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FCC PART 15 SUBPART C TEST REPORT

FCC Part 15B

Report Reference No.....:	**CTL11078411-S-WD**
Compiled by (position+printed name+signature)..:	File administrators Andy Zhang
Name of the organization performing the tests (position+printed name+signature)..:	Test Engineer Kendy Wang
Approved by (position+printed name+signature)..:	Manager Tracy Qi
Date of issue.....:	July 25, 2011
Representative Laboratory Name .:	**Shenzhen CTL Electromagnetic Technology Co., Ltd.**
Address.....:	Suite 2123, Building 4, Hongfa Centre, Central Area Baoan, Baoan District, Shenzhen, Guangdong, 518101, P.R. China
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.....:	**Livall Network Co,.Ltd**
Address.....:	9/F, Jiuzhou Electric Building, Southern NO.,12 rd.Technology Park, Shenzhen
Test specification:	
Standard .....:	FCC Part 15B: Unintentional Radiators
TRF Originator.....:	Shenzhen CTL Electromagnetic Technology Co., Ltd.
Master TRF.....:	Dated 2011-01

Test item description ..... :	MID
Trade Mark .....:	/
Model/Type reference.....:	N71
Modulation .....:	/
Work Frequency Range……..:	/
Antenna Type……:	/
FCC ID……..…..:	ZRD-N71
Result.....:	**Positive**

TEST REPORT

Test Report No. :	CTL11078411-S-WD	July 25, 2011 Date of issue

Equipment under Test	:	MID
Model /Type	:	N71
Listed Models	:	/
Applicant	:	Livall Network Co,.Ltd
Address	:	9/F, Jiuzhou Electric Building, Southern NO.,12 rd.Technology Park, Shenzhen
Manufacturer		Best System (HK) Limited
Address		Chiling Industrial Zone, Hou Jie Town, Dongguan City, Guangdong Province,

Test Result according to the standards on page 4:	**Positive**

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.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

FCC PartB: Unintentional Radiators

ANCI C63.4: 2003

2 . SUMMARY

2.1. General Remarks

Date of receipt of test sample : July 01, 2011

Testing commenced on : July 01, 2010

Testing concluded on : July 21, 2010

2.2. Equipment Under Test

Power supply system utilised

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

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

MID with Bluetooth and Wi-fi function.

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

Serial number: Prototype

2.4. EUT operation mode

Test Mode:

1. The EUT has been tested under normal operating condition.
2. No test program used to control the EUT within testing.

2.5. EUT configuration

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

o - supplied by the manufacturer

o - supplied by the lab

o Manufacturer :
Model No. :

o Manufacturer :
Model No. :

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

This submittal(s) (test report) is intended for FCC ID: **ZRD-N71** 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, 2008.

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.

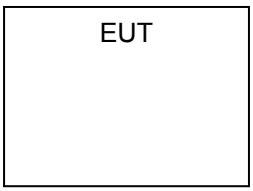
3.3. Environmental conditions

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	2011/04/14	2012/04/13
2	Radio Communication Tester	ROHDE & SCHWARZ	CMU200	2011/04/14	2012/04/13
3	Dual Directional Coupler	Agilent	778D	2011/04/14	2012/04/13
4	10dB attenuator	SCHWARZBECK	MTAIMP-136	2011/04/14	2012/04/13
5	Tunable Bandreject filter	K&L	3TNF-800	2011/04/14	2012/04/13
6	Tunable Bandreject filter	K&L	5TNF-1700	2011/04/14	2012/04/13
7	High-Pass Filter	K&L	9SH10-2700/X12750-O/O	2011/04/14	2012/04/13
8	High-Pass Filter	K&L	41H10-1375/U12750-O/O	2011/04/14	2012/04/13
9	Coaxial Cable	Huber+Suhner	AC4-RF-H	2011/04/14	2012/04/13
10	AC Power Supply	IDRC	CF-500TP	2011/04/14	2012/04/13
11	DC Power Supply	IDRC	CD-035-020PR	2011/04/14	2012/04/13
12	RF Current Probe	FCC	F-33-4	2011/04/14	2012/04/13
13	Temperature /Humidity Meter	zhicheng	ZC1-2	2011/04/14	2012/04/13
14	MICROWAVE AMPLIFIER	HP	8349B	2011/04/14	2012/04/13
15	Amplifier	HP	8447D	2011/04/14	2012/04/13
16	SIGNAL GENERATOR	HP	8647A	2011/04/14	2012/04/13
17	Log Periodic Antenna	ELECTRO-METRICS	EM-6950	2011/04/14	2012/04/13
18	Horn Antenna	Schwarzbeck	BBHA9120A	2011/04/14	2012/04/13
19	EMI Test Receiver	R&S	ESPI	2011/04/14	2012/04/13

3.7. Summary of Test Result

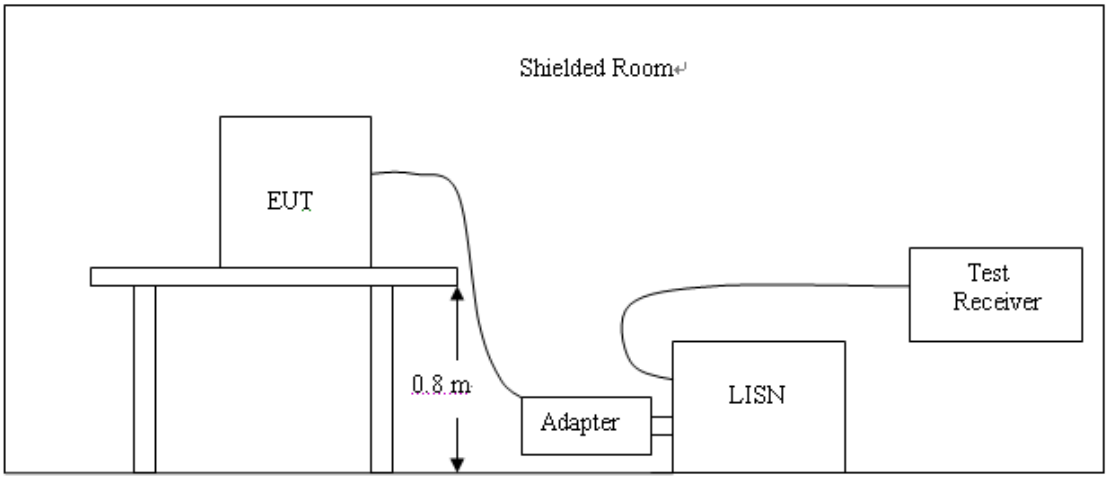
No deviations from the test standards

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

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 (dBμv)			
	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

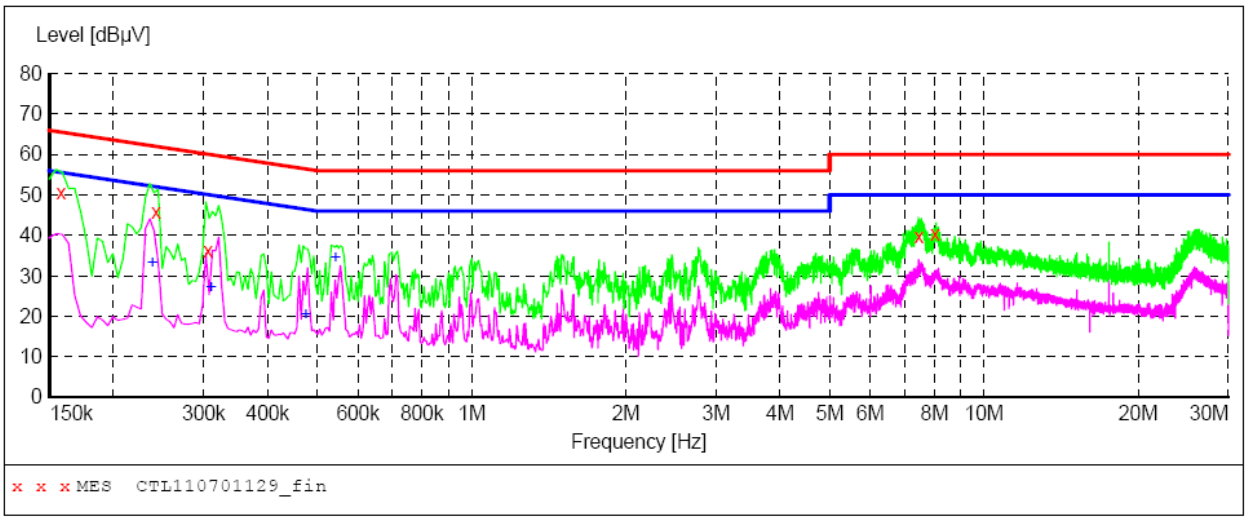
For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

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: "CTL110701129_fin"

7/1/2011 5:06PM

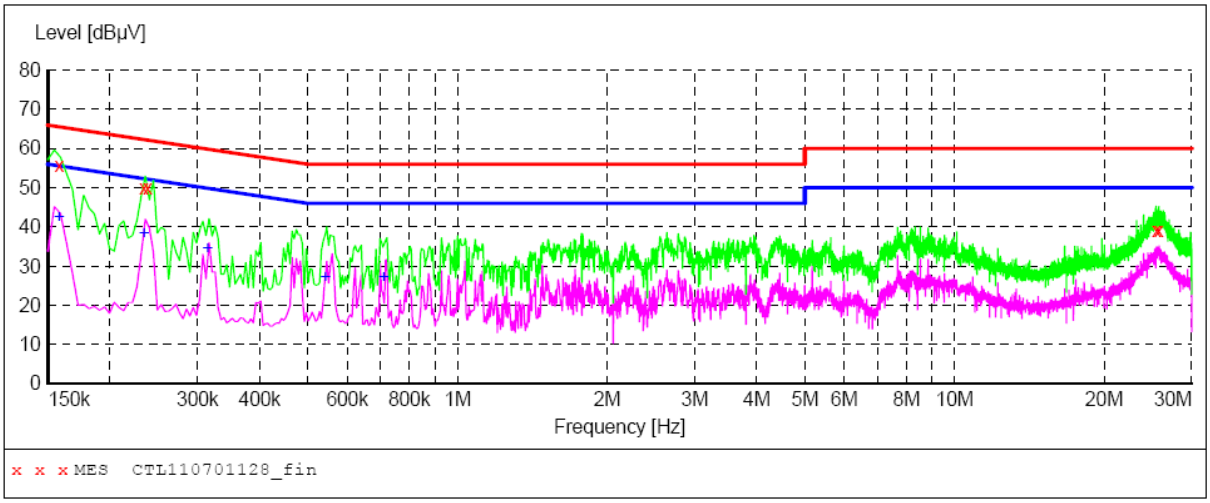
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.158000	50.50	10.2	66	15.1	QP	N	GND
0.242000	45.80	10.2	62	16.2	QP	N	GND
0.306000	36.20	10.2	60	23.9	QP	N	GND
7.472000	39.70	10.5	60	20.3	QP	N	GND
8.024000	40.50	10.5	60	19.5	QP	N	GND

MEASUREMENT RESULT: "CTL110701129_fin2"

7/1/2011 5:06PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.238000	33.30	10.2	52	18.9	AV	N	GND
0.310000	27.20	10.2	50	22.8	AV	N	GND
0.474000	20.50	10.2	46	25.9	AV	N	GND
0.542000	34.50	10.2	46	11.5	AV	N	GND

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



MEASUREMENT RESULT: "CTL110701128_fin"

7/1/2011 5:03PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.158000	55.80	10.2	66	9.8	QP	L1	GND
0.234000	49.80	10.2	62	12.5	QP	L1	GND
0.238000	50.10	10.2	62	12.1	QP	L1	GND
25.484000	39.00	11.1	60	21.0	QP	L1	GND
25.760000	39.20	11.1	60	20.8	QP	L1	GND

MEASUREMENT RESULT: "CTL110701128_fin2"

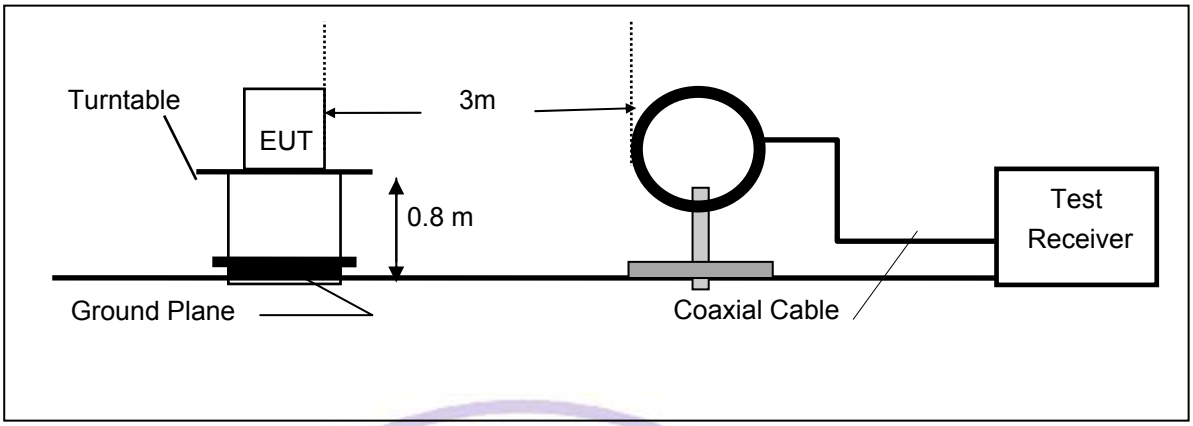
7/1/2011 5:03PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.158000	42.60	10.2	56	13.0	AV	L1	GND
0.234000	38.60	10.2	52	13.7	AV	L1	GND
0.314000	34.60	10.2	50	15.3	AV	L1	GND
0.542000	27.20	10.2	46	18.8	AV	L1	GND
0.710000	27.40	10.2	46	18.6	AV	L1	GND

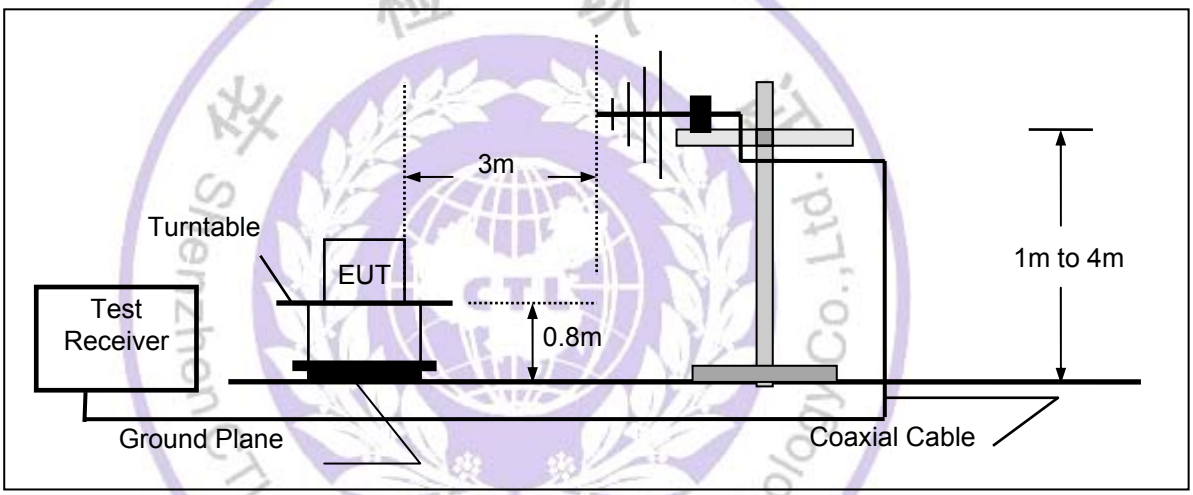
4.2. Radiated Emissions Test

TEST CONFIGURATION

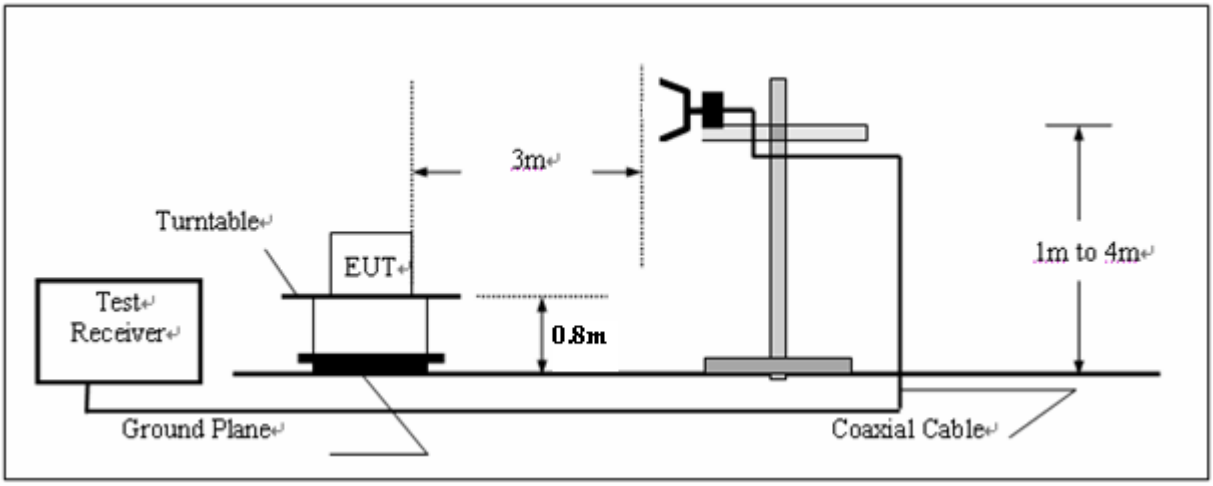
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



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



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



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	

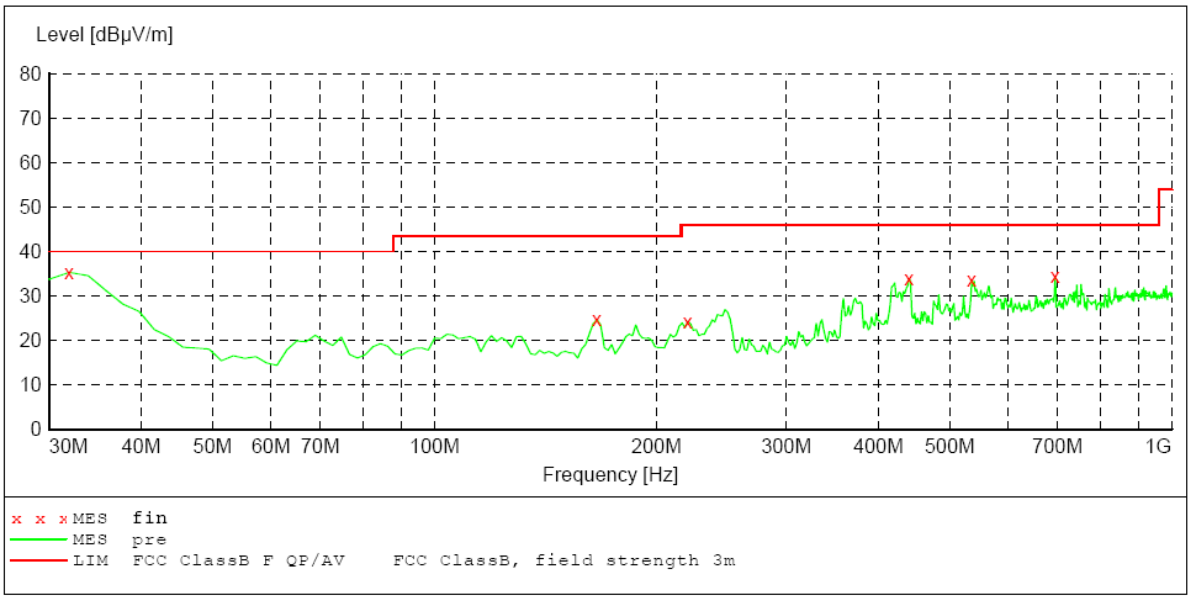
TEST PROCEDURE

1. The testing follows the guidelines in ANSI C63.4-200
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℃ to 360℃ 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.

TEST RESULTS

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

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

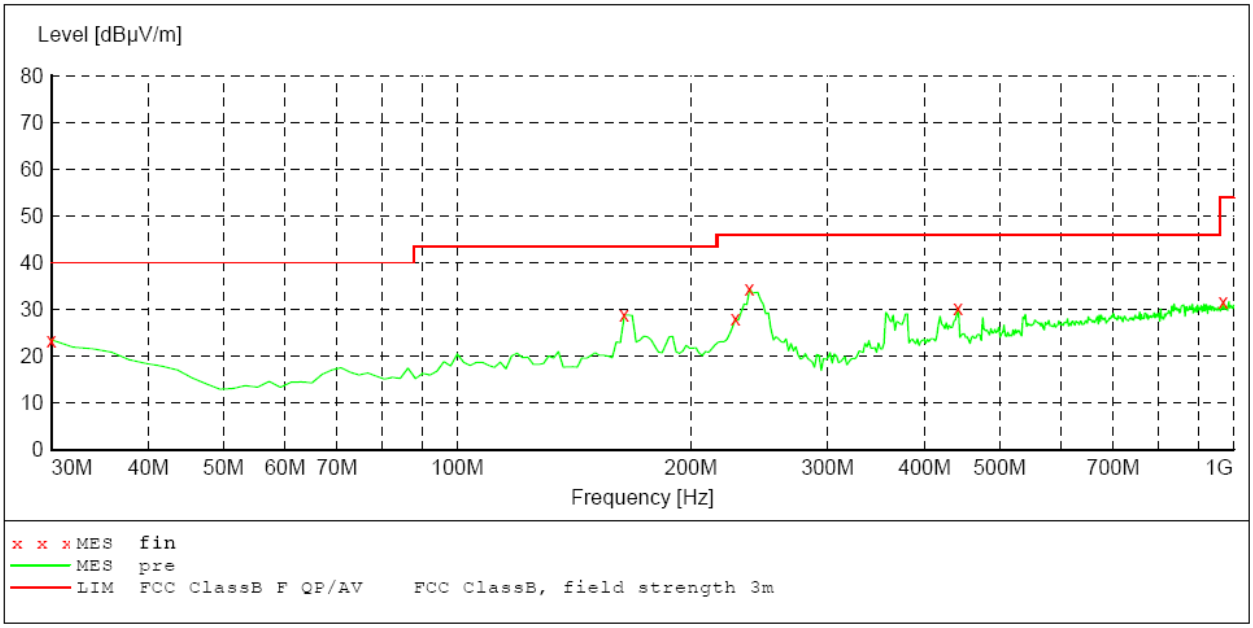


MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	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

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

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



MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/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 30 MHz to the 1GHz。

(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.

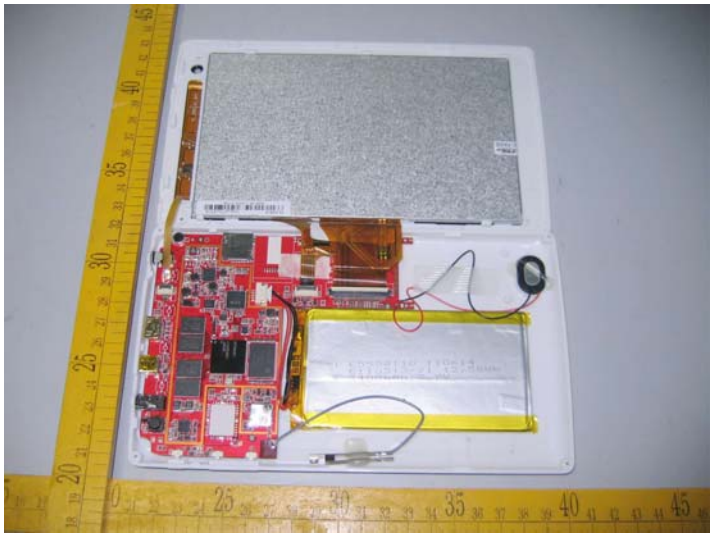
(5) The IF bandwidth of EMI Test Receiver between 25MHz to 1GHz was 120KHz.

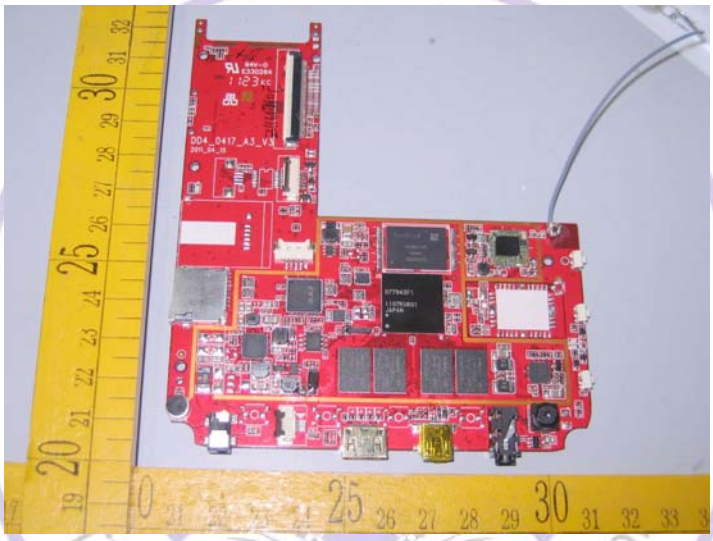
5. Test Setup Photos of the EUT

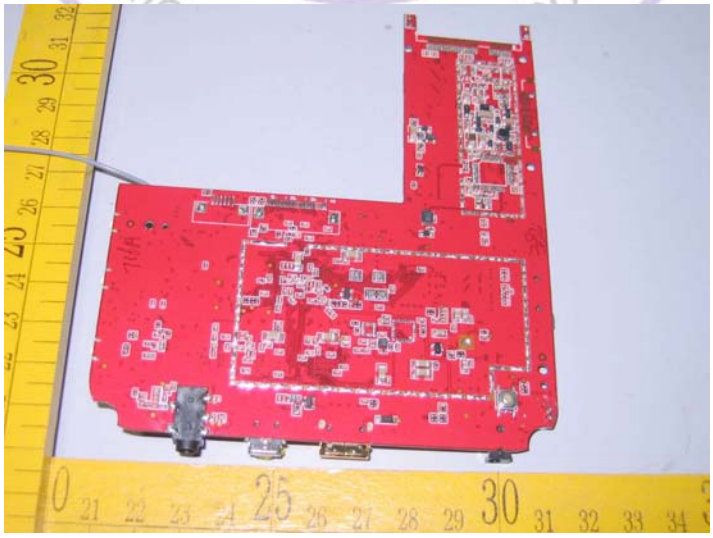
6. External and Internal Photos of the EUT

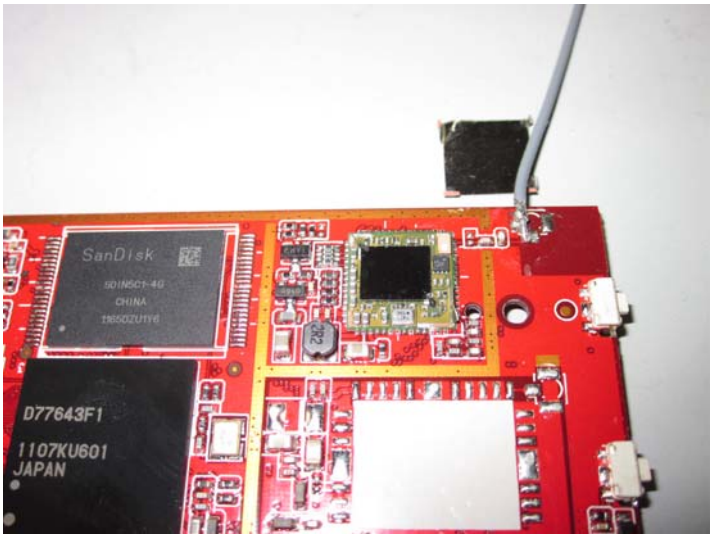
External Photos

Internal Photos









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