FCC DoC TEST REPORT

REPORT NO. : FD981207H01

MODEL NO. : N-I0004

RECEIVED : Dec 07, 2009

TESTED : Dec. 08, 2009

ISSUED: Dec. 14, 2009

APPLICANT : LOGITECH FAR EAST LTD.

ADDRESS : #2 Creation Rd. 4, Science-Based Ind. Park
Hsinchu Taiwan, R.O.C.

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

LAB LOCATION : No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

LAB CODE: 200838-0

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1 CERTIFICATION

PRODUCT :	Remote control Harmony 300
BRAND NAME :	Logitech
MODEL NO. :	N-I0004
TESTED :	Dec. 11, 2009
TEST SAMPLE :	ENGINEERING SAMPLE
APPLICANT :	LOGITECH FAR EAST LTD.
STANDARDS :	FCC Part 15, Subpart B, Class B CISPR 22: 1997, Class B ICES-003: 2004, Class B ANSI C63.4-2003

The above equipment (Model: N-I0004) 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 : _____ , **DATE:** Dec. 14, 2009
(Midoli Peng, Specialist)

TECHNICAL ACCEPTANCE : _____ , **DATE:** Dec. 14, 2009
(Ray Yeh, Deputy Manager)

APPROVED BY : _____ , **DATE:** Dec. 14, 2009
(May Chen, Deputy Manager)

2 SUMMARY OF TEST RESULTS

Standard	Test Type	Result	Remarks
FCC Part 15 Subpart B, Class B CISPR 22: 1997, Class B ICES-003: Class B	Conducted Test	**PASS**	Meets Class B Limit Minimum passing margin is -10.35 dB at 16.348 MHz
	Radiated Test	**PASS**	Meets Class B Limit Minimum passing margin is -5.09 dB at 144.00 MHz

Note: The limit for radiated test was performed according to CISPR 22, which was specified in FCC PART 15 Subpart B 15.109(g). Also the limits of ICES-003: 2004 and CISPR 22 are same.

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	Value
Conducted emissions	2.45 dB
Radiated emissions(30MHz-1GHz)	3.83 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Remote control Harmony 300
MODEL NO.	N-I0004
POWER SUPPLY	DC 3V from batteries or DC 5V from host equipment
POWER CORD	NA
DATA CABLE SUPPLIED	JEM recharge USB cable (Shielded, 0.69m)
I/O PORT	USB port x 1
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT was pre-tested under the following test modes for three different axes placements:

Test Mode	Description
Mode A	**X-Y plane**
Mode B	X-Z plane
Mode C	Y-Z plane

From the above modes, the worst emission level was found in **Mode A**. Therefore only the test data of the modes were recorded in this report individually.

2. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3. DESCRIPTION OF TEST MODE

The EUT was tested with the following modes:

Conducted test	
Test Mode	Description
Mode 1	Remote + USB
Radiated test	
Test Mode	Description
Mode 1	Remote + USB
Mode 2	Remote control only

3.2 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.

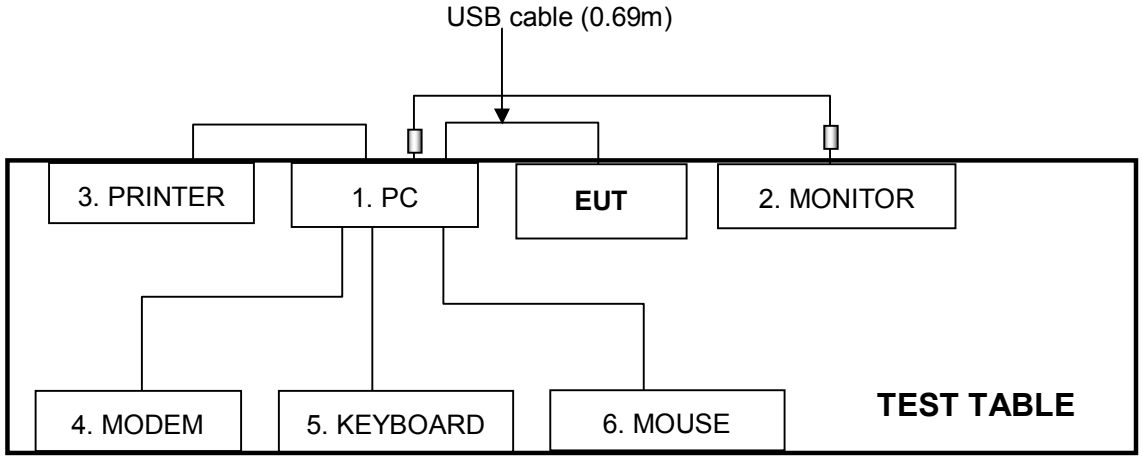
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	PC	DELL	DCSM	G84QL1S	FCC DoC
2	MONITOR	DELL	E228WFPc	CN-OX765G-64180-88P-09ZM	FCC DoC
3	PRINTER	CANON	K10202	FASF84644	FCC DoC
4	MODEM	ACEEX	1414	0206026775	IFAXDM1414
5	KEYBOARD	DELL	SK-8115	MY-0J4635-71619-67V-0114	FCC DoC
6	MOUSE	DELL	M056UOA	FOROOBSN	FCC DoC

No.	Signal cable description
1	0.69m foil unshielded wire, USB Connector, with two cores.
2	1.8m braid shielded wire, VGA & DVI connector, with two cores.
3	1.8 m braid shielded wire, terminated with DB25 and centronics connector via metallic frame, w/o core
4	1 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
5	1.9m foil shielded wire, USB Connector, w/o core.
6	1.8m foil shielded wire, USB Connector, w/o core.

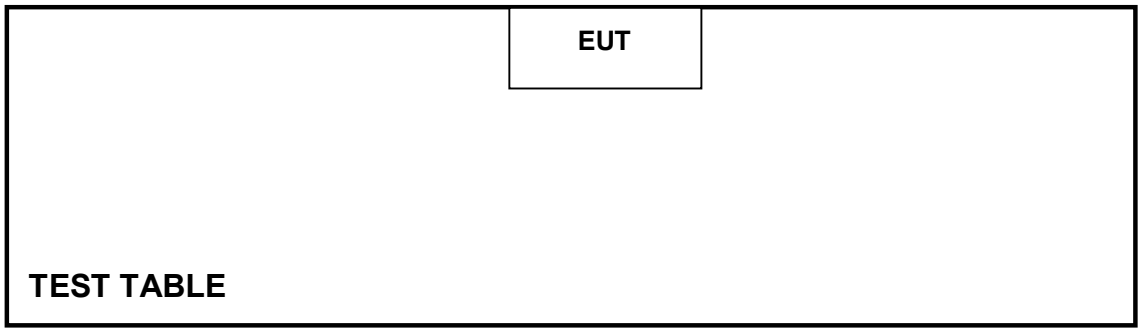
NOTE: All power cords of the above support units are non shielded (1.8m).

3.3 CONFIGURATION OF SYSTEM UNDER TEST

For Remote + USB mode



For Remote control only mode



4 EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD:

FCC Part 15, Subpart B (Section: 15.107)
CISPR 22: 1997 (section 5)
ICES-003: 2004 (Class A: section 5.2)
(Class B: section 5.3)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	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	100287	Mar. 05, 2009	Mar. 04, 2010
Line-Impedance Stabilization Network (for EUT)	KNW-407	8-1395-12	May 04, 2009	May 03, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 08, 2009	June 07, 2010
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec 15, 2009	Dec 14, 2010
50 ohms Terminator	50	3	Nov. 05, 2009	Nov. 04, 2010
Software	BV ADT_Cond_V7.3.7	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 Shielded Room No. A.
3 The VCCI Con A Registration No. is C-817.

4.1.3 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4-2003 (section 7), CISPR 22 (section 9) and ICES-003: 2004 (section 4).

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.

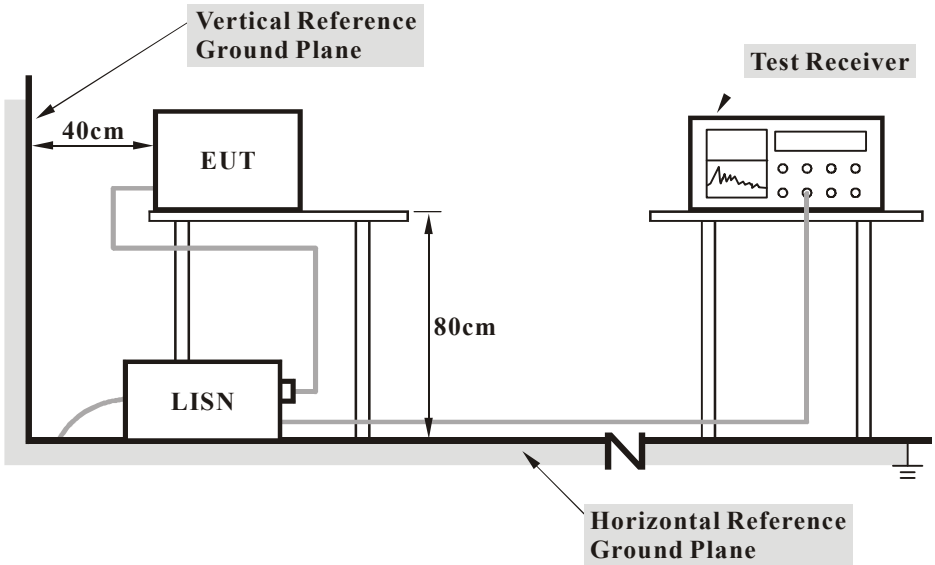
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz 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 80 cm from EUT and at least 80 cm 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

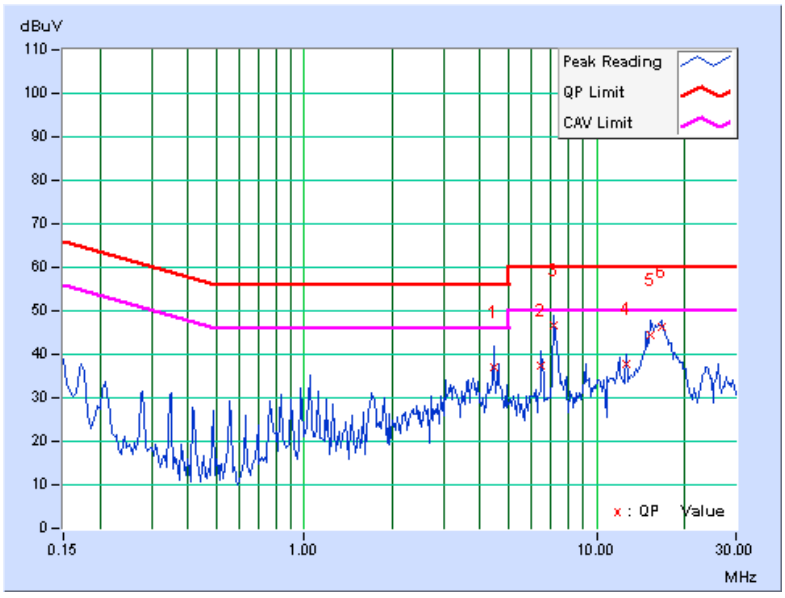
1. Turn on the power of all equipment.
2. PC runs the test program "Logitech runclient.bat" to enable EUT under transmission/receiving condition continuously via one USB cable.

4.1.7 TEST RESULTS

TEST MODE	Mode 1	PHASE	Line (L)
INPUT POWER (SYSTEM)	120Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 60 % RH, 1015 hPa	TESTED BY	Leo Peng

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	4.441	0.15	36.93	-	37.08	-	56.00	46.00	-18.92	-
2	6.488	0.18	37.30	-	37.48	-	60.00	50.00	-22.52	-
3	7.168	0.19	46.59	-	46.78	-	60.00	50.00	-13.22	-
4	12.633	0.30	37.66	-	37.96	-	60.00	50.00	-22.04	-
5	15.361	0.36	43.95	-	44.31	-	60.00	50.00	-15.69	-
6	16.695	0.40	45.82	-	46.22	-	60.00	50.00	-13.78	-

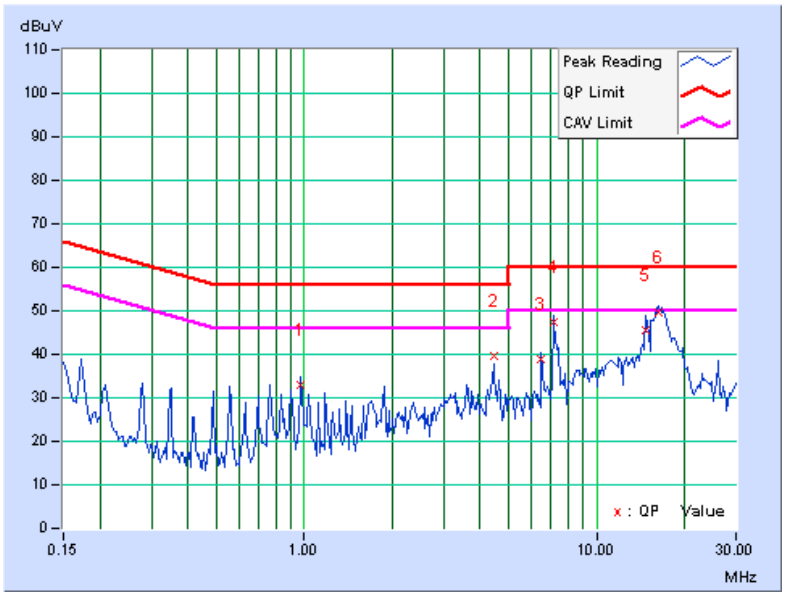
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



TEST MODE	Mode 1	**PHASE**	Neutral (N)
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 60 % RH, 1015 hPa	**TESTED BY**	Leo Peng

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.974	0.08	32.92	-	33.00	-	56.00	46.00	-23.00	-
2	4.441	0.17	39.42	-	39.59	-	56.00	46.00	-16.41	-
3	6.486	0.20	38.51	-	38.71	-	60.00	50.00	-21.29	-
4	7.166	0.21	47.37	-	47.58	-	60.00	50.00	-12.42	-
5	14.676	0.38	45.01	-	45.39	-	60.00	50.00	-14.61	-
6	**16.348**	**0.42**	**49.23**	**-**	**49.65**	**-**	**60.00**	**50.00**	**-10.35**	**-**

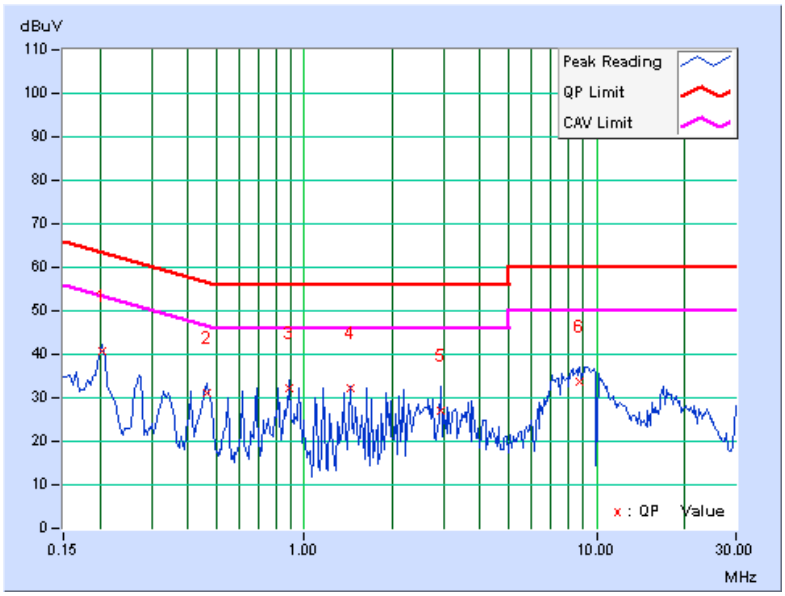
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



TEST MODE	Mode 2	**PHASE**	Line (L)
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 55 % RH, 1015 hPa	**TESTED BY**	Leo Peng

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.205	0.17	40.63	-	40.80	-	63.42	53.42	-22.62	-
2	0.463	0.08	30.98	-	31.06	-	56.65	46.65	-25.59	-
3	0.888	0.06	32.16	-	32.22	-	56.00	46.00	-23.78	-
4	1.434	0.06	32.00	-	32.06	-	56.00	46.00	-23.94	-
5	2.934	0.10	26.93	-	27.03	-	56.00	46.00	-28.97	-
6	8.773	0.21	33.67	-	33.88	-	60.00	50.00	-26.12	-

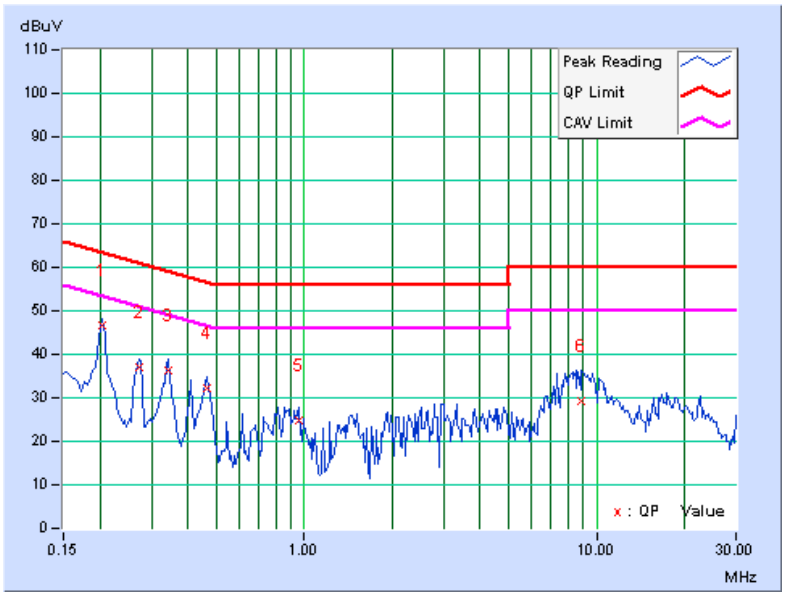
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



TEST MODE	Mode 2	**PHASE**	Neutral (N)
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 55 % RH, 1015 hPa	**TESTED BY**	Leo Peng

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.205	0.18	46.36	-	46.54	-	63.42	53.42	-16.88	-
2	0.271	0.15	36.95	-	37.10	-	61.08	51.08	-23.99	-
3	0.341	0.12	36.27	-	36.39	-	59.17	49.17	-22.78	-
4	0.463	0.09	32.30	-	32.39	-	56.65	46.65	-24.26	-
5	0.955	0.08	24.83	-	24.91	-	56.00	46.00	-31.09	-
6	8.875	0.24	29.06	-	29.30	-	60.00	50.00	-30.70	-

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

TEST STANDARD:

FCC Part 15, Subpart B (Section: 15.109)

CISPR 22: 1997 (section 6)

ICES-003: 2004 (Class A: Section 5.4)
(Class B: Section 5.5)

FOR FREQUENCY BELOW 1000 MHz (47 CFR Part 15 Subpart B)

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 BELOW 1000 MHz (CISPR 22)

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 – 230	40	30
230 - 1000	47	37

Note: The limit for radiated test was performed according to CISPR 22, which was specified in FCC PART 15 Subpart B 15.109(g) and ICES-003 clause 7.

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (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 field strengths specified above.

FREQUENCY RANGE OF RADIATED MEASUREMENT
(For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	U3751	160200410	July. 17, 2009	July. 16, 2010
ADVANTEST Spectrum Analyzer	U3772	160100280	Sep. 21, 2009	Sep. 20, 2010
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2009	Sep. 24, 2010
ROHDE & SCHWARZ Test Receiver	ESVS 30	841977/002	Oct. 28, 2009	Oct. 27, 2010
SCHAFFNER(CHASE) Broadband Antenna	CBL6112B	2798	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120-D1	D123	Sep. 21, 2009	Sep. 20, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 23, 2009	Jan. 22, 2010
RF Switches	MP59B	6100175593	Sep. 01, 2009	Aug. 31, 2010
RF Cable	8DFB	STBCAB-001	Sep. 01, 2009	Aug. 31, 2010
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA
CORCOM AC Filter	MRI2030	024/019	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 horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: U3772) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. B.
4. The VCCI Site Registration No. is R-847.
5. The FCC Site Registration No. is 92753.
6. The CANADA Site Registration No. is IC 7450G-2.

4.2.3 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4-2003 (section 8), CISPR 22 (section 10) and ICES-003: 2004 (section 4).

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10-meter open field site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 10 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 turn 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. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

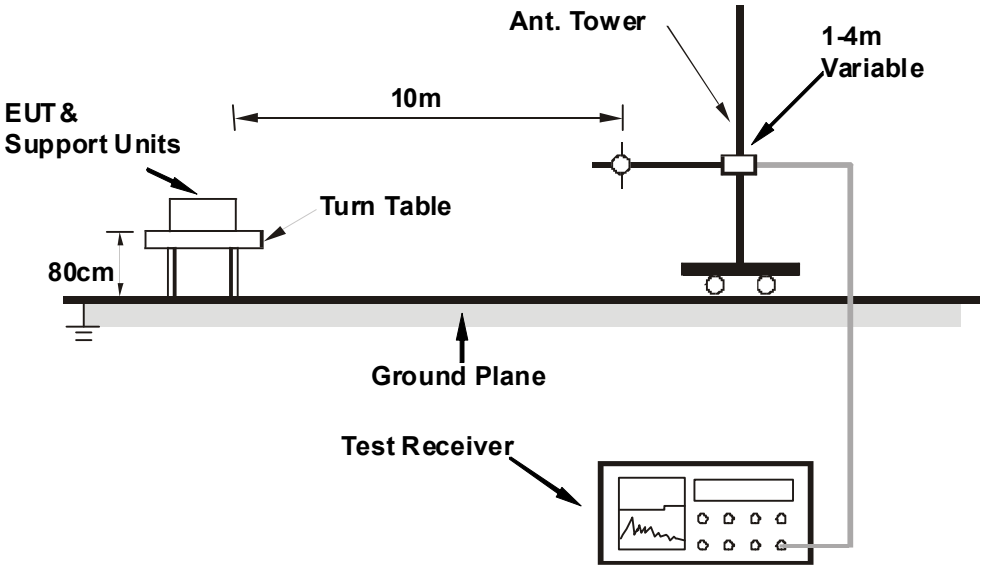
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
3. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the interference-receiving antenna.

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

For test mode 1:

1. Turn on the power of all equipment.
2. PC runs the test program "Logitech runclient.bat" to enable EUT under transmission/receiving condition continuously via one USB cable

For test mode 2:

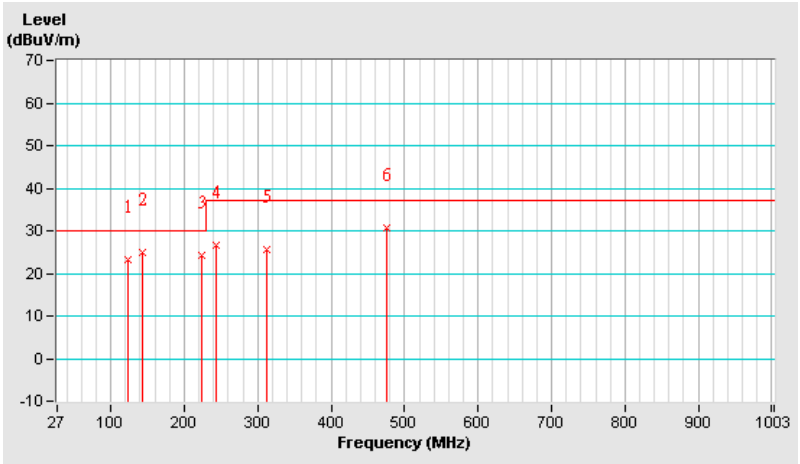
1. The EUT under typical use condition.

4.2.7 TEST RESULTS (MODE 1)

TEST MODE	Mode 1	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
FREQUENCY RANGE	30-1000 MHz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 1015 hPa	**TESTED BY**	Eagle Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 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	123.95	23.17 QP	30.00	-6.83	4.00 H	337	10.62	12.55
2	**144.00**	**24.91 QP**	**30.00**	**-5.09**	**4.00 H**	**269**	**12.56**	**12.35**
3	223.23	24.27 QP	30.00	-5.73	4.00 H	37	11.85	12.42
4	244.09	26.63 QP	37.00	-10.37	4.00 H	333	12.98	13.65
5	312.80	25.67 QP	37.00	-11.33	3.13 H	40	9.97	15.70
6	475.30	30.75 QP	37.00	-6.25	2.13 H	320	10.91	19.84

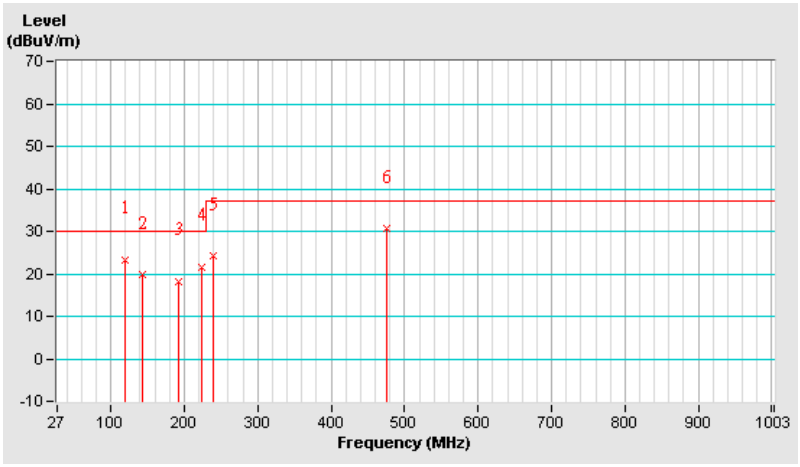
REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



TEST MODE	Mode 1	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
FREQUENCY RANGE	30-1000 MHz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 1015 hPa	**TESTED BY**	Eagle Chen

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 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	120.00	23.16 QP	30.00	-6.84	1.00 V	36	10.56	12.60
2	143.06	19.68 QP	30.00	-10.32	1.00 V	20	7.34	12.34
3	192.00	18.16 QP	30.00	-11.84	1.00 V	342	7.34	10.82
4	223.23	21.68 QP	30.00	-8.32	1.00 V	42	9.26	12.42
5	240.20	24.09 QP	37.00	-12.91	1.00 V	20	10.67	13.42
6	475.30	30.53 QP	37.00	-6.47	1.00 V	344	10.69	19.84

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.

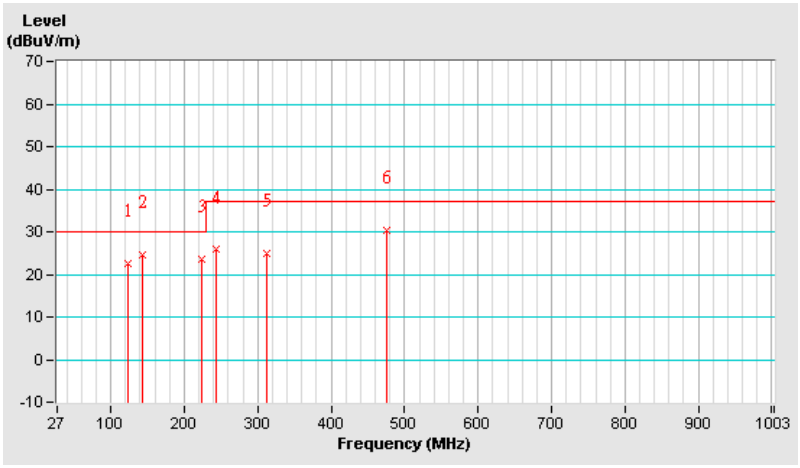


4.2.8 TEST RESULTS(MODE 2)

TEST MODE	Mode 2	INPUT POWER	DC 3V from batteries
FREQUENCY RANGE	30-1000 MHz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 1015 hPa	TESTED BY	Eagle Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 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	123.95	22.67 QP	30.00	-7.33	4.00 H	340	10.12	12.55
2	144.00	24.51 QP	30.00	-5.49	4.00 H	272	12.16	12.35
3	223.23	23.57 QP	30.00	-6.43	4.00 H	39	11.15	12.42
4	244.09	25.83 QP	37.00	-11.17	4.00 H	335	12.18	13.65
5	312.80	25.07 QP	37.00	-11.93	3.13 H	43	9.37	15.70
6	475.30	30.35 QP	37.00	-6.65	2.13 H	323	10.51	19.84

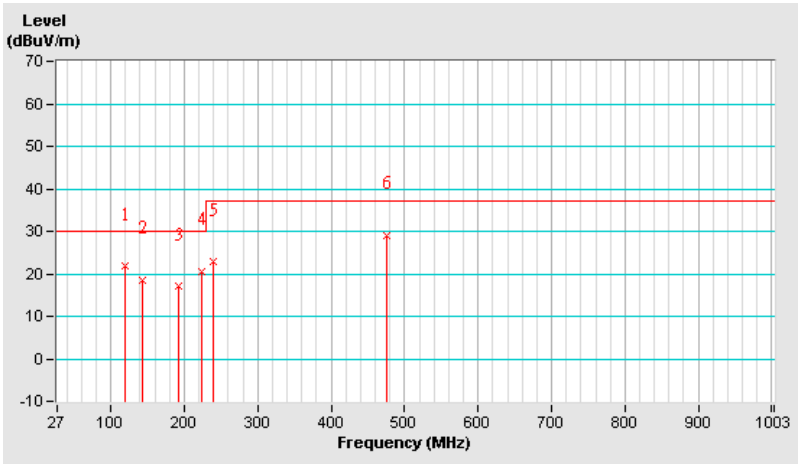
REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



TEST MODE	Mode 2	**INPUT POWER**	DC 3V from batteries
FREQUENCY RANGE	30-1000 MHz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 1015 hPa	**TESTED BY**	Eagle Chen

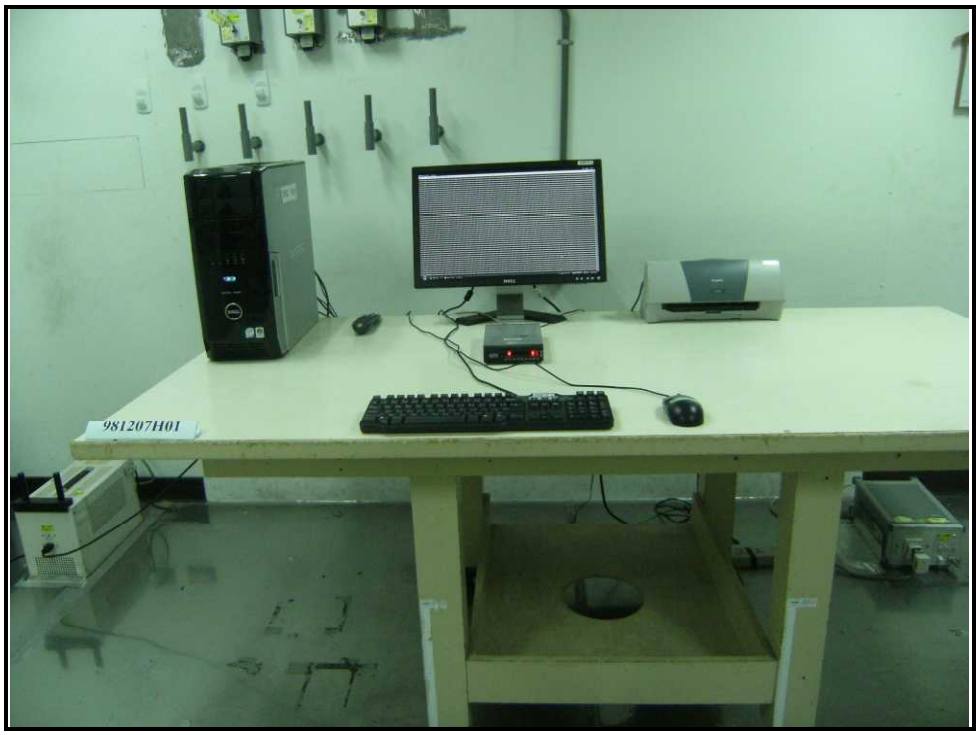
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	21.76 QP	30.00	-8.24	1.00 V	39	9.16	12.60
2	143.06	18.48 QP	30.00	-11.52	1.00 V	24	6.14	12.34
3	192.00	16.96 QP	30.00	-13.04	1.00 V	345	6.14	10.82
4	223.23	20.58 QP	30.00	-9.42	1.00 V	45	8.16	12.42
5	240.20	22.79 QP	37.00	-14.21	1.00 V	23	9.37	13.42
6	475.30	29.03 QP	37.00	-7.97	1.00 V	347	9.19	19.84

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.

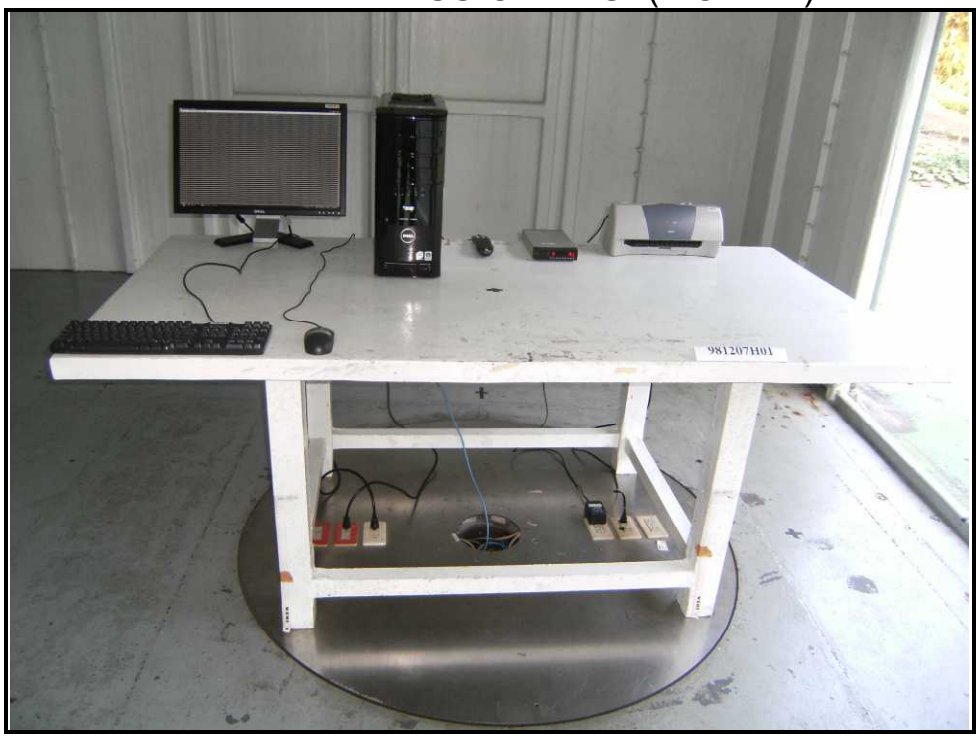


5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST(MODE 1)



RADIATED EMISSION TEST(MODE 2)

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.

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA (MOU)
Russia	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.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

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

Email: service@adt.com.tw
Web Site: www.adt.com.tw

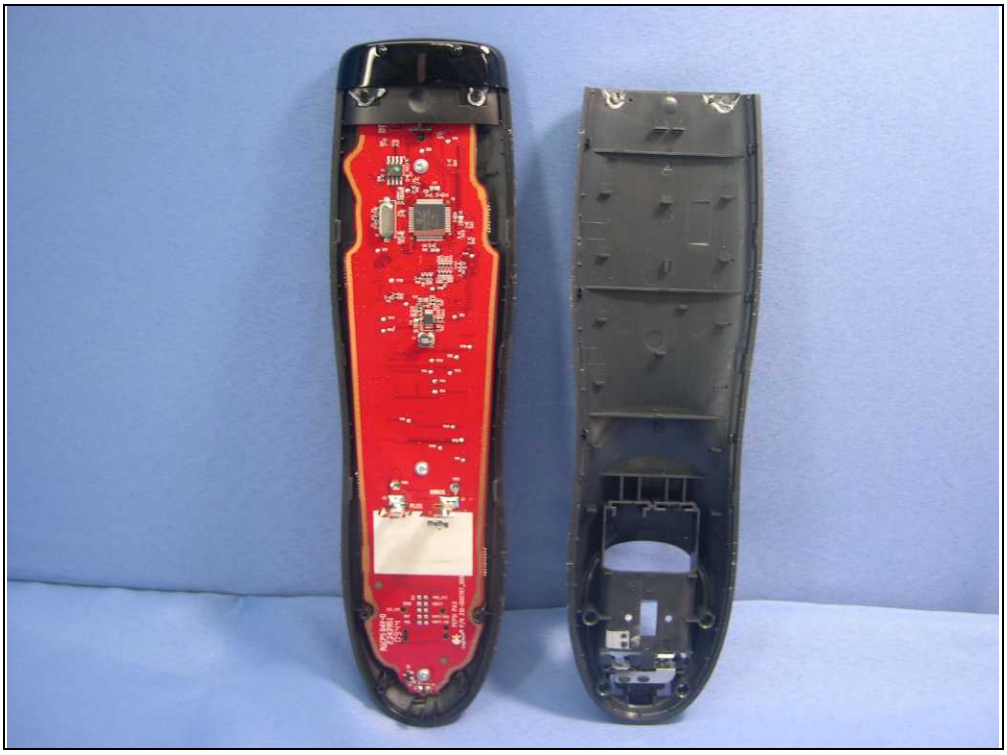
The address and road map of all our labs can be found in our web site also.

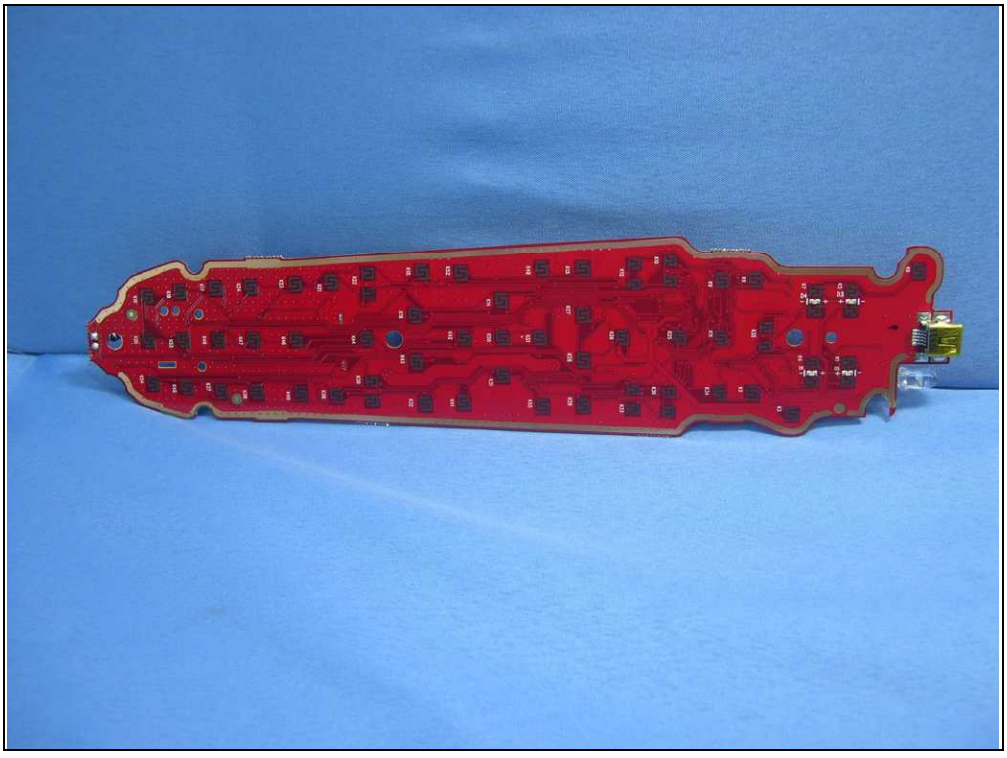
7 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

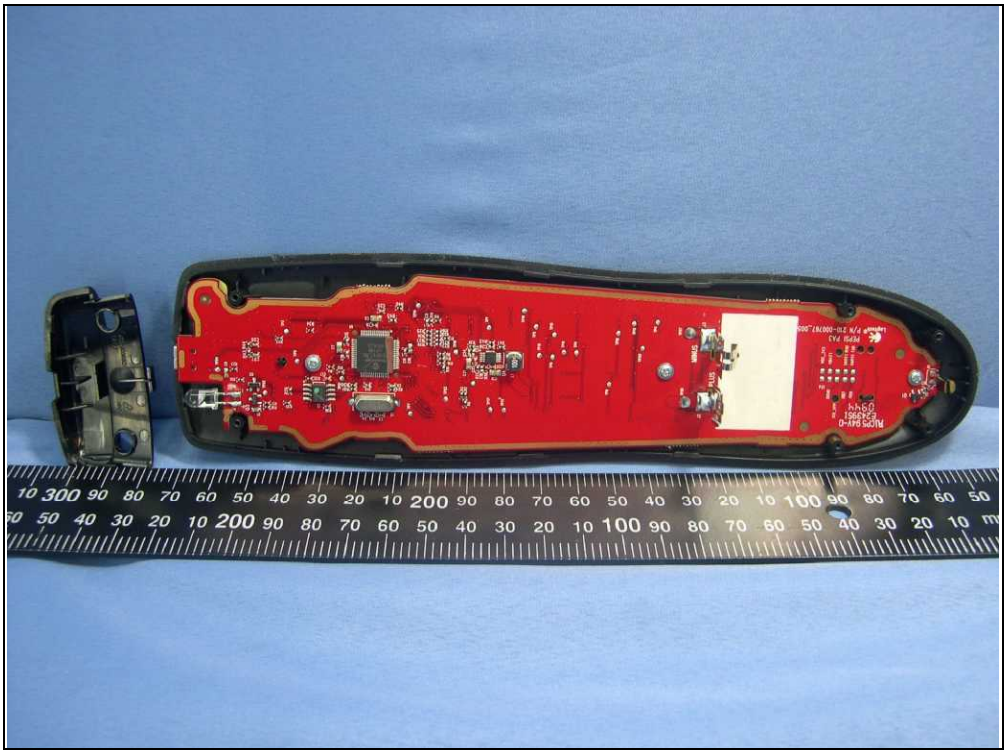
No any modifications are made to the EUT by the lab during the test.

---END---

CONSTRUCTION PHOTOS OF EUT








M/N N-I0004
Rating 3.0V ⎓ 200mA
Made in China
Logitech
P/N: 815-000068 T/R
PID: LZ948BC000R