

FCC TEST REPORT

REPORT NO. : RF990415C13

MODEL NO. : 1453

RECEIVED : Apr. 15, 2010

TESTED : Apr. 19 ~ Apr. 20, 2010

ISSUED : Apr. 23, 2010

APPLICANT : Microsoft Corporation

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U.S.A

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

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1. CERTIFICATION

PRODUCT: Wireless Mouse

MODEL: 1453

BRAND: Microsoft

APPLICANT: Microsoft Corporation

TESTED: Apr. 19 ~ Apr. 20, 2010

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.249)

ANSI C63.4-2003

The above equipment (model: 1453) have 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 : Pettie Chen , **DATE:** Apr. 23, 2010
Pettie Chen / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Apr. 23, 2010
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Apr. 23, 2010
Gary Chang / Assistant 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 PARAGRAPH	TEST TYPE	RESULT	REMARK
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 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -6.0dB at 2397.50 & 2485.50MHz.

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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Wireless Mouse
MODEL NO.	1453
FCC ID	C3K1453
POWER SUPPLY	1.5Vdc
MODULATION TYPE	GFSK
OPERATING FREQUENCY	2403 - 2480MHz
NUMBER OF CHANNEL	24
ANTENNA TYPE	PIFA antenna with 2.19dBi gain
DATA CABLE	NA
I/O PORT	NA
ACCESSORY DEVICE	NA

NOTE:

1. The following samples are provided for final test.

SAMPLE	SERIAL NO.
Sample 1	247
Sample 2	246
Sample 3	012

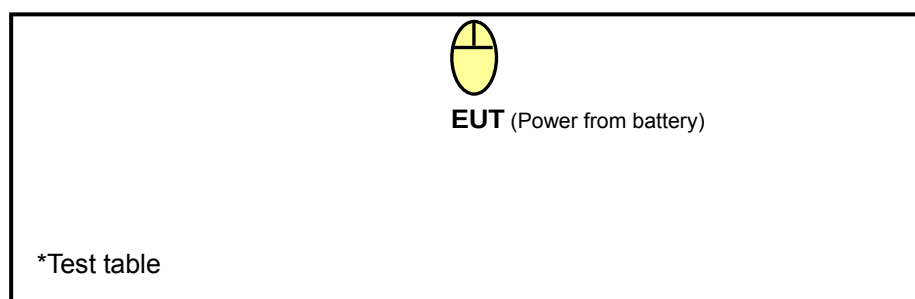
2. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

24 channels are provided to this EUT.

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	2403	7	2425	13	2448	19	2470
2	2405	8	2427	14	2450	20	2472
3	2417	9	2429	15	2452	21	2474
4	2419	10	2431	16	2454	22	2476
5	2421	11	2444	17	2456	23	2478
6	2423	12	2446	18	2468	24	2480

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	RE $\geq$ 1G	RE<1G	BM	
A	√	√	√	Serial No.: 247
B	√	√	-	Serial No.: 246
C	√	√	-	Serial No.: 012

Where **RE<1G**: Radiated Emission below 1GHz

RE $\geq$ 1G: Radiated Emission above 1GHz

BM: Bandedge Measurement

NOTE: "-": Means no effect.

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.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
A, B, C	1 to 24	1, 11, 24	GFSK

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.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
A, B, C	1 to 24	1	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.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
A	1 to 24	1, 24	GFSK

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G (Test Mode A, C)	25deg. C, 65%RH, 1008 hPa	1.5Vdc	Dean Wang
RE $\geq$ 1G (Test Mode B)	25deg. C, 65%RH, 1008 hPa	1.5Vdc	Lori Chiu
RE<1G	25deg. C, 65%RH, 1008 hPa	1.5Vdc	Brad Wu
BM	25deg. C, 65%RH, 1008 hPa	1.5Vdc	Brad 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

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jul. 06, 2009	Jul. 05, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100076	May 26, 2009	May 25, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 27, 2009	Apr. 26, 2010
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jul. 01, 2009	Jun. 30, 2010
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2009	Dec. 24, 2010
Preamplifier Agilent	8447D	2944A10633	Nov. 10, 2009	Nov. 09, 2010
Preamplifier Agilent	8449B	3008A01964	Nov. 09, 2009	Nov. 08, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	238141/4	May 13, 2009	May 12, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	May 13, 2009	May 12, 2010
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA	NA

- 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 HwaYa Chamber 3.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 988962.
5. The IC Site Registration No. is IC 7450F-3.

4.1.3 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. 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 is a broadband antenna, and its 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 or average method as specified and then reported in a data sheet.

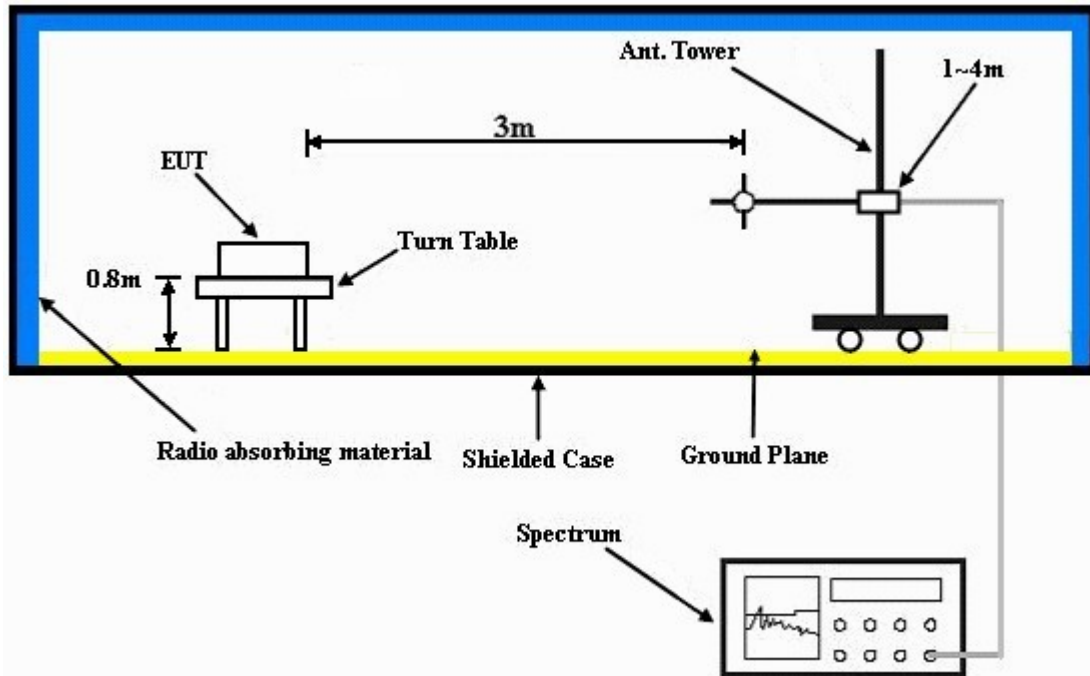
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection 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. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

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

4.1.7 TEST RESULTS

ABOVE 1GHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Dean Wang
TEST MODE	A		

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	63.9 PK	74.0	-10.1	1.36 H	207	33.40	30.50
2	2390.00	30.4 AV	54.0	-23.6	1.36 H	207	-0.10	30.50
3	2397.50	68.0 PK	74.0	-6.0	1.36 H	207	37.50	30.50
4	2397.50	32.4 AV	54.0	-21.6	1.36 H	207	1.90	30.50
5	2400.00	59.4 PK	74.0	-14.6	1.36 H	207	28.90	30.50
6	2400.00	29.7 AV	54.0	-24.3	1.36 H	207	-0.80	30.50
7	*2403.00	100.5 PK	114.0	-13.5	1.36 H	207	70.00	30.50
8	*2403.00	70.8 AV	94.0	-23.2	1.36 H	207	40.30	30.50
9	4806.00	58.5 PK	74.0	-15.5	1.04 H	198	22.40	36.10
10	4806.00	28.8 AV	54.0	-25.2	1.04 H	198	-7.30	36.10
11	7209.00	57.6 PK	74.0	-16.4	1.05 H	176	15.20	42.40
12	7209.00	27.9 AV	54.0	-26.1	1.05 H	176	-14.50	42.40

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Dean Wang
TEST MODE	A		

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	58.9 PK	74.0	-15.1	1.11 V	130	28.40	30.50
2	2390.00	29.7 AV	54.0	-24.3	1.11 V	130	-0.80	30.50
3	2397.50	61.5 PK	74.0	-12.5	1.11 V	130	31.00	30.50
4	2397.50	30.3 AV	54.0	-23.7	1.11 V	130	-0.20	30.50
5	2400.00	53.3 PK	74.0	-20.7	1.11 V	130	22.80	30.50
6	2400.00	23.6 AV	54.0	-30.4	1.11 V	130	-6.90	30.50
7	*2403.00	94.4 PK	114.0	-19.6	1.11 V	130	63.90	30.50
8	*2403.00	64.7 AV	94.0	-29.3	1.11 V	130	34.20	30.50
9	4806.00	53.4 PK	74.0	-20.6	1.00 V	344	17.30	36.10
10	4806.00	23.7 AV	54.0	-30.3	1.00 V	344	-12.40	36.10
11	7209.00	57.5 PK	74.0	-16.5	1.00 V	331	15.10	42.40
12	7209.00	27.8 AV	54.0	-26.2	1.00 V	331	-14.60	42.40

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Dean Wang
TEST MODE	A		

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	*2444.00	99.5 PK	114.0	-14.5	1.34 H	214	68.80	30.70
2	*2444.00	69.8 AV	94.0	-24.2	1.34 H	214	39.10	30.70
3	4888.00	61.2 PK	74.0	-12.8	1.01 H	205	25.00	36.20
4	4888.00	31.5 AV	54.0	-22.5	1.01 H	205	-4.70	36.20
5	7332.00	58.3 PK	74.0	-15.7	1.08 H	137	15.70	42.60
6	7332.00	28.6 AV	54.0	-25.4	1.08 H	137	-14.00	42.60
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	*2444.00	93.0 PK	114.0	-21.0	1.13 V	131	62.30	30.70
2	*2444.00	63.3 AV	94.0	-30.7	1.13 V	131	32.60	30.70
3	4888.00	54.6 PK	74.0	-19.4	1.00 V	71	18.40	36.20
4	4888.00	24.9 AV	54.0	-29.1	1.00 V	71	-11.30	36.20
5	7332.00	58.5 PK	74.0	-15.5	1.24 V	336	15.90	42.60
6	7332.00	28.8 AV	54.0	-25.2	1.24 V	336	-13.80	42.60

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 24	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Dean Wang
TEST MODE	A		

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	*2480.00	96.9 PK	114.0	-17.1	1.31 H	20	66.10	30.80
2	*2480.00	67.2 AV	94.0	-26.8	1.31 H	20	36.40	30.80
3	2483.50	52.6 PK	74.0	-21.4	1.31 H	20	21.80	30.80
4	2483.50	22.9 AV	54.0	-31.1	1.31 H	20	-7.90	30.80
5	2485.50	64.2 PK	74.0	-9.8	1.30 H	20	33.40	30.80
6	2485.50	32.5 AV	54.0	-21.5	1.30 H	20	1.70	30.80
7	4960.00	62.8 PK	74.0	-11.2	1.00 H	192	26.40	36.40
8	4960.00	33.1 AV	54.0	-20.9	1.00 H	192	-3.30	36.40
9	7440.00	55.8 PK	74.0	-18.2	1.00 H	166	12.90	42.90
10	7440.00	26.1 AV	54.0	-27.9	1.00 H	166	-16.80	42.90
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	*2480.00	91.1 PK	114.0	-22.9	1.07 V	129	60.30	30.80
2	*2480.00	61.4 AV	94.0	-32.6	1.07 V	129	30.60	30.80
3	2483.50	46.8 PK	74.0	-27.2	1.07 V	129	16.00	30.80
4	2483.50	17.1 AV	54.0	-36.9	1.07 V	129	-13.70	30.80
5	2485.50	58.1 PK	74.0	-15.9	1.07 V	129	27.30	30.80
6	2485.50	31.9 AV	54.0	-22.1	1.07 V	129	1.10	30.80
7	4960.00	62.0 PK	74.0	-12.0	1.31 V	165	25.60	36.40
8	4960.00	32.3 AV	54.0	-21.7	1.31 V	165	-4.10	36.40
9	7440.00	56.9 PK	74.0	-17.1	1.12 V	337	14.00	42.90
10	7440.00	27.2 AV	54.0	-26.8	1.12 V	337	-15.70	42.90

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Lori Chiu
TEST MODE	B		

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	64.7 PK	74.0	-9.3	1.37 H	13	34.20	30.50
2	2390.00	29.3 AV	54.0	-24.7	1.37 H	13	-1.20	30.50
3	2397.50	68.0 PK	74.0	-6.0	1.37 H	13	37.50	30.50
4	2397.50	39.3 AV	54.0	-14.7	1.37 H	13	8.80	30.50
5	2400.00	57.9 PK	74.0	-16.1	1.37 H	13	27.40	30.50
6	2400.00	28.2 AV	54.0	-25.8	1.37 H	13	-2.30	30.50
7	*2403.00	97.9 PK	114.0	-16.1	1.37 H	13	67.40	30.50
8	*2403.00	68.2 AV	94.0	-25.8	1.37 H	13	37.70	30.50
9	4806.00	57.0 PK	74.0	-17.0	1.62 H	135	20.90	36.10
10	4806.00	27.3 AV	54.0	-26.7	1.62 H	135	-8.80	36.10
11	7209.00	60.3 PK	74.0	-13.7	1.61 H	137	17.90	42.40
12	7209.00	30.6 AV	54.0	-23.40	1.61 H	137	-11.80	42.40

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:
 $20 \log (\text{Duty cycle}) = 20 \log (3.255 \text{ ms} / 100 \text{ ms}) = -29.7 \text{ dB}$
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Lori Chiu
TEST MODE	B		

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	63.5 PK	74.0	-10.5	1.15 V	131	33.00	30.50
2	2390.00	29.0 AV	54.0	-25.0	1.15 V	131	-1.50	30.50
3	2397.50	63.1 PK	74.0	-10.9	1.15 V	131	32.60	30.50
4	2397.50	39.4 AV	54.0	-14.6	1.15 V	131	8.90	30.50
5	2400.00	53.2 PK	74.0	-20.8	1.15 V	131	22.70	30.50
6	2400.00	23.5 AV	54.0	-30.5	1.15 V	131	-7.00	30.50
7	*2403.00	93.2 PK	114.0	-20.8	1.15 V	131	62.70	30.50
8	*2403.00	63.5 AV	94.0	-30.5	1.15 V	131	33.00	30.50
9	4806.00	56.7 PK	74.0	-17.3	1.64 V	169	20.60	36.10
10	4806.00	27.0 AV	54.0	-27.0	1.64 V	169	-9.10	36.10
11	7209.00	57.6 PK	74.0	-16.4	1.09 V	174	15.20	42.40
12	7209.00	27.9 AV	54.0	-26.10	1.09 V	174	-14.50	42.40

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:
 $20 \log (\text{Duty cycle}) = 20 \log (3.255 \text{ ms} / 100 \text{ ms}) = -29.7 \text{ dB}$
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Lori Chiu
TEST MODE	B		

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	*2444.00	97.2 PK	114.0	-16.8	1.40 H	20	66.50	30.70
2	*2444.00	67.5 AV	94.0	-26.5	1.40 H	20	36.80	30.70
3	4888.00	60.2 PK	74.0	-13.8	1.25 H	149	24.00	36.20
4	4888.00	30.5 AV	54.0	-23.5	1.25 H	149	-5.70	36.20
5	7332.00	58.9 PK	74.0	-15.1	1.00 H	299	16.30	42.60
6	7332.00	29.2 AV	54.0	-24.8	1.00 H	299	-13.40	42.60
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	*2444.00	92.6 PK	114.0	-21.4	1.11 V	150	61.90	30.70
2	*2444.00	62.9 AV	94.0	-31.1	1.11 V	150	32.20	30.70
3	4888.00	58.2 PK	74.0	-15.8	1.00 V	27	22.00	36.20
4	4888.00	28.5 AV	54.0	-25.5	1.00 V	27	-7.70	36.20
5	7332.00	55.3 PK	74.0	-18.7	1.32 V	269	12.70	42.60
6	7332.00	25.6 AV	54.0	-28.4	1.32 V	269	-17.00	42.60

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 24	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Lori Chiu
TEST MODE	B		

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	*2480.00	96.8 PK	114.0	-17.2	1.26 H	19	66.00	30.80
2	*2480.00	67.1 AV	94.0	-26.9	1.26 H	19	36.30	30.80
3	2483.50	52.2 PK	74.0	-21.8	1.26 H	19	21.40	30.80
4	2483.50	22.5 AV	54.0	-31.5	1.26 H	19	-8.30	30.80
5	2485.50	68.0 PK	74.0	-6.0	1.26 H	19	37.20	30.80
6	2485.50	30.1 AV	54.0	-23.9	1.26 H	19	-0.70	30.80
7	4960.00	61.4 PK	74.0	-12.6	1.10 H	135	25.00	36.40
8	4960.00	31.7 AV	54.0	-22.3	1.10 H	135	-4.70	36.40
9	7440.00	56.7 PK	74.0	-17.3	1.80 H	136	13.80	42.90
10	7440.00	27.0 AV	54.0	-27.0	1.80 H	136	-15.90	42.90
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	*2480.00	92.2 PK	114.0	-21.8	1.16 V	142	61.40	30.80
2	*2480.00	62.5 AV	94.0	-31.5	1.16 V	142	31.70	30.80
3	2483.50	47.6 PK	74.0	-26.4	1.16 V	142	16.80	30.80
4	2483.50	17.9 AV	54.0	-36.1	1.16 V	142	-12.90	30.80
5	2485.50	62.9 PK	74.0	-11.1	1.16 V	142	32.10	30.80
6	2485.50	29.9 AV	54.0	-24.1	1.16 V	142	-0.90	30.80
7	4960.00	60.8 PK	74.0	-13.2	1.95 V	179	24.40	36.40
8	4960.00	31.1 AV	54.0	-22.9	1.95 V	179	-5.30	36.40
9	7440.00	54.4 PK	74.0	-19.6	1.37 V	16	11.50	42.90
10	7440.00	24.7 AV	54.0	-29.3	1.37 V	16	-18.20	42.90

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Dean Wang
TEST MODE	C		

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	64.2 PK	74.0	-9.8	1.32 H	209	33.70	30.50
2	2390.00	30.1 AV	54.0	-23.9	1.32 H	209	-0.40	30.50
3	2397.50	67.9 PK	74.0	-6.1	1.32 H	209	37.40	30.50
4	2397.50	32.6 AV	54.0	-21.4	1.32 H	209	2.10	30.50
5	2400.00	59.1 PK	74.0	-14.9	1.32 H	209	28.60	30.50
6	2400.00	29.4 AV	54.0	-24.6	1.32 H	209	-1.10	30.50
7	*2403.00	99.6 PK	74.0	25.6	1.32 H	209	69.10	30.50
8	*2403.00	69.9 AV	54.0	15.9	1.32 H	209	39.40	30.50
9	4806.00	59.0 PK	74.0	-15.0	1.03 H	196	22.90	36.10
10	4806.00	29.3 AV	54.0	-24.7	1.03 H	196	-6.80	36.10
11	7209.00	59.8 PK	74.0	-14.2	1.04 H	163	17.40	42.40
12	7209.00	30.1 AV	54.0	-23.9	1.04 H	163	-12.30	42.40

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Dean Wang
TEST MODE	C		

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	58.6 PK	74.0	-15.4	1.11 V	129	28.10	30.50
2	2390.00	27.5 AV	54.0	-26.5	1.11 V	129	-3.00	30.50
3	2397.50	61.4 PK	74.0	-12.6	1.11 V	129	30.90	30.50
4	2397.50	29.7 AV	54.0	-24.3	1.11 V	129	-0.80	30.50
5	2400.00	53.4 PK	74.0	-20.6	1.11 V	129	22.90	30.50
6	2400.00	23.7 AV	54.0	-30.3	1.11 V	129	-6.80	30.50
7	*2403.00	93.9 PK	114.0	-20.1	1.11 V	129	63.40	30.50
8	*2403.00	64.2 AV	94.0	-29.8	1.11 V	129	33.70	30.50
9	4806.00	52.9 PK	74.0	-21.1	1.00 V	298	16.80	36.10
10	4806.00	23.2 AV	54.0	-30.8	1.00 V	298	-12.90	36.10
11	7209.00	59.3 PK	74.0	-14.7	1.07 V	354	16.90	42.40
12	7209.00	29.6 AV	54.0	-24.4	1.07 V	354	-12.80	42.40

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Dean Wang
TEST MODE	C		

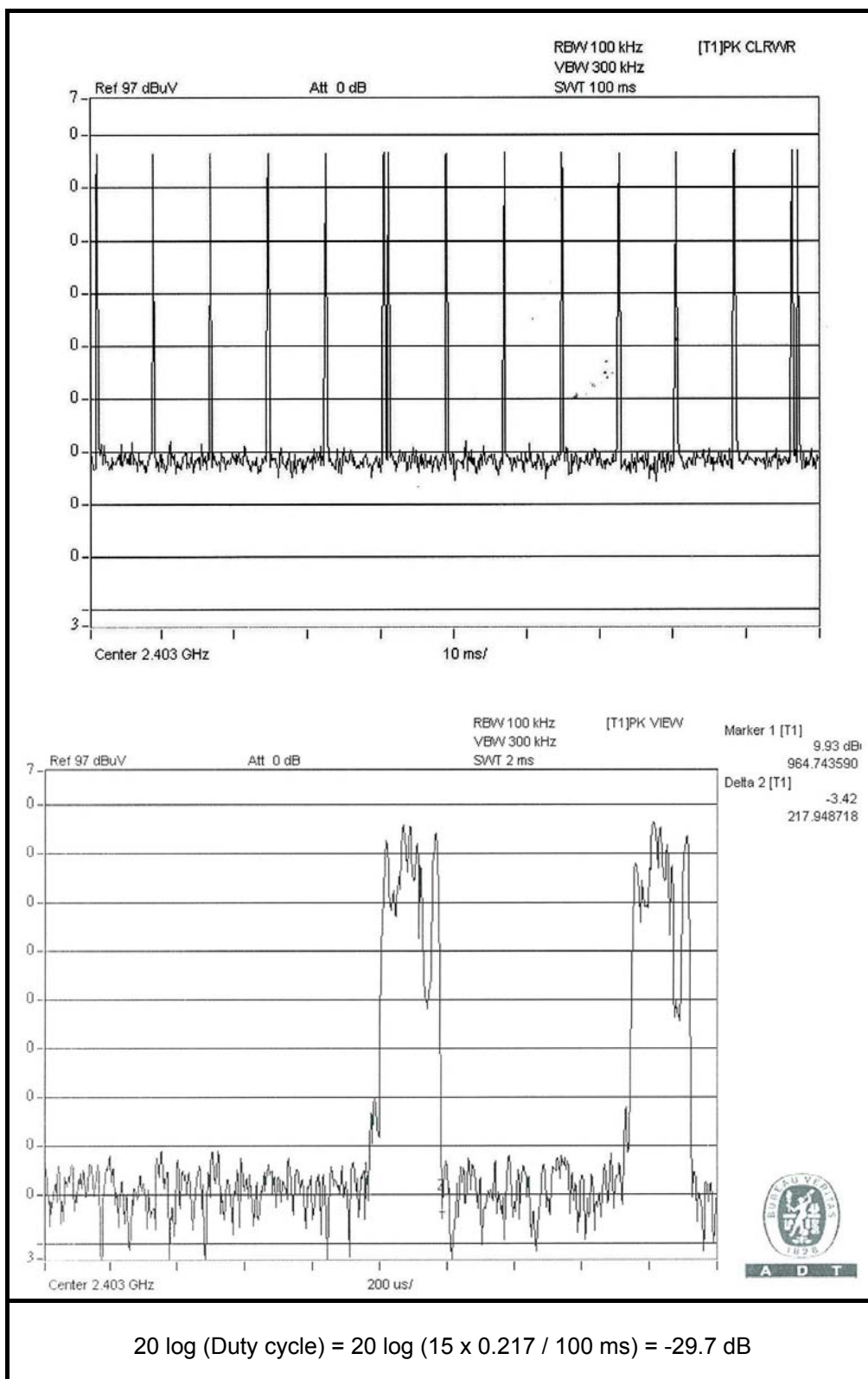
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2444.00	98.1 PK	114.0	-15.9	1.35 H	212	67.40	30.70
2	*2444.00	68.4 AV	94.0	-25.6	1.35 H	212	37.70	30.70
3	4888.00	61.7 PK	74.0	-12.3	1.02 H	197	25.50	36.20
4	4888.00	32.0 AV	54.0	-22.0	1.02 H	197	-4.20	36.20
5	7332.00	58.5 PK	74.0	-15.5	1.08 H	211	15.90	42.60
6	7332.00	28.8 AV	54.0	-25.2	1.08 H	211	-13.80	42.60
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	*2444.00	92.4 PK	114.0	-21.6	1.10 V	130	61.70	30.70
2	*2444.00	62.7 AV	94.0	-31.3	1.10 V	130	32.00	30.70
3	4888.00	54.2 PK	74.0	-19.8	1.00 V	72	18.00	36.20
4	4888.00	24.5 AV	54.0	-29.5	1.00 V	72	-11.70	36.20
5	7332.00	58.8 PK	74.0	-15.2	1.23 V	341	16.20	42.60
6	7332.00	29.1 AV	54.0	-24.9	1.23 V	341	-13.50	42.60

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 24	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Dean Wang
TEST MODE	C		

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	*2480.00	96.6 PK	114.0	-17.4	1.30 H	18	65.80	30.80
2	*2480.00	66.9 AV	94.0	-27.1	1.30 H	18	36.10	30.80
3	2483.50	46.4 PK	74.0	-27.6	1.30 H	18	15.60	30.80
4	2483.50	16.7 AV	54.0	-37.3	1.30 H	18	-14.10	30.80
5	2485.50	65.5 PK	74.0	-8.5	1.30 H	18	34.70	30.80
6	2485.50	32.4 AV	54.0	-21.6	1.30 H	18	1.60	30.80
7	4960.00	63.3 PK	74.0	-10.7	1.00 H	191	26.90	36.40
8	4960.00	33.6 AV	54.0	-20.4	1.00 H	191	-2.80	36.40
9	7440.00	56.1 PK	74.0	-17.9	1.00 H	161	13.20	42.90
10	7440.00	26.4 AV	54.0	-27.6	1.00 H	161	-16.50	42.90
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	*2480.00	91.0 PK	114.0	-23.0	1.08 V	128	60.20	30.80
2	*2480.00	61.3 AV	94.0	-32.7	1.08 V	128	30.50	30.80
3	2483.50	40.8 PK	74.0	-33.2	1.08 V	128	10.00	30.80
4	2483.50	11.1 AV	54.0	-42.9	1.08 V	128	-19.70	30.80
5	2485.50	57.8 PK	74.0	-16.2	1.08 V	128	27.00	30.80
6	2485.50	31.7 AV	54.0	-22.3	1.08 V	128	0.90	30.80
7	4960.00	61.8 PK	74.0	-12.2	1.28 V	163	25.40	36.40
8	4960.00	32.1 AV	54.0	-21.9	1.28 V	163	-4.30	36.40
9	7440.00	56.5 PK	74.0	-17.5	1.15 V	338	13.60	42.90
10	7440.00	26.8 AV	54.0	-27.2	1.15 V	338	-16.10	42.90

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 (Duty cycle) = 20 log (3.255 ms / 100 ms) = -29.7 dB
Please see page 26 for plotted duty.



BELOW 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Brad Wu
TEST MODE	A		

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	37.68	20.4 QP	40.0	-19.6	2.00 H	1	5.60	14.80
2	156.28	22.4 QP	43.5	-21.1	1.50 H	10	8.10	14.30
3	218.50	20.6 QP	46.0	-25.4	2.00 H	118	8.80	11.80
4	453.75	19.3 QP	46.0	-26.7	1.50 H	115	-0.10	19.40
5	648.18	22.4 QP	46.0	-23.6	1.50 H	124	-1.40	23.80
6	951.49	30.7 QP	46.0	-15.3	1.50 H	181	2.10	28.60
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	99.89	19.6 QP	43.5	-23.9	1.00 V	13	8.00	11.60
2	226.27	28.5 QP	46.0	-17.5	1.50 V	10	16.20	12.30
3	558.75	21.3 QP	46.0	-24.7	2.00 V	97	-0.40	21.70
4	724.01	24.9 QP	46.0	-21.1	2.00 V	280	-0.40	25.30
5	776.51	26.0 QP	46.0	-20.0	1.50 V	97	0.20	25.80
6	967.05	29.4 QP	54.0	-24.6	2.00 V	277	0.70	28.70

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Brad Wu
TEST MODE	B		

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	37.68	21.8 QP	40.0	-18.2	2.00 H	343	7.00	14.80
2	148.50	21.7 QP	43.5	-21.8	2.00 H	10	7.80	13.90
3	220.44	24.8 QP	46.0	-21.2	2.00 H	289	12.90	11.90
4	430.42	19.6 QP	46.0	-26.4	1.50 H	4	0.70	18.90
5	574.30	21.1 QP	46.0	-24.9	1.50 H	160	-0.90	22.00
6	879.55	28.2 QP	46.0	-17.8	1.00 H	310	0.60	27.60
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	45.45	21.5 QP	40.0	-18.5	1.00 V	220	7.30	14.20
2	162.11	20.3 QP	43.5	-23.2	1.50 V	238	6.10	14.20
3	230.16	28.4 QP	46.0	-17.6	1.50 V	187	15.90	12.50
4	572.36	21.0 QP	46.0	-25.0	1.50 V	115	-0.90	21.90
5	696.79	24.2 QP	46.0	-21.8	1.00 V	160	-0.80	25.00
6	951.49	30.9 QP	46.0	-15.1	1.00 V	187	2.30	28.60

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	1.5Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1008 hPa	TESTED BY	Brad Wu
TEST MODE	C		

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	37.68	22.3 QP	40.0	-17.7	2.00 H	82	7.50	14.80
2	66.84	20.7 QP	40.0	-19.3	2.50 H	202	7.50	13.20
3	152.39	20.6 QP	43.5	-22.9	1.50 H	109	6.50	14.10
4	220.44	21.8 QP	46.0	-24.2	1.50 H	163	9.90	11.90
5	646.24	23.1 QP	46.0	-22.9	1.00 H	142	-0.60	23.70
6	830.95	26.1 QP	46.0	-19.9	1.25 H	202	-0.50	26.60
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	33.79	27.9 QP	40.0	-12.1	1.00 V	124	14.10	13.80
2	226.27	32.5 QP	46.0	-13.5	1.50 V	73	20.20	12.30
3	500.42	24.8 QP	46.0	-21.2	1.25 V	103	4.30	20.50
4	535.42	25.5 QP	46.0	-20.5	1.25 V	115	4.30	21.20
5	751.23	26.6 QP	46.0	-19.4	1.50 V	253	1.00	25.60
6	945.66	33.8 QP	46.0	-12.2	1.50 V	223	5.20	28.60

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.

4.2 BAND EDGES MEASUREMENT

4.2.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100040	Jul. 07, 2009	Jul. 06, 2010

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

4.2.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss 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.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

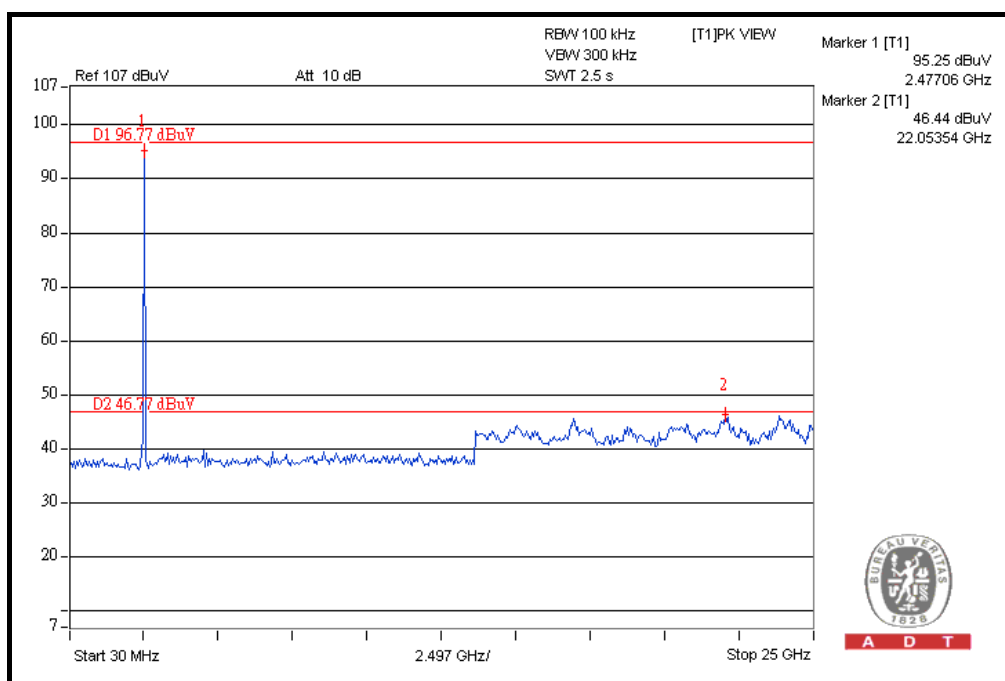
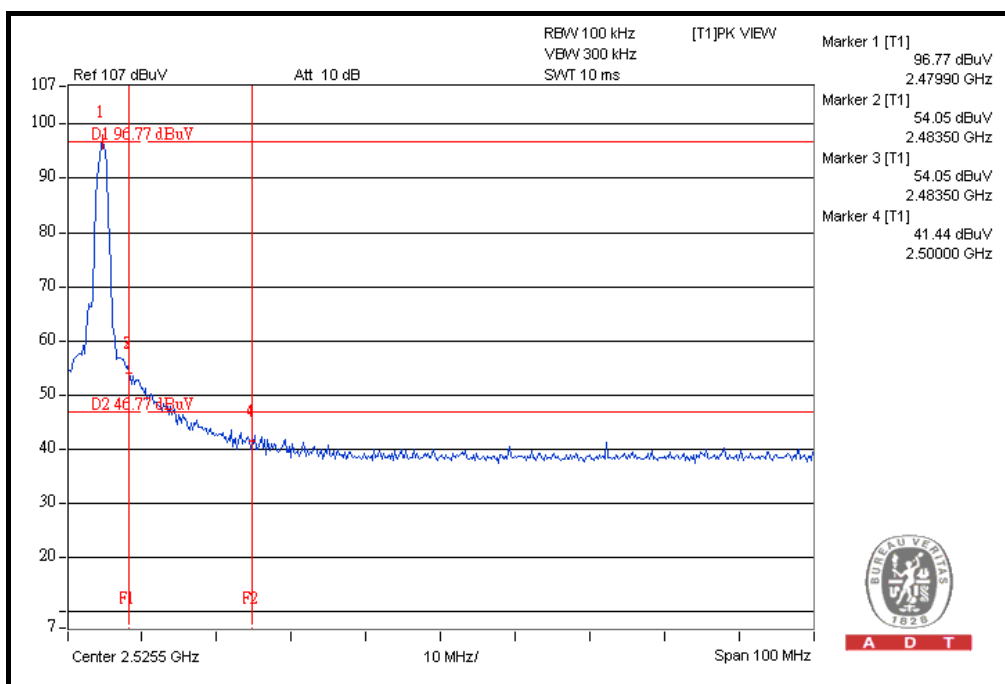
4.2.6 TEST RESULTS

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).





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 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. 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

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

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 ---