
FCC Test Report

Report No.: AGC01991010SZ18F1

FCC ID : YXK-MD701
PRODUCT DESIGNATION : Tablet PC/MID
BRAND NAME : 
TEST MODEL : MD-701
CLIENT : Shenzhen Huaruan Technology Co.,Ltd.
DATE OF ISSUE : Nov.01, 2010
STANDARD(S) : FCC Part 15 Rules

Attestation of Global Compliance Co., Ltd.

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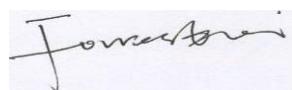
1. VERIFICATION OF COMPLIANCE

Equipment Under Test:	Tablet PC/MID
Brand Name:	
Model Name:	MD-701,MD-702,MD-703,MD-706,MD-707,MD-801,MD-901,MD-101
Applicant:	Shenzhen Huaruan Technology Co.,Ltd. 4th Floor of Yuxing, Sanwei Science and Technology Park, Hangcheng Road, Bao'an District, Shenzhen City, China
Manufacturer:	Shenzhen Huaruan Technology Co.,Ltd. 4th Floor of Yuxing, Sanwei Science and Technology Park, Hangcheng Road, Bao'an District, Shenzhen City, China
Type of Test:	FCC Class B
Measurement Procedure:	ANSI C63.4: 2003
File Number:	AGC01991010SZ18F1
Date of test:	Oct.28, 2010 to Oct.30, 2010
Deviation:	None
Condition of Test Sample:	Normal

The above equipment was tested by Attestation Of Global Compliance Co., Ltd. For compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2003. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

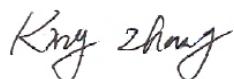
The test results of this report relate only to the tested sample identified in this report.

Checked By :



Forrest Lei Nov.1, 2010

Authorized By :



King Zhang Nov.1, 2010

2. PRODUCT INFORMATION

Housing Type: Plastic

Rating Voltage: DC5V(charging by adapter)

Adapter Voltage:
Input AC100~240V,50/60HZ
Output DC5V,2000mA

I/O Port Information (Applicable Not Applicable)

I/O Port of EUT			
I/O Port Type	Q'TY	Cable	Tested with
USB PORT	1	1cable,0.5m with 1 core,shielded	1
Charging PORT	1	0	1
Earphone	1	0	1

3. TEST FACILITY

Location:	1F., No.2 Building, Huafeng No.1 Technical Industrial Park, Sanwei, Xixiang, Baoan District, Shenzhen
Description:	There is one 3m semi-anechoic chamber for final test, the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.
Site Filing:	Accredited by FCC, June 28, 2010 The Certificate Registration Number is 259865
Instrument	All measuring equipment is in accord with ANSI C63.4 requirements that meet industry
Tolerance:	regulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For radiated emission test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

4. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
PC	Lenovo	ES30	N/A	--	1.8m unshielded

**Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

5. SYSTEM DESCRIPTION

PC MODE:

1. Connect EUT to PC and to peripheral devices.
2. Set the EUT to USB mode, the EUT begins to work.
3. Make sure the EUT operates normally during the test.

CHARGER MODE:

1. Set the EUT to charger mode, the EUT begins to work.
2. Make sure the EUT operates normally during the test.

6. FCC LINE CONDUCTED EMISSION TEST

6.1. TEST EQUIPMENT OF LINE CONDUCTED EMISSION TEST

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	E4440A	N/A	06/29/2010	06/28/2011
EMI Test Receiver	Rohde & Schwarz	ESCI	N/A	06/29/2010	06/28/2011
LISN	Rohde & Schwarz	ESH3-Z5	N/A	06/29/2010	06/28/2011

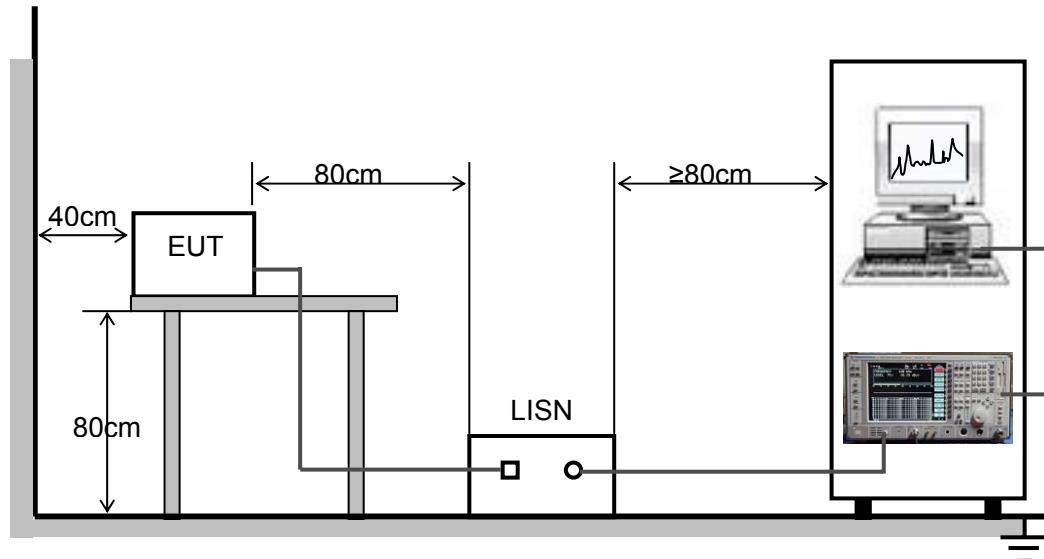
6.2 .LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P. (dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

**Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

6.3. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



6.4. PROCEDURE OF LINE CONDUCTED EMISSION TEST

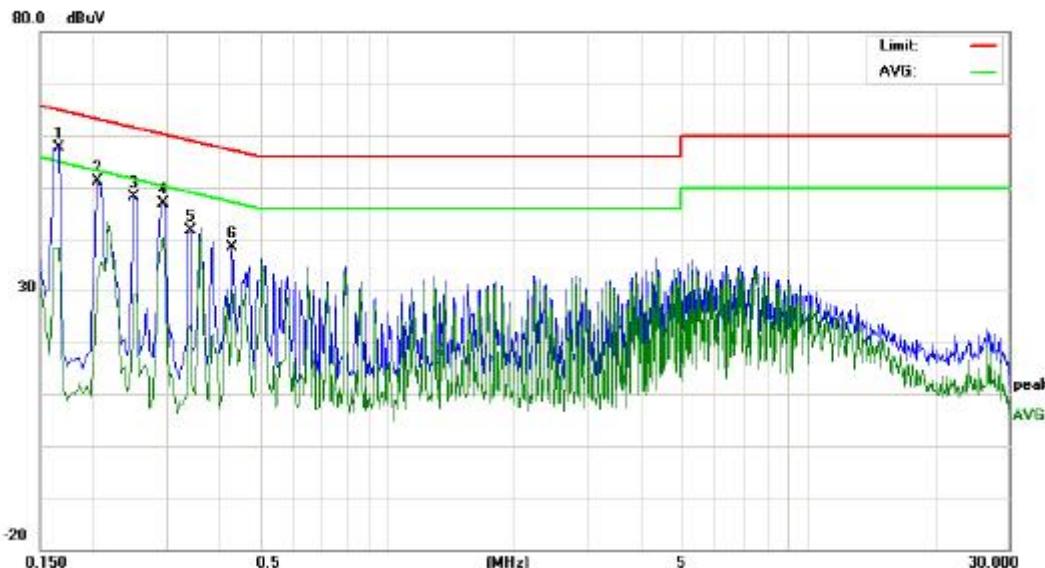
- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) The EUT received power through a Line Impedance Stabilization Network (LISN) that was grounded to the protect earth.
- 5) All support equipments received AC120V power from a second LISN, if any.
- 6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8) During the above scans, the emissions were maximized by cable manipulation.
- 9) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
- 10) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 11) The test data of the worst case condition(s) was reported on the Summary Data page.

6.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST

CHARGER MODE:

LINE CONDUCTED EMISSION TEST LINE 1-L

Conducted Emission Measurement



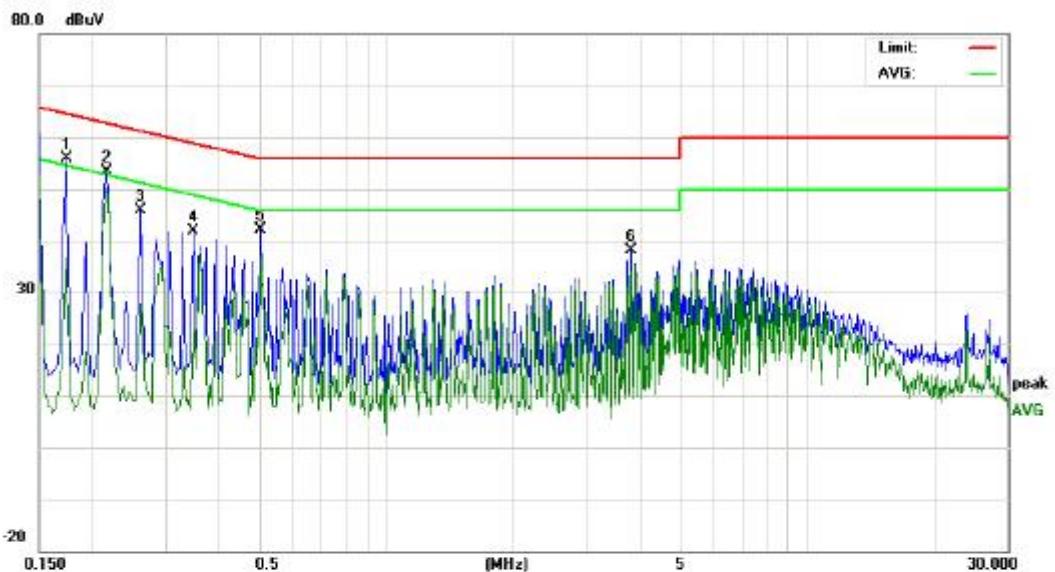
Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT:
M/N:
Mode:
Note:

Phase: L1
Power: AC 120V/60Hz
Temperature: 26
Humidity: 60 %

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		dB	Peak	QP	AVG	QP	AVG	QP	AVG	
1	0.1660	47.55	41.29	11.01	10.18	57.73	51.47	21.19	65.15	55.15	-13.68	-33.96	P	
2	0.2060	41.01		22.29	10.22	51.23		32.51	63.36	53.36	-12.13	-20.86	P	
3	0.2500	37.81		18.79	10.27	48.08		29.06	61.75	51.75	-13.67	-22.89	P	
4	0.2940	36.68	30.95	22.89	10.29	46.97	41.24	32.98	60.41	50.41	-19.17	-17.43	P	
5	0.3420	31.27	25.60	4.28	10.31	41.58	35.91	14.59	59.15	49.15	-23.24	-34.56	P	
6	0.4300	28.14		19.71	10.35	38.49		30.06	57.25	47.25	-18.76	-17.19	P	

LINE CONCUTED EMISSION TEST LINE 1-N

Conducted Emission Measurement



Site: Conduction
Limit: FCC Class B Conduction(QP)

Phase: **N**
Power: AC 120V/60Hz

Temperature: 26
Humidity: 60 %

EUT:

M/N:

Mode:

Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment	
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG			
1	0.1740	45.71	39.34	9.76	10.19	55.90	49.53	19.95	64.76	54.76	-15.23	-34.81	P		
2	0.2180	43.21	41.70	32.38	10.23	53.44	51.93	42.61	62.89	52.89	-10.96	-10.28	P		
3	0.2620	35.80		17.48	10.27	45.87			27.75	61.36	51.36	-15.49	-23.61	P	
4	0.3500	31.45		12.63	10.31	41.78			22.94	58.96	48.96	-17.20	-26.02	P	
5	0.5000	31.71	29.27	25.76	10.39	42.10	38.86	38.15	56.00	46.00	-17.34	-9.85	P		
6	3.8340	27.59		23.78	10.46	38.05			34.24	56.00	46.00	-17.95	-11.78	P	

TEST RESULT: PASS

7. FCC RADIATED EMISSION TEST

7.1. TEST EQUIPMENT OF RADIATED EMISSION

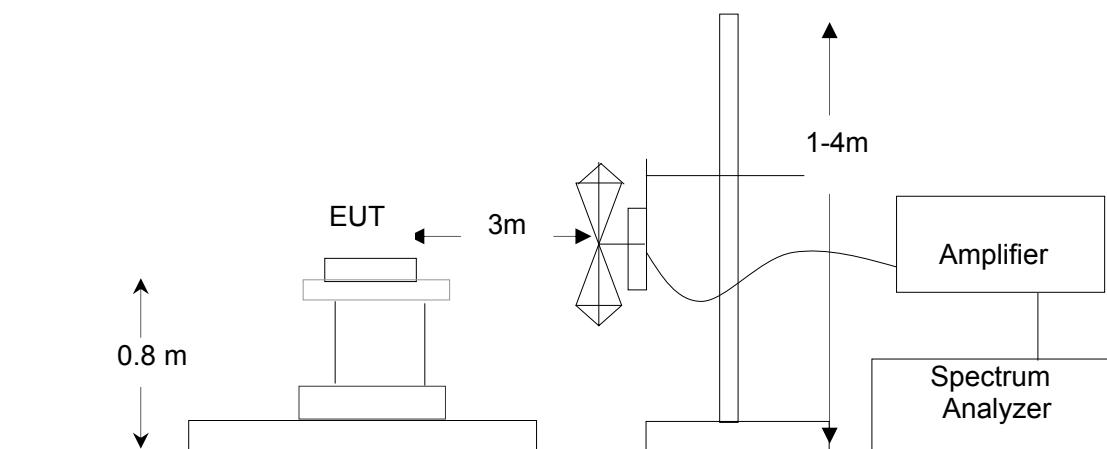
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI test receiver	Rohde & Schwarz	ESCI	N/A	06/29/2010	06/28/2011
Amplifier	EM	EM30180	0607030	06/29/2010	06/28/2011
Biological Antenna	A.H. Systems Inc.	SAS-521-4	N/A	06/29/2010	06/28/2011
CABLE	TIME MICROWAVE	LMR-400	N/A	06/29/2010	06/28/2011

7.2. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

**Note: The lower limit shall apply at the transition frequency.

7.3 BLOCK DIAGRAM OF RADIATED EMISSION TEST



7.4 PROCEDURE OF RADIATED EMISSION TEST

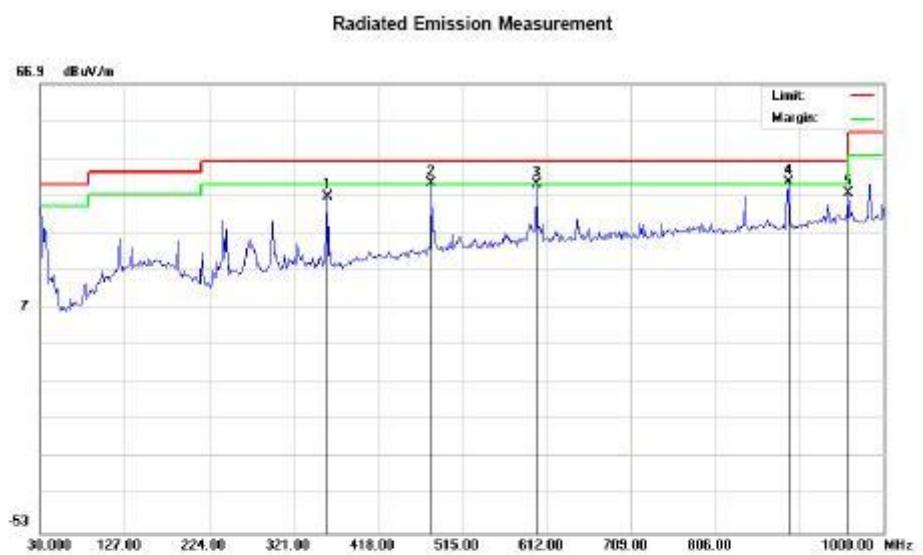
- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) The EUT received DC 5V from USB or battery. All support equipments received AC 120V/60Hz power from socket under the turntable, if any.
- 5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
- 6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- 7) The test mode(s) were scanned during the test:
- 8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

The test data of the worst case condition(s) was reported on the Summary Data page.

7.5 TEST RESULT OF RADIATED EMISSION TEST

PC MODE:

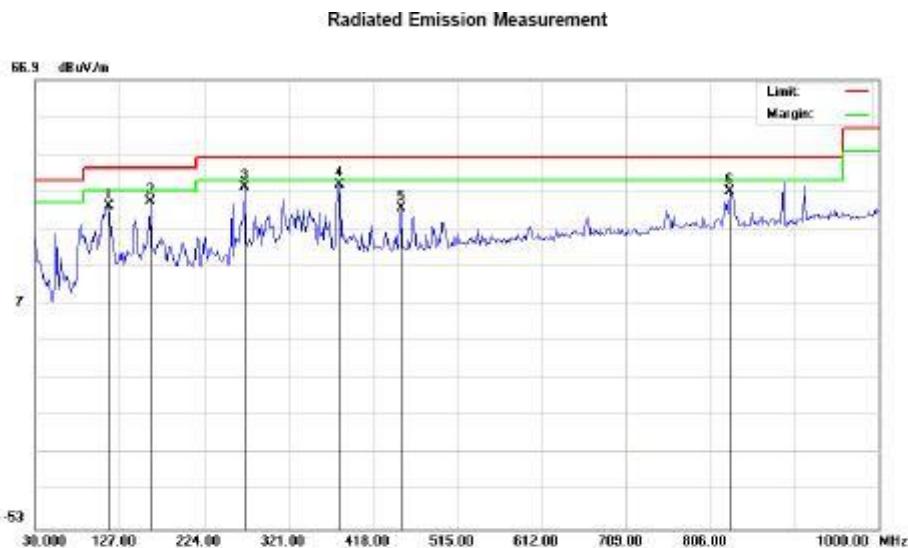
TEST RESULT OF RADIATED EMISSION TEST - HORIZONTAL



Site: site #1 Polarization: **Horizontal** Temperature: 26
Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
EUT: Distance: 3m
MN: Mode:
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB				
1		359.8000	17.73	19.08	36.81	46.00	-9.19	peak			
2	!	479.4333	18.39	21.80	40.29	46.00	-5.71	peak			
3		600.6833	15.05	24.92	39.97	46.00	-6.03	peak			
4	*	890.0687	11.66	28.97	40.63	46.00	-5.37	peak			
5		969.5833	7.38	30.32	37.68	46.00	-8.32	peak			

TEST RESULT OF RADIATED EMISSION TEST -VERTICAL



Site: site #1 Polarization: **Vertical** Temperature: 26
Limit: FCC Class B 3M Radiation Power: Humidity: 80 %
EUT: Distance: 3m
M/N:
Mode:
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		114.0667	15.63	17.52	33.15	43.50	-10.35	peak			
2		162.5667	14.44	20.03	34.47	43.50	-9.03	peak			
3		270.8633	21.16	17.20	38.36	46.00	-7.64	peak			
4	*	379.2000	19.31	19.51	38.82	46.00	-7.18	peak			
5		450.3333	10.89	21.52	32.41	46.00	-13.59	peak			
6		828.6333	8.76	28.22	36.98	46.00	-9.02	peak			

Note: other modes at least have 20 dB margin, no recorded in the test report

APPENDIX 1
PHOTOGRAPHS OF TEST SETUP

FCC CONDUCTED EMISSION TEST



FCC RADIATED EMISSION TEST SETUP FOR PC MODE



APPENDIX 2 PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



BOTTOM VIEW OF EUT



RIGHT VIEW OF EUT



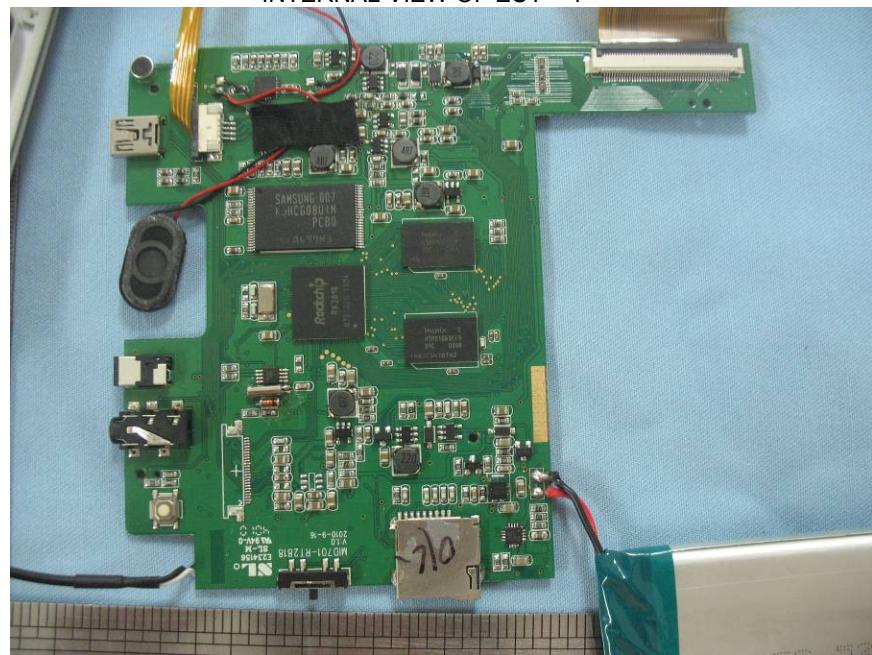
TOP VIEW OF ADAPTER



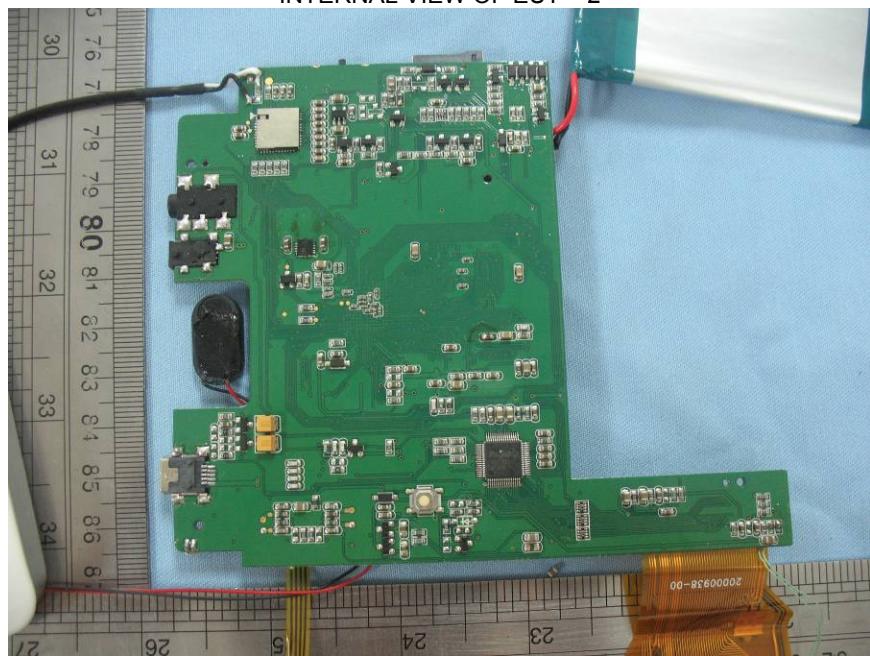
BOTTOM VIEW OF ADAPTER



INTERNAL VIEW OF EUT – 1



INTERNAL VIEW OF EUT - 2



---END OF REPORT---