FCC 47 CFR PART 15 SUBPART B

TEST REPORT

For

Applicant:	**Shaoxing LongXin Electronics CO.,LTD**
Address:	**Xujiadai Village，Sundun Town，Shaoxing County，Zhejiang，China**
Product Name:	**MID**
Model Name:	**PC617, SX-MID700A, PC Tab701, PC Tab702, PC Tab703, PC Tab704, PC Tab705, PC Tab706, PC Tab707, 617-2, PC701, PC702, PC703, PC704, PC705, PC706, PC707, E701, E702, E703, E704, E705, E706, E707, PC617V2**
Brand Name:	**N/A**
FCC ID:	**ZGU-PC617**
Report No.:	**MOST110316F1**
Date of Issue:	**April. 14, 2011**

Issued by:	**Most Technology Service Co., Ltd.**
Address:	**No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China**
Tel:	**86-755-8617 0306**
Fax:	**86-755-8617 0310**

TABLE OF CONTENTS

1. VERIFICATION OF CONFORMITY

Equipment Under Test:	MID
Brand Name:	N/A
Model Number:	PC617
Series Model Name:	SX-MID700A, PC Tab701, PC Tab702, PC Tab703, PC Tab704, PC Tab705, PC Tab706, PC Tab707, 617-2, PC701, PC702, PC703, PC704, PC705, PC706, PC707, E701, E702, E703, E704, E705, E706, E707, PC617V2
Series Model Difference description:	Only the model name is different
FCC ID：	ZGU-PC617
Applicant:	Shaoxing LongXin Electronics CO.,LTD Xujiadai Village，Sundun Town，Shaoxing County，Zhejiang，China
Manufacturer:	Shaoxing LongXin Electronics CO.,LTD Xujiadai Village，Sundun Town，Shaoxing County，Zhejiang，China
Technical Standards:	FCC Part 15 B
File Number:	MOST110316F1
Date of test:	April 07, 2011 ~ April 14, 2011
Deviation:	None
Condition of Test Sample:	Normal
Test Result:	PASS

The above equipment was tested by MOST for compliance with the requirements set forth in FCC Part 15 and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

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

Tested by (+ signature): Petter Ping

Petter Ping April 14, 2011

Review by (+ signature): July Wen

July Wen April 14, 2011

Approved by (+ signature): Terry Yang

Terry Yang April 14, 2011

2. GENERAL INFORMATION

2.1 PRODUCT INFORMATION

Product Name:	MID
Brand Name:	N/A
Model Number:	PC617
Series Model Name:	SX-MID700A, PC Tab701, PC Tab702, PC Tab703, PC Tab704, PC Tab705, PC Tab706, PC Tab707, 617-2, PC701, PC702, PC703, PC704, PC705, PC706, PC707, E701, E702, E703, E704, E705, E706, E707, PC617V2
Model Discrepancy:	Only the model name is different
Power Supply:	DC 9V by AC/DC adapter 100~240V 50/60Hz DC 7.4V by battery;
Frequency Range:	802.11 b/g: 2412 MHz-2462 MHz

NOTE:

1. Please refer to Appendix 2 for the photographs of the EUT. For a more detailed features description about the EUT, please refer to User's Manual.

2.2 OBJECTIVE

Perform FCC Part 15 Subpart B tests for FCC Marking.

2.3 TEST STANDARDS AND RESULTS

Test items and the results are as bellow:

EMISSION				
Standard	**Item**		**Result**	**Remarks**
FCC 47 CFR Part 15 Subpart B (10-1-05 Edition)	§15.107	Conducted Emission	PASS	Meet Class B limit
	§15.109	Radiated Emission	PASS	Meet Class B limit

Note:

1. The test result judgment is decided by the limit of measurement standard
2. The information of measurement uncertainty is available upon the customer's request.

2.4 ENVIRONMENTAL CONDITIONS

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

- Temperature: 15-35ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

3. TEST FACILITY

3.1 TEST FACILITY

Test Site:	Most Technology Service Co.,Ltd.
Location:	No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong ,China
Description:	There is one 3m semi-anechoic an area test sites and two line conducted labs for final test. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009 and CISPR 16 requirements. The FCC Registration Number is **490827.** The **CNAS** Registration Number is **CNAS L3573.**
Site Filing:	The site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4:2009 and CISPR 16 requirements that meet industry 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.

3.2 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4:2009,Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4:2009.

4. SETUP OF EQUIPMENT UNDER TEST

4.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

4.2 SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
Micro SD CARD	Kingston	1G	0907T139090	N/A	

Remark:

All the equipment/cables were placed in the worst-case [-configuration to maximize the emission during the test.

Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4. 3 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipment used at MOST for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

No.	Equipment	Manufacturer	Model No.	S/N	Calibration date	Calibration due date
1	Test Receiver	Rohde & Schwarz	ESCI	100492	2011/03/14	2012/03/14
2	L.I.S.N.	Rohde & Schwarz	ENV216	100093	2011/03/14	2012/03/14
3	Coaxial Switch	Anritsu Corp	MP59B	6200283933	2011/03/14	2012/03/14
4	Terminator	Hubersuhner	50Ω	No.1	2011/03/14	2012/03/14
5	RF Cable	SchwarzBeck	N/A	No.1	2011/03/14	2012/03/14
6	Test Receiver	Rohde & Schwarz	ESPI	101202	2011/03/14	2012/03/14
7	Bilog Antenna	Sunol	JB3	A121206	2011/03/14	2012/03/14
8	Test Antenna - Horn	Schwarzbeck	BBHA 9120C	--	2011/03/14	2012/03/14
9	Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	--	2011/03/14	2012/03/14
10	Cable	Resenberger	N/A	NO.1	2011/03/14	2012/03/14
11	Cable	SchwarzBeck	N/A	NO.2	2011/03/14	2012/03/14
12	Cable	SchwarzBeck	N/A	NO.3	2011/03/14	2012/03/14
13	DC Power Filter	DuoJi	DL2×30B	N/A	2011/03/14	2012/03/14
14	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	2011/03/14	2012/03/14
15	3 Phase Power Line Filter	DuoJi	FNF 402B30	N/A	2011/03/14	2012/03/14
16	Test Receiver	Rohde & Schwarz	ESCI	100492	2011/03/14	2012/03/14
17	Absorbing Clamp	Luthi	MDS21	3635	2011/03/14	2012/03/14
18	Coaxial Switch	Anritsu Corp	MP59B	6200283933	2011/03/14	2012/03/14
19	AC Power Source	Kikusui	AC40MA	LM003232	2011/03/14	2012/03/14
20	Test Analyzer	Kikusui	KHA1000	LM003720	2011/03/14	2012/03/14
21	Line Impendence Network	Kikusui	LIN40MA-PCR-L	LM002352	2011/03/14	2012/03/14
22	ESD Tester	Kikusui	KES4021	LM003537	2011/03/14	2012/03/14
23	EMCPRO System	EM Test	UCS-500-M4	V0648102026	2011/03/14	2012/03/14
24	Signal Generator	IFR	2032	203002/100	2011/03/14	2012/03/14
25	Amplifier	A&R	150W1000	301584	2011/03/14	2012/03/14
26	CDN	FCC	FCC-801-M2-25	47	2011/03/14	2012/03/14
27	CDN	FCC	FCC-801-M3-25	107	2011/03/14	2012/03/14
28	EM Injection Clamp	FCC	F-203I-23mm	403	2011/03/14	2012/03/14
29	RF Cable	MIYAZAKI	N/A	No.1/No.2	2011/03/14	2012/03/14
30	Universal Radio Communication Tester	ROHDE&SCHWARZ	CMU200	0304789	2011/03/14	2012/03/14
31	Telecommunication Antenna	European Antennas	PSA 75301R/170	0304213	2011/03/14	2012/03/14

NOTE: *Equipments listed above have been calibrated and are in the period of validation.*

5. 47 CFR PART 15B REQUIREMENTS

5.1 GENERAL INFORMATION

The EUT has been tested under normal operating（TX）and standby（RX）condition.

The field strength of radiation emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y 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 Mobile Internet Device(MID) were tested but only the worst test data of the worst mode is reported by this report.

Mode 1: Standby Mode

During the measurement, and the EUT was in charging Mode.

Mode 2: Full load Mode

During the measurement, the lithium battery was installed, and the system of EUT was running continuously.

Mode 3: WiFi Mode

During the measurement, the lithium battery was installed. A communication link was established between the EUT and a System Simulator.

NOTE:

All test modes are performed, only the worse cases are recorded in this report.

6. LINE CONDUCTED EMISSION TEST

6.1. LIMITS OF LINE CONDUCTED EMISSION TEST

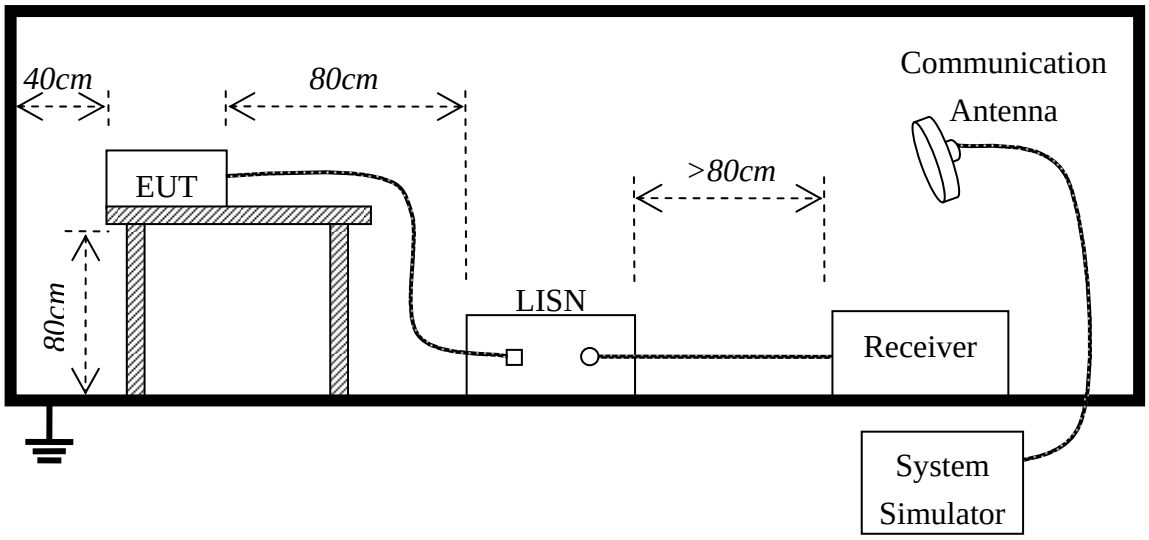
According to FCC §15.107, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).

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*

6.2. BLOCK DIAGRAM OF TEST SETUP



6.3. PRELIMINARY 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 FCC Part 15 (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 FCC Part 15.
3) All I/O cables were positioned to simulate typical actual usage as per FCC Part 15.
4) The EUT received DC 5V power by AC/DC adapter which through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5) All support equipments received power from a second LISN supplying power of AC 120V/60Hz, 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 30 MHz for emissions in each of the test modes.
8) During the above scans, the emissions were maximized by cable manipulation.
9) The following test mode(s) were scanned during the preliminary test:

Preliminary Conducted Emission Test				
Frequency Range Investigated		150KHz to 30 MHz		
Mode of operation	Date	Report No.	Data#	Worst Mode
Standby Mode	2011-03-31	MOST110316F1	PC617_0_(L, N)	☐
Full load Mode	2011-03-31	MOST110316F1	PC617_1_(L, N)	☒
WiFi Mode	2011-03-31	MOST110316F1	PC617_2_(L, N)	☐

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

6.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

EUT and support equipment was set up on the test bench as per step 9 of the preliminary test.

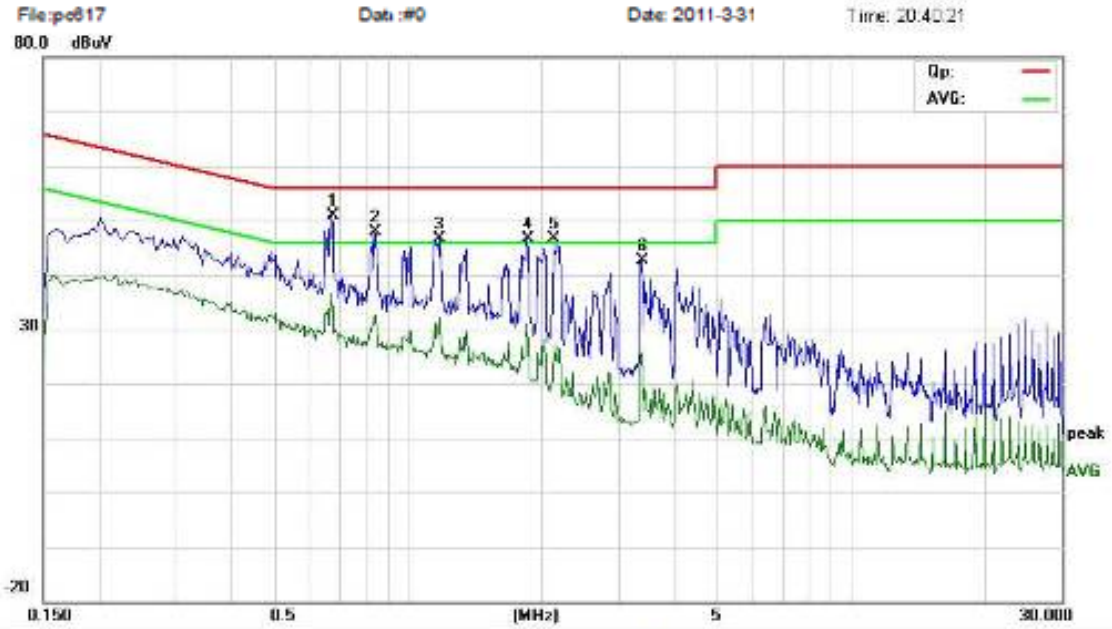
A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

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

6.5. TEST RESULT

Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

Conducted Emission Measurement



Site: site #1 Phase: L1 Temperature: 26
Limit: FCC Part15 B Class B QP Power: AC 120V/60Hz Humidity: 60 %

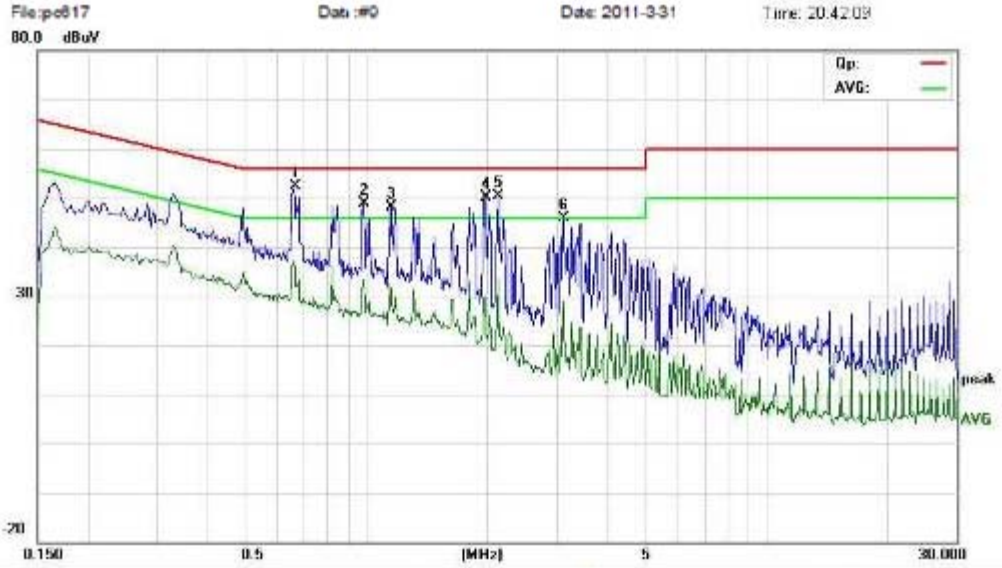
EUT: MID
M/N: PC617
Mode: FULL LOAD
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.6740	40.95	10.00	50.95	56.00	-5.05	peak	
2		0.8420	37.84	10.00	47.84	56.00	-8.16	peak	
3		1.1780	36.78	9.82	46.60	56.00	-9.40	peak	
4		1.8580	37.52	9.14	46.66	56.00	-9.34	peak	
5		2.1260	37.59	9.13	46.72	56.00	-9.28	peak	
6		3.3740	32.34	10.37	42.71	56.00	-13.29	peak	

*:Maximum data x:Over limit !:over margin

Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

Conducted Emission Measurement



Site: site #1 Phase: N Temperature: 26
Limit: FCC Part15 B Class B QP Power: AC 120V/60Hz Humidity: 60 %

EUT: MID
M/N: PC617
Mode: FULL LOAD
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.6580	42.38	10.00	52.38	56.00	-3.62	peak	
2		0.9820	38.88	10.00	48.88	56.00	-7.12	peak	
3		1.1500	38.40	9.85	48.25	56.00	-7.75	peak	
4		1.9700	41.03	9.03	50.06	56.00	-5.94	peak	
5		2.1300	41.34	9.13	50.47	56.00	-5.53	peak	
6		3.1140	35.81	10.11	45.92	56.00	-10.08	peak	

*:Maximum data x:Over limit !:over margin

*:Maximum data x:Over limit !:over margin

7. RADIATED EMISSION TEST

7.1. LIMITS OF RADIATED DISTURBANCES AT 3M DISTANCES FOR CLASS B

According to FCC §15.109, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

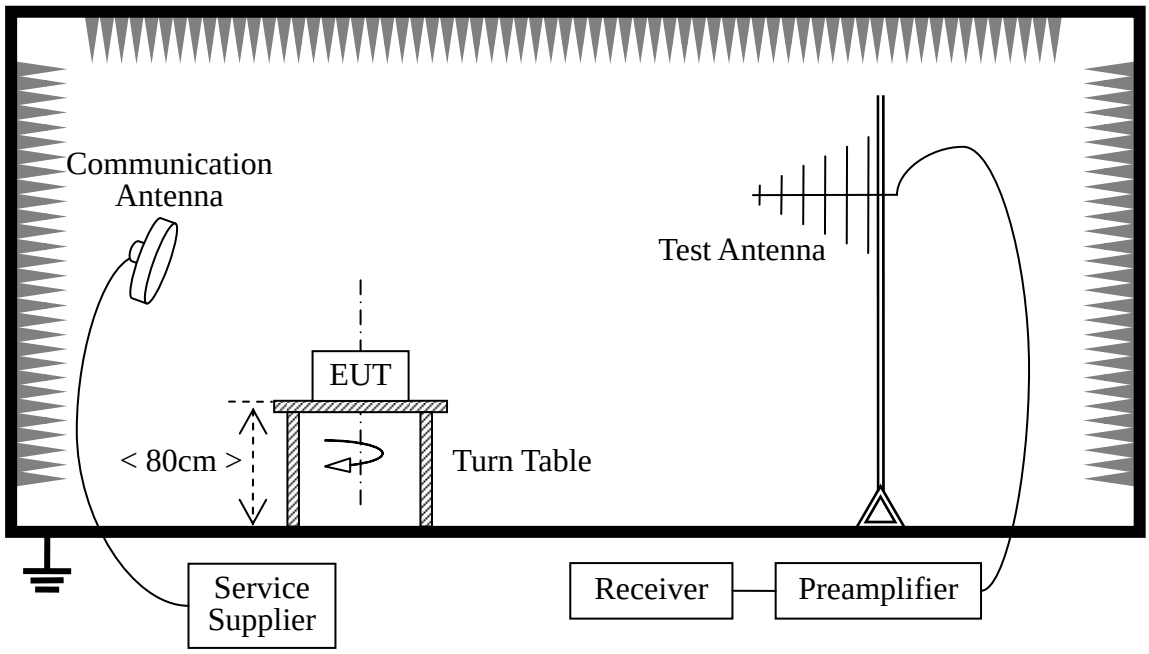
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

NOTE:

1. Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].
2. In the emission tables above, the tighter limit applies at the band edges.

7.2 TEST DESCRIPTION

Test Setup:



The EUT is powered by the Battery charged with the AC Adapter which is powered by 120V, 60Hz AC mains supply. The Module is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading. During the measurement, the EUT is activated and transmitting with the other Bluetooth device (Supply by the Applicant) during the test.

For the Test Antenna:

(a) In the frequency range of 9 kHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.

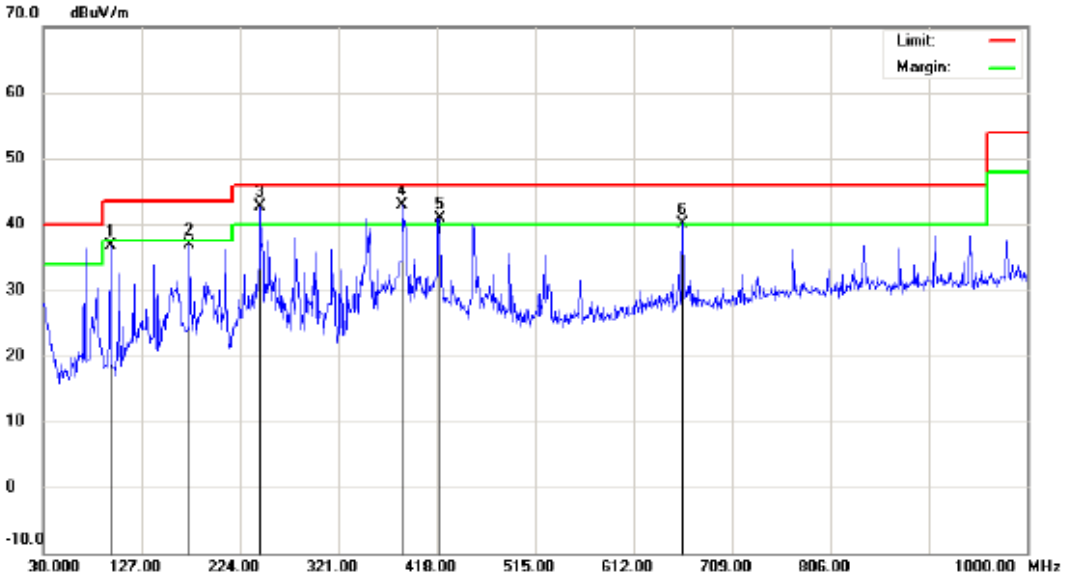
(b) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) is used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

Preliminary Radiated Emission Test				
Frequency Range Investigated			**30 MHz to 1000 MHz**	
Mode of operation	**Date**	**Report No.**	**Data#**	**Worst Mode**
Standby Mode	2011-03-31	MOST110316F1	PC617_0_(L, N)	☐
Full load Mode	2011-03-31	MOST110316F1	PC617_1_(L, N)	☒
WiFi Mode	2011-03-31	MOST110316F1	PC617_2_(L, N)	☐

7.3 TEST RESULT

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

Radiated Emission Measurement



Site site MOST 3M
Limit: FCC Part15 B 3M Radiation
EUT: MID
M/N: PC617
Mode: USB
Note:

Polarization: *Horizontal*
Power: DC 5V From PC Inpute Ac120V/60Hz

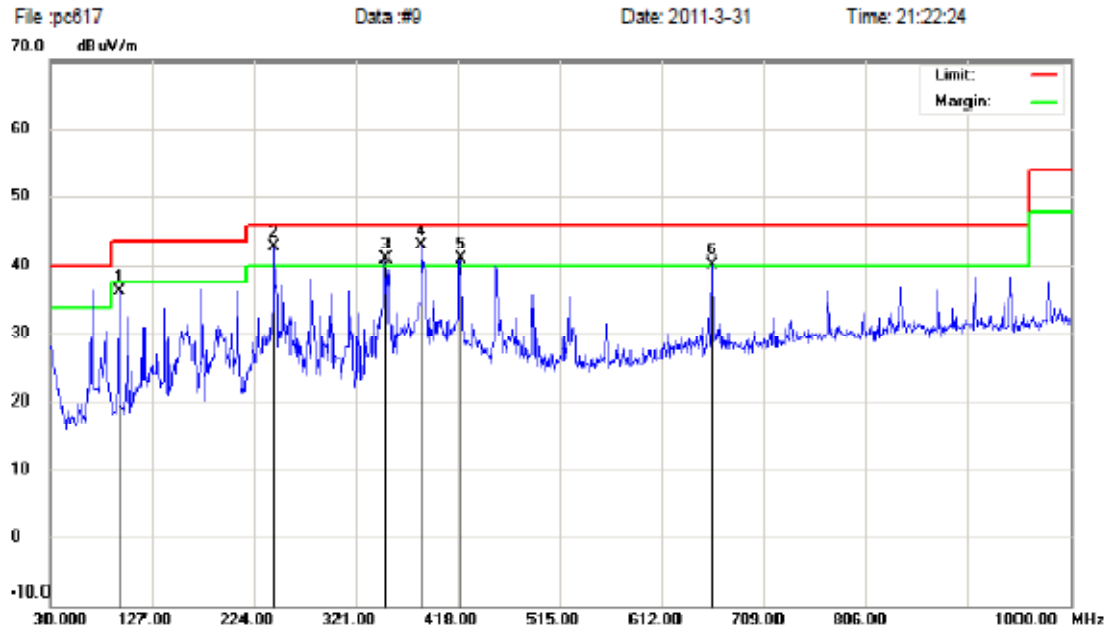
Temperature: 26
Humidity: 60 %
Distance:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		95.9599	24.39	12.27	36.66	43.50	-6.84	peak			
2		174.5300	20.00	16.97	36.97	43.50	-6.53	peak			
3	!	244.3700	25.38	17.37	42.75	46.00	-3.25	QP			
4	*	384.0500	24.66	18.18	42.84	46.00	-3.16	QP			
5	!	419.9400	20.87	19.99	40.86	46.00	-5.14	peak			
6	!	660.5000	15.84	24.21	40.05	46.00	-5.95	peak			

*:Maximum data x:Over limit !:over margin

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

Radiated Emission Measurement



Site site MOST 3M
Limit: FCC Part15 B 3M Radiation
EUT: MID
M/N: PC617
Mode: FULL LOAD
Note:

Polarization: *Horizontal*
Power: AC 120V/60Hz

Temperature: 26
Humidity: 60 %

Distance:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		95.9599	23.89	12.27	36.16	43.50	-7.34	peak			
2	!	244.3700	25.38	17.37	42.75	46.00	-3.25	QP			
3	!	349.1300	23.08	17.73	40.81	46.00	-5.19	peak			
4	*	384.0500	24.66	18.18	42.84	46.00	-3.16	QP			
5	!	419.9400	20.87	19.99	40.86	46.00	-5.14	peak			
6	!	660.5000	15.84	24.21	40.05	46.00	-5.95	peak			

*:Maximum data x:Over limit !:over margin

Above 1 GHz:

Operation Mode:	Full load Mode	**Test Date:**	March. 31, 2011
Temperature:	24°C	**Tested by:**	Petter Ping
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Peak Margin (dB)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)				
N/A										>20
N/A										>20

Notes:

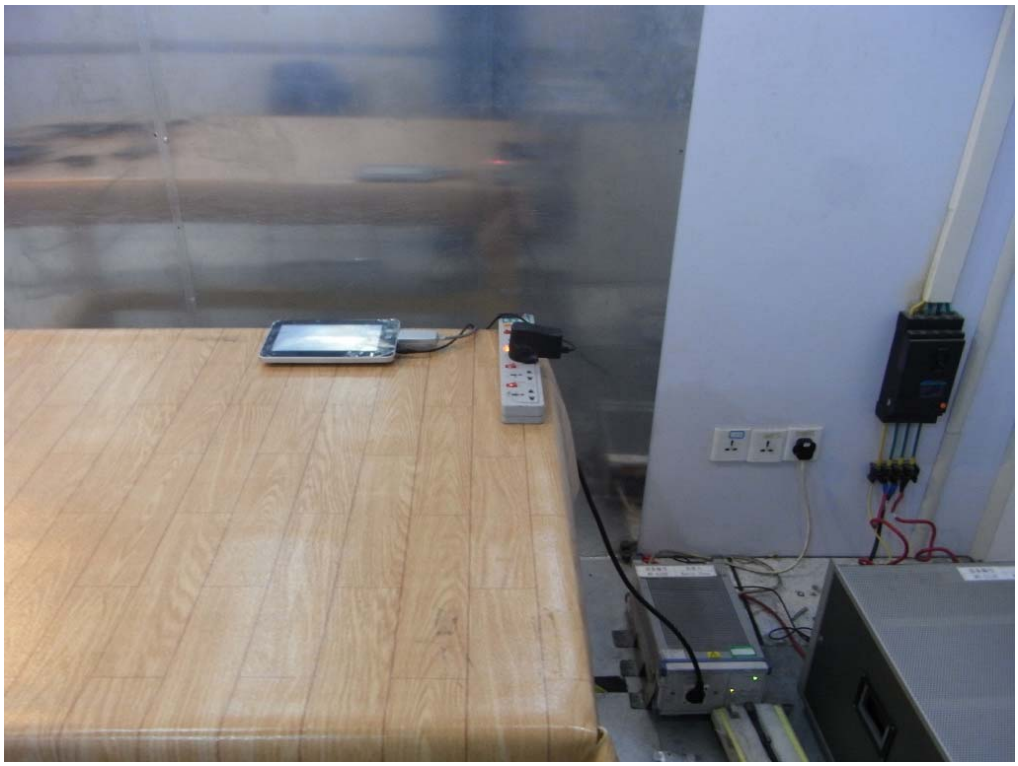
1. Measuring frequencies from 1 GHz to 6GHz.

2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

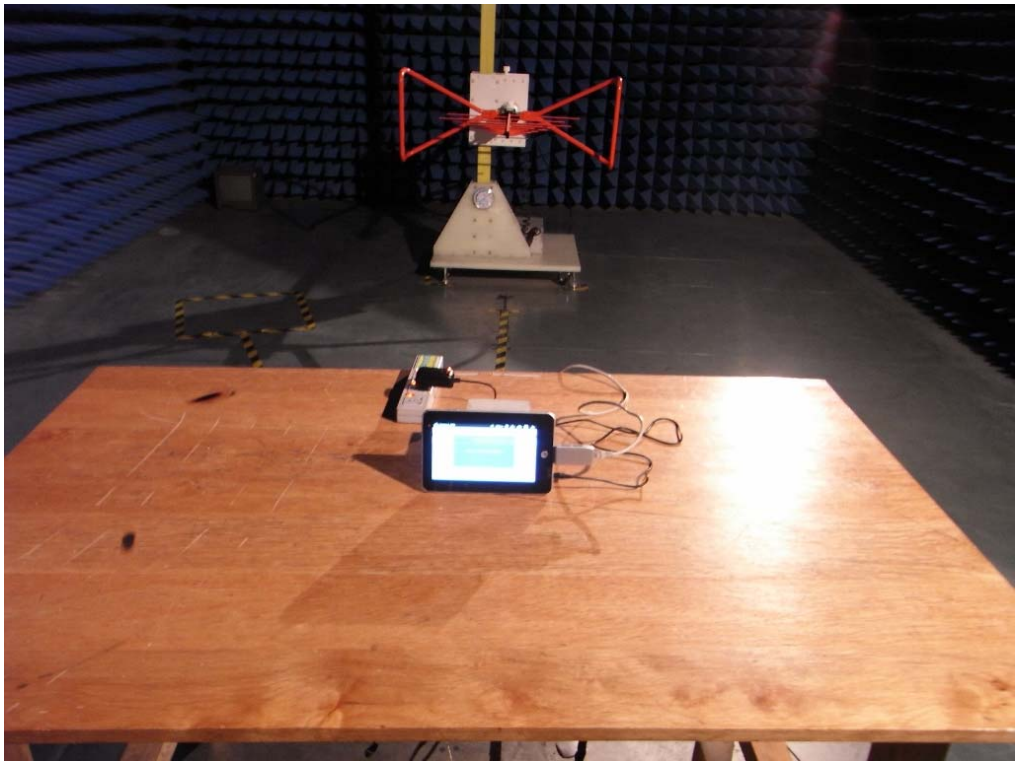
3. The frequency that above 1GHz, the emission measurements of basic frequency and harmonic frequency is not suitable, and is mainly from the environment noise.

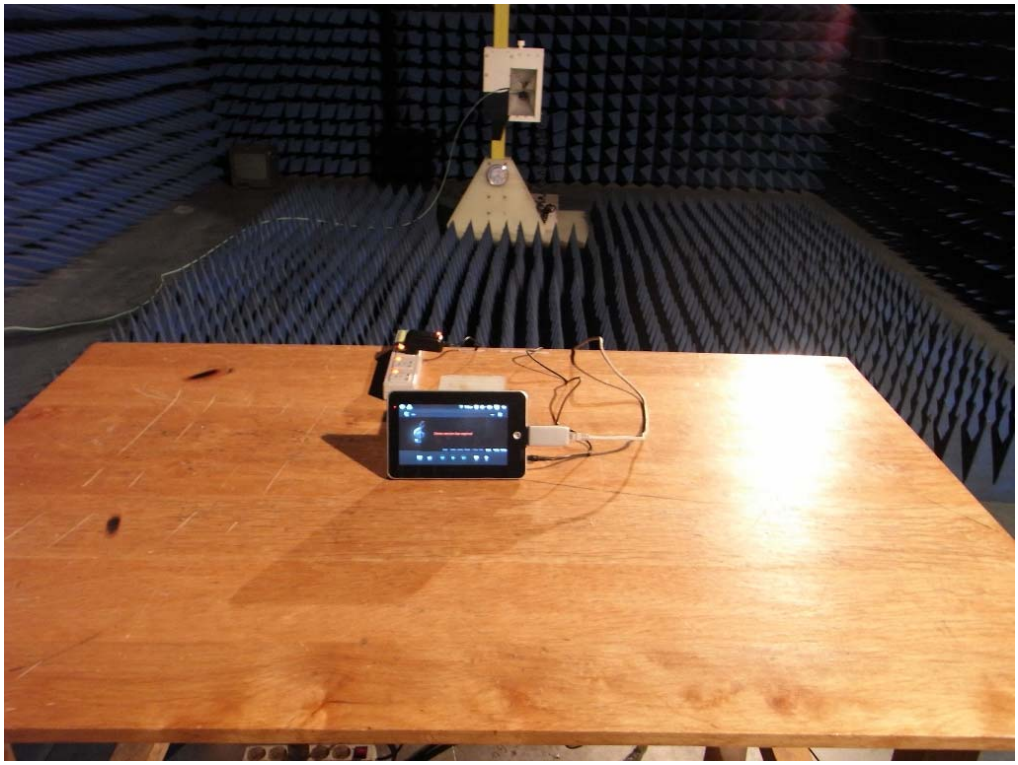
APPENDIX 1
PHOTOGRAPHS OF TEST SETUP

CE TEST SETUP



RE TEST SETUP





APPENDIX 2
PHOTOGRAPHS OF EUT

FRONT VIEW OF SAMPLE

BACK VIEW OF SAMPLE

LEFT VIEW OF SAMPLE

RIGHT VIEW OF SAMPLE

TOP VIEW OF SAMPLE

BOTTOM VIEW OF SAMPLE

PHOTO OF TRNSFER BOX-1

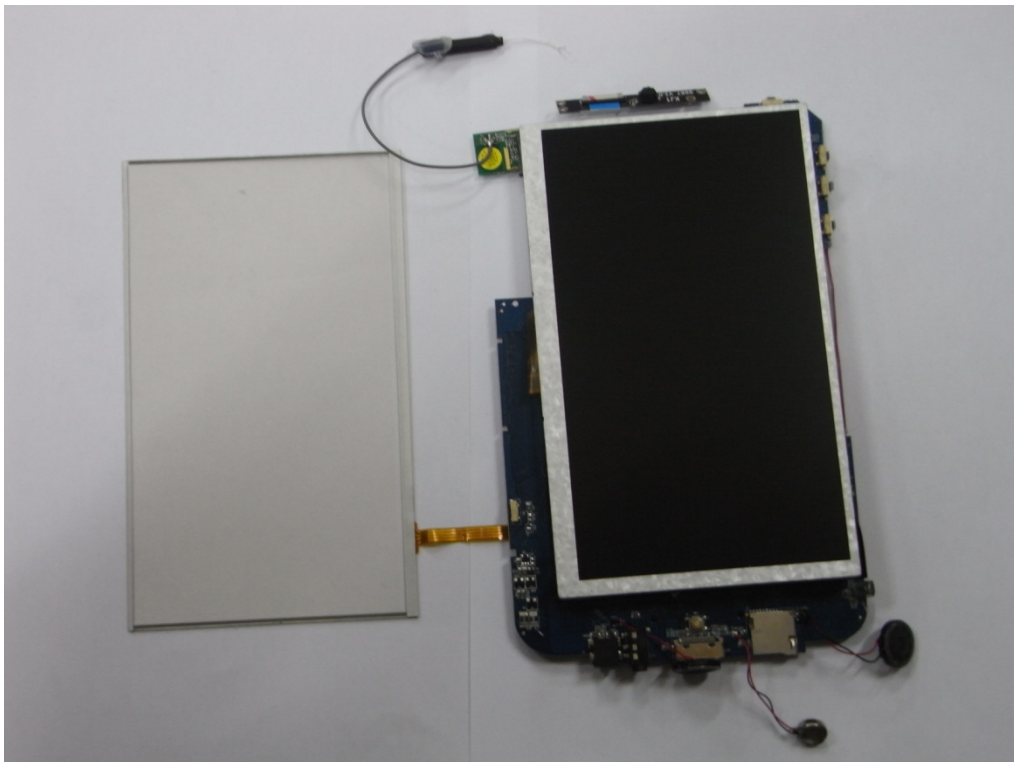
PHOTO OF TRNSFER BOX-2

PHOTO OF POWER SUPPLY

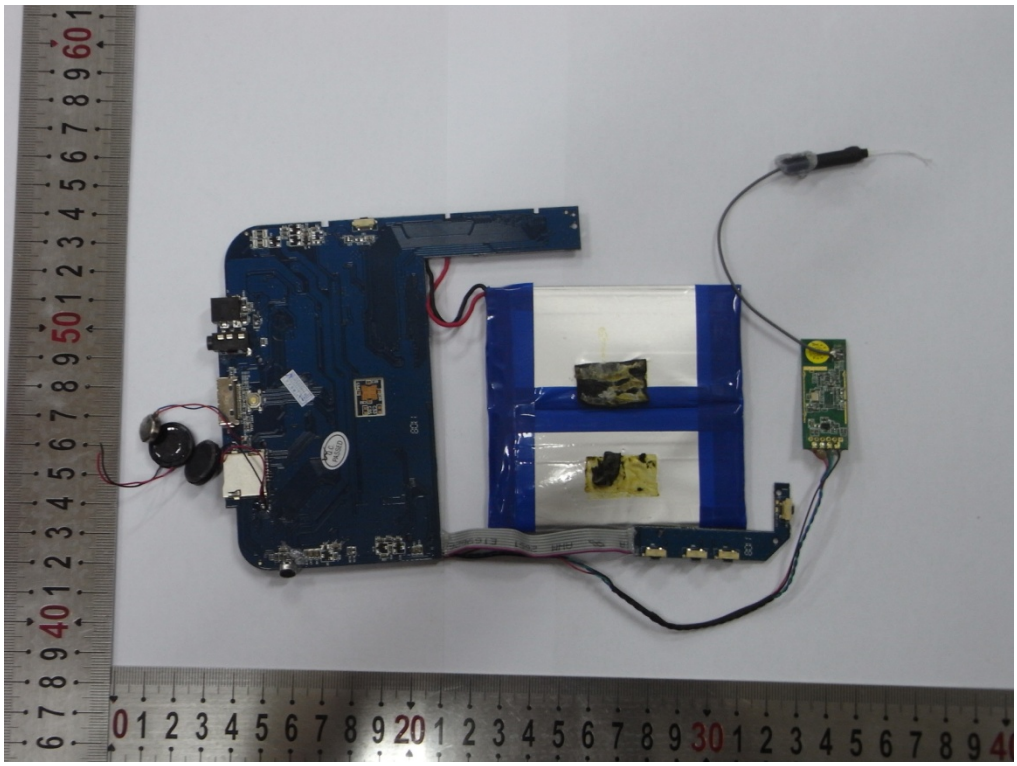
INTERNAL PHOTO OF SAMPLE – 1

INTERNAL PHOTO OF SAMPLE – 2

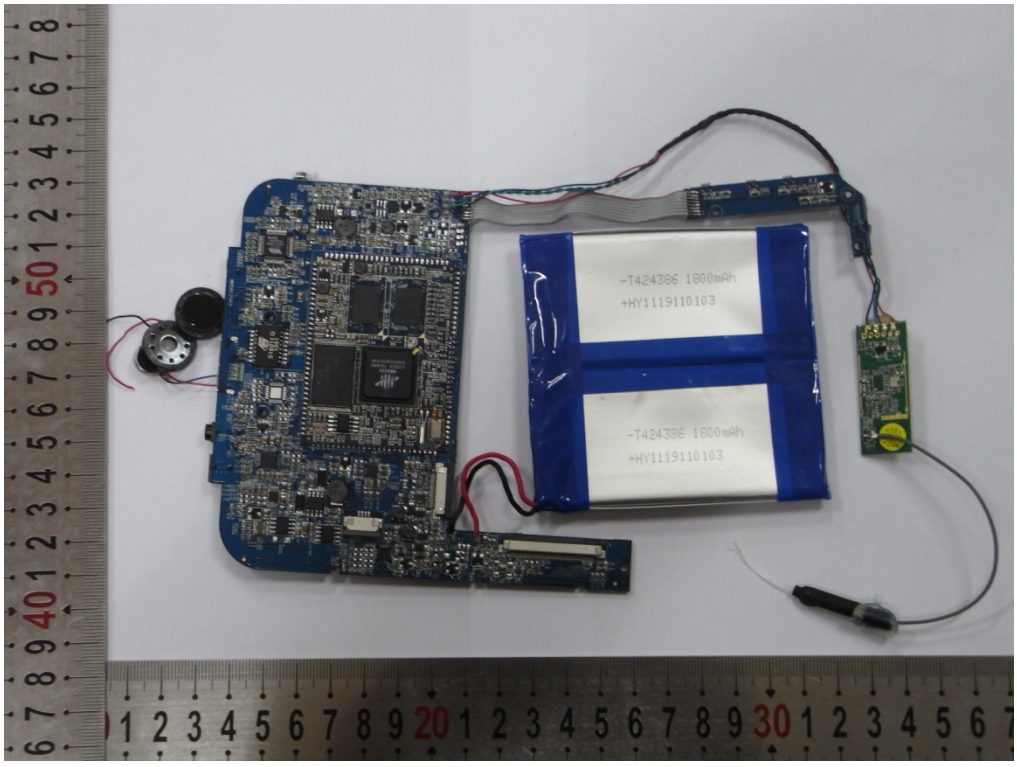
INTERNAL PHOTO OF SAMPLE –3



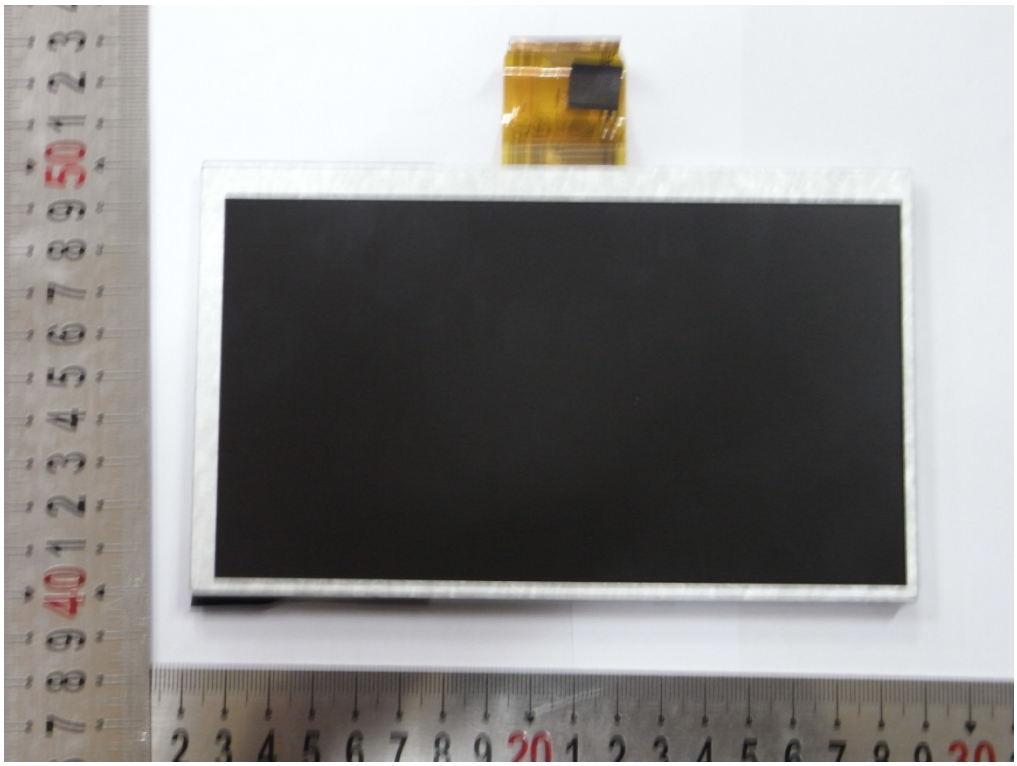
INTERNAL PHOTO OF SAMPLE –4



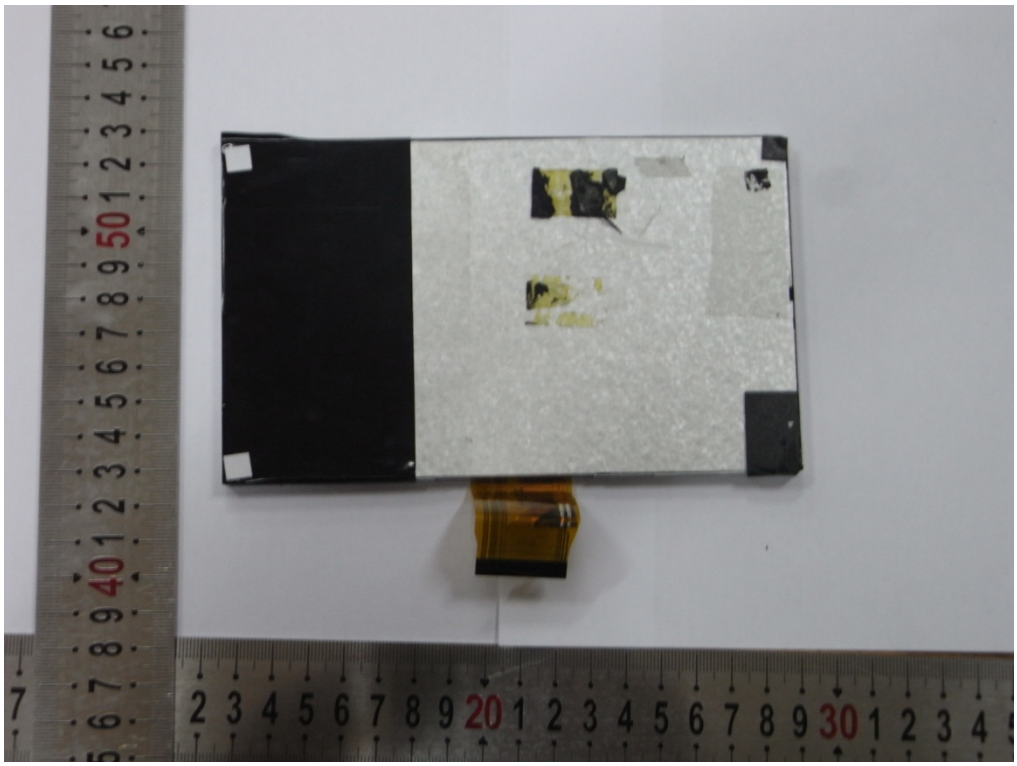
INTERNAL PHOTO OF SAMPLE –5



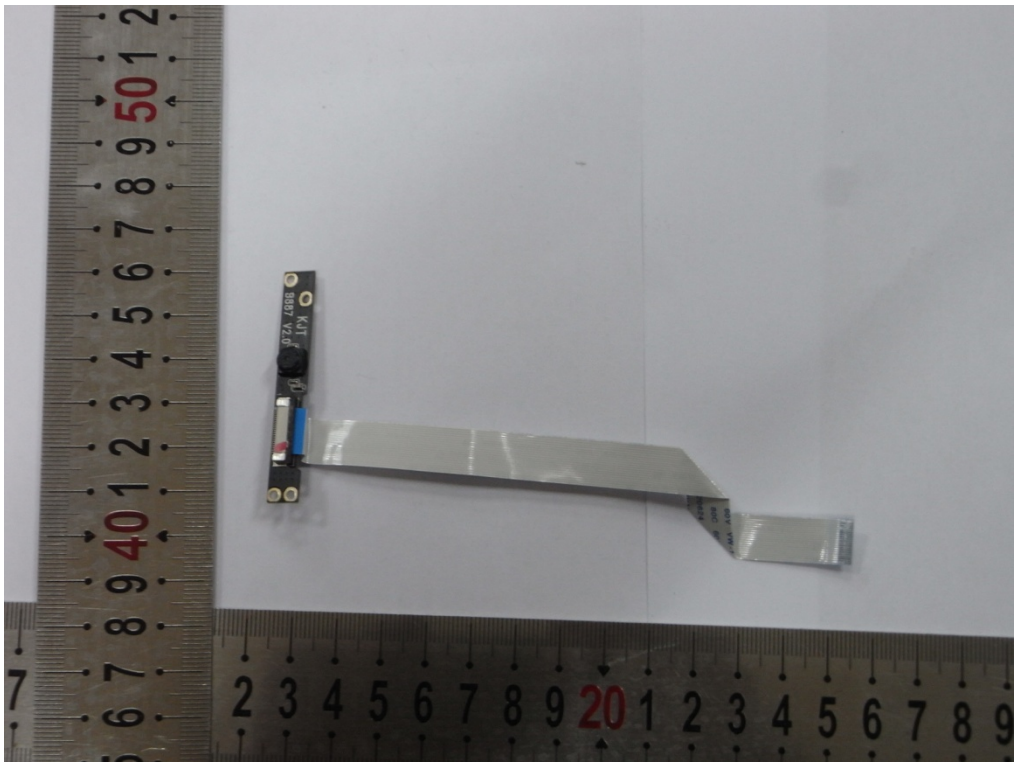
INTERNAL PHOTO OF SAMPLE –6



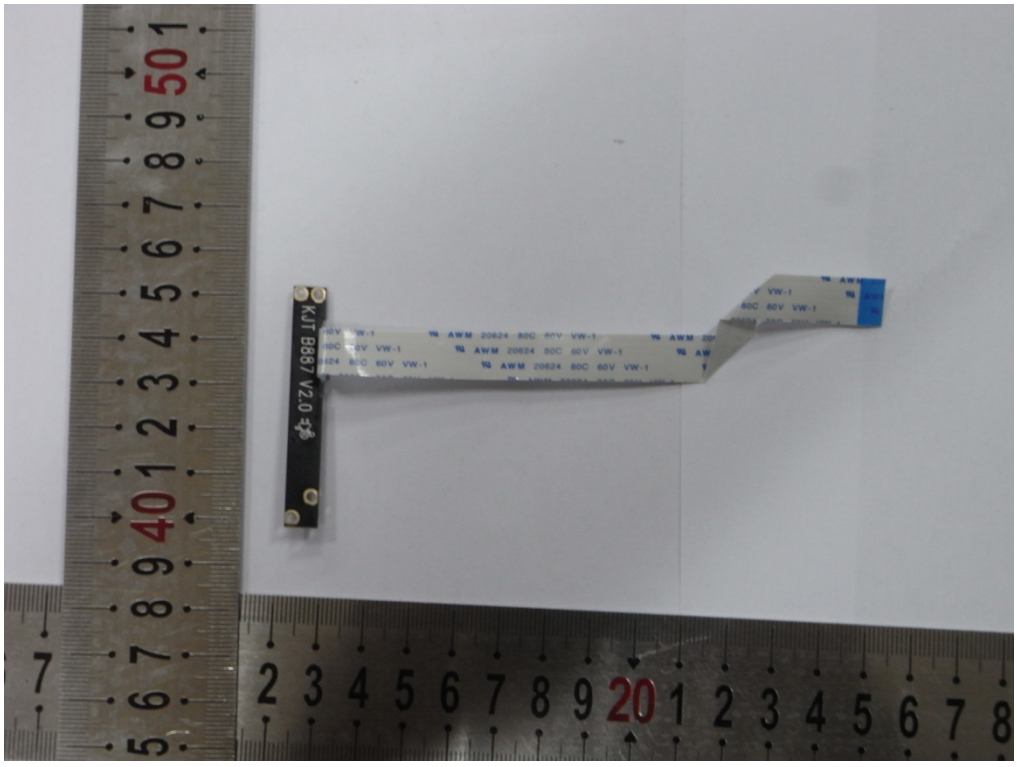
INTERNAL PHOTO OF SAMPLE –7



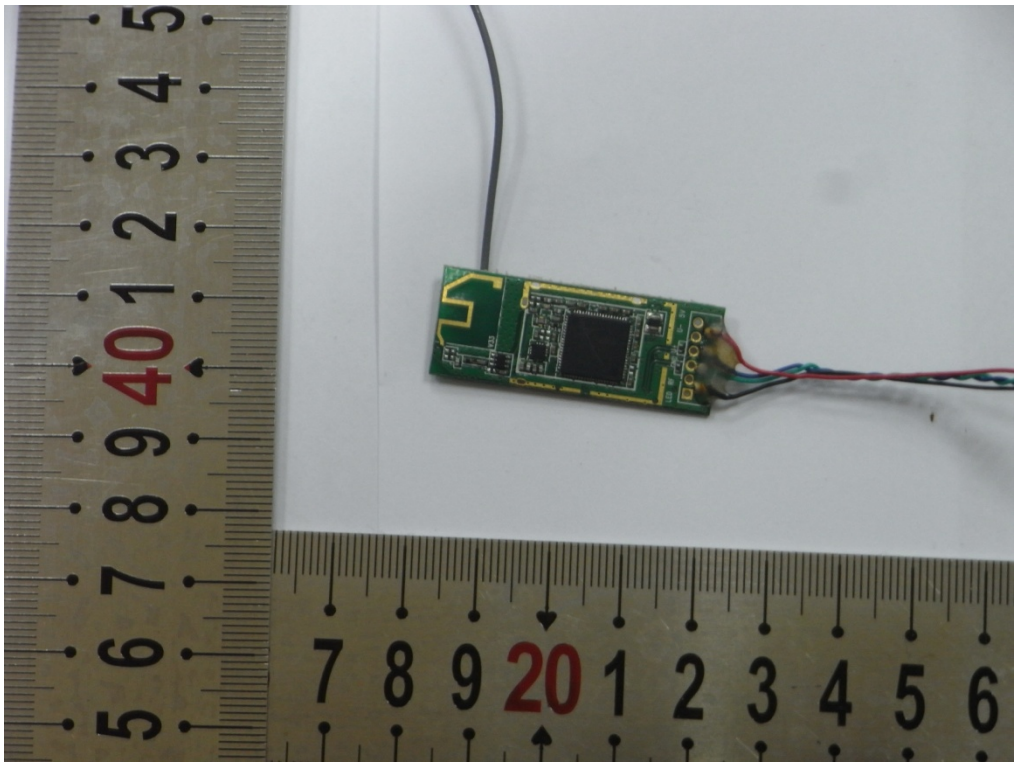
INTERNAL PHOTO OF SAMPLE – 8



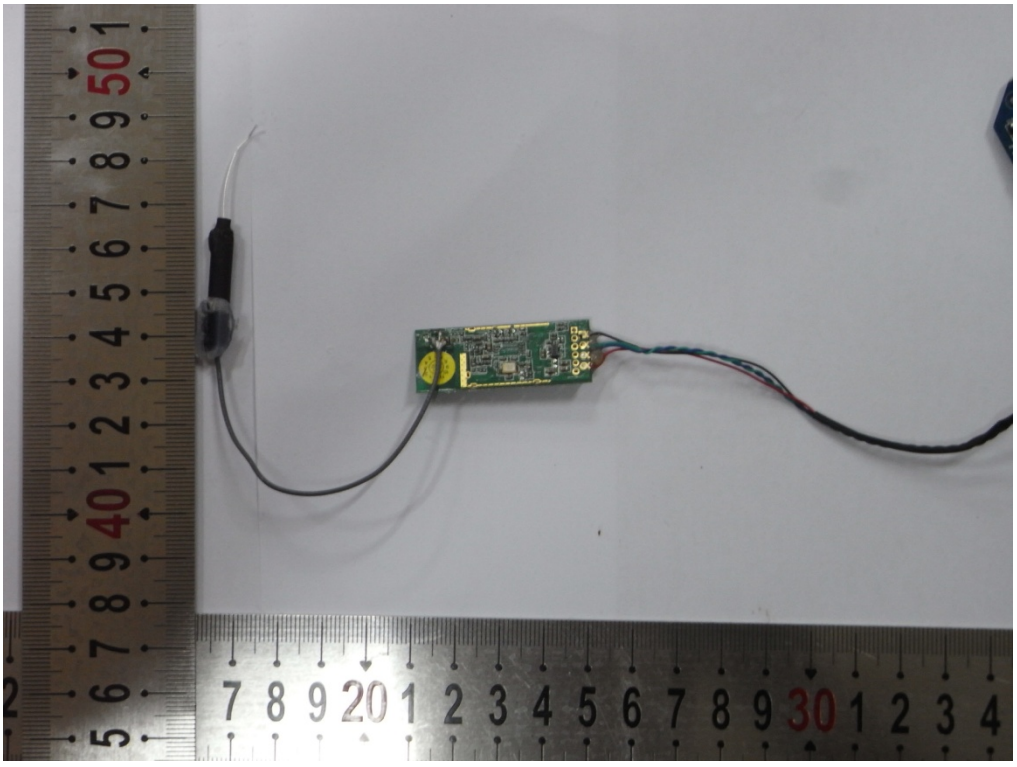
INTERNAL PHOTO OF SAMPLE – 9



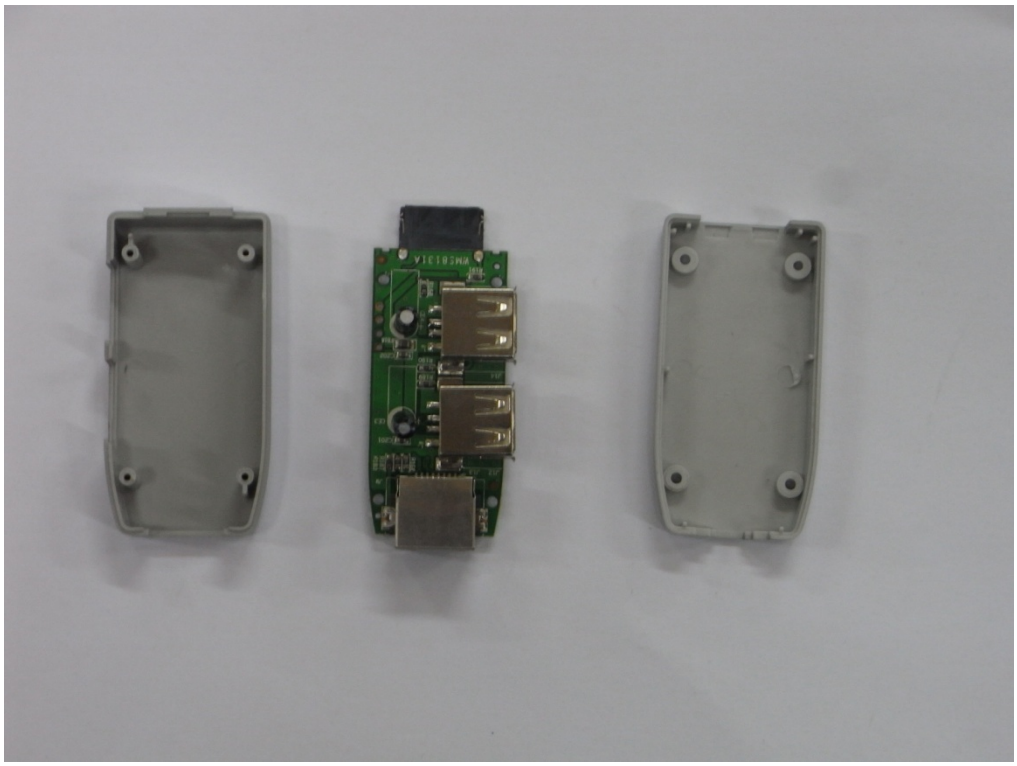
INTERNAL PHOTO OF SAMPLE – 10



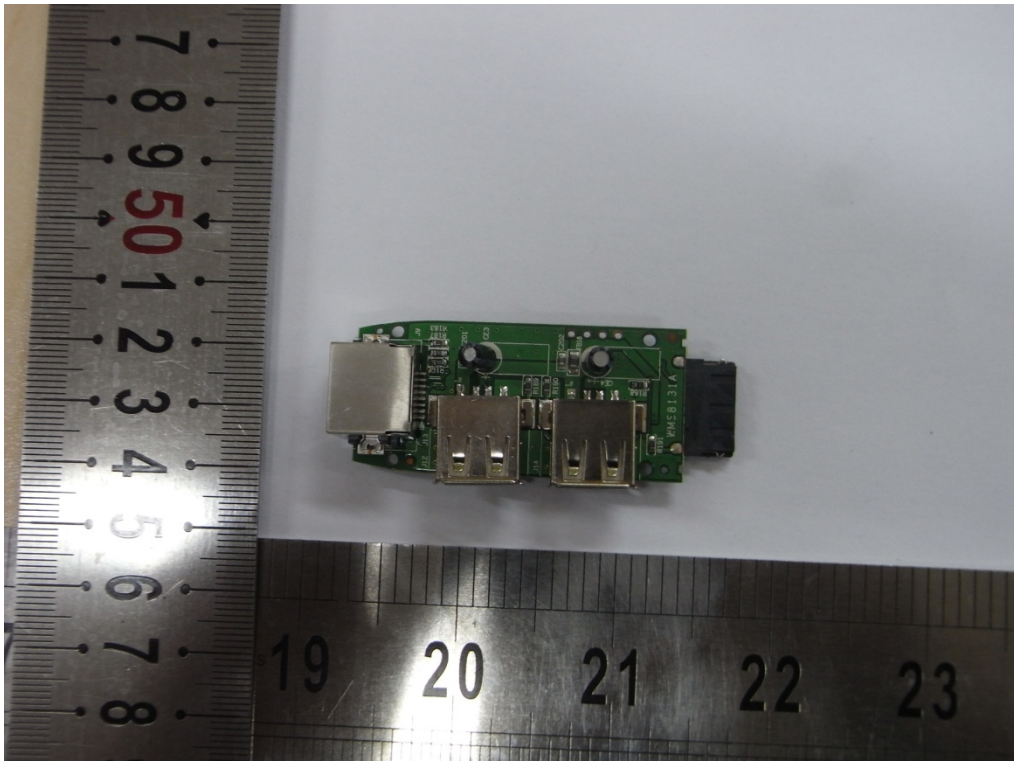
INTERNAL PHOTO OF SAMPLE – 11



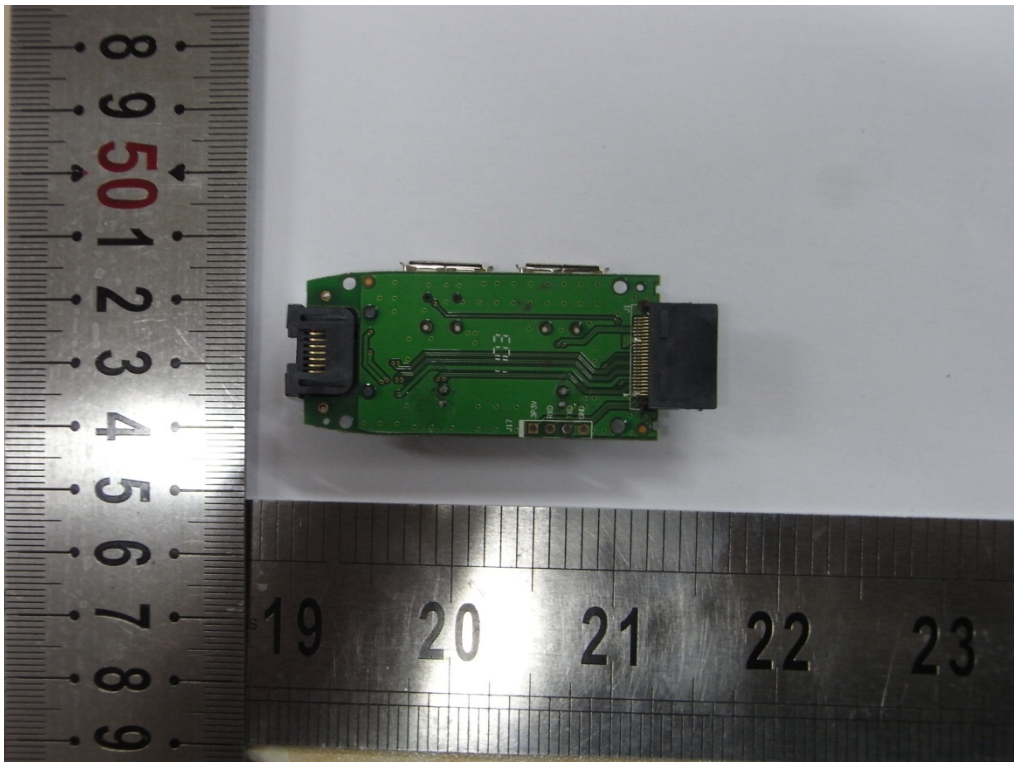
INTERNAL PHOTO OF TRANSFER BOX –1



INTERNAL PHOTO OF TRANSFER BOX –2



INTERNAL PHOTO OF TRANSFER BOX –3



------END OF REPORT------