



# FCC TEST REPORT

**REPORT NO.:** RF110413D02

**MODEL NO.:** MORFFMUL

**FCC ID:** EMJMMORFFMUL

**RECEIVED:** Apr. 13, 2011

**TESTED:** Apr. 14, 2011

**ISSUED:** Apr. 21, 2011

**APPLICANT:** PRIMAX ELECTRONICS LTD.

**ADDRESS:** No. 669, Ruey Kuang Road, Neihu, Taipei,  
Taiwan, R.O.C.

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

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

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110413D02	Original release	Apr. 21, 2011



# 1. CERTIFICATION

**PRODUCT:** Wireless Laser Mouse  
**BRAND NAME:** acer  
**MODEL NO.:** MORFFMUL  
**APPLICANT:** PRIMAX ELECTRONICS LTD.  
**TESTED:** Apr. 14, 2011  
**TEST ITEM:** ENGINEERING SAMPLE  
**STANDARDS:** FCC Part 15, Subpart C (Section 15.249)  
ANSI C63.4-2003  
ANSI C63.10-2009

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 :** Celia Chen , **DATE:** Apr. 21, 2011  
( Celia Chen / Senior Specialist )

**APPROVED BY :** Ken Liu , **DATE:** Apr. 21, 2011  
( Ken Liu / Manager )

## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.249)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	Conducted Emission Test	N/A	Power supply is 1.5Vdc from battery
15.209 15.249 15.249 (d)	Radiated Emission Test Band Edge Measurement Limit: 50dB less than the peak value of fundamental frequency or meet radiated emission limit in section 12.209	PASS	Minimum passing margin is -3.6dB at 30.00MHz

### 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
Radiated emissions	30MHz ~ 1GHz	3.87 dB
	Above 1GHz	2.89 dB

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>EUT</b>	Wireless Laser Mouse
<b>MODEL NO.</b>	MORFFMUL
<b>FCC ID</b>	EMJMMORFFMUL
<b>POWER SUPPLY</b>	1.5Vdc from battery
<b>MODULATION TYPE</b>	GFSK
<b>OPERATING FREQUENCY</b>	2402MHz ~ 2479MHz
<b>NUMBER OF CHANNEL</b>	70
<b>ANTENNA TYPE</b>	Printed antenna with 2dBi gain
<b>ANTENNA CONNECTOR</b>	N/A
<b>DATA CABLE</b>	N/A
<b>I/O PORTS</b>	N/A
<b>ASSOCIATED DEVICES</b>	N/A

**NOTE:**

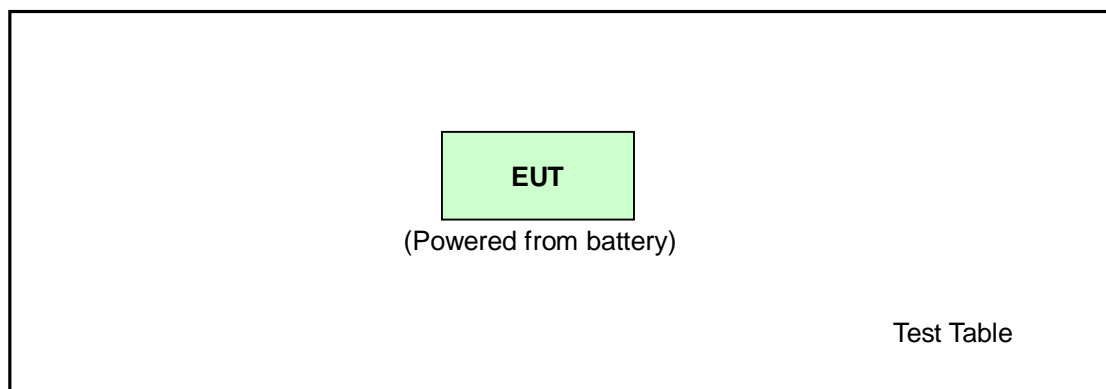
1. The EUT is a transceiver.
2. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

### 3.2 DESCRIPTION OF TEST MODES

70 channels are provided to this EUT:

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	20	2426	40	2446	60	2466
1	2407	21	2427	41	2447	61	2467
2	2408	22	2428	42	2448	62	2468
3	2409	23	2429	43	2449	63	2469
4	2410	24	2430	44	2450	64	2470
5	2411	25	2431	45	2451	65	2471
6	2412	26	2432	46	2452	66	2472
7	2413	27	2433	47	2453	67	2473
8	2414	28	2434	48	2454	68	2474
9	2415	29	2435	49	2455	69	2479
10	2416	30	2436	50	2456		
11	2417	31	2437	51	2457		
12	2418	32	2438	52	2458		
13	2419	33	2439	53	2459		
14	2420	34	2440	54	2460		
15	2421	35	2441	55	2461		
16	2422	36	2442	56	2462		
17	2423	37	2443	57	2463		
18	2424	38	2444	58	2464		
19	2425	39	2445	59	2465		

#### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST





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

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE <sup>≥</sup> 1G	BM	
-	Note	√	√	√	-

Where PLC: Power Line Conducted Emission RE<1G RE: Radiated Emission below 1GHz  
 RE≥1G: Radiated Emission above 1GHz BM: Bandedge Measurement

**Note:** No need to concern of Conducted Emission due to the EUT is powered by batteries.

#### RADIATED EMISSION TEST (BELOW 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
0 to 69	0	GFSK

#### RADIATED EMISSION TEST (ABOVE 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
0 to 69	0, 35, 69	GFSK

#### BANDEDGE MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
0 to 69	0, 69	GFSK

#### TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE <sup>≥</sup> 1G	20deg. C, 75% RH, 1014hPa	1.5Vdc	Jun Wu
RE<1G	20deg. C, 75% RH, 1012hPa	1.5Vdc	Jun Wu
BM	20deg. C, 75% RH, 1014hPa	1.5Vdc	Jun Wu



### **3.3 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 (Section 15.249)**

**ANSI C63.4-2003**

**ANSI C63.10-2009**

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

### **3.4 DESCRIPTION OF SUPPORT UNITS**

The EUT has been tested as an independent unit together without any necessary accessory or support unit.

## 4. TEST TYPES AND RESULTS

### 4.1 CONDUCTED EMISSION MEASUREMENT

N/A

### 4.2 RADIATED EMISSION MEASUREMENT

#### 4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209, 15.249 as following:

15.209 Limit		
Frequencies (MHz)	Field strength (microvolts/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
15.249 Limit		
Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902 ~ 928 MHz	50	500
2400 ~ 2483.5 MHz	50	500
5725 ~ 5875 MHz	50	500
24 ~ 24.25 GHz	250	2500

**NOTE:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



## 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Mar. 04, 2011	Mar. 03, 2012
HP Preamplifier	8449B	3008A01924	Mar. 04, 2011	Mar. 03, 2012
HP Preamplifier	8449B	3008A01292	Mar. 04, 2011	Mar. 03, 2012
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 10, 2010	Jun. 09, 2011
Schwarzbeck Antenna	VULB 9168	137	Apr. 29, 2010	Apr. 28, 2011
Schwarzbeck Antenna	VHBA 9123	480	Apr. 29, 2010	Apr. 28, 2011
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V 7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF102	CABLE-CH6	Aug. 20, 2010	Aug. 19, 2011
EMCO Horn Antenna	3115	6714	Oct. 26, 2010	Oct. 25, 2011
EMCO Horn Antenna	3115	9312-4192	Apr. 23, 2010	Apr. 22, 2011
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 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 PROCEDURES

- 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 room. 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 height of antenna 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- 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.

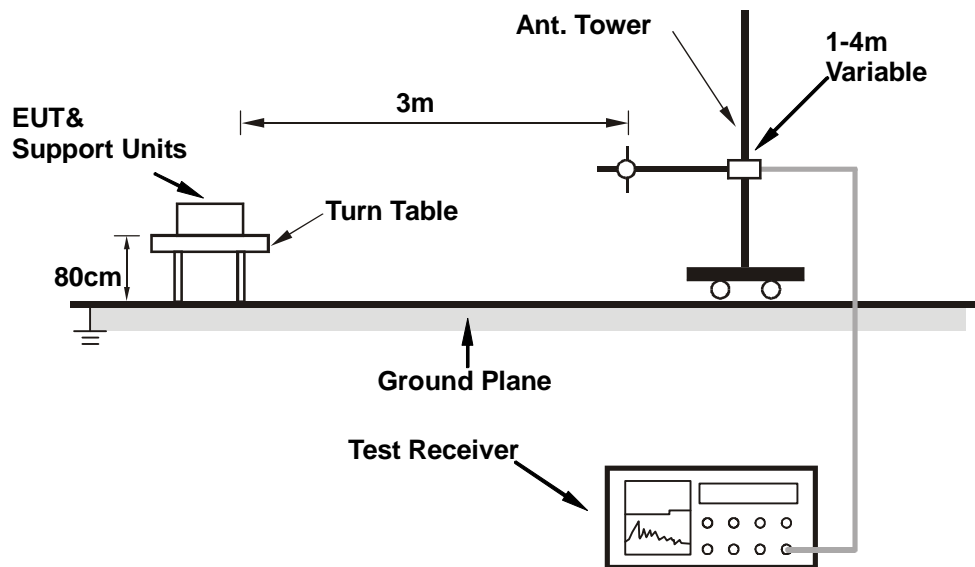
### NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

## 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 – Photographs of the Test Configuration.

## 4.2.6 EUT OPERATING CONDITIONS

Set the EUT under transmission condition continuously at specific channel frequency.

## 4.2.7 TEST RESULTS

### ABOVE 1GHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 75%RH 1014 hPa	TESTED BY	Jun Wu

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	2390.00	66.8 PK	74.0	-7.2	1.00 H	199	34.29	32.47
2	2390.00	46.6 AV	54.0	-7.4	1.00 H	199	14.09	32.47
3	2400.00	61.1 PK	74.0	-12.9	1.00 H	199	28.62	32.51
4	2400.00	16.7 AV	54.0	-37.3	1.00 H	199	-15.78	32.51
5	*2402.00	99.4 PK	114.0	-14.6	1.00 H	199	66.91	32.52
6	*2402.00	55.0 AV	94.0	-39.0	1.00 H	199	22.51	32.52
7	4804.00	49.6 PK	74.0	-24.5	1.00 H	230	9.70	39.85
8	4804.00	5.2 AV	54.0	-48.9	1.00 H	230	-34.70	39.85
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	2390.00	59.5 PK	74.0	-14.5	1.00 V	169	27.02	32.47
2	2390.00	46.5 AV	54.0	-7.5	1.00 V	169	14.05	32.47
3	2400.00	54.9 PK	74.0	-19.1	1.00 V	169	22.38	32.51
4	2400.00	10.5 AV	54.0	-43.5	1.00 V	169	-22.02	32.51
5	*2402.00	93.2 PK	114.0	-20.8	1.00 V	169	60.67	32.52
6	*2402.00	48.8 AV	94.0	-45.2	1.00 V	169	16.27	32.52
7	4804.00	49.1 PK	74.0	-25.0	1.05 V	160	9.20	39.85
8	4804.00	4.7 AV	54.0	-49.4	1.05 V	160	-35.20	39.85

- 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. “ \* ” : Fundamental frequency
  6. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:  
 $20 \log (\text{Duty cycle}) = 20 \log (0.096 \text{ ms} / 15.993 \text{ ms}) = -44.4 \text{ dB}$   
 Please see page 17 for plotted duty.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 35	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 75%RH 1014 hPa	TESTED BY	Jun Wu

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	*2441.00	101.1 PK	114.0	-12.9	1.00 H	200	68.43	32.66
2	*2441.00	56.7 AV	94.0	-37.3	1.00 H	200	24.03	32.66
3	4882.00	48.8 PK	74.0	-25.3	1.00 H	214	8.64	40.11
4	4882.00	4.4 AV	54.0	-49.7	1.00 H	214	-35.76	40.11
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	*2441.00	94.8 PK	114.0	-19.3	1.00 V	181	62.09	32.66
2	*2441.00	50.4 AV	94.0	-43.7	1.00 V	181	17.69	32.66
3	4882.00	51.3 PK	74.0	-22.7	1.00 V	155	11.23	40.11
4	4882.00	6.9 AV	54.0	-47.1	1.00 V	155	-33.17	40.11

- 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. “ \* “ : Fundamental frequency
  6. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:  
 $20 \log (\text{Duty cycle}) = 20 \log (0.096 \text{ ms} / 15.993 \text{ ms}) = -44.4 \text{ dB}$   
 Please see page 17 for plotted duty.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 69	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 75%RH 1014 hPa	TESTED BY	Jun Wu

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	*2479.00	100.7 PK	114.0	-13.3	1.00 H	203	67.87	32.79
2	*2479.00	56.3 AV	94.0	-37.7	1.00 H	203	23.47	32.79
3	2483.50	57.7 PK	74.0	-16.4	1.00 H	203	24.84	32.81
4	2483.50	13.3 AV	54.0	-40.8	1.00 H	203	-19.56	32.81
5	4958.00	48.8 PK	74.0	-25.2	1.07 H	167	8.48	40.34
6	4958.00	4.4 AV	54.0	-49.6	1.07 H	167	-35.92	40.34
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	*2479.00	94.8 PK	114.0	-19.2	1.00 V	165	61.97	32.79
2	*2479.00	50.4 AV	94.0	-43.6	1.00 V	165	17.57	32.79
3	2483.50	51.8 PK	74.0	-22.3	1.00 V	165	18.94	32.81
4	2483.50	7.4 AV	54.0	-46.7	1.00 V	165	-25.46	32.81
5	4958.00	50.3 PK	74.0	-23.8	1.00 V	150	9.91	40.34
6	4958.00	5.9 AV	54.0	-48.2	1.00 V	150	-34.49	40.34

- 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. “ \* “ : Fundamental frequency
  6. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:  
 $20 \log (\text{Duty cycle}) = 20 \log (0.096 \text{ ms} / 15.993 \text{ ms}) = -44.4 \text{ dB}$   
 Please see page 17 for plotted duty.







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**BELOW 1GHz WORST-CASE DATA**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20deg. C, 75%RH 1012 hPa	TESTED BY	Jun Wu

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	33.11	24.5 QP	40.0	-15.5	1.50 H	1	11.96	12.52
2	73.53	18.3 QP	40.0	-21.7	1.50 H	1	7.01	11.31
3	89.07	19.6 QP	43.5	-23.9	1.50 H	1	11.01	8.57
4	103.06	15.7 QP	43.5	-27.9	1.50 H	1	6.05	9.60
5	232.08	18.6 QP	46.0	-27.4	1.00 H	352	5.85	12.71
6	933.16	31.0 QP	46.0	-15.1	1.50 H	1	2.59	28.35
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	30.00	36.4 QP	40.0	-3.6	1.00 V	346	24.46	11.95
2	73.53	21.5 QP	40.0	-18.5	1.00 V	229	10.15	11.31
3	103.06	29.9 QP	43.5	-13.6	1.50 V	346	20.31	9.60
4	246.07	21.7 QP	46.0	-24.3	1.00 V	349	8.23	13.48
5	297.37	27.5 QP	46.0	-18.6	1.00 V	349	11.78	15.67
6	675.11	35.0 QP	46.0	-11.0	1.00 V	349	10.54	24.46

- 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.

### 4.3 BAND EDGES MEASUREMENT

#### 4.3.1 LIMITS OF BAND EDGES MEASUREMENT

Below -50dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

#### 4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSP 40	100036	Apr. 06, 2011	Apr. 05, 2012

**NOTE:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

#### 4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 kHz and 300 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots are attached on the following pages.

#### 4.3.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.3.5 EUT OPERATING CONDITION

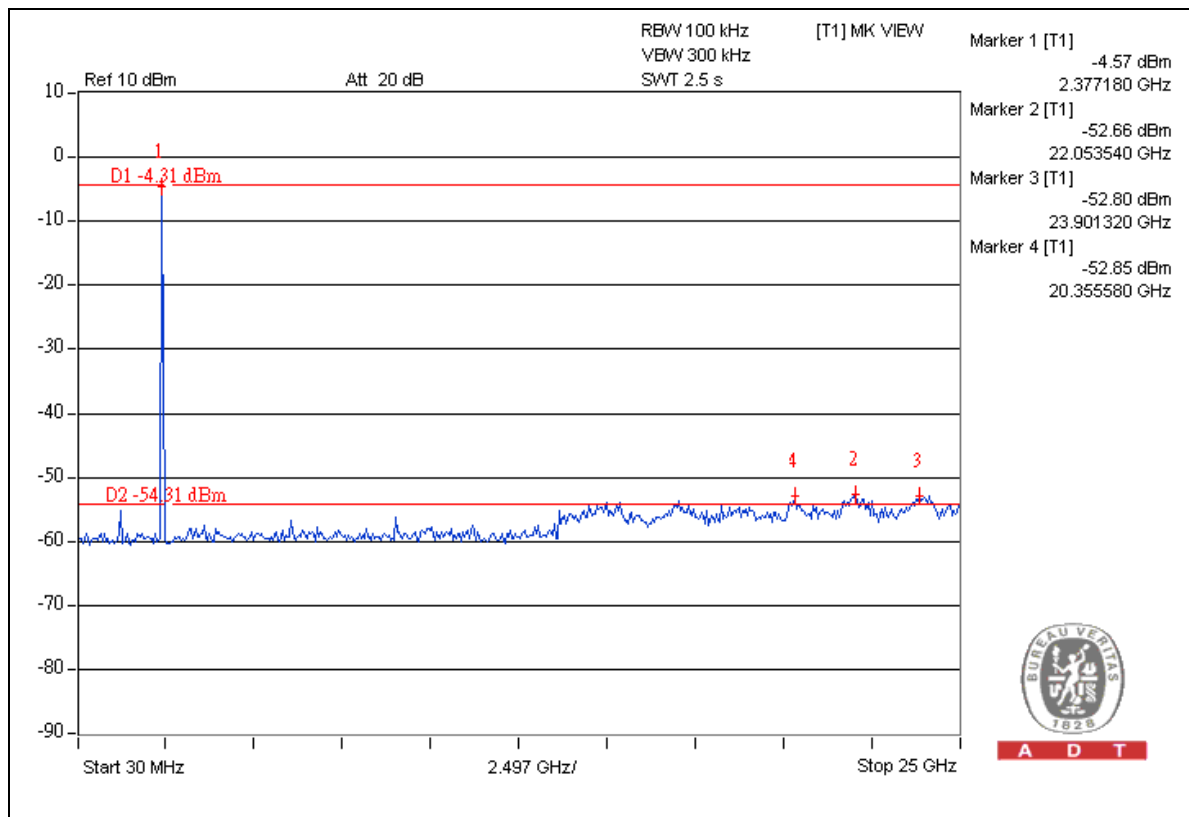
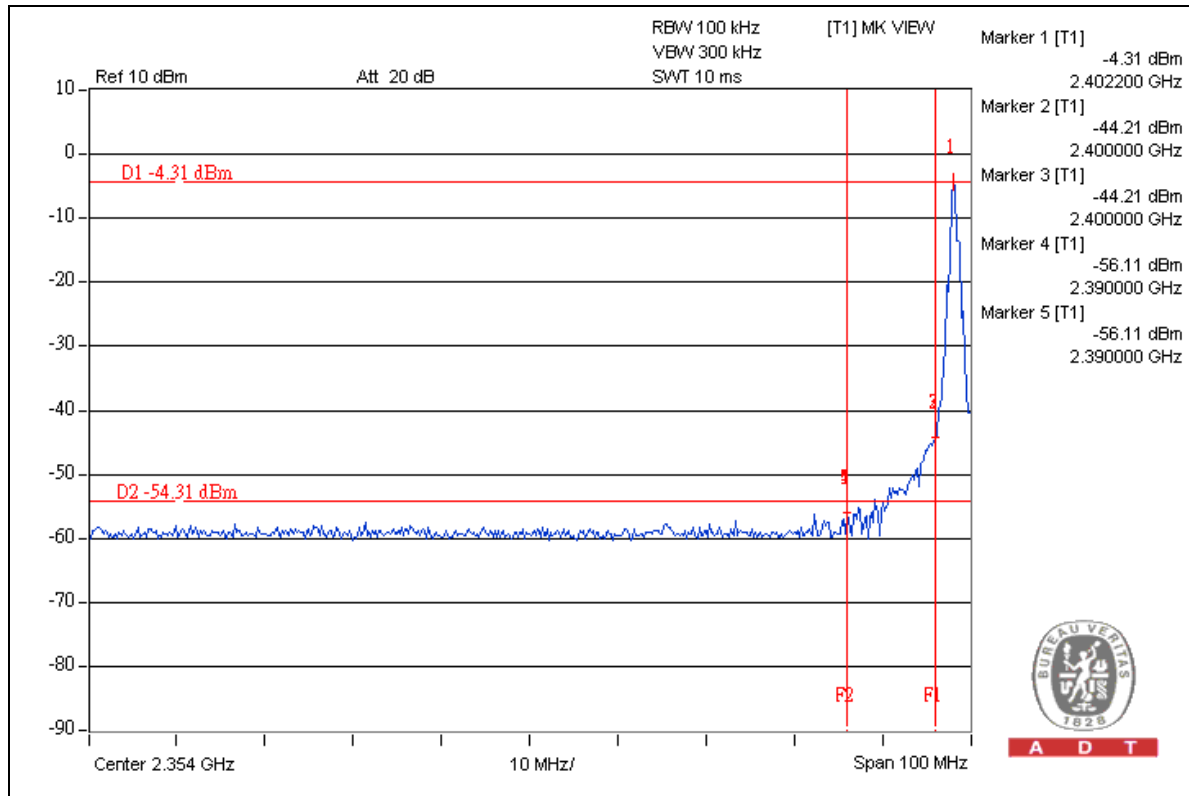
Same as Item 4.2.6

#### 4.3.6 TEST RESULTS

The spectrum plots are attached on the following 4 images. D1 line indicates the highest level, and D2 line indicates the 50dB offset below D1. It shows compliance with the requirement in part 15.249(d).

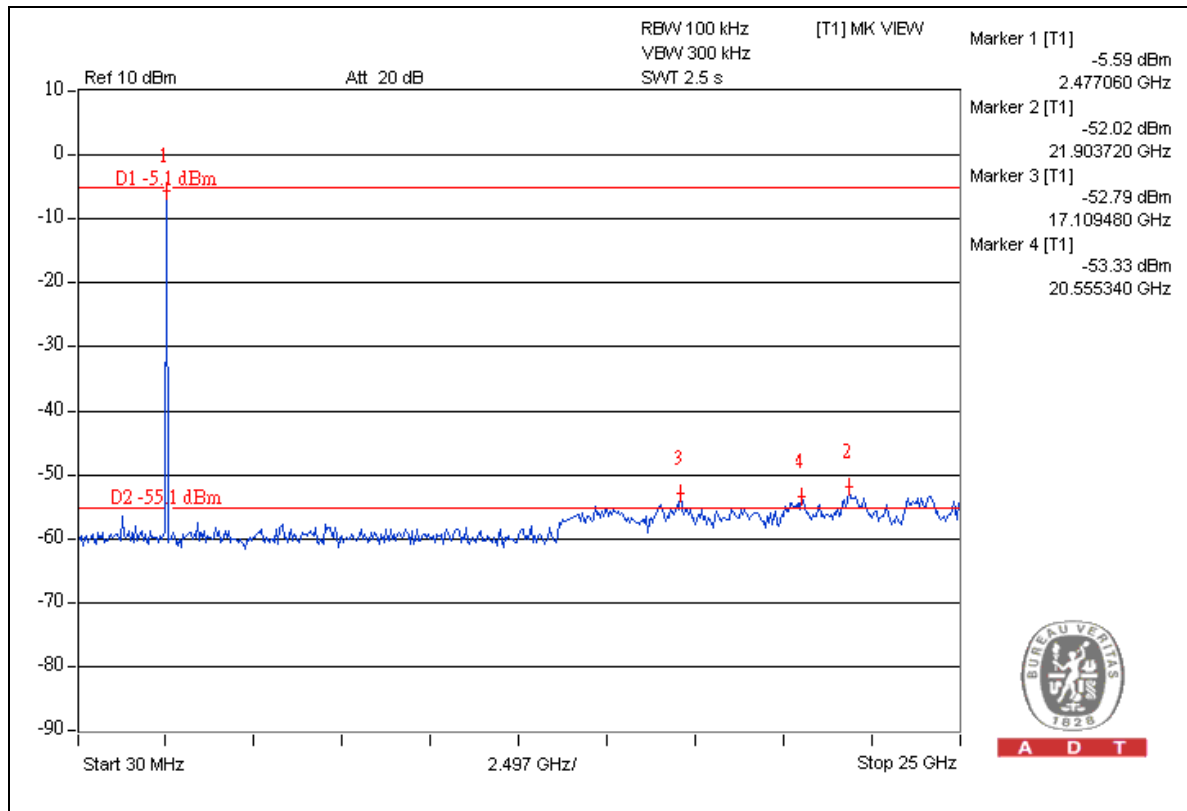
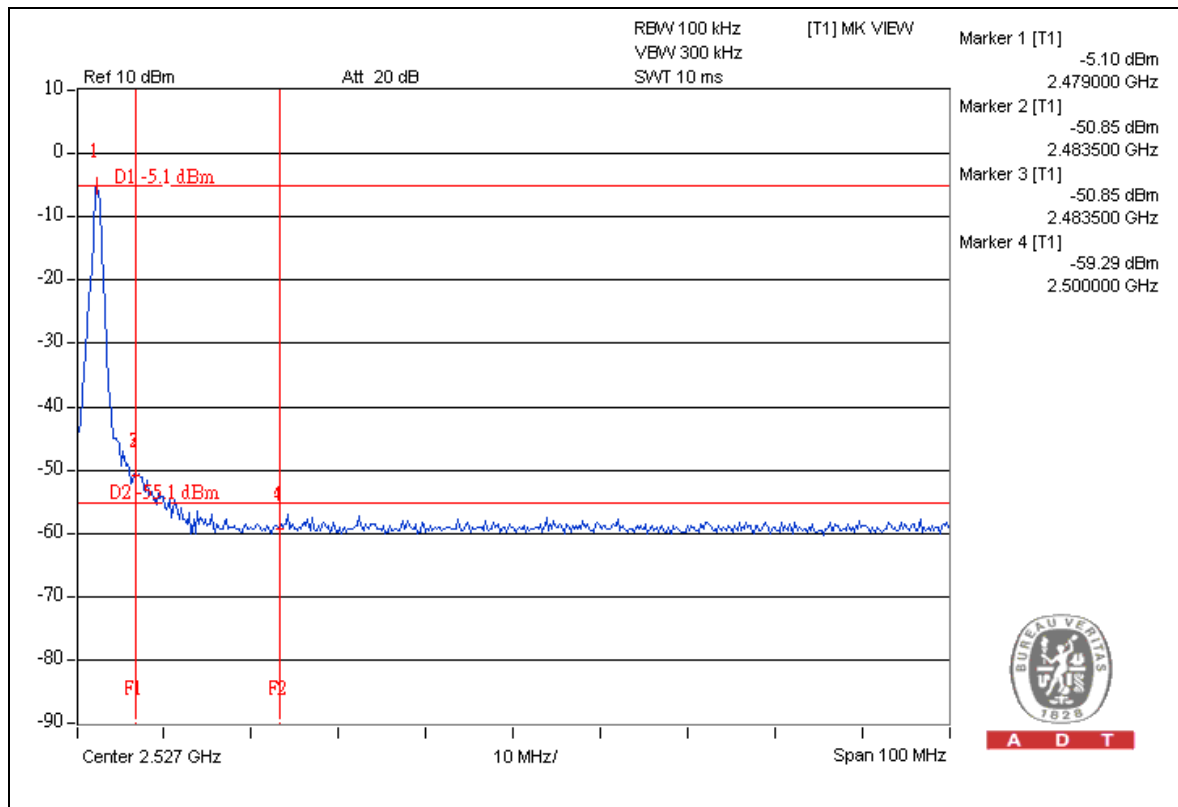


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## 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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 according to ISO/IEC 17025.

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:**

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Fax: 886-3-5935342

**Hwa Ya EMC/RF/Safety Telecom Lab:**

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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.



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## **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---**