



# FCC TEST REPORT

**REPORT NO.:** RF970904A03

**MODEL NO.:** DTF-720A

**RECEIVED:** Sep. 4, 2008

**TESTED:** Sep. 22, 2008

**ISSUED:** Dec. 23, 2008

**APPLICANT:** Wacom Co., Ltd.

**ADDRESS:** 2-510-1 Toyonodai, Otone-cho Kitasaitama-gun,  
Saitama, 349-1148, Japan

**ISSUED BY:** Bureau Veritas Consumer Products Services  
(H.K.) Ltd., Taoyuan Branch

**LAB ADDRESS:** No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou  
Hsiang, Taipei Hsien 244, Taiwan

This test report consists of 28 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by TAF, or any government agencies. The test results in the report only apply to the tested sample.



## Table of Contents

1	CERTIFICATION .....	3
2	SUMMARY OF TEST RESULTS.....	4
2.1	MEASUREMENT UNCERTAINTY .....	4
3	GENERAL INFORMATION .....	5
3.1	GENERAL DESCRIPTION OF EUT.....	5
3.1	DESCRIPTION OF TEST MODES.....	6
3.1.1	CONFIGURATION OF SYSTEM UNDER TEST.....	7
3.1.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL: .....	8
3.2	GENERAL DESCRIPTION OF APPLIED STANDARDS .....	9
3.3	DESCRIPTION OF SUPPORT UNITS.....	9
4	TEST PROCEDURE AND RESULT .....	10
4.1	CONDUCTED EMISSION MEASUREMENT .....	10
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT.....	10
4.1.2	TEST INSTRUMENTS .....	11
4.1.3	TEST PROCEDURES.....	12
4.1.4	DEVIATION FROM TEST STANDARD .....	12
4.1.5	TEST SETUP .....	13
4.1.6	EUT OPERATING CONDITIONS.....	13
4.1.7	TEST RESULTS.....	14
4.2	RADIATED EMISSION MEASUREMENT .....	18
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT.....	18
4.2.2	TEST INSTRUMENT.....	19
4.2.3	TEST PROCEDURE .....	20
4.2.4	DEVIATION FROM TEST STANDARD .....	20
4.2.5	TEST SETUP .....	21
4.2.6	EUT OPERATING CONDITION .....	21
4.2.7	TEST RESULT .....	22
4.2.8	TEST RESULTS (SPECTRUM BANDWIDTH).....	25
5	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	26
6	INFORMATION ON THE TESTING LABORATORIES .....	27
7	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB .....	28



# 1 CERTIFICATION

**PRODUCT:** LCD TABLET  
**BRAND NAME:** WACOM  
**MODEL NO:** DTF-720A  
**APPLICANT:** Wacom Co., Ltd  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**TESTED:** Sep. 22, 2008  
**STANDARDS:** FCC Part 15, Subpart C (Section 15.209),  
ANSI C63.4 -2003

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY** :           *Jessica Cheng*           , **DATE:**           Dec. 23, 2008            
( Jessica Cheng / Specialist )

**TECHNICAL ACCEPTANCE** :           *Jamison Chan*           , **DATE:**           Dec. 23, 2008            
Responsible for RF ( Jamison Chan / Supervisor )

**APPROVED BY** :           *Ken Liu*           , **DATE:**           Dec. 23, 2008            
( Ken Liu / Deputy Manager )

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD PARAGRAPH	TEST TYPE	RESULT	REMARK
15.207	Conducted Emission Test	PASS	Minimum passing margin is -1.19dB at 0.771MHz
15.209	Radiated Emission Test	PASS	Minimum passing margin is -5.11dB at 131.082MHz

### 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	2.44 dB
Radiated emissions	30MHz ~ 1GHz	3.75 dB
	1GHz ~ 40GHz	2.89 dB

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	LCD TABLET
<b>MODEL NO.</b>	DTF-720A
<b>FCC ID</b>	HV4DTF720A
<b>POWER SUPPLY</b>	12Vdc from adapter
<b>CARRIER FREQUENCY OF EACH CHANNEL</b>	600KHz
<b>NUMBER OF CHANNEL</b>	1
<b>ANTENNA TYPE</b>	Integral antenna
<b>DATA CABLE</b>	Refer to user's manual
<b>I/O PORTS</b>	Refer to user's manual
<b>ASSOCIATED DEVICES</b>	Refer to note 3 as below

**NOTE:**

1. The EUT is a LCD TABLET with a touch pen. It has three USB ports and resolution up to 1280 x 1024.
2. The EUT has two button no., which are identical with each other except for their appearance differences and button numbers different, as the following:

Brand Name	Model no.	Button No.	Differentiation
WACOM	DTF-720A	DTF-720A	Few buttons
		DTF-720AB	Many buttons

During the test, the **button No.: DTF-720AB** was selected as the representative one and therefore only its test data was recorded in this report.

3. The EUT consumes power from a switching power adapter, which has two models could be chosen, as the following:

Adapter	Brand	Model No.	Rating
A	EDAC	EA1050A-120	AC I/P:100-240V, 1.8A, 50-60Hz DC O/P: 12V, 5A
B	EDAC	EA1050C-120	AC I/P:100-240V, 1.8A, 50-60Hz DC O/P: 12V, 4.16A

4. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

### 3.1 DESCRIPTION OF TEST MODES

1. One channel was provided to this EUT

Channel	Frequency (MHz)
1	600KHz

2. The EUT was pre-tested under the following adapters:

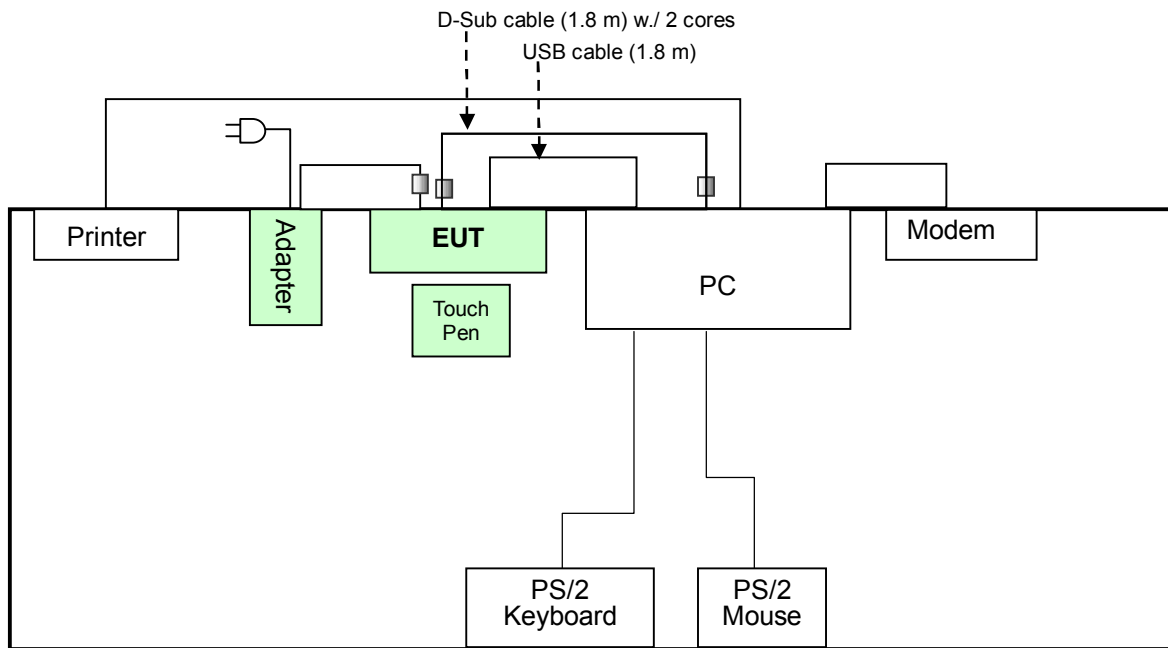
- ◆ Adapter A (Model: EA1050A-120)
- ◆ Adapter B (Model: EA1050C-120)

The worst emission level was found when EUT was tested with **adapter A**.

3. According to pre-test result, the final test modes are as follows:

Test Item	Test Mode	Switching Power Adapter
Conducted Emissions Test	Mode 1	with adapter A
	Mode 2	with adapter B
Radiated Emissions Test	Mode 1	with adapter A

### 3.1.1 CONFIGURATION OF SYSTEM UNDER TEST



### 3.1.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT configure mode	Applicable to		Description
	PLC	RE<1G	
-	√	√	NA

Where PLC: Power Line Conducted Emission RE<1G RE: Radiated Emission below 1GHz

#### **Power Line Conducted Emission Test:**

Following channel(s) was (were) selected for the final test as listed below.

Available Channel	Tested Channel	Modulation Type
1	1	FSK

#### **Radiated Emission Test (Below 1 GHz):**

Following channel(s) was (were) selected for the final test as listed below.

Available Channel	Tested Channel	Modulation Type
1	1	FSK



### 3.2 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart C. (15.209)**  
**ANSI C63.4 -2003**

All test items have been performed and recorded as per the above standards.

**NOTE:** The product has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

### 3.3 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.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	PERSONAL COMPUTER	HP	dx7300MT	SGH72102QS	FCC DoC Approved
2	PRINTER	EPSON	LQ-300+	DCGY017096	FCC DoC Approved
3	MODEM	ACEEX	1414	980020538	IFAXDM1414
4	PS/2 KEYBOARD	HP	KB-0316	BC3520BGAUJ 05U	FCC DoC Approved
5	PS/2 MOUSE	BTC	M851	N/A	E5XMSM860

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A
2	1.8m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core
3	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
4	1.8 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.
5	1.5 m Non shielded wire, terminated with PS/2 connector via drain wire, w/o core.

**NOTE:** All power cords of the above support units are non shielded (1.8m).

## 4 TEST PROCEDURE AND RESULT

### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
  2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
  3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.



#### 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	838251/021	Dec. 20, 2007	Dec. 19, 2008
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100218	Nov. 21, 2007	Nov. 20, 2008
LISN With Adapter (for EUT)	AD10	C10Ada-001	Nov. 22, 2007	Nov. 21, 2008
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100219	Nov. 09, 2007	Nov. 08, 2008
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100220	Oct. 26, 2007	Oct. 25, 2008
Software	ADT_Cond_V7.3.5	NA	NA	NA
Software	ADT_ISN_V7.3.5	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.0 1	Feb. 27, 2008	Feb. 26, 2009
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Feb. 14, 2008	Feb. 13, 2009

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  2. The test was performed in Shielded Room No. 10.
  3. The VCCI Site Registration No. C-1852.

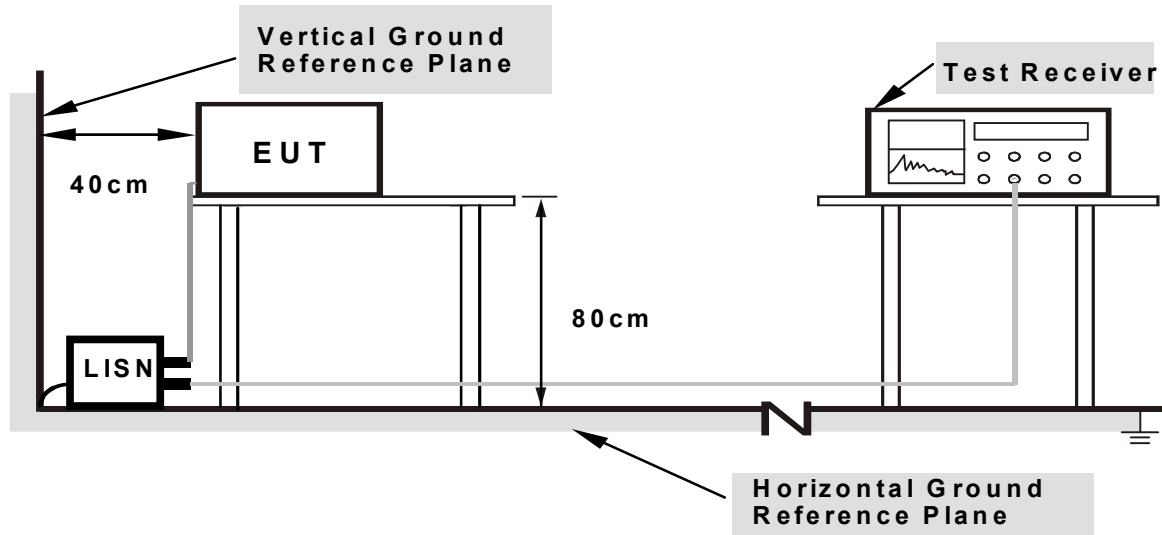
### **4.1.3 TEST PROCEDURES**

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

### **4.1.4 DEVIATION FROM TEST STANDARD**

No deviation

#### 4.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
  2. Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 4.1.6 EUT OPERATING CONDITIONS

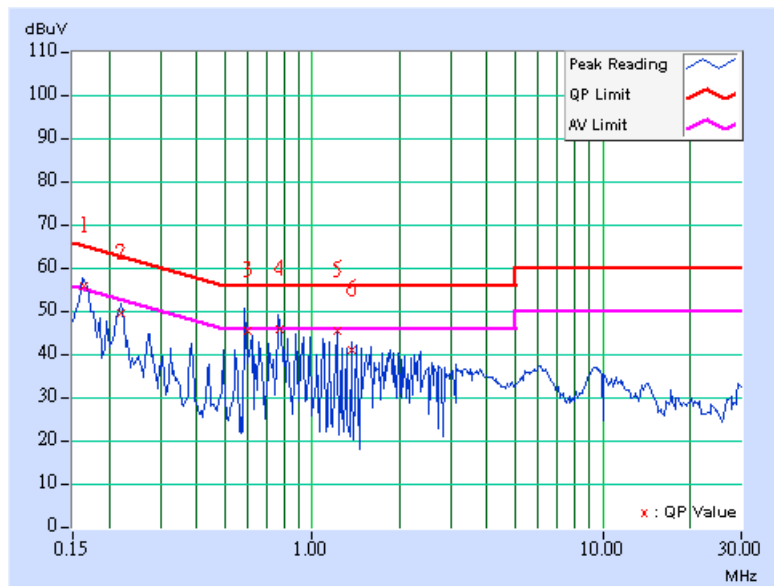
- a. Turn on the power of all equipment.
- b. The PC ran a test program (provided by manufacture) to enable EUT under transmitting condition at specific channel continuously.
- c. PC sent "H" messages to LCD Monitor (EUT) and displayed "H" patterns on its screen.
- d. PC sent messages to modem.
- e. PC sent messages to printer and the printer printed them out.
- f. Repeated c ~ f

### 4.1.7 TEST RESULTS (1)

<b>TEST MODE</b>	Mode 1	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>PHASE</b>	Line 1
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 66%RH, 993hPa	<b>TESTED BY</b>	Chad Lee

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.164	0.18	55.84	48.28	56.02	48.46	65.26	55.26	-9.24	-6.80
2	0.219	0.22	49.27	-	49.49	-	62.86	52.86	-13.37	-
3	0.600	0.24	45.33	-	45.57	-	56.00	46.00	-10.43	-
4	0.773	0.24	45.73	-	45.97	-	56.00	46.00	-10.03	-
5	1.214	0.26	45.47	-	45.73	-	56.00	46.00	-10.27	-
6	1.366	0.26	40.68	-	40.94	-	56.00	46.00	-15.06	-

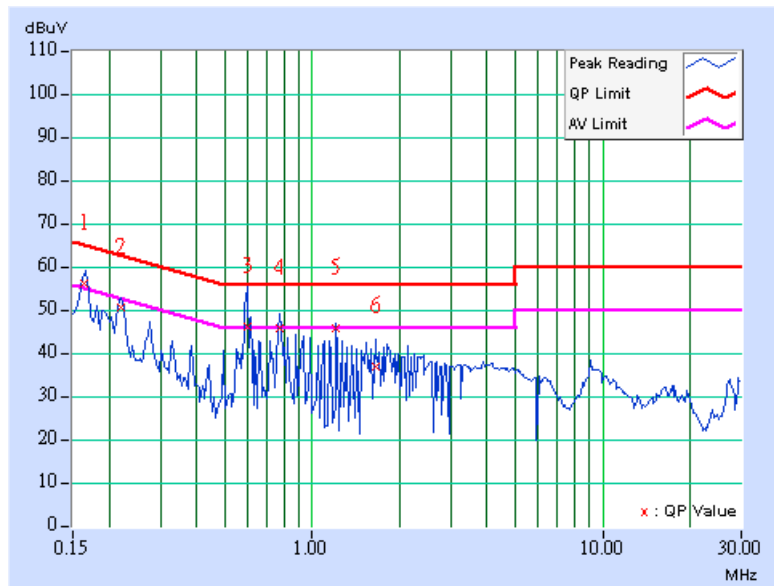
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



<b>TEST MODE</b>	Mode 1	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>PHASE</b>	Line 2
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 66%RH, 993hPa	<b>TESTED BY</b>	Chad Lee

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.164	0.18	56.22	48.56	56.40	48.74	65.25	55.25	-8.85	-6.51
2	0.219	0.22	50.36	-	50.58	-	62.86	52.86	-12.28	-
3	0.601	0.23	45.91	31.39	46.14	31.62	56.00	46.00	-9.86	-14.38
<b>4</b>	<b>0.771</b>	<b>0.23</b>	<b>45.79</b>	<b>44.58</b>	<b>46.02</b>	<b>44.81</b>	<b>56.00</b>	<b>46.00</b>	<b>-9.98</b>	<b>-1.19</b>
5	1.212	0.25	45.49	-	45.74	-	56.00	46.00	-10.26	-
6	1.647	0.26	36.74	-	37.00	-	56.00	46.00	-19.00	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.





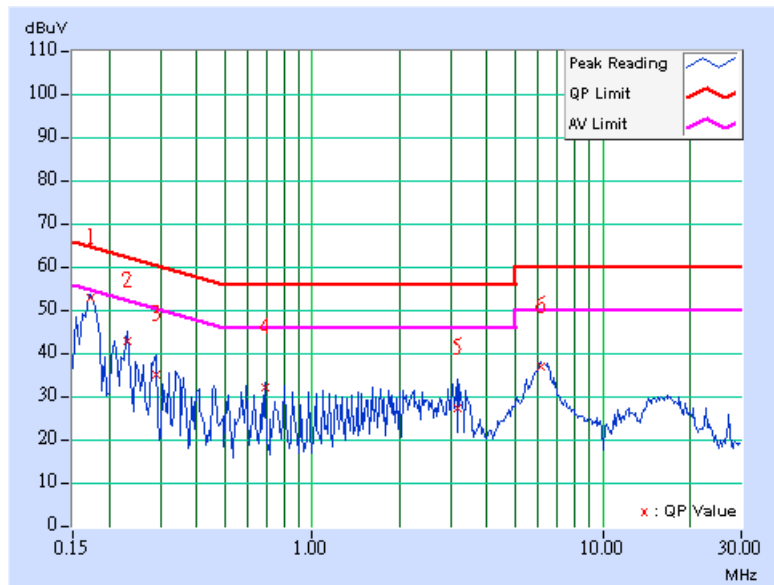
A D T

### 1.1.1 TEST RESULTS (2)

<b>TEST MODE</b>	Mode 2	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>PHASE</b>	Line 1
<b>ENVIRONMENTAL CONDITIONS</b>	24deg. C, 76%RH, 993hPa	<b>TESTED BY</b>	ED. Lin

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.21	52.07	-	52.28	-	64.79	54.79	-12.51	-
2	0.232	0.22	42.39	-	42.61	-	62.38	52.38	-19.77	-
3	0.291	0.23	34.60	-	34.83	-	60.51	50.51	-25.68	-
4	0.685	0.28	31.41	-	31.69	-	56.00	46.00	-24.31	-
5	3.152	0.52	26.73	-	27.25	-	56.00	46.00	-28.75	-
6	6.160	0.75	36.12	-	36.87	-	60.00	50.00	-23.13	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.





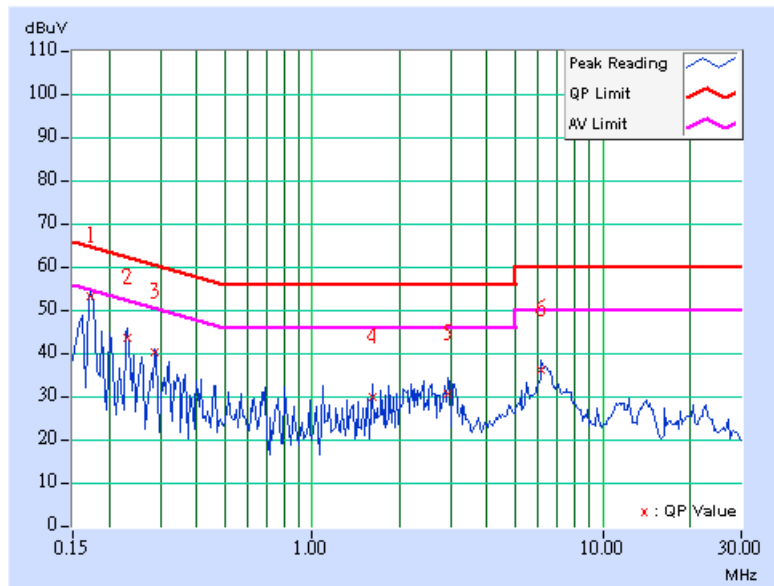


A D T

<b>TEST MODE</b>	Mode 2	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>PHASE</b>	Line 2
<b>ENVIRONMENTAL CONDITIONS</b>	24deg. C, 76%RH, 993hPa	<b>TESTED BY</b>	ED. Lin

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.12	52.65	-	52.77	-	64.79	54.79	-12.02	-
2	0.232	0.14	43.08	-	43.22	-	62.38	52.38	-19.16	-
3	0.287	0.15	39.63	-	39.78	-	60.62	50.62	-20.84	-
4	1.605	0.31	29.19	-	29.50	-	56.00	46.00	-26.50	-
5	2.926	0.43	29.99	-	30.42	-	56.00	46.00	-25.58	-
6	6.160	0.66	35.62	-	36.28	-	60.00	50.00	-23.72	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

#### FOR FREQUENCY BELOW 30MHz

FREQUENCY (MHz)	FIELD STRENGTH (dBuV/m)		MEASUREMENT DISTANCE (meters)
	uV/m	dBuV/m	
0.009 – 0.490	2400 / F (kHz)	48.52-13.80	300
0.490 – 1.705	24000 / F (kHz)	33.80-22.97	30
1.705 – 30.0	30	29.54	30

#### FOR FREQUENCY BETWEEN 30-1000MHz

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
30-88	90	39.1	100	40.0
88-216	150	43.5	150	43.5
216-960	210	46.4	200	46.0
Above 960	300	49.5	500	54.0

#### FOR FREQUENCY ABOVE 1000MHz

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

- Note: (1) The lower limit shall apply at the transition frequencies.  
 (2) Emission level (dBuV/m) = 20 log Emission level (uV/m).  
 (3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of fieldstrengths specified above.



## 4.2.2 TEST INSTRUMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	May 09, 2008	May 08, 2009
HP Preamplifier	8449B	3008A01924	Sep. 03, 2008	Sep. 02, 2009
HP Preamplifier	8449B	3008A01292	Aug. 06, 2008	Aug. 05, 2009
ROHDE & SCHWARZ TEST RECEIVER	ESI7	836697/012	Dec. 06, 2007	Dec. 05, 2008
Schwarzbeck Antenna	VULB 9168	137	May 02, 2008	May 01, 2009
Schwarzbeck Antenna	VHBA 9123	480	Apr. 23, 2008	Apr. 22, 2009
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V 7.6.15	NA	NA	NA
SUHNER RF cable	SF104-26.5	CABLE-CH6-17m -01	Nov. 05, 2007	Nov. 04, 2008
ROHDE & SCHWARZ Spectrum Analyzer	FSP 40	100035	Mar. 26, 2008	Mar. 25, 2009
Loop Antenna R & S	HFH2-Z2	100070	Jan. 14, 2008	Jan. 13, 2009

- NOTE:**
1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
  2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  3. The test was performed in Chamber No. 6.
  4. The Industry Canada Reference No. IC 7450E-6
  5. The FCC Site Registration No. is 447212.

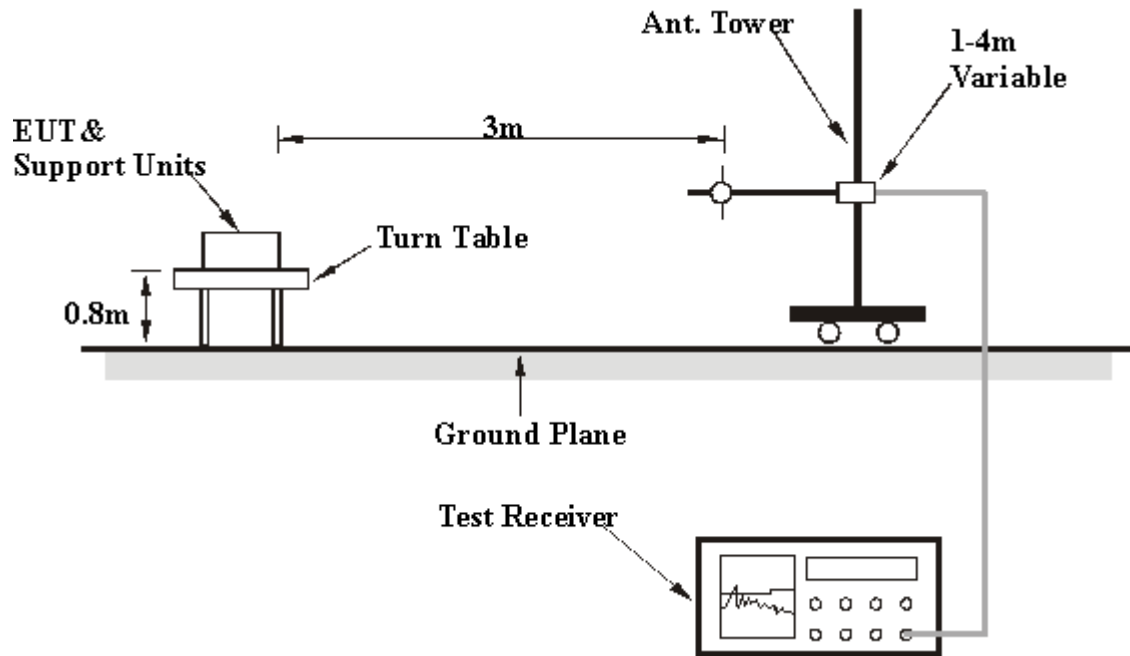
### 4.2.3 TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna's height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak method or average method as specified and then reported in data sheet.
- g. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the interference antenna and the detect function was set to Peak or Average.

### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item in this test report - Photographs of the Test Configuration.

### 4.2.6 EUT OPERATING CONDITION

Same as item 4.1.6.

## 4.2.7 TEST RESULT

<b>TEST MODE</b>	Mode 1	<b>FREQUENCY RANGE</b>	9 kHz ~ 30 MHz
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>DETECTOR FUNCTION</b>	Quasi-Peak
<b>ENVIRONMENTAL CONDITIONS</b>	28deg. C, 77% RH, 995hPa	<b>TESTED BY</b>	Chad Lee

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA OPEN AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	0.60	62.54 QP	72.04	-9.50	1.00	152	43.40	19.14
2	1.20	35.95 QP	66.02	-30.07	1.00	99	16.66	19.29
3	1.80	38.56 QP	69.54	-30.98	1.00	15	19.07	19.49
4	2.40	34.52 QP	69.54	-35.02	1.00	16	14.97	19.55
5	3.00	34.43 QP	69.54	-35.11	1.00	101	14.89	19.54
6	3.60	34.25 QP	69.54	-35.29	1.00	82	14.71	19.54

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. Above limits have been translated by the formula
  6. Loop antenna was used for all radiated emission below 30MHz.

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

$$\begin{aligned}
 24000/600\text{KHz} &= 40 \text{ uV/m} && 30\text{m} \\
 &= 32.04 \text{ dBuV/m} && 30\text{m} \\
 &= 32.04 + 20\log(30/3)^2 && 3\text{m} \\
 &= 72.04 \text{ dBuV/m}
 \end{aligned}$$

<b>TEST MODE</b>	Mode 1	<b>FREQUENCY RANGE</b>	9 kHz ~ 30 MHz
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>DETECTOR FUNCTION</b>	Quasi-Peak
<b>ENVIRONMENTAL CONDITIONS</b>	28deg. C, 77% RH, 995hPa	<b>TESTED BY</b>	Chad Lee

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA CLOSE AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	0.600	57.12 QP	72.04	-14.92	1.00	115	37.98	19.14
2	1.200	35.48 QP	66.02	-30.54	1.00	53	16.19	19.29
3	1.800	35.35 QP	69.54	-34.19	1.00	22	15.86	19.49
4	2.400	33.00 QP	69.54	-36.54	1.00	57	13.45	19.55
5	3.000	34.46 QP	69.54	-36.08	1.00	164	13.92	19.54
6	3.600	32.17 QP	69.54	-37.37	1.00	56	12.63	19.54

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. Above limits have been translated by the formula
  6. Loop antenna was used for all radiated emission below 30MHz.

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

24000/600KHz	=40 uV/m	30m
	=32.04 dBuV/m	30m
	=32.04+20log(30/3) <sup>2</sup>	3m
	=72.04 dBuV/m	



A D T

<b>TEST MODE</b>	Mode 1	<b>FREQUENCY RANGE</b>	30-1000MHz
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>DETECTOR FUNCTION</b>	Quasi-Peak
<b>ENVIRONMENTAL CONDITIONS</b>	28deg. C, 77% RH, 995hPa	<b>TESTED BY</b>	Chad Lee

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	131.082	38.39 QP	43.50	-5.11	1.08 H	229	24.59	13.80
2	195.230	36.43 QP	43.50	-7.07	1.23 H	142	24.59	11.84
3	327.415	38.42 QP	46.00	-7.58	1.42 H	37	21.68	16.74
4	517.916	39.03 QP	46.00	-6.97	1.55 H	37	17.38	21.65
5	570.401	39.77 QP	46.00	-6.23	1.68 H	40	16.92	22.85
6	916.413	36.19 QP	46.00	-9.81	1.89 H	22	7.57	28.62

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	129.138	36.41 QP	43.50	-7.09	1.92 V	67	22.71	13.70
2	164.128	37.09 QP	43.50	-6.41	1.66 V	298	23.16	13.93
3	197.174	37.69 QP	43.50	-5.81	1.35 V	214	25.93	11.76
4	243.828	36.88 QP	46.00	-9.12	1.05 V	139	22.11	14.77
5	568.457	38.18 QP	46.00	-7.82	1.13 V	55	15.38	22.80
6	655.932	36.43 QP	46.00	-9.57	1.33 V	226	12.36	24.07

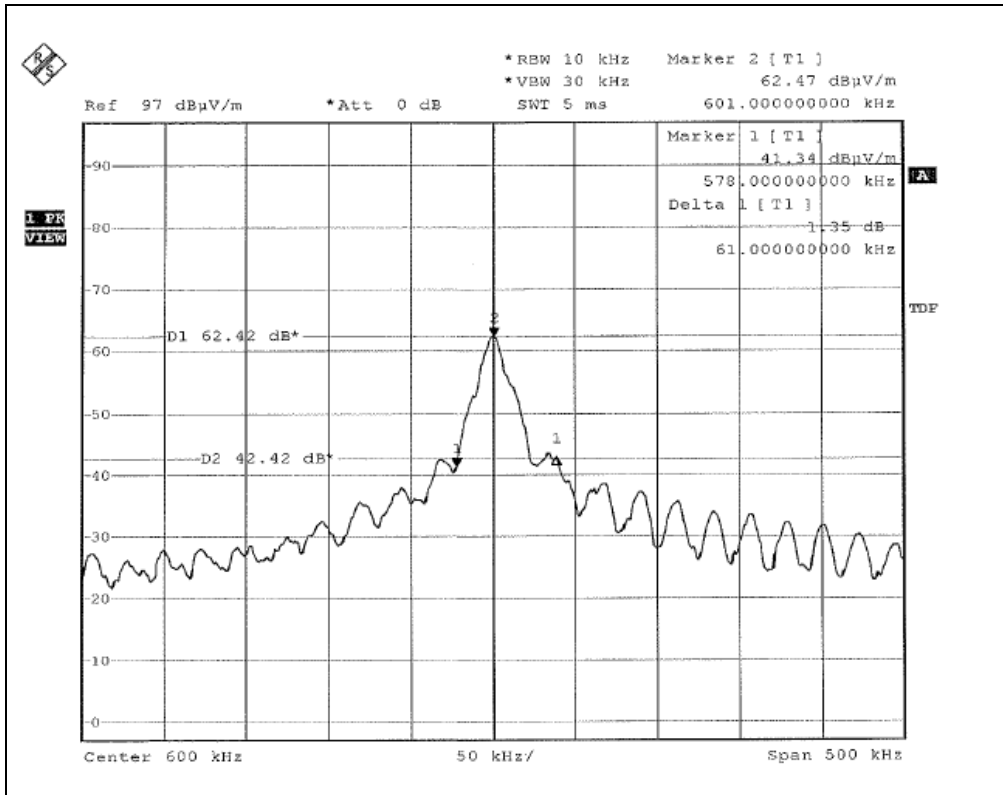
- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.



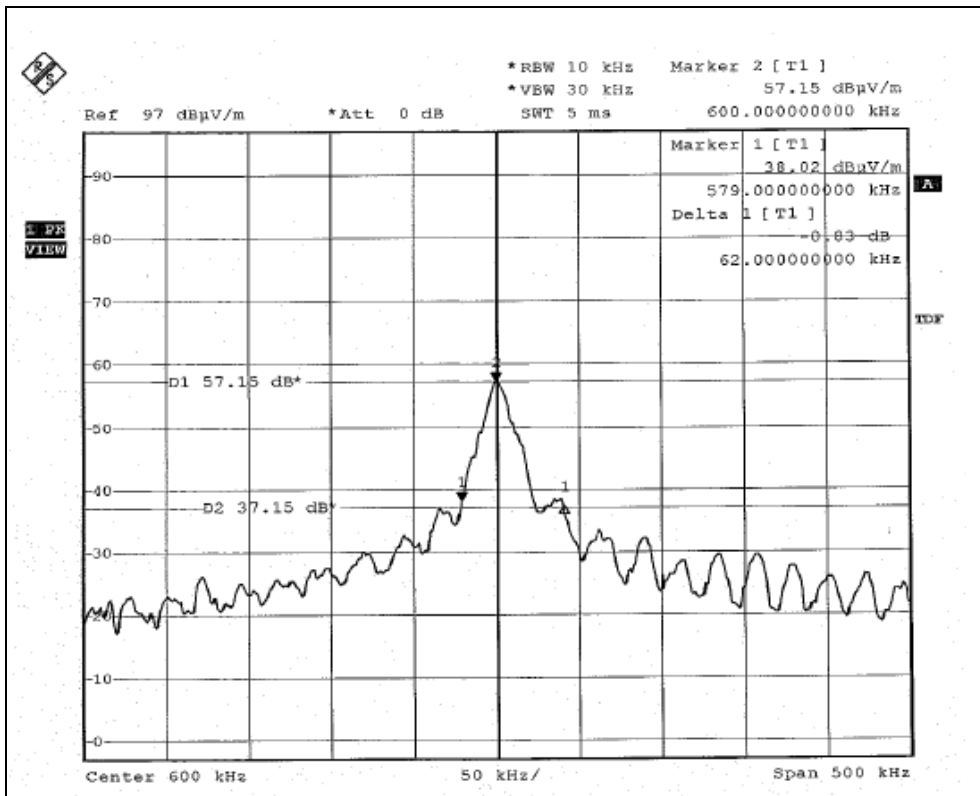


A D T

### 4.2.8 TEST RESULTS (SPECTRUM BANDWIDTH) 600 KHz-OPEN



### 600 KHz-CLOSE





A D T

## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



## 6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025

<b>USA</b>	FCC, NVLAP
<b>Germany</b>	TUV Rheinland
<b>Japan</b>	VCCI
<b>Norway</b>	NEMKO
<b>Canada</b>	INDUSTRY CANADA, CSA
<b>R.O.C.</b>	TAF, BSMI, NCC
<b>Netherlands</b>	Telefication
<b>Singapore</b>	GOST-ASIA(MOU)
<b>Russia</b>	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: [www.adt.com.tw/index.5/phtml](http://www.adt.com.tw/index.5/phtml).  
If you have any comments, please feel free to contact us at the following:

**Linko EMC/RF Lab:**  
Tel: 886-2-26052180  
Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab:**  
Tel: 886-3-5935343  
Fax: 886-3-5935342

**Hwa Ya EMC/RF/Safety/Telecom Lab:**  
Tel: 886-3-3183232  
Fax: 886-3-3185050

**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.



A D T

## **7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.

**---END---**