FCC 15B TEST REPORT

REPORT NO.:	FD110914C32
MODEL NO.:	F7D4515v1B
RECEIVED:	Aug. 10, 2011
TESTED:	Aug. 10 ~ Sep. 19, 2011
ISSUED:	Sep. 27, 2011

APPLICANT:	Belkin International, Inc.
ADDRESS:	12045 East Waterfront Drive, Playa Vista, CA 90094 USA

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.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Sep. 27, 2011

1. CERTIFICATION

PRODUCT: ScreenCast AV 4 – Receiver
MODEL NO.: F7D4515v1B
BRAND: Belkin
APPLICANT: Belkin International, Inc.
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Aug. 10 ~ Sep. 19, 2011
STANDARDS: **FCC Part 15, Subpart B, Class B**
ANSI C63.4-2003

The above equipment (Model: F7D4515v1B) 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 : Andrea Hsia / Specialist **DATE:** Sep. 27, 2011

APPROVED BY : Gary Chang / Technical Manager **DATE:** Sep. 27, 2011

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

Standard Section	Test Type	Result	Remark
FCC Part 15, Subpart B, Class B	Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -23.16dB at 0.306MHz.
	Radiated Emission	PASS	Meet the requirement of limit. Minimum passing margin is -10.6dB at 899.00MHz.

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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
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

PRODUCT	ScreenCast AV 4 – Receiver
MODEL NO.	F7D4515v1B
NOMINAL VOLTAGE	5Vdc
MODULATION TECHNOLOGY	OFDM
MODULATION TYPE	OOK
FREQUENCY RANGE	5180.0 ~ 5240.0MHz, 5745.0 ~ 5825.0MHz
ANTENNA TYPE	Refer to note as below
ANTENNA CONNECTOR	NA
DATA CABLE	1.2m shielded HDMI cable with 2 cores
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter, Remote control

NOTE:

1. The EUT was powered by the following adapter:

BRAND:	DVE
MODEL:	DSA-12PFA-05 FUS
INPUT:	100-240Vac
OUTPUT:	5Vdc, 2A
POWER LINE:	1.5m non-shielded cable without core

2. The EUT provides 1 completed transmitter and 5 receivers for 5.0GHz band.

MODULATION MODE	TX FUNCTION
WHDI (20MHz)	1TX
WHDI (40MHz)	1TX

3. The EUT used the following antennas:

ITEM	ANTENNA TYPE	ANTENNA GAIN	ANTENNA CONNECTOR
Antenna 1 (RX)	Printed	3dBi	none
Antenna 2 (RX)	Printed	3dBi	none
Antenna 3 (RX)	Printed	3dBi	none
Antenna 4 (Tx/RX)	Printed	3dBi	none
Antenna 5 (RX)	Printed	3dBi	none

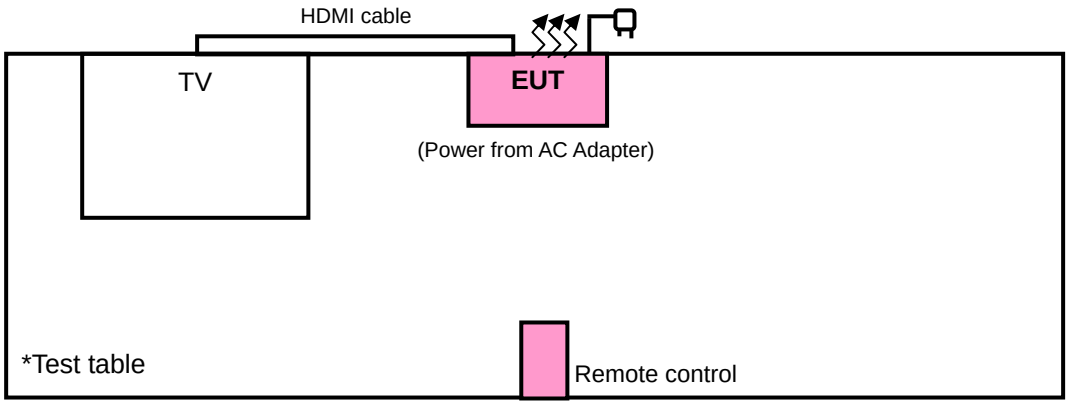
4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

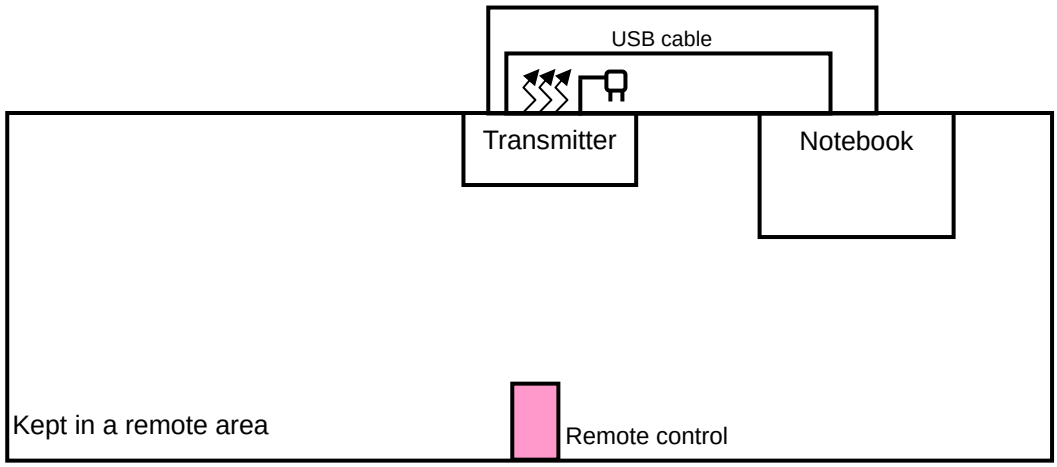
3.2 DESCRIPTION OF TEST MODES

Test mode is presented in the report as below.

DESCRIPTION
Play Video

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST





3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	TV	SANYO	SMT-32HD3	1617323K	NA
2	NOTEBOOK	DELL	E5420	NA	NA
3	ScreenCast AV 4 – Transmitter	BELKIN	F7D4515v1A	NA	K7SF7D4515V1A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.5m USB cable
3	NA

NOTE 1: All power cords of the above support units are non shielded (1.8m).
NOTE 2: Items 2~3 acted as communication partners to transfer data.
NOTE 3: Item 3 was supplied from client.

3.4 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 B, Class B
ANSI C63.4-2003

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

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 15.109 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

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	838496/016	Dec. 27, 2010	Dec. 26, 2011
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 06, 2011	Jan. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01961	Nov. 02, 2010	Nov. 01, 2011
Preamplifier Agilent	8447D	2944A10738	Nov. 02, 2010	Nov. 01, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250792/4	Jan. 27, 2011	Jan. 26, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Jan. 27, 2011	Jan. 26, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Jan. 27, 2011	Jan. 26, 2012
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Nov. 03, 2010	Nov. 02, 2011

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 4.

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 IC7450F-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.

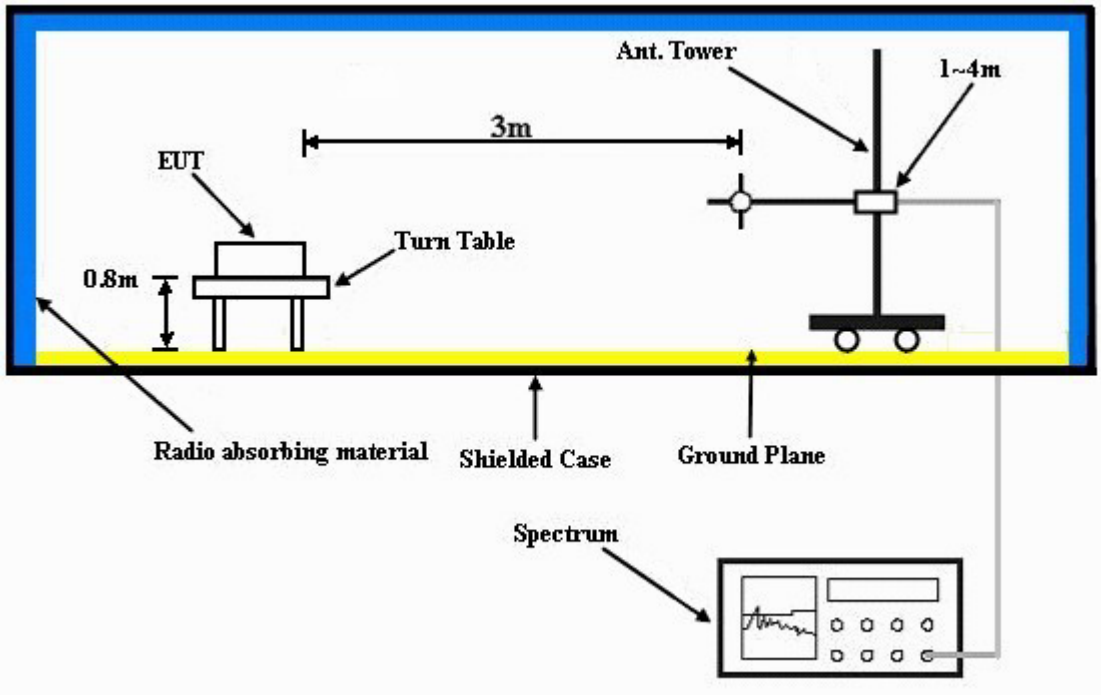
NOTE:

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 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

a. Transmitter connected with notebook and place at remote area.
b. Receiver links up with transmitter via air interface.
c. Transmitter sends video file on notebook to receiver and receiver export the video stream to TV.

4.1.7 TEST RESULTS

ABOVE 1GHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
INPUT POWER (SYSTEM)	120Vac, 60Hz	FREQUENCY RANGE	1 ~ 12.5GHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	DETECTOR FUNCTION	Peak (PK) Average (AV)
TESTED BY	Antony Lee		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1262.00	38.1 PK	74.0	-35.9	1.00 H	52	9.10	29.00
2	1262.00	26.7 AV	54.0	-27.3	1.00 H	52	-2.30	29.00
3	3000.00	38.6 PK	74.0	-35.4	1.00 H	214	3.90	34.70
4	3000.00	26.1 AV	54.0	-27.9	1.00 H	214	-8.60	34.70
5	7424.00	52.3 PK	74.0	-21.7	1.00 H	21	7.00	45.30
6	7424.00	38.1 AV	54.0	-15.9	1.00 H	21	-7.20	45.30
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	1632.50	44.9 PK	74.0	-29.1	1.00 V	323	14.80	30.10
2	1632.50	40.9 AV	54.0	-13.1	1.00 V	323	10.80	30.10
3	3000.01	45.3 PK	74.0	-28.7	1.00 V	253	10.60	34.70
4	3000.01	41.6 AV	54.0	-12.4	1.00 V	253	6.90	34.70
5	7424.00	52.6 PK	74.0	-21.4	1.00 V	23	7.30	45.30
6	7424.00	38.4 AV	54.0	-15.6	1.00 V	23	-6.90	45.30

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.

BELOW 1GHz WORST-CASE DATA：

EUT TEST CONDITION		MEASUREMENT DETAIL	
INPUT POWER (SYSTEM)	120Vac, 60Hz	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Brad 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	146.56	29.8 QP	43.5	-13.7	2.00 H	28	15.00	14.80
2	224.33	30.6 QP	46.0	-15.4	1.00 H	268	17.80	12.80
3	323.49	32.0 QP	46.0	-14.0	1.00 H	121	15.90	16.10
4	648.18	34.5 QP	46.0	-11.5	1.25 H	145	10.10	24.40
5	712.35	33.0 QP	46.0	-13.0	1.25 H	145	7.70	25.30
6	842.61	35.1 QP	46.0	-10.9	1.00 H	178	7.10	28.00
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	144.61	30.0 QP	43.5	-13.5	1.25 V	10	15.20	14.80
2	199.05	29.4 QP	43.5	-14.1	1.25 V	148	17.20	12.20
3	445.98	34.1 QP	46.0	-11.9	1.00 V	130	14.20	19.90
4	589.86	33.4 QP	46.0	-12.6	1.25 V	154	9.90	23.50
5	648.18	31.9 QP	46.0	-14.1	1.00 V	79	7.50	24.40
6	**899.00**	**35.4 QP**	**46.0**	**-10.6**	**1.25 V**	**34**	**6.70**	**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.

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 23, 2010	Nov. 22, 2011
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 30, 2010	Dec. 29, 2011
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 06, 2011	Jan. 05, 2012
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jul. 07, 2011	Jul. 06, 2012
V-LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jun. 30, 2011	Jun. 29, 2012
LISN ROHDE & SCHWARZ	ENV216	100072	Jun. 10, 2011	Jun. 09, 2012
Software ADT	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 HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.

4.2.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

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

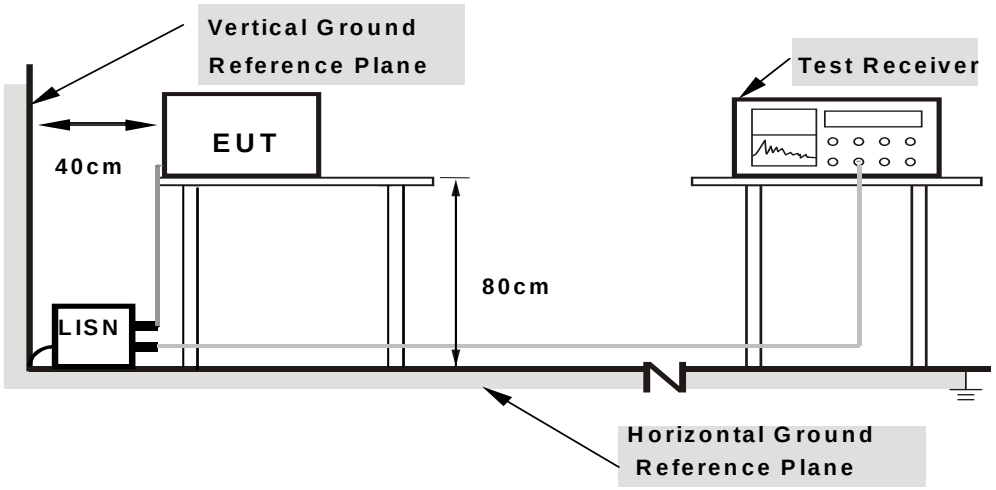
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: 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



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as item 4.1.6.

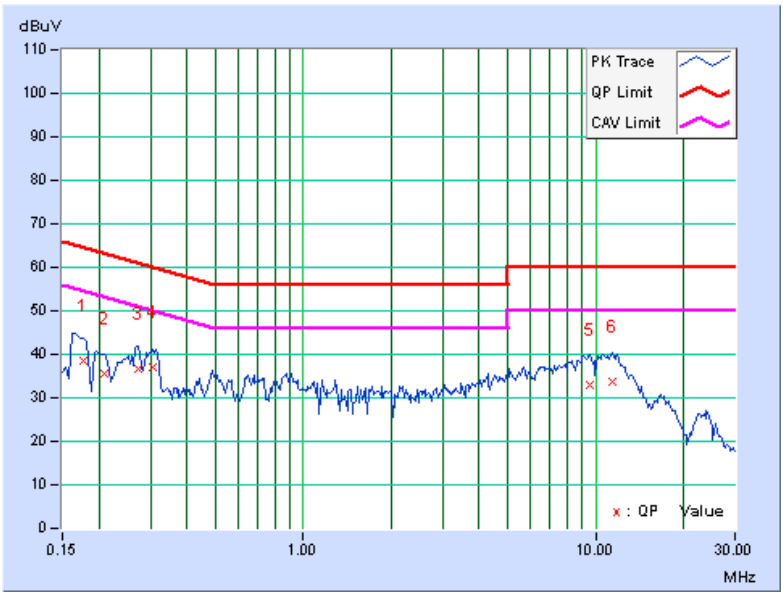
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

PHASE	Line 1	6dB BANDWIDTH	9kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.178	0.17	38.18	-	38.35	-	64.59	54.59	-26.24	-
2	0.209	0.17	35.39	-	35.56	-	63.26	53.26	-27.70	-
3	0.271	0.18	36.56	-	36.74	-	61.08	51.08	-24.34	-
4	**0.306**	**0.19**	**36.73**	**-**	**36.92**	**-**	**60.07**	**50.07**	**-23.16**	**-**
5	9.527	0.59	32.55	-	33.14	-	60.00	50.00	-26.86	-
6	11.453	0.71	33.17	-	33.88	-	60.00	50.00	-26.12	-

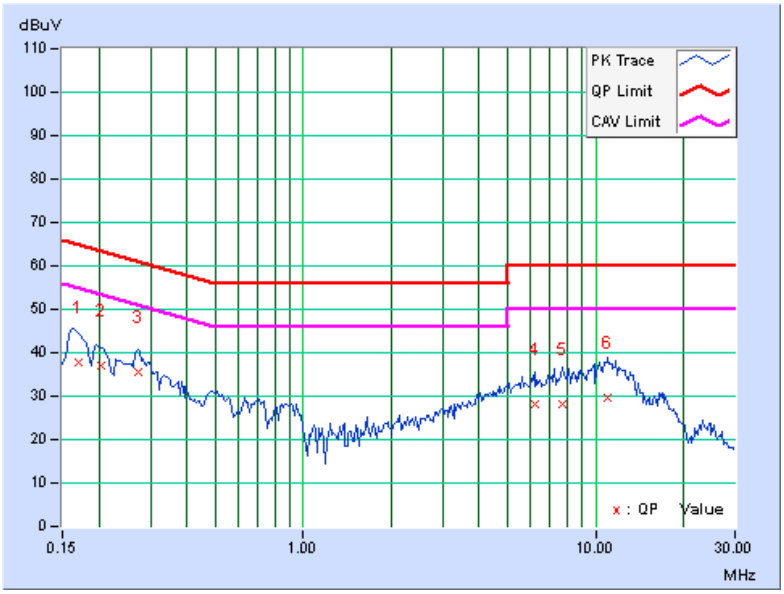
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Line 2	6dB BANDWIDTH	9kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.171	0.19	37.45	-	37.64	-	64.93	54.93	-27.29	-
2	0.205	0.18	36.95	-	37.13	-	63.43	53.43	-26.30	-
3	0.271	0.19	35.55	-	35.74	-	61.08	51.08	-25.34	-
4	6.215	0.44	27.55	-	27.99	-	60.00	50.00	-32.01	-
5	7.684	0.50	27.74	-	28.24	-	60.00	50.00	-31.76	-
6	11.004	0.64	28.87	-	29.51	-	60.00	50.00	-30.49	-

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.



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

Email: service.adt@tw.bureauveritas.com
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 ---