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FCC PART 15 SUBPART B TEST REPORT

FCC Part 15B

Report Reference No. : CTL1210131214-WD

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Date of issue : Oct. 29, 2012

Representative Laboratory Name : Shenzhen CTL Electromagnetic Technology Co., Ltd.

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Test Firm : Bontek Compliance Testing Laboratory Ltd

Address : 1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

Applicant's name : Shenzhen Easydy Electronic Technology Co., Ltd.

Address : 5/F, Building B2, Weiyi Innovation 18 Industrial Park, Hangcheng Road, Gushu, Xixiang, Bao'an District, Shenzhen, China

Test specification:

Standard : FCC Part 15B: Unintentional Radiators

TRF Originator : Shenzhen CTL Electromagnetic Technology Co., Ltd.

Master TRF : Dated 2011-01

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Test item description : Tablet PC

FCC ID : QN9E11-D

Trade Mark : /

Model/Type reference : E11-D, E11-F

I/O Type of EUT : USB Port/ Earphone Port/ DC Input Port/HDMI

I/O Q'TY : 1/ 1/ 1/ 1

Result : Positive

TEST REPORT

Test Report No. :	CTL1210131214-WD	Oct. 29, 2012 Date of issue
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Equipment under Test : Tablet PC

Model /Type : E11-D(under test in the report)

Listed Models : E11-F

Applicant : Shenzhen Easydy Electronic Technology Co., Ltd.

Address : 5/F, Building B2, Weiye Innovation 18 Industrial Park, Hangcheng Road, Gushu, Xixiang, Bao'an District, Shenzhen, China

Manufacturer : Shenzhen Easydy Electronic Technology Co., Ltd.

Address : 5/F, Building B2, Weiye Innovation 18 Industrial Park, Hangcheng Road, Gushu, Xixiang, Bao'an District, Shenzhen, China

Test Result according to the standards on page 4:	Positive
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

[FCC Part 15B: Unintentional Radiators](#)

[ANCI C63.4: 2003](#)



2. SUMMARY

2.1. General Remarks

Date of receipt of test sample : Oct. 15, 2012

Testing commenced on : Oct. 17, 2012

Testing concluded on : Oct. 20, 2012

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : 120V / 60 Hz 115V / 60Hz
 12 V DC 24 V DC
 Other (specified in blank below)

2.3. Short description of the Equipment under Test (EUT)

The device is a Tablet PC.

For more details, refer to the user's manual of the EUT.

Serial number: Prototype

2.4. EUT operation mode

Test Mode(TM)	Description	Remark
TM1	Playing	Color Bar with 1KHz Audio
TM2	Downloading	Connect to PC
TM3	HDMI	Color Bar with 1KHz Audio

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis).

The following data show only with the worst case setup.

The worst case of Y axis was reported.

Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report.

The worst case of AC Conducted Emission is mode 1; the test data of this mode was reported.

2.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	0.8	Unshielded	Without Core
HDMI Cable	0.8	Unshielded	Without Core
Earphone Cable	1.5	Unshielded	Without Core

- - supplied by the manufacturer
- - supplied by the lab

- LCD Display Manufacturer : SHARP
Model No. : LCD-26Z100A
- Ear-phone Manufacturer : Philip
Model No. : KY21-05
- Notebook PC Manufacturer : DELL
Model No. : PP26L

2.6. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **QN9E11-D** filing to comply with of the FCC Part 15B Rules.

2.7. Modifications

No modifications were implemented to meet testing criteria.



3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Bontek Compliance Testing Laboratory Ltd
1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2003) and CISPR Publication 22.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

IC Registration No.: 7631A

The 3m alternate test site of Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 7631A on March, 2011.

FCC-Registration No.: 338263

Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 338263, March 24, 2008.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

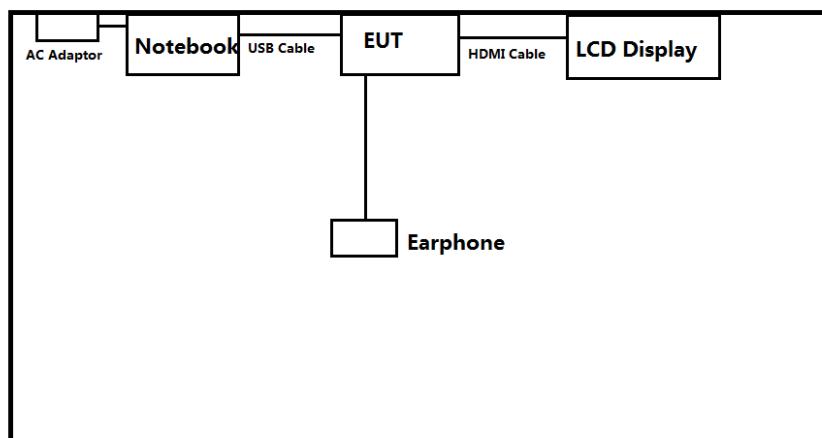
Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

3.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Bontek Compliance Testing Laboratory Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Bontek laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)
Conducted Disturbance	0.15~30MHz	3.20dB	(1)

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

3.6. Equipments Used during the Test

Item	Test Equipment	Manufacturer	Model No.	Last Cal.	Due. Date
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	2012/04/14	2013/04/13
2	Radio Communication Tester	ROHDE & SCHWARZ	CMU200	2012/04/14	2013/04/13
3	Dual Directional Coupler	Agilent	778D	2012/04/14	2013/04/13
4	10dB attenuator	SCHWARZBECK	MTA1MP-136	2012/04/14	2013/04/13
5	Tunable Bandreject filter	K&L	3TNF-800	2012/04/14	2013/04/13
6	Tunable Bandreject filter	K&L	5TNF-1700	2012/04/14	2013/04/13
7	High-Pass Filter	K&L	9SH10-2700/X12750-O/O	2012/04/14	2013/04/13
8	High-Pass Filter	K&L	41H10-1375/U12750-O/O	2012/04/14	2013/04/13
9	Coaxial Cable	Huber+Suhner	AC4-RF-H	2012/04/14	2013/04/13
10	AC Power Supply	IDRC	CF-500TP	2012/04/14	2013/04/13
11	DC Power Supply	IDRC	CD-035-020PR	2012/04/14	2013/04/13
12	RF Current Probe	FCC	F-33-4	2012/04/14	2013/04/13
13	Temperature /Humidity Meter	zhicheng	ZC1-2	2012/04/14	2013/04/13
14	MICROWAVE AMPLIFIER	HP	8349B	2012/04/14	2013/04/13
15	Amplifier	HP	8447D	2012/04/14	2013/04/13
16	SIGNAL GENERATOR	HP	8647A	2012/04/14	2013/04/13
17	Log Periodic Antenna	ELECTRO-METRICS	EM-6950	2012/04/14	2013/04/13
18	Horn Antenna	Schwarzbeck	BBHA9120A	2012/04/14	2013/04/13
19	EMI Test Receiver	R&S	ESPI	2012/04/14	2013/04/13
20	Loop Antenna	ZHINAN	ZN30900A	2012/04/14	2013/04/13
21	Horn Antenna	Schwarzbeck	ZN30900A	2012/04/14	2013/04/13
22	Horn Antenna	Schwarzbeck	ZN30900A	2012/04/14	2013/04/13

3.7. Summary of Test Result

No deviations from the test standards

Test Item	Test Requirement	Standard Paragraph	Result
Radiated Emission	FCC PART 15	Section 15.109	PASS
Conducted Emission	FCC PART 15	Section 15.107	PASS

3.8. Test Software

The following programs installed in the EUT were programmed during the test.

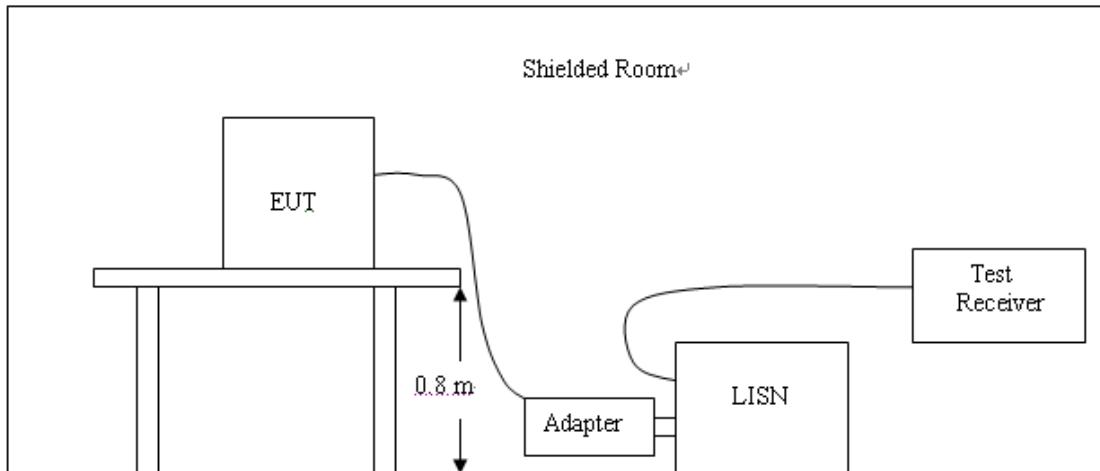
1. Execute the program, “Winthrax” , installed in PC for files transfer with EUT via USB cable.
2. Turn on camera to capture images.



4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions Test

TEST CONFIGURATION



TEST PROCEDURE

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following:

Frequency (MHz)	Maximum RF Line Voltage (dB μ V)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

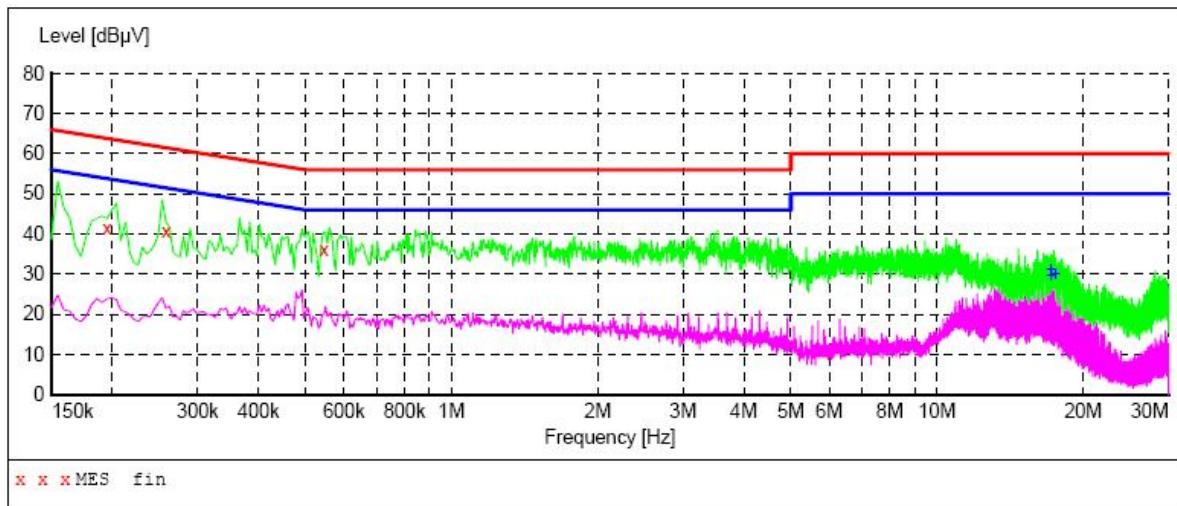
For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

The RBW/VBW for 150KHz to 30MHz: 9KHz

TEST RESULTS

SCAN TABLE: "Voltage (9K-30M) FIN"
 Short Description: 150K-30M Voltage

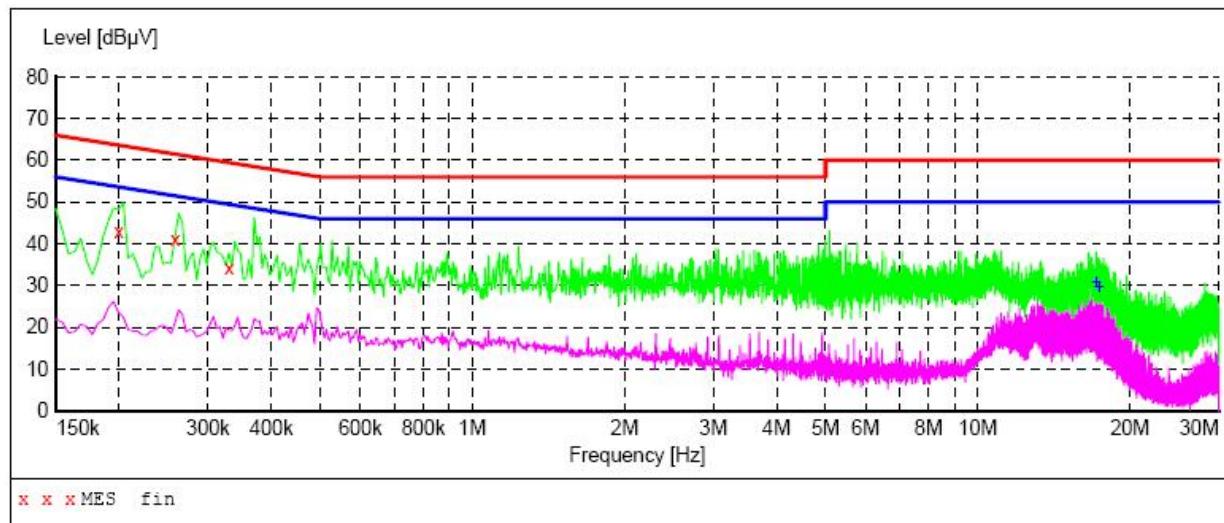
**MEASUREMENT RESULT:**

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.195000	41.30	10.2	64	22.5	QP	L1	GND
0.258000	40.80	10.2	62	20.7	QP	L1	GND
0.546000	36.10	10.2	56	19.9	QP	L1	GND

MEASUREMENT RESULT:

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
17.178000	31.10	10.8	50	18.9	AV	L1	GND
17.200500	29.70	10.8	50	20.3	AV	L1	GND
17.551500	29.90	10.8	50	20.1	AV	L1	GND

SCAN TABLE: "Voltage (9K-30M) FIN"
 Short Description: 150K-30M Voltage



MEASUREMENT RESULT:

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.199500	43.00	10.2	64	20.6	QP	N	GND
0.258000	41.20	10.2	62	20.3	QP	N	GND
0.330000	34.40	10.2	60	25.1	QP	N	GND

MEASUREMENT RESULT:

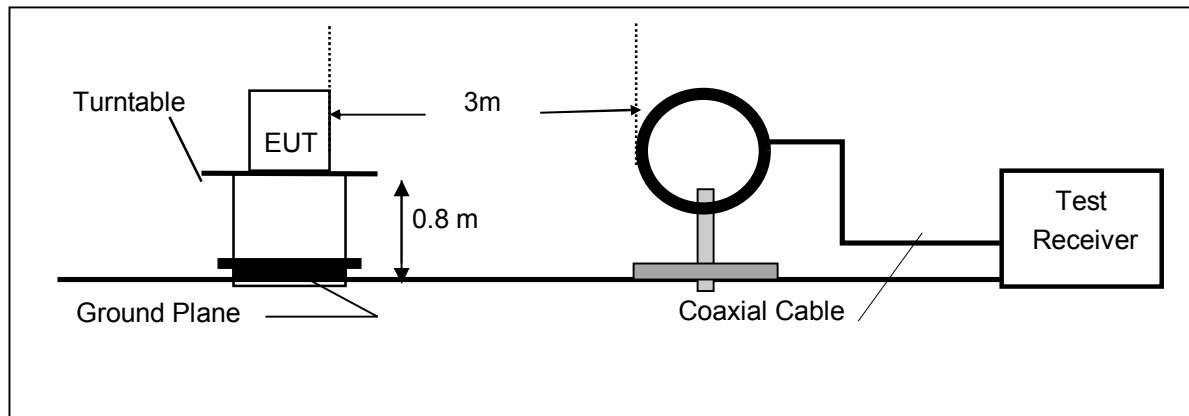
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
17.178000	30.80	10.8	50	19.2	AV	N	GND
17.376000	29.70	10.8	50	20.3	AV	N	GND

Electromagnetic Test

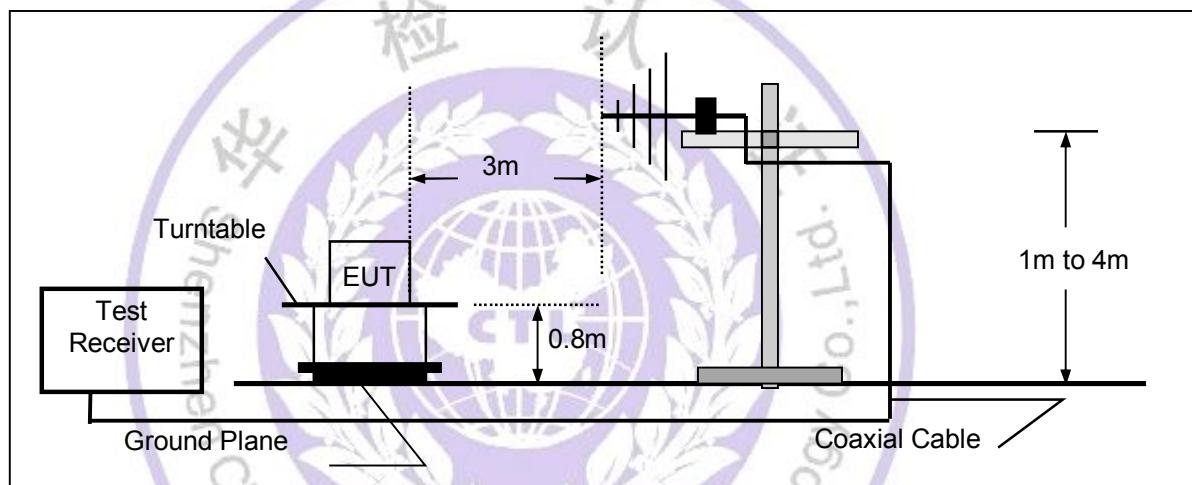
4.2. Radiated Emissions Test

TEST CONFIGURATION

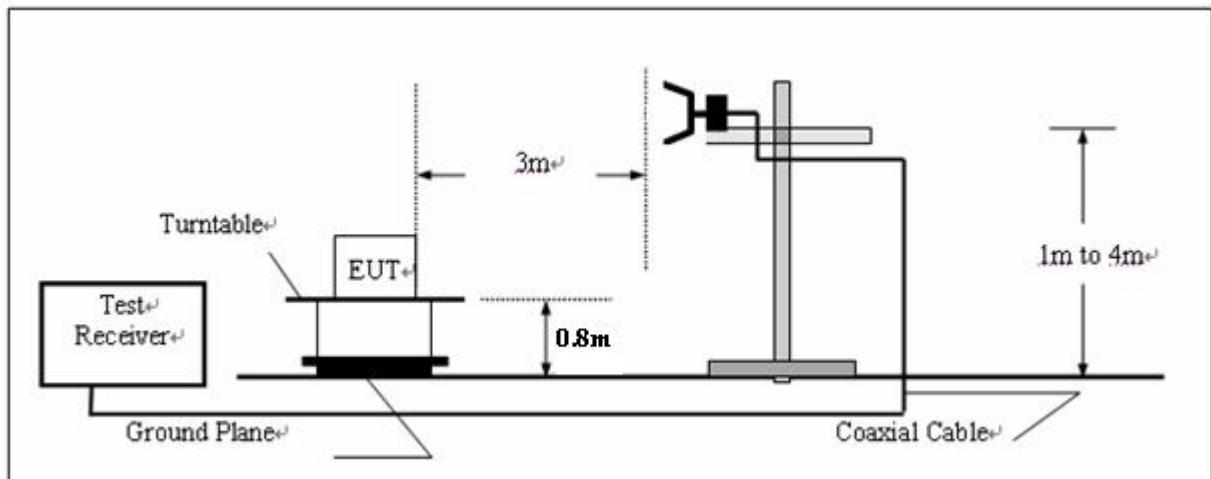
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



LIMIT

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (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

FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

TEST PROCEDURE

1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed on a turn table which is 0.8m above ground plane.
3. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0°C to 360°C to acquire the highest emissions from EUT
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measurements have been completed.
6. Based on the Frequency Generator in the device include 32KHz, 19.2MHz. The test frequency range from 9KHz to 1GHz per FCC PART 15.33(a).

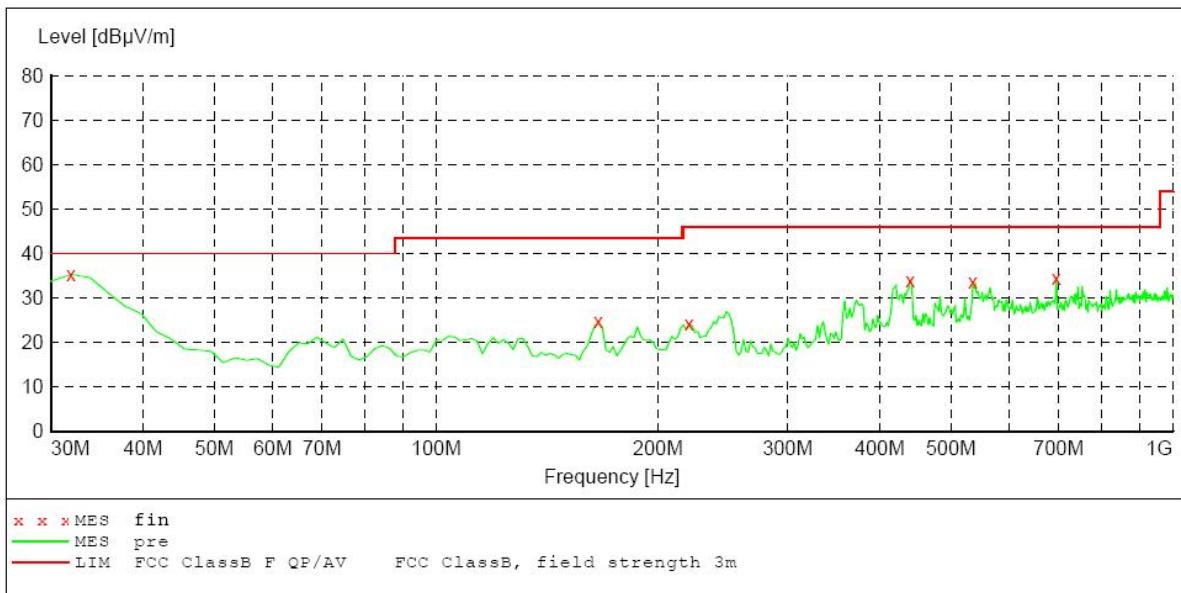
TEST RESULTS

All the test modes (TM1, TM2 and TM3) completed for test. The worst case of Radiated Emission is mode 3; the test data of this mode was reported.

TM 3(HDMI):

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start Frequency	stop Frequency	Detector	Meas.	IF	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 10

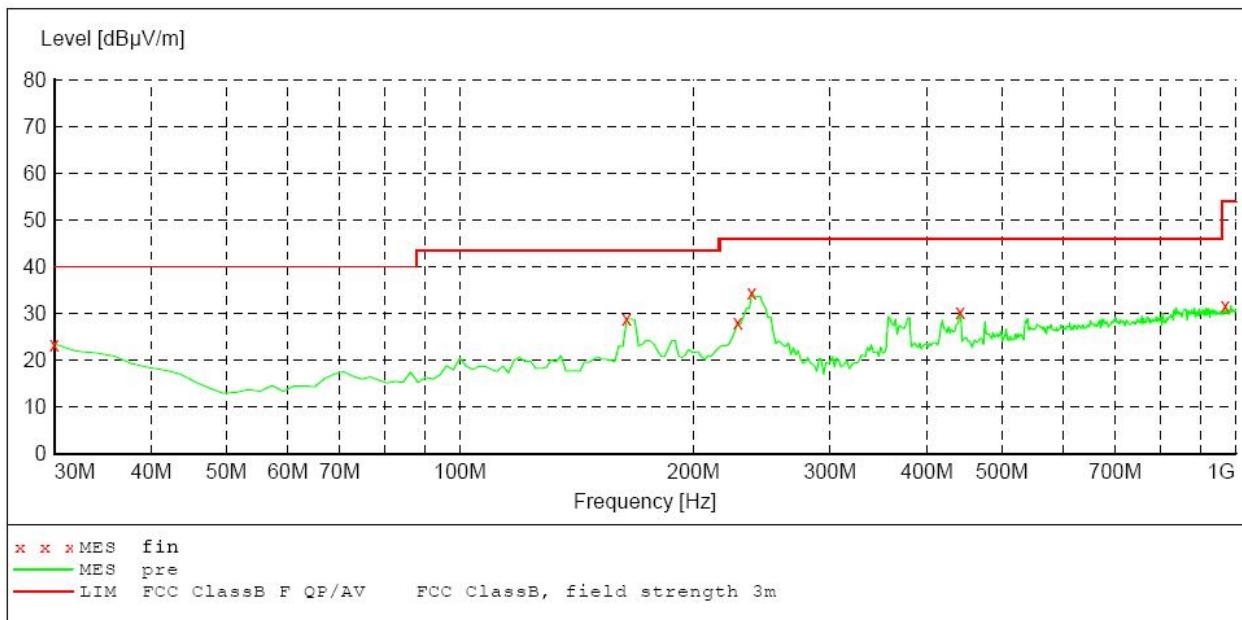


MEASUREMENT RESULT:

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Det. QP	Height cm	Azimuth deg	Polarization
31.900000	35.30	20.1	40.0	4.7	QP	100.0	268.00	VERTICAL
166.000000	24.70	10.7	43.5	18.8	QP	100.0	291.00	VERTICAL
220.500000	24.20	11.3	46.0	21.8	QP	100.0	79.00	VERTICAL
440.100000	33.80	20.2	46.0	12.2	QP	100.0	291.00	VERTICAL
535.400000	33.50	21.1	46.0	12.5	QP	100.0	268.00	VERTICAL
694.800000	34.40	24.0	46.0	11.6	QP	100.0	358.00	VERTICAL

SWEET TABLE: "test (30M-1G)"

Short Description: Field Strength
 Start Stop Detector Meas. IF Transducer
 Frequency Frequency Time Bandw.
 30.0 MHz 1.0 GHz MaxPeak Coupled 120 kHz HL562 10

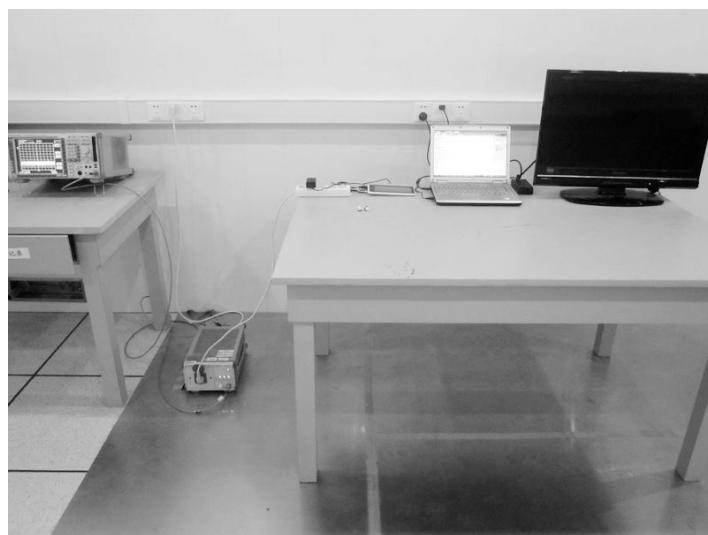
***MEASUREMENT RESULT:***

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	23.50	21.2	40.0	16.5	QP	300.0	124.00	HORIZONTAL
164.100000	28.80	10.6	43.5	14.7	QP	100.0	3.00	HORIZONTAL
228.200000	28.00	11.5	46.0	18.0	QP	100.0	360.00	HORIZONTAL
237.900000	34.40	11.8	46.0	11.6	QP	100.0	196.00	HORIZONTAL
442.100000	30.40	20.2	46.0	15.6	QP	100.0	57.00	HORIZONTAL
970.800000	31.70	25.6	54.0	22.3	QP	300.0	99.00	HORIZONTAL

Remark:

- (1) Measuring frequencies from 9 KHz to the 1GHz, Loop Antenna used below 30MHz. See Section 3.6 table item 20. Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Datas of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured. The test results from 9KHz to 25MHz are not reported because the emissions levels that are 20dB below the official limit.
- (5) The IF bandwidth of EMI Test Receiver between 25MHz to 1GHz was 100KHz. Below 30MHz was 10KHz.

5. Test Setup Photos of the EUT



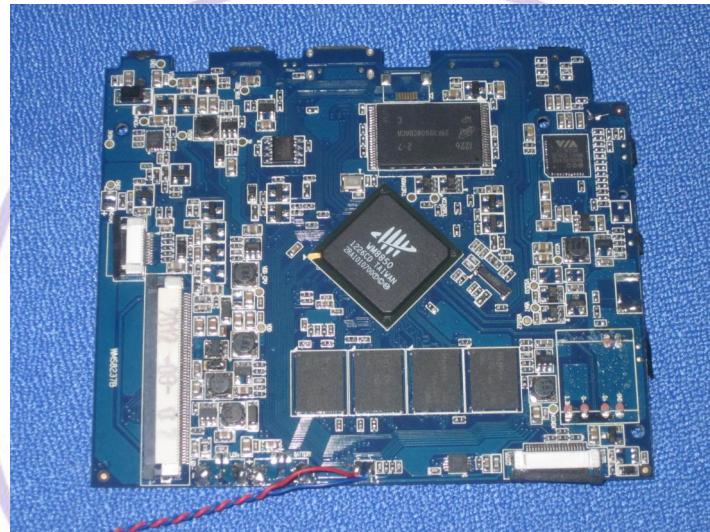
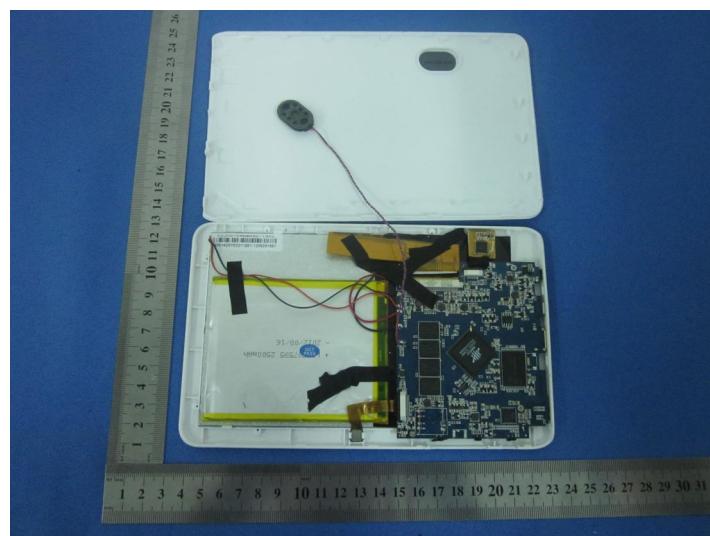
6. External and Internal Photos of the EUT

External Photos of EUT







Internal Photos of EUT

.....End of Report.....