



FCC TEST REPORT

REPORT NO. : RF991125C03
MODEL NO. : GKN
FCC ID: PRDOPWIRWMU26
RECEIVED : Nov. 25, 2010
TESTED : Jan. 10, 2011
ISSUED : Jan. 14, 2011

APPLICANT : Acrox Technologies Co., Ltd

ADDRESS : 4F., No. 89, Minshan St., Neihu Dist., Taipei City
114, Taiwan, R.O.C.

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, R.O.C.

TEST LOCATION : No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei
Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This test report consists of 25 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, certification, approval or endorsement by TAF or any government agency. The test results in the report only apply to the tested sample. The test results in this report are traceable to the national or international standards.





Table of Contents

RELEASE CONTROL RECORD.....	3
1. CERTIFICATION	4
2. SUMMARY OF TEST RESULTS	5
2.1 MEASUREMENT UNCERTAINTY	5
3. GENERAL INFORMATION.....	6
3.1 GENERAL DESCRIPTION OF EUT.....	6
3.2 DESCRIPTION OF TEST MODES.....	7
3.2.1 CONFIGURATION OF SYSTEM UNDER TEST	7
3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	8
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS	9
3.4 DESCRIPTION OF SUPPORT UNITS	9
4. TEST TYPES AND RESULTS	10
4.1 RADIATED EMISSION MEASUREMENT	10
4.1.1 LIMITS OF RADIATED 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 BAND EDGES MEASUREMENT	20
4.2.1 LIMITS OF BAND EDGES MEASUREMENT	20
4.2.2 TEST INSTRUMENTS	20
4.2.3 TEST PROCEDURE	20
4.2.4 DEVIATION FROM TEST STANDARD	20
4.2.5 EUT OPERATING CONDITION	20
4.2.6 TEST RESULTS	21
5. PHOTOGRAPHS OF THE TEST CONFIGURATION.....	23
6. INFORMATION ON THE TESTING LABORATORIES	24
7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	25



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Jan. 14, 2011



1. CERTIFICATION

PRODUCT: Wireless Mouse

MODEL NO.: GKN

BRAND: ACROX

APPLICANT: Acrox Technologies Co., Ltd

TESTED: Jan. 10, 2011

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.4-2003

ANSI C63.10-2009

The above equipment (model: GKN) 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 : Ivy Lin , **DATE:** Jan. 14, 2011
Ivy Lin / Specialist

APPROVED BY : Gary Chang , **DATE:** Jan. 14, 2011
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
15.207	Conducted Emission Test	NA	Power supply is 3Vdc from batteries.
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 -19.3dB at 2398.0MHz.

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	2.93 dB
	200MHz ~1000MHz	2.95 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.	GKN
FCC ID	PRDOPWIRWMU26
POWER SUPPLY	3Vdc from batteries (1.5V AAA x 2)
MODULATION TYPE	GFSK
DATA RATE	1Mbps
OPERATING FREQUENCY	2407 ~ 2476MHz
NUMBER OF CHANNEL	70
ANTENNA TYPE	Printed antenna
DATA CABLE	NA
I/O PORT	NA
ACCESSORY DEVICES	NA

NOTE:

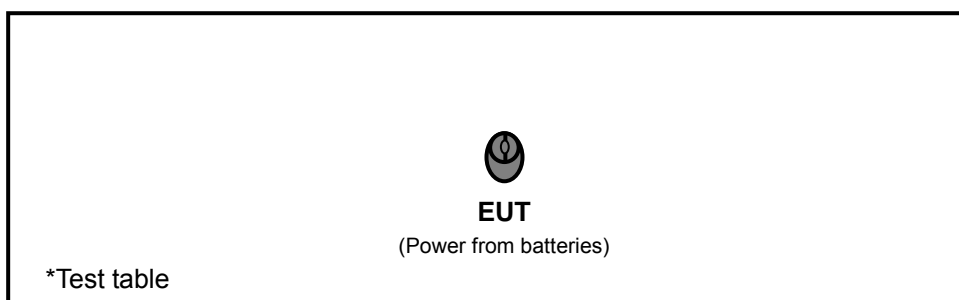
1. The EUT has transmitter and receiver functions.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

70 channels are provided to this EUT.

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	2407	25	2431	49	2455
2	2408	26	2432	50	2456
3	2409	27	2433	51	2457
4	2410	28	2434	52	2458
5	2411	29	2435	53	2459
6	2412	30	2436	54	2460
7	2413	31	2437	55	2461
8	2414	32	2438	56	2462
9	2415	33	2439	57	2463
10	2416	34	2440	58	2464
11	2417	35	2441	59	2465
12	2418	36	2442	60	2466
13	2419	37	2443	61	2467
14	2420	38	2444	62	2468
15	2421	39	2445	63	2469
16	2422	40	2446	64	2470
17	2423	41	2447	65	2471
18	2424	42	2448	66	2472
19	2425	43	2449	67	2473
20	2426	44	2450	68	2474
21	2427	45	2451	69	2475
22	2428	46	2452	70	2476
23	2429	47	2453		
24	2430	48	2454		

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	PLC	BM	
-	√	√	NOTE	√	-

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

RE \geq 1G: Radiated Emission above 1GHz

BM: Bandedge Measurement

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

RADIATED EMISSION TEST (ABOVE 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations axis 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
1 to 70	1, 34, 70	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 axis 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
1 to 70	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.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
1 to 70	1, 70	GFSK

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	22deg. C, 65%RH, 1020 hPa	3Vdc	David Huang
RE $<$ 1G	22deg. C, 65%RH, 1020 hPa	3Vdc	David Huang
BM	22deg. C, 65%RH, 1020 hPa	3Vdc	David Huang

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.

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	ESCI	100424	Aug. 04, 2010	Aug. 03, 2011
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Jul. 09, 2010	Jul. 08, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 30, 2010	Apr. 29, 2011
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-209	Aug. 02, 2010	Aug. 01, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01910	Sep. 09, 2010	Sep. 08, 2011
Preamplifier Agilent	8447D	2944A10638	Nov. 03, 2010	Nov. 02, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 14, 2010	May 13, 2011
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 20, 2010	Aug. 19, 2011
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	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 9.
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 460141.
5. The IC Site Registration No. is IC 7450F-4.

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.

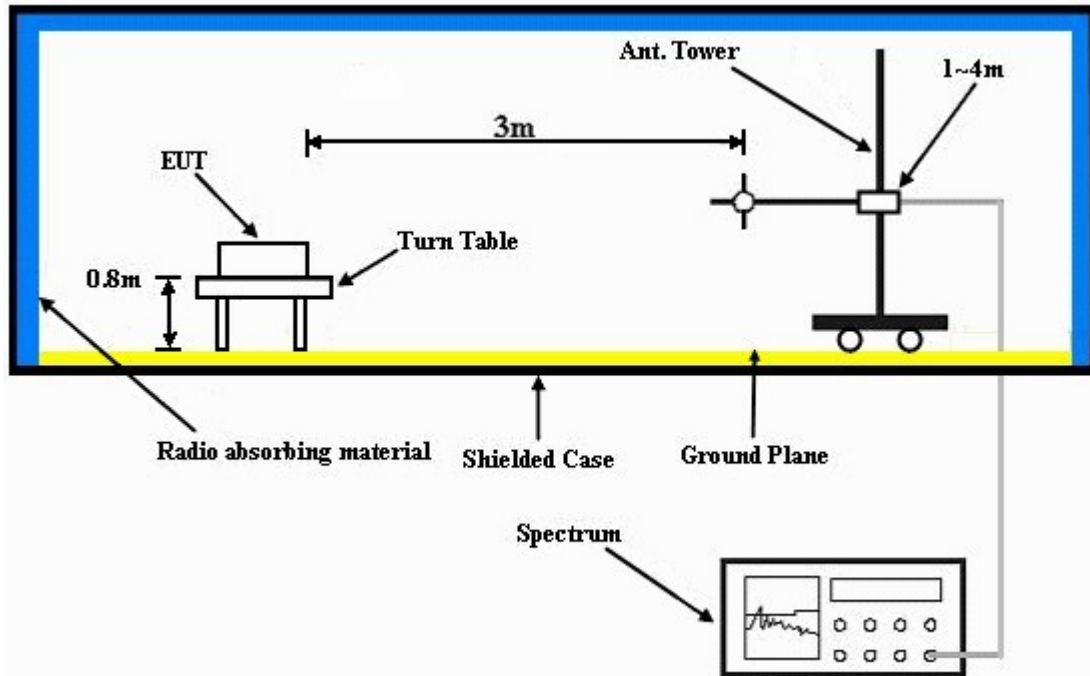
NOTE:

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 1MHz 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	3.0 Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH 1020 hPa	TESTED BY	David Huang

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	49.1 PK	74.0	-24.9	1.00 H	19	18.60	30.50
2	2390.00	24.6 AV	54.0	-29.4	1.00 H	19	-5.90	30.50
3	2398.00	54.7 PK	74.0	-19.3	1.32 H	107	24.10	30.60
4	2398.00	25.4 AV	54.0	-28.6	1.32 H	107	-5.20	30.60
5	2400.00	44.1 PK	74.0	-29.9	1.32 H	107	13.50	30.60
6	2400.00	13.5 AV	54.0	-40.5	1.32 H	107	-17.10	30.60
7	*2407.00	90.9 PK	114.0	-23.1	1.32 H	107	60.30	30.60
8	*2407.00	60.8 AV	94.0	-33.2	1.32 H	107	30.20	30.60
9	4814.00	47.0 PK	74.0	-27.0	1.00 H	19	10.40	36.60
10	4814.00	16.9 AV	54.0	-37.1	1.00 H	19	-19.70	36.60

- 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:
 $20 \log (\text{Duty cycle}) = 20 \log (13 * 0.24 \text{ ms} / 100 \text{ ms}) = -30.1 \text{ dB}$
Please see page 18 for plotted duty.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.0 Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH 1020 hPa	TESTED BY	David Huang

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	43.3 PK	74.0	-30.7	1.25 V	223	12.80	30.50
2	2390.00	25.0 AV	54.0	-29.0	1.25 V	223	-5.50	30.50
3	2398.00	49.4 PK	74.0	-24.6	1.25 V	223	18.80	30.60
4	2398.00	30.4 AV	54.0	-23.6	1.25 V	223	-0.20	30.60
5	2400.00	38.0 PK	74.0	-36.0	1.25 V	223	7.40	30.60
6	2400.00	7.9 AV	54.0	-46.1	1.25 V	223	-22.70	30.60
7	*2407.00	85.0 PK	114.0	-29.0	1.25 V	223	54.40	30.60
8	*2407.00	54.9 AV	94.0	-39.1	1.25 V	223	24.30	30.60
9	4814.00	45.8 PK	74.0	-28.2	1.00 V	193	9.20	36.60
10	4814.00	15.7 AV	54.0	-38.3	1.00 V	193	-20.90	36.60

- 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:
 $20 \log (\text{Duty cycle}) = 20 \log (13 * 0.24 \text{ ms} / 100 \text{ ms}) = -30.1 \text{ dB}$
Please see page 18 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 34	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.0 Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH 1020 hPa	TESTED BY	David Huang

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	*2440.00	89.4 PK	114.0	-24.6	2.06 H	100	58.70	30.70
2	*2440.00	59.3 AV	94.0	-34.7	2.06 H	100	28.60	30.70
3	4880.00	51.7 PK	74.0	-22.3	1.00 H	157	15.00	36.70
4	4880.00	21.6 AV	54.0	-32.4	1.00 H	157	-15.10	36.70
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	*2440.00	83.6 PK	114.0	-30.4	1.00 V	225	52.90	30.70
2	*2440.00	53.5 AV	94.0	-40.5	1.00 V	225	22.80	30.70
3	4880.00	46.9 PK	74.0	-27.1	1.00 V	200	10.20	36.70
4	4880.00	16.8 AV	54.0	-37.2	1.00 V	200	-19.90	36.70

- 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.
 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:
 $20 \log (\text{Duty cycle}) = 20 \log (13 * 0.24 \text{ ms} / 100 \text{ ms}) = -30.1 \text{ dB}$
 Please see page 18 for plotted duty.



A D T

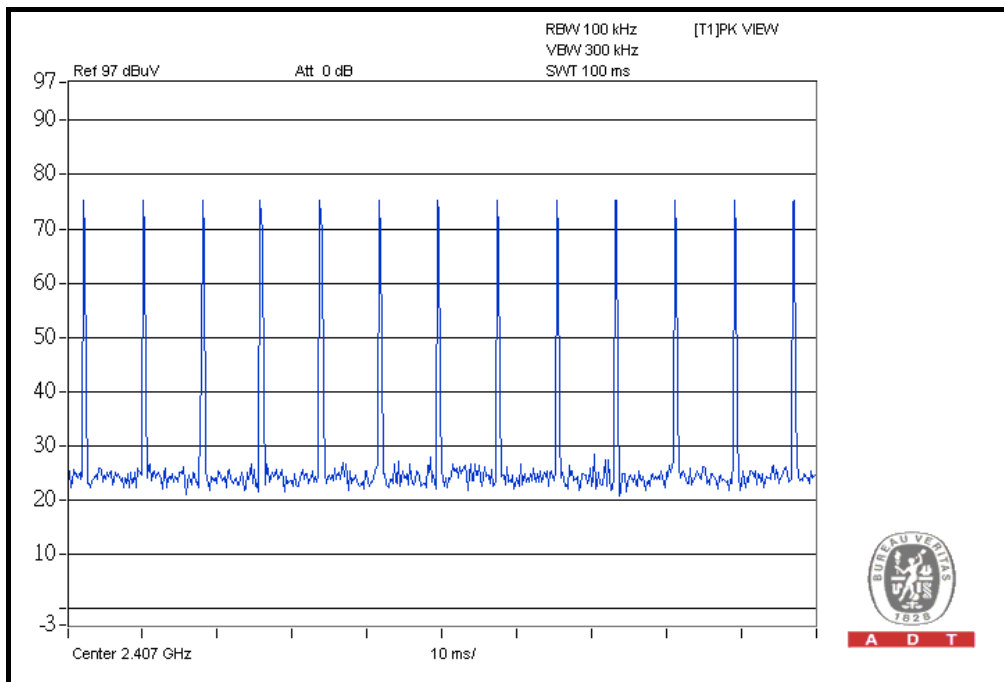
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 70	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.0 Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH 1020 hPa	TESTED BY	David Huang

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	*2476.00	88.2 PK	114.0	-25.8	1.35 H	111	57.40	30.80
2	*2476.00	58.1 AV	94.0	-35.9	1.35 H	111	27.30	30.80
3	2483.50	39.7 PK	74.0	-34.3	1.35 H	111	8.80	30.90
4	2483.50	9.6 AV	54.0	-44.4	1.35 H	111	-21.30	30.90
5	2485.50	49.9 PK	74.0	-24.1	1.35 H	111	19.00	30.90
6	2485.50	25.3 AV	54.0	-28.7	1.35 H	111	-5.60	30.90
7	4952.00	51.6 PK	74.0	-22.4	1.00 H	257	14.70	36.90
8	4952.00	21.5 AV	54.0	-32.5	1.00 H	257	-15.40	36.90
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	*2476.00	81.8 PK	114.0	-32.2	1.41 V	167	51.00	30.80
2	*2476.00	51.7 AV	94.0	-42.3	1.41 V	167	20.90	30.80
3	2483.50	36.0 PK	74.0	-38.0	1.41 V	167	5.10	30.90
4	2483.50	5.9 AV	54.0	-48.1	1.41 V	167	-25.00	30.90
5	2485.50	43.4 PK	74.0	-30.6	1.41 V	167	12.50	30.90
6	2485.50	24.6 AV	54.0	-29.4	1.41 V	167	-6.30	30.90
7	4952.00	47.2 PK	74.0	-26.8	1.00 V	125	10.30	36.90
8	4952.00	17.1 AV	54.0	-36.9	1.00 V	125	-19.80	36.90

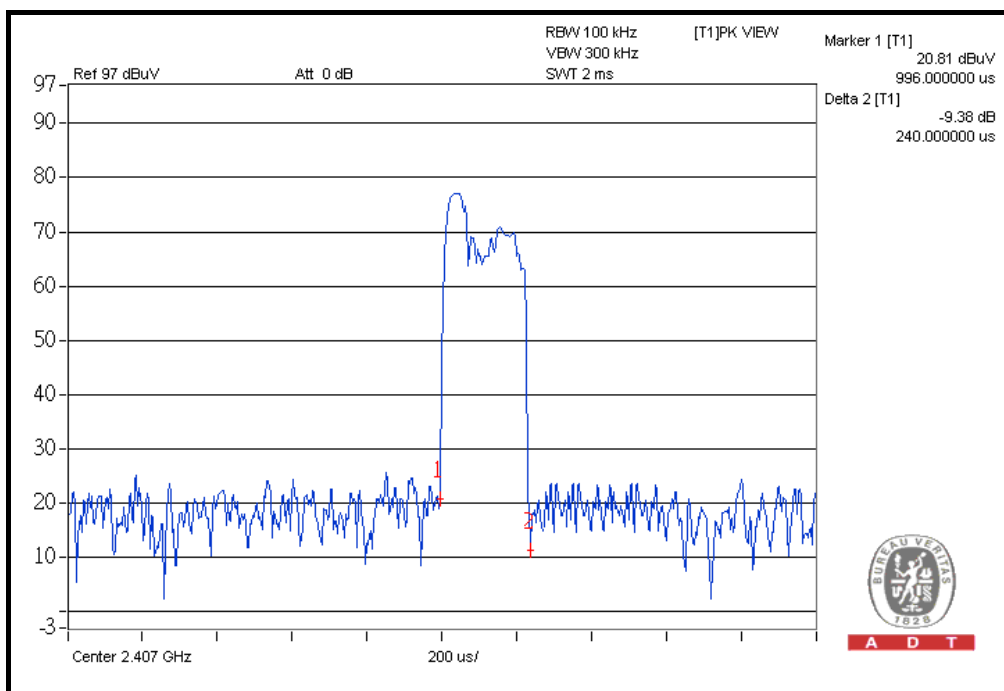
- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “ : Fundamental frequency
 6. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:
 $20 \log (\text{Duty cycle}) = 20 \log (13 * 0.24 \text{ ms} / 100 \text{ ms}) = -30.1 \text{ dB}$
Please see page 18 for plotted duty.



A D T



A D T



A D T

$$20 \log (\text{Duty cycle}) = 20 \log (13 * 0.24 \text{ ms} / 100 \text{ ms}) = -30.1 \text{ dB}$$

BELOW 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	3.0 Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH 1020 hPa	TESTED BY	David Huang

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	59.06	12.3 QP	40.0	-27.7	1.25 H	181	-1.20	13.50
2	156.28	13.5 QP	43.5	-30.0	1.25 H	205	-0.30	13.80
3	399.31	16.0 QP	46.0	-30.0	1.50 H	7	-0.10	16.10
4	556.80	20.2 QP	46.0	-25.8	1.50 H	139	-0.80	21.00
5	762.90	23.8 QP	46.0	-22.2	1.25 H	274	-0.50	24.30
6	967.05	26.1 QP	54.0	-27.9	1.25 H	22	-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	55.18	12.6 QP	40.0	-27.4	1.50 V	175	-1.00	13.60
2	152.39	12.7 QP	43.5	-30.8	2.00 V	10	-1.20	13.90
3	360.43	14.7 QP	46.0	-31.3	1.00 V	154	-0.40	15.10
4	550.97	20.7 QP	46.0	-25.3	1.25 V	322	-0.10	20.80
5	764.84	23.7 QP	46.0	-22.3	1.00 V	268	-0.70	24.40
6	945.66	25.4 QP	46.0	-20.6	1.50 V	76	-1.10	26.50

- 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
SPECTRUM ANALYZER R&S	FSP40	100040	Jul. 17, 2010	Jul. 16, 2011

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 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.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 EUT OPERATING CONDITION

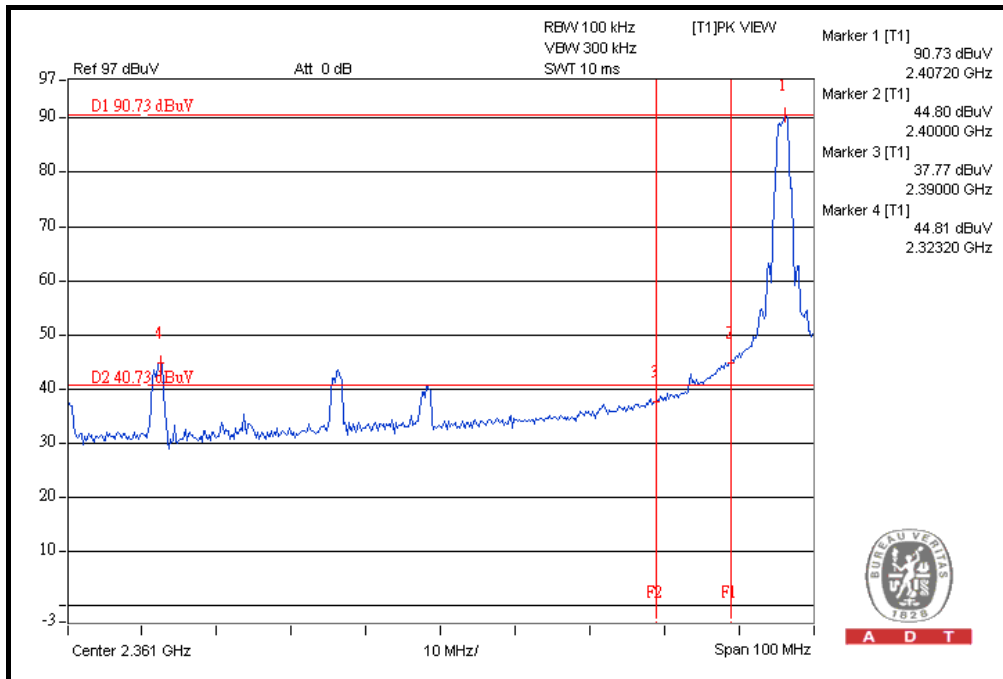
The software provided by client to enable the EUT under transmission condition continuously at lowest and highest channel frequencies individually.



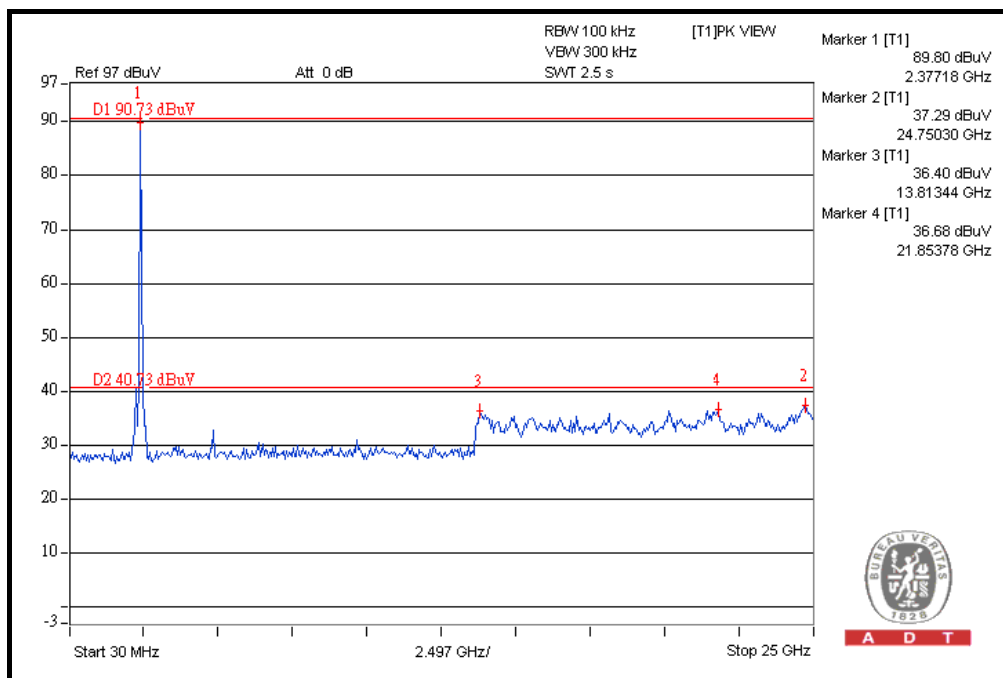
A D T

4.2.6 TEST RESULTS

The spectrum plots are attached on the following 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).



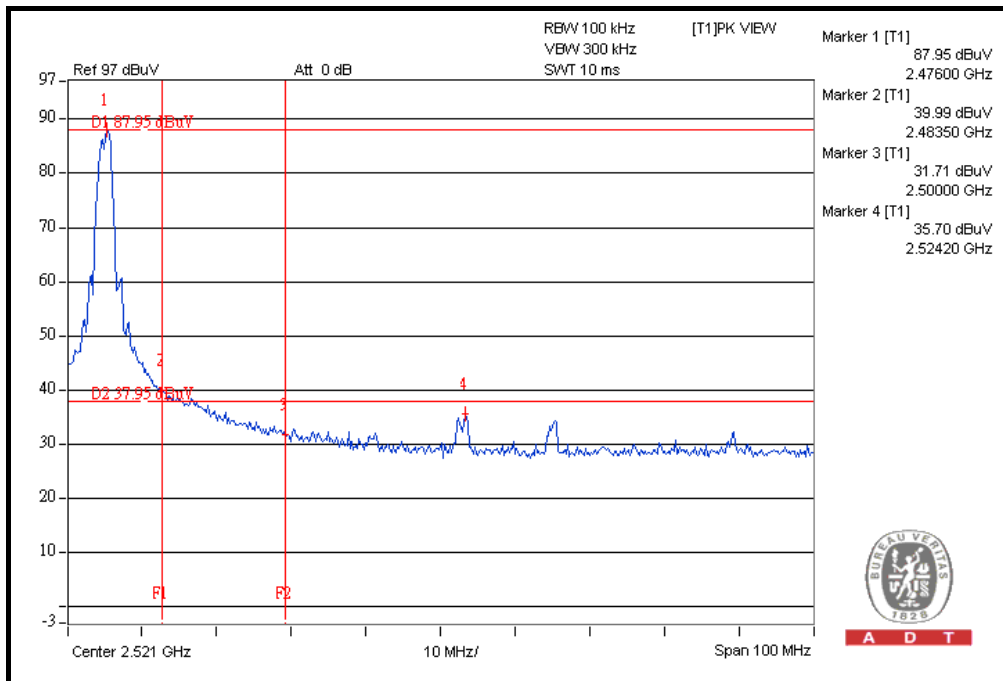
A D T



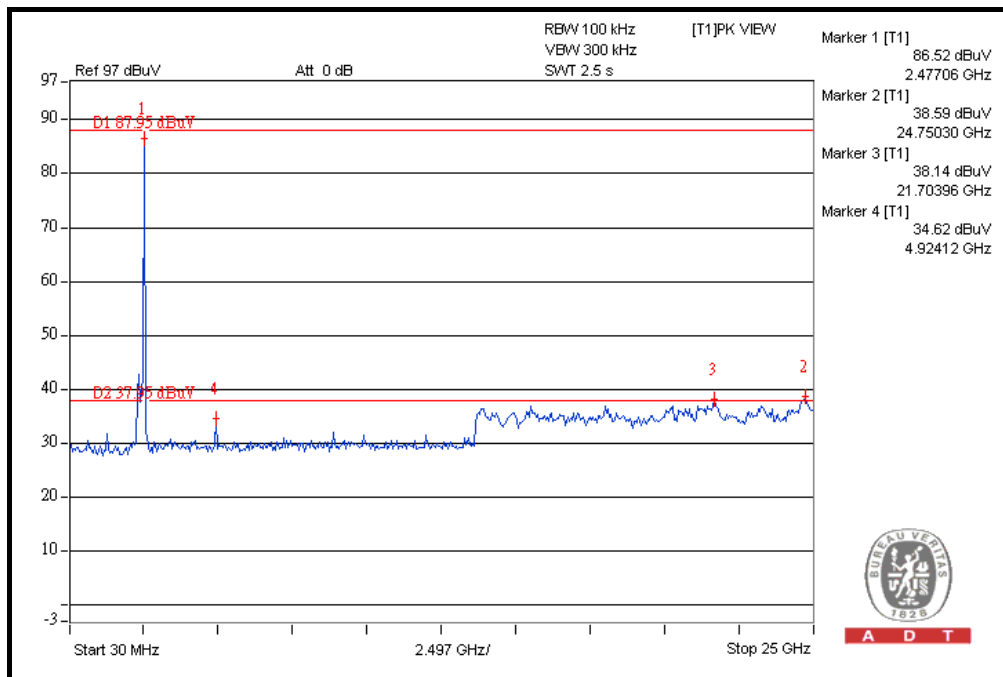
A D T



A D T



A D T



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---