EMC TEST REPORT
for

XINDAO HONG KONG, LTD.

Power Bank
Model No.: P324.05*

Prepared for	:	XINDAO HONG KONG, LTD.
Address	:	17/F HING YIP COMMERCIAL CENTRE 272-284 DES VOEUX ROAD CENTRAL HK
Prepared by	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China Tel: (86) 755-26066544 Fax: (86) 755-26014772

Report Number	:	R0117020718E
Date of Test	:	Feb. 19~24, 2017
Date of Report	:	Feb. 24, 2017

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TEST REPORT VERIFICATION

Applicant	:	XINDAO HONG KONG, LTD.
Manufacturer	:	XINDAO HONG KONG, LTD.
EUT	:	Power Bank
Model No.	:	P324.05*
Rating	:	Input: DC 5V, 800mA Output: DC 5V, 1A
Trade Mark	:	XINDAO

Measurement Procedure Used:
EN 55032: 2015
EN 55024: 2010+A1: 2015
(IEC 61000-4-2; IEC 61000-4-3)

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the EN 55032, 55024 requirements.The Project in IEC 61000-4-3 was tested in Shenzhen EMTEK Co., Ltd.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Feb. 19~24, 2017

Prepared by : (Engineer/ Baron Wen)

Reviewer : (Project Manager/ Oliay Yang)

Approve & Authorized Signer : (Manager/ Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Power Bank
Model Number	:	P324.05*
Test Power Supply	:	DC 5V
Applicant	:	XINDAO HONG KONG, LTD.
Address	:	17/F HING YIP COMMERCIAL CENTRE 272-284 DES VOEUX ROAD CENTRAL HK
Manufacturer	:	XINDAO HONG KONG, LTD.
Address	:	17/F HING YIP COMMERCIAL CENTRE 272-284 DES VOEUX ROAD CENTRAL HK
Factory	:	XINDAO HONG KONG, LTD.
Address	:	17/F HING YIP COMMERCIAL CENTRE 272-284 DES VOEUX ROAD CENTRAL HK

1.2. Auxiliary Equipment Used during Test

N/A

1.3. Description of Test Facility

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

FCC-Registration No.: 752021
Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Loads Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, July 06, 2016.

IC-Registration No.: 8058A-1
Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, Jun. 13, 2016.

CNAS - LAB Code: L3503
Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing Laboratories.

Test Location
All Emissions tests were performed
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

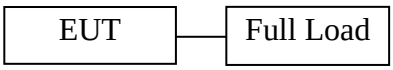
1.4. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1dB (Horizontal) Ur = 4.3dB (Vertical)
Conduction Uncertainty	:	Uc =3.4 dB
Disturbance Uncertainty	:	Ud = 2.6 dB

1.5. Description of Test Mode

Pretest Mode	Description
Mode 1	Discharging

For Mode 1 Block Diagram of Test Setup



1.6. Test Summary

Test Items	Test Mode	Status
Power Line Conducted Emission Test (150KHz To 30MHz)	/	N
Radiated Emission Test (30MHz To 1000MHz)	Mode 1	P
Harmonic Current Test	/	N
Voltage Fluctuations and Flicker Test	/	N
Electrostatic Discharge immunity Test	Mode 1	P
RF Field Strength susceptibility Test	Mode 1	P
Electrical Fast Transient/Burst Immunity Test	/	N
Surge Immunity Test	/	N
Injected Currents Susceptibility Test	/	N
Magnetic Field Susceptibility Test	/	N
Voltage Dips and Interruptions Test	/	N

P）Indicates that the through the test
N）Don’t test.

1.7. EMS Performance Criteria

√ A: Normal performance within the specification limits

√ B: Temporary degradation or loss of function or performance which is self-recoverable

√ C: Temporary degradation or loss of function or performance which requires operator intervention or system reset

√ D: Degradation or loss of function which is not recoverable due to damage of equipment (components) or software, or loss of data

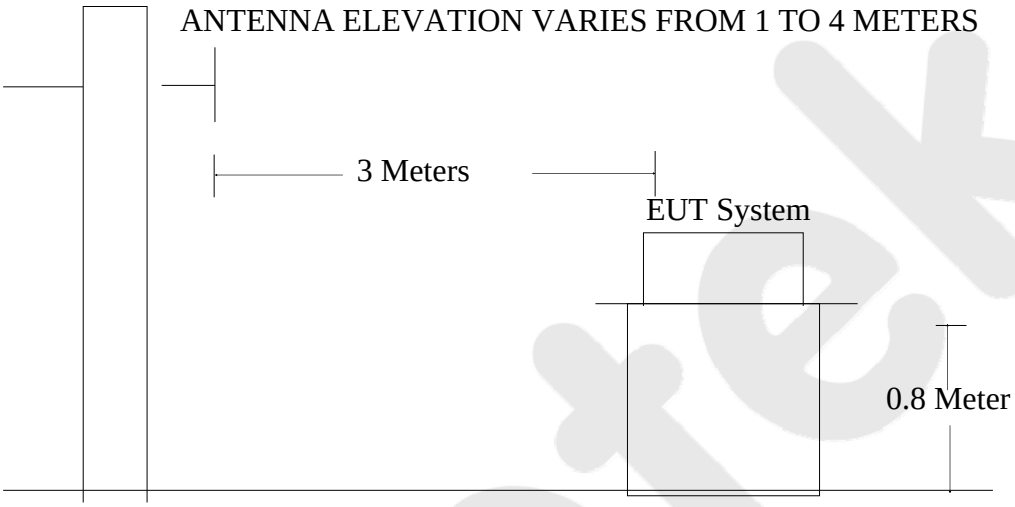
Note: The manufacturer's specification may define effects on the EUT which may be considered insignificant, and therefore acceptable.

This classification may be used as a guide in formulating performance criteria, by committees responsible for generic, product and product-family standards, or as a framework for the agreement on performance criteria between the manufacturer and the purchaser, for example where no suitable generic, product or product-family standard exists.

2. RADIATED EMISSION TEST

2.1. Block Diagram of Test

2.1.1. Block diagram of test setup (In chamber)



2.2. Measuring Standard

EN 55032

2.3. Radiated Emission Limits

All emanations from an EN 55032 device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

2.4. EUT Configuration on Test

The EN 55032 regulations test method must be used to find the maximum

emission during radiated emission measurement.

2.5. Operating Condition of EUT

2.5.1. Turn on the Power .

2.5.2. Let the EUT work in measuring mode and measure it.

2.6. Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the Receiver (ESCI) is set at 120kHz.

The EUT is tested in 9*6*6 Chamber.

The test results are listed in Section 2.8.

2.7. Test Equipment

The following test equipments are used during radiated emission measurement:

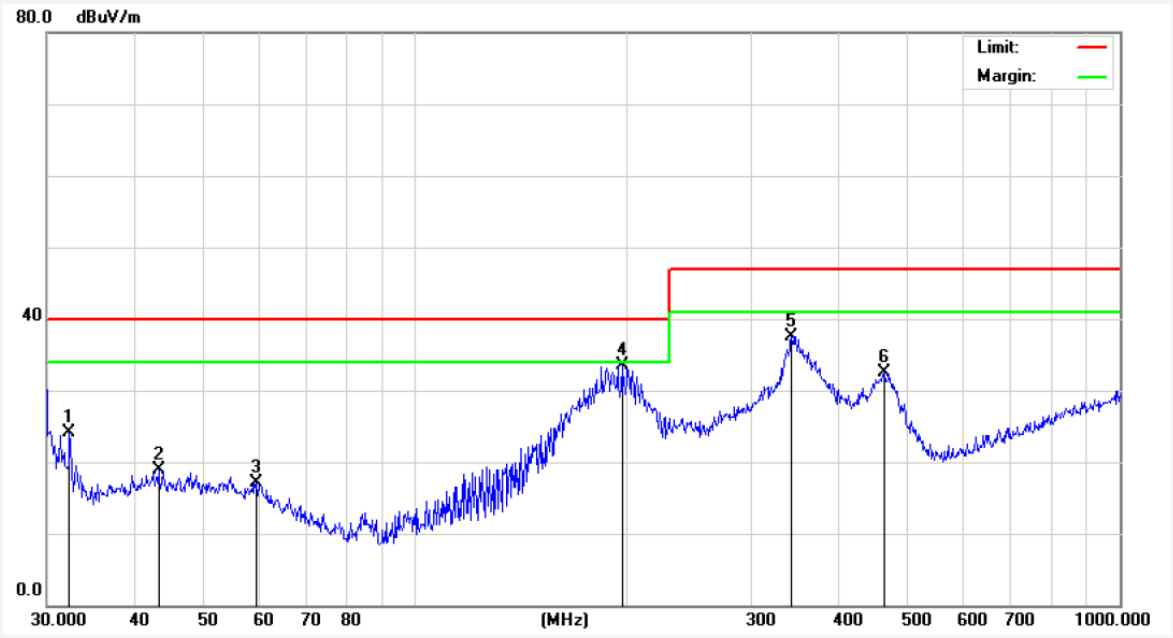
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Jun. 17, 2016	1 Year
2.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 06, 2016	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Jun. 17, 2016	1 Year

2.8. Measuring Results

PASS

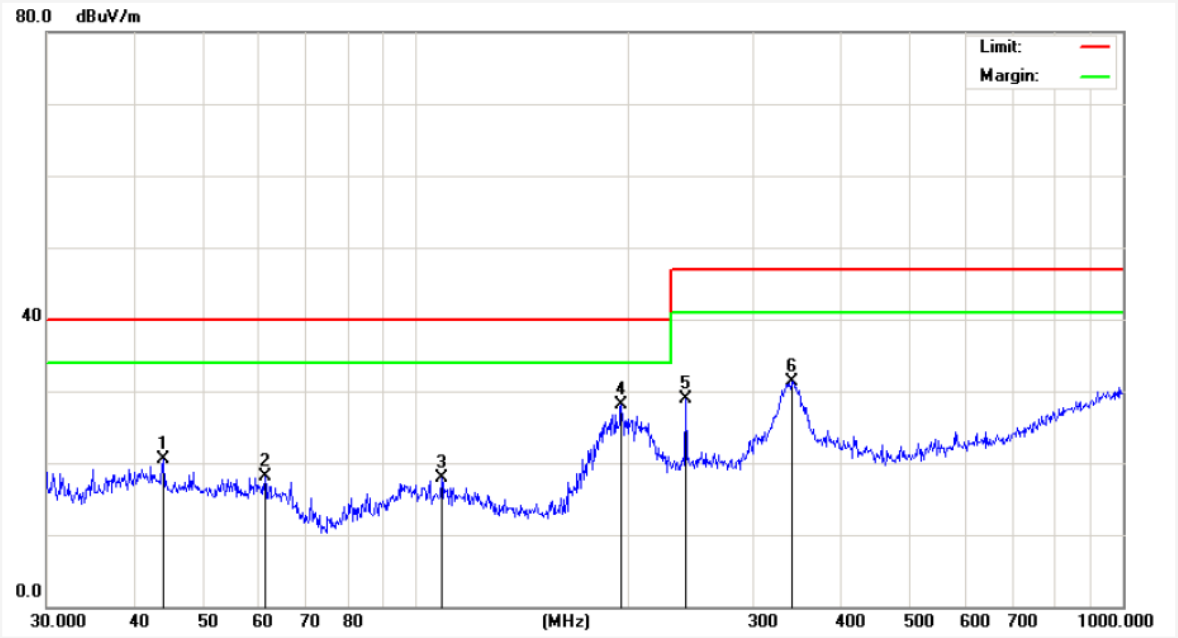
The frequency range from 30MHz to 1000MHz is investigated.

Test item:	**Radiation Test**	**Polarization:**	**Horizontal**
Standard:	**(RE)EN 55032**	**Power Source:**	**DC 5V**
Distance:	**3m**	**Temp.(℃)/Hum.(%RH):**	**24.3(℃)/55%RH**
Note:			



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	32.2925	40.67	-16.64	24.03	40.00	-15.97	peak			
2	43.2017	33.24	-14.35	18.89	40.00	-21.11	peak			
3	59.4405	32.47	-15.34	17.13	40.00	-22.87	peak			
4	196.5098	54.35	-20.89	33.46	40.00	-6.54	peak			
5	341.9786	51.80	-14.24	37.56	47.00	-9.44	peak			
6	463.9696	44.45	-11.99	32.46	47.00	-14.54	peak			

Test item:	**Radiation Test**	**Polarization:**	**Vertical**
Standard:	**(RE)EN 55032**	**Power Source:**	**DC 5V**
Distance:	**3m**	**Temp.(℃)/Hum.(%RH):**	**24.3(℃)/55%RH**
Note:			

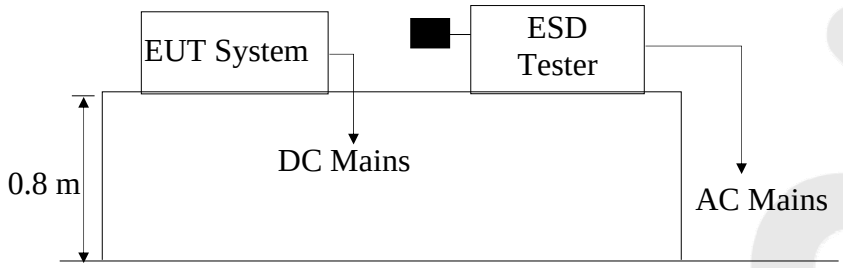


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	43.9658	34.83	-14.33	20.50	40.00	-19.50	peak			
2	61.1316	33.88	-15.87	18.01	40.00	-21.99	peak			
3	108.6470	33.46	-15.64	17.82	40.00	-22.18	peak			
4	195.1365	44.00	-15.89	28.11	40.00	-11.89	peak			
5	240.8304	42.94	-14.09	28.85	47.00	-18.15	peak			
6	339.5888	44.64	-13.33	31.31	47.00	-15.69	peak			

3. ELECTROSTATIC DISCHARGE IMMUNITY TEST

3.1. Block Diagram of Test Setup

6.1.1. Block diagram of test setup



3.2. Measuring Standard

EN 55024 (IEC 61000-4-2)
Severity Level: 3 / Air Discharge: ±8kV Level: 2 / Contact Discharge: ±4kV

3.3. Severity Levels and Performance Criterion

3.3.1. Severity level

Level	Test Voltage Contact Discharge (kV)	Test Voltage Air Discharge (kV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

3.3.2. Performance criterion**: B**

3.4. EUT Configuration

The following equipments are installed on electrostatic discharge immunity measurement to meet EN 55024 requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

3.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 2.5 except the test set up replaced by Section 3.1.

3.6. Test Procedure

3.6.1. Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 100 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

3.6.2. Contact Discharge:

All the procedure shall be same as Section 3.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

3.6.3. Indirect discharge for horizontal coupling plane

At least 50 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

3.6.4. Indirect discharge for vertical coupling plane

At least 50 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

3.7. Test Equipment

The following test equipments are used during the Electrostatic Discharge measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Simulators	KIKUSUI	KES4021	LJ003477	Apr. 25, 2017	1 Year

3.8. Measuring Results

PASS

Please refer to the following pages

Electrostatic Discharge Test Results

Shenzhen Anbotek Compliance Laboratory Limited

Air discharge :	±8.0kV	Temperature :	25℃
Contact discharge:	±4.0kV	Humidity :	54%
Power Supply **:**	DC 5V	Criterion required :	B
Number of discharge :	25	Test Result:	☒ Pass ☐ Fail

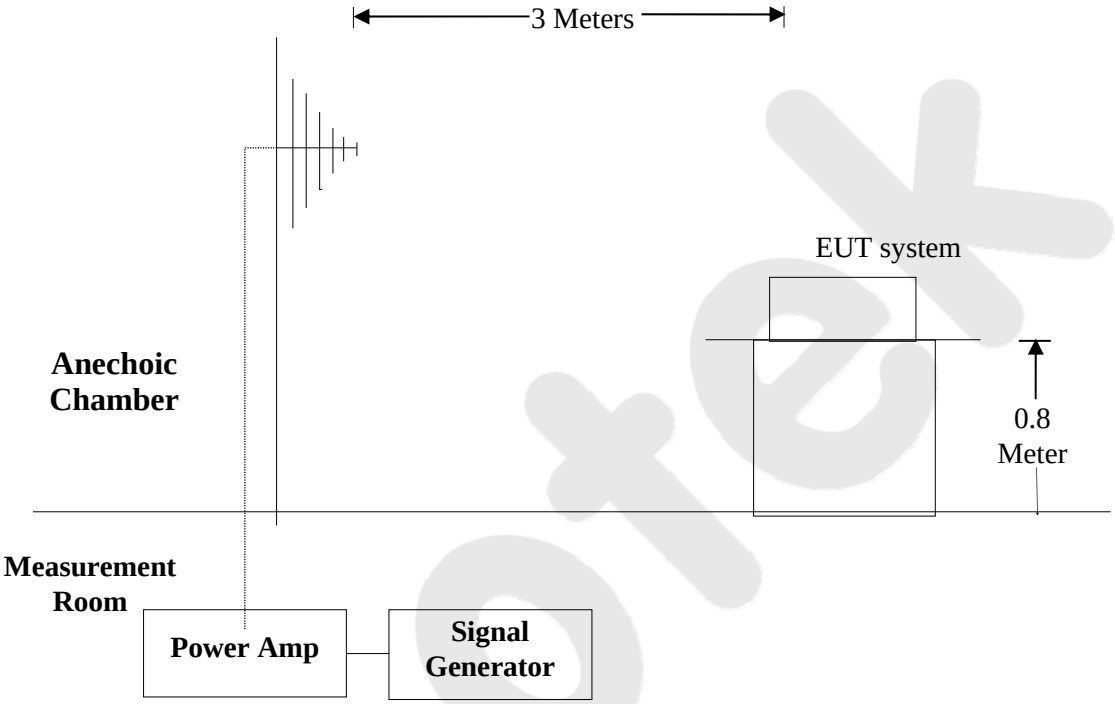
Location		**Kind** A-Air Discharge C-Contact Discharge	**Result**
Slot of the EUT	8 points	A	☑ A ☐ B ☐ C ☐ D
Others	8 points	A	☑ A ☐ B ☐ C ☐ D
USB Port	4 points	A	☑ A ☐ B ☐ C ☐ D
HCP	4 points	C	☑ A ☐ B ☐ C ☐ D
VCP of front	4 points	C	☑ A ☐ B ☐ C ☐ D
VCP of rear	4 points	C	☑ A ☐ B ☐ C ☐ D
VCP of left	4 points	C	☑ A ☐ B ☐ C ☐ D
VCP of right	4 points	C	☑ A ☐ B ☐ C ☐ D

Note: Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

4. RF FIELD STRENGTH SUSCEPTIBILITY TEST

4.1. Block Diagram of Test

4.1.1. Block diagram of RS test setup



4.2. Measuring Standard

EN 55024 (IEC 61000-4-3)
Severity Level: 2, 3V / m

4.3. Severity Levels and Performance Criterion

4.3.1. Severity Levels

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

4.3.2. Performance Criterion: **A**

4.4. EUT Configuration on Test

The following equipments are installed on RF Field Strength susceptibility Measurement to meet EN 55024 requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

4.5. Operating Condition of EUT

Same as conducted emission measurement which is listed in Section 2.5. except the test setup replaced as Section 4.1.

4.6. Test Procedure

The EUT are placed on a table which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually.
In order to judge the EUT performance, a CCD camera is used to monitor its screen.
All the scanning conditions are as following:

Condition of Test	Remark
1. Fielded Strength	3V/m (Severity Level 2)
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80-1000MHz
4. Sweep time of radiated	0.0015 Decade/s
2. Dwell Time	1 Sec.

4.7. Test Equipment

The following test equipments are used during the R/S (Shenzhen EMTEK) measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	RF Power Meter. Dual Channel	BOONTON	4232A	10539	May 29, 2016	1 year
2.	50ohm Diode Power Sensor	BOONTON	51011EMC	34236/34238	May 29, 2016	1 year
3.	Broad-Band Horn Antenna	SCHWARZBECK	BBHA9120 L3F	332	May 29, 2016	1 year
4.	Power Amplifier	PRANA	AP32MT215	N/A	May 29, 2016	1 year
5.	Power Amplifier	MILMEGA	AS0102-55	N/A	May 29, 2016	1 year
6.	Signal Generator	AEROFLEX	2023B	N/A	May 29, 2016	1 year
7.	Field Strength Meter	HOLADAY	HI-6005	N/A	May 29, 2016	1 year
8.	RS232 Fiber Optic Modem	HOLADAY	HI-4413P	N/A	May 29, 2016	1 year
9.	Log.-Per. Antenna	SCHWARZBECK	VULP 9118E	N/A	May 29, 2016	1 year

4.8. Measuring Results

PASS

Please refer to the following page.

RF Field Strength Susceptibility Test Results

Shenzhen Anbotek Compliance Laboratory Limited

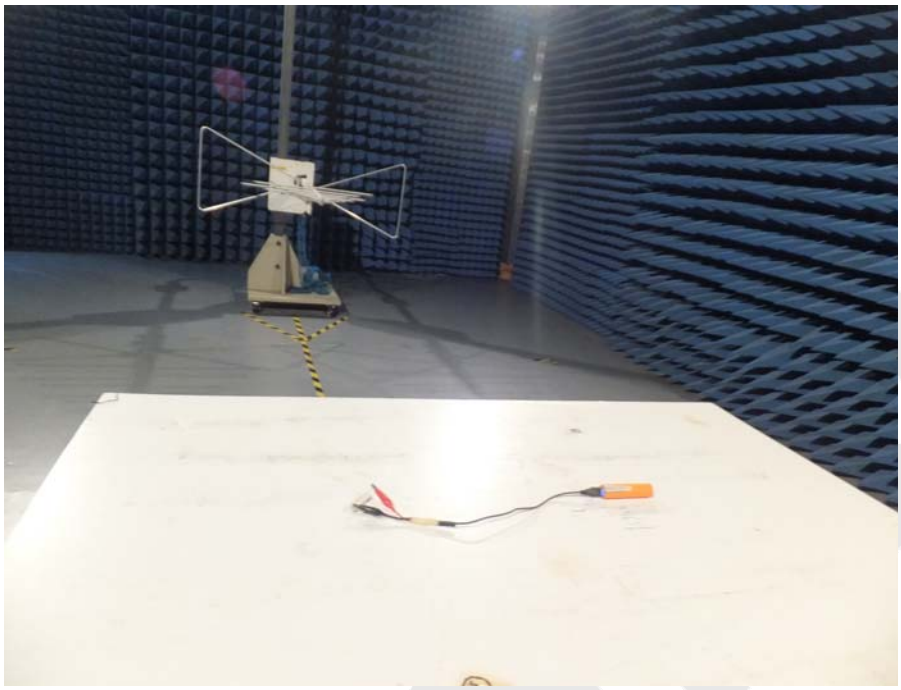
Field Strength:	3 V/m	Temperature :	25℃
Criterion required :	A	Humidity :	54%
Power Supply :	DC 5V	Test Result :	☒ Pass ☐ Fail

Modulation:	☐None	☐ Pulse	☑AM 1KHz 80%
Steps	# /	%	Result
	Horizontal	Vertical	
Front	3 V/m	3 V/m	☑ A ☐ B ☐ C ☐ D
Right	3 V/m	3 V/m	☑ A ☐ B ☐ C ☐ D
Rear	3 V/m	3 V/m	☑ A ☐ B ☐ C ☐ D
Left	3 V/m	3 V/m	☑ A ☐ B ☐ C ☐ D

Note: The Project was tested in Shenzhen EMTEK Co., Ltd.

5. PHOTOGRAPHS

5.1. Photo of Radiated Emission Test



5.2. Photo of Electrostatic Discharge Immunity Test

5.3. Photo of RF Field Strength Susceptibility Test

APPENDIX I
(Photos of EUT)

Figure 1
The EUT- Top View

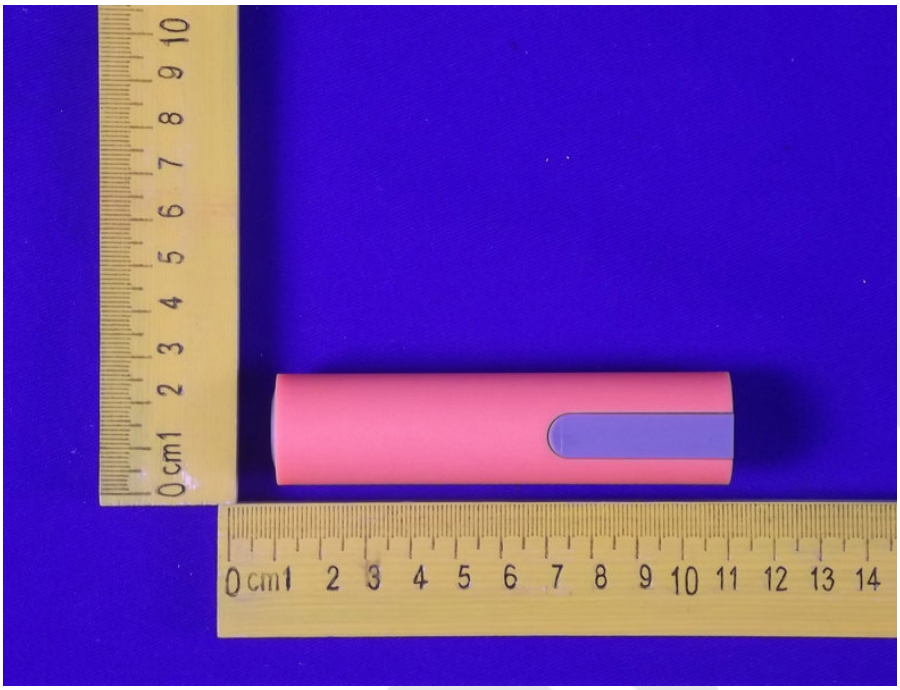


Figure 2
The EUT- Front View

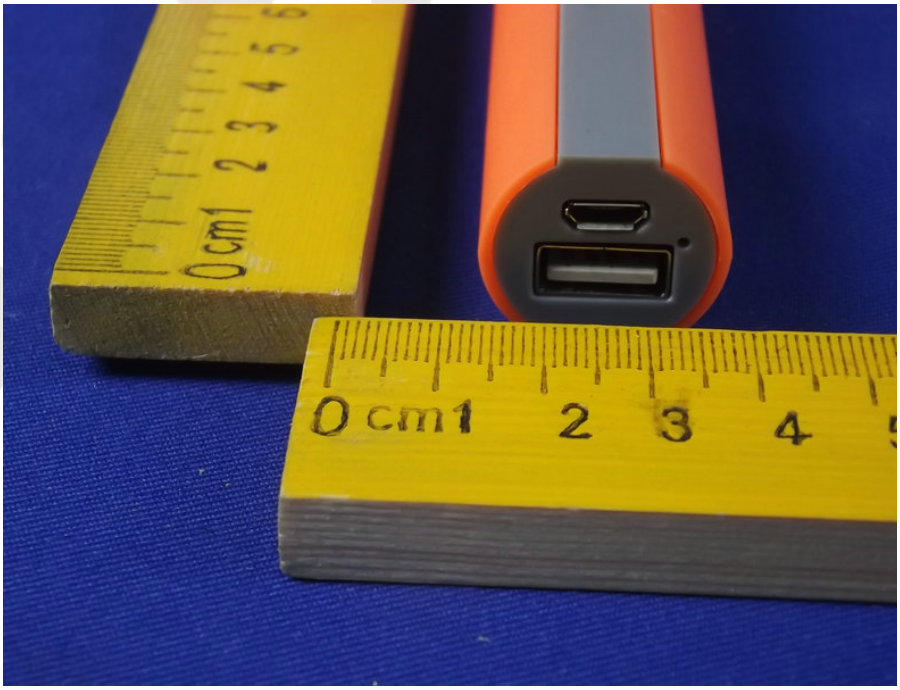


Figure 3
The EUT- Back View

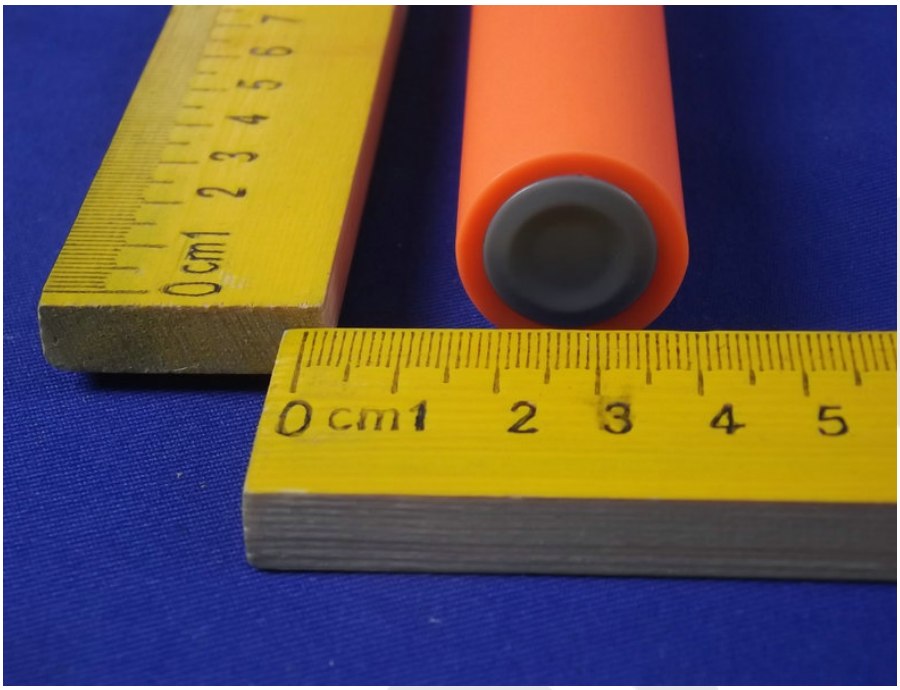


Figure 4
The EUT- Inside View

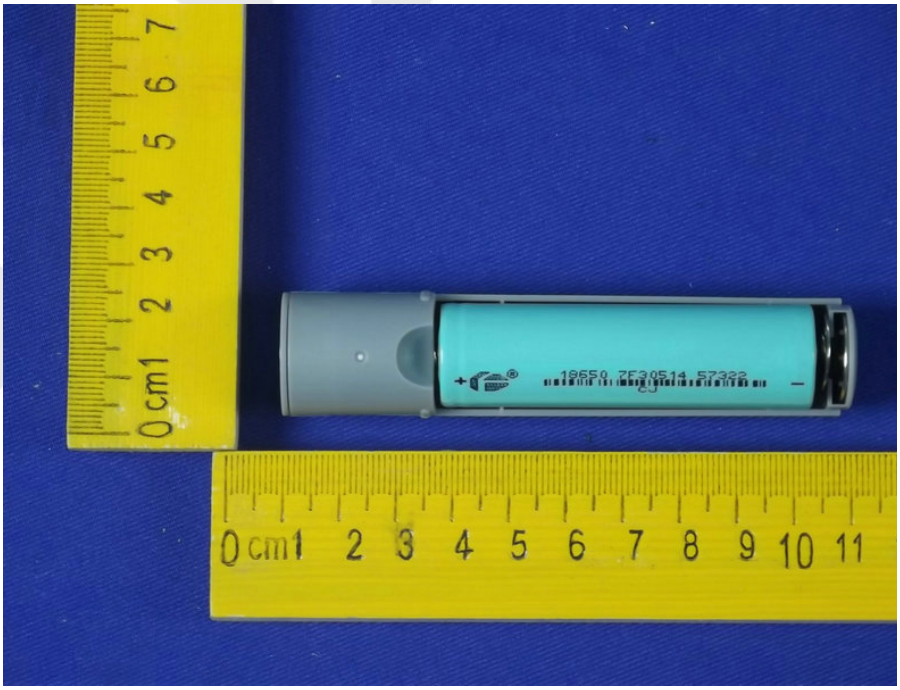


Figure 5
PCB of The EUT View

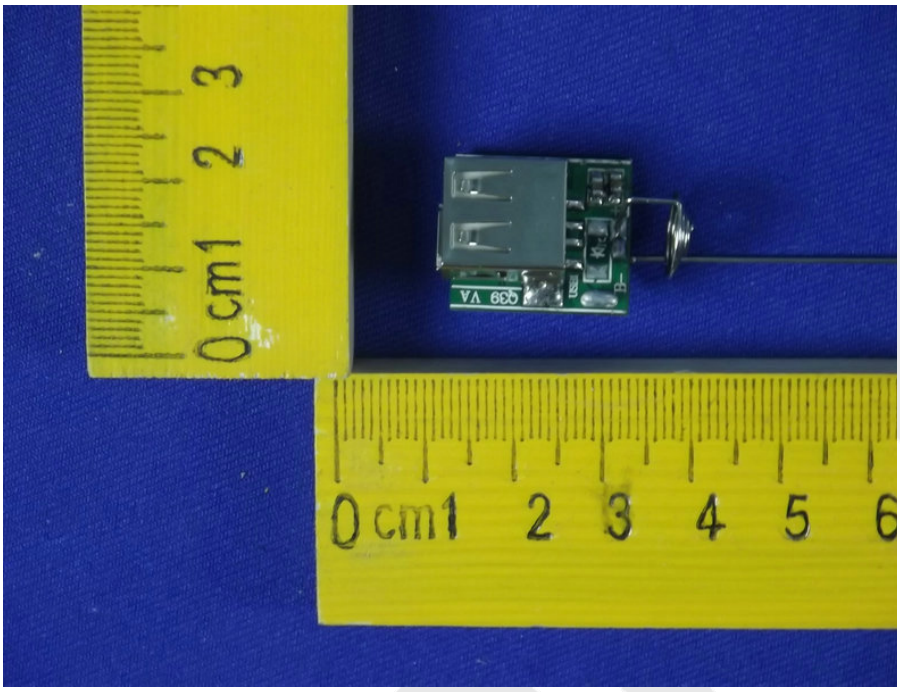


Figure 6
PCB of The EUT View

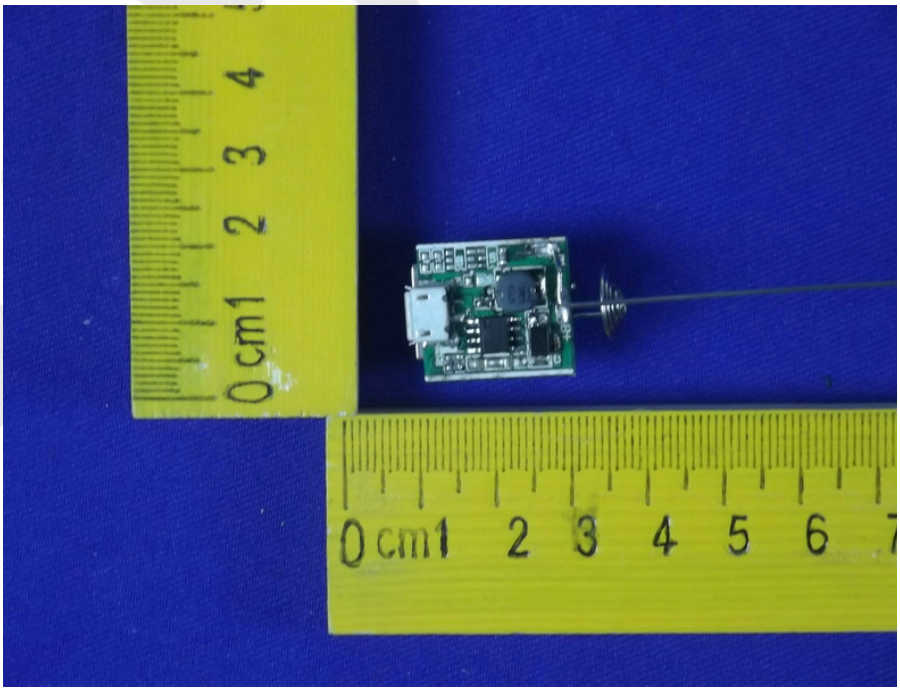


Figure 7
The EUT- Front View

Figure 8
The EUT- Front View

Figure 9
The EUT- Front View

Figure 10
The EUT- Front View

CE Label

1. The CE conformity marking must consist of the initials ‘CE’ taking the following form:
   If the CE marking is reduced or enlarged, the proportions given in the above graduated drawing must be respected.
2. The CE marking must have a height of at least 5 mm except where this is not possible on account of the nature of the apparatus.
3. The CE marking must be affixed to the product or to its data plate. Additionally it must be affixed to the packaging, if any, and to the accompanying documents.
4. The CE marking must be affixed visibly, legibly and indelibly.
   It must have the same height as the initials ‘CE’.