641.10	H	42.84	-7.95	34.89	46.00	- 11.11	

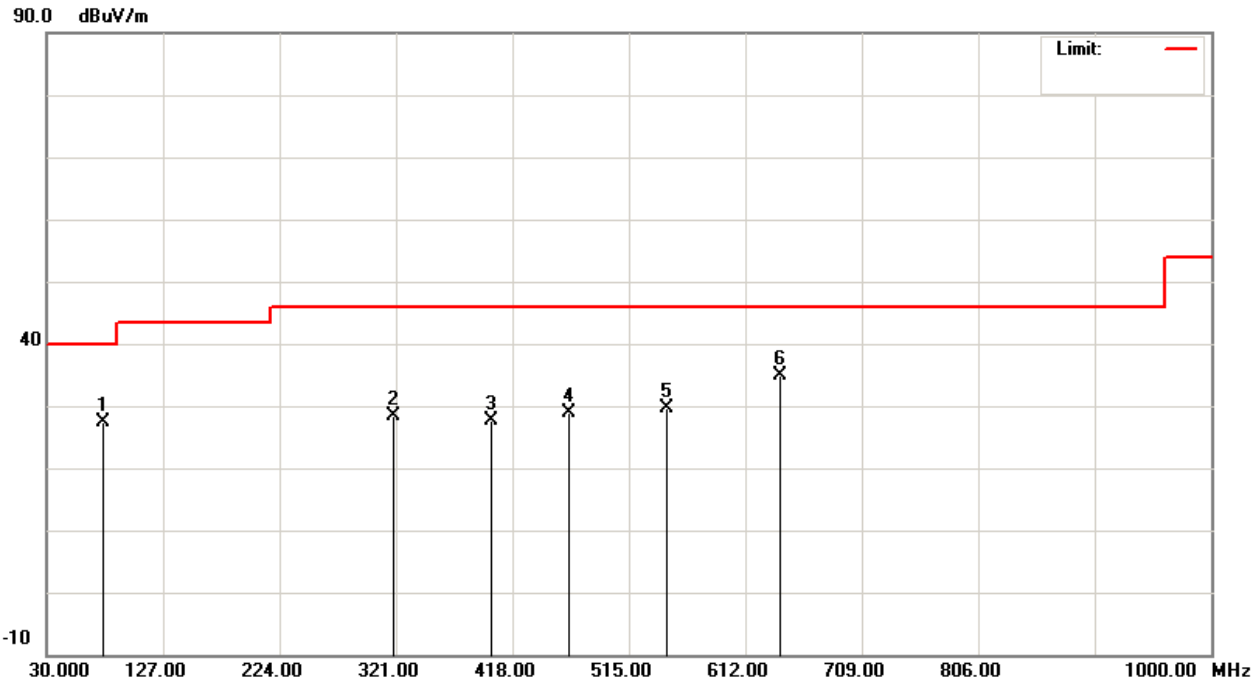
Remark：

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

(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.



4.1.8 TEST RESULTS-ABOVE 1000MHZ

EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	1M_CH00		

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	21.61	11.61	30.89	52.50	42.50	74.00	54.00	E
2401.00	V	42.34	34.91	30.94	73.28	65.85			F
4804.05	V	55.36	48.48	2.64	58.00	51.12	74.00	54.00	H
7205.93	V	42.05	31.67	8.26	50.31	39.93	74.00	54.00	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 。

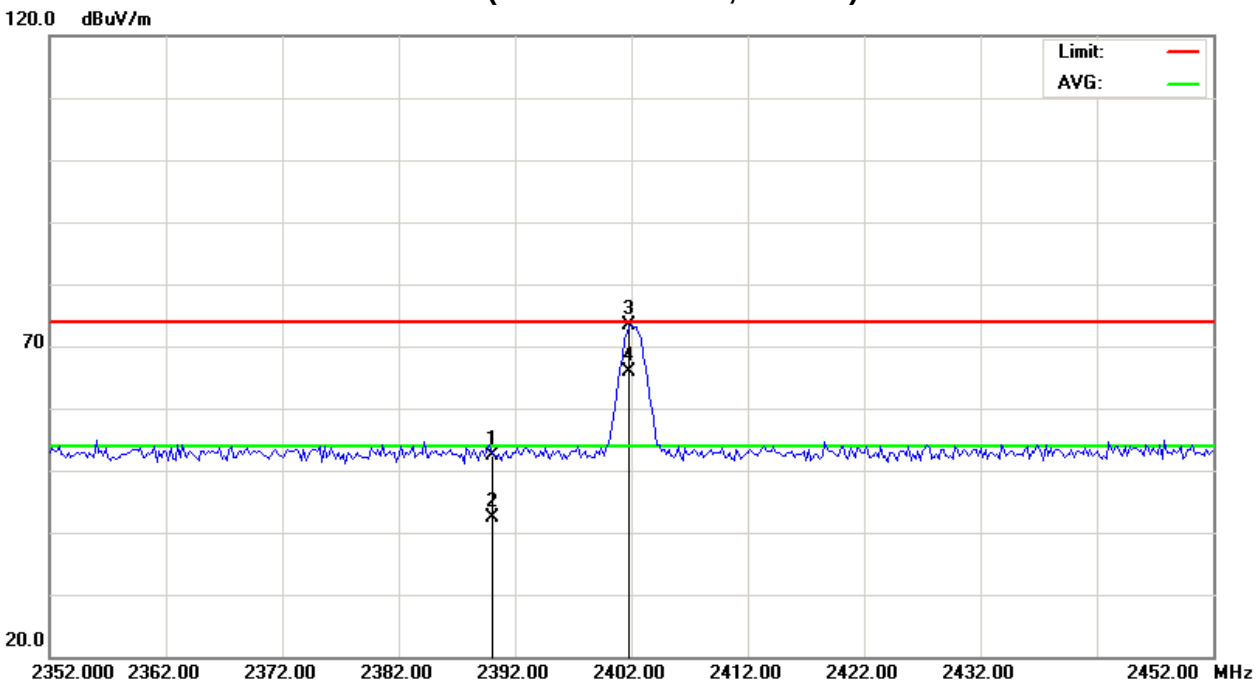
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

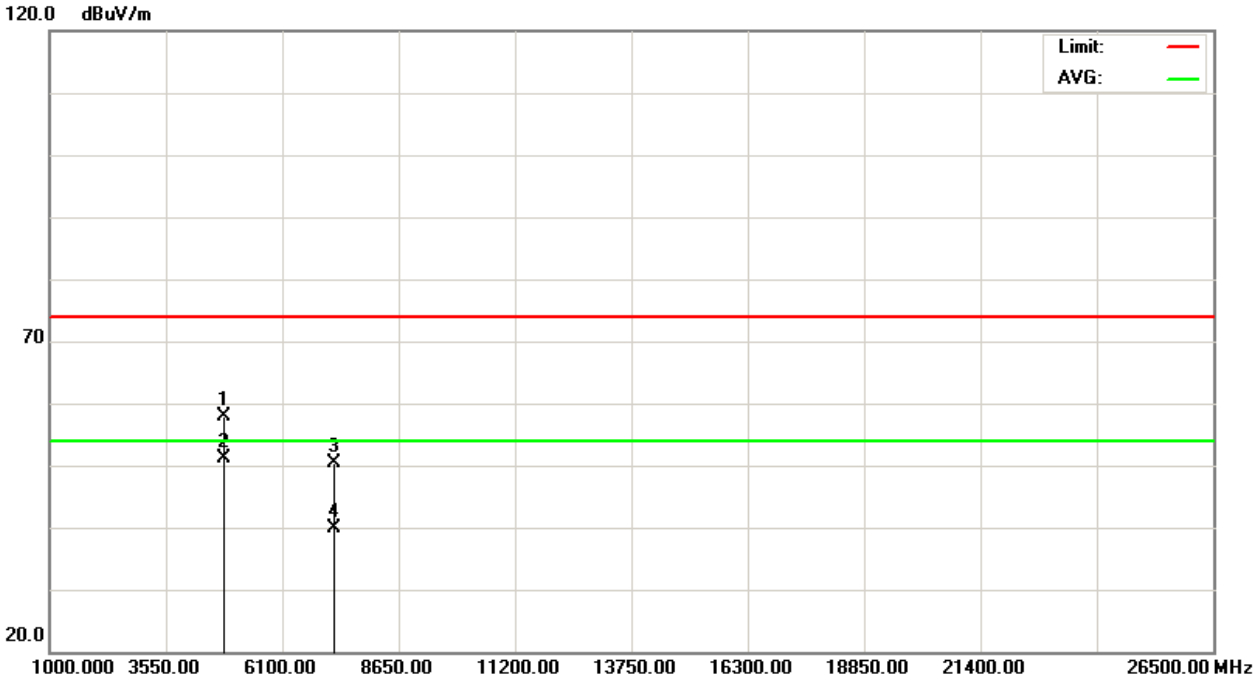
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH00(Above 1000 MHz, Vertical)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	1M_CH00		

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	22.40	11.56	30.89	53.29	42.45	74.00	54.00	E
2402.00	H	47.95	39.77	30.94	78.89	70.71			F
4804.03	H	48.36	40.68	2.64	51.00	43.32	74.00	54.00	H
7206.17	H	42.23	31.61	8.26	50.49	39.87	74.00	54.00	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 。

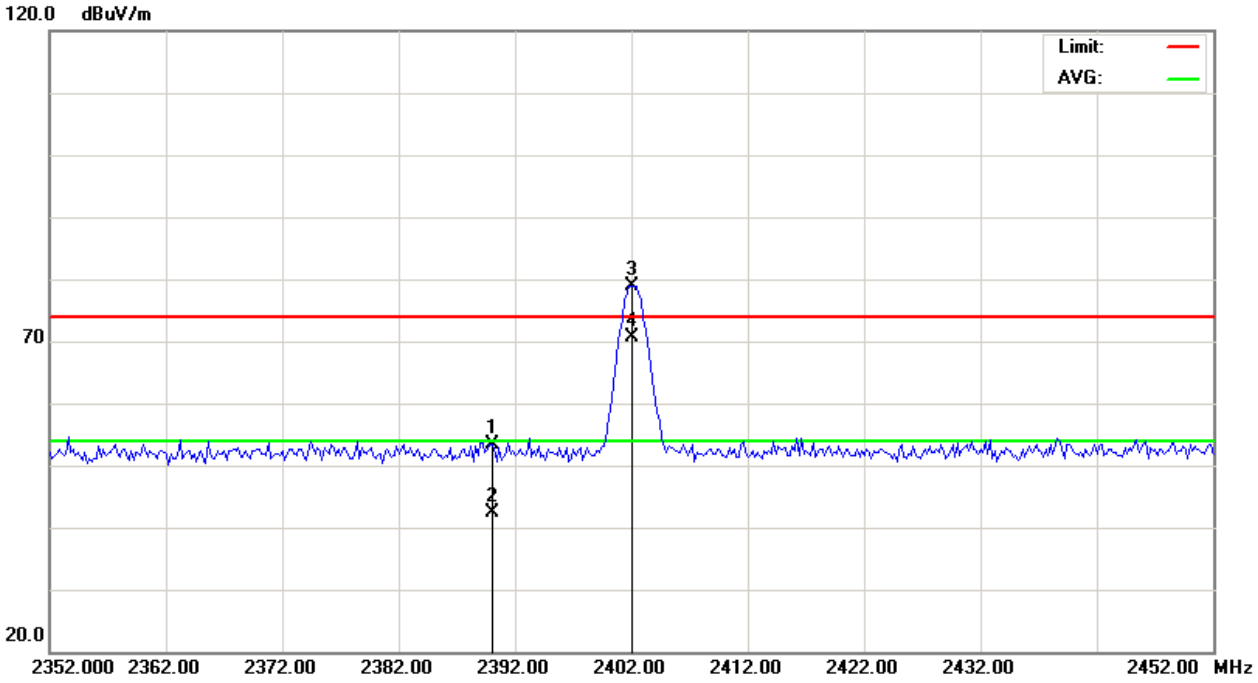
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

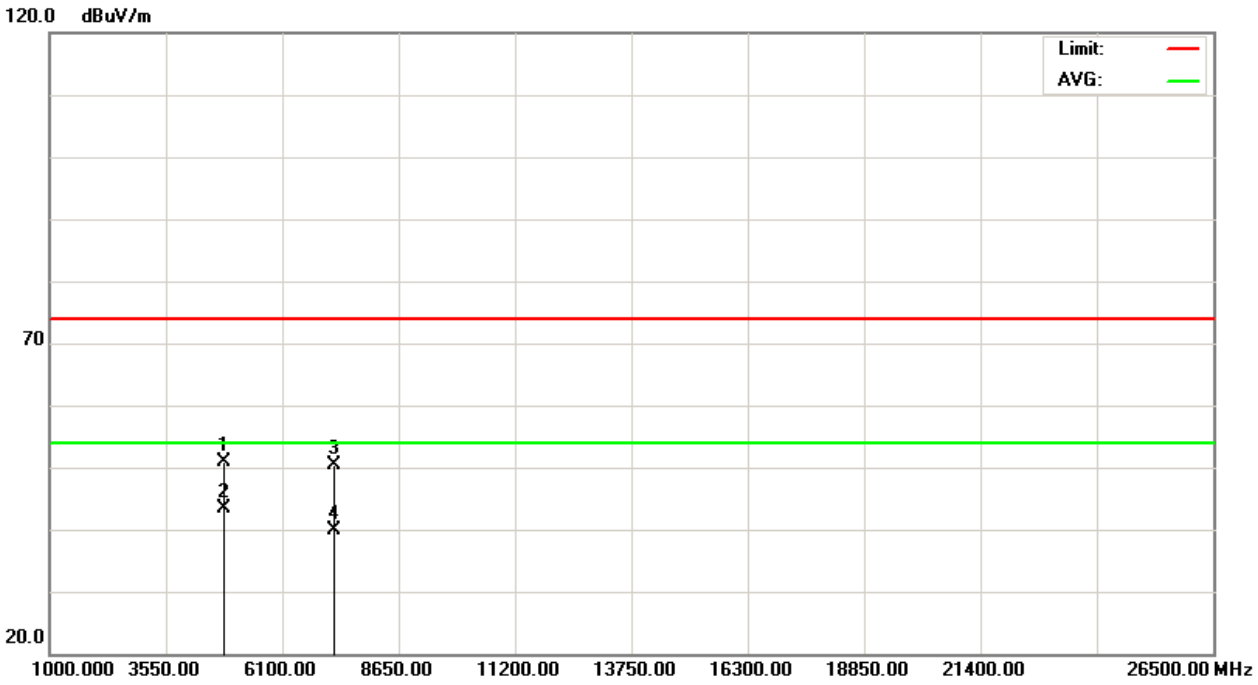
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH00(Above 1000 MHz, Horizontal)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	1M_CH39		

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)	
2441.00	V	51.96	42.74	31.10	83.06	73.84			F
4881.55	V	37.93	48.54	2.89	40.82	51.43	74.00	54.00	H
7323.04	V	41.32	30.28	8.43	49.75	38.71	74.00	54.00	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 。

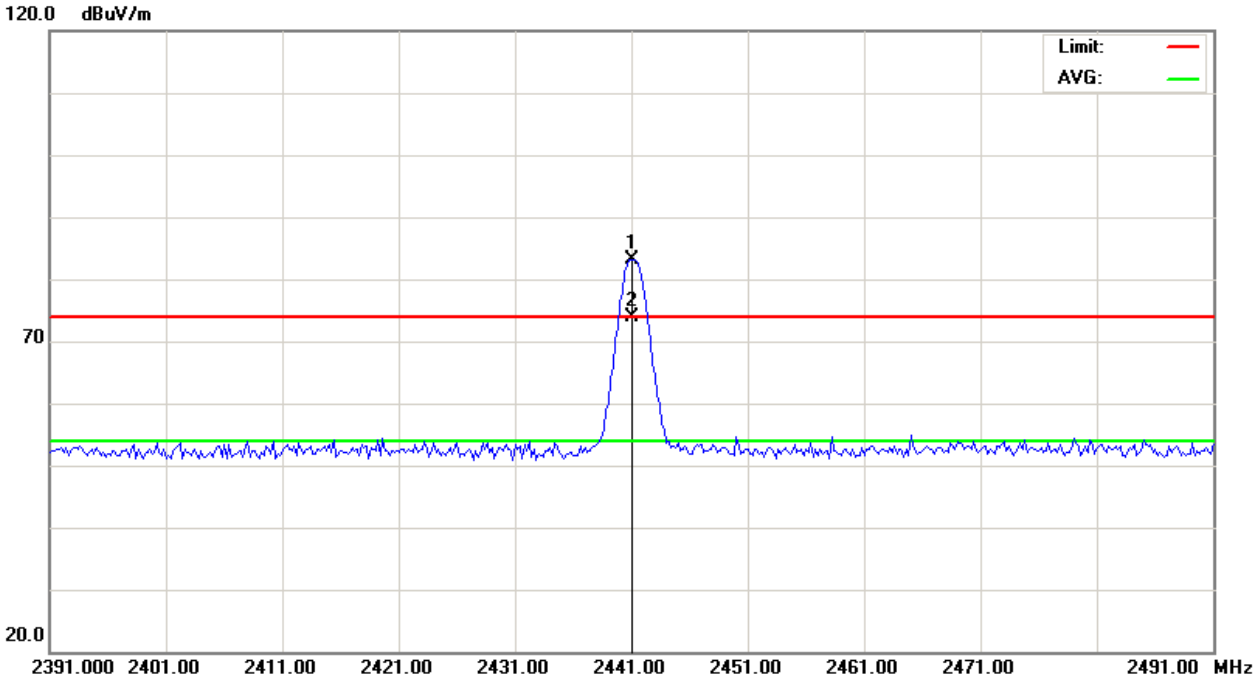
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

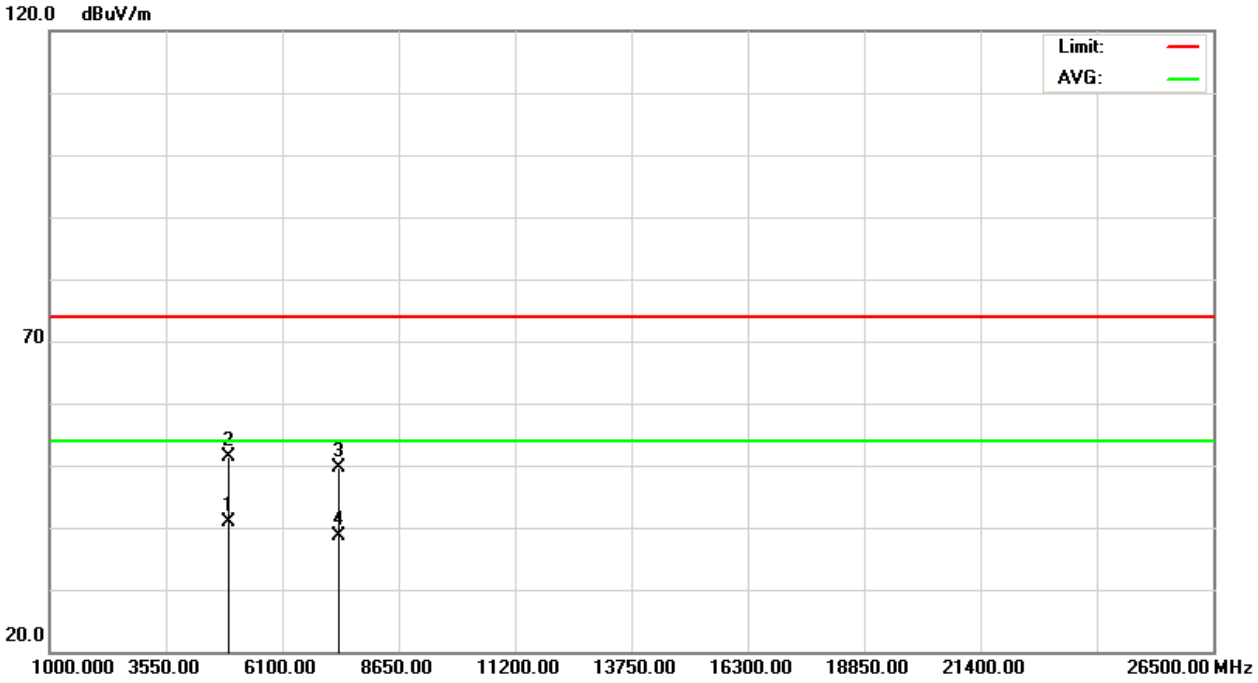
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH39 (Above 1000 MHz, Vertical)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	1M_CH39		

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)	
2441.20	H	55.11	45.31	31.10	86.21	76.41			F
4882.03	H	46.18	38.65	2.89	49.07	41.54	74.00	54.00	H
7323.10	H	40.68	30.26	8.43	49.11	38.69	74.00	54.00	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 。

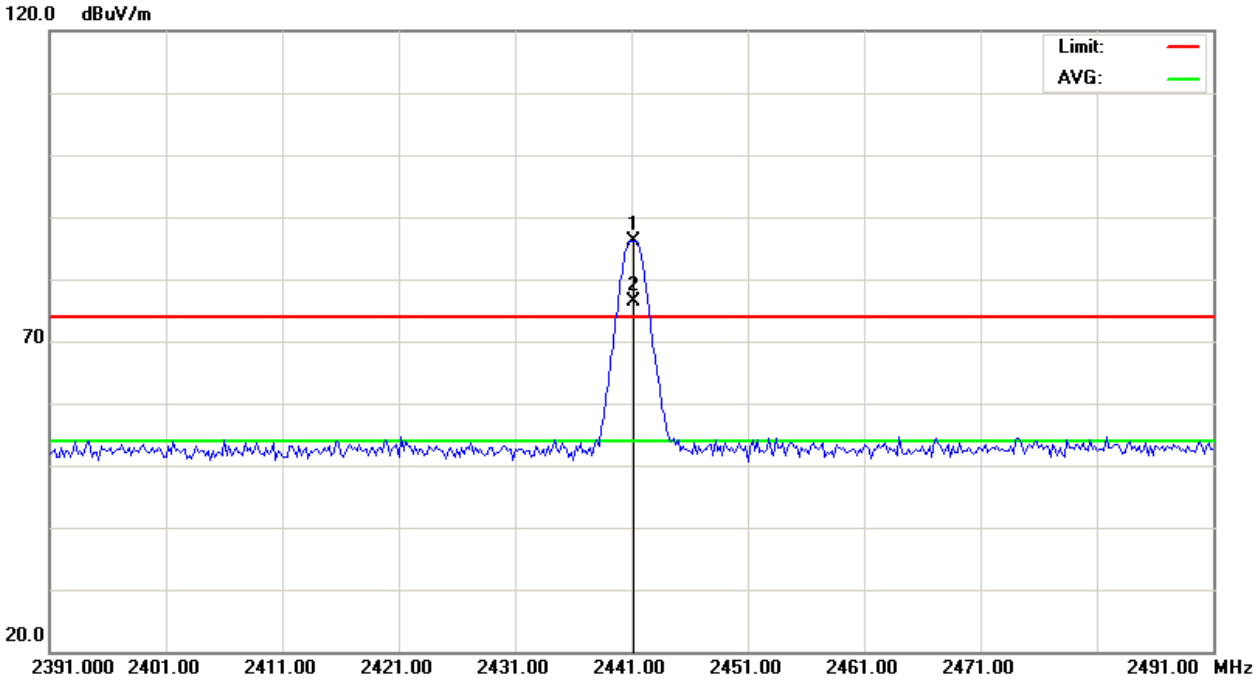
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

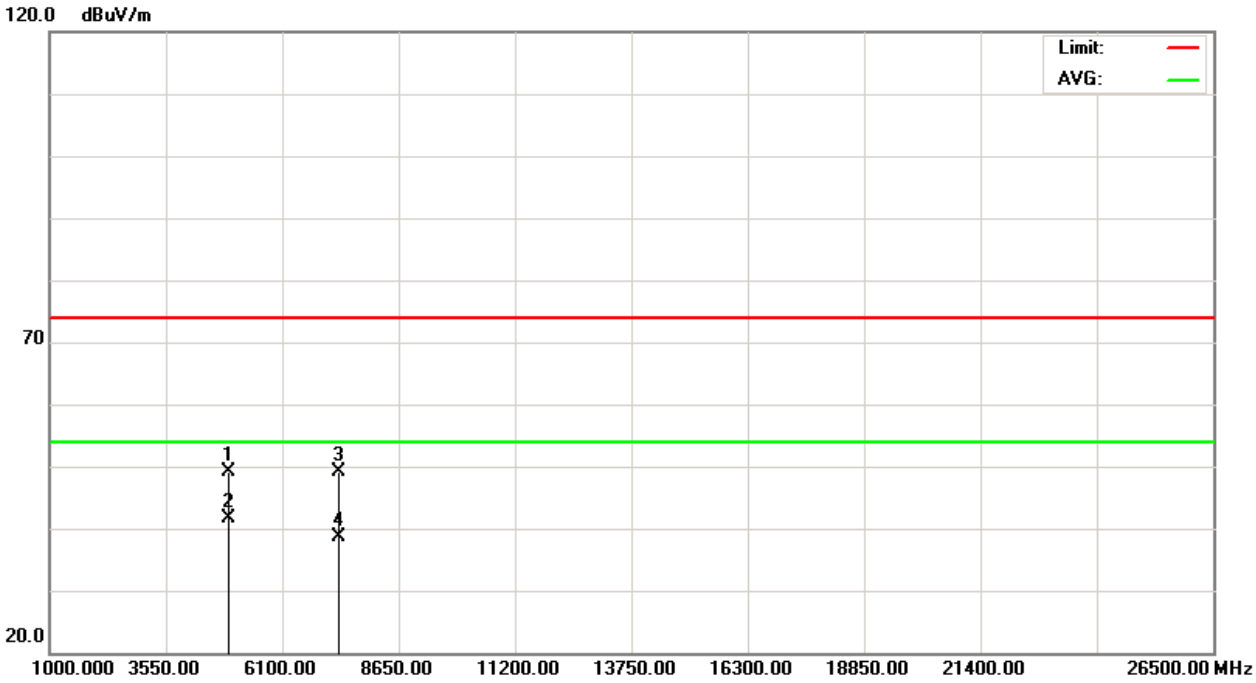
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH39 (Above 1000 MHz, Horizontal)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	1M_CH78		

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)	
2480.20	V	52.71	43.53	31.27	83.98	74.80			F
2483.50	V	22.48	13.27	31.28	53.76	44.55	74.00	54.00	E
4960.03	V	54.77	45.78	3.15	57.92	48.93	74.00	54.00	H
7439.95	V	43.40	31.30	8.59	51.99	39.89	74.00	54.00	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 。

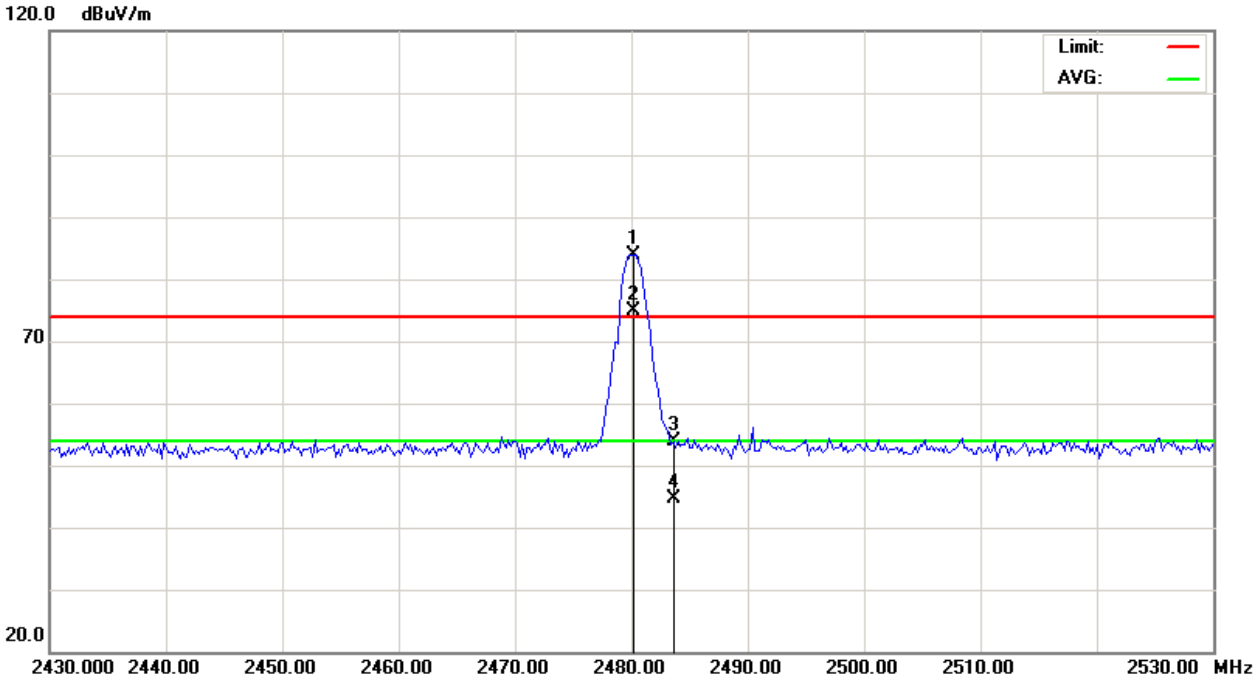
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

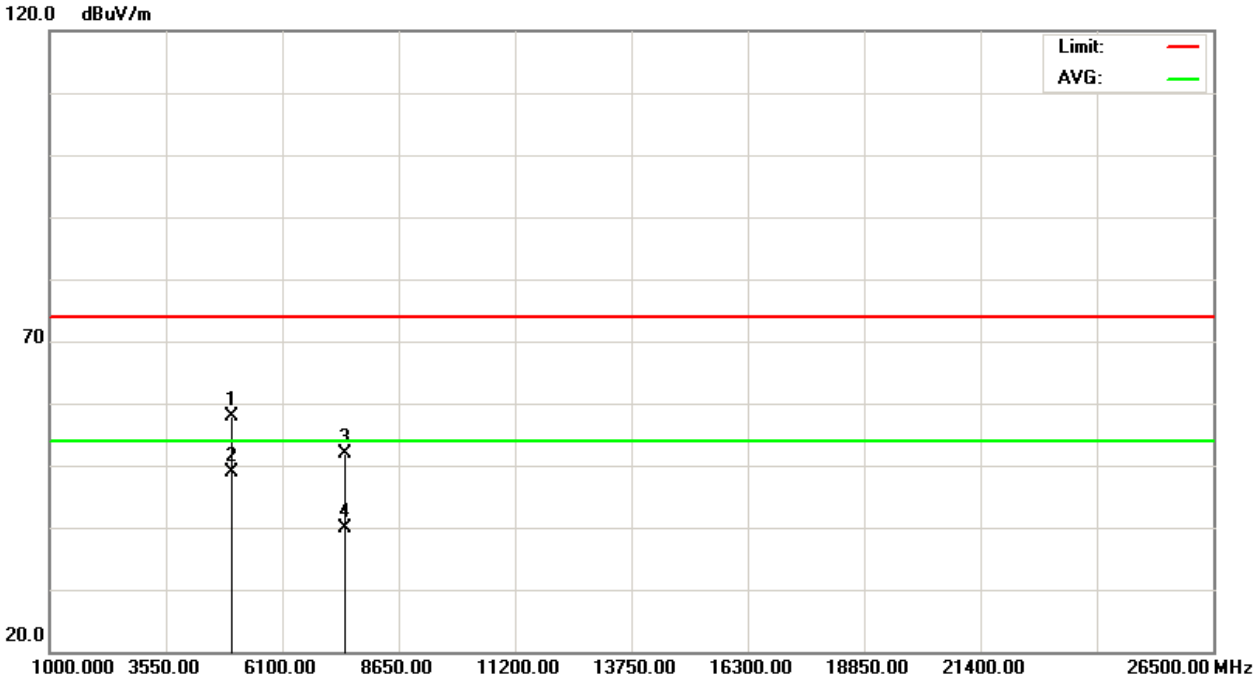
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH78 (Above 1000 MHz, Vertical)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	1M_CH78		

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)	
2479.98	H	54.72	45.17	31.27	85.99	76.44			F
2483.50	H	22.86	14.09	31.28	54.14	45.37	74.00	54.00	E
4960.01	H	48.68	41.02	3.15	51.83	44.17	74.00	54.00	H
7440.10	H	42.45	31.22	8.59	51.04	39.81	74.00	54.00	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 。

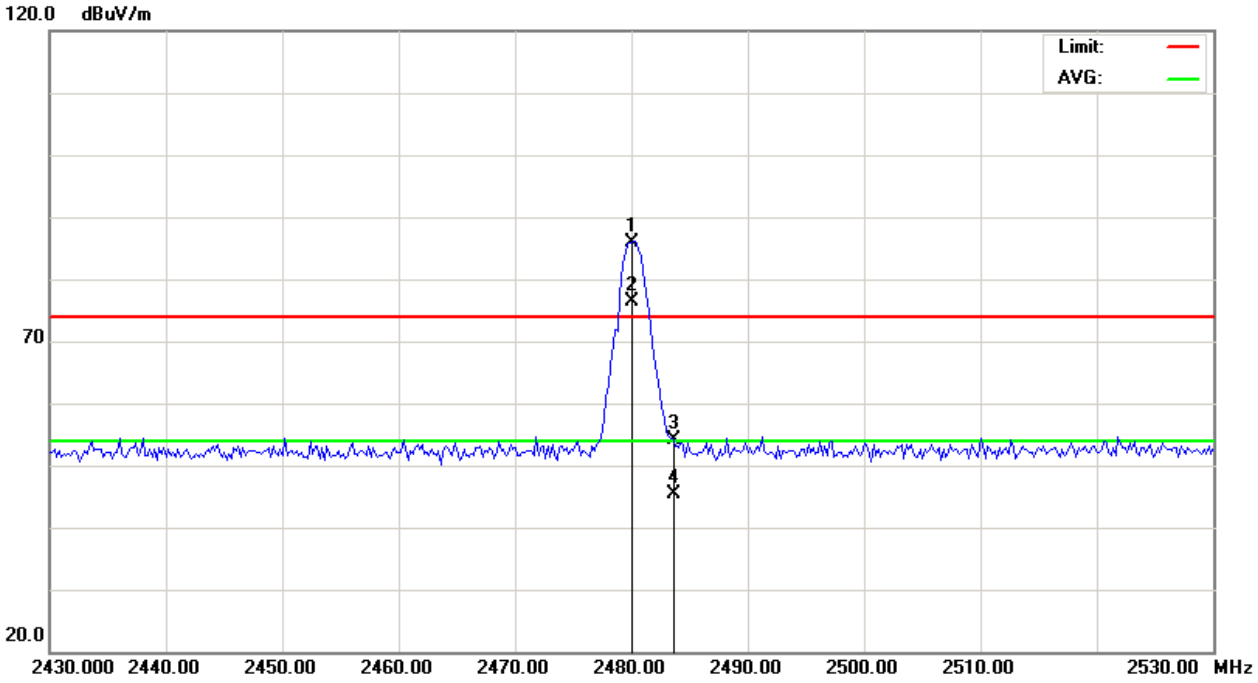
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

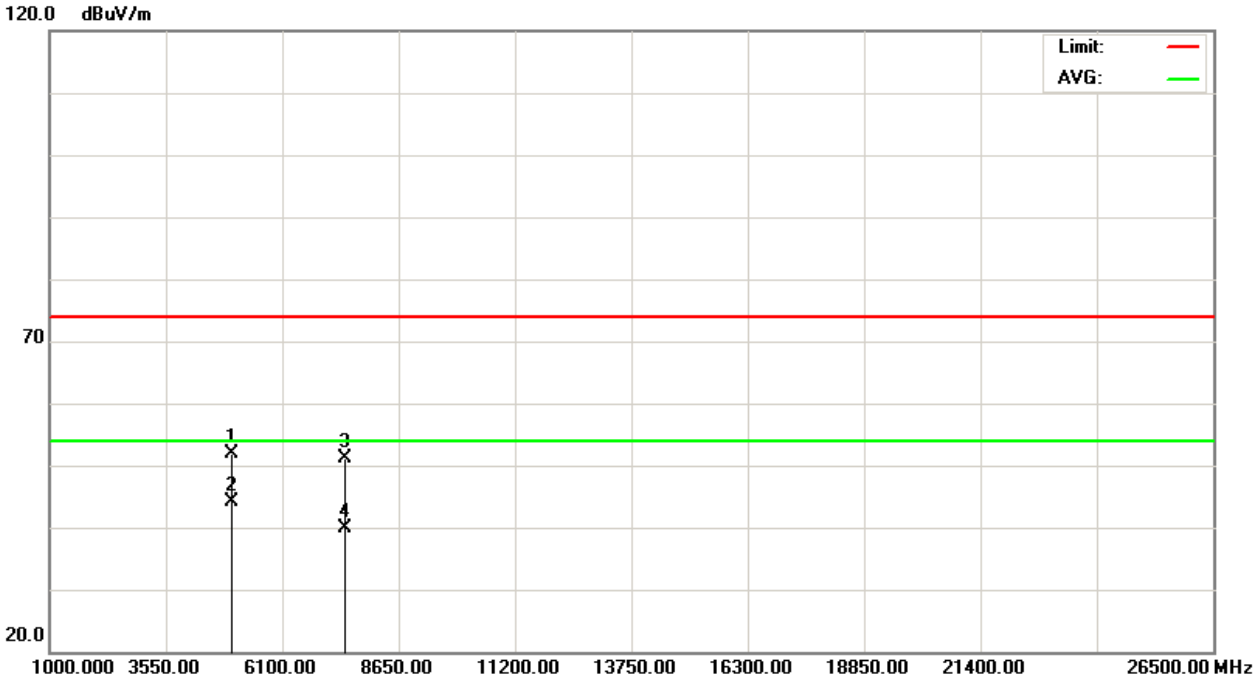
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH78 (Above 1000 MHz, Horizontal)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	3M_CH00		

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	21.06	11.26	30.89	51.95	42.15	74.00	54.00	E
2402.00	V	54.91	42.55	30.94	85.85	73.49			F
4803.77	V	41.68	30.52	2.64	44.32	33.16	74.00	54.00	H
7206.10	V	42.52	30.76	8.26	50.78	39.02	74.00	54.00	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 。

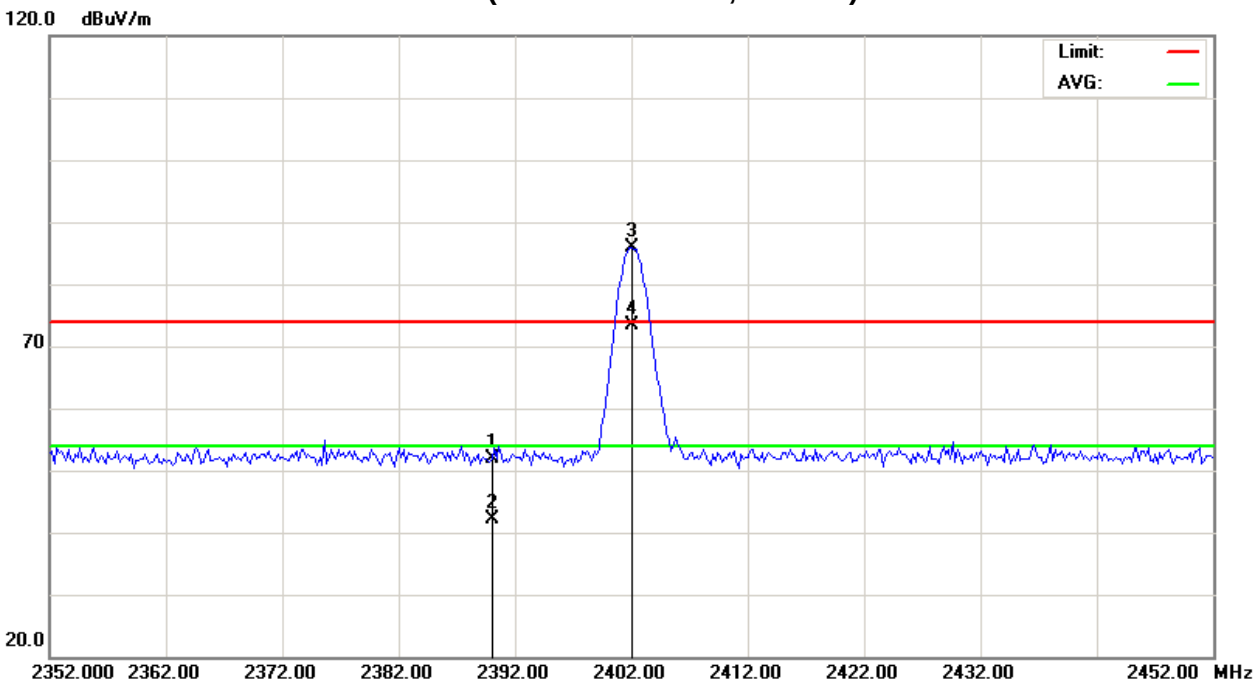
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

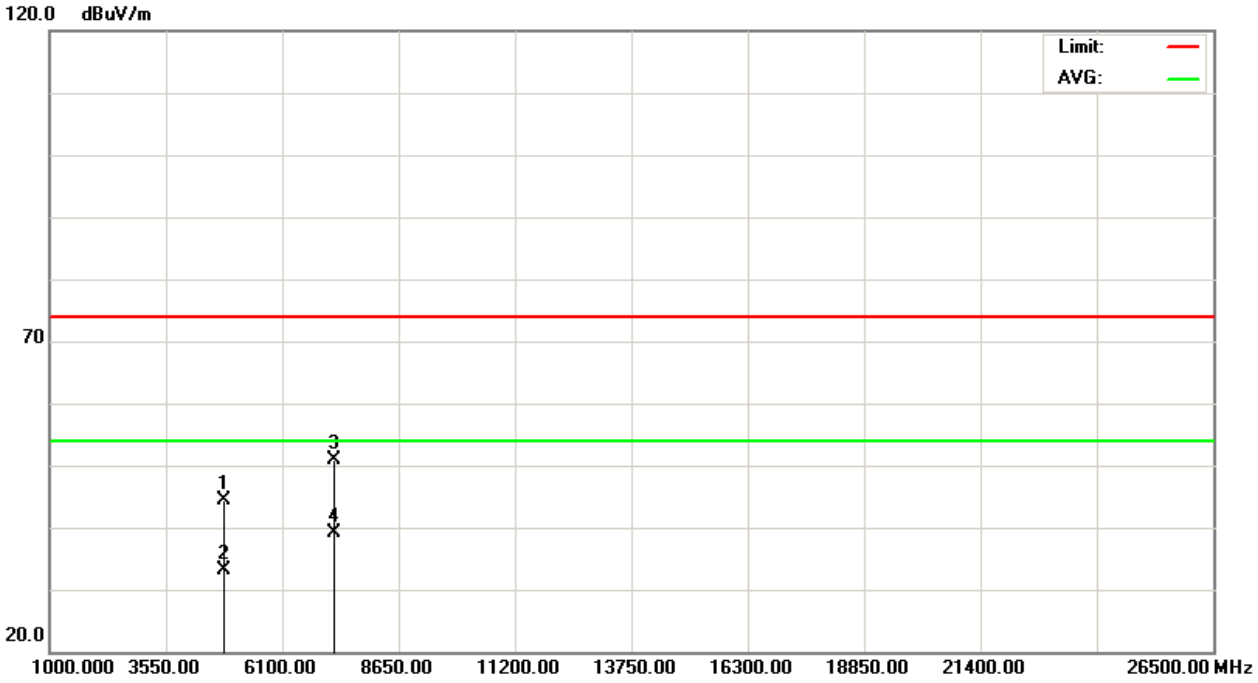
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH00(Above 1000 MHz, Vertical)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	3M_CH00		

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	21.28	11.26	30.89	52.17	42.15	74.00	54.00	E
2401.80	H	57.66	45.13	30.94	88.60	76.07			F
4803.90	H	42.28	30.36	2.64	44.92	33.00	74.00	54.00	H
7206.06	H	42.76	30.71	8.26	51.02	38.97	74.00	54.00	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 。

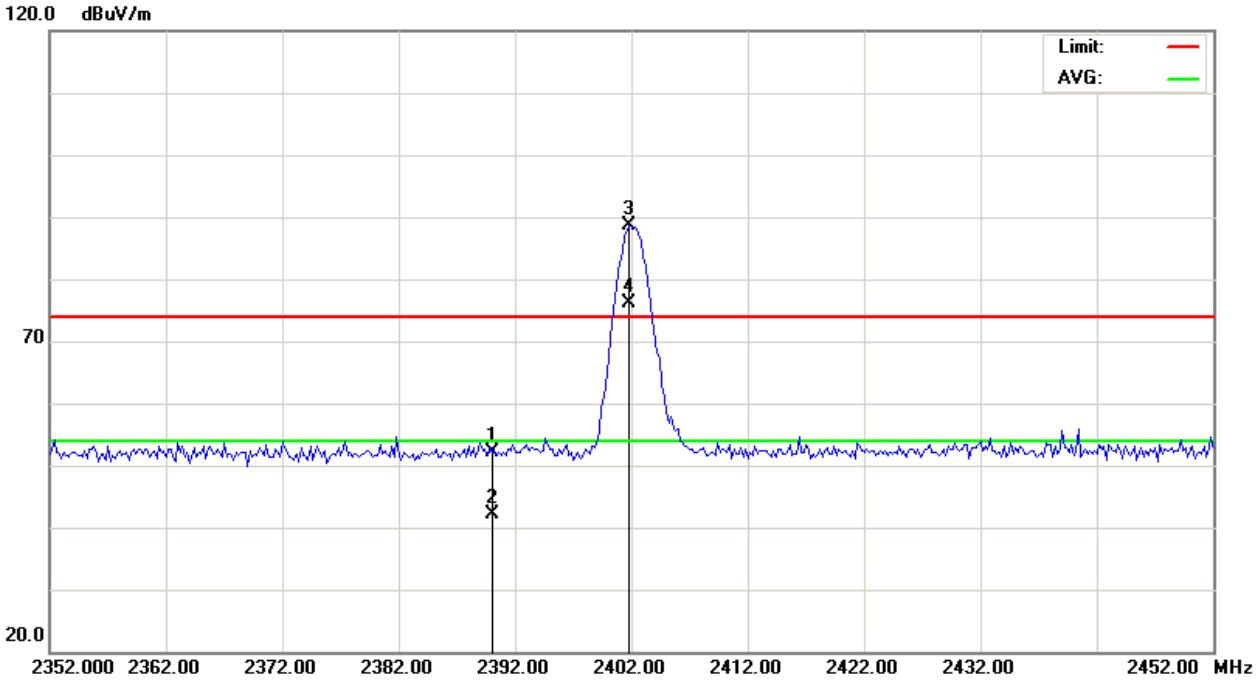
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

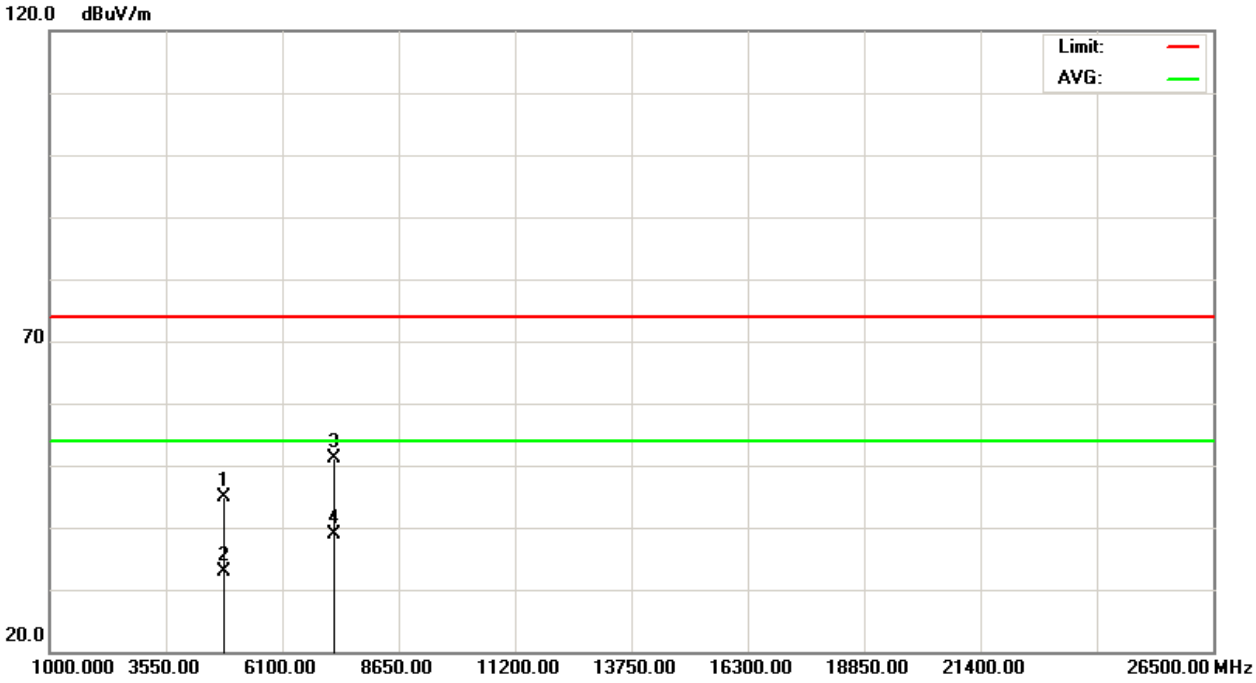
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH00(Above 1000 MHz, Horizontal)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	3M_CH39		

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)	
2441.00	V	53.22	41.65	31.10	84.32	72.75			F
4882.07	V	41.28	30.46	2.89	44.17	33.35	74.00	54.00	H
7322.94	V	41.54	30.24	8.43	49.97	38.67	74.00	54.00	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 。

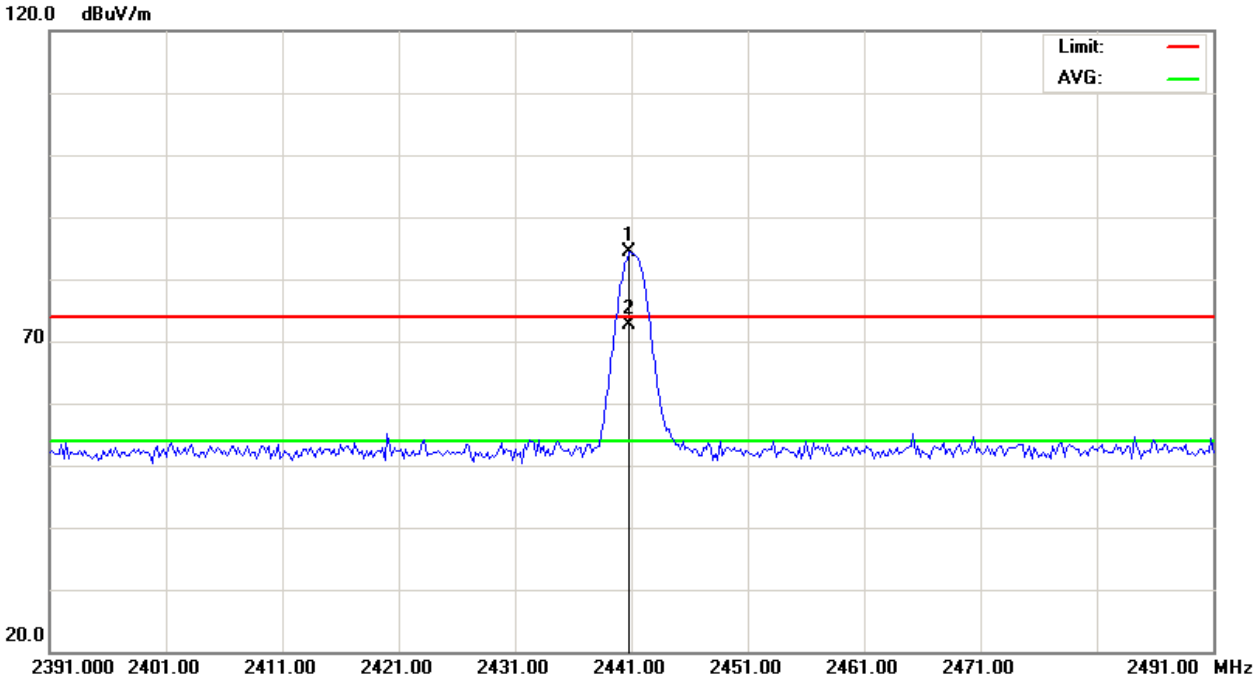
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

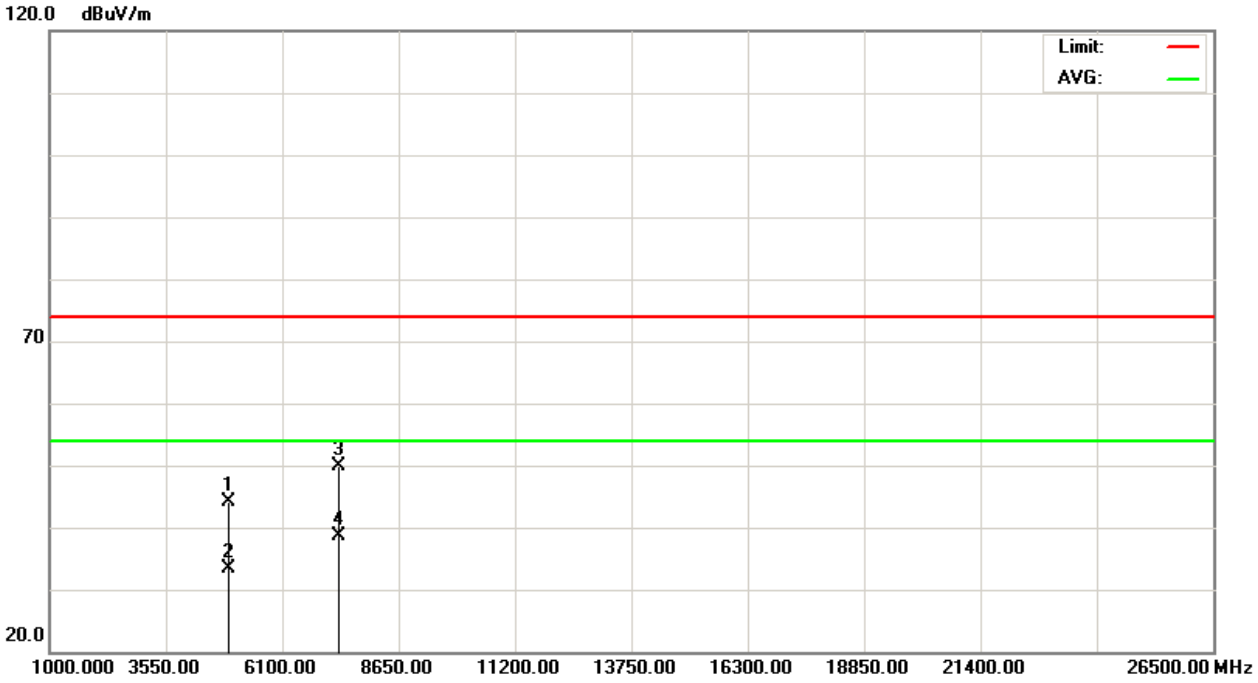
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH39 (Above 1000 MHz, Vertical)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	3M_CH39		

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)	
2441.00	H	55.66	43.57	31.10	86.76	74.67			F
4881.94	H	42.23	30.36	2.89	45.12	33.25	74.00	54.00	H
7323.20	H	41.04	30.28	8.43	49.47	38.71	74.00	54.00	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 。

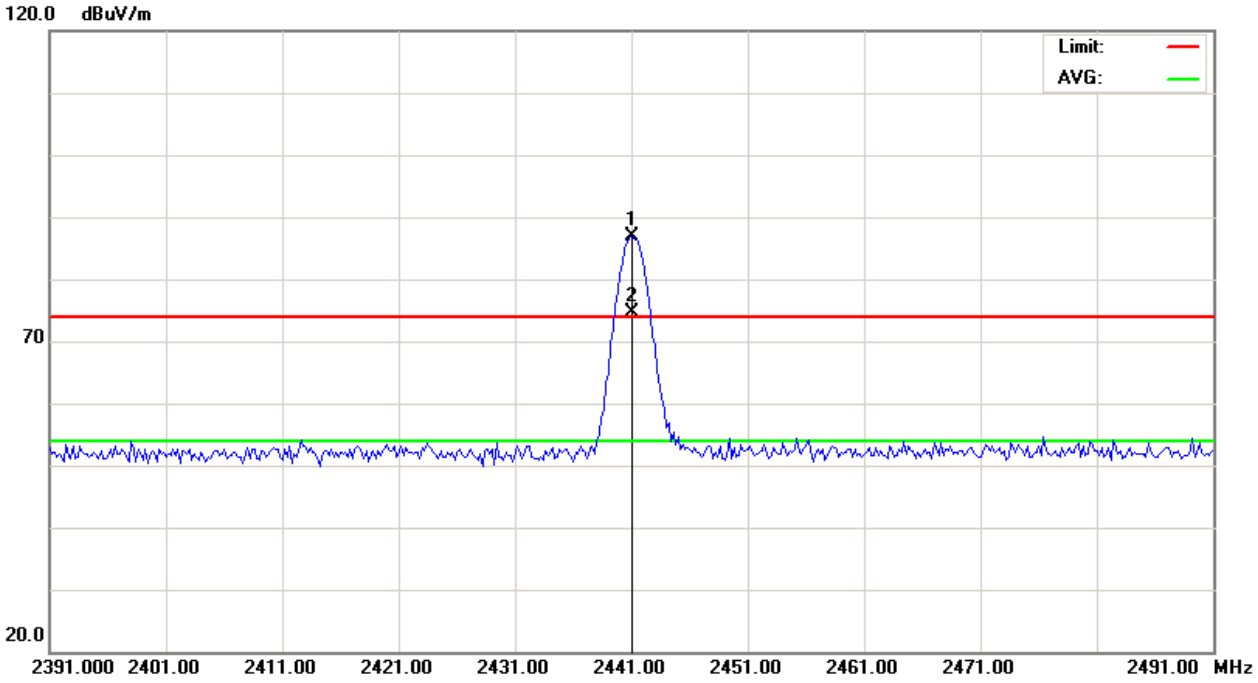
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

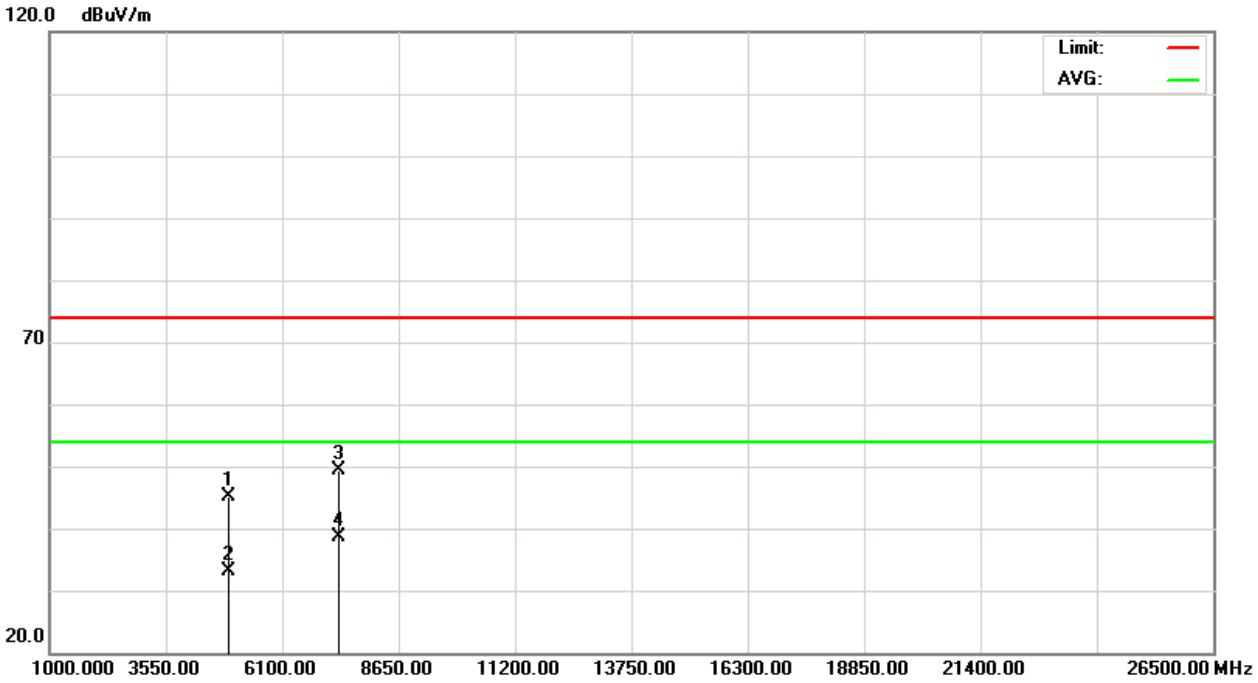
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH39 (Above 1000 MHz, Horizontal)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	3M_CH78		

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)	
2480.00	V	52.84	41.31	31.27	84.11	72.58			F
2483.50	V	23.02	13.31	31.28	54.30	44.59	74.00	54.00	E
4960.09	V	49.29	32.13	3.15	52.44	35.28	74.00	54.00	H
7436.94	V	41.87	30.69	8.59	50.46	39.28	74.00	54.00	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 。

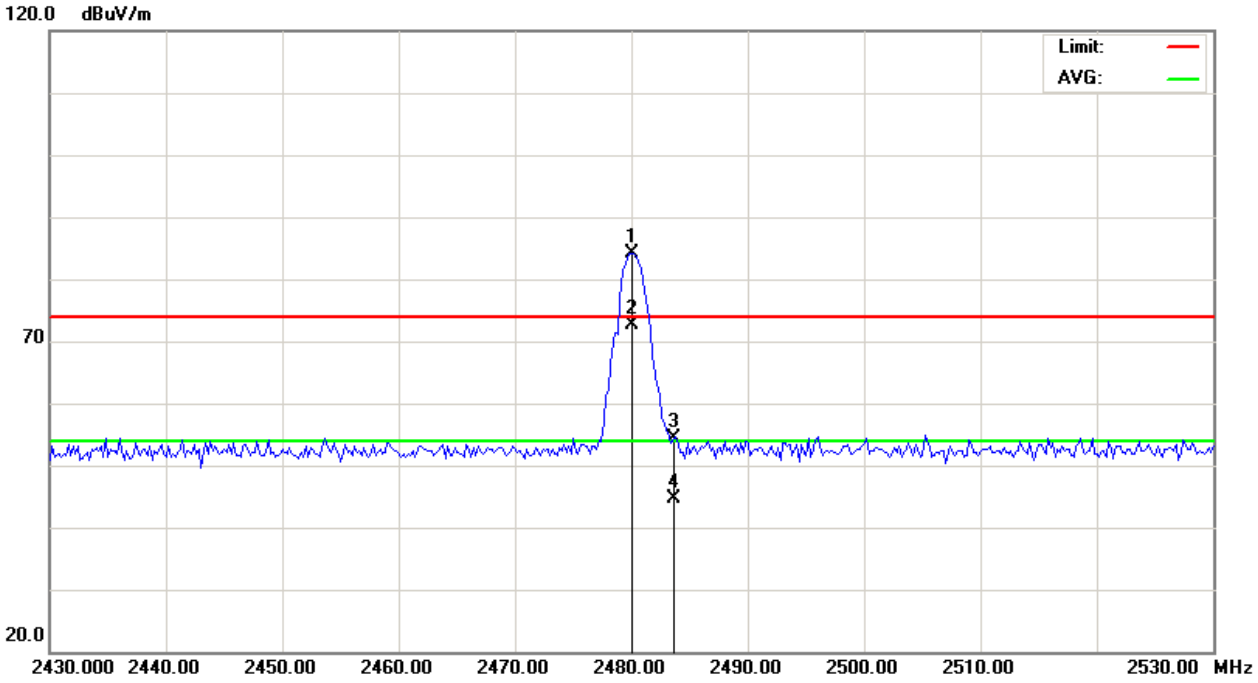
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

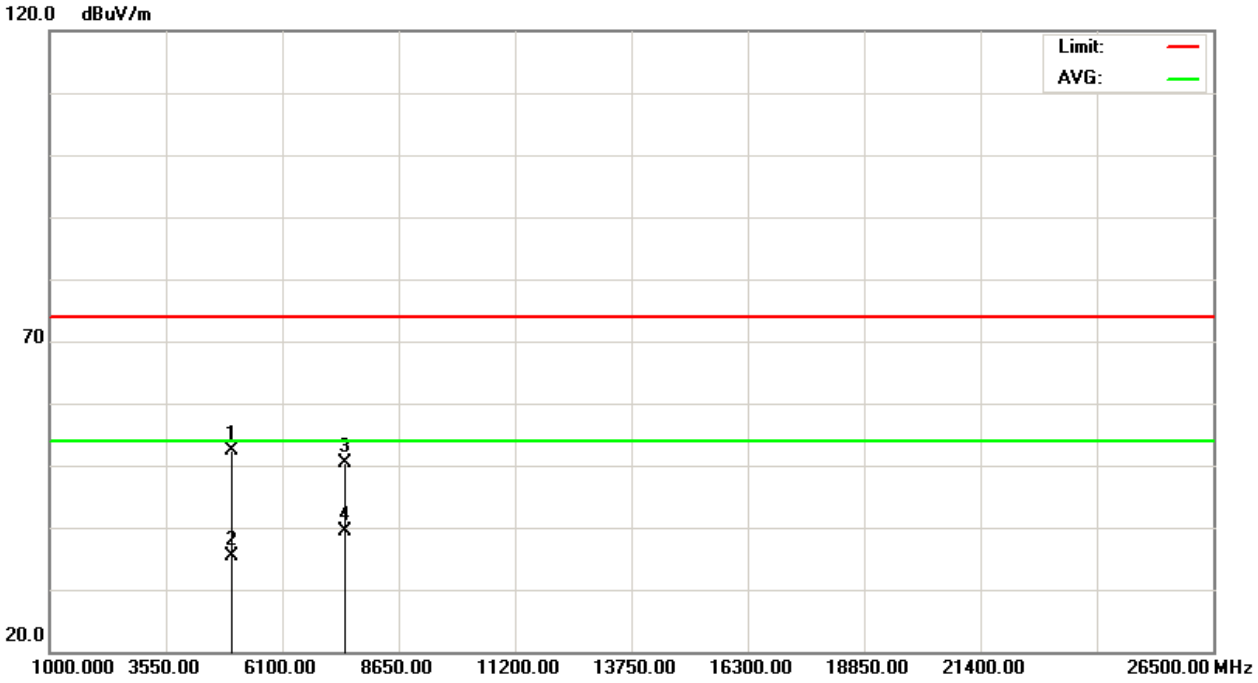
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(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
CH78 (Above 1000 MHz, Vertical)





EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage：	DC 3.7V	EUT Orthogonal Axis：	X
Test Mode ：	3M_CH78		

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)	
2479.80	H	54.99	43.06	31.27	86.26	74.33			F
2483.50	H	23.42	14.09	31.28	54.70	45.37	74.00	54.00	E
4959.95	H	41.42	30.48	3.15	44.57	33.63	74.00	54.00	H
7440.11	H	42.00	30.71	8.59	50.59	39.30	74.00	54.00	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.

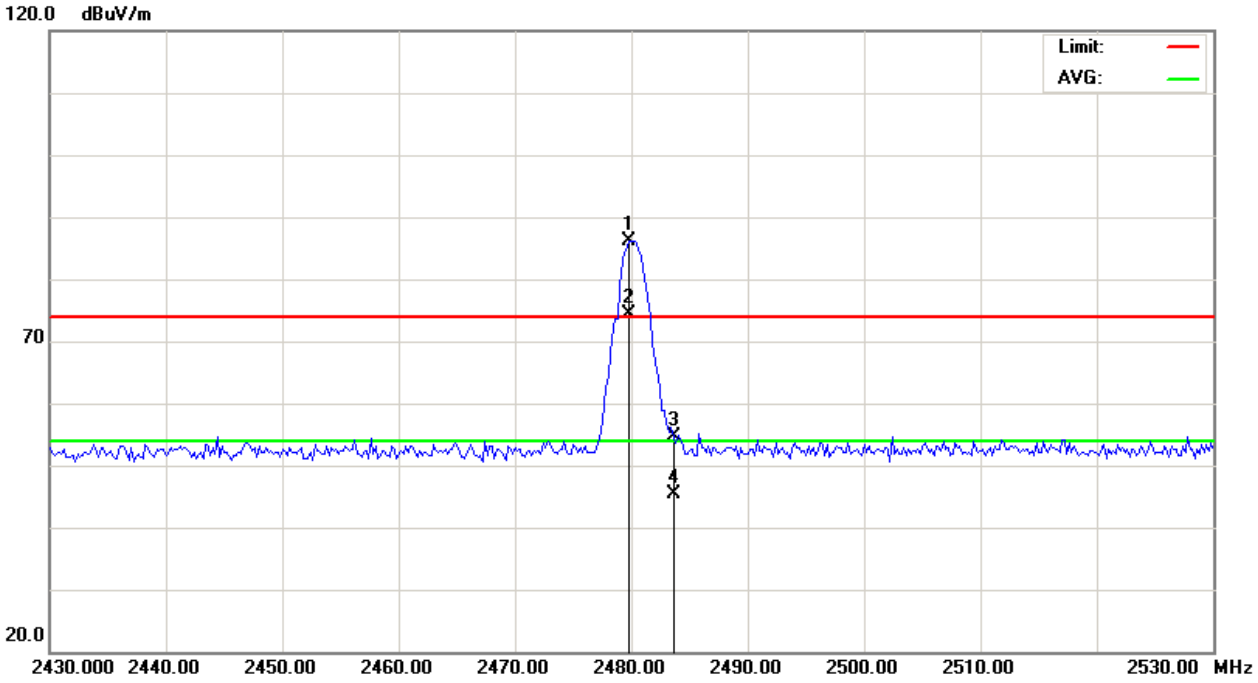
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

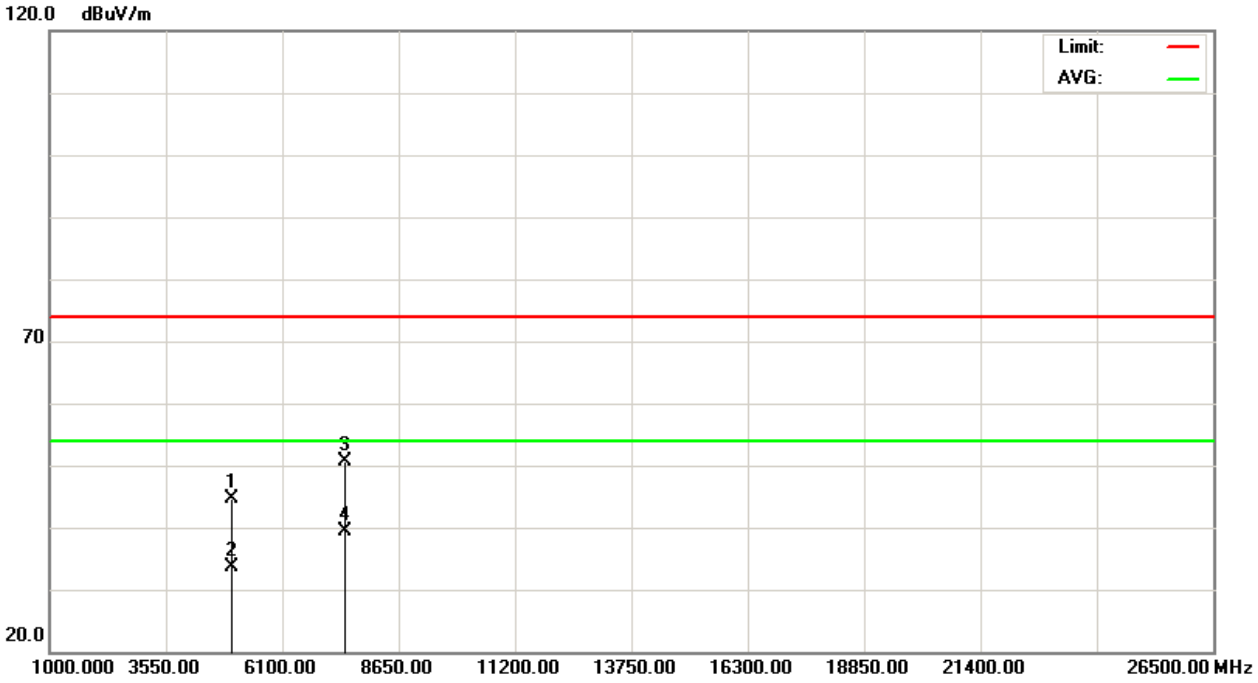
(6) EUT Orthogonal Axis：

"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
CH78 (Above 1000 MHz, Horizontal)





4.1.9 TEST RESULTS-RESTRICTED BANDS REQUIREMENTS

EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage ：	DC 3.7V		
Test Mode ：	1M_Vertical		
Note：	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

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	21.61	11.61	30.89	52.50	42.50	74.00	54.00	CH00
2483.50	V	22.48	13.27	31.28	53.76	44.55	74.00	54.00	CH78

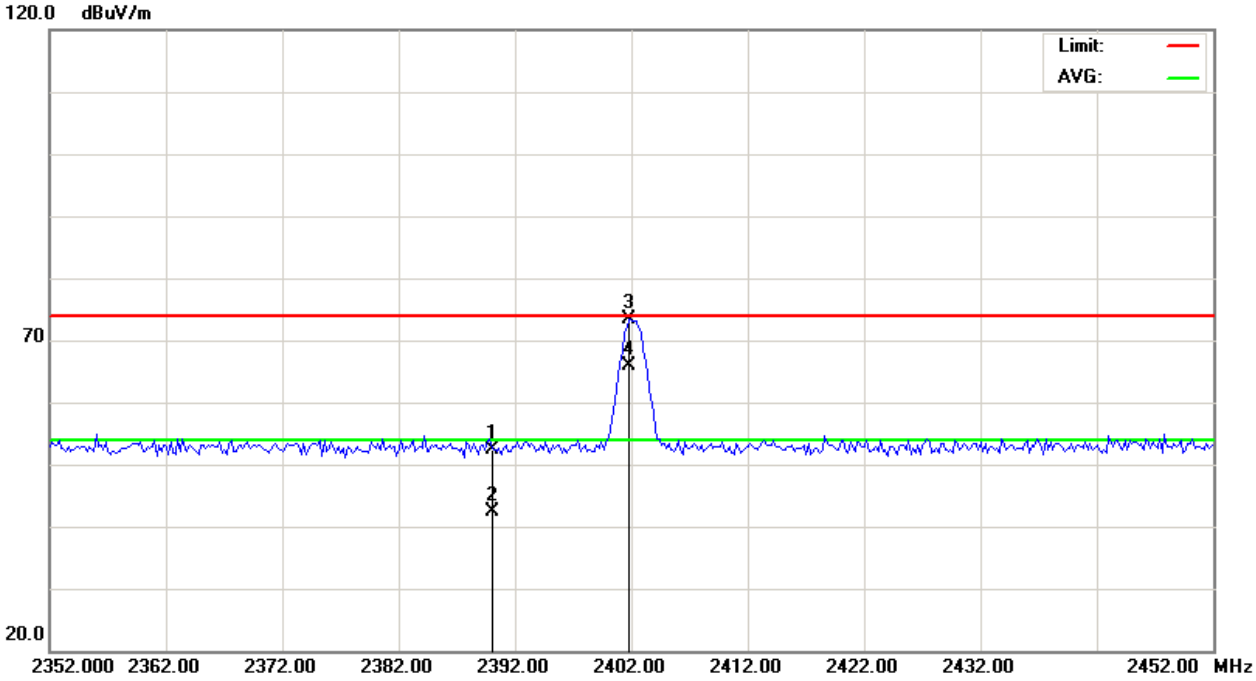
Remark：

(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 。

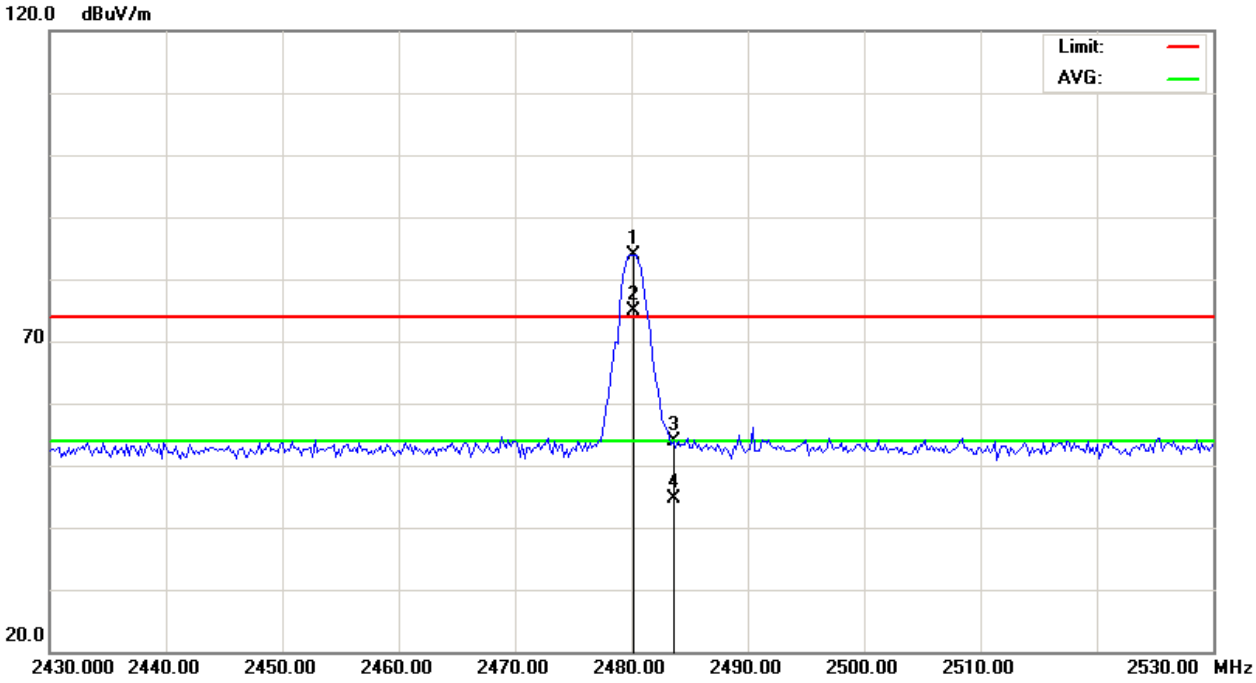
(2) EUT Orthogonal Axis：

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

Restricted Bands Requirements, Vertical
CH00



CH78



EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage ：	DC 3.7V		
Test Mode ：	1M_Horizontal		
Note：	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

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	22.40	11.56	30.89	53.29	42.45	74.00	54.00	CH00
2483.50	H	22.86	14.09	31.28	54.14	45.37	74.00	54.00	CH78

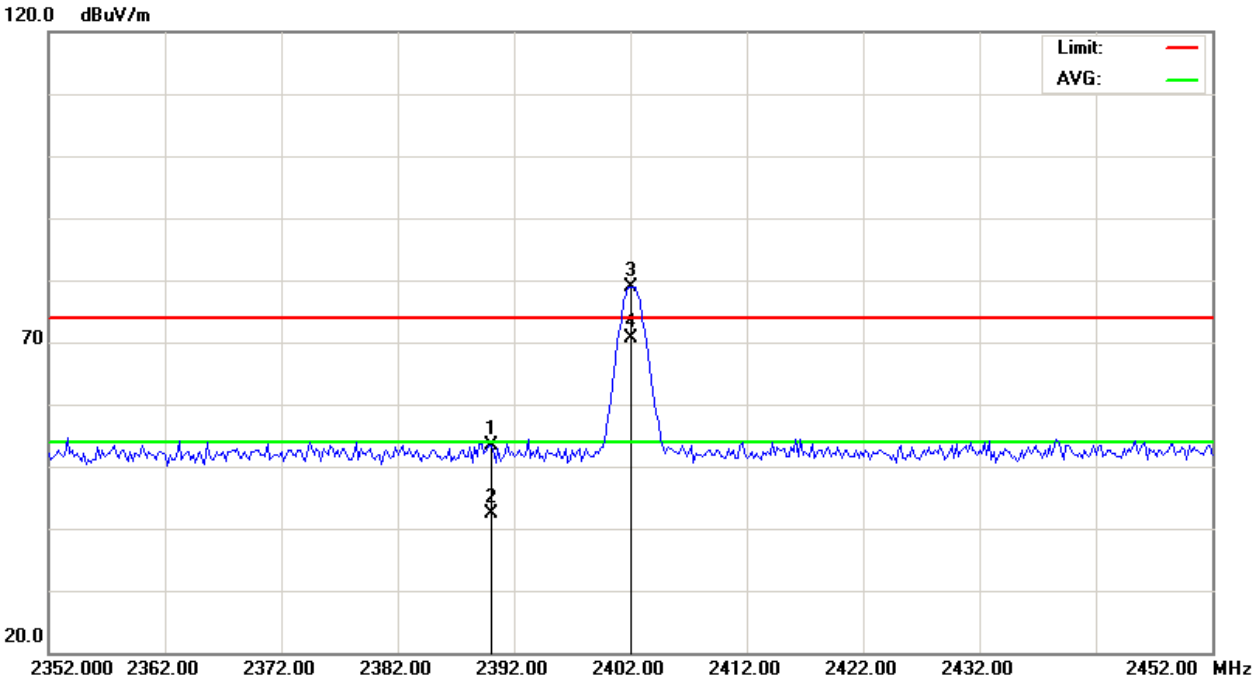
Remark：

(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 。

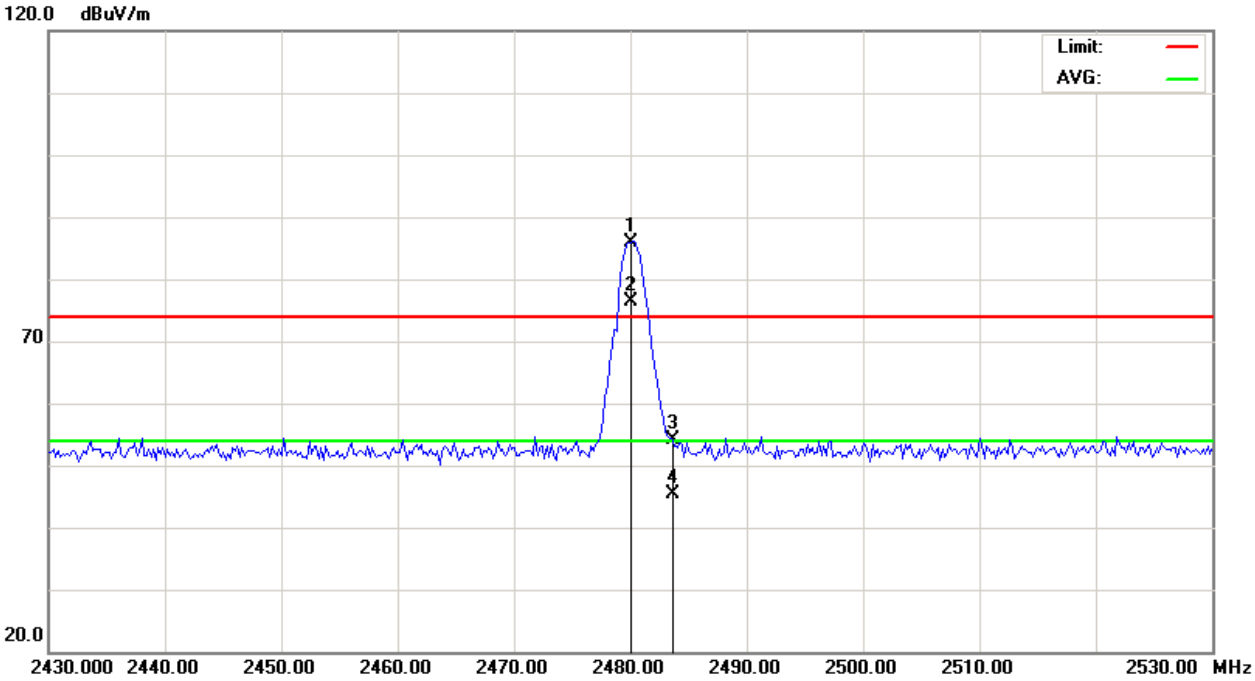
(2) EUT Orthogonal Axis：

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

Restricted Bands Requirements, Horizontal
CH00



CH78



EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage ：	DC 3.7V		
Test Mode ：	3M_Vertical		
Note：	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

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	21.06	11.26	30.89	51.95	42.15	74.00	54.00	CH00
2483.50	V	23.02	13.31	31.28	54.30	44.59	74.00	54.00	CH78

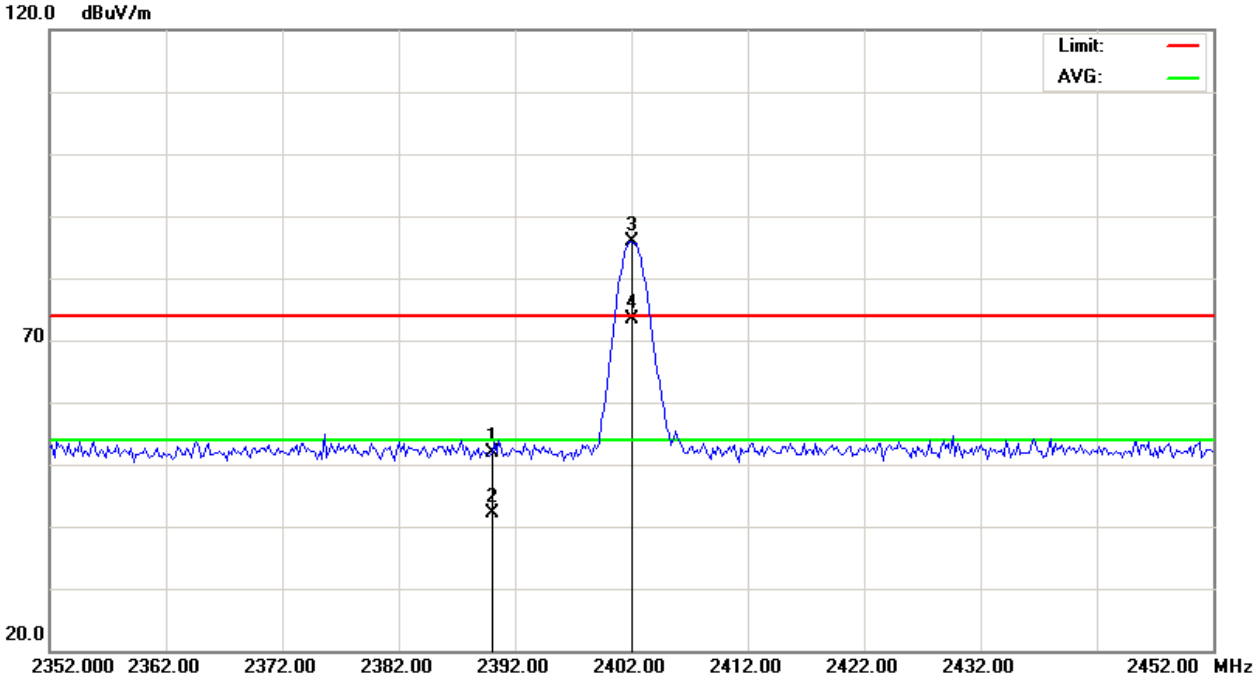
Remark：

(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。

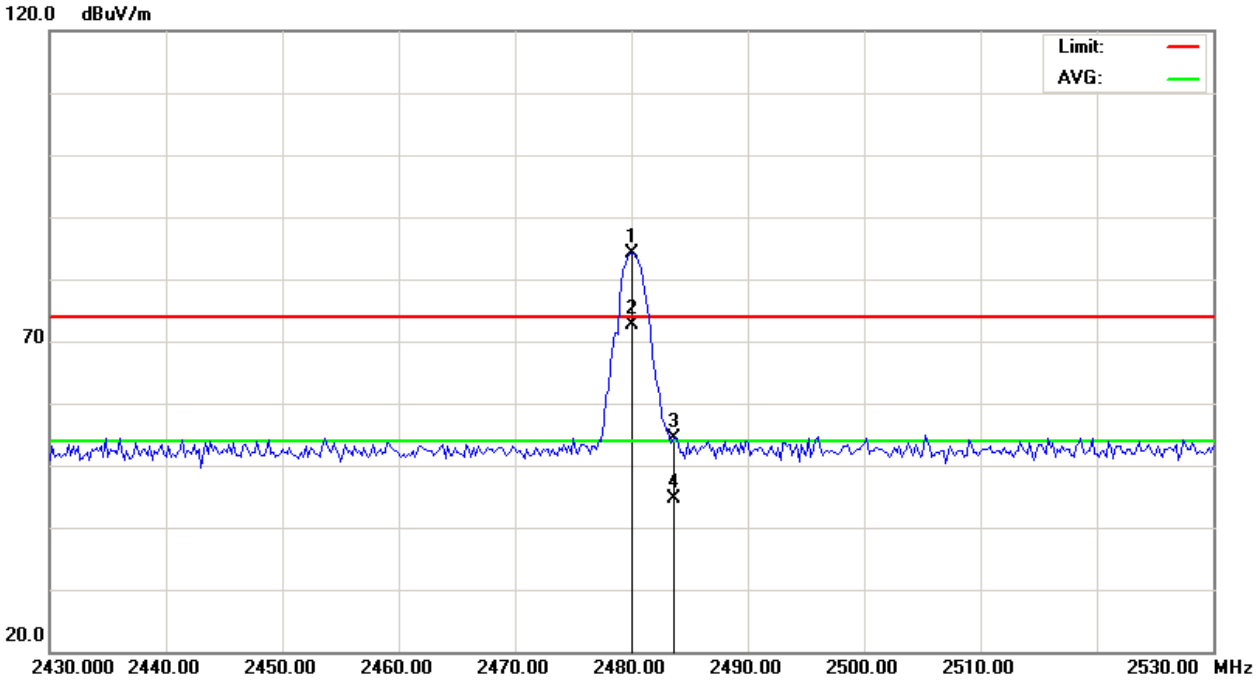
(2) EUT Orthogonal Axis：

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

Restricted Bands Requirements, Vertical
CH00



CH78



EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	31%
Test Voltage ：	DC 3.7V		
Test Mode ：	3M_Horizontal		
Note：	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

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	21.28	11.26	30.89	52.17	42.15	74.00	54.00	CH00
2483.50	H	23.42	14.09	31.28	54.70	45.37	74.00	54.00	CH78

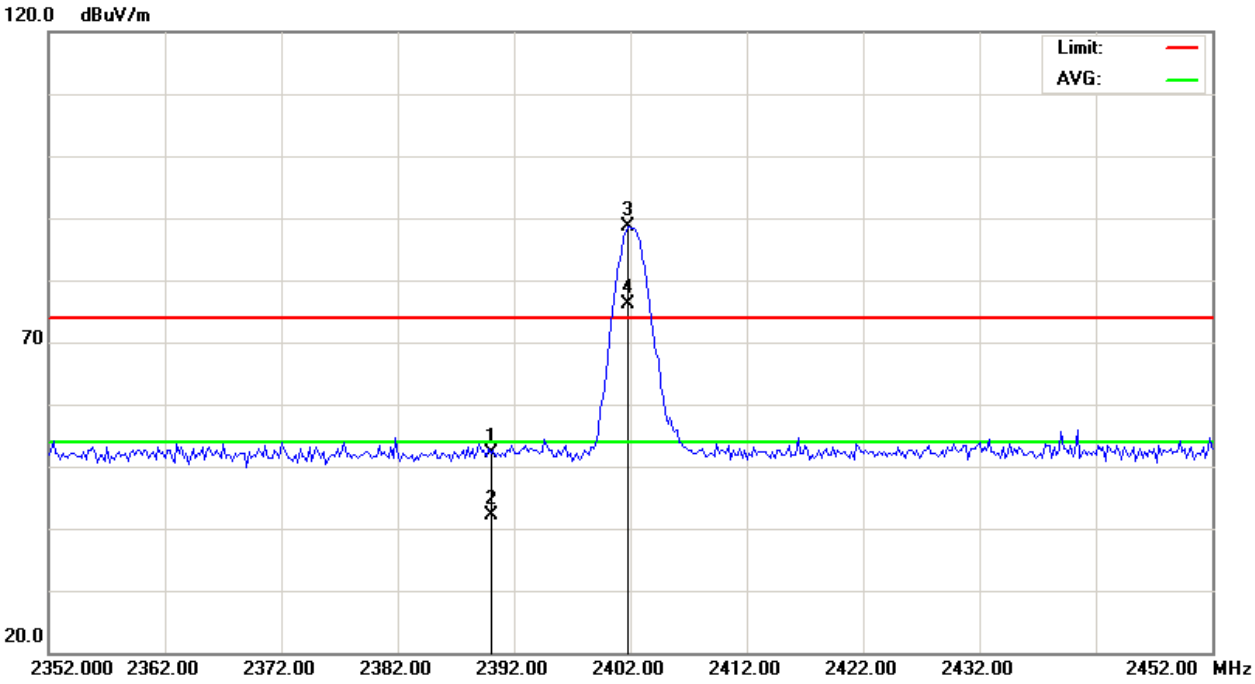
Remark：

(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 。

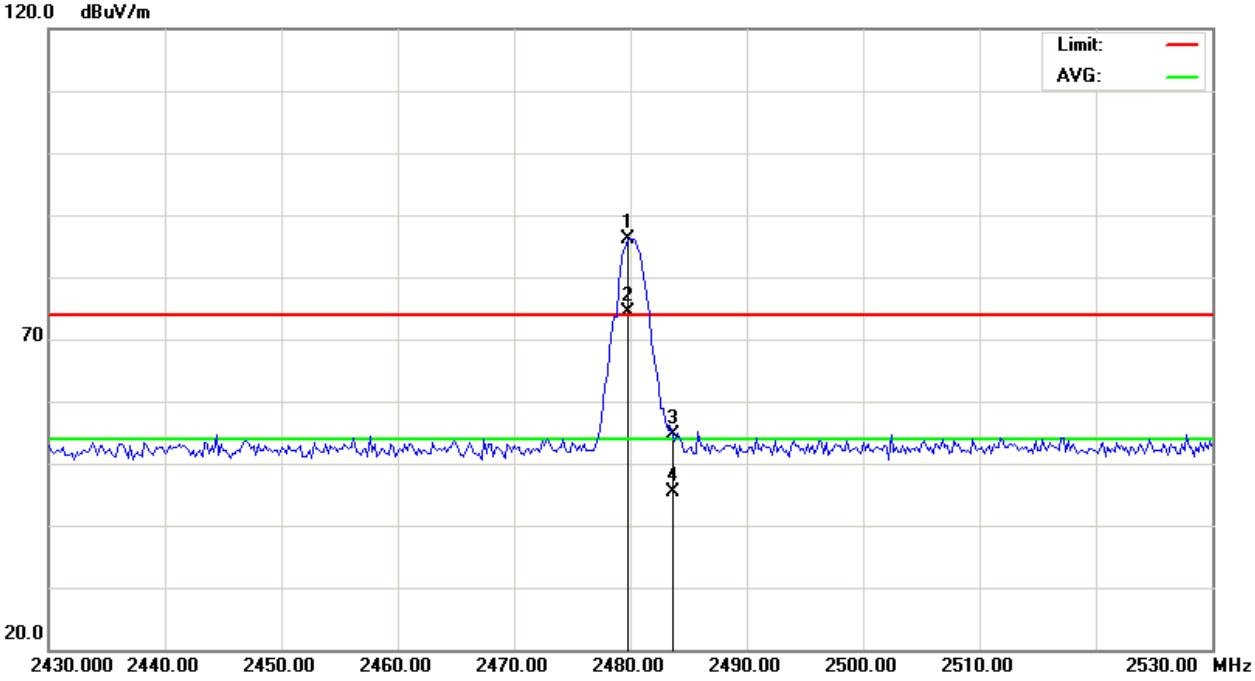
(2) EUT Orthogonal Axis：

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

Restricted Bands Requirements, Horizontal
CH00



CH78



5. NUMBER OF HOPPING CHANNEL

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.247 (a)(1)(ii)	Number of Hopping Channel	2400-2483.5	PASS

5.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Aug. 31, 2011

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

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	100 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

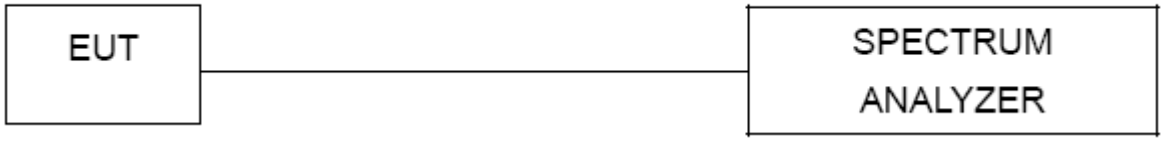
5.1.2 TEST PROCEDURE

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 = Auto.

5.1.3 DEVIATION FROM STANDARD

No deviation.

5.1.4 TEST SETUP



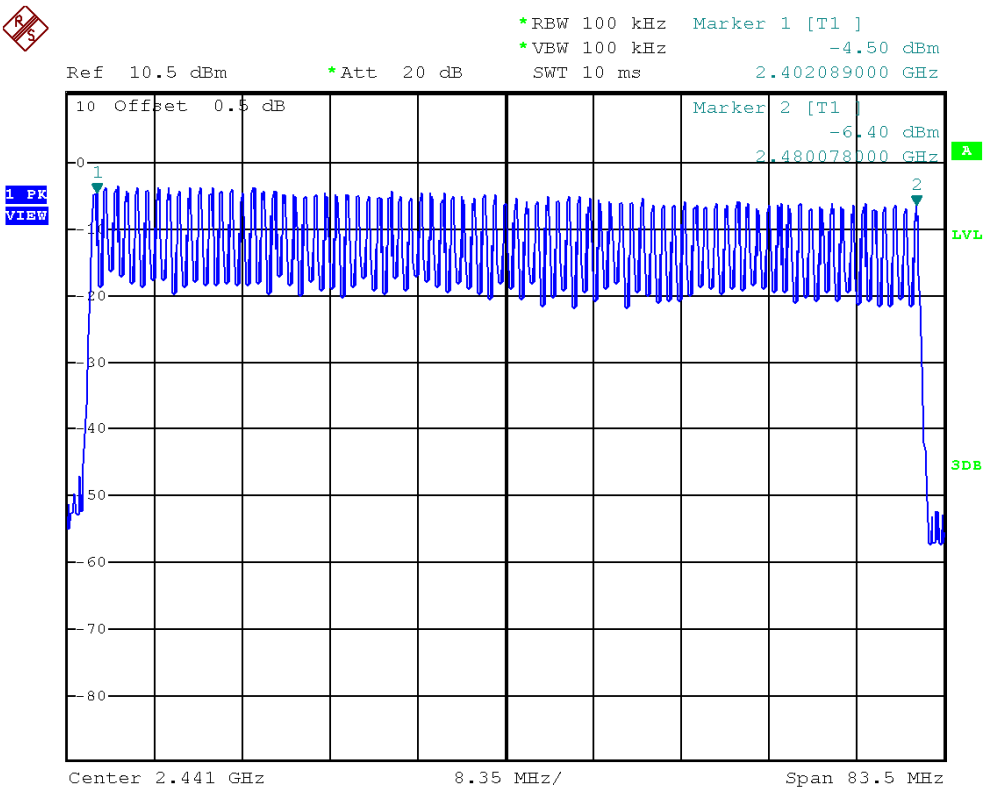
5.1.5 EUT OPERATION CONDITIONS

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

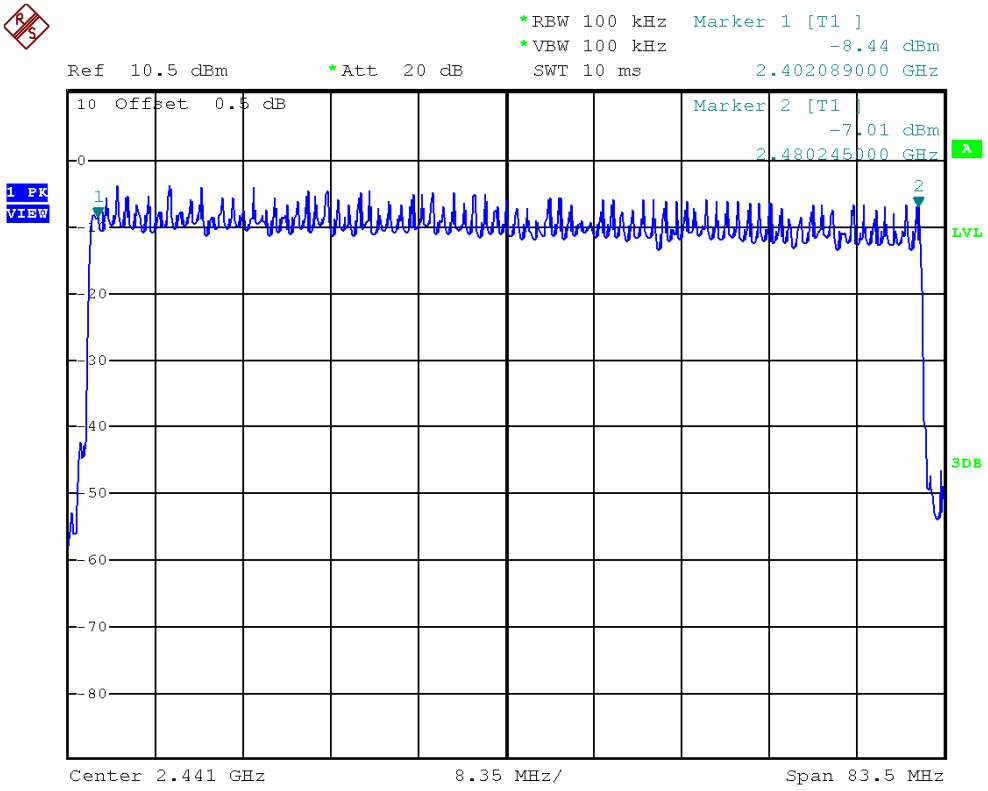
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	23°C	Relative Humidity：	50%
Test Voltage ：	DC 3.7V		
Test Mode ：	1M_Hopping Mode		

Number of Hopping Channel	79



EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	23°C	Relative Humidity：	50%
Test Voltage ：	DC 3.7V		
Test Mode ：	3M_Hopping Mode		

Number of Hopping Channel	79



6. AVERAGE TIME OF OCCUPANCY

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(1)(ii)	Average Time of Occupancy	< = 0.4 sec (a 30 second period)	2400-2483.5	PASS

6.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Aug. 31, 2011

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

6.1.2 TEST PROCEDURE

a. The transmitter output (antenna port) was connected to the spectrum analyser
b. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
c. Use a video trigger with the trigger level set to enable triggering only on full pulses.
d. Sweep Time is more than once pulse time.
e. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
f. Measure the maximum time duration of one single pulse.
g. Set the EUT for DH5, DH3 and DH1 packet transmitting.
h. Measure the maximum time duration of one single pulse.
i. DH5 Packet permit maximum 1600/ 79 / 6 = 3.37 hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 3.37 x 31.6 = 106.6 within 31.6 seconds.
j. DH3 Packet permit maximum 1600 / 79 / 4 = 5.06 hops per second in each channel (3 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 5.06 x 31.6 = 160 within 31.6 seconds.
k. DH1 Packet permit maximum 1600 / 79 /2 = 10.12 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 10.12 x 31.6 = 320 within 31.6 seconds.

6.1.3 DEVIATION FROM STANDARD

No deviation.

6.1.4 TEST SETUP

6.1.5 EUT OPERATION CONDITIONS

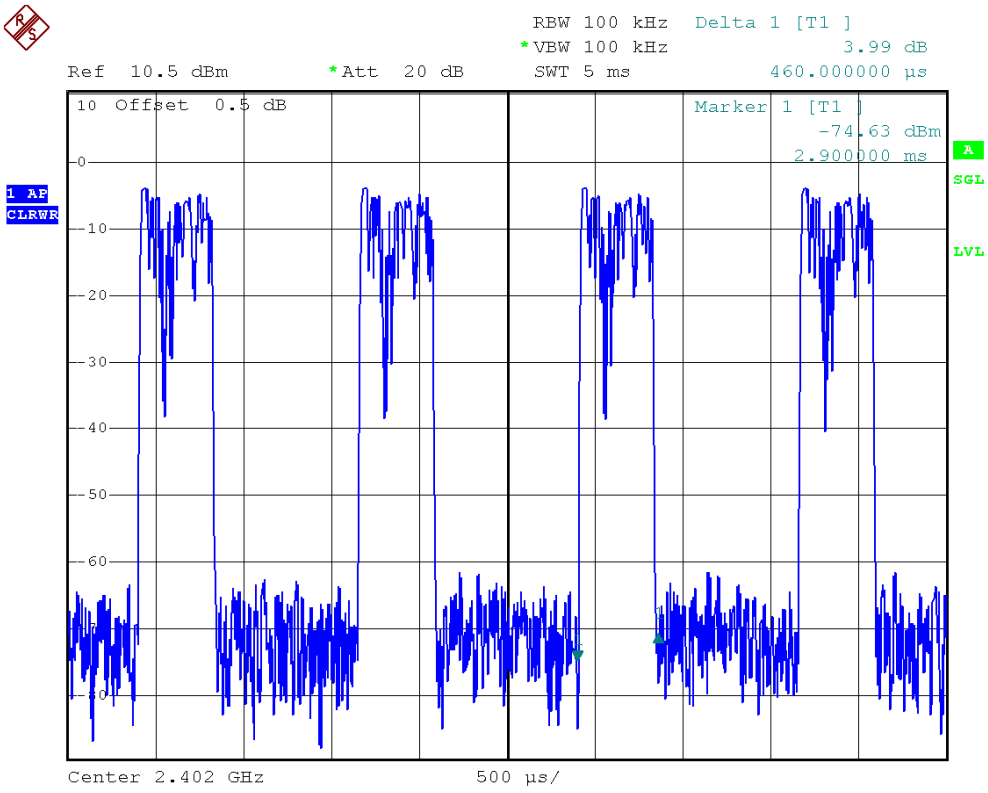
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.6 TEST RESULTS

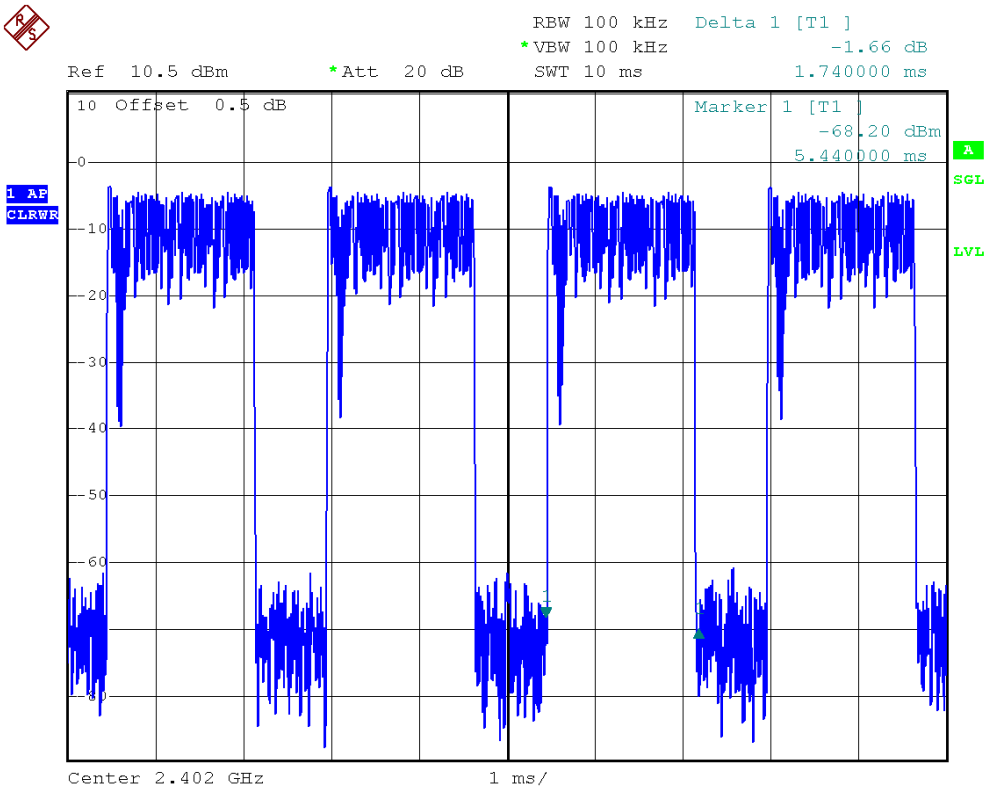
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	1M_CH00-DH1/DH3/DH5		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH1	2402 MHz	0.4600	0.1472	0.4000
DH3	2402 MHz	1.7400	0.2784	0.4000
DH5	2402 MHz	2.9800	0.3179	0.4000

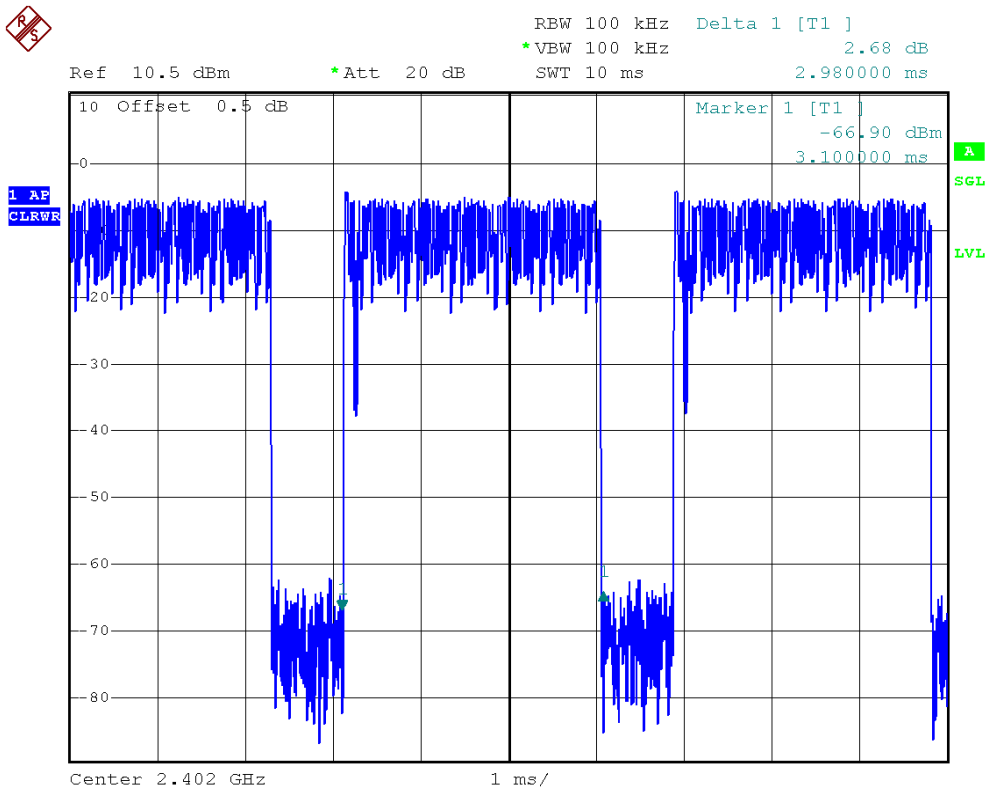
CH00-DH1



CH00-DH3



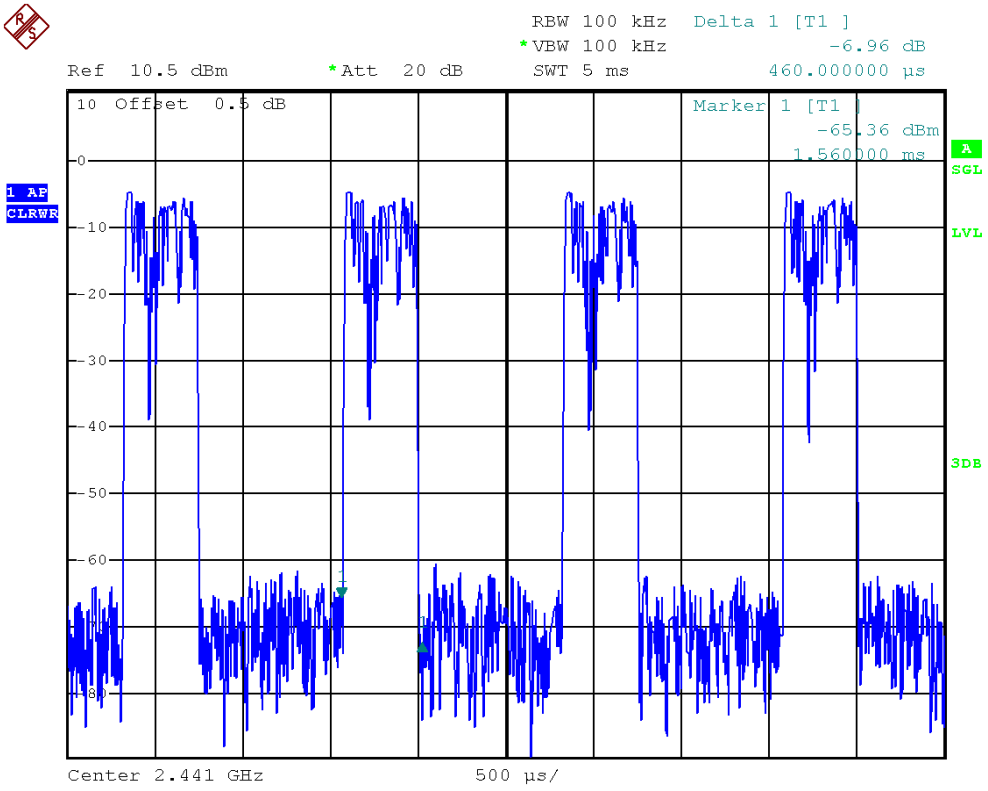
CH00-DH5



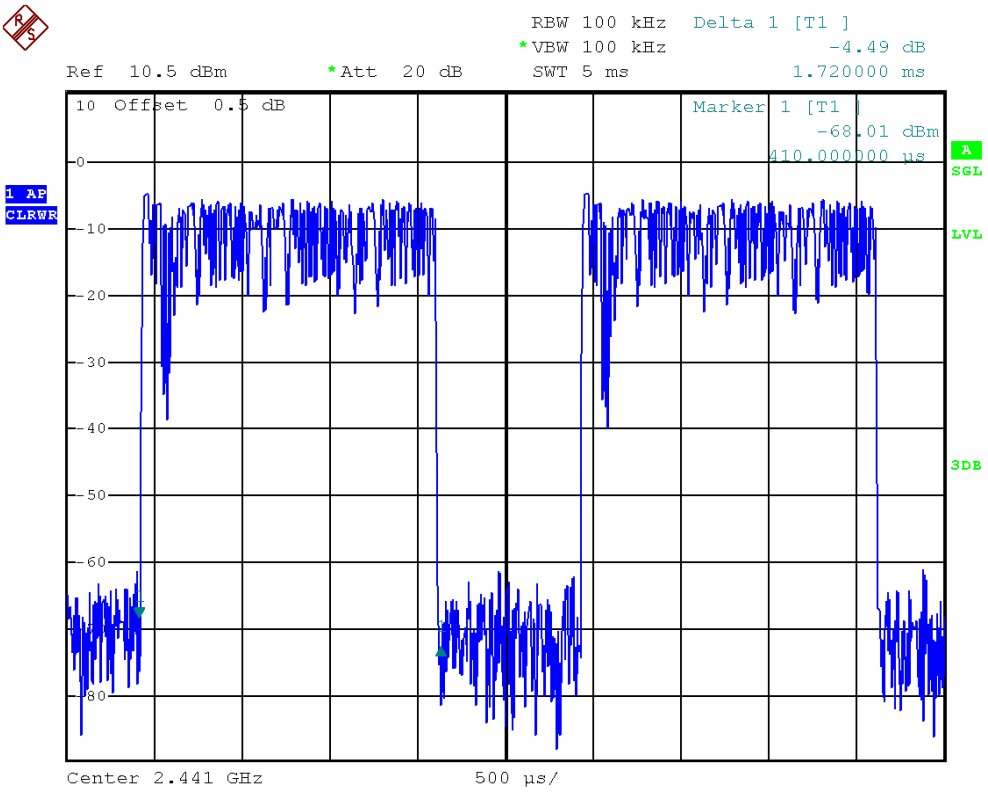
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	1M_CH39 -DH1/DH3/DH5		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH1	2441 MHz	0.4600	0.1472	0.4000
DH3	2441 MHz	1.7200	0.2752	0.4000
DH5	2441 MHz	3.0000	0.3200	0.4000

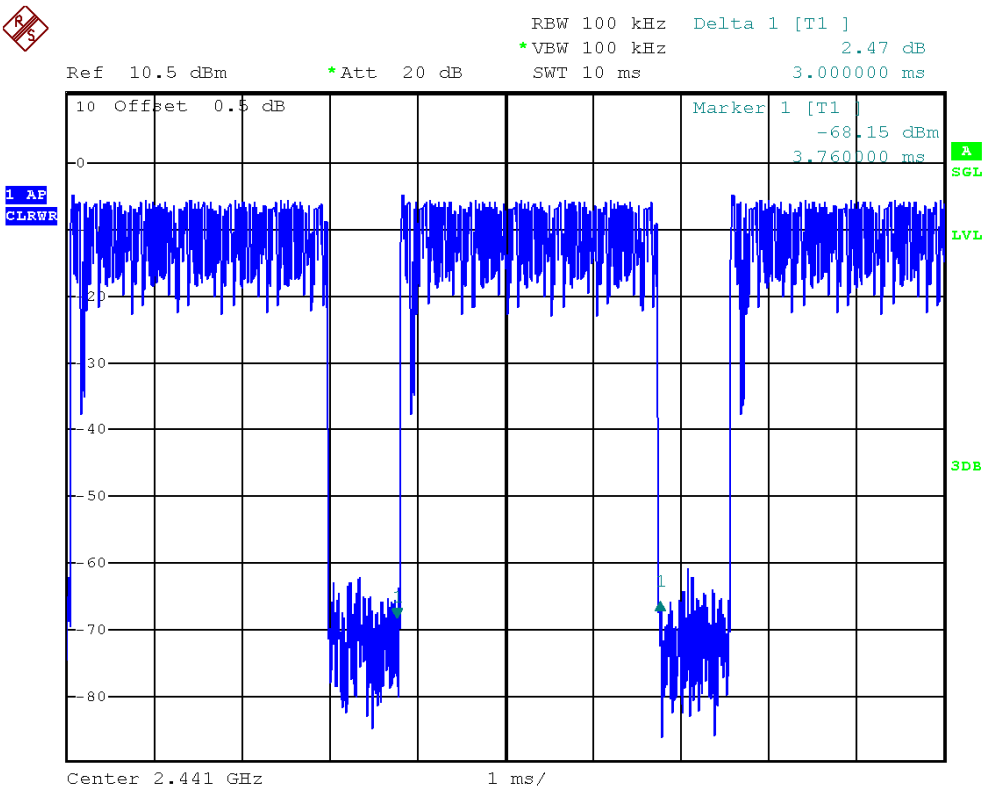
CH39-DH1



CH39-DH3



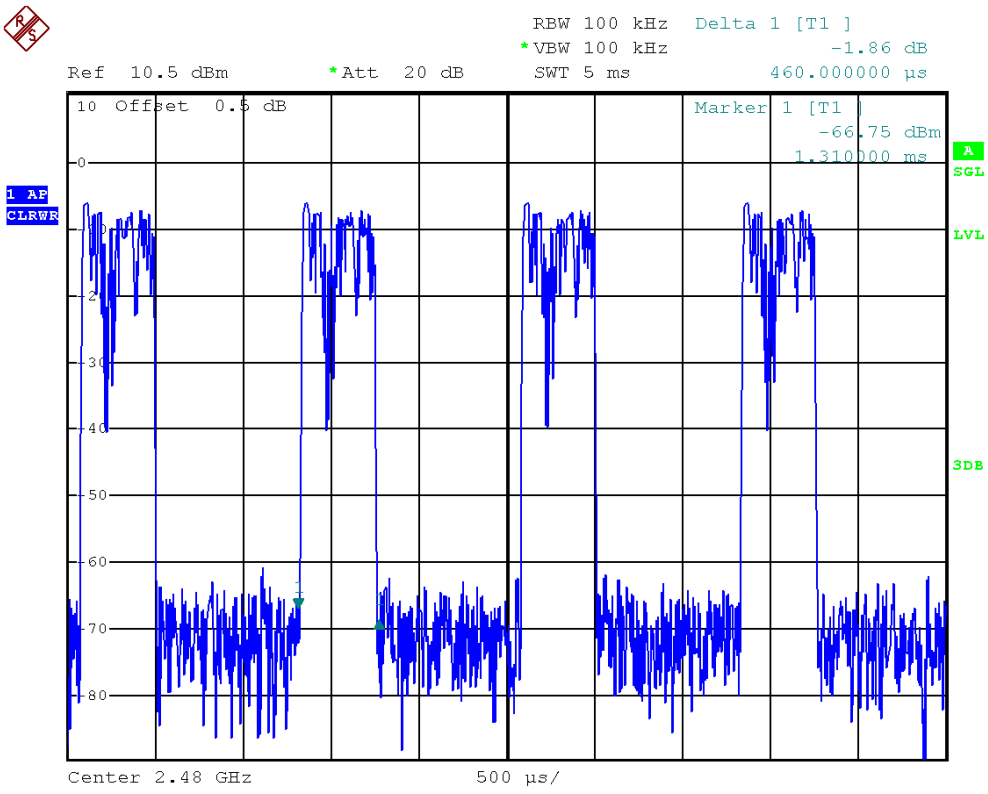
CH39-DH5



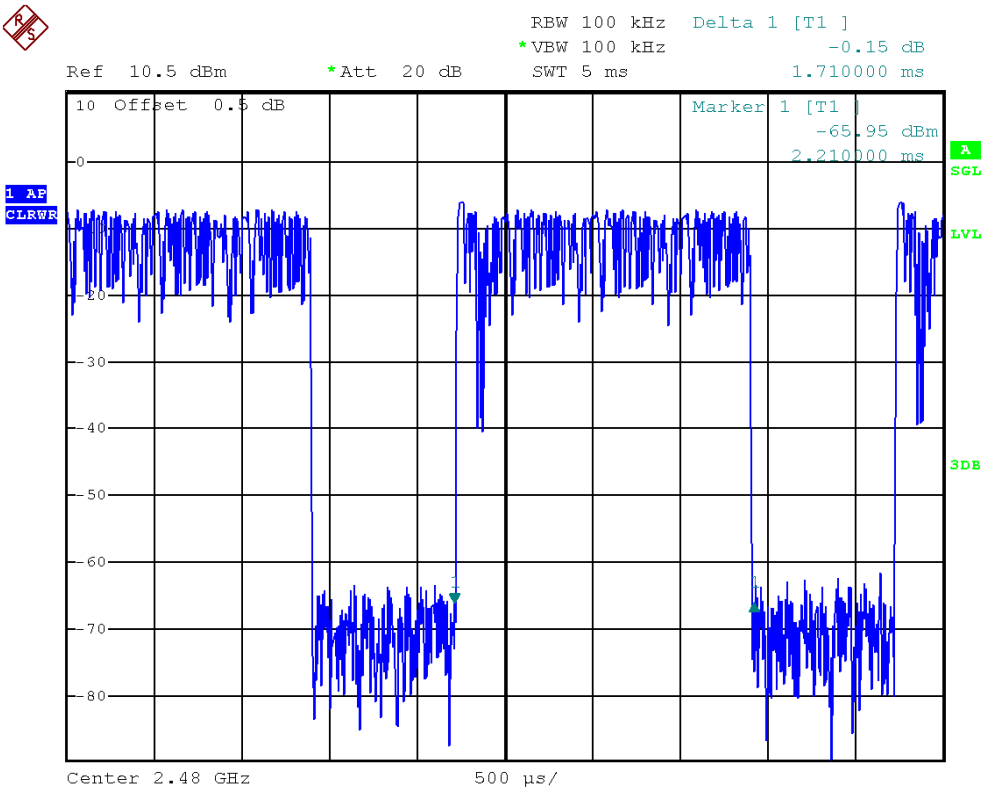
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	1M_CH78 -DH1/DH3/DH5		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH1	2480 MHz	0.4600	0.1472	0.4000
DH3	2480 MHz	1.7100	0.2736	0.4000
DH5	2480 MHz	3.0000	0.3200	0.4000

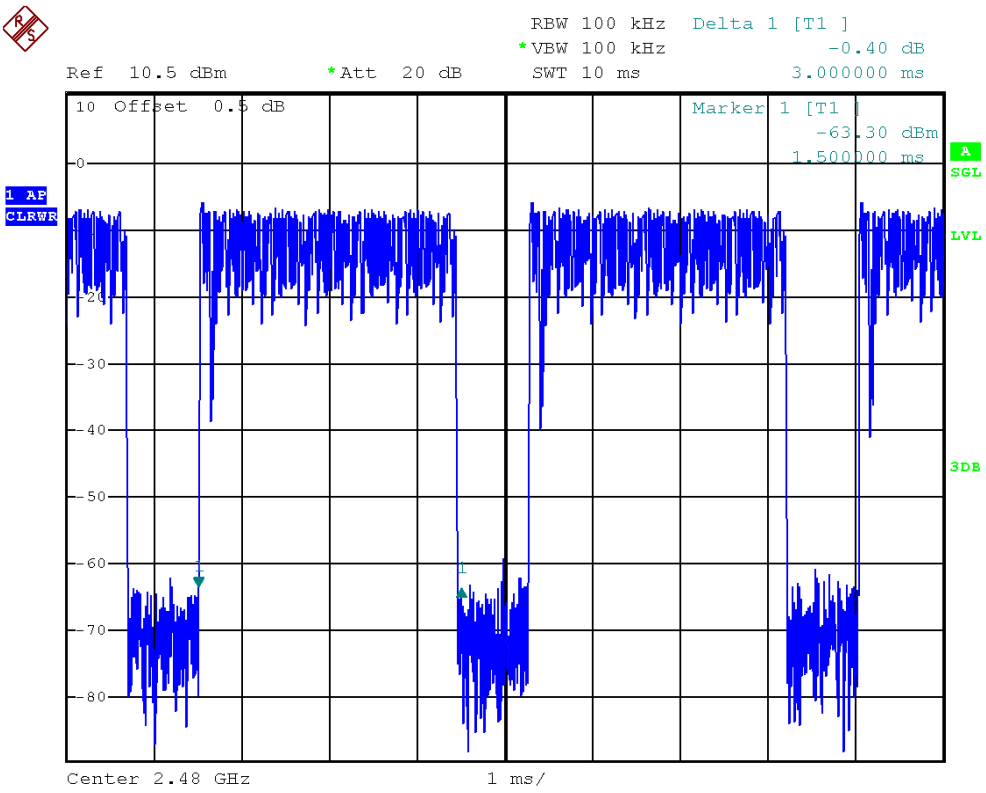
CH78-DH1



CH78-DH3



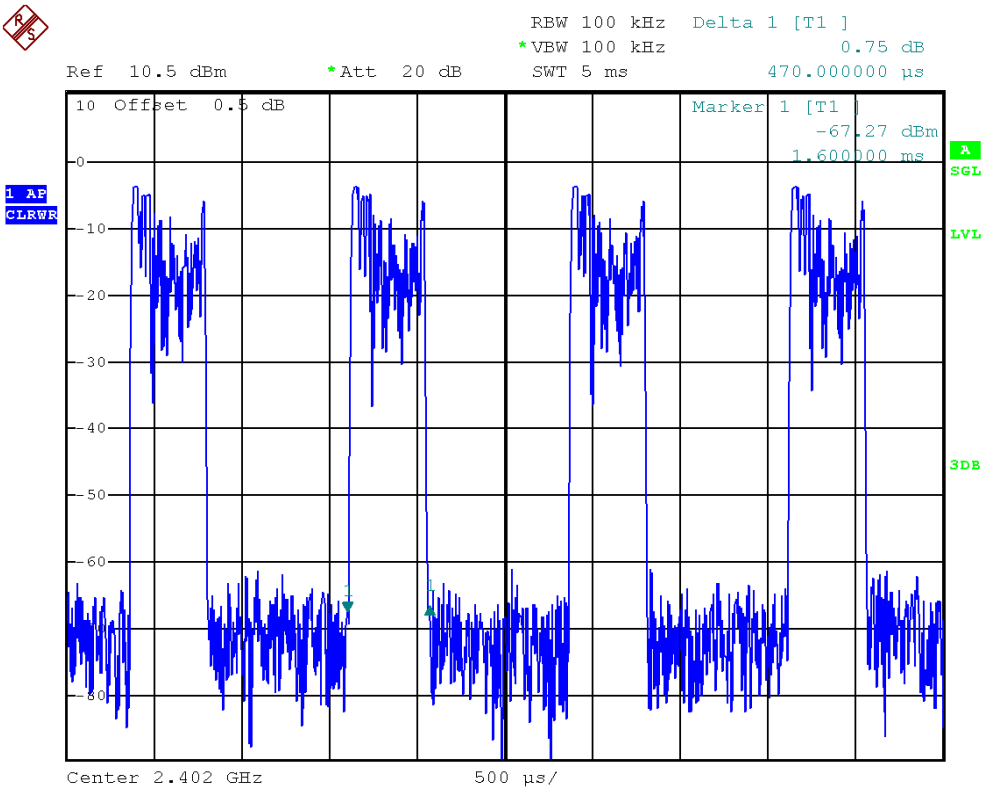
CH78-DH5



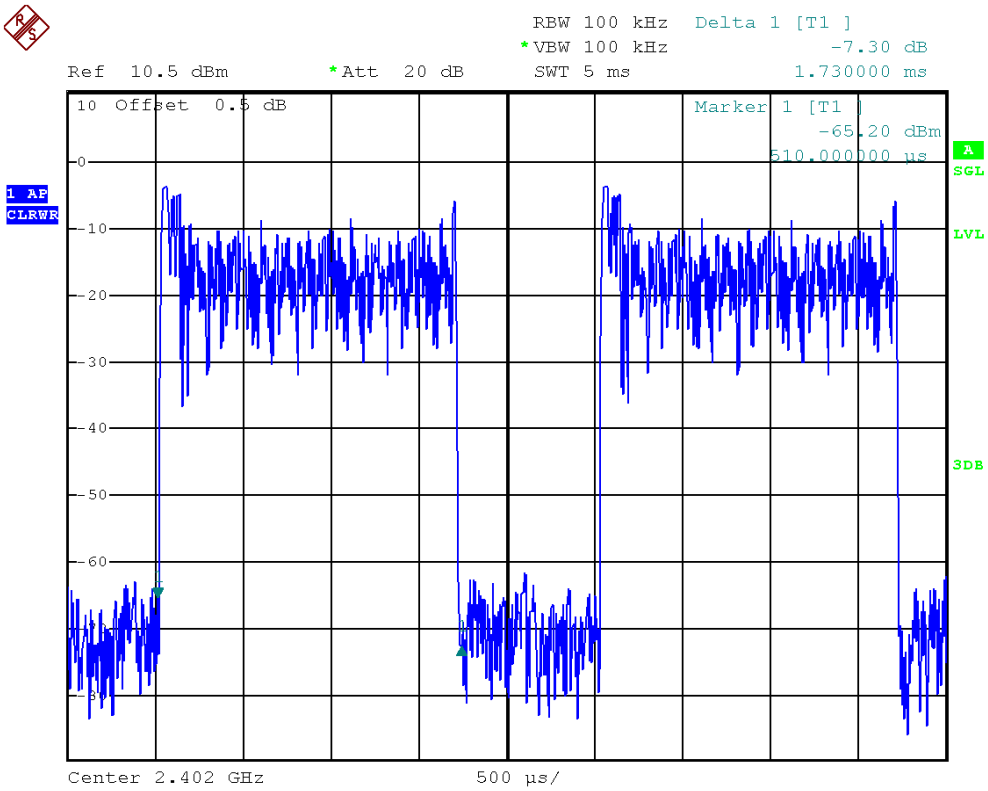
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	3M_CH00-DH1/DH3/DH5		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH1	2402 MHz	0.4700	0.1504	0.4000
DH3	2402 MHz	1.7300	0.2768	0.4000
DH5	2402 MHz	3.0000	0.3200	0.4000

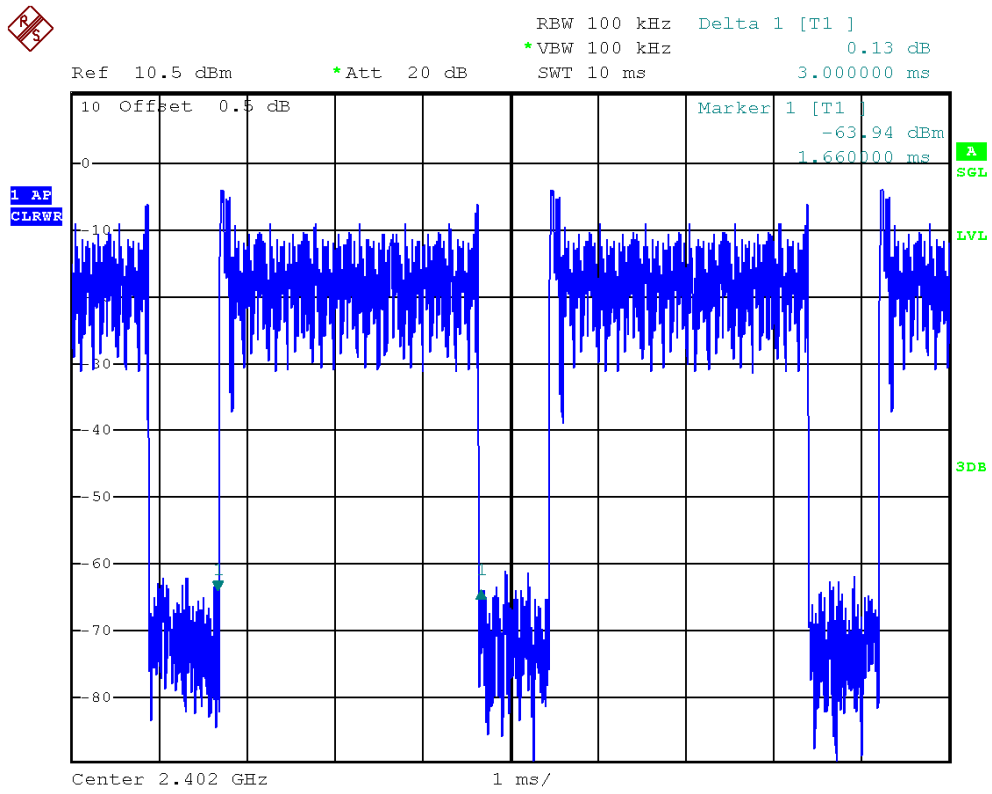
CH00-DH1



CH00-DH3



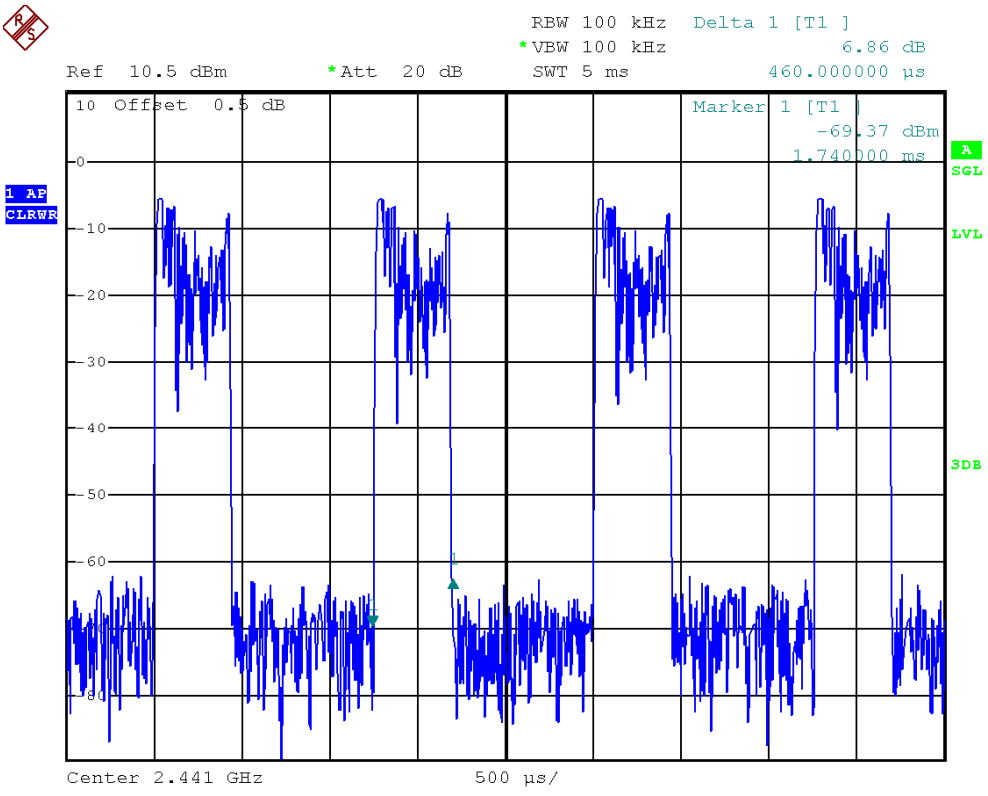
CH00-DH5



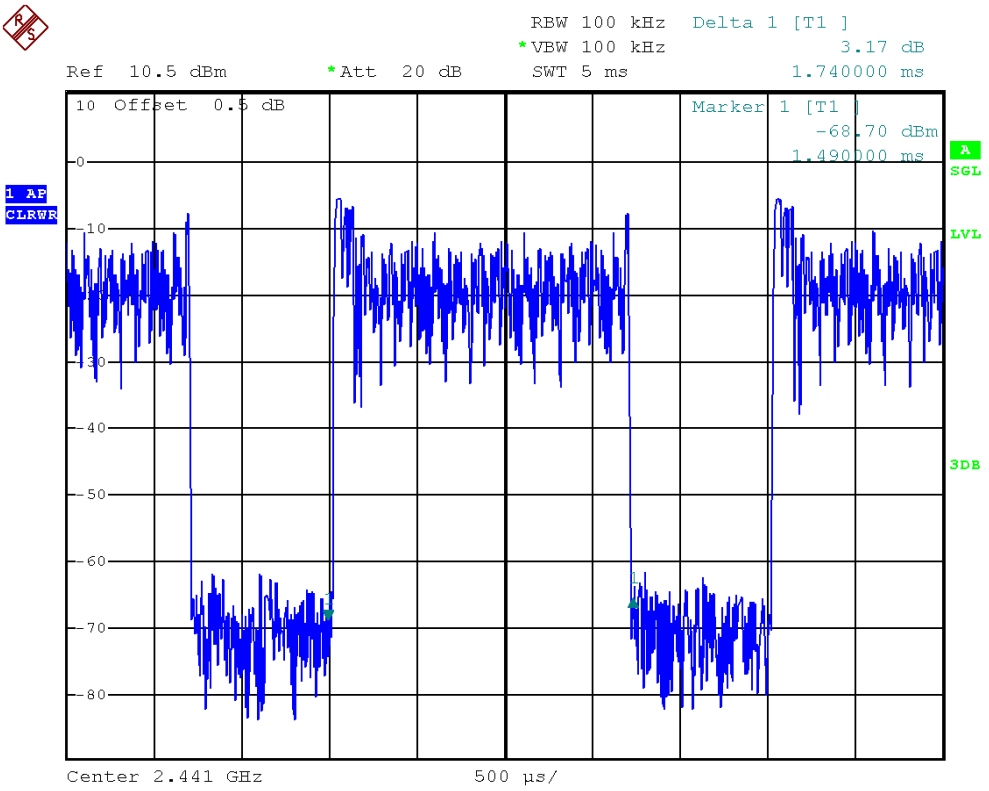
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	3M_CH39 -DH1/DH3/DH5		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH1	2441 MHz	0.4600	0.1472	0.4000
DH3	2441 MHz	1.7400	0.2784	0.4000
DH5	2441 MHz	3.0000	0.3200	0.4000

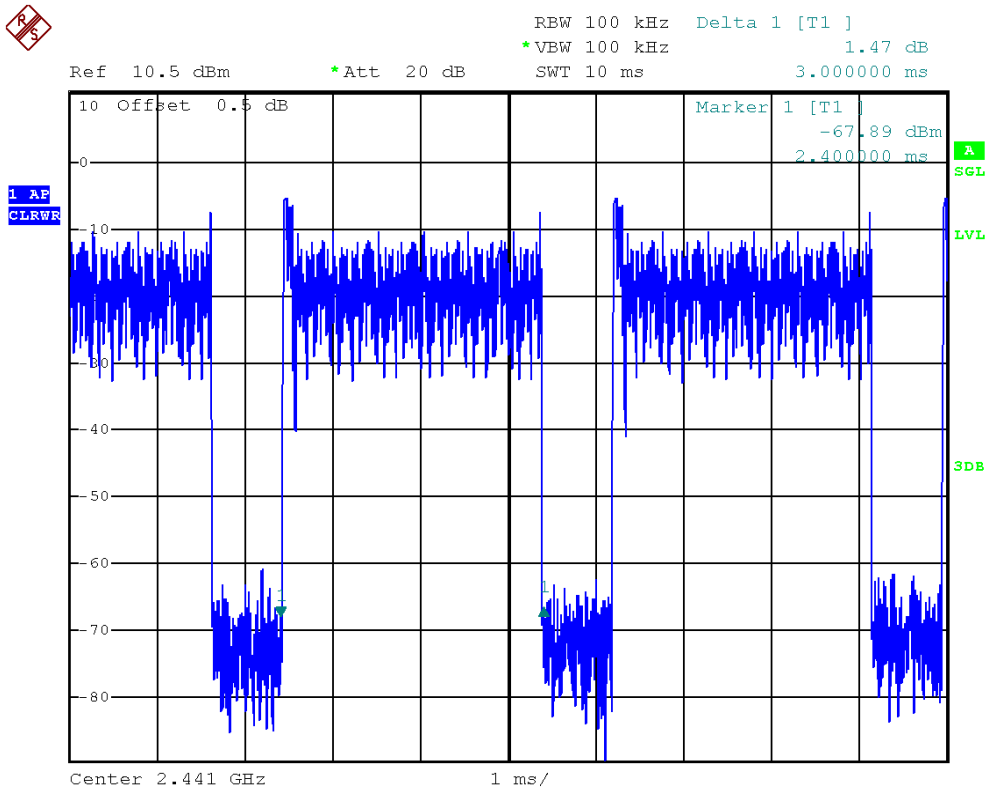
CH39-DH1



CH39-DH3



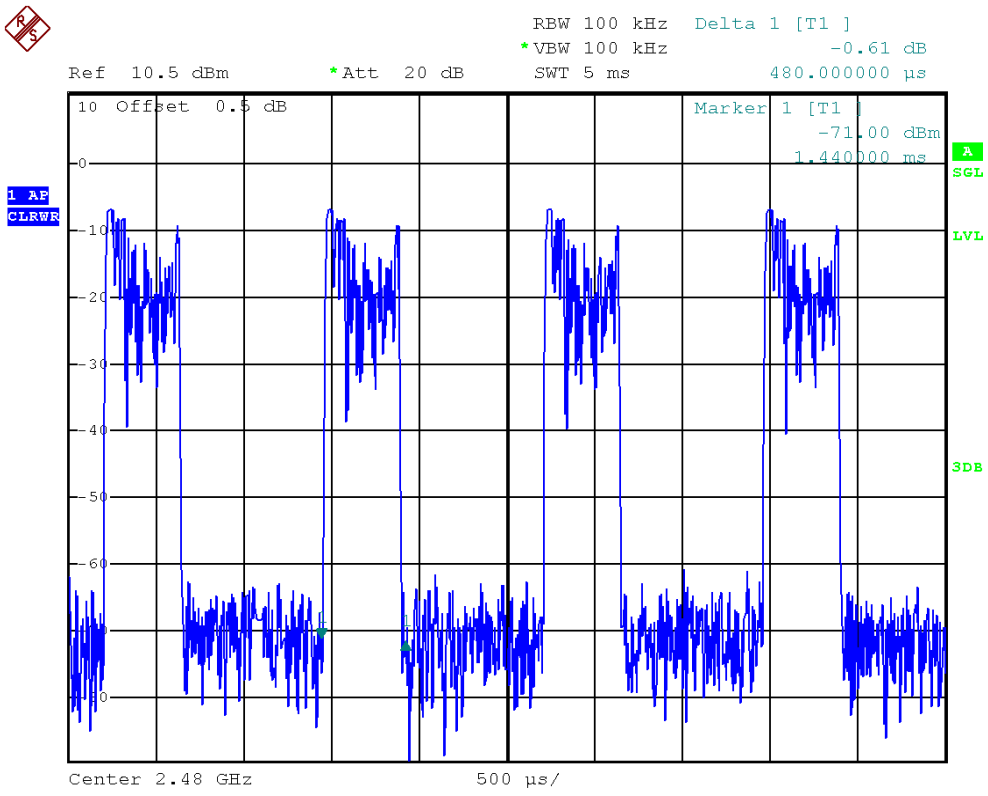
CH39-DH5



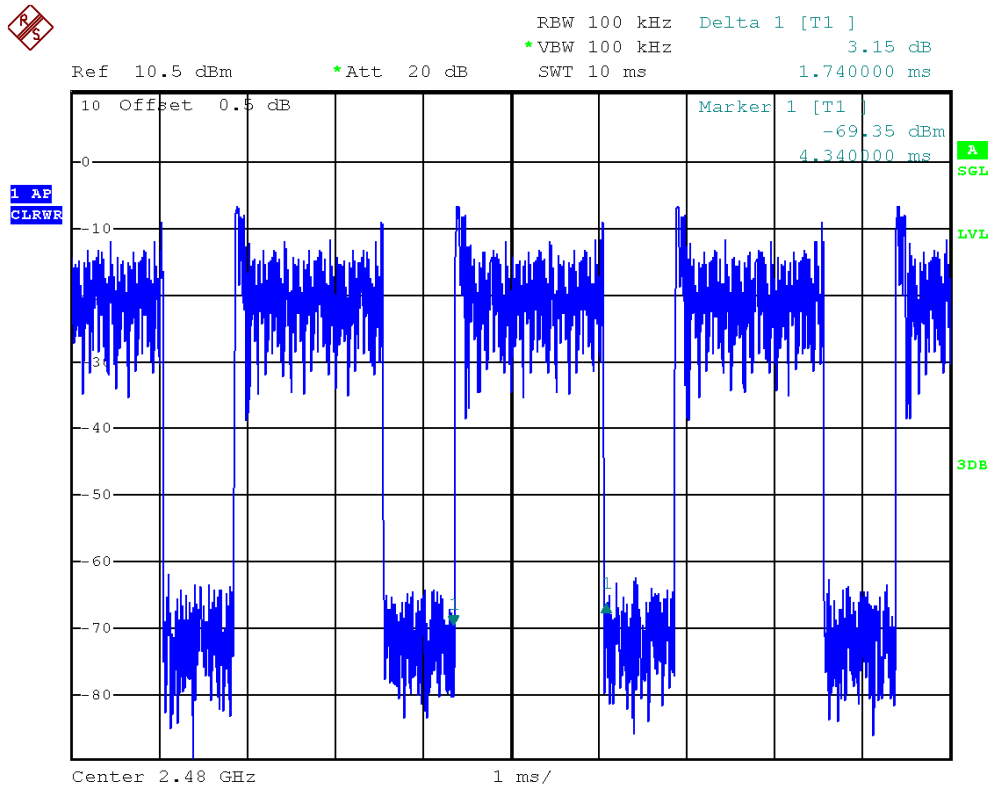
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	3M_CH78 -DH1/DH3/DH5		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH1	2480 MHz	0.4800	0.1472	0.4000
DH3	2480 MHz	1.7400	0.2784	0.4000
DH5	2480 MHz	3.0400	0.3243	0.4000

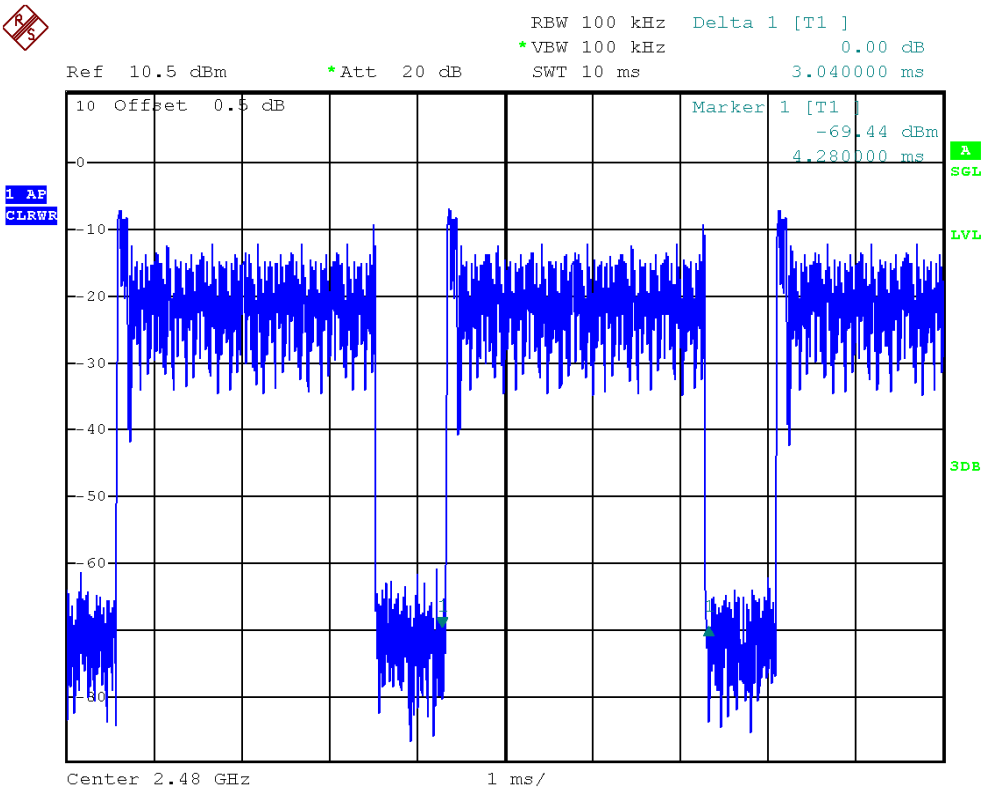
CH78-DH1



CH78-DH3



CH78-DH5



7. HOPPING CHANNEL SEPARATION MEASUREMENT

7.1 APPLIED PROCEDURES / LIMIT

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

7.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Aug. 31, 2011

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

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 300 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

7.1.2 TEST PROCEDURE

a. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
b. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for 20 dB bandwidth measurement.
c. The resolution bandwidth of 100 kHz and the video bandwidth of 300 kHz were utilised for channel separation measurement.

7.1.3 DEVIATION FROM STANDARD

No deviation.

7.1.4 TEST SETUP

7.1.5 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.

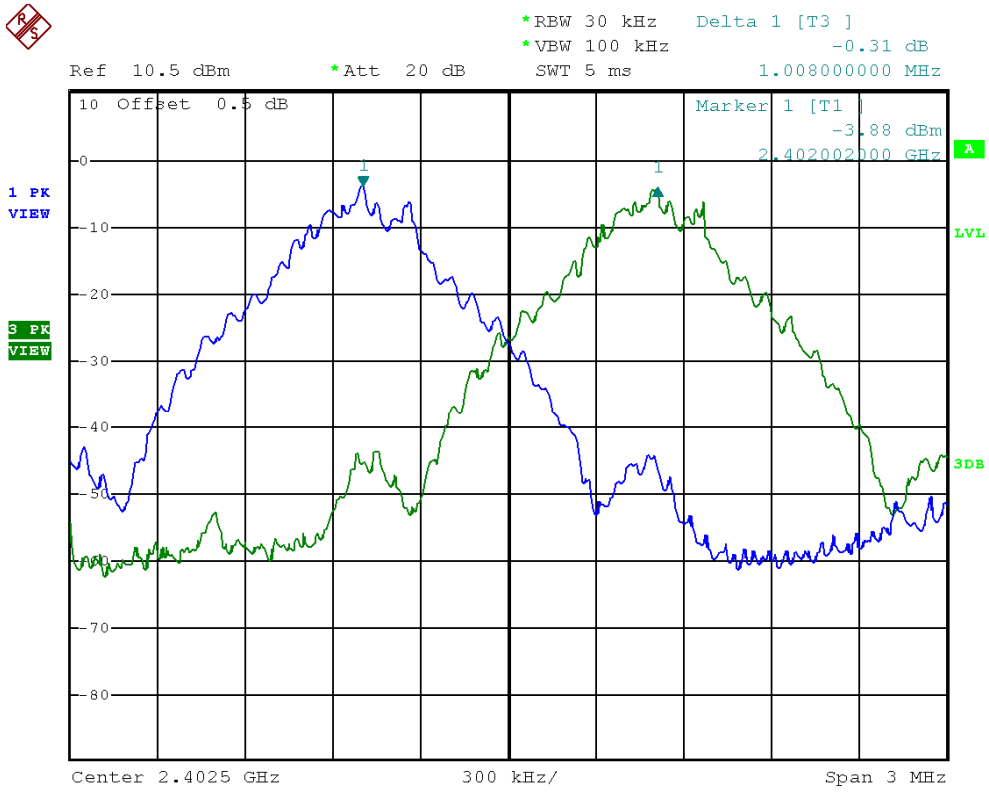
7.1.6 TEST RESULTS

EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	1M_CH00 / CH39 / CH78		

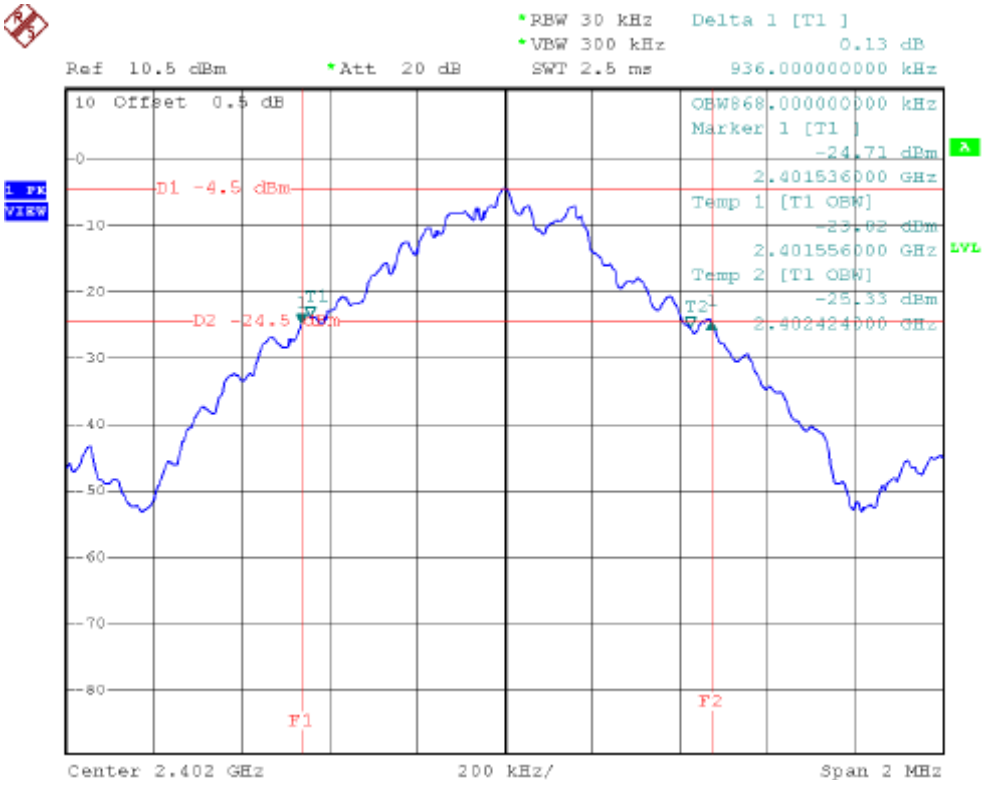
Frequency	Ch. Separation (MHz)	99% Occupied BW (MHz)	20d Bandwidth (MHz)	two-thirds of the 20 dB bandwidth (MHz)	Result
2402 MHz	1.008	0.868	0.936	0.868	**PASS**
2441 MHz	1.002	0.868	0.916	0.868	**PASS**
2480 MHz	1.002	0.876	0.940	0.876	**PASS**

Ch. Separation Limits: >25 KHz or >2/3 of 20dB bandwidth

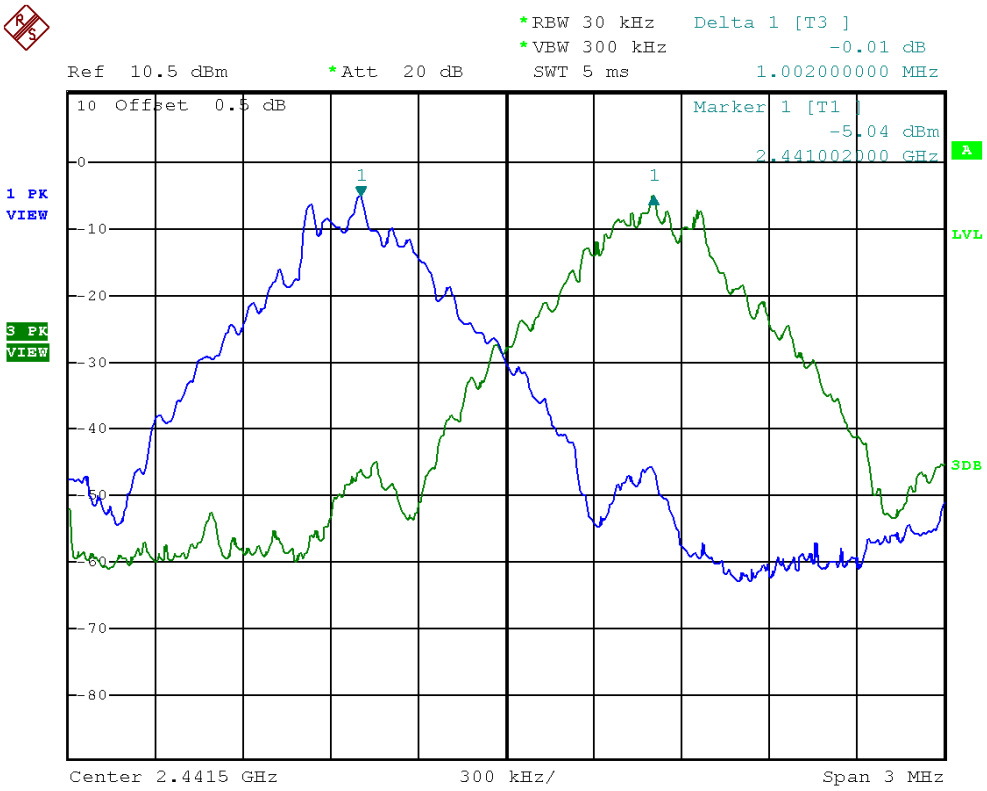
CH00


*RBW 30 kHz
*VBW 100 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 5 ms
Delta 1 [T3]
-0.31 dB
1.008000000 MHz
10 Offset 0.5 dB
Marker 1 [T1]
-3.88 dBm
2.402002000 GHz
1 PK VIEW
3 PK VIEW
LVL
3DB
Center 2.4025 GHz
300 kHz/
Span 3 MHz

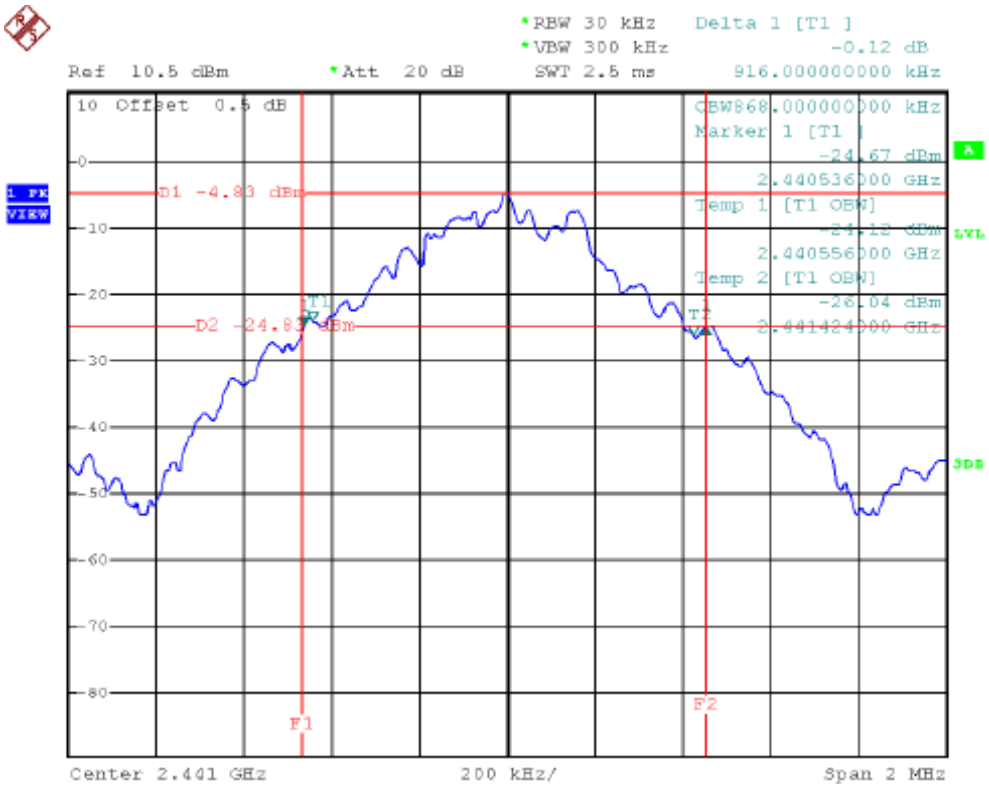
CH00


*RBW 30 kHz
*VBW 300 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
Delta 1 [T1]
0.13 dB
936.000000000 kHz
10 Offset 0.5 dB
OBW868.000000000 kHz
Marker 1 [T1]
-24.71 dBm
2.401536000 GHz
Temp 1 [T1 OBW]
-23.02 dBm
2.401556000 GHz
Temp 2 [T1 OBW]
-25.33 dBm
2.402424000 GHz
D1 -4.5 dBm
D2 -24.5 dBm
1 PK VIEW
LVL
Center 2.402 GHz
200 kHz/
Span 2 MHz

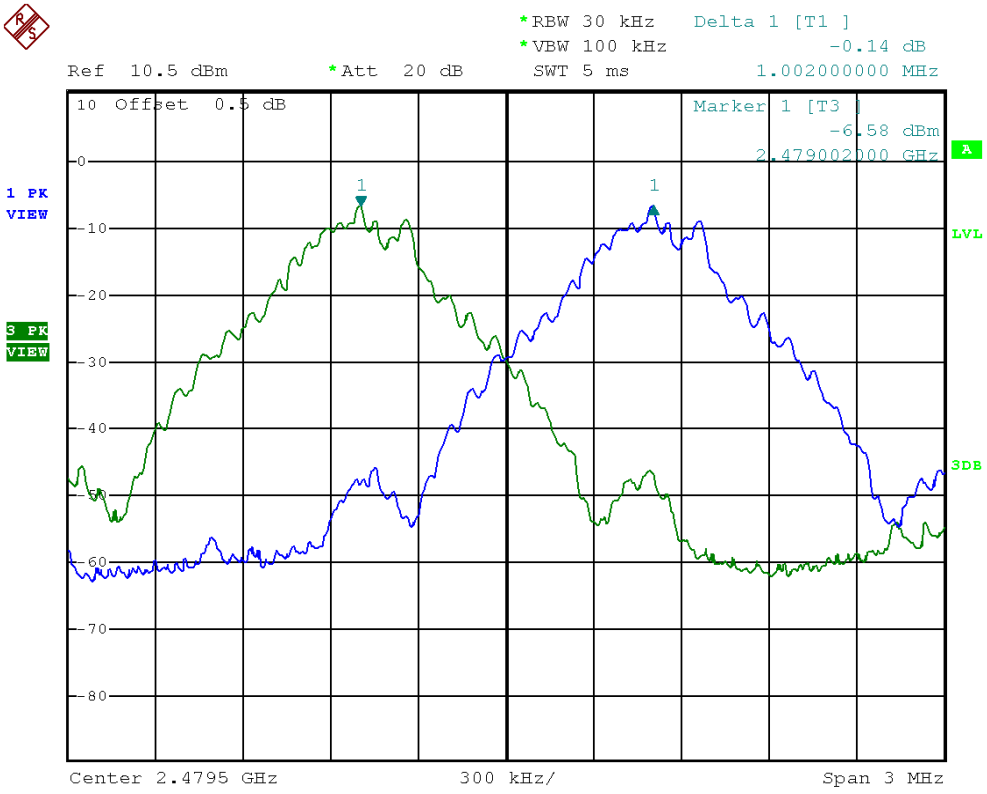
CH39


*RBW 30 kHz
*VBW 300 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 5 ms
Delta 1 [T3]
-0.01 dB
1.002000000 MHz
10 Offset 0.5 dB
Marker 1 [T1]
-5.04 dBm
2.441002000 GHz
1 PK VIEW
3 PK VIEW
LVL
3DB
Center 2.4415 GHz
300 kHz/
Span 3 MHz

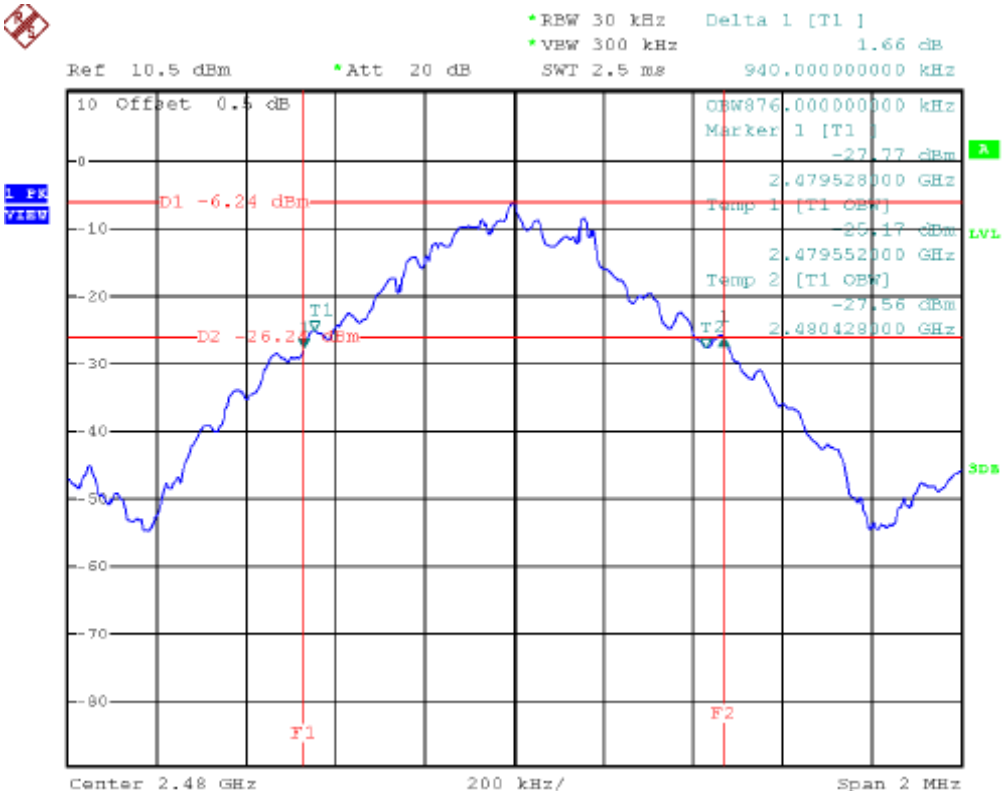
CH39


*RBW 30 kHz
*VBW 300 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
Delta 1 [T1]
-0.12 dB
916.000000000 kHz
10 Offset 0.5 dB
OBW868.000000000 kHz
Marker 1 [T1]
-24.67 dBm
2.440536000 GHz
Temp 1 [T1 OBW]
-24.12 dBm
2.440556000 GHz
Temp 2 [T1 OBW]
-26.04 dBm
2.441424000 GHz
D1 -4.83 dBm
D2 -24.83 dBm
1 PK VIEW
LVL
3DB
F1
F2
Center 2.441 GHz
200 kHz/
Span 2 MHz

CH78


*RBW 30 kHz
*VBW 100 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 5 ms
Delta 1 [T1]
-0.14 dB
1.002000000 MHz
10 Offset 0.5 dB
Marker 1 [T3]
-6.58 dBm
2.479002000 GHz
1 PK VIEW
3 PK VIEW
A
LVL
3DB
Center 2.4795 GHz
300 kHz/
Span 3 MHz

CH78

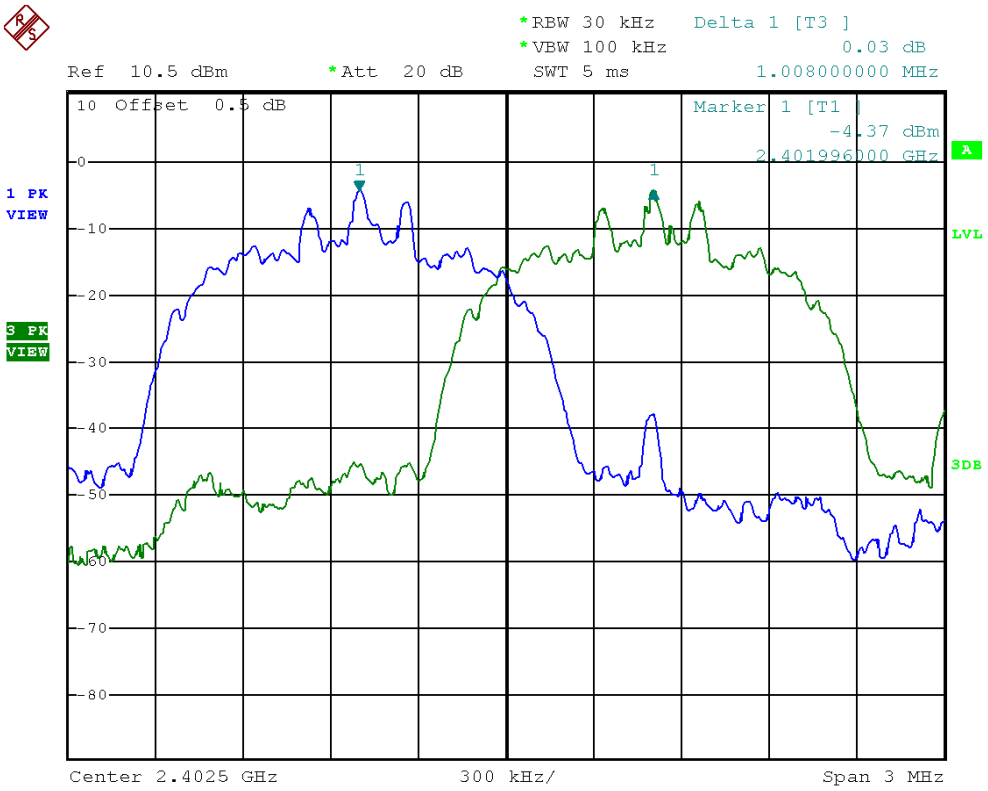

*RBW 30 kHz
*VBW 300 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
Delta 1 [T1]
1.66 dB
940.000000000 kHz
10 Offset 0.5 dB
OBW876.000000000 kHz
Marker 1 [T1]
-27.77 dBm
2.479528000 GHz
Temp 1 [T1 OBW]
-25.17 dBm
2.479552000 GHz
Temp 2 [T1 OBW]
-27.56 dBm
2.480428000 GHz
D1 -6.24 dBm
D2 -26.24 dBm
1 PK VIEW
A
LVL
3DB
Center 2.48 GHz
200 kHz/
Span 2 MHz

EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	3M_CH00 / CH39 / CH78		

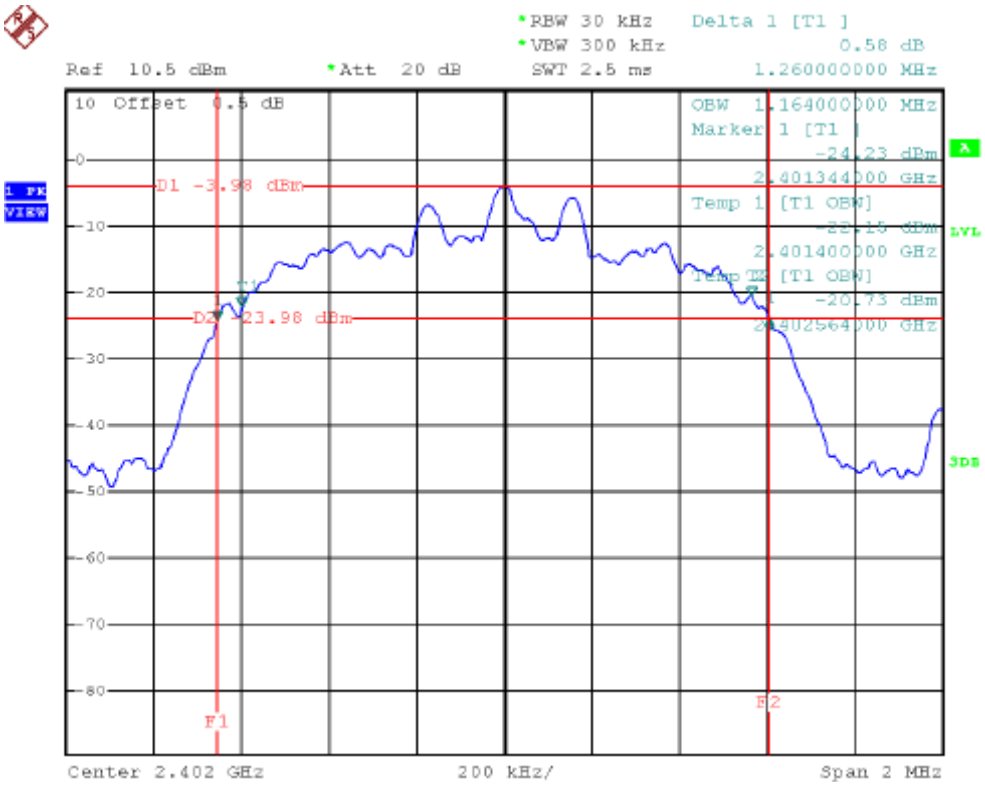
Frequency	Ch. Separation (MHz)	99% Occupied BW (MHz)	20d Bandwidth (MHz)	two-thirds of the 20 dB bandwidth (MHz)	Result
2402 MHz	1.008	1.164	1.260	1.164	**PASS**
2441 MHz	1.002	1.164	1.260	1.164	**PASS**
2480 MHz	1.008	1.168	1.256	1.168	**PASS**

Ch. Separation Limits: >25 KHz or >2/3 of 20dB bandwidth

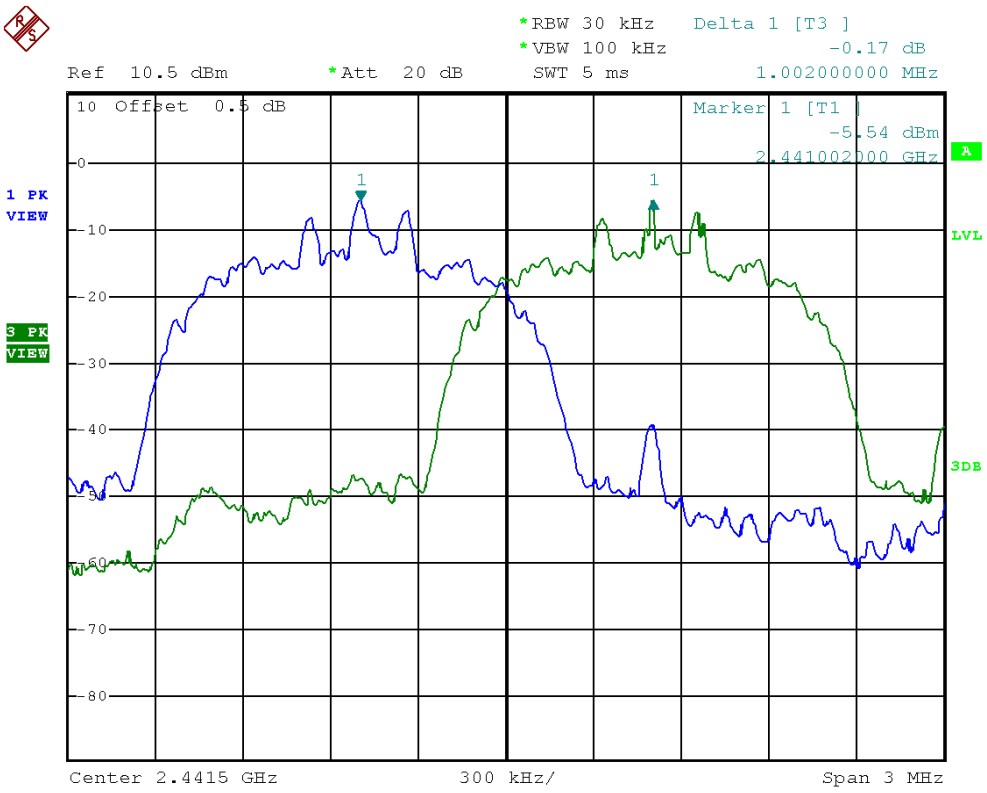
CH00


*RBW 30 kHz
*VBW 100 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 5 ms
Delta 1 [T3]
0.03 dB
1.008000000 MHz
10 Offset 0.5 dB
Marker 1 [T1]
-4.37 dBm
2.401996000 GHz
1 PK VIEW
3 PK VIEW
LVL
3DB
Center 2.4025 GHz
300 kHz/
Span 3 MHz

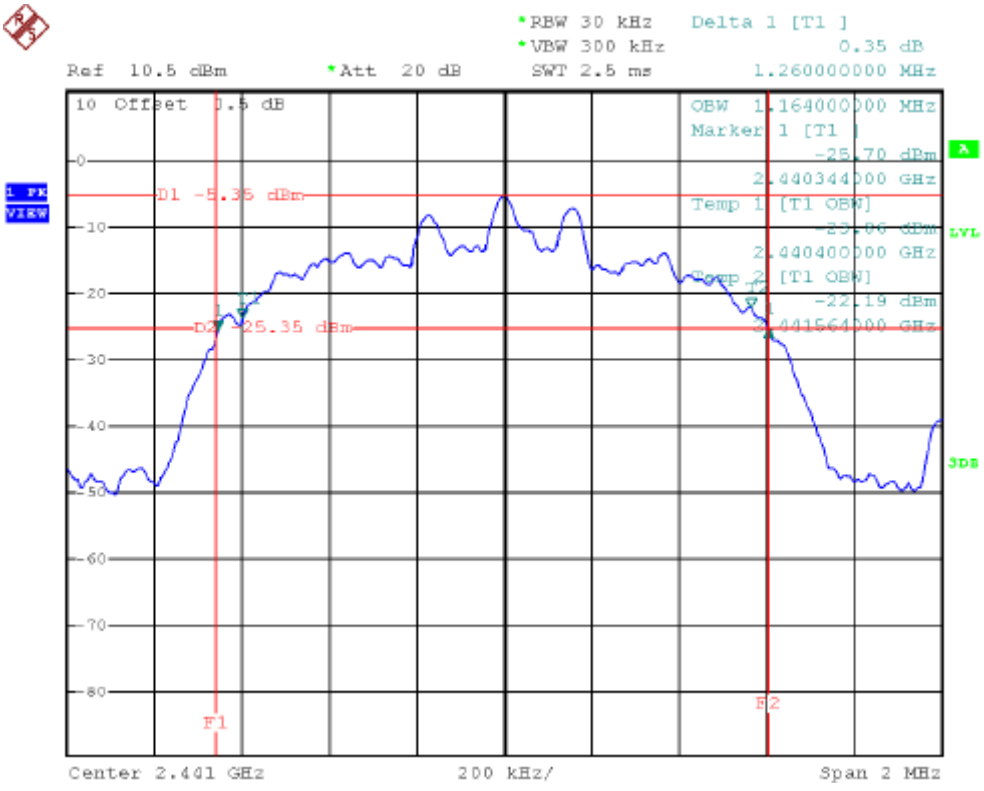
CH00


*RBW 30 kHz
*VBW 300 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
Delta 1 [T1]
0.58 dB
1.260000000 MHz
10 Offset 0.5 dB
OBW 1.164000000 MHz
Marker 1 [T1]
-24.23 dBm
2.401344000 GHz
Temp 1 [T1 OBW]
-22.15 dBm
2.401400000 GHz
Temp 2 [T1 OBW]
-20.75 dBm
2.402564000 GHz
D1 -3.98 dBm
D2 -23.98 dBm
1 PK VIEW
LVL
3DB
F1
F2
Center 2.402 GHz
200 kHz/
Span 2 MHz

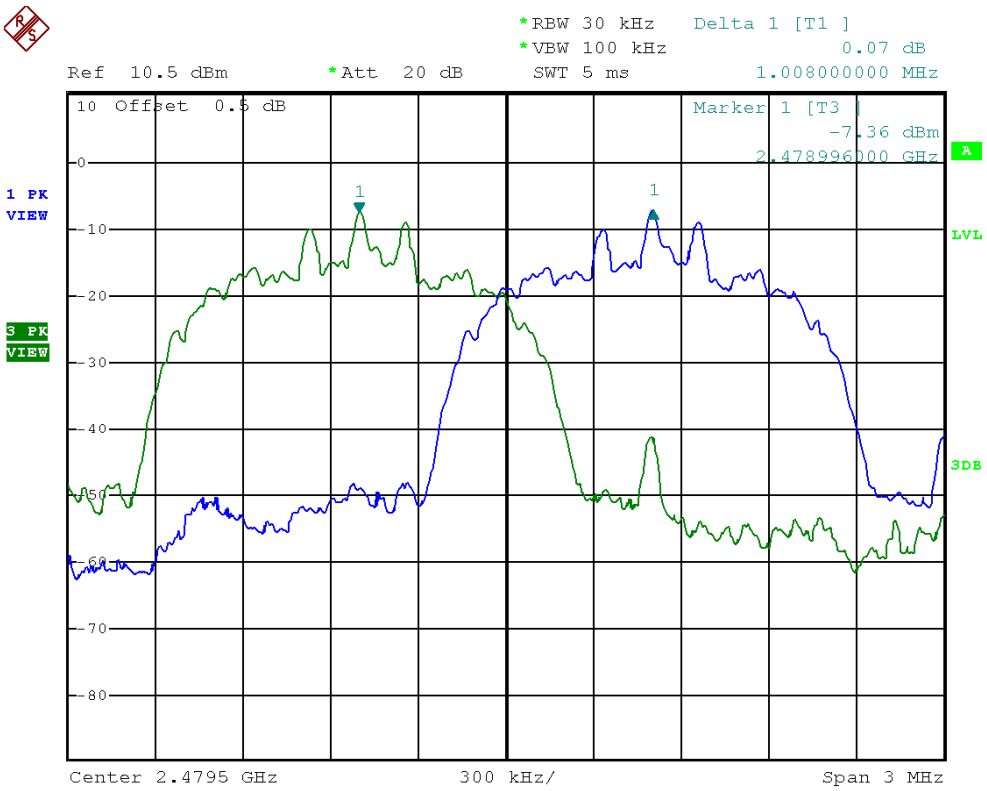
CH39


*RBW 30 kHz
Delta 1 [T3]
*VBW 100 kHz
-0.17 dB
Ref 10.5 dBm
*Att 20 dB
SWT 5 ms
1.002000000 MHz
10 Offset 0.5 dB
Marker 1 [T1]
-5.54 dBm
2.441002000 GHz
1 PK VIEW
3 PK VIEW
LVL
3DB
Center 2.4415 GHz
300 kHz/
Span 3 MHz

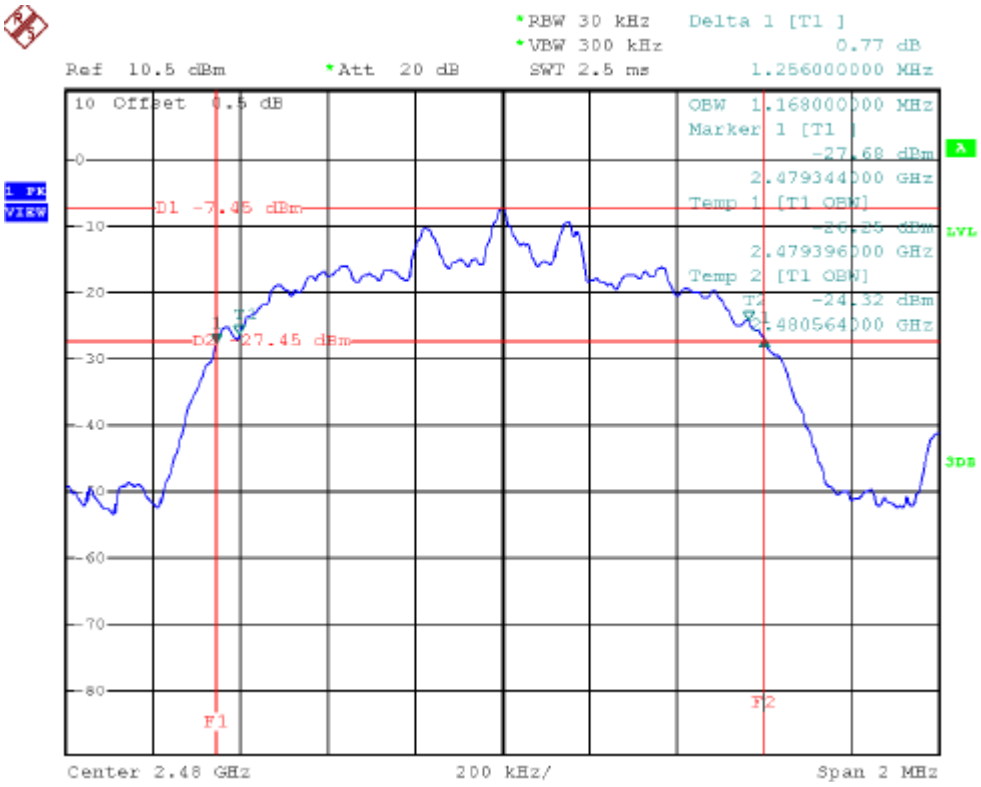
CH39


*RBW 30 kHz
Delta 1 [T1]
*VBW 300 kHz
0.35 dB
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
1.260000000 MHz
10 Offset 0.5 dB
OBW 1.164000000 MHz
Marker 1 [T1]
-25.70 dBm
2.440344000 GHz
D1 -5.35 dBm
Temp 1 [T1 OBW]
-25.06 dBm
LVL
2.440400000 GHz
Temp 2 [T1 OBW]
-22.19 dBm
D2 -25.35 dBm
2.441664000 GHz
1 PK VIEW
3DB
F1
F2
Center 2.441 GHz
200 kHz/
Span 2 MHz

CH78


*RBW 30 kHz
*VBW 100 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 5 ms
Delta 1 [T1]
0.07 dB
1.008000000 MHz
10 Offset 0.5 dB
Marker 1 [T3]
-7.36 dBm
2.478996000 GHz
1 PK VIEW
3 PK VIEW
LVL
3DB
Center 2.4795 GHz
300 kHz/
Span 3 MHz

CH78


*RBW 30 kHz
*VBW 300 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
Delta 1 [T1]
0.77 dB
1.256000000 MHz
10 Offset 0.5 dB
OBW 1.168000000 MHz
Marker 1 [T1]
-27.68 dBm
2.479344000 GHz
Temp 1 [T1 OBW]
-26.25 dBm
2.479396000 GHz
Temp 2 [T1 OBW]
-24.52 dBm
2.480564000 GHz
D1 -7.45 dBm
D2 -27.45 dBm
1 PK VIEW
LVL
3DB
Center 2.48 GHz
200 kHz/
Span 2 MHz

8. PEAK OUTPUT POWER TEST

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (b)(1)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

8.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2487A	6K00004714	Feb. 17, 2012
2	Power Meter Sensor	Anritsu	MA2491A	34138	Feb. 17, 2012

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

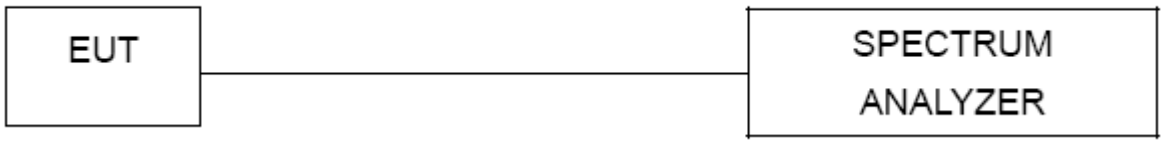
8.1.2 TEST PROCEDURE

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= 3MHz, VBW= 3MHz, Sweep time = Auto.

8.1.3 DEVIATION FROM STANDARD

No deviation.

8.1.4 TEST SETUP



8.1.5 EUT OPERATION CONDITIONS

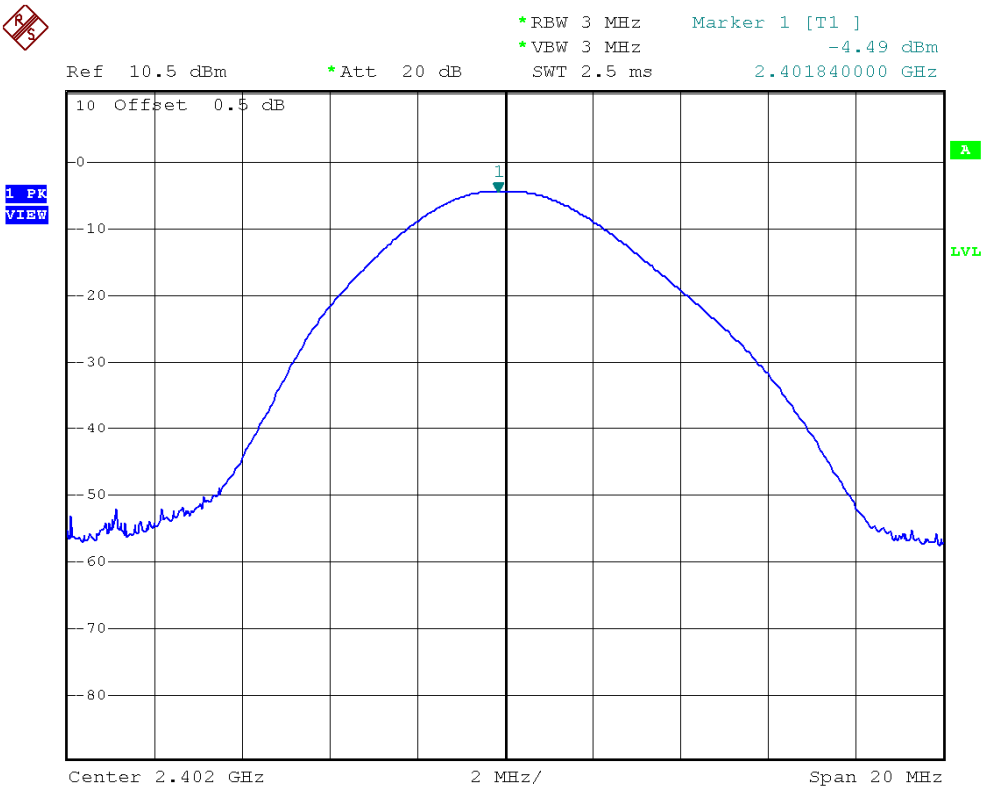
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.6 TEST RESULTS

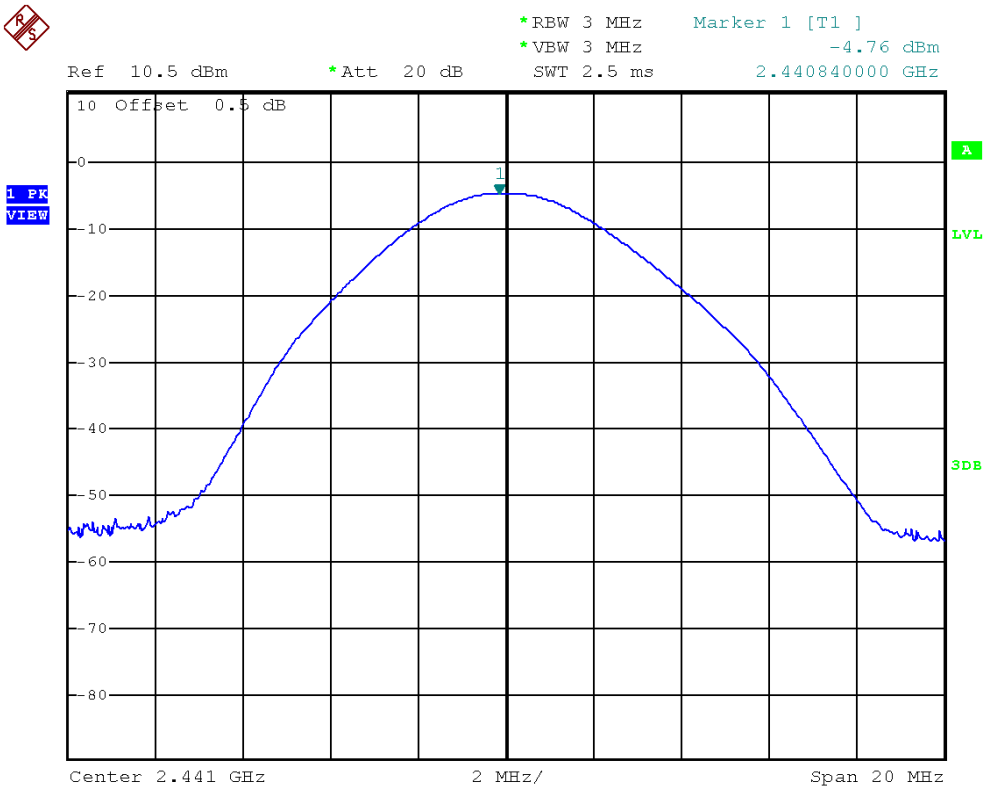
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	1M_CH00 / CH39 / CH78		

Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
2402	-4.49	30	1
2441	-4.76	30	1
2480	-5.99	30	1

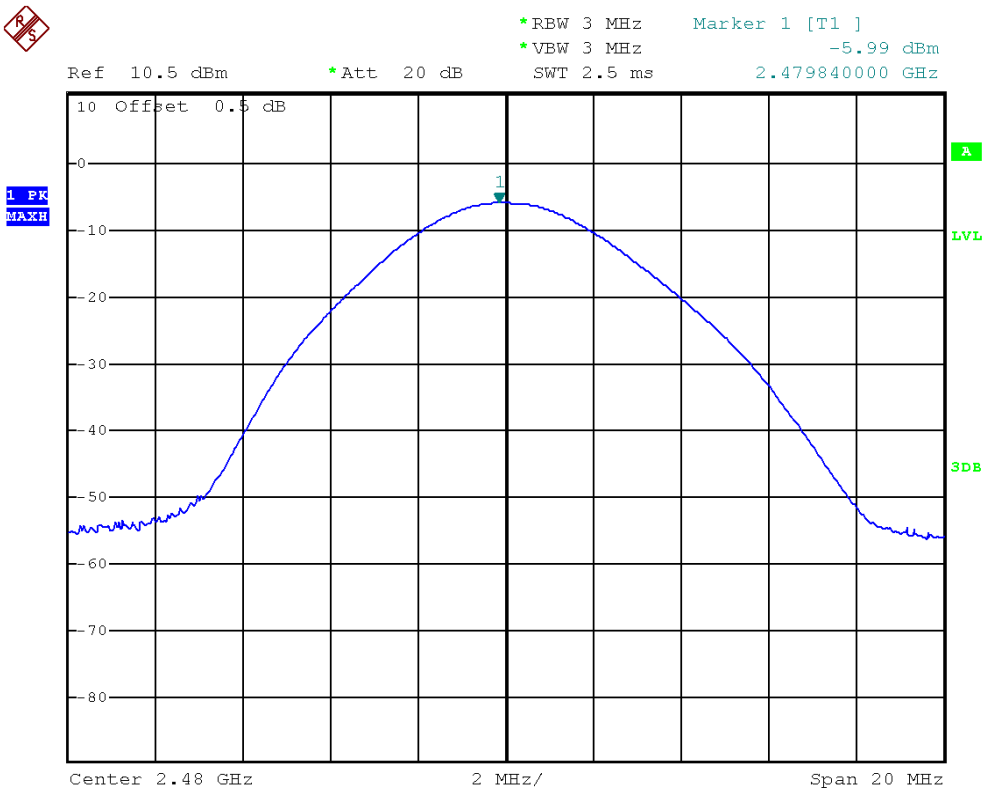
CH00



CH39


*RBW 3 MHz
Marker 1 [T1]
*VBW 3 MHz
-4.76 dBm
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
2.440840000 GHz
10 Offset 0.5 dB
1 PK VIEW
A
LVL
3DB
Center 2.441 GHz
2 MHz/
Span 20 MHz

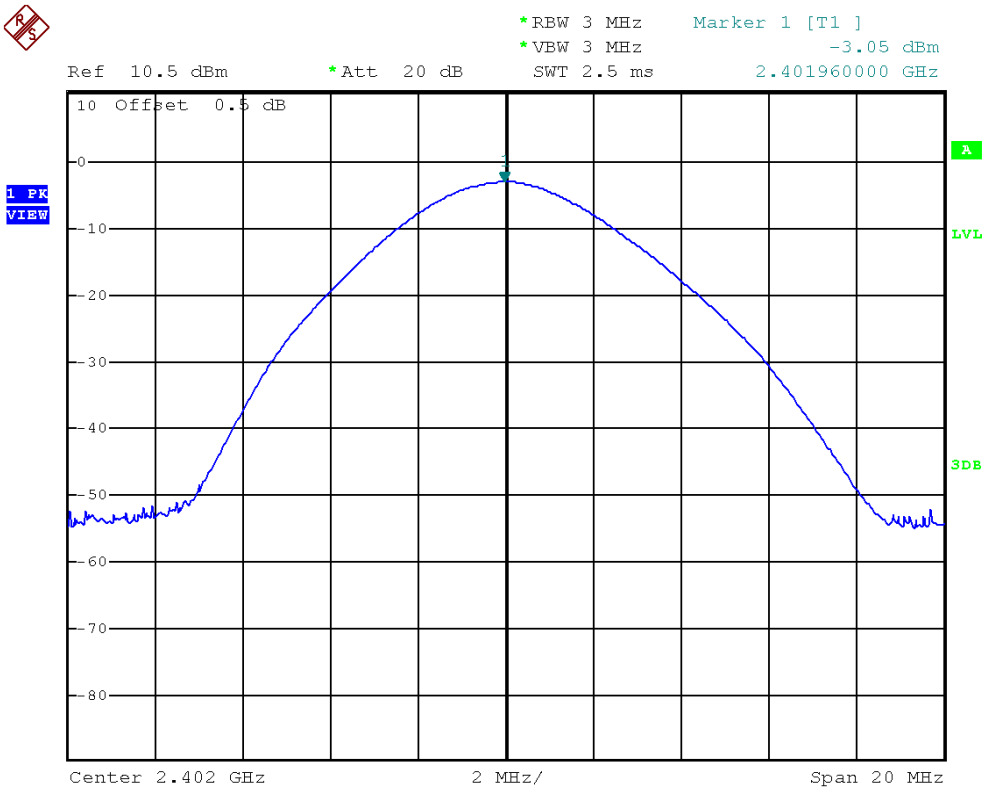
CH78


*RBW 3 MHz
Marker 1 [T1]
*VBW 3 MHz
-5.99 dBm
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
2.479840000 GHz
10 Offset 0.5 dB
1 PK MAXH
A
LVL
3DB
Center 2.48 GHz
2 MHz/
Span 20 MHz

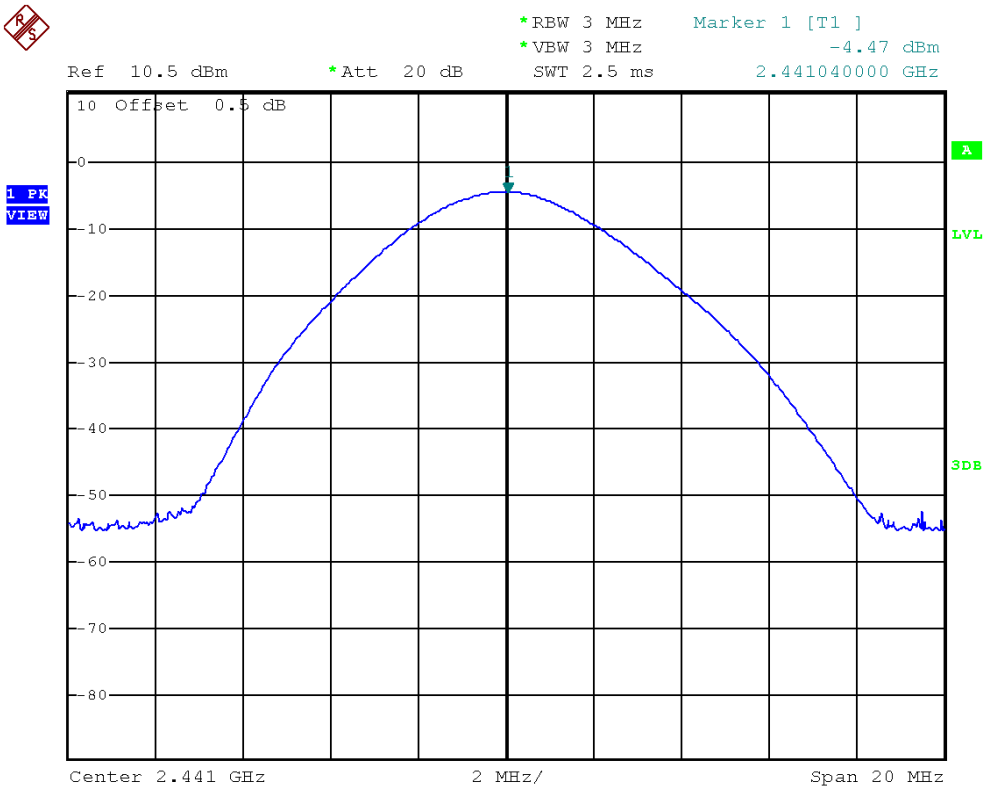
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	25°C	Relative Humidity：	60%
Test Voltage ：	DC 3.7V		
Test Mode ：	3M_CH00 / CH39 / CH78		

Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
2402	-3.05	30	1
2441	-4.47	30	1
2480	-6.25	30	1

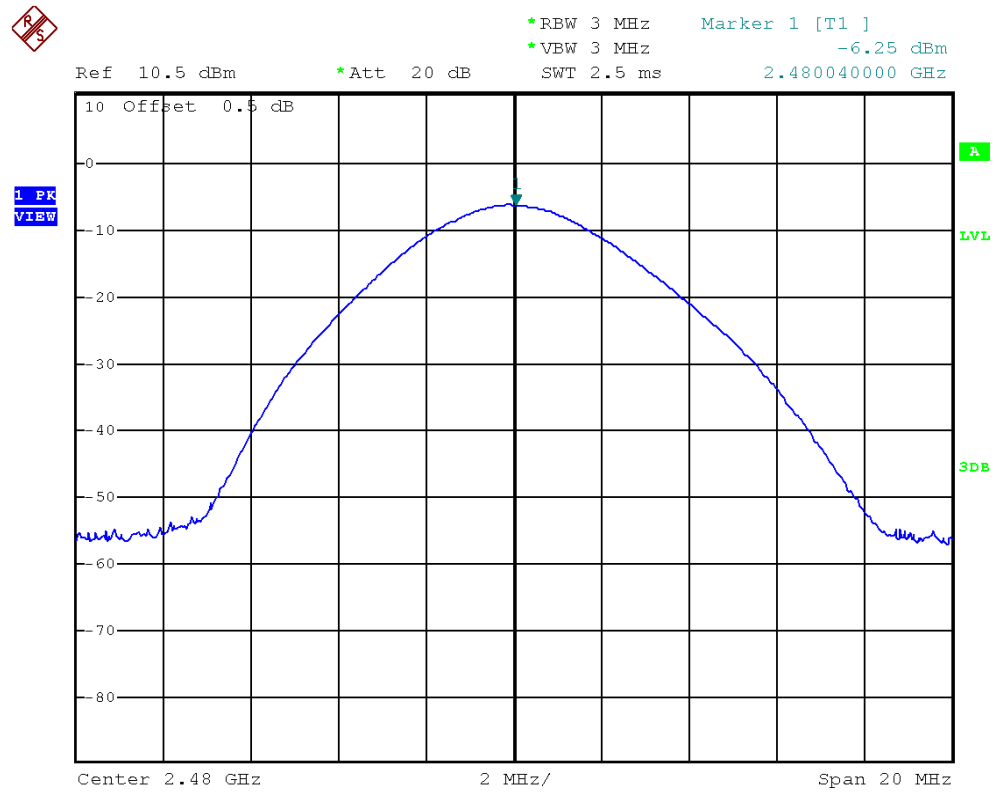
CH00



CH39


*RBW 3 MHz
*VBW 3 MHz
Marker 1 [T1]
-4.47 dBm
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
2.441040000 GHz
10 Offset 0.5 dB
1 PK
VIEW
A
LVL
3DB
-0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.441 GHz
2 MHz/
Span 20 MHz

CH78


*RBW 3 MHz
*VBW 3 MHz
Marker 1 [T1]
-6.25 dBm
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 ms
2.480040000 GHz
10 Offset 0.5 dB
1 PK
VIEW
A
LVL
3DB
-0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.48 GHz
2 MHz/
Span 20 MHz

9. ANTENNA CONDUCTED SPURIOUS EMISSION

9.1 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

9.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Aug. 31, 2011

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

The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100 KHz /100 KHz for Peak

9.1.2 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 = Auto.

9.1.3 DEVIATION FROM STANDARD

No deviation.

9.1.4 TEST SETUP

9.1.5 EUT OPERATION CONDITIONS

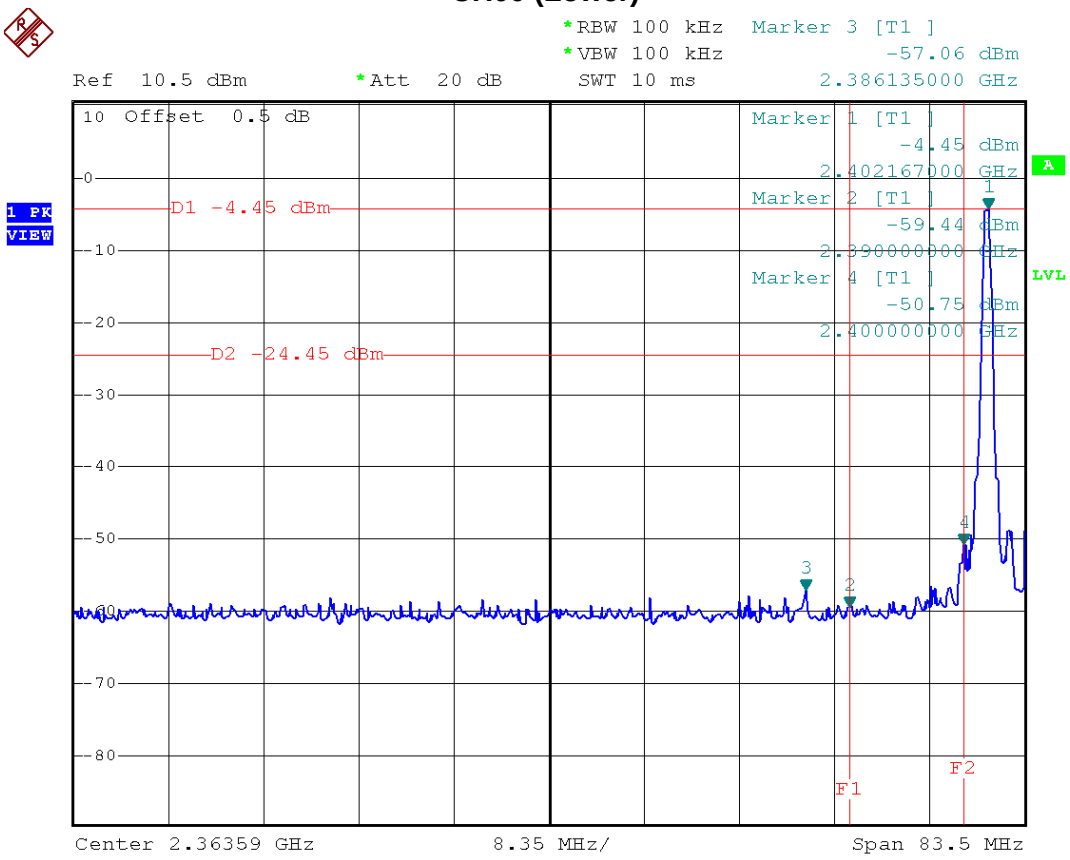
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

9.1.6 TEST RESULTS

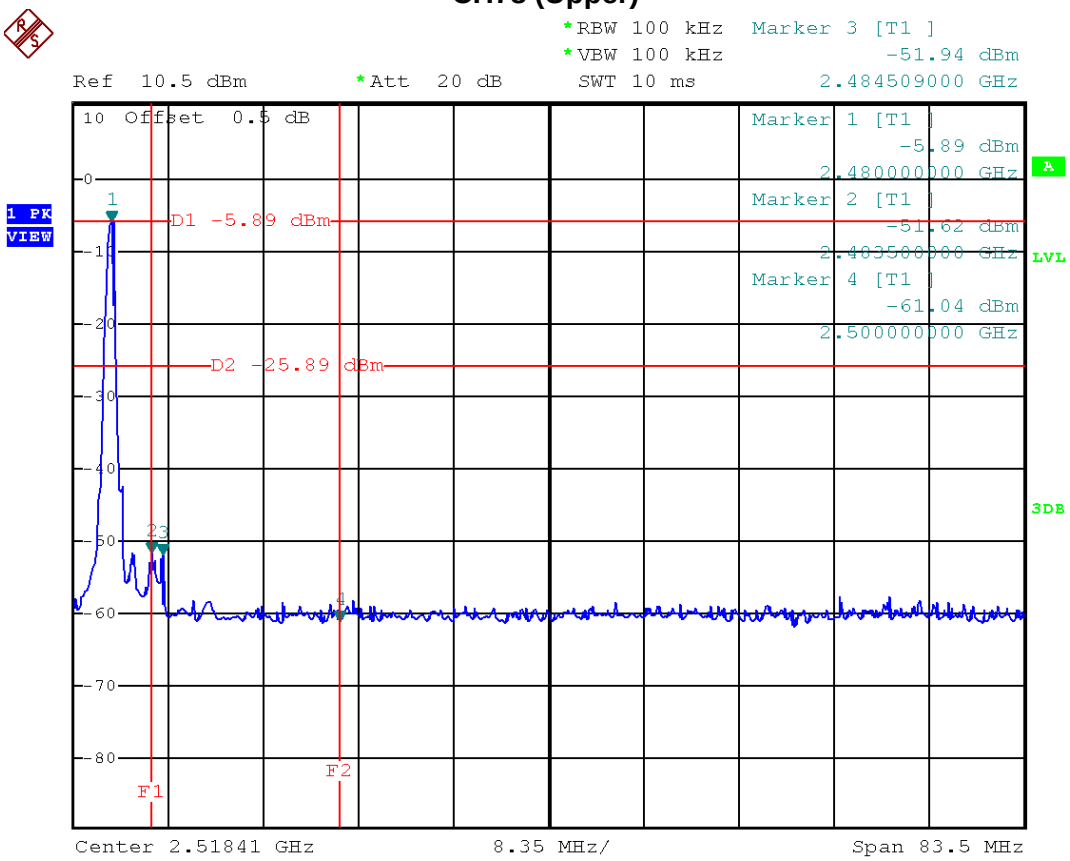
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	23°C	Relative Humidity：	50%
Test Voltage ：	DC 3.7V		
Test Mode ：	1M_CH00 / CH39 / CH78		

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)
2386.135	-57.06	2484.509	-51.94
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.			

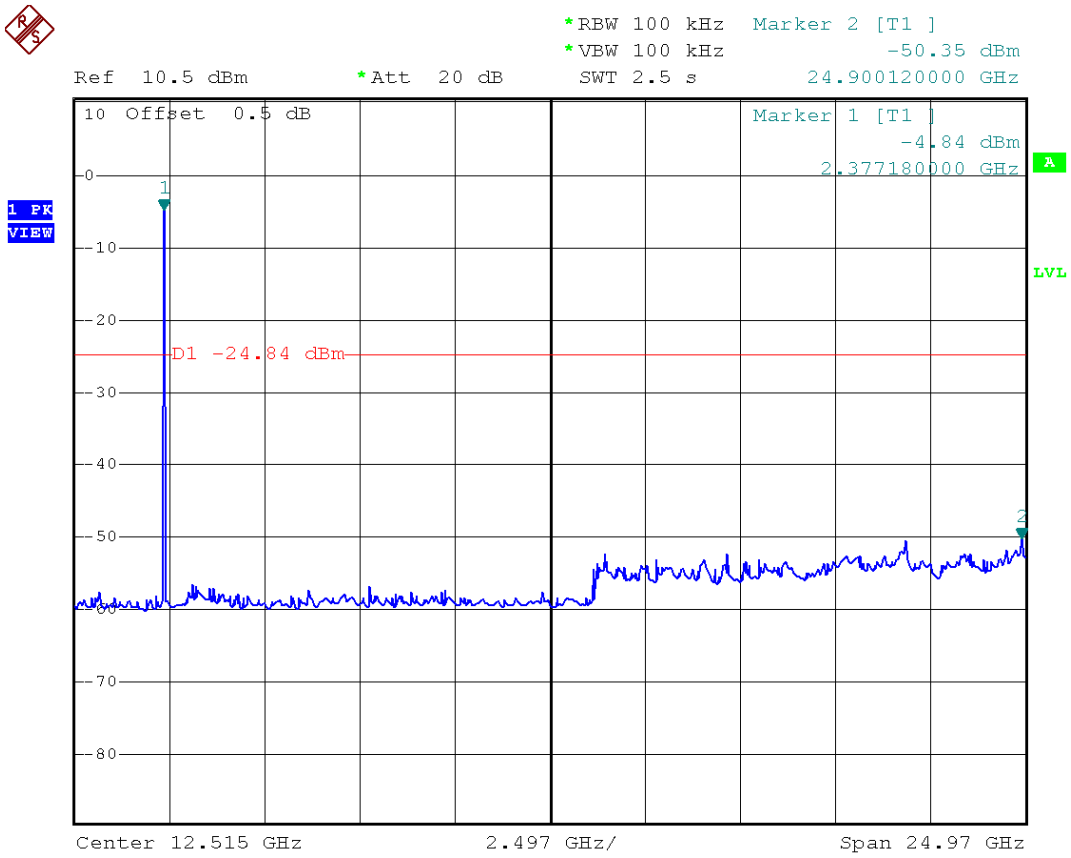
CH00 (Lower)



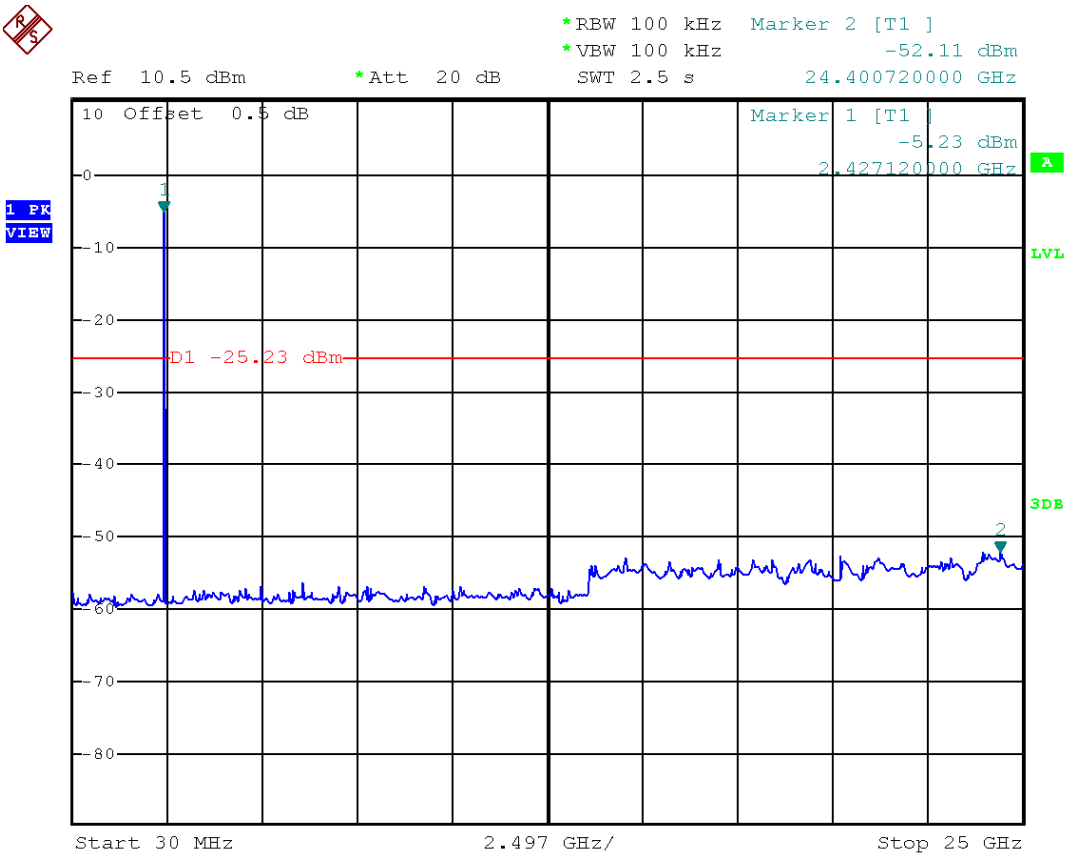
CH78 (Upper)



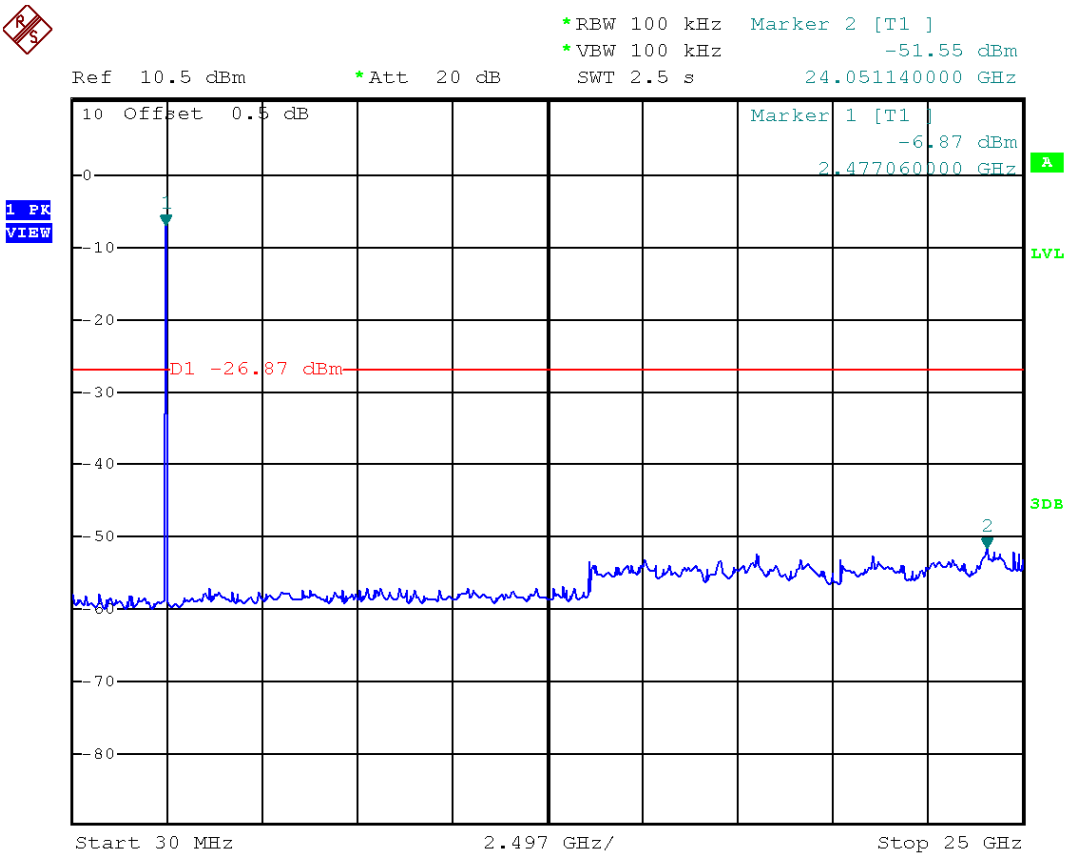
CH00


*RBW 100 kHz
*VBW 100 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 s
Marker 2 [T1]
-50.35 dBm
24.900120000 GHz
10 Offset 0.5 dB
Marker 1 [T1]
-4.84 dBm
2.377180000 GHz
1 PK
VIEW
A
LVL
D1 -24.84 dBm
Center 12.515 GHz
2.497 GHz/
Span 24.97 GHz

CH39


*RBW 100 kHz
*VBW 100 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 s
Marker 2 [T1]
-52.11 dBm
24.400720000 GHz
10 Offset 0.5 dB
Marker 1 [T1]
-5.23 dBm
2.427120000 GHz
1 PK
VIEW
A
LVL
3DB
D1 -25.23 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

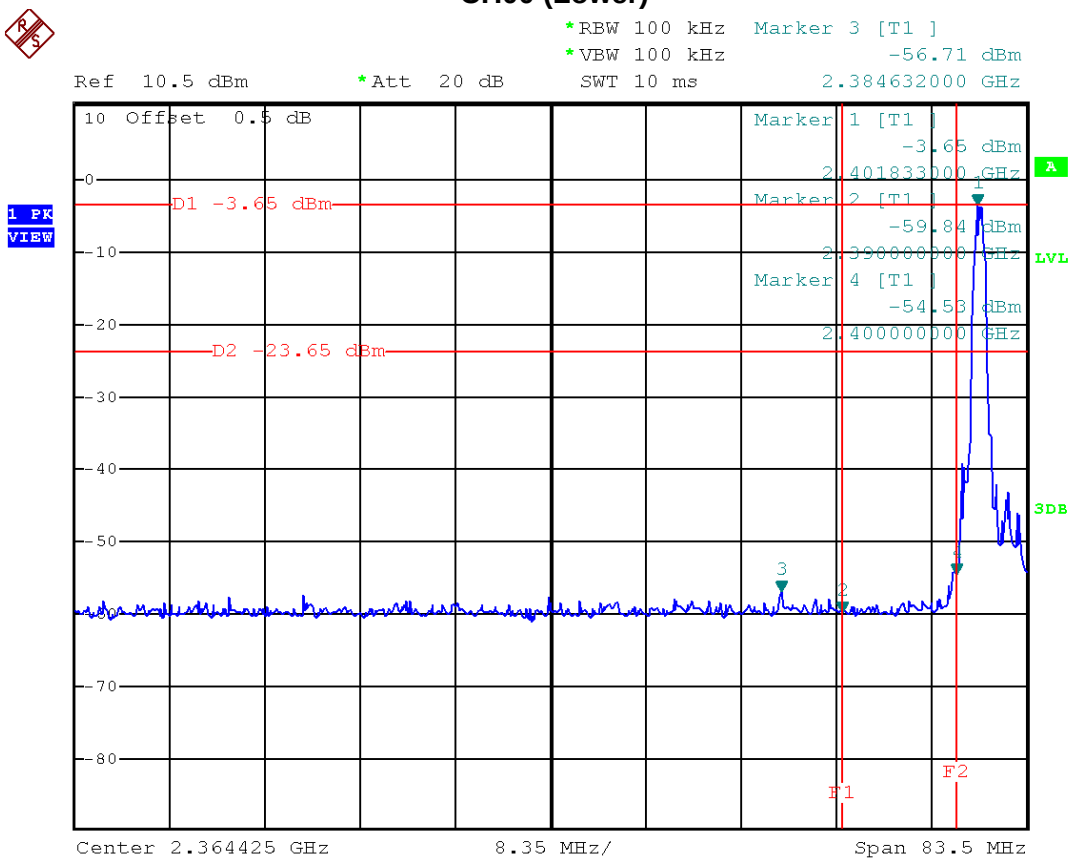
CH78


*RBW 100 kHz
*VBW 100 kHz
Marker 2 [T1]
-51.55 dBm
24.051140000 GHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 s
10 Offset 0.5 dB
Marker 1 [T1]
-6.87 dBm
2.477060000 GHz
1 PK
VIEW
A
LVL
3DB
D1 -26.87 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

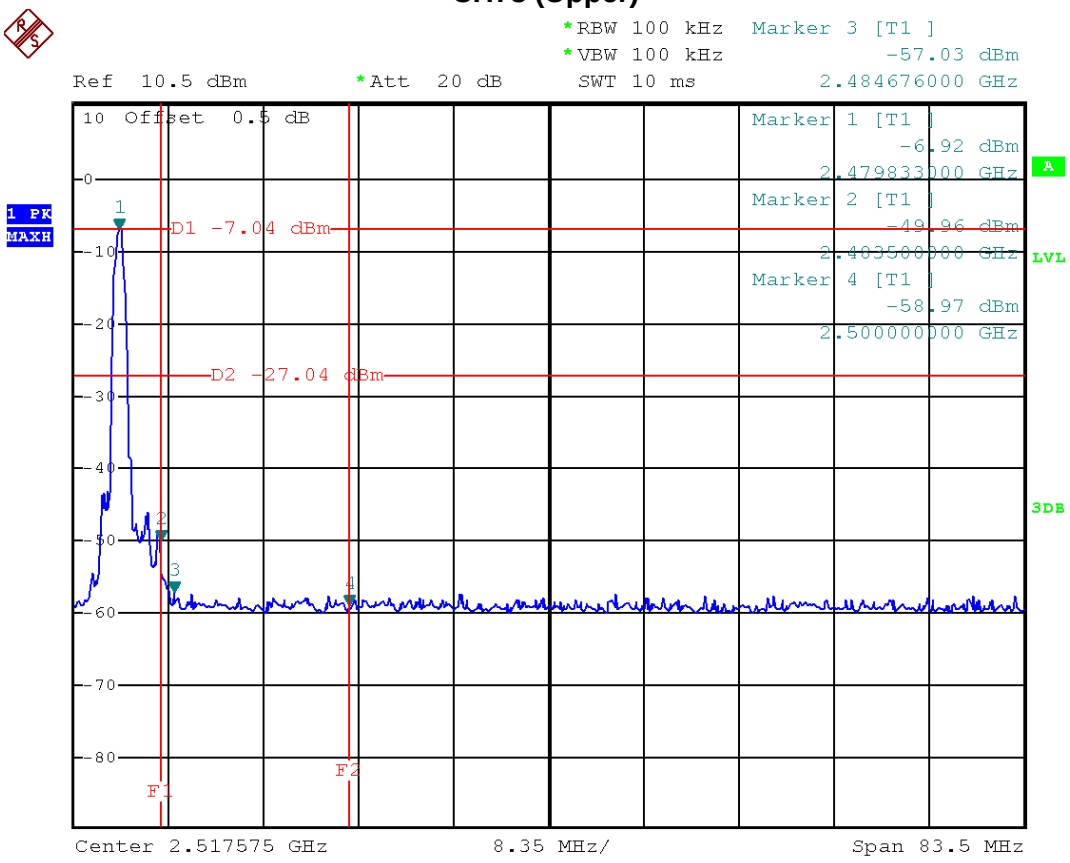
EUT：	Wireless Handheld 2D Scanner	Model Name ：	OPI-3301
Temperature：	23°C	Relative Humidity：	50%
Test Voltage ：	DC 3.7V		
Test Mode ：	3M_CH00 / CH39 / CH78		

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)
2384.632	-56.71	2484.676	-57.03
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.			

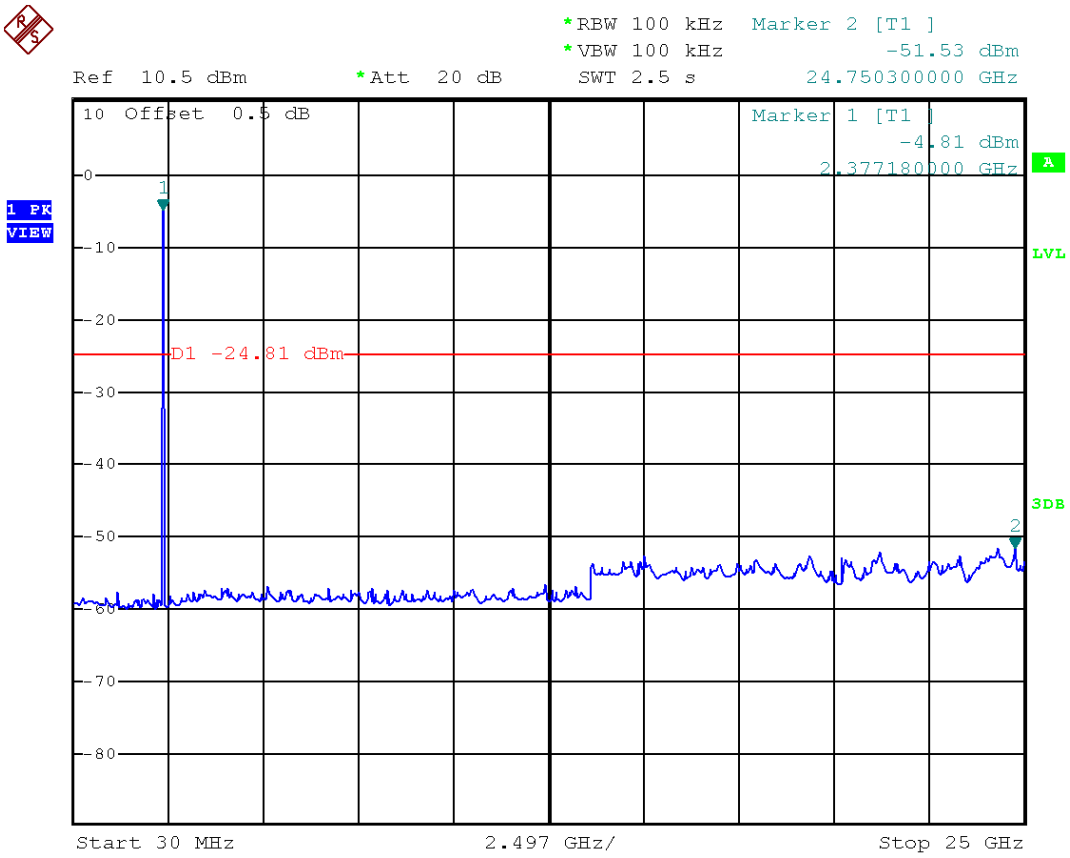
CH00 (Lower)



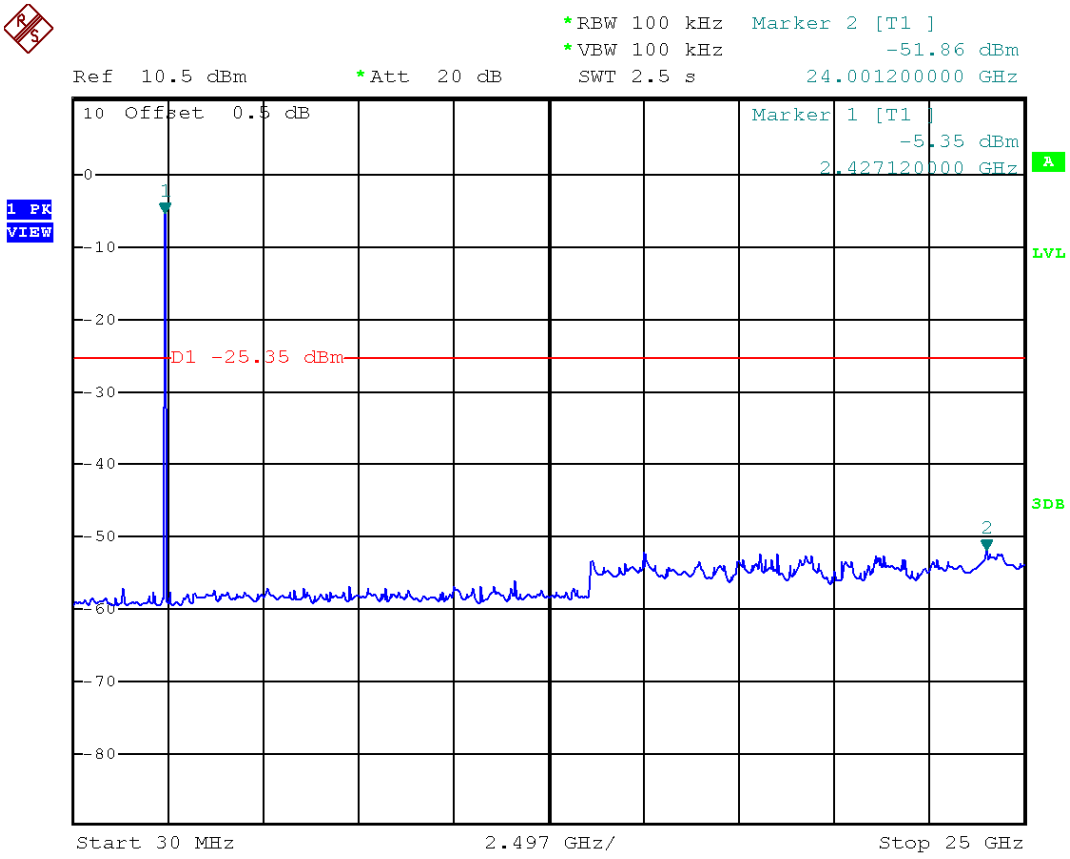
CH78 (Upper)



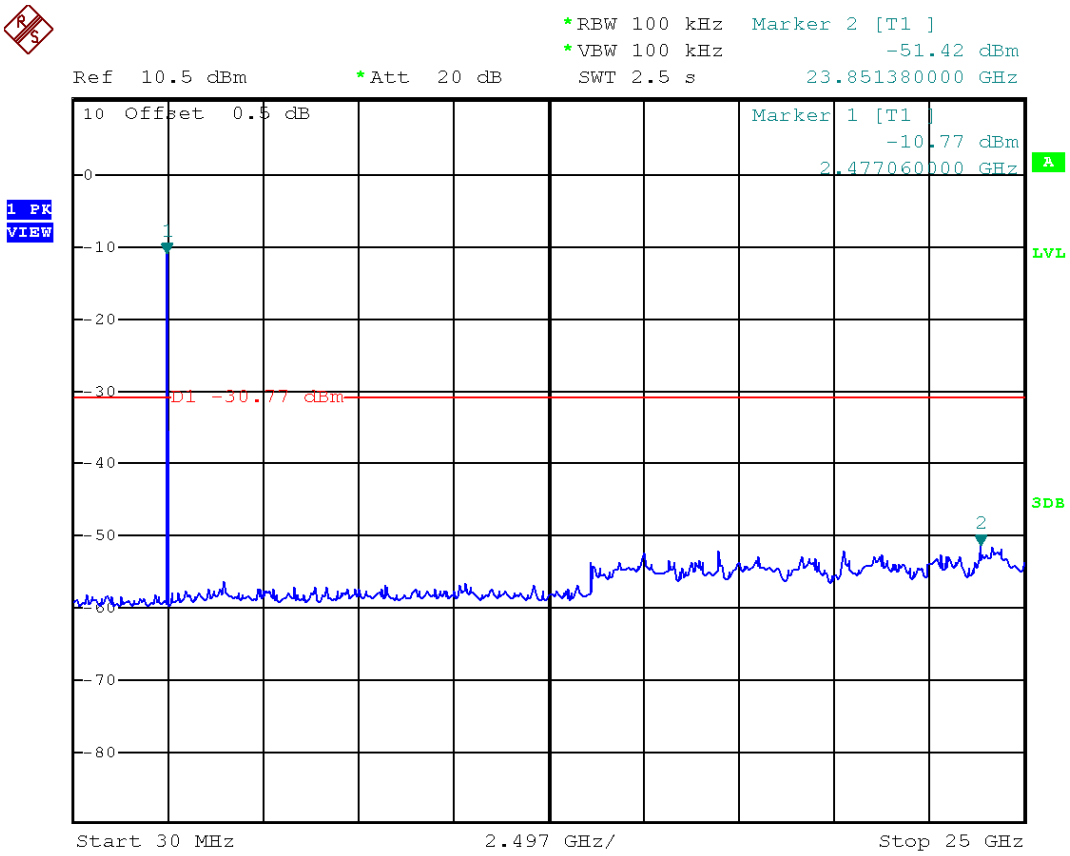
CH00


*RBW 100 kHz
*VBW 100 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 s
Marker 2 [T1]
-51.53 dBm
24.750300000 GHz
10 Offset 0.5 dB
Marker 1 [T1]
-4.81 dBm
2.377180000 GHz
1 PK
VIEW
A
LVL
3DB
D1 -24.81 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH39


*RBW 100 kHz
*VBW 100 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 s
Marker 2 [T1]
-51.86 dBm
24.001200000 GHz
10 Offset 0.5 dB
Marker 1 [T1]
-5.35 dBm
2.427120000 GHz
1 PK
VIEW
A
LVL
3DB
D1 -25.35 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH78


*RBW 100 kHz
*VBW 100 kHz
Ref 10.5 dBm
*Att 20 dB
SWT 2.5 s
Marker 2 [T1]
-51.42 dBm
23.851380000 GHz
10 Offset 0.5 dB
Marker 1 [T1]
-10.77 dBm
2.477060000 GHz
1 PK
VIEW
A
LVL
3DB
D1 -30.77 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz