PEP Testing Laboratory
12-3FI, No. 27-1, Lane 169, Kang-Ning St., Hsi-Chih,
Taipei Hsien, Taiwan, R. O. C.
TEL: 886-2-26922097 FAX: 886-2-26956236

RFI / EMI TEST REPORT

APPLICANT	**:**	**GoPass Technology Corp.**
E U T Type	**:**	**Bluetooth GPS Receiver**
MODEL NO.	**:**	**GPT600, GPH600, GPT800, GPT8XX**
FCC ID	**:**	**UBH0605G**
REGULATION	**:**	CFR 47 , Part 15 Subpart C , **Class B**
TEST SITE	**:**	PEP Testing Laboratory
TEST ENGINEER	**:**	**DINO CHEN**
TEST DATE	**:**	MAY 12, 2006
ISSUED DATE	**:**	JUNE 07, 2006
REPORT NO.	**:**	E950244

VERIFICATION

WE HEREBY VERIFY THAT:

The EUT listed below has completed RFI testing by PEP Testing Laboratory and it does comply with the limitation of FCC Part 15, Section 15.247 limitations .

The tested configurations and the facility complies with the radiated and AC line conducted test site criteria in ANSI C63 . 4 - 2003 .

Any data in this RFI report is **“ reference “** only .

APPLICANT : GoPass Technology Corp.
PRODUCT : Bluetooth GPS Receiver
FCC ID : UBH0605G
MODEL : GPT600, GPH600, GPT800, GPT8XX

M. Y. TSUI / President

PEP Testing Laboratory
12-3FL., NO. 27-1, Lane 169, Kang-Ning St.,
Hsi-Chi, Taipei Hsien, Taiwan, R. O. C.
TEL : 886-2-6922097 FAX : 886-2-6956236

TABLE OF CONTENTS

Ⅰ. General Information

The equipment under test (EUT) is Bluetooth GPS Receiver model GPT600, GPH600, GPT800 and GPT8XX (where X=0-9). These models have identical electrical design and construction except that they are different in model number for marketing purpose. From technical point of view, we took model GPT800 as representative for test. The working frequencies for EUT transmitter and receiver functions are 2.4GHz and 1.575GHz respectively. 3.7V lithium battery or 5 Vdc from external adaptor or via USB interface is required to operate EUT. For more detail specification about EUT, please refer to the user's manual.

Test method: According to the major function designed, the EUT function were set to proceed with test. The test was respectively carried out on EUT operational condition and the worst-case test result was recorded and provided in this report.

At the frequencies where the peak values of the emission exceeded the quasi-peak limit, the emissions were also measured with the quasi-peak detectors. The average detector also measured the emission either (A) quasi-peak values were under quasi-peak limit but exceeded average limit, or (B) peak values were under quasi-peak limit but exceeded average limit.

1.1 Description of EUT

EUT Type : Bluetooth GPS Receiver
FCC ID : UBH0605G
EUT Model No. : GPT800

Frequency Range : 2.402～2.480GHz
Support Channel : 79 channels
Modulation : FSK
Antenna Type : Comply with FCC Part 15, Section 15.203;
Build-in PCB trace type, can't be removed by the user
Power Supply : 1) Manufacturer : SEMDICAR TECHNOLOGY CORP.
Model No. : TC-FE-USB
Input : AC 100~240V, 0.15A
Output : DC 5V, 1A

Power Cord : N/A

1.2 Supporting Devices for EUT testing

1. Personal Computer

CPU : Intel P4 Xeon 2.4GHz
FCC ID：Declaration of Conformity(DoC)
Manufacturer：IWILL
Model Number：DPL533
Power Supply：Switching
Power Cord：Non-Shielded, Detachable, 1.8m
Data Cable：N/A

2. Keyboard (KBS1 PS/2)

FCC ID：E5XKB5121WTH0110
Manufacturer：BTC
Model Number：5121W
Power Supply：+5Vdc from PS2 of PC
Power Cord：N/A
Data Cable：**1 >** Shielded , Non-detachable,1.6m
2 > Back Shell : Metal

3. Monitor (MON1 15")

FCC ID：Declaration of Conformity(DoC)
Manufacturer：SAMSUNG
Model Number：550S
Power Supply：Switching
Power Cord：Non-Shielded, Detachable, 1.8m
Data Cable：**1 >** Shielded , Non-detachable,1.2m
2 > Back Shell : Metal

4. Printer (PRN1)

FCC ID：B94C2642X
Manufacturer：Hewlett-Packard
Model Number：C2642E
Power Supply：Linear, 30Vdc O/P
Power Cable：Non-Shielded , Detachable,1.8m
Data Cable：**1 >** Shielded , Detachable,1.2m
2 > Back Shell : Metal

5. Modem (MOD1)

FCC ID：IFAXDM1414
Manufacturer：ACEEX
Model Number：1414
Power Supply：Linear, 9Vac O/P
Power Cable：Non-Shielded , Detachable,1.7m
Data Cable：**1 >** Shielded , Detachable,1m
2 > Back Shell : Metal

6. Mouse (MOUS/1 PS/2)

FCC ID：DZL211106
Manufacturer：LOGITECH
Model Number：M-S43
Power Supply：+5Vdc from PS2 of PC
Power Cord：N/A
Data Cable：**1 >** Shielded , Non-detachable,1.8m
2 > Back Shell : Metal

7. DUNGLE

Manufacturer：Bluetooth-SIG. Inc, USA
Model Number：UBTCR3C1E-N

1.3 EUT Test Setup Configuration

(A)Test Procedure: As required by ANSI C63.4 (2003)

(B)Channel Verification: In order to force selection of the typical channels for testing, Dungle was connected PC through USB interface and using the driver "CSR BlueSuite", under WinXP to force the channel selection by control PC, then set the EUT in high power and continuously transmitting mode for detecting the operating frequency, the test result for 79 channels is operating within 2.402～2.480GHz band.

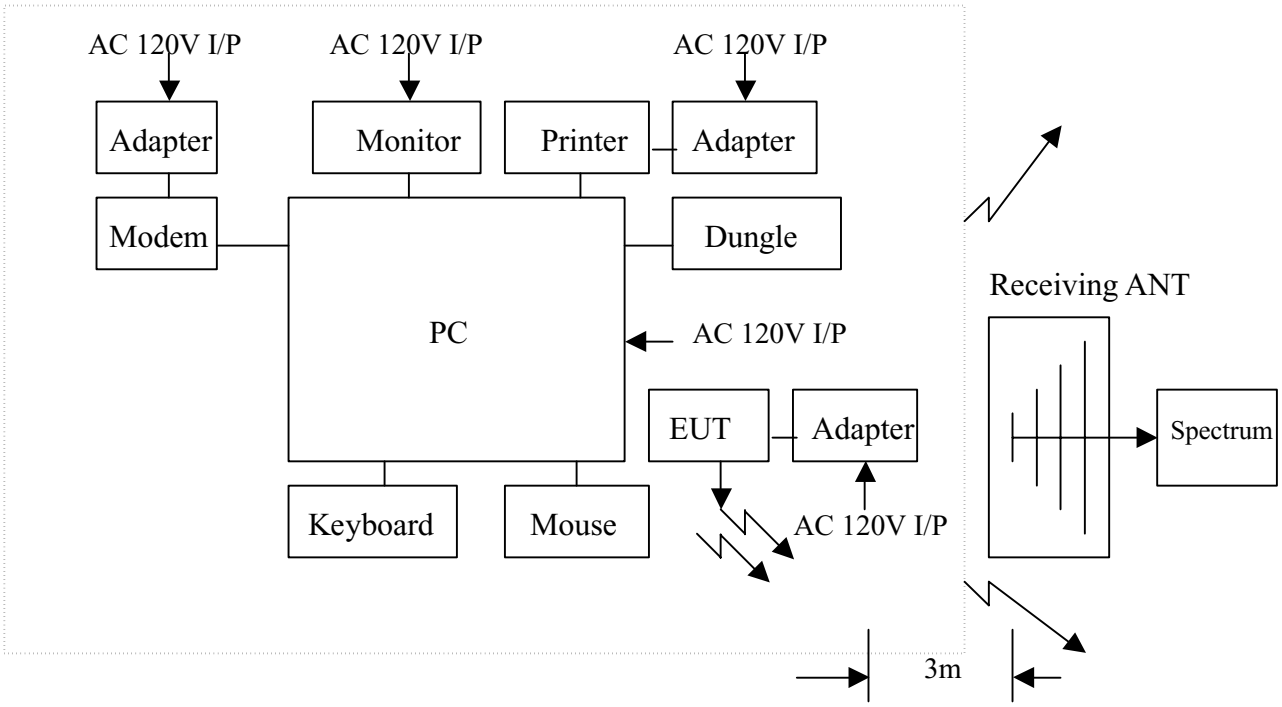
(C)Measurement Procedure: As required by FCC Part15, Section 15.31(m) measurements on intentional radiators or receiver should be performed at three frequencies for operating frequency over 10MHz, one near top, one near middle and one near bottom.

(D)Test Channel: Due to the support channels are 79 channels, the selected three frequencies for testing would be 2.402GHz near top for CH LOW, 2.441GHz near middle for CH MID and 2.480GHz near bottom for CH HIGH.

(E) At the frequencies where the peak values of the emission exceeded the quasi-peak limit, the emissions were also measured with the quasi-peak detectors. The average detector also measured the emission either (a) quasi-peak values were under quasi-peak limit but exceeded average limit, or (b) peak values were under quasi-peak limit but exceeded average limit.

(F) In this RFI test report, we provided the worst case conducted emission test data and radiated emission test data. The entire testing data was recorded and provided in this report.

1.4 Channels Verification



a. EUT Type：Bluetooth GPS Receiver
b. EUT Model：GPT800

c. TX Channel No.：79

Channel 01: 2402 MHz	**Channel 28: 2429 MHz**	**Channel 55: 2456 MHz**
Channel 02: 2403 MHz	**Channel 29: 2430 MHz**	**Channel 56: 2457 MHz**
Channel 03: 2404 MHz	**Channel 30: 2431 MHz**	**Channel 57: 2458 MHz**
Channel 04: 2405 MHz	**Channel 31: 2432 MHz**	**Channel 58: 2459 MHz**
Channel 05: 2406 MHz	**Channel 32: 2433 MHz**	**Channel 59: 2460 MHz**
Channel 06: 2407 MHz	**Channel 33: 2434 MHz**	**Channel 60: 2461 MHz**
Channel 07: 2408 MHz	**Channel 34: 2435 MHz**	**Channel 61: 2462 MHz**
Channel 08: 2409 MHz	**Channel 35: 2436 MHz**	**Channel 62: 2463 MHz**
Channel 09: 2410 MHz	**Channel 36: 2437 MHz**	**Channel 63: 2464 MHz**
Channel 10: 2411 MHz	**Channel 37: 2438 MHz**	**Channel 64: 2465 MHz**
Channel 11: 2412 MHz	**Channel 38: 2439 MHz**	**Channel 65: 2466 MHz**
Channel 12: 2413 MHz	**Channel 39: 2440 MHz**	**Channel 66: 2467 MHz**
Channel 13: 2414 MHz	**Channel 40: 2441 MHz**	**Channel 67: 2468 MHz**
Channel 14: 2415 MHz	**Channel 41: 2442 MHz**	**Channel 68: 2469 MHz**
Channel 15: 2416 MHz	**Channel 42: 2443 MHz**	**Channel 69: 2470 MHz**
Channel 16: 2417 MHz	**Channel 43: 2444 MHz**	**Channel 70: 2471 MHz**
Channel 17: 2418 MHz	**Channel 44: 2445 MHz**	**Channel 71: 2472 MHz**
Channel 18: 2419 MHz	**Channel 45: 2446 MHz**	**Channel 72: 2473 MHz**
Channel 19: 2420 MHz	**Channel 46: 2447 MHz**	**Channel 73: 2474 MHz**
Channel 20: 2421 MHz	**Channel 47: 2448 MHz**	**Channel 74: 2475 MHz**
Channel 21: 2422 MHz	**Channel 48: 2449 MHz**	**Channel 75: 2476 MHz**
Channel 22: 2423 MHz	**Channel 49: 2450 MHz**	**Channel 76: 2477 MHz**
Channel 23: 2424 MHz	**Channel 50: 2451 MHz**	**Channel 77: 2478 MHz**
Channel 24: 2425 MHz	**Channel 51: 2452 MHz**	**Channel 78: 2479 MHz**
Channel 25: 2426 MHz	**Channel 52: 2453 MHz**	**Channel 79: 2480 MHz**
Channel 26: 2427 MHz	**Channel 53: 2454 MHz**	
Channel 27: 2428 MHz	**Channel 54: 2455 MHz**	

Frequency Range : 2.402 GHz to 2.480 GHz

Note :

1. All channels located in the frequency range as below :

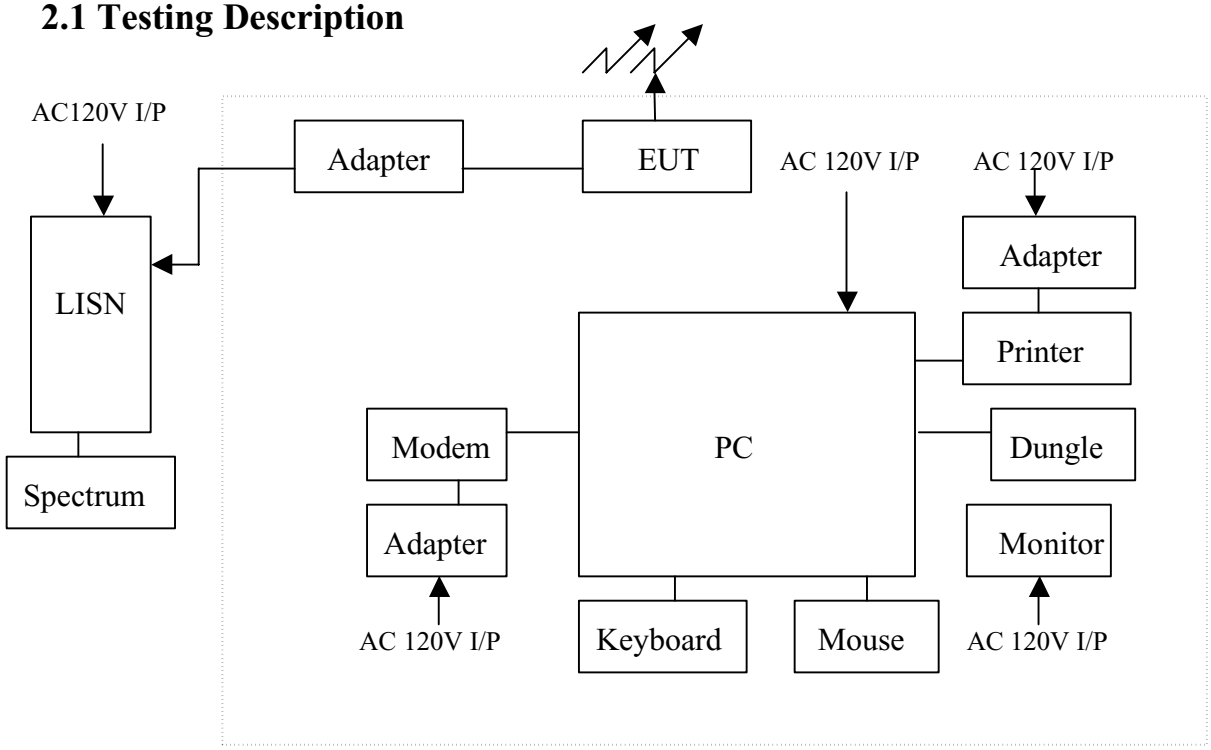
2.4 GHz --- 2.4835 GHz ☑ Yes ☐ No

Typical Channel for testing :

Channel	Channel Number	Frequency (GHz)
LOW	1	2.402
MID	40	2.441
HIGH	79	2.480

Ⅱ. 15.207 Power Line Conducted Emission Test

2.1 Testing Description



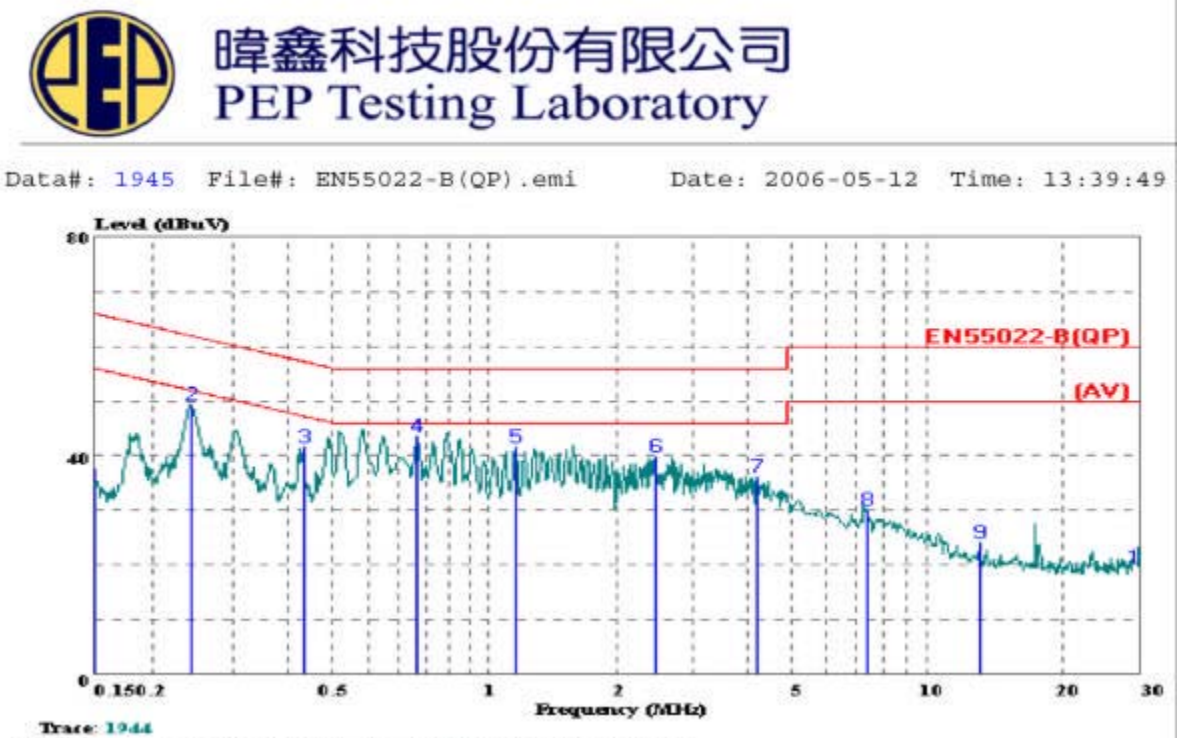
2.2 Software Using

The driver of “CSR BlueSuite” is used to select the support channel as mentioned on section 1.3 (b) listed above

2.3 Test Result

EUT Model No. GPT800 (LINE)

Detector : Peak Value



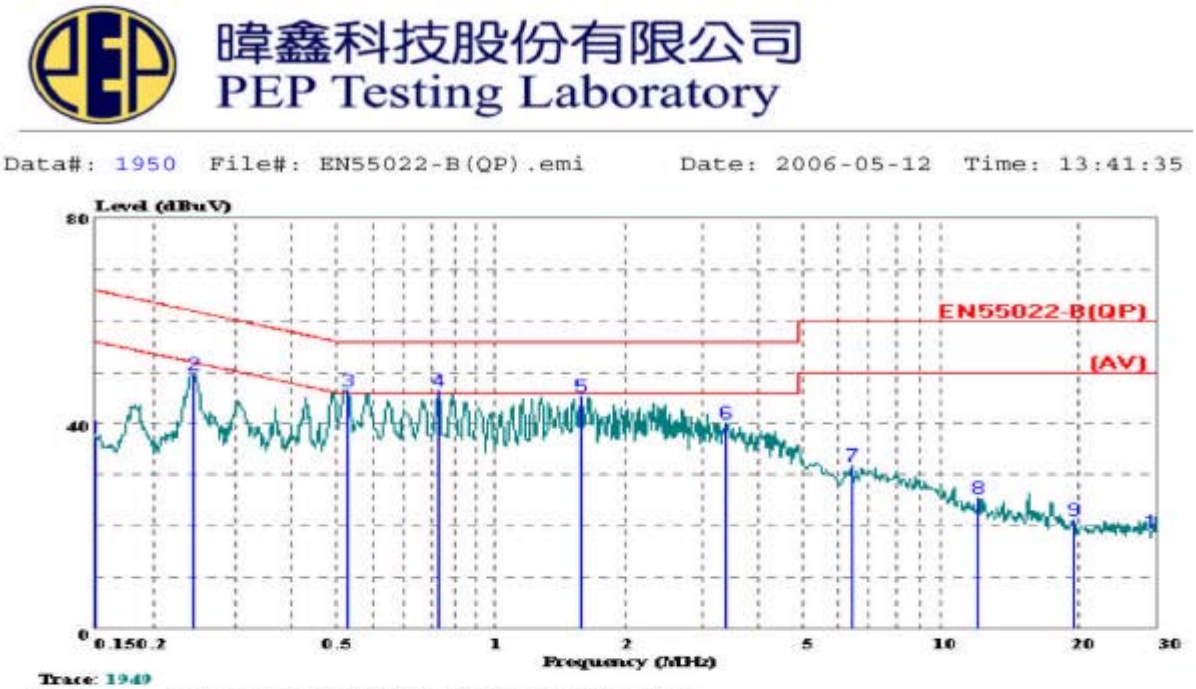
Site : Conduction No.2(Mick)-Linko site
Condition: EN55022-B(QP) LISN.L(32A) LINE
eut : E950244
power : AC 120V 60Hz
memo : Peak Value

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.150	34.37	-31.63	66.00	34.26	0.10	0.01	
2	0.244	49.30	-12.65	61.95	49.09	0.10	0.11	
3	0.431	41.49	-15.75	57.24	41.23	0.10	0.16	
4	0.767	43.51	-12.49	56.00	43.20	0.10	0.21	
5	1.262	41.54	-14.46	56.00	41.15	0.13	0.26	
6	2.567	39.88	-16.12	56.00	39.34	0.20	0.34	
7	4.269	36.16	-19.84	56.00	35.54	0.21	0.41	
8	7.486	30.05	-29.95	60.00	29.30	0.27	0.48	
9	13.267	24.02	-35.98	60.00	23.00	0.37	0.65	
10	30.000	19.40	-40.60	60.00	17.31	1.19	0.90	

EUT Model No.: GPT800 (NEUTRAL)

Detector : Peak Value



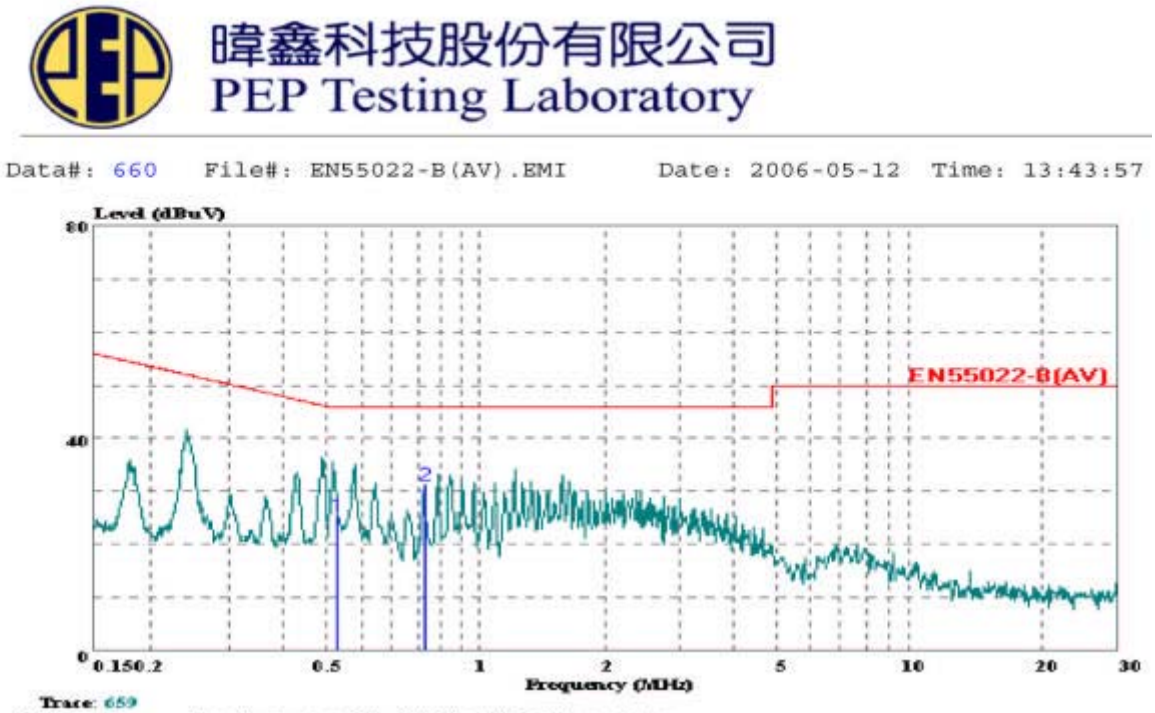
Site : Conduction No.2(Mick)-Linko site
Condition: EN55022-B(QP) LISN.N(32A) NEUTRAL
eut : E950244
power : AC 120V 60Hz
memo : Peak Value

Page: 1

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.150	37.34	-28.66	66.00	37.23	0.10	0.01	
2		0.246	49.61	-12.30	61.91	49.40	0.10	0.11	
3	!	0.529	46.54	-9.46	56.00	46.26	0.10	0.18	
4	!	0.826	46.39	-9.61	56.00	46.08	0.10	0.21	
5		1.689	45.35	-10.65	56.00	44.88	0.18	0.29	
6		3.491	40.11	-15.89	56.00	39.53	0.20	0.38	
7		6.488	31.69	-28.31	60.00	31.04	0.20	0.45	
8		12.253	25.38	-34.62	60.00	24.51	0.25	0.62	
9		19.635	21.30	-38.70	60.00	20.15	0.39	0.76	
10		30.000	18.88	-41.12	60.00	17.58	0.40	0.90	

EUT Model No.: GPT800 (NEUTRAL)

Detector : Average Value



Site : Conduction No.2(Mick)-Linko site
Condition: EN55022-B(AV) LISN.N(32A) NEUTRAL
Eut : E950244
Power : AC 120V 60Hz
Memo : Average Value

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.529	25.50	-20.50	46.00	25.22	0.10	0.18	
2	0.826	31.20	-14.80	46.00	30.89	0.10	0.21	

2.4 Conducted Emission Test Photo

EUT Model No. GPT800

< FRONT VIEW >

Ⅲ. §15.247(a)(1) : Hopping Channel Frequency Separation

3.1 Test Procedure

(1)The Hopping Channel Frequency Separation was measured in max hold analyzer mode with span wide enough to capture the peaks of two adjacent channels.

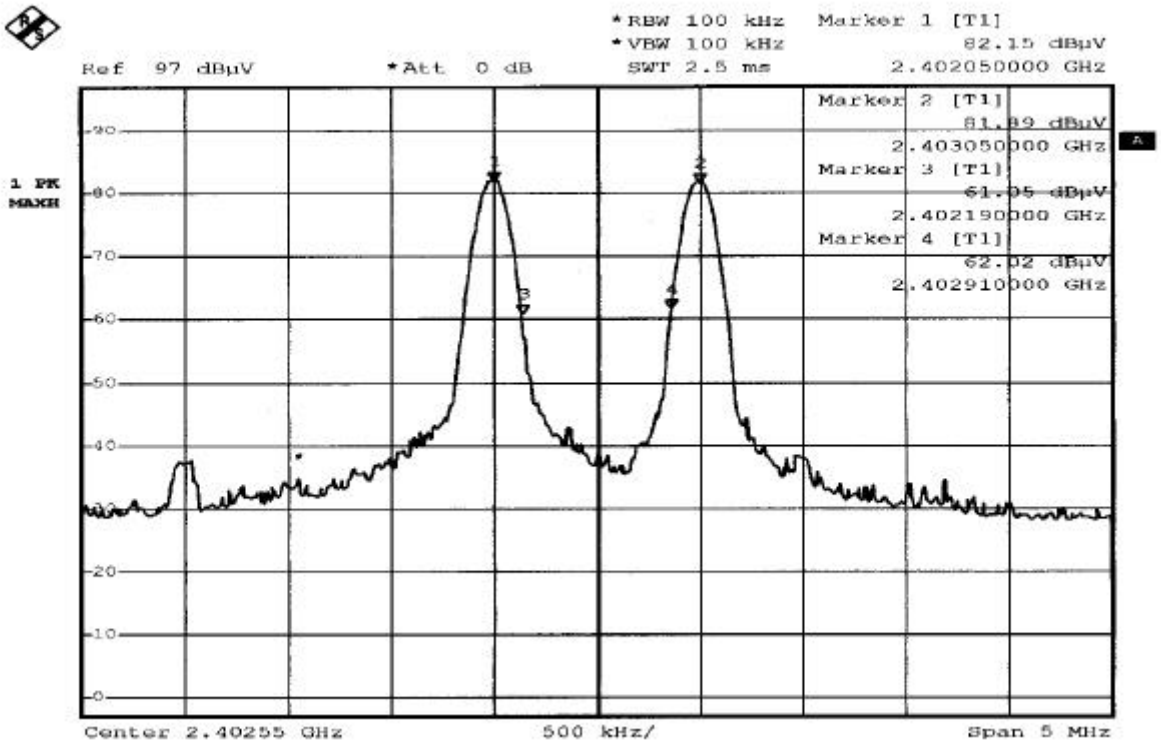
(2)Set the Spectrum as RBW=VBW=100KHz

(3) 3.3 Spectrum Plot Data show the Frequency Separation test results.

3.2 Test result of Frequency Separation

	Measured Separation （KHz）	Limit （KHz）	Pass/Fail
Channel Separation	**1000**	**25**	**Pass**
Separation at -20dB	**720**	**25**	**Pass**

3.3 Spectrum Plot Data



Ⅳ. §15.247(a)(1) : 20dB Bandwidth

4.1 Test Procedure

(1)The 20dB bandwidth was measured at the EUT antenna terminal in max hold analyzer mode with span wide enough to capture the hopping channel emissions.

(2)Set the Spectrum as RBW=VBW=10KHz

(3) 4.2 Spectrum Plot Data show the 20dB Bandwidth test results.

4.2 Test result of Bandwidth

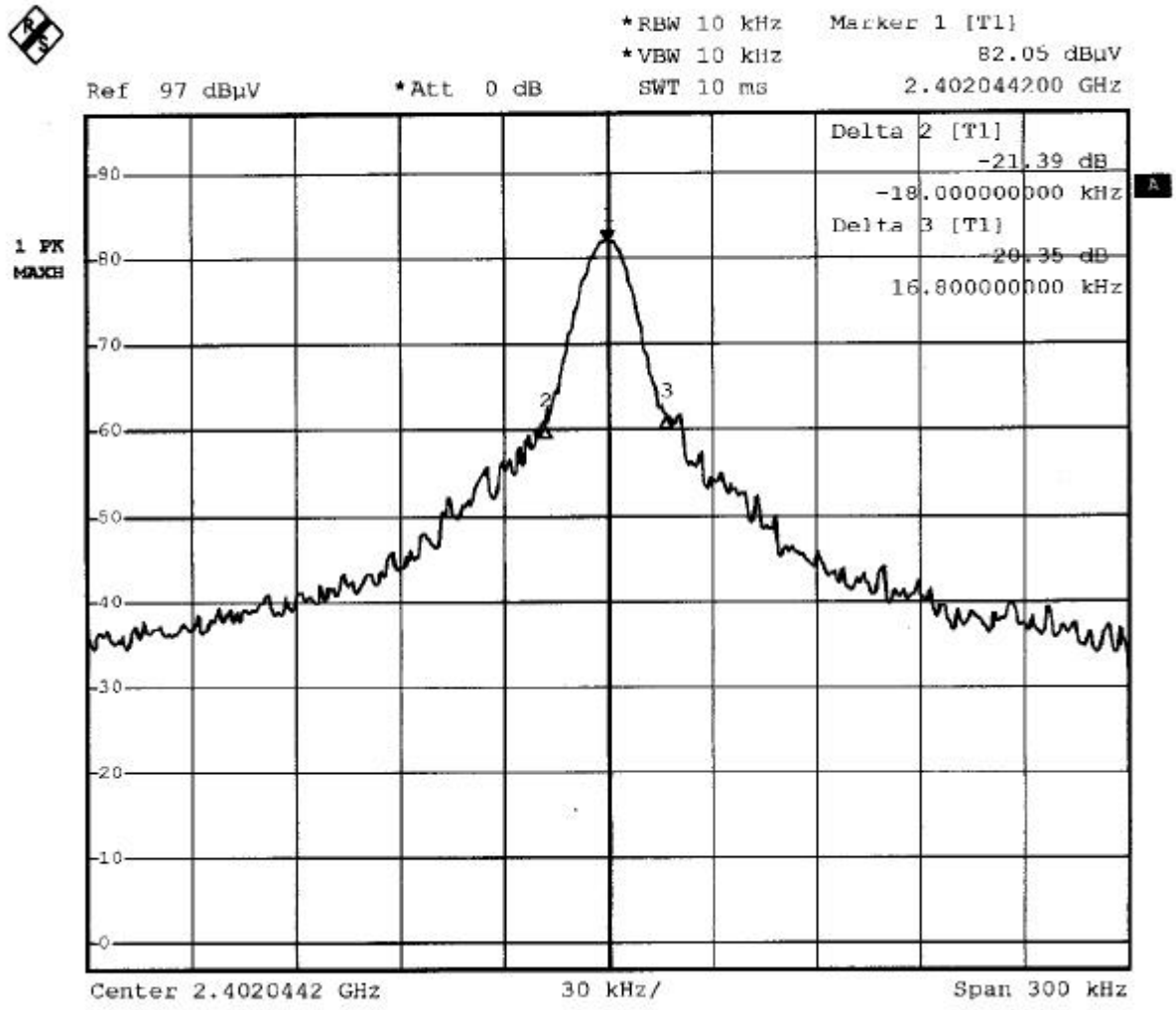
EUT Model No. GPT800

Channel	Antenna Polarity	Bandwidth (KHz)	Limit (KHz)	Pass/Fail
LOW	H	34	1000	Pass
	V	32.4	1000	Pass
MID	H	33	1000	Pass
	V	31.2	1000	Pass
HIGH	H	33	1000	Pass
	V	31.2	1000	Pass

4.3 Spectrum Plot Data

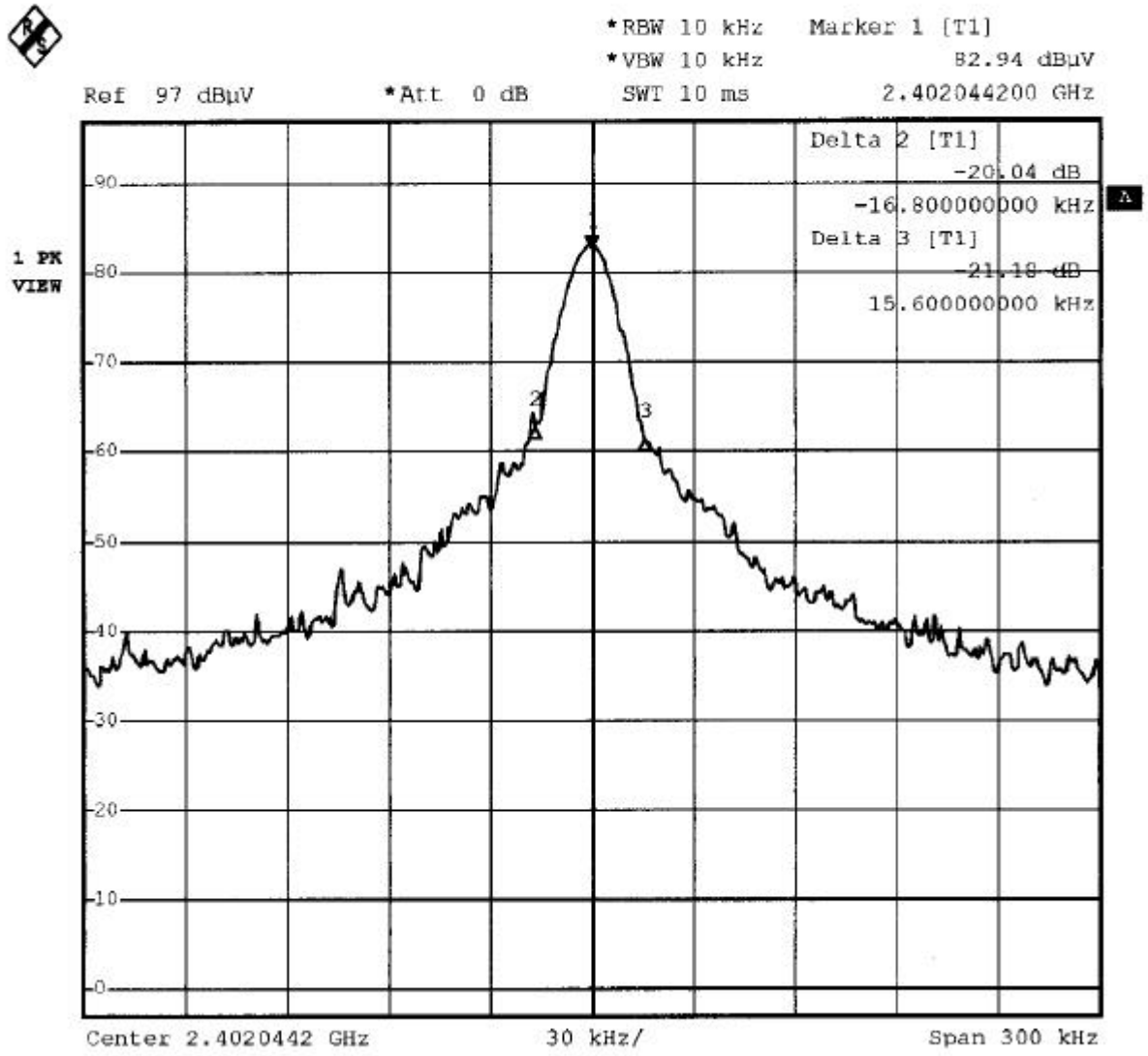
Channel : CH LOW

Polarity : Horizontal



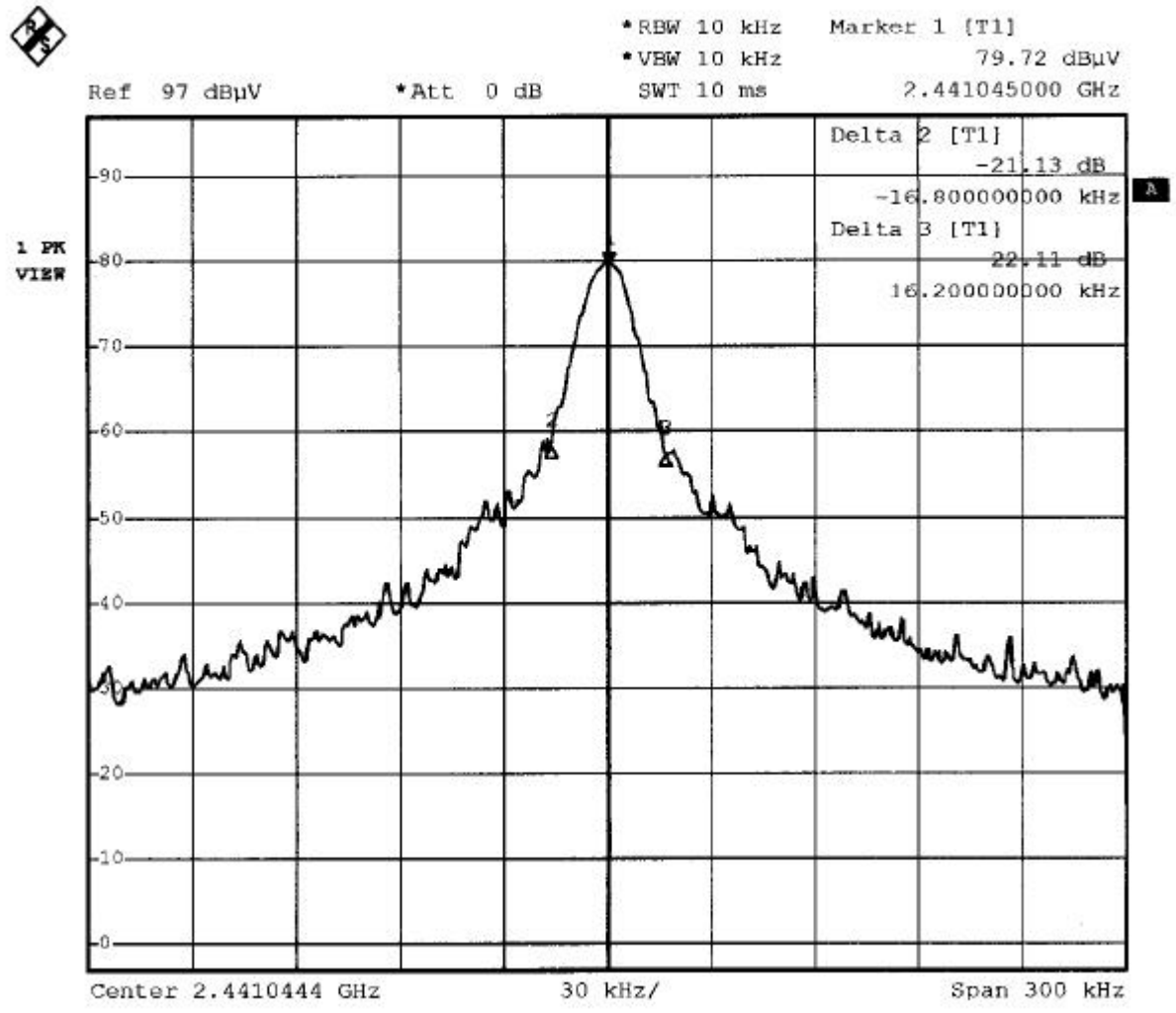
Channel : CH LOW

Polarity : Vertical



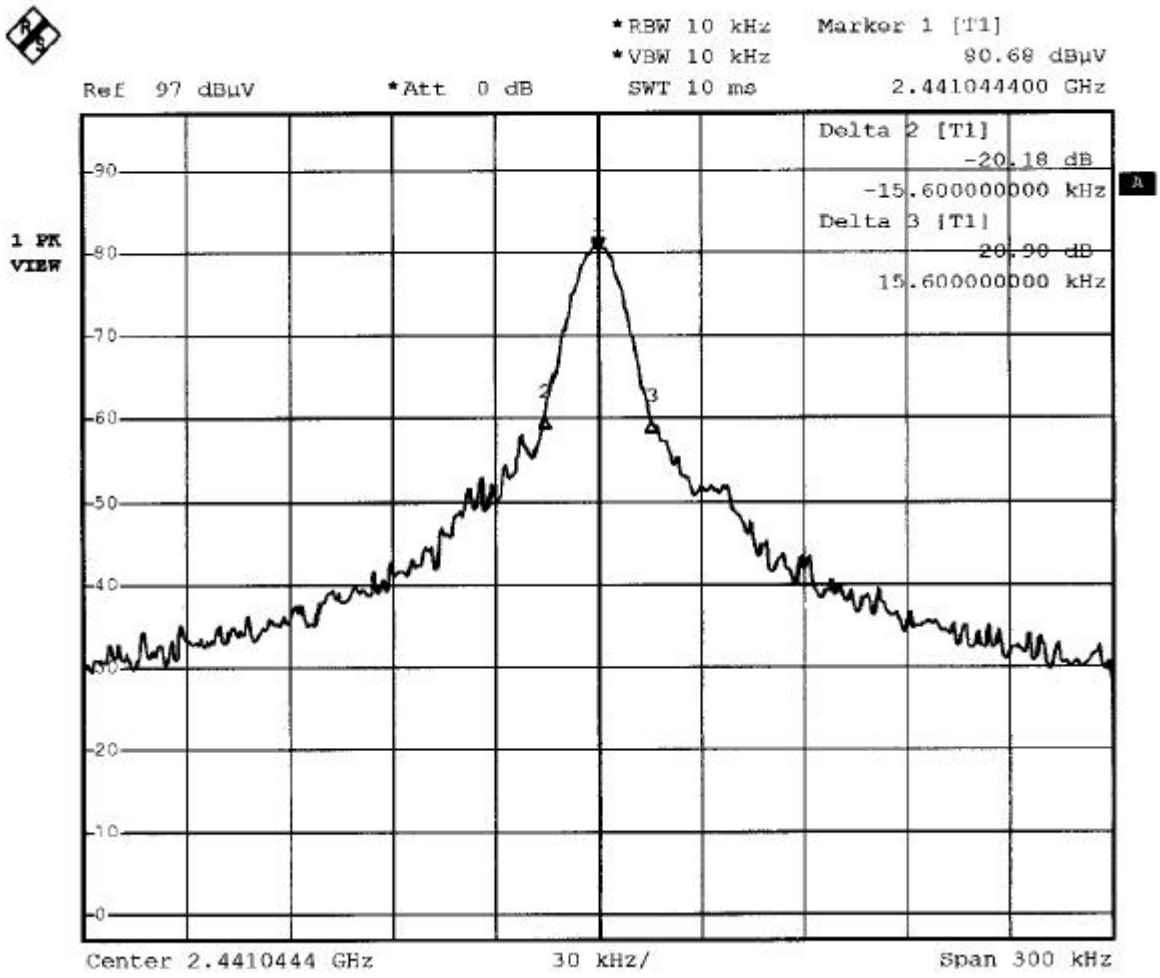
Channel : CH MID

Polarity : Horizontal



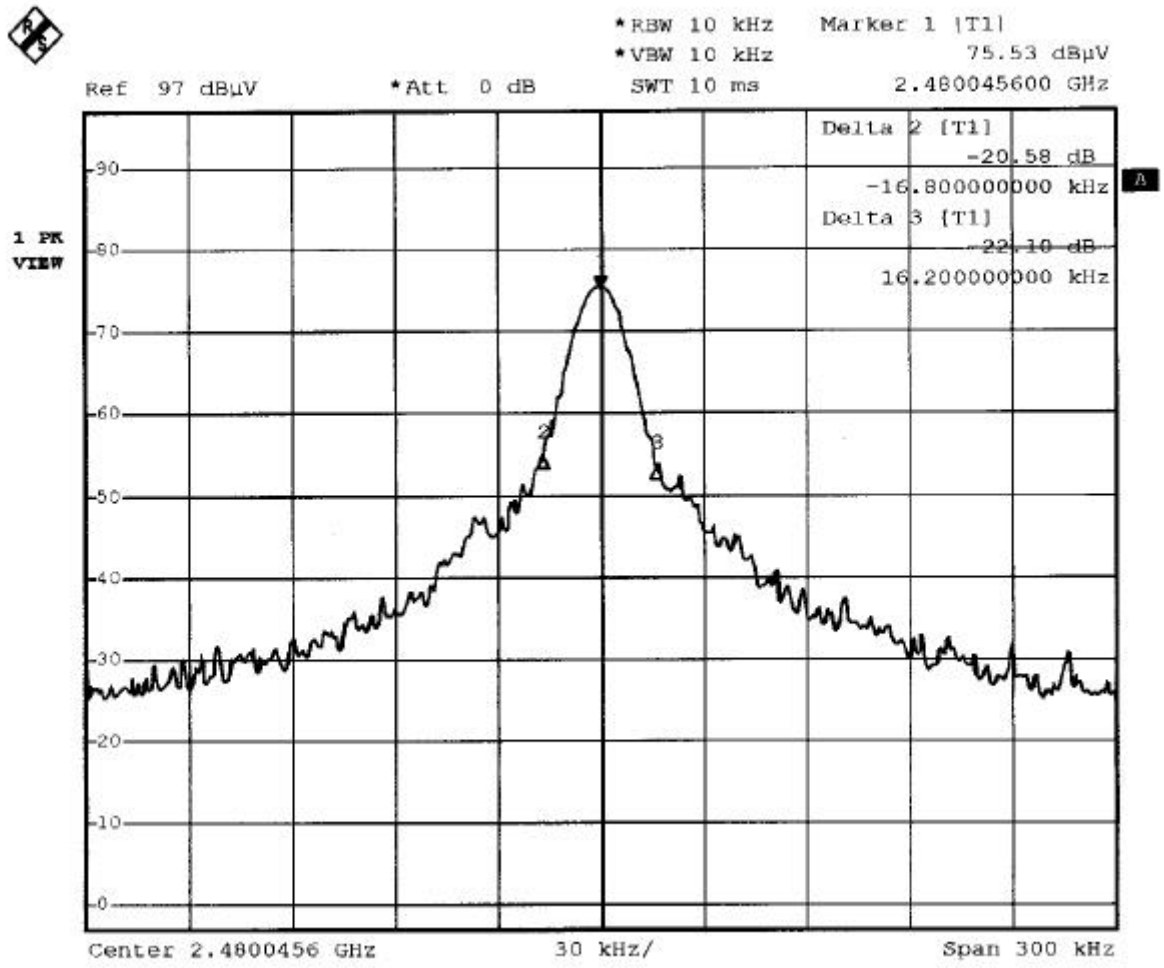
Channel : CH MID

Polarity : Vertical



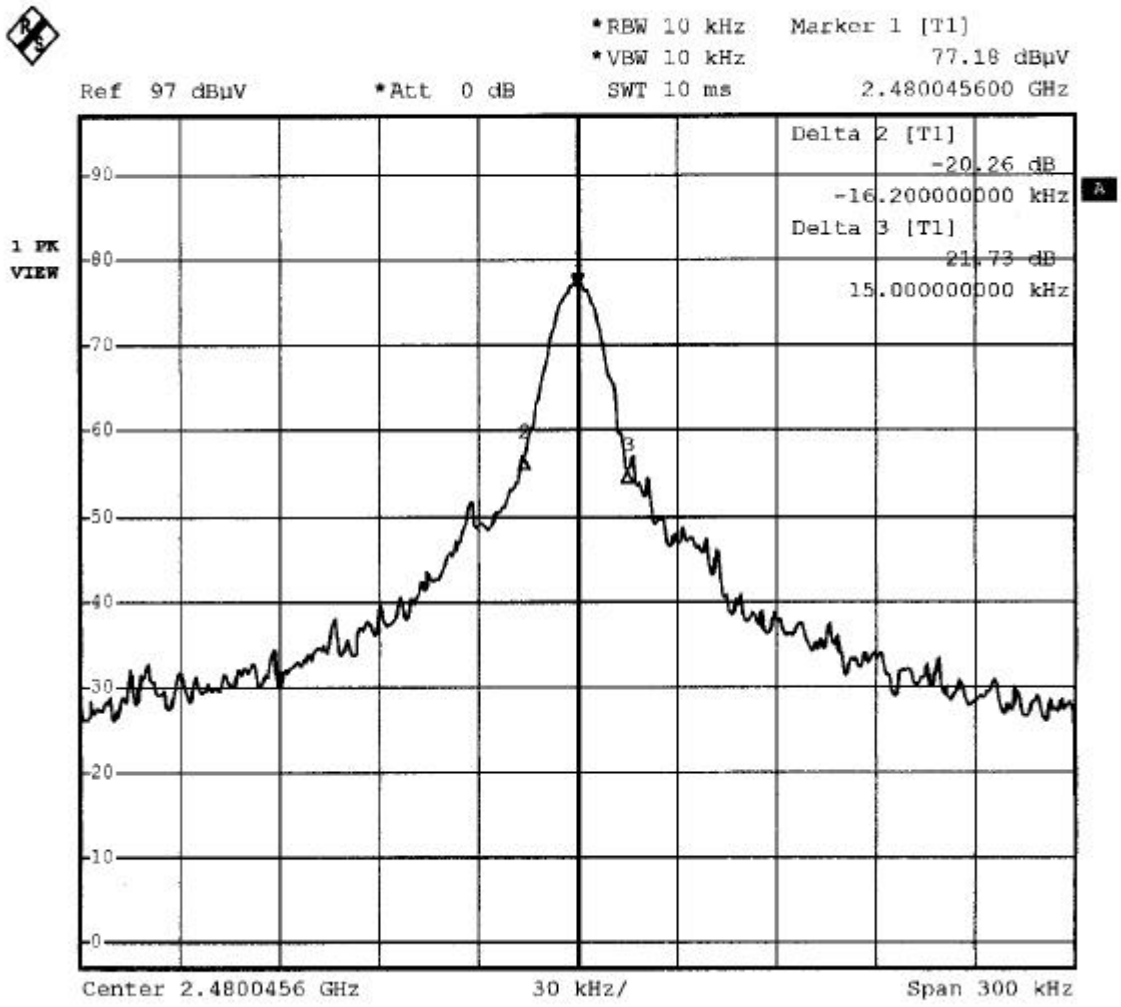
Channel : CH HIGH

Polarity : Horizontal



Channel : CH HIGH

Polarity : Vertical



Ⅴ. §15.247(a) (1): Time of Occupancy(Dwell Time)

5.1 Test Procedure

(1)The Time of Occupancy was measured in “max hold” analyzer mode with zero span and different sweep time to calculate the Time of Occupancy.

(2)Set the Spectrum as RBW=VBW=1MHz

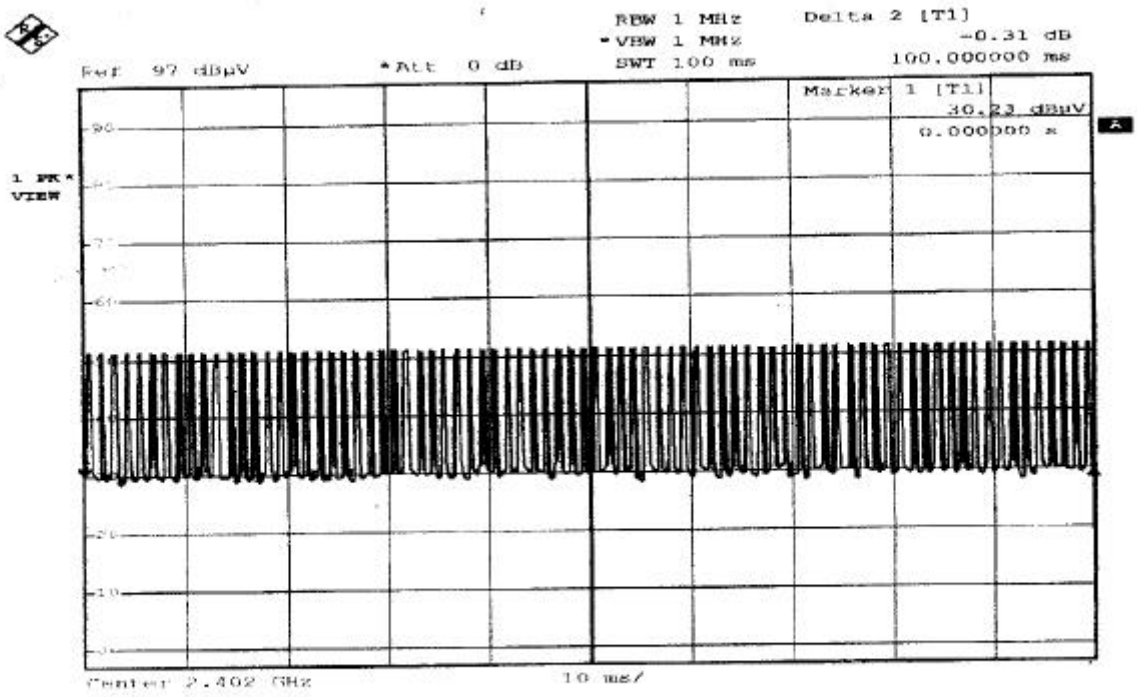
(3)5.3 Spectrum Plot Data show the Time of Occupancy test results.

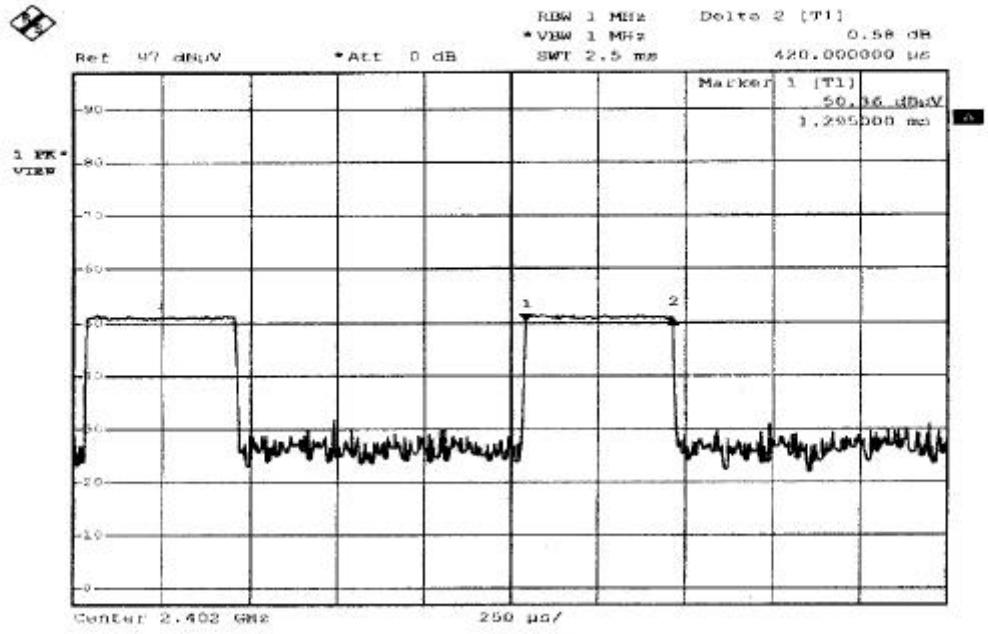
5.2 Test Result of Dwell Time

Dwell Time= 0.42*80= 33.6ms < 0.4s

PEP Testing Laboratory
12-3Fl, No. 27-1, Lane 169, Kang-Ning St., Hsi-Chih,
Taipei Hsien, Taiwan, R. O. C.
TEL: 886-2-26922097 FAX: 886-2-26956236

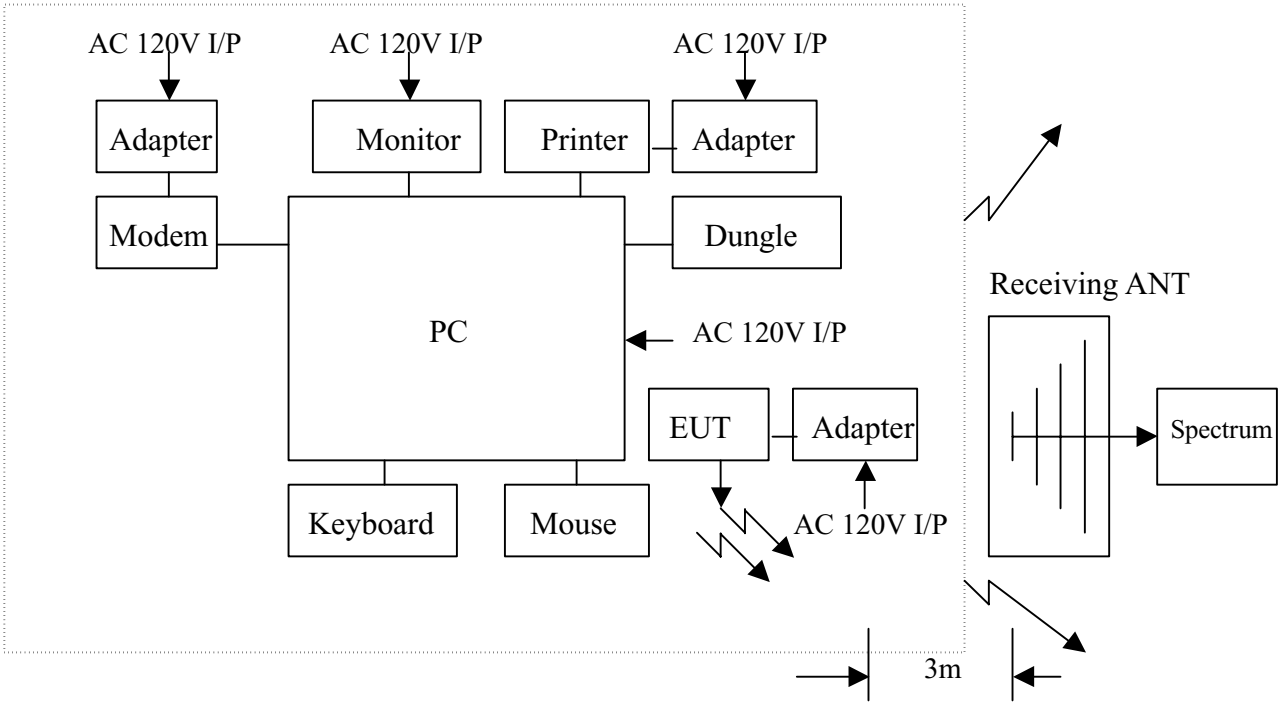
5.3 Spectrum Plot Data





Ⅵ. §15.247(b) : The maximum peak output power (≦ 1watt)

6.1 Testing Description



Three channels were tested : CH LOW, CH MID AND CH HIGH Measurements were taken by using both horizontal and vertical antenna polarization, and the antenna was raised and lowered from one to four meters to find the worst emission levels.

6.2 Software Using

The driver of "CSR BlueSuite" is used to select the support channel as mentioned on section 1.3 (b) listed above

6.3 Test Result of Fundamental Emissions

EUT Model No. GPT800

Channel	Frequency (MHz)	Antenna Polarity (H/V)	Level (dBuV/m)	C.F (dB)	E.I.R.P. (W)
LOW	2402.030	H	78.63	-2.11	$2.19*10^{-5}$
	2402.040	V	78.76	-2.11	$2.25*10^{-5}$
MID	2441.010	H	76.28	-2.01	$1.27*10^{-5}$
	2441.050	V	76.88	-2.01	$1.46*10^{-5}$
HIGH	2480.020	H	72.62	-1.94	$5.48*10^{-6}$
	2480.070	V	73.93	-1.94	$7.42*10^{-6}$

Note :

1. "C.F. " means corrected factor=antenna factor + cable loss- preamplifier gain.
1. Level means emission amplitude = S.P. + C.F. + duty cycle factor
2. Conducted output power : $P = (E\ d)^2 / 30G$

   where E (V) = Level (V)

   d (m) = measurement distance = 3m

   G = 1 (the gain of the transmitting antenna over isotropic antenna)

   P = E.I.R.P.
3. Example :

   If Level = 120 dBuV/m

   $10^{(120/20)} \times 10^{-6} = 1$ V

   E.I.R.P. = $(1 \times 3)^2 / 30 = 300$ mW

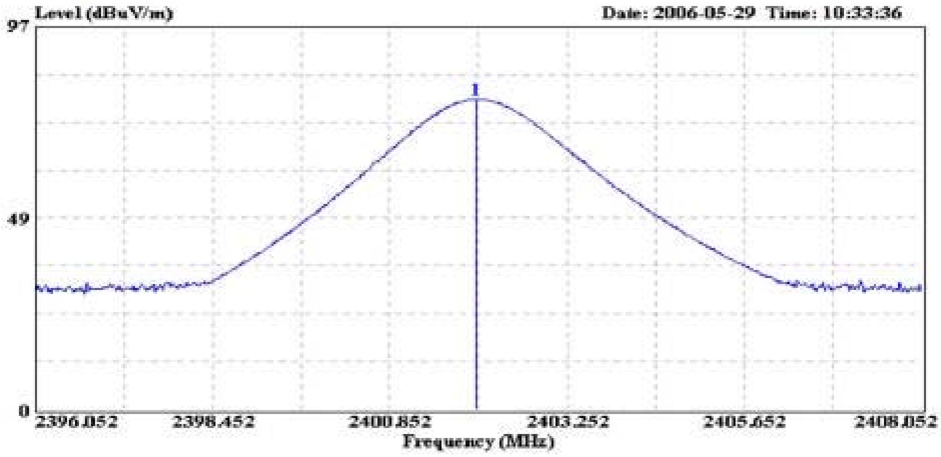
EUT Model No. GPT800

Channel : CH LOW

Polarity : Horizontal

瑋鑫科技股份有限公司
PEP Testing Laboratory

Data#: 1 File#: C:\tmp\客戶\高波航電.EMI



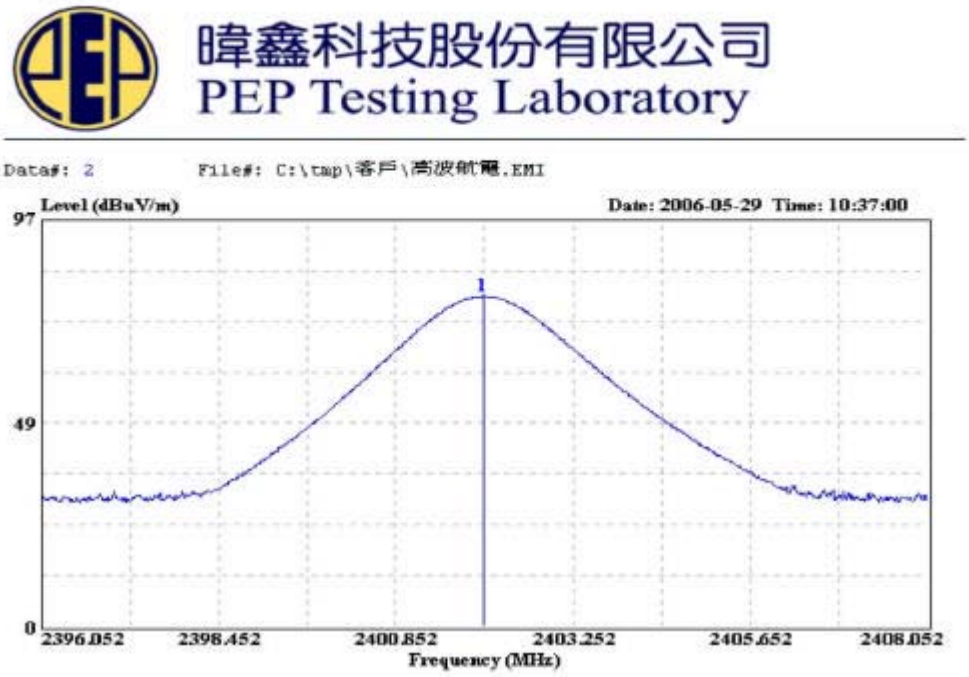
Site : Shih-Chi : Chamber No.1
Condition : 3m HORN.3H HORIZONTAL
EUT : E950244
Power : AC 120V 60Hz
Memo : TX ON Channel 1
Memo : The maximum peak output power

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB
1	2402.030	78.63	------	------	80.74	-2.11

- 1 -

Channel : CH LOW

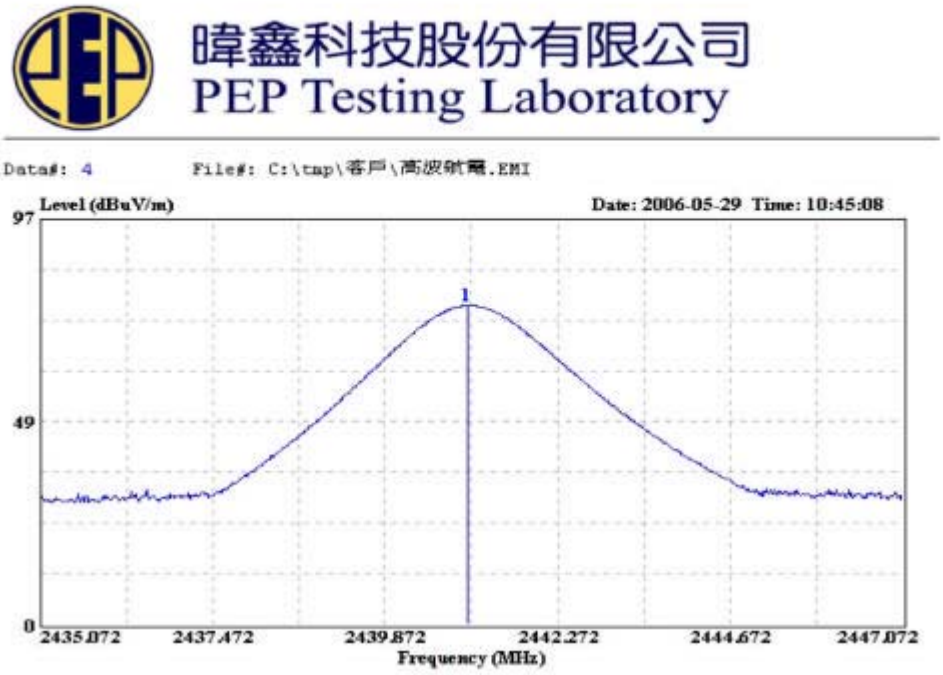
Polarity : Vertical




```
Site       : Shih-Chi : Chamber No.1
Condition  : 3m HORN.3V VERTICAL
EUT        : E950244
Power      : AC 120V 60Hz
Memo       : TX ON Channel 1
Memo       : The maximum peak output power
                        Over  Limit   Read
           Freq  Level  Limit   Line  Level Factor
          ------ ------ ------ ------ ------ ------
            MHz dBuV/m     dB dBuV/m   dBuV     dB

  1   2402.040  78.76 ------ ------  80.87  -2.11
```

Channel : CH MID

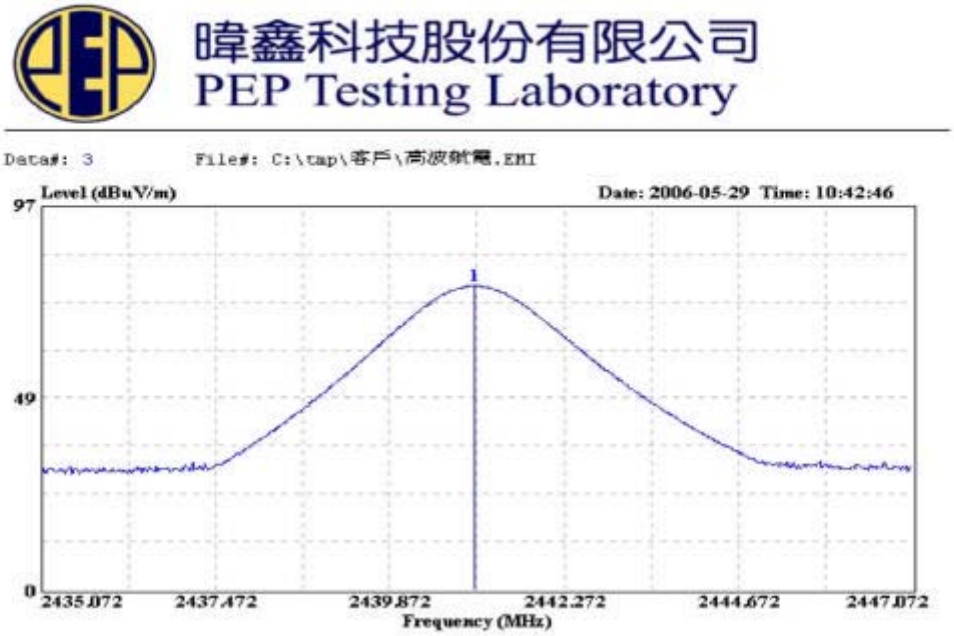
Polarity : Horizontal




```
Site      : Shih-Chi : Chamber No.1
Condition : 3m HORN.3H HORIZONTAL
EUT       : E950244
Power     : AC 120V 60Hz
Memo      : TX ON Channel 40
Memo      : The maximum peak output power
                      Over  Limit   Read
          Freq  Level Limit  Line  Level Factor
          MHz dBuV/m    dB dBuV/m  dBuV    dB

  1   2441.010  76.28 ------ ------ 78.29 -2.01
```

Channel : CH MID

Polarity : Vertical



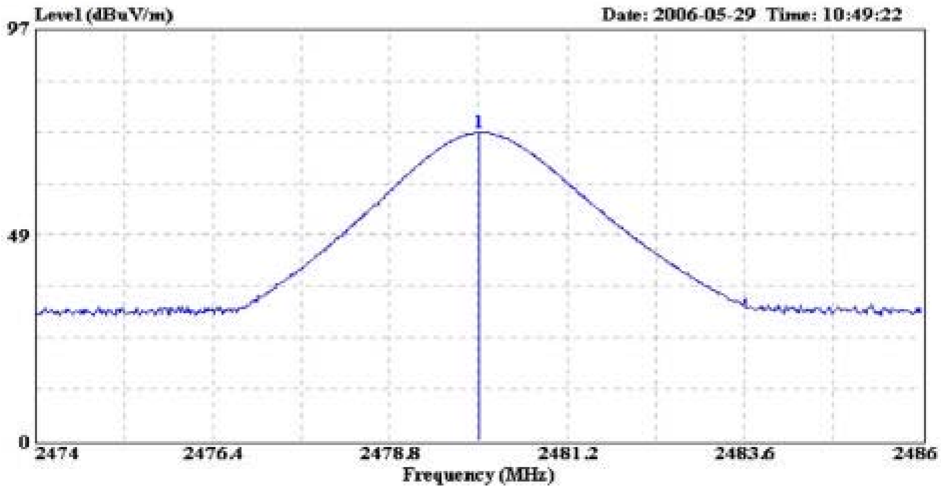

```
Site      : Shih-Chi : Chamber No.1
Condition : 3m HORN.3V VERTICAL
EUT       : E950244
Power     : AC 120V 60Hz
Memo      : TX ON Channel 40
Memo      : The maximum peak output power
                        Over  Limit   Read
          Freq  Level  Limit   Line  Level Factor
          MHz dBuV/m     dB dBuV/m   dBuV     dB

  1   2441.050  76.88 ------ ------  78.89  -2.01
```

Channel : CH HIGH

Polarity : Horizontal

暐鑫科技股份有限公司
PEP Testing Laboratory

Data#: 5 File#: C:\tmp\客戶\高波射頻.EMI



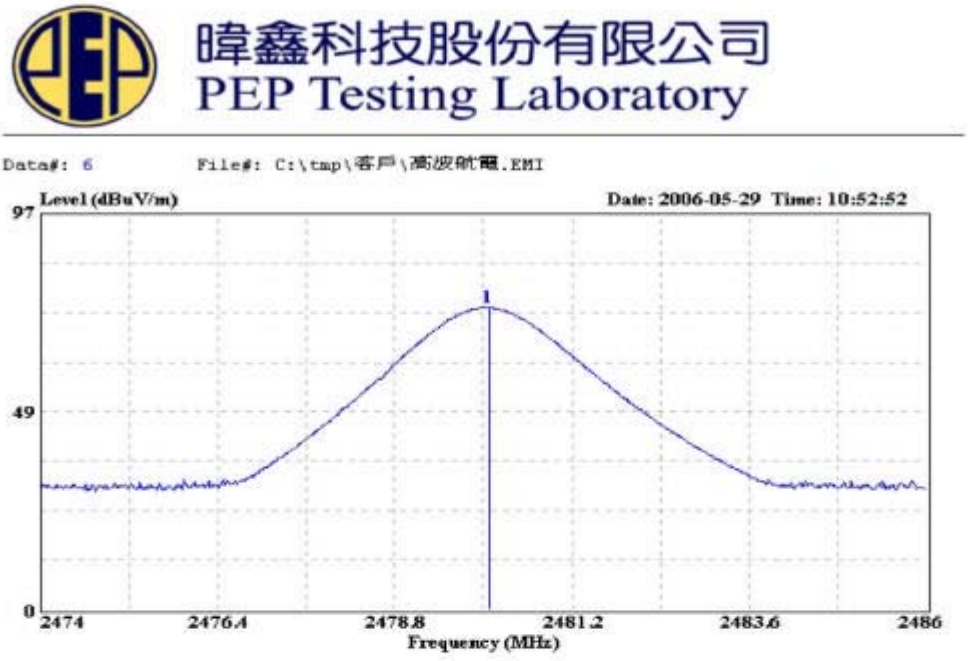
Site : Shih-Chi : Chamber No.1
Condition : 3m HORN.3H HORIZONTAL
EUT : E950244
Power : AC 120V 60Hz
Memo : TX ON Channel 79
Memo : The maximum peak output power

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB
1	2480.020	72.62	------	------	74.56	-1.94

- 1 -

Channel : CH HIGH

Polarity : Vertical



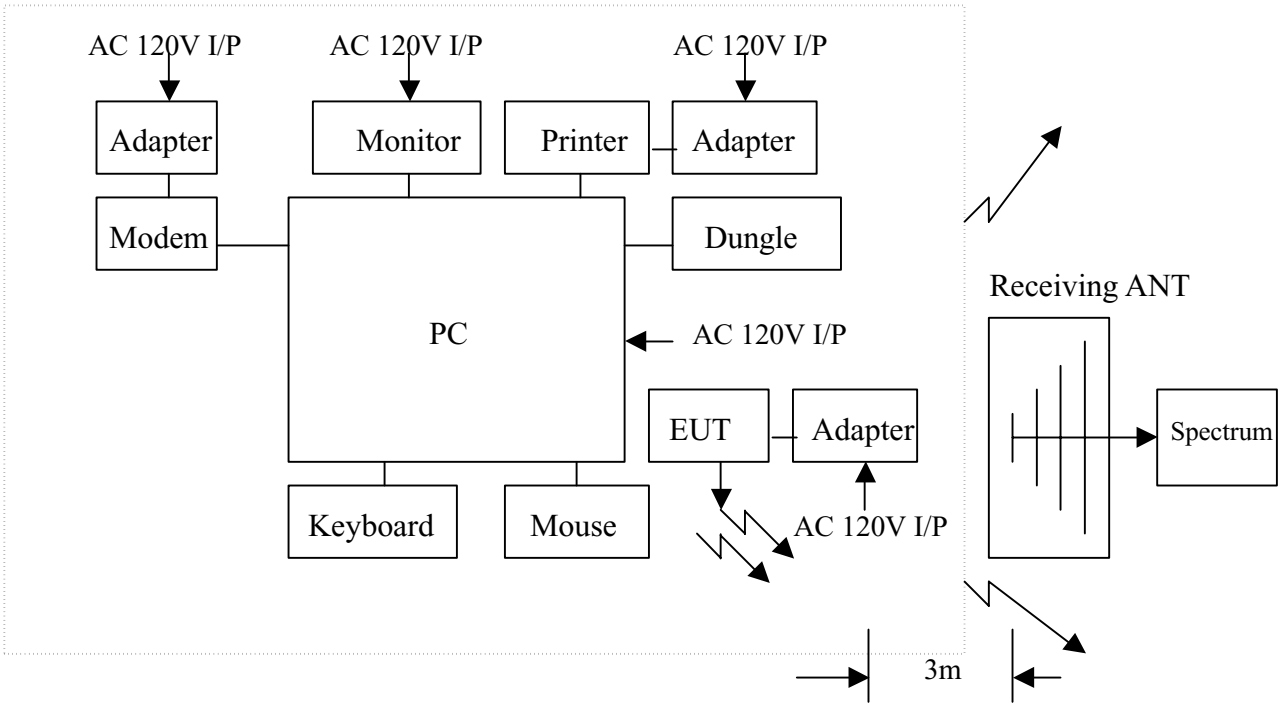

```
Site      : Shih-Chi : Chamber No.1
Condition : 3m HORN.3V VERTICAL
EUT       : E950244
Power     : AC 120V 60Hz
Memo      : TX ON Channel 79
Memo      : The maximum peak output power
                          Over  Limit   Read
          Freq  Level  Limit   Line  Level Factor
          ---------- ------ ------ ------ ------
            MHz dBuV/m     dB dBuV/m   dBuV     dB

  1   2480.070  73.93 ------ ------  75.87  -1.94
```

Ⅶ. §15.247(b)(4) Maximum Permissible Exposure (MPE)

7.1 MPE distance calculation

$$d = \frac{\sqrt{30G\ EIRP}}{E}$$

7.2 Device operating configurations exposure conditions



7.3 Maximum Permissible Exposure (MPE)

EUT Model No. GPT800

Channel	Frequency (MHz)	A.P. (H/V)	C.F. (dB)	Level (dBuV/m)	Power density at 20cm (m W / cm^2)
LOW	2402.030	H	-2.11	78.63	$9.73*10^{-5}$
	2402.040	V	-2.11	78.76	$1.00*10^{-4}$
MID	2441.010	H	-2.01	76.28	$5.66*10^{-5}$
	2441.050	V	-2.01	76.88	$6.50*10^{-5}$
HIGH	2480.020	H	-1.94	72.62	$2.44*10^{-5}$
	2480.070	V	-1.94	73.93	$3.30*10^{-5}$

Note :

1. P.” means antenna polarity .
2. “S.P.“ Read means amplitude read by spectrum analyzer .
3. “C.F.” means corrected factor = antenna factor + cable loss - Preamplifier Gain .
4. Level means emission amplitude = S.P. + C.F. + duty cycle factor
5. Conducted output power : $P = (E\ d)^2 / 30G$

where E (V) = Level (V)

d (m) = distance = 20 cm

G = 1 (the gain of the transmitting antenna over isotropic antenna)

P = E.I.R.P.

6. Example :

If Level = 120 dBuV/m

$10^{(120/20)} \text{ X } 10^{-6} = 1$ V

E.I.R.P. = $(1 \text{ x } 3)^2 / 30 = 300$ mW

Ⅷ. §15.247(c) : Spurious Radiated Emissions

8.1 Out side band below 1GHz

Test Results :

Model No. : GPT800
Frequency range : 30MHz - 1GHz Detector : Quasi-Peak Value
Temperature : 25° C Humidity : 60 %

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Remark
39.213	27.68	-12.32	40.00	36.26	10.93	0.99	20.50	
153.218	27.08	-16.42	43.50	30.49	15.14	1.75	20.30	
224.969	23.65	-22.35	46.00	30.84	11.17	1.85	20.21	
287.889	21.49	-24.51	46.00	27.18	12.38	2.03	20.10	
365.638	23.19	-22.81	46.00	26.66	14.24	2.39	20.10	
667.651	31.72	-14.28	46.00	27.99	20.03	3.30	19.60	

Antenna polarization : VERTICAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Remark
52.653	30.77	- 9.23	40.00	39.36	10.72	1.14	20.45	
129.796	29.25	-14.25	43.50	34.90	12.90	1.75	20.30	
154.104	32.55	-10.95	43.50	36.00	15.10	1.75	20.30	
225.940	25.69	-20.31	46.00	32.86	11.18	1.85	20.20	
325.829	26.22	-19.78	46.00	30.96	13.27	2.19	20.20	
466.567	29.56	-16.44	46.00	30.50	16.30	2.80	20.04	

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line
3. All the other frequencies are under the limits more than 20dB

8.2 Out side band above 1GHz

Test Results :

Model No. : GPT800
Frequency range : above 1GHz **Detector : Peak / Average Value**
Temperature : 25° C **Humidity :60 %**
Channel : LOW

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB/m)	Remark
4803.900	47.36	-26.64	74	42.74	4.62	PK

Antenna polarization : VERTICAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB/m)	Remark
4804.200	46.97	-27.03	74	42.35	4.62	PK

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line
3. All the other frequencies are under the limits more than 20dB

Model No. : GPT800
Frequency range : above 1GHz **Detector : Peak / Average Value**
Temperature : 25° C **Humidity : 60**
Channel : MID

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB/m)	Remark
4882.300	44.26	-29.74	74	39.26	5.00	PK

Antenna polarization : VERTICAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB/m)	Remark
4882.300	41.16	-32.84	74	36.16	5.00	PK

Note :
1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line
3. All the other frequencies are under the limits more than 20dB

Model No. : GPT800
Frequency range : above 1GHz **Detector : Peak / Average Value**
Temperature : 25° C **Humidity : 60 %**
Channel : HIGH

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB/m)	Remark
4960.200	50.46	-23.54	74	45.09	5.37	PK

Antenna polarization : VERTICAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB/m)	Remark
4960.200	47.19	-26.81	74	41.82	5.37	PK

Note :
1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line
3. All the other frequencies are under the limits more than 20dB

8.3 Spurious Radiate Emission Testing Photos

EUT Model No. GPT800

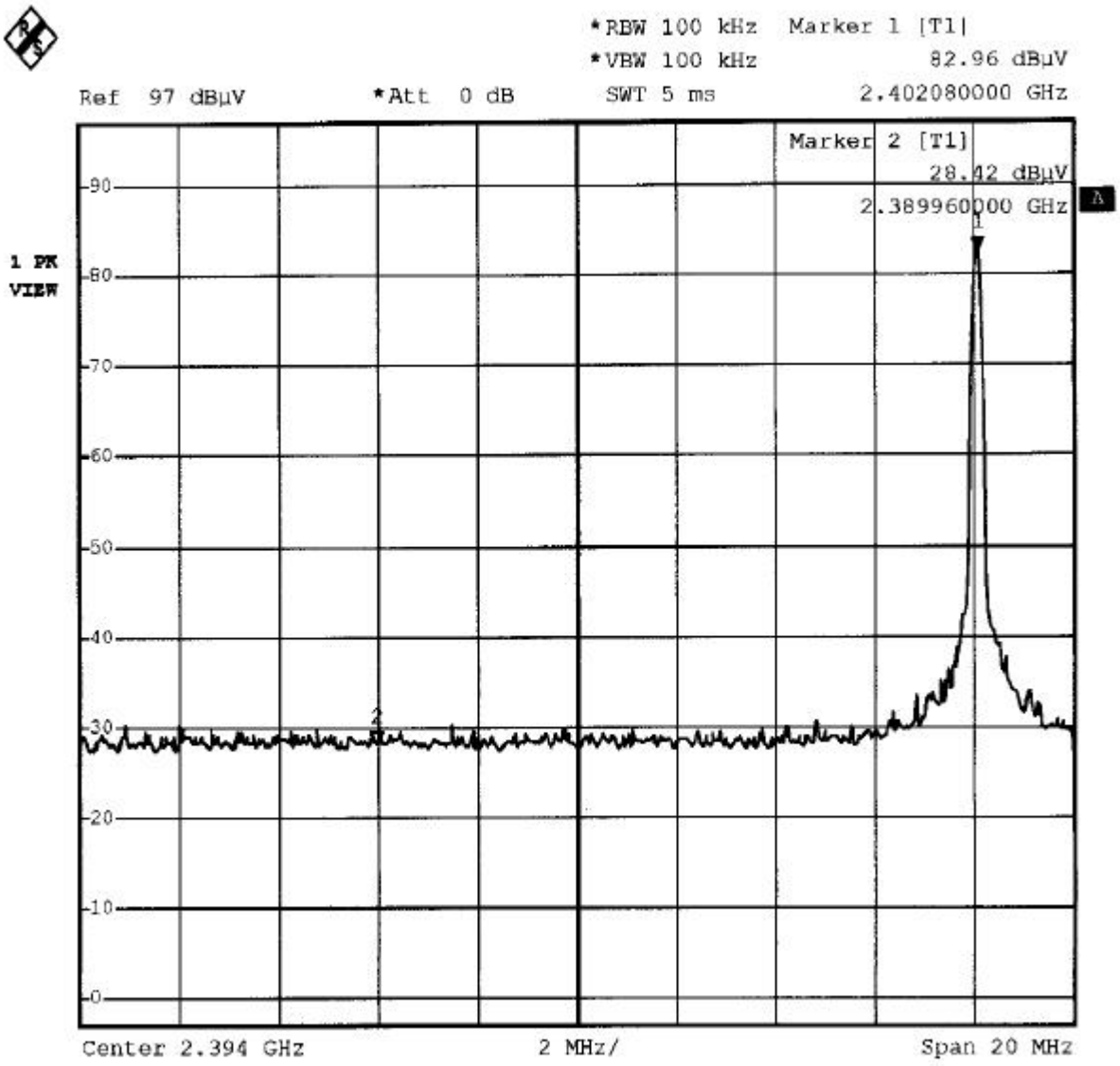
< FRONT VIEW >

< REAR VIEW >

Ⅸ. §15.247(c) : Band-edges Compliance

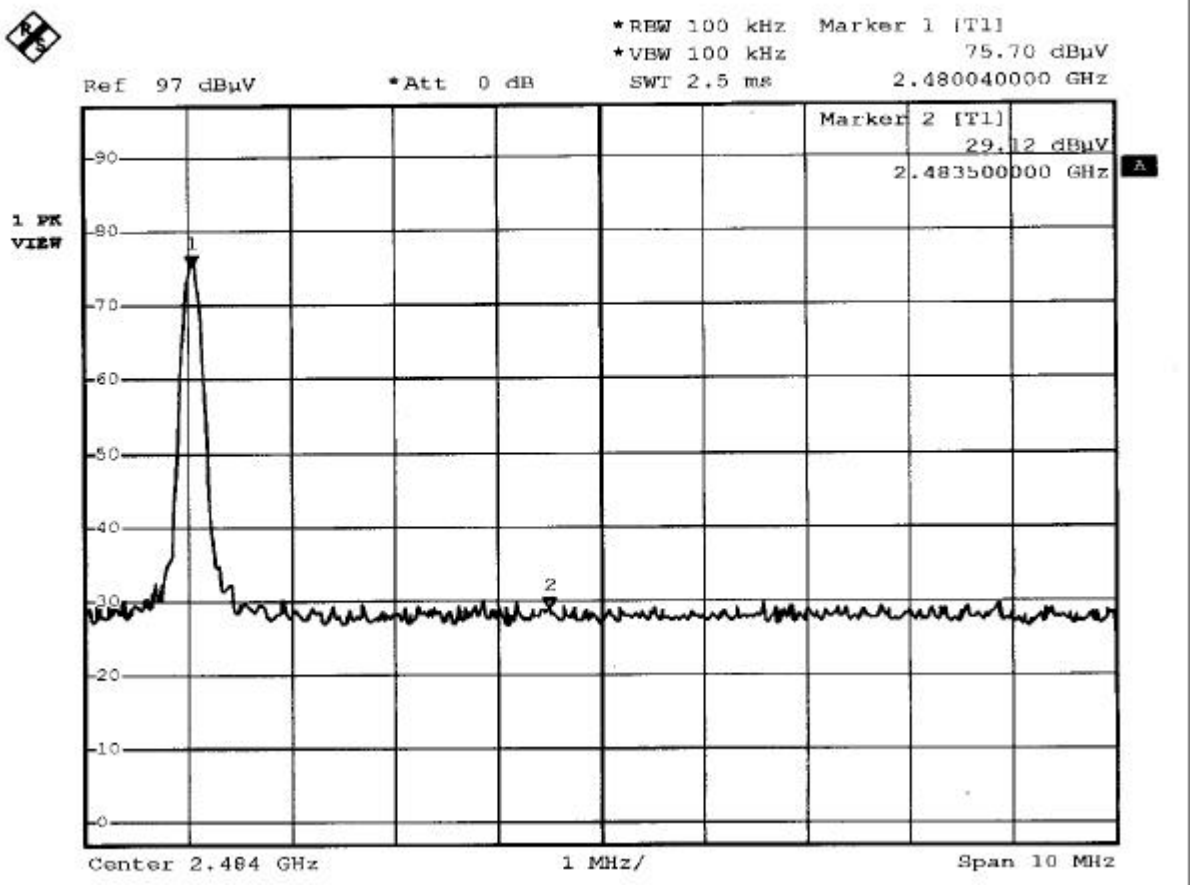
Channel : CH LOW

Polarity : Horizontal



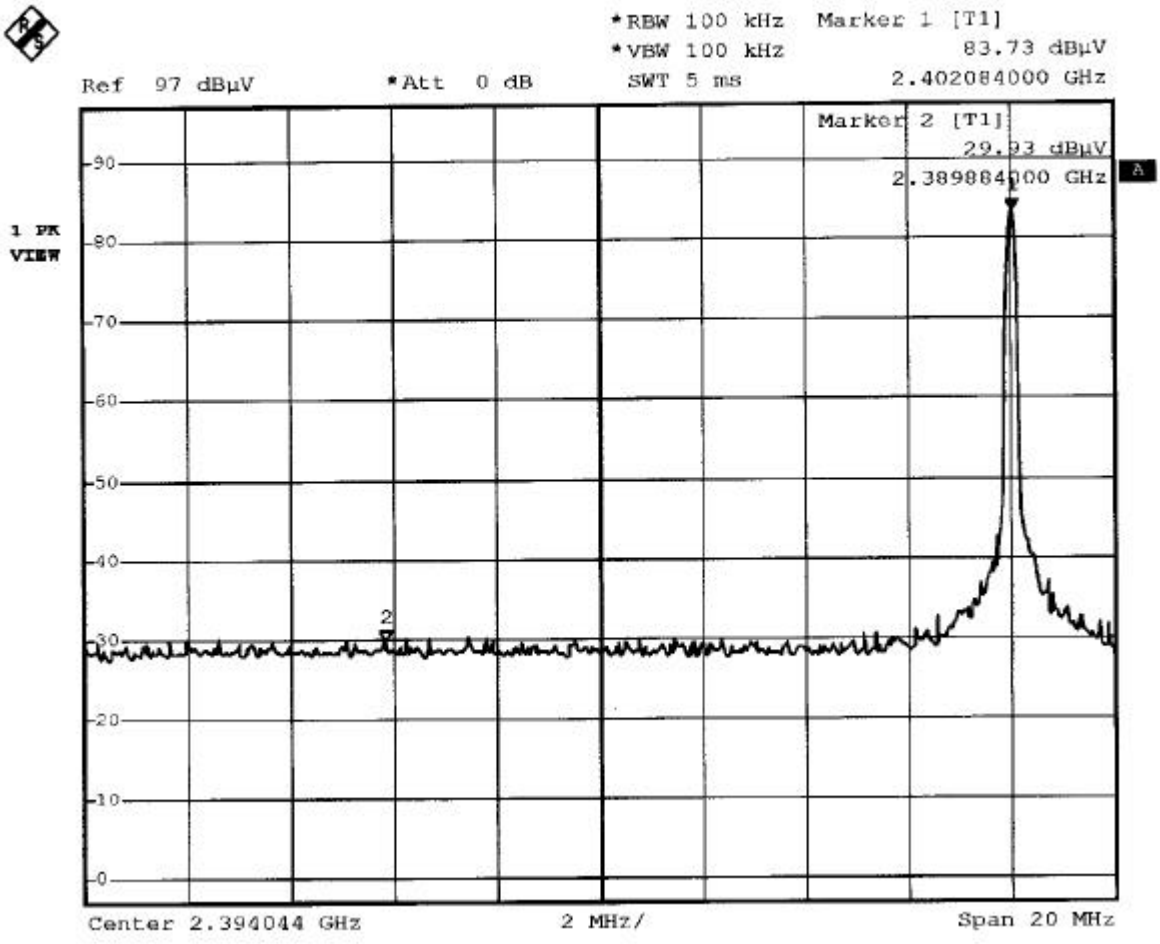
Channel : CH HIGH

Polarity : Horizontal



Channel : CH LOW

Polarity : Vertical



Test method : Public Notice DA 00-705

Detect : Peak Value

Marker-Delta method :

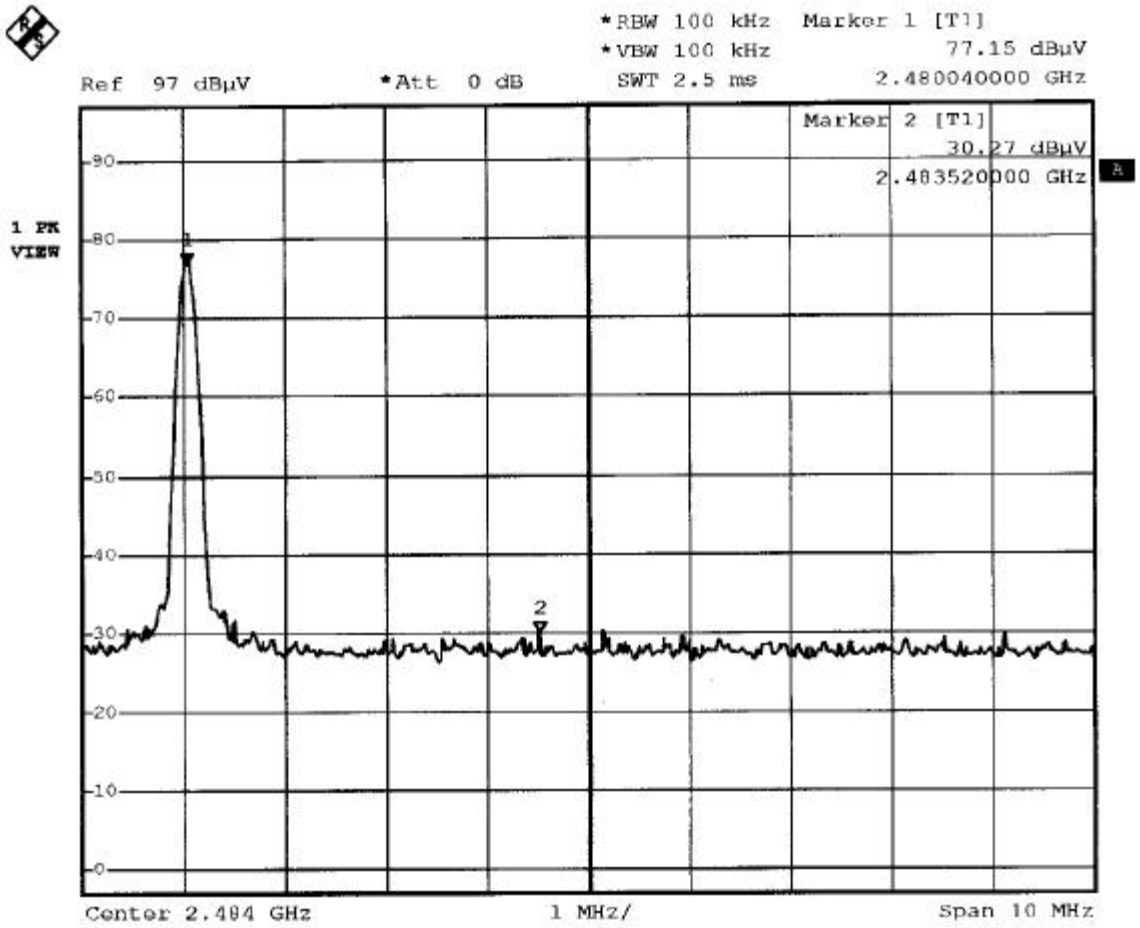
83.73dBuV/m-29.93 dBuV/m =53.8dBuV/m

83.73 dBuV/m-53.80 dBuV/m=29.93 dBuV/m

*29.93dBuV/m<Average Limit (54dBuV/m)

Channel : CH HIGH

Polarity : Vertical



Test method : Public Notice DA 00-705

Detect : Peak Value

Marker-Delta method :

77.15dBuV/m-30.27 dBuV/m =46.88dBuV/m

77.15 dBuV/m-46.88 dBuV/m=30.27 dBuV/m

*30.27dBuV/m<Average Limit (54dBuV/m)

Ⅹ. §15.247(d) : Peak Power Spectral Density

10.1 Test Procedure

(1) The Peak Power Spectral Density was measured at the EUT antenna terminal in max hold analyzer mode with span wide enough to capture the hopping channel emissions.

(2)Set Spectrum as RBW=VBW=3KHz , Sweeptime:auto.

(3)10.3 Spectrum Plot Data show the Peak Power Spectral Density test results.

10.2 Test result of Peak Power Spectral Density

Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Pass/Fail
LOW	2402.044	-43.869	8	Pass
MID	2441.044	-46.629	8	Pass
HIGH	2480.045	-49.969	8	Pass

Note:

1. “S.P. read” means spectrum analyzer read power density.
2. “C.F.” means correct factor = antenna factor + cable loss – Preamplifier Gain.
3. “Level” means power spectral density.

   E.R.P. = $(E\ d)^2 / 30G$

   where E (V) = S.P. read + C.F.

   d (m) = measurement distance = 3m

   G = 1 (the gain of the transmitting antenna over isotropic antenna)

   Example :

   If Level = 120 dBuV/m

   $10^{(120/20)} \times 10^{-6} = 1$ V

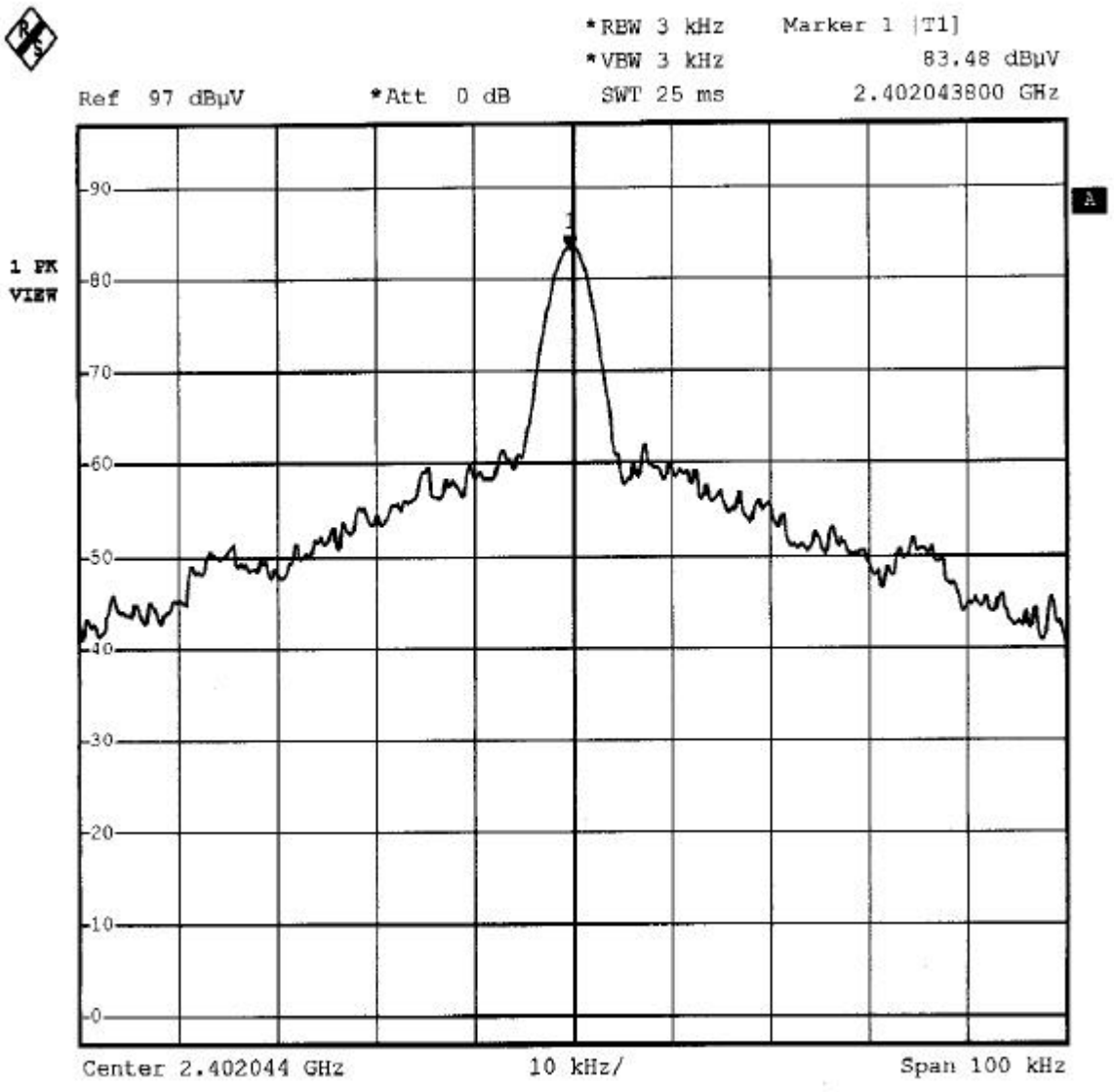
   E.R.P. = $(1 \times 3)^2 / 30$ = 300 mW = 10 Log (300mW/1mW)

   = 24.77dBm

10.3 Spectrum Plot Data

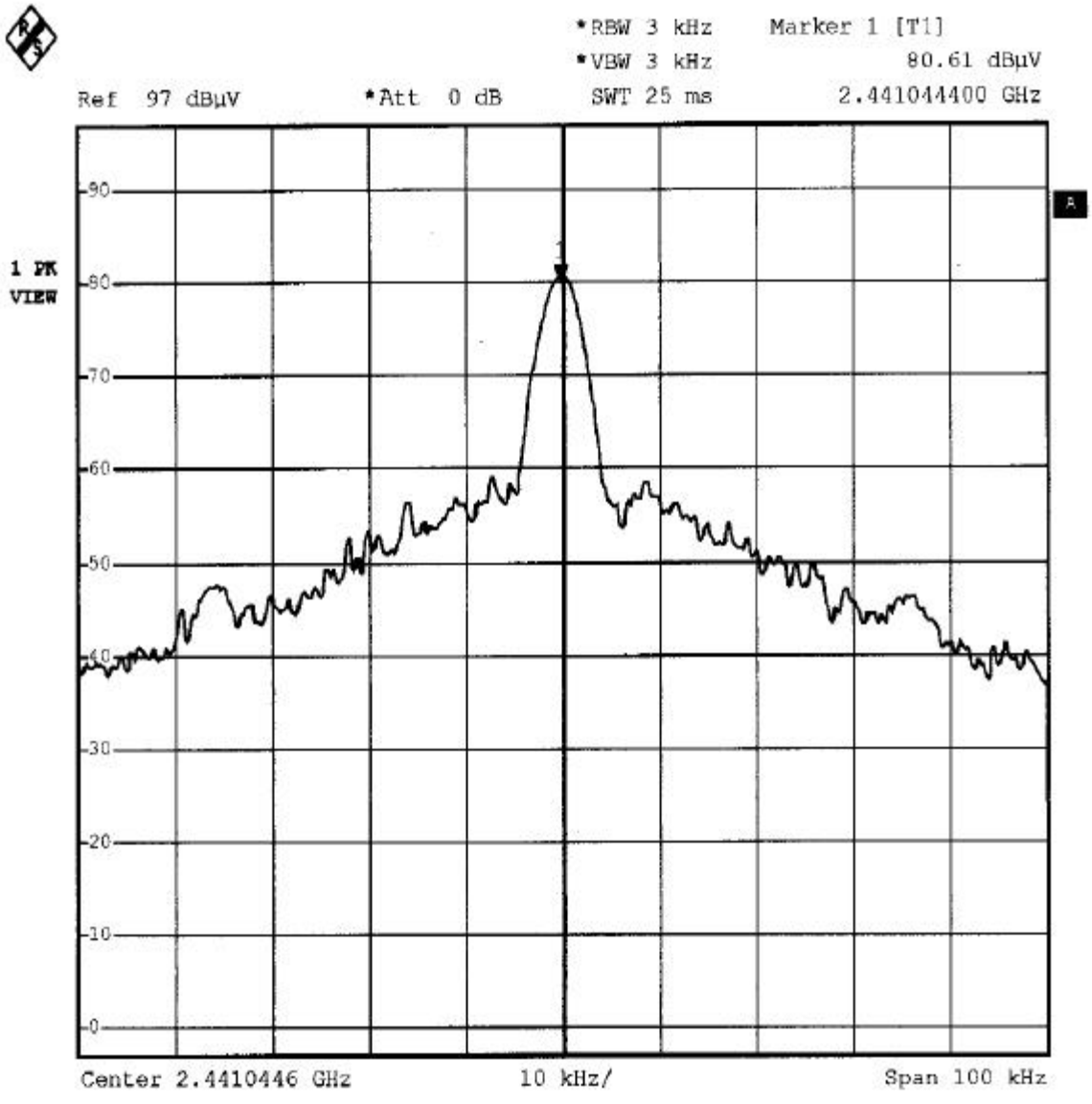
Channel : CH LOW

Polarity : Horizontal



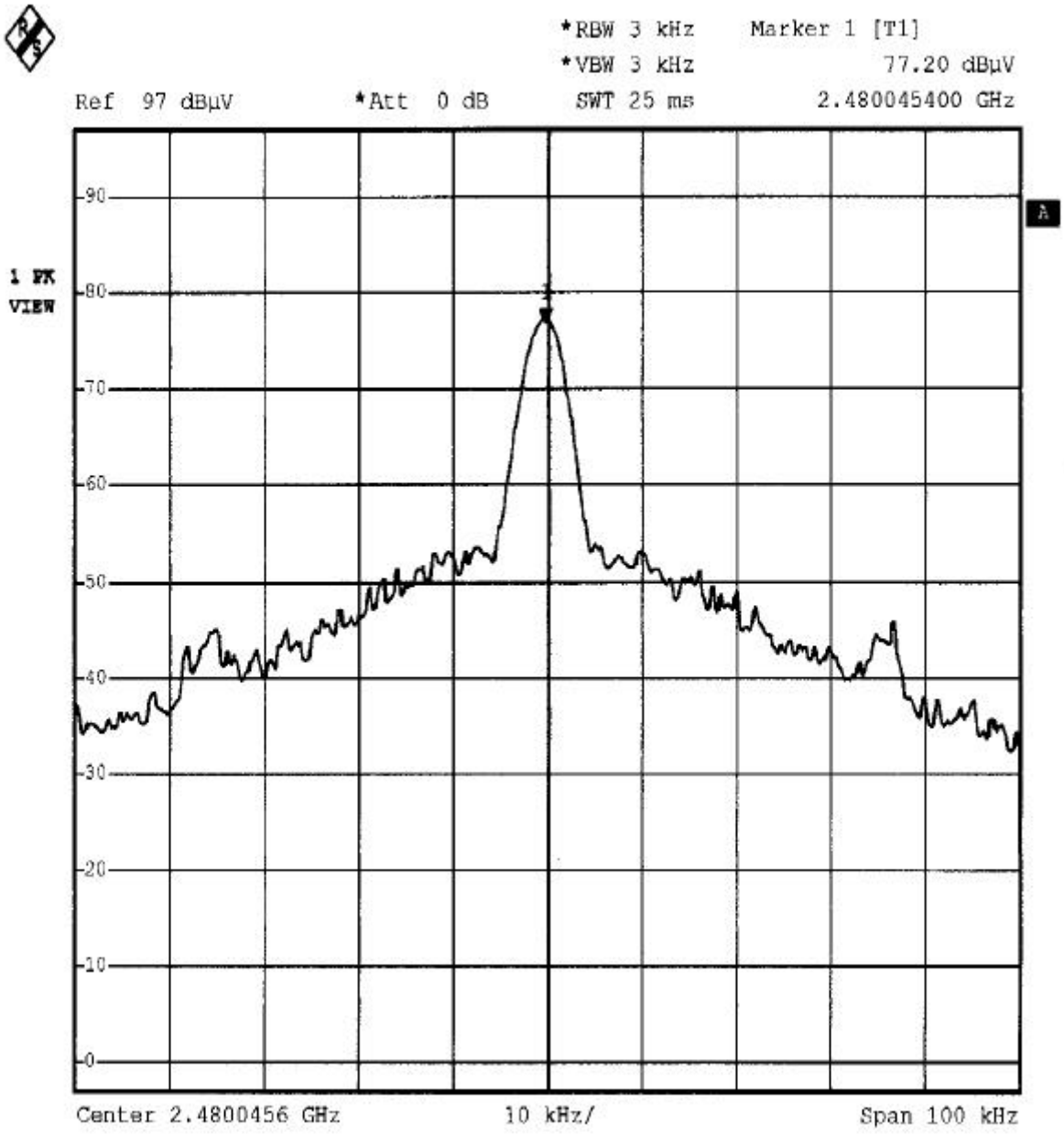
Channel : CH MID

Polarity : Horizontal



Channel : CH HIGH

Polarity : Horizontal



XI. List of Test Instruments

Test Mode	Instrument	Model No.	Serial No.	Next Cal. Date	Cal. Interval
Conduction (No.2)	HP Spectrum	8591A	3225A03039	June 09, 2007	1Year
	R & S LISN(EUT)	ESH2-Z5	831886/004	Apr. 25, 2007	1Year
	Kyoritsu LISN(2nd)	KNW-242	8-837-7	N/A	N/A
	RF Cable	No.4	N/A	Feb. 19, 2007	1Year
Radiation (OP No.3)	R & S Receiver	ESBI	845658/003	July 28, 2006	1Year
	Schaffner Pre-Amp.	CPA-9232	1012	Aug. 20, 2006	1Year
	SCJWARZBECL Antenna	VULB9161	D-69250	May 19, 2007	1Year
	COM-Power Horn Ant.	AH-118 (1GHz~18GHz)	10095	May 25, 2007	1Year
	RF Cable	No.2	N/A	Feb. 19, 2007	1Year
	SCHWARZBECK Precision Dipole Ant.	VHAP (30MHz~1GHz)	970+971 953+954	June 26, 2006	3Year
	R & S Signal Generator	SMY01	829846/038	Feb. 16, 2007	2Year

XII. EUT Photos

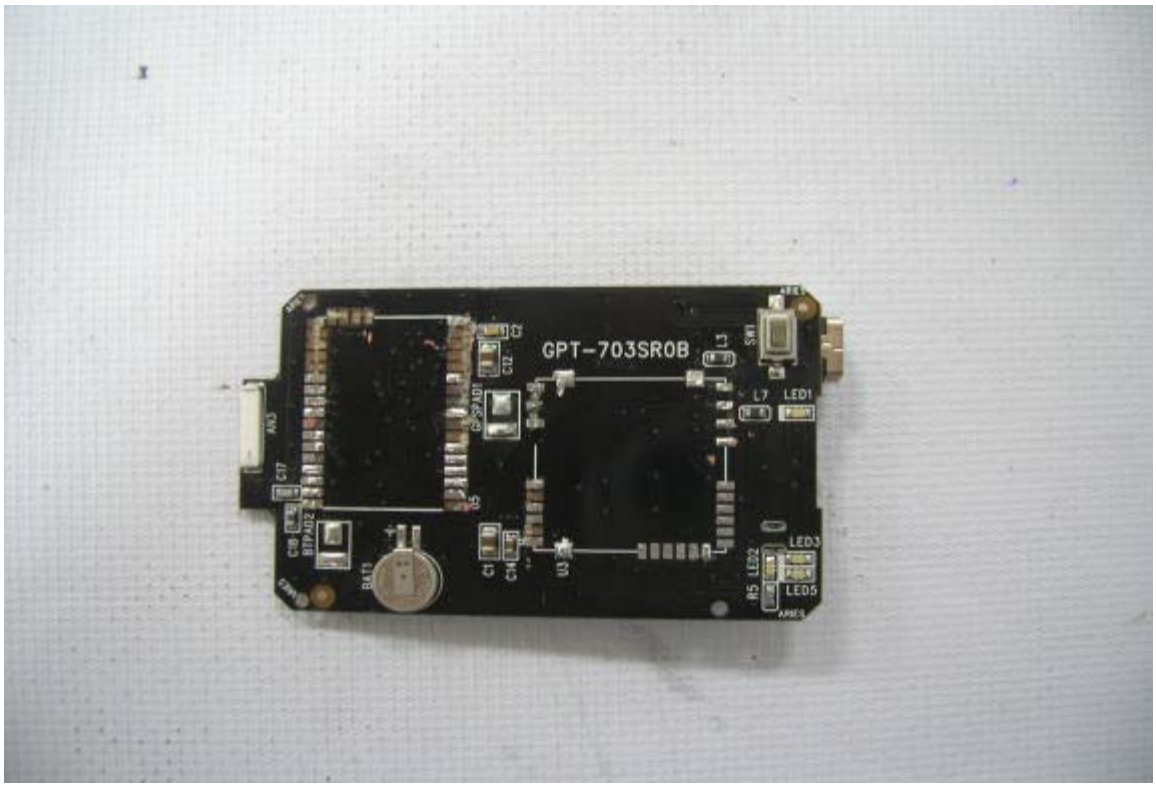
EUT Model No. GPT800


Bluetooth
GPS
powered by
SiRF Star III


Adaptor
Model:TC-FE-USB
Input: 100V — 240V ~ 0.15A
50/60Hz
Output: 5V ⎓ 1A
LISTED
E243129
I.T.E Power Supply
13UU
SEMDICAR TECHNOLOGY CORPORATION


Li-ion Battery
Model No: GPT-700 series
RATING: 3.7V 900mAh
CAUTION: DO NOT INCINERATE, DISASSEMBLE, SHORT, HEAT ABOVE 140°F, USE DESIGNATED CHARGER ONLY.
Achtung: Nicht ins Feuer werfen, öffnen, kurzschliessen. Vor Hitze schützen (maximal 60°C) nur mit original Ladegerät aufladen.
Li-ion
WARNING
S/N: CJ9412 0 0 0 4 3 3
ASSEMBLY IN TAIWAN
CELLS FROM JAPAN
Chi Jiun Tech Co.

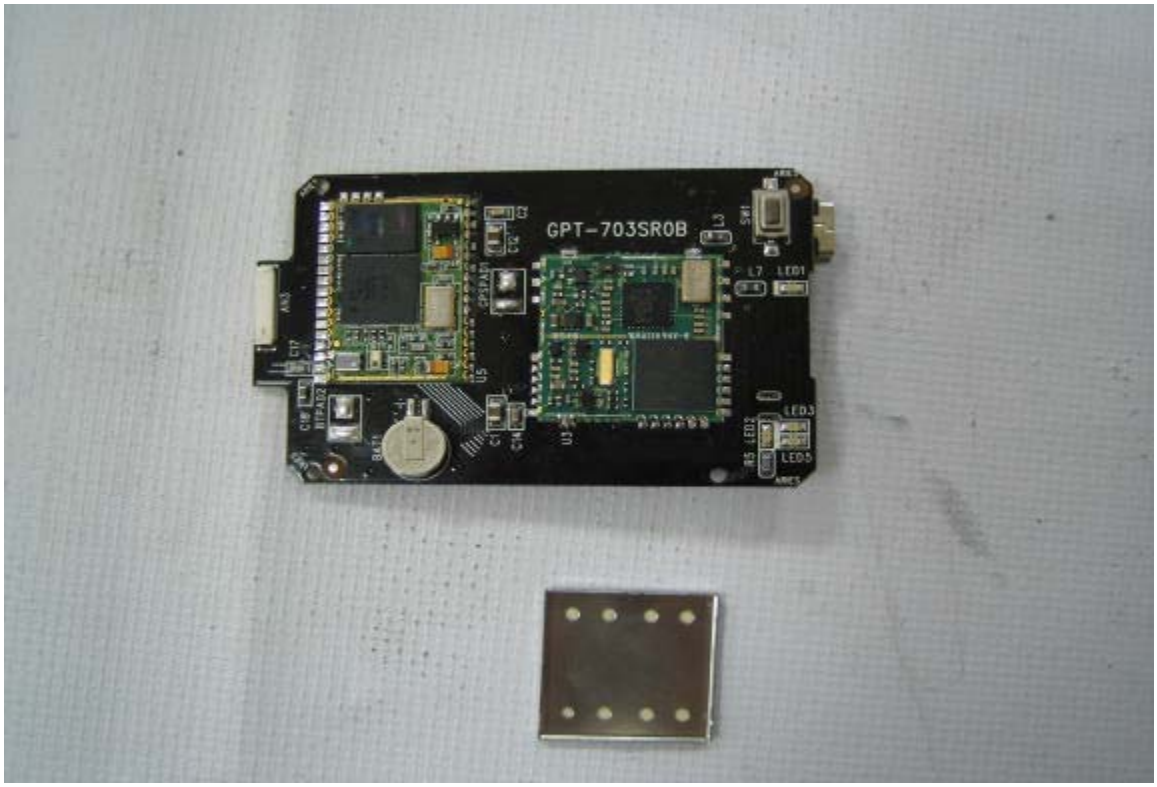

MADE IN TAIWAN
COPASS


GPT-703SR0B
LED1
LED3
LED5

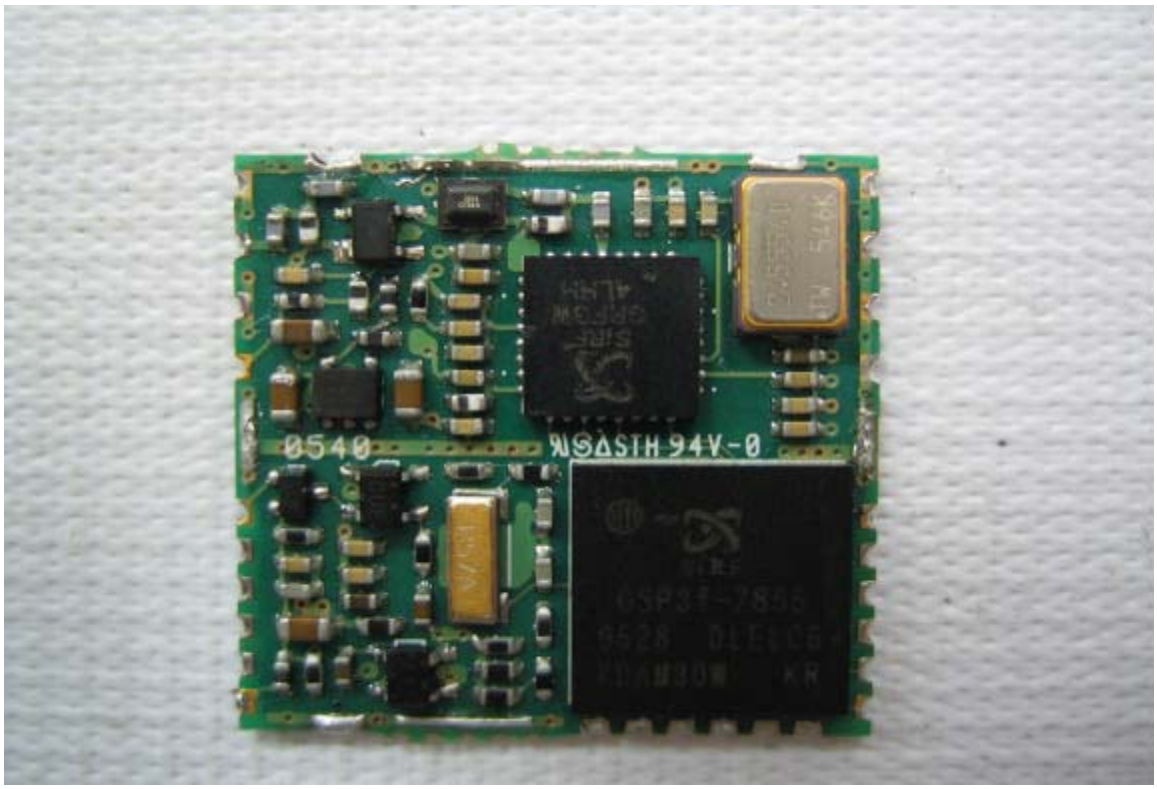

GOPASS
MADE IN TAIWAN


NGR-US301-0
50016572
NAVIUS Co., Ltd.
SiRFstar III
MADE IN KOREA
GPT-703SR0B
R5 LED2
SW1


590
GOPASS
MADE IN TAIWAN


GPT-703SR0B


NGR-US301-0
05.06.22
V1


0540
94V-0