

EMC TEST REPORT

For

Gztod. Co., Ltd.

Smart USB Charger

Model No.: YA50WS3-8U

Prepared for : Gztod. Co., Ltd.
Address : 2-5/F, Building A4, Huimingsheng Industrial Park, Tongfuyu
Dingfeng High-Tech District, Fuyong Street, Bao'an
District, Shenzhen City, Guangdong Province, P.R.China

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Date of receipt of test sample : May 21, 2015
Number of tested samples : 1
Serial number : Prototype
Date of Test : May 21, 2015- June 06, 2015
Date of Report : June 06, 2015



EMC TEST REPORT**EN 55022: 2010**

Information technology equipment-Radio disturbance characteristics-Limits of measurement

EN 55024: 2010

Information technology equipment-Immunity characteristics-Limits and methods of measurement of measurement

Report Reference No.: LCS1505221211E

Date Of Issue.....: June 06, 2015

Testing Laboratory Name.....: Shenzhen LCS Compliance Testing Laboratory Ltd.

Address: 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China

Testing Location/ Procedure: Full application of Harmonised standards
Partial application of Harmonised standards
Other standard testing method **Applicant's Name.....: Gztod. Co., Ltd.**

Address: 2-5/F, Building A4, Huimingsheng Industrial Park, Tongfuyu Dingfeng High-Tech District, Fuyong Street, Bao'an District, Shenzhen City, Guangdong Province, P.R.China

Test Specification:Standard: EN 55022: 2010
EN 61000-3-2: 2014
EN 61000-3-3: 2013
EN 55024: 2010


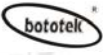
Test Report Form No.....: LCSEMC-1.0

TRF Originator.....: Shenzhen LCS Compliance Testing Laboratory Ltd.

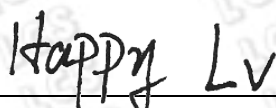
Master TRF: Dated 2011-03

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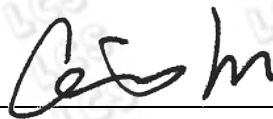
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Test Item Description.....: Smart USB ChargerTrade Mark.....:  

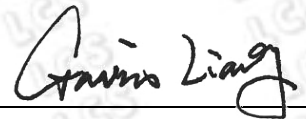
Model/ Type Reference: YA50WS3-8U

Ratings: Input: AC 100-240V~, 50/60Hz, 1.2A;
Output: 5V=2.4A*4, 5V=1A *4
Max.10A**Result: Positive****Compiled by:**

Happy Lv/ File administrator

Supervised by:

Glin Lu/ Technique principal

Approved by:

Gavin Liang/ Manager

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EMC -- TEST REPORT**Test Report No. : LCS1505221211E**June 06, 2015

Date of issue

Type/ Model..... : YA50WS3-8U

EUT..... : Smart USB Charger

Applicant..... : Gztod. Co., Ltd.Address..... : 2-5/F, Building A4, Huimingsheng Industrial Park, Tongfuyu
Dingfeng High-Tech District, Fuyong Street, Bao'an District,
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Telephone..... : /

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Manufacturer..... : Gztod. Co., Ltd.Address..... : 2-5/F, Building A4, Huimingsheng Industrial Park, Tongfuyu
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Fax..... : /

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Dingfeng High-Tech District, Fuyong Street, Bao'an District,
Shenzhen City, Guangdong Province, P.R.China

Telephone..... : /

Fax..... : /

Test Result according to the standards on page 7: **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.

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1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION (EN 55022: 2010)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN 55022: 2010	Class B	PASS
Conducted disturbance at telecommunication port	EN 55022: 2010	Class B	N/A
Radiated disturbance	EN 55022: 2010	Class B	PASS
Harmonic current emissions	EN 61000-3-2: 2014	Class A	N/A
Voltage fluctuations & flicker	EN 61000-3-3: 2013	-----	PASS
IMMUNITY (EN 55024: 2010)			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	EN 61000-4-2: 2009	B	PASS
Radio-frequency, Continuous radiated disturbance	EN 61000-4-3: 2006+A1: 2010	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4: 2014	B	PASS
Surge (Input a.c. power ports)	EN 61000-4-5: 2014	B	PASS
Surge (Telecommunication ports)		B	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6: 2013	A	PASS
Power frequency magnetic field	EN 61000-4-8: 2010	A	PASS
Voltage dips, >95% reduction	EN 61000-4-11: 2004	B	PASS
Voltage dips, 30% reduction		C	PASS
Voltage interruptions		C	PASS
N/A is an abbreviation for Not Applicable.			

1.2. Description of Performance Criteria

General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

1.2.1. Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.2. Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.3. Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	: Smart USB Charger
Model Number	: YA50WS3-8U
Power Supply	: Input: AC 100-240V~, 50/60Hz, 1.2A; Output: 5V=2.4A*4 , 5V=1A *4 Max.10A
EUT Clock Frequency	: $\leq 108\text{MHz}$

2.2. Description of Test Facility

Site Description EMC Lab.	: CNAS Registration Number. is L4595. FCC Registration Number. is 899208. Industry Canada Registration Number. is 9642A-1. VCCI Registration Number. is C-4260 and R-3804. ESMD Registration Number. is ARCB0108. UL Registration Number. is 100571-492. TUV SUD Registration Number. is SCN1081. TUV RH Registration Number. is UA 50296516-001
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2.3. 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 LCS 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.

2.4.Measurement Uncertainty

Test Item	Frequency Range	Expanded uncertainty (Ulab)	Expanded uncertainty (Ucisp)
Conducted Emission	(9kHz to 150kHz)	2.63 dB	4.0 dB
	(150kHz to 30MHz)	2.35 dB	3.6 dB
Power disturbance	(30MHz to 300MHz)	2.90dB	4.5 dB
Electromagnetic Radiated Emission (3-loop)	(9kHz to 30MHz)	3.60 dB	N/A
Radiated Emission	(9kHz to 30MHz)	3.68 dB	N/A
Radiated Emission	(30MHz to 1000MHz)	3.48 dB	5.2 dB
Radiated Emission	(above 1000MHz)	3.90 dB	N/A
Mains Harmonic	Voltage	0.510%	N/A
Voltage Fluctuations & Flicker	Voltage	0.510%	N/A

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1. Conducted Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2014/06/18
2	10dB Attenuator	SCHWARZBECK	OSPAM236	9729	2014/06/18
3	Artificial Mains	ROHDE & SCHWARZ	ENV216	101288	2014/06/18
4	EMI Test Software	AUDIX	E3	N/A	2014/06/18

3.2. Disturbance Power

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2014/06/18
2	Absorbing clamp	ROHDE & SCHWARZ	MDS 21	4033	2014/10/28
3	EMI Test Software	AUDIX	E3	N/A	2014/06/18

3.3. Radiated Electromagnetic Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1011423	2014/06/18
2	Triple-loop Antenna	EVERFINE	LLA-2	11050003	2014/06/18
3	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2014/06/18
4	EMI Test Software	AUDIX	E3	N/A	2014/06/18

3.4. Radiated Disturbance (Electric Field)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2015/02/04
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2014/06/18
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2014/06/18
4	EMI Test Software	AUDIX	E3	N/A	2014/06/18
5	Positioning Controller	MF	MF-7082	/	2014/06/18

3.5. Harmonic Current

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power Analyzer Test System	Voltech	PM6000	20000670053	2014/06/18

3.6. Voltage fluctuation and Flicker

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power Analyzer Test System	Voltech	PM6000	20000670053	2014/06/18

3.7. Electrostatic Discharge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	KIKUSUI	KC001311	KES4021	2014/09/02

3.8.RF Field Strength Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	SIGNAL GENERATOR	HP	8648A	625U00573	2014/06/18
2	Amplifier	AR	500A100	17034	2014/06/18
3	Amplifier	AR	100W/1000M1	17028	2014/06/18
4	Isotropic Field Monitor	AR	FM2000	16829	2014/06/18
5	Isotropic Field Probe	AR	FP2000	16755	2014/06/18
6	Bi-conic Antenna	EMCO	3108	9507-2534	2014/06/18
7	By-log-periodic Antenna	AR	AT1080	16812	2014/06/18
8	EMS Test Software	ROHDE & SCHWARZ	ESK1	N/A	2014/06/18

3.9.Electrical Fast Transient/Burst

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Electrical fast transient(EFT)generator	3CTEST	EFT-4021	EC0461044	2015/01/20
2	Coupling Clamp	3CTEST	EFTC	EC0441098	2014/06/18

3.10.Surge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Surge test system	3CTEST	SG5006G	EC5581070	2014/06/18
2	Coupling/decoupling network	3CTEST	SGN-5010G	CS5591033	2014/06/18

3.11.Conducted Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Simulator	EMTEST	CIT-10	A126A1195	2014/06/18
2	CDN	EMTEST	CDN-M2	A2210177	2014/06/18
3	CDN	EMTEST	CDN-M3	A2210177	2014/06/18
4	Attenuator	EMTEST	ATT6	50FP-006-H3 B	2014/06/18

3.12.Power Frequency Magnetic Field Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power frequency mag-field generator System	EVERFINE	EMS61000-8K	906003	2014/06/18

3.13.Voltage Dips

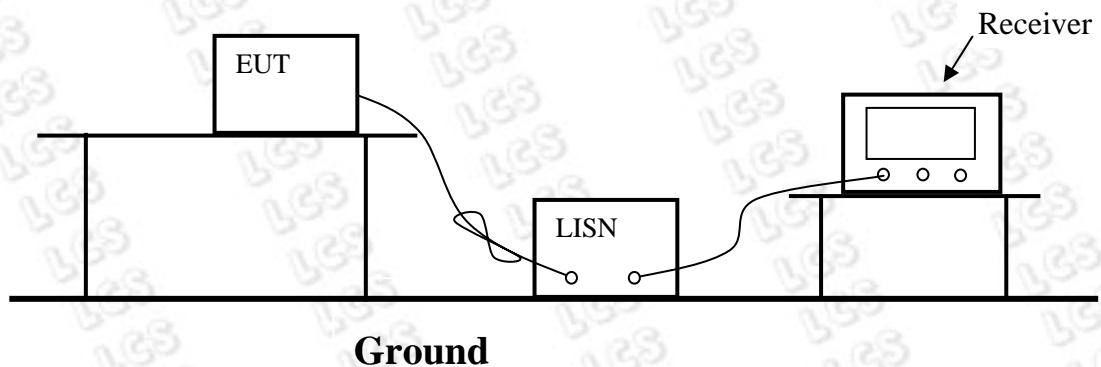
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2014/06/18

3.14.Voltage Short Interruptions

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2014/06/18

4. POWER LINE CONDUCTED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



4.2. Test Standard

EN 55022: 2010

Power Line Conducted Emission Limits (Class B)

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.

NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

4.3. EUT Configuration on Test

The following equipments are installed on Conducted Emission Measurement to see EN 55022 requirements and operating in a manner which tends to maximize its emission characteristics in ON application.

4.4. Operating Condition of EUT

4.4.1. Setup the EUT as shown on Section 4.1.

4.4.2. Turn on the power of all equipments.

4.4.3. Let the EUT work in measuring mode (ON) and measure it.

4.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided 50-ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the EN 55022 regulations during conducted emission measurement.

The bandwidth of the field strength meter is set at 9kHz in 150kHz~30MHz.

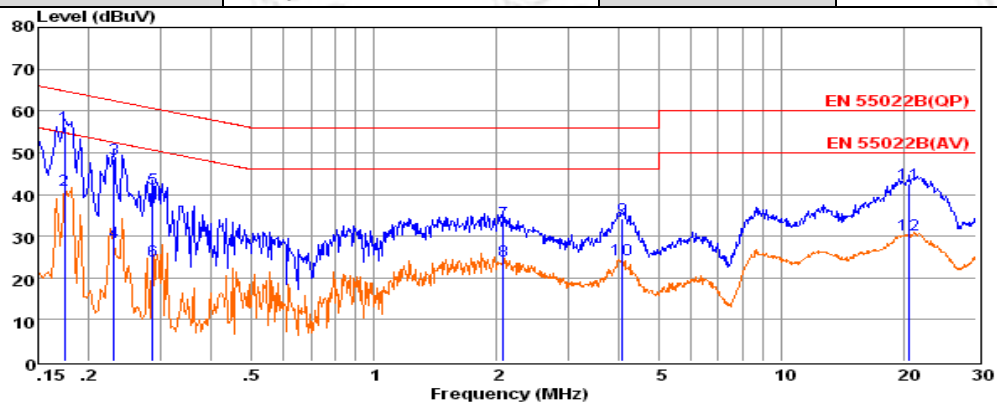
The frequency range from 150kHz to 30MHz is investigated

4.6. Test Results

PASS.

The test result please refer to the next page.

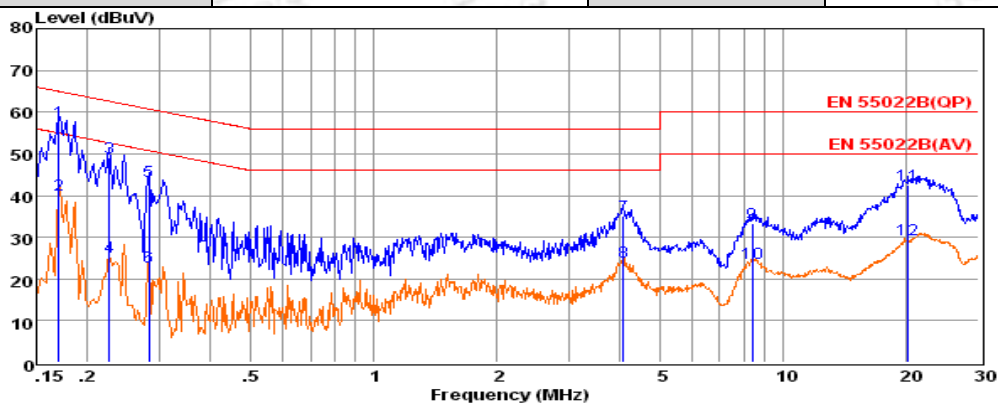
Model No.	YA50WS3-8U	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Test Engineer	Cherry Chen
Pol	Line		



	Freq MHz	Reading dBuV	LisnFac dB	CabLos dB	Atten_Fac dB	Measured dBuV	Limit dBuV	Over dB	Remark
1	0.17399	36.46	9.60	0.02	10.00	56.08	64.77	-8.69	QP
2	0.17409	21.51	9.60	0.02	10.00	41.13	54.76	-13.63	Average
3	0.23040	28.88	9.63	0.03	10.00	48.54	62.44	-13.90	QP
4	0.23050	8.99	9.63	0.03	10.00	28.65	52.43	-23.78	Average
5	0.28630	21.78	9.63	0.03	10.00	41.44	60.63	-19.19	QP
6	0.28640	4.41	9.63	0.03	10.00	24.07	50.63	-26.56	Average
7	2.07684	13.57	9.64	0.05	10.00	33.26	56.00	-22.74	QP
8	2.07784	4.54	9.64	0.05	10.00	24.23	46.00	-21.77	Average
9	4.07036	14.55	9.65	0.06	10.00	34.26	56.00	-21.74	QP
10	4.07136	4.62	9.65	0.06	10.00	24.33	46.00	-21.67	Average
1120	.59435	22.77	9.74	0.12	10.00	42.63	60.00	-17.37	QP
1220	.59535	10.42	9.74	0.12	10.00	30.28	50.00	-19.72	Average

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
 2. The emission levels that are 20dB below the official limit are not reported.

Model No.	YA50WS3-8U	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Test Engineer	Cherry Chen
Pol	Neutral		

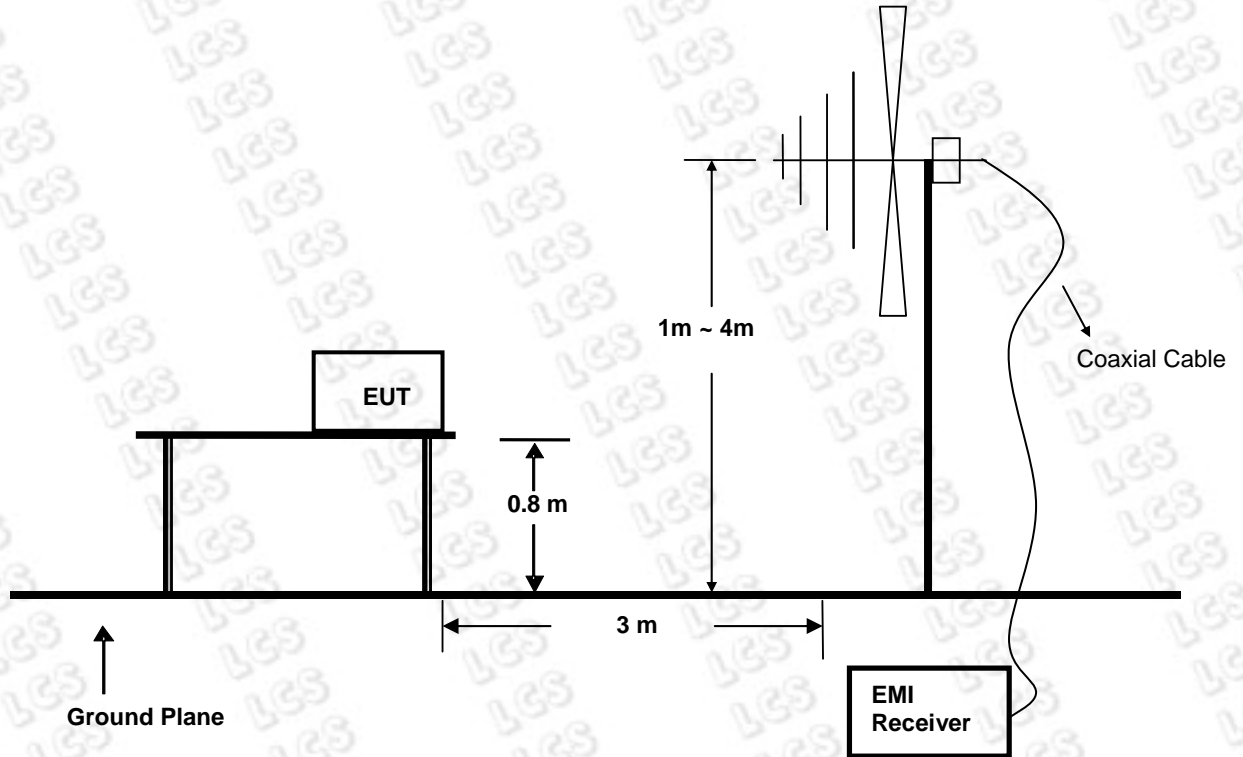


	Freq MHz	Reading dBuV	LisnFac dB	CabLos dB	Atten_Fac dB	Measured dBuV	Limit dBuV	Over dB	Remark
1	0.17034	38.15	9.65	0.02	10.00	57.82	64.94	-7.12	QP
2	0.17044	20.48	9.65	0.02	10.00	40.15	54.94	-14.79	Average
3	0.22556	29.51	9.59	0.03	10.00	49.13	62.61	-13.48	QP
4	0.22566	5.55	9.59	0.03	10.00	25.17	52.61	-27.44	Average
5	0.28178	23.88	9.60	0.03	10.00	43.51	60.76	-17.25	QP
6	0.28188	3.14	9.60	0.03	10.00	22.77	50.76	-27.99	Average
7	4.07036	15.48	9.65	0.06	10.00	35.19	56.00	-20.81	QP
8	4.07136	4.24	9.65	0.06	10.00	23.95	46.00	-22.05	Average
9	8.41151	13.65	9.71	0.08	10.00	33.44	60.00	-26.56	QP
10	8.41251	3.87	9.71	0.08	10.00	23.66	50.00	-26.34	Average
1120	.16248	22.53	9.88	0.12	10.00	42.53	60.00	-17.47	QP
1220	.16348	9.32	9.88	0.12	10.00	29.32	50.00	-20.68	Average

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
 2. The emission levels that are 20dB below the official limit are not reported.

5. RADIATED EMISSION MEASUREMENT

5.1. Block Diagram of Test Setup



5.2. Measuring Standard

EN 55022: 2010

5.3. Radiated Emission Limits

EN 55022 Limits:

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

Limits for radiated disturbance Blow 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dB μ V/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.

5.4.EUT Configuration on Test

The EN 55022 regulations test method must be used to find the maximum emission during radiated emission measurement.

5.5.Operating Condition of EUT

5.5.1.Turn on the power.

5.5.2.After that, let the EUT work in test mode (ON) and measure it.

5.6.Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable 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. By-log antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The bandwidth of the Receiver is set at 120kHz.

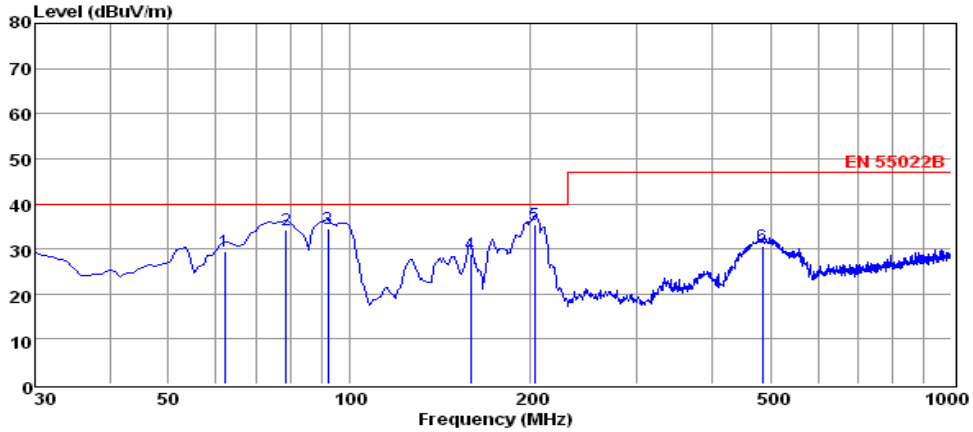
The frequency range from 30MHz to 1000MHz is investigated.

5.7.Test Results

PASS.

The test result please refer to the next page.

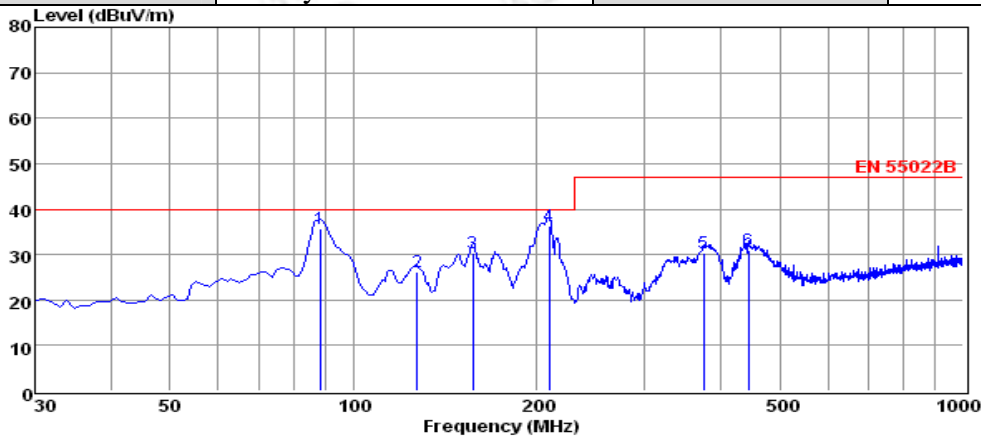
Model No.	YA50WS3-8U	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Cherry Chen		



	Freq MHz	Reading dBuV	CabLos dB	Antfac dB/m	Measured dBuV/m	Limit dBuV/m	Over dB	Remark
1	62.01	17.12	0.48	11.89	29.49	40.00	-10.51	QP
2	78.50	25.41	0.47	8.32	34.20	40.00	-5.80	QP
3	92.08	21.62	0.56	12.29	34.47	40.00	-5.53	QP
4	159.01	19.53	0.83	8.63	28.99	40.00	-11.01	QP
5	202.66	24.01	0.82	10.65	35.48	40.00	-4.52	QP
6	485.90	12.96	1.37	16.22	30.55	47.00	-16.45	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that at 20db below the official limit are not reported

Model No.	YA50WS3-8U	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Cherry Chen		

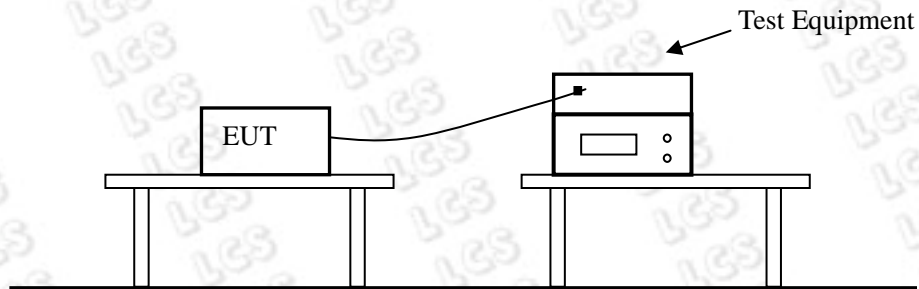


	Freq MHz	Reading dBuV	CabLos dB	Antfac dB/m	Measured dBuV/m	Limit dBuV/m	Over dB	Remark
1	88.20	23.64	0.68	11.33	35.65	40.00	-4.35	QP
2	127.00	16.00	0.67	9.40	26.07	40.00	-13.93	QP
3	157.07	21.06	0.83	8.55	30.44	40.00	-9.56	QP
4	209.45	24.47	0.86	10.87	36.20	40.00	-3.80	QP
5	375.32	14.57	1.10	14.55	30.22	47.00	-16.78	QP
6	444.19	14.06	1.25	15.57	30.88	47.00	-16.12	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that at 20db below the official limit are not reported

6. HARMONIC CURRENT EMISSION MEASUREMENT

6.1. Block Diagram of Test Setup



6.2. Test Standard

EN 61000-3-2: 2006+ A1: 2009+A2: 2009

6.3. Operation Condition of EUT

Same as Section 4.4, except the test setup replaced as Section 6.1.

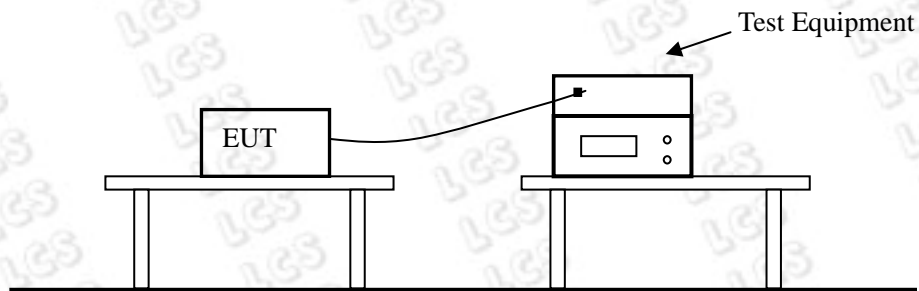
6.4. Test Results

PASS.

Because power of EUT less than 75W. According standard EN 61000-3-2, Harmonic current isn't required.

7. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

7.1. Block Diagram of Test Setup



7.2. Measuring Standard

EN 61000-3-3: 2013

7.3. Operation Condition of EUT

Same as Section 4.4, except the test setup replaced as Section 7.1.

7.4. Test Results

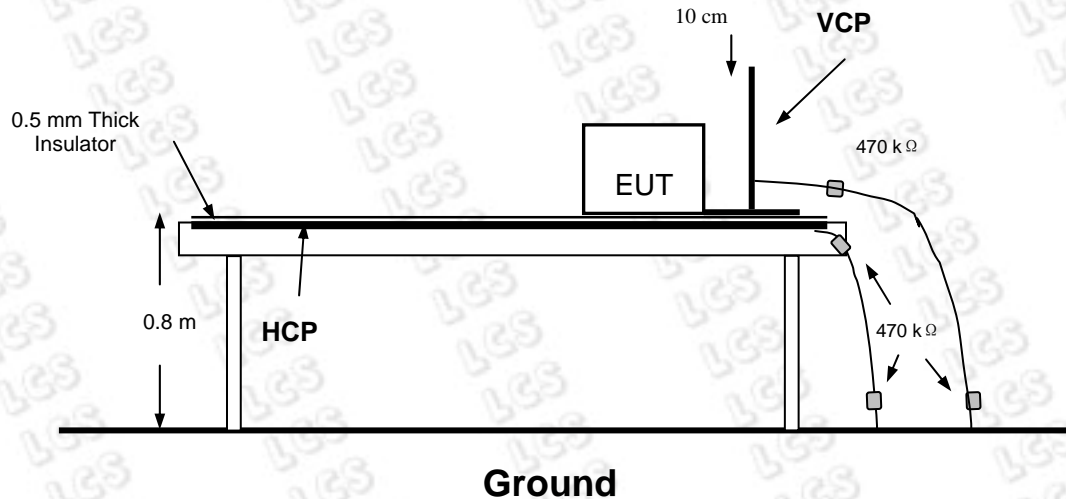
PASS.

The test result please refer to the next page.

Model No.	YA50WS3-8U	Test Engineer	Cherry Chen	
Voltech IEC61000-3 Windows Software 1.14.06RC1				
Type of Test:	Flickermeter Test - Table			
Power Analyzer:	Voltech PM6000 SN: 200006700523 Firmware Version: v1.21.07RC2			
	Channel(s):			
	1. SN: 090015502053, 28 Adjusted Date: 22 JUN 2011. 2. SN:None Adjusted Date:None			
	3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None			
	5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None			
	Shunt(s):			
	1. SN: 091024301916, 4 Adjusted Date: 23 JUN 2011. 2. SN:None Adjusted Date:None			
	3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None			
	5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None			
AC Source:	Mains / Manual Source			
Overall Result:	Notes:			
PASS	Measurement method - Voltage			
	Pst	dc (%)	dmax (%)	d(t) > 3.3%(ms)
Limit	1.000	3.300	4.000	500
Reading 1	0.089	0.008	0.195	0

8. ELECTROSTATIC DISCHARGE IMMUNITY TEST

8.1. Block Diagram of Test Setup



8.2. Test Standard

EN 55024: 2010 (EN 61000-4-2: 2009, Severity Level: 3 / Air Discharge: ± 8 KV, Level: 2 / Contact Discharge: ± 4 KV)

8.3. Severity Levels and Performance Criterion

8.3.1. 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

8.3.2. Performance Criterion: B

8.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.3.

8.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 3.4. Except the test set up replaced by Section 8.1.

8.6. Test Procedure

8.6.1. 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 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

8.6.2. Contact Discharge

All the procedure shall be same as Section 8.6.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

8.6.3. Indirect Discharge For Horizontal Coupling Plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

8.6.4. Indirect Discharge For Vertical Coupling Plane

At least 10 single discharge (in the most sensitive polarity) 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.

8.7. Test Results

PASS.

Please refer to the following pages

Electrostatic Discharge Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	Gztod. Co., Ltd.		
EUT	Smart USB Charger	Temperature	24°C
M/N	YA50WS3-8U	Humidity	53%
Criterion	B	Pressure	1021mbar
Test Mode	ON	Test Engineer	Cherry Chen

Air Discharge

Test Points	Test Levels			Results		
	± 2KV	± 4KV	± 8KV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

Contact Discharge

Test Points	Test Levels		Results		
	± 2 kV	±4 kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

Discharge To Horizontal Coupling Plane

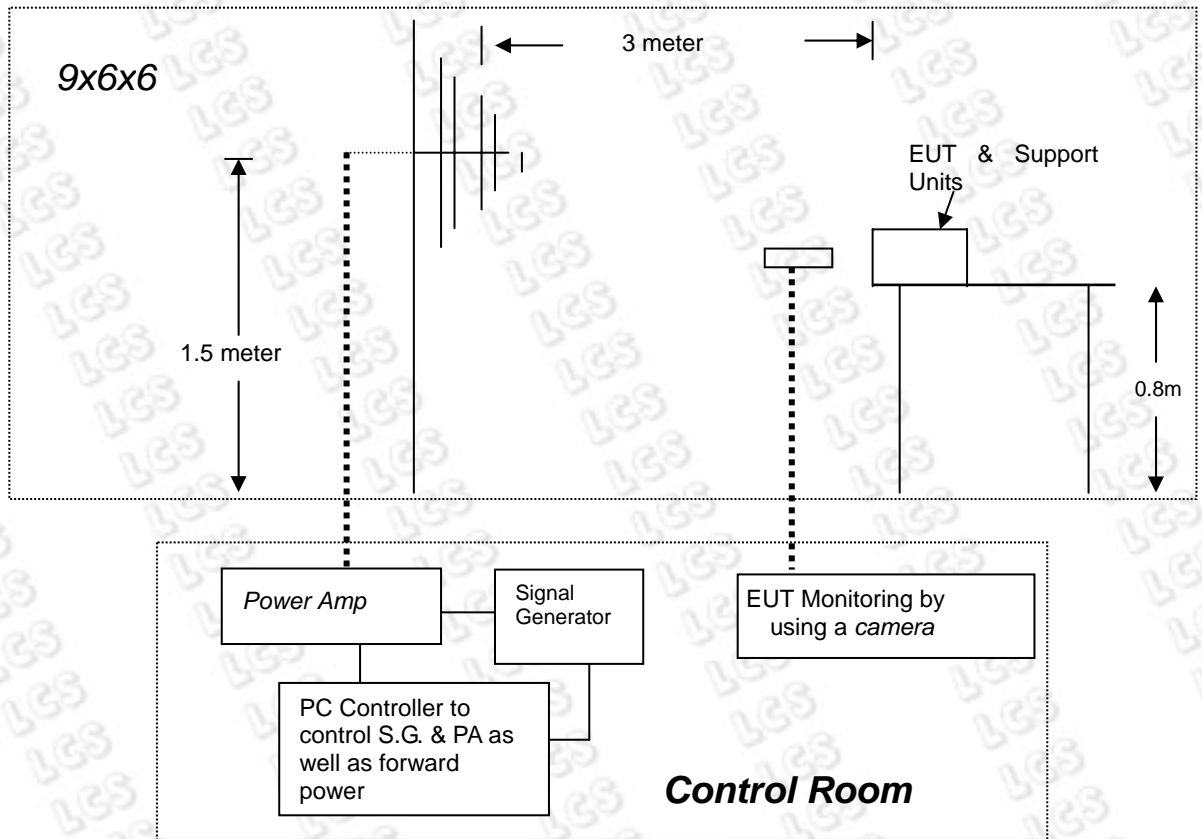
Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

Discharge To Vertical Coupling Plane

Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

9. RF FIELD STRENGTH SUSCEPTIBILITY TEST

9.1. Block Diagram of Test



9.2. Test Standard

EN 55024: 2010

((EN 61000-4-3: 2006+A1: 2010 Severity Level: 1, 1V / m; Level: 2, 3V / m))

9.3. Severity Levels and Performance Criterion

9.3.1. Severity Levels

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

9.3.2. Performance Criterion: A

9.4.EUT Configuration on Test

The configuration of the EUT is same as Section 4.3.

9.5.Operating Condition of EUT

Same as radiated emission measurement, which is listed in Section 5.1, except the test setup replaced as Section 9.1.

9.6.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 is 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 Recording 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
5. Dwell Time	3 Sec.
6. Fielded Strength	3V/m (Severity Level 2)
7. Radiated Signal	Unmodulated
8. Scanning Frequency	1.4-2.0GHz
9. Sweep time of radiated	0.0015 Decade/s
10. Dwell Time	3 Sec.
11. Fielded Strength	1V/m (Severity Level 1)
12. Radiated Signal	Unmodulated
13. Scanning Frequency	2.0-2.7GHz
14. Sweep time of radiated	0.0015 Decade/s
15. Dwell Time	3 Sec.

9.7.Test Results

PASS.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

Standard	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3		
Applicant	Gztd. Co., Ltd.		
EUT	Smart USB Charger	Temperature	24°C
M/N	YA50WS3-8U	Humidity	53%
Field Strength	3 V/m	Frequency Range	80 MHz to 1000 MHz
Field Strength	3 V/m	Frequency Range	1.4 GHz to 2.0 GHz
Field Strength	1 V/m	Frequency Range	2.0 GHz to 2.7 GHz
Test Mode	ON	Criterion	A
Test Engineer	Cherry Chen		
Modulation	<input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80%		
Steps	1%		

	Horizontal	Vertical
Front	PASS	PASS
Right	PASS	PASS
Rear	PASS	PASS
Left	PASS	PASS

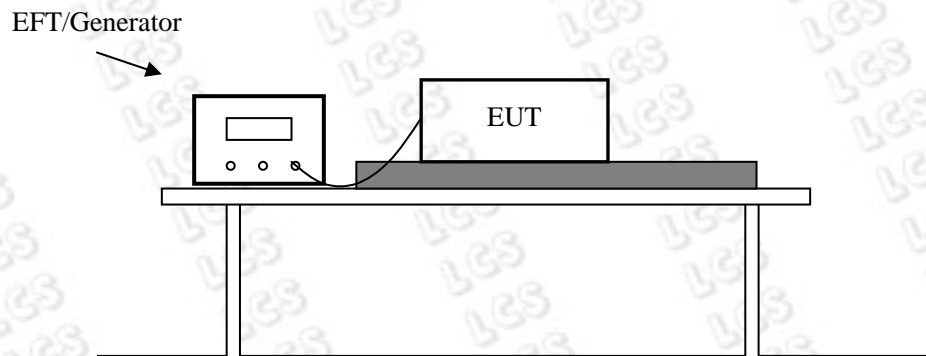
Test Equipment:

1. Signal Generator: 2031 (MARCONI)
2. Power Amplifier: 500A100 & 100W/1000M1 (A&R)
3. Power Antenna: 3108 (EMCO) & AT1080 (A&R)
4. Field Monitor: FM2000 (A&R)

Note:

10. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

10.1. Block Diagram of Test Setup



10.2. Test Standard

EN 55024: 2010 (EN 61000-4-4: 2012, Severity Level, Level 2: 1KV)

10.3. Severity Levels and Performance Criterion

10.3.1. Severity level

Level	Open Circuit Output Test Voltage $\pm 10\%$	
	On CHARGER Lines	On I/O (Input/Output) Signal data and control lines
1.	0.5 KV	0.25 KV
2.	1 KV	0.5 KV
3.	2 KV	1 KV
4.	4 KV	2 KV
X	Special	Special

10.3.2. Performance Criterion: B

10.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3.3

10.5. Operating Condition of EUT

10.5.1. Setup the EUT as shown in Section 10.1.

10.5.2. Turn on the power of all equipments.

10.5.3. Let the EUT work in test mode (ON) and measure it.

10.6. Test Procedure

The EUT is put on the table, which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

10.6.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device, which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

10.6.2. For signal lines and control lines ports: No I/O ports. It's unnecessary to test.

10.6.3. For DC output line ports: It's unnecessary to test.

10.7. Test Results

PASS.

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

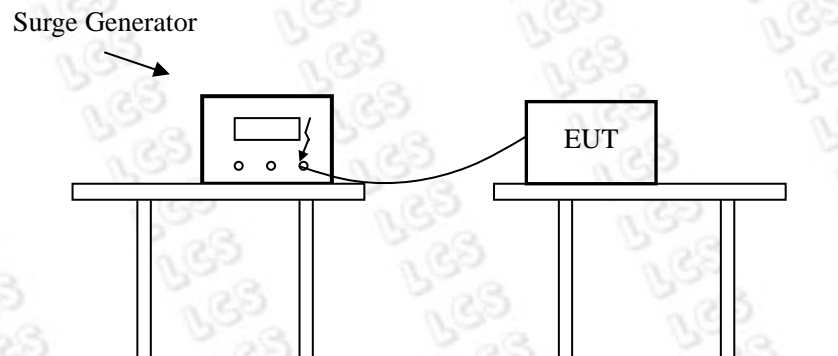
Standard	<input type="checkbox"/> IEC 61000-4-4 <input checked="" type="checkbox"/> EN 61000-4-4		
Applicant	Gztod. Co., Ltd.		
EUT	Smart USB Charger	Temperature	24°C
M/N	YA50WS3-8U	Humidity	53%
Test Mode	ON	Criterion	B
Test Engineer	Cherry Chen		

Line	Test Voltage	Result (+)	Result (-)
L	1KV	PASS	PASS
N	1KV	PASS	PASS
PE	1KV	PASS	PASS
L-N	1KV	PASS	PASS
L-PE	1KV	PASS	PASS
N-PE	1KV	PASS	PASS
L-N-PE	1KV	PASS	PASS
Signal Line			
I/O Cable			

Note:

11. SURGE IMMUNITY TEST

11.1. Block Diagram of Test Setup



11.2. Test Standard

EN 55024: 2010 (EN 61000-4-5: 2014, Severity Level: Line to Line: Level 2, 1.0KV, Line to Earth: Level 3, 2.0KV)

11.3. Severity Levels and Performance Criterion

11.3.1. Severity level

Severity Level	Open-Circuit Test Voltage (KV)
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

11.3.2. Performance Criterion: B

11.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3.3

11.5. Operating Condition of EUT

- 11.5.1. Setup the EUT as shown in Section 11.1.
- 11.5.2. Turn on the power of all equipments.
- 11.5.3. Let the EUT work in test mode (ON) and measure it.

11.6. Test Procedure

- 11.6.1. Set up the EUT and test generator as shown on Section 11.1.
- 11.6.2. For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 11.6.3. For line to earth coupling mode, provide a 2.0KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 11.6.4. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 11.6.5. Different phase angles are done individually.
- 11.6.6. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11.7. Test Results

PASS.

Please refer to the following page.

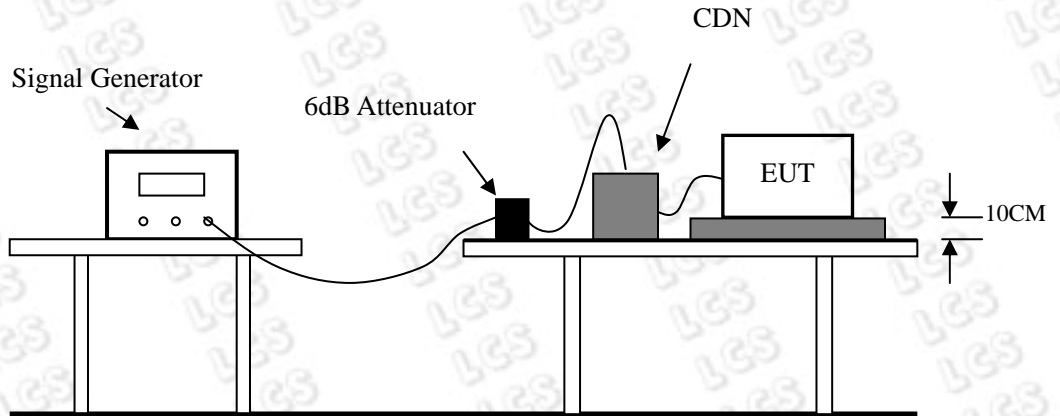
Surge Immunity Test Result

Standard	<input type="checkbox"/> IEC 61000-4-5 <input checked="" type="checkbox"/> EN 61000-4-5		
Applicant	Gztod. Co., Ltd.		
EUT	Smart USB Charger	Temperature	24°C
M/N	YA50WS3-8U	Humidity	53%
Test Mode	ON	Criterion	B
Test Engineer	Cherry Chen		

Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Result
L-N	+	0°	5	1.0	PASS
	+	90°	5	1.0	PASS
	+	180°	5	1.0	PASS
	+	270°	5	1.0	PASS
	-	0°	5	1.0	PASS
	-	90°	5	1.0	PASS
	-	180°	5	1.0	PASS
	-	270°	5	1.0	PASS
L-PE	+	0°	5	2.0	PASS
	+	90°	5	2.0	PASS
	+	180°	5	2.0	PASS
	+	270°	5	2.0	PASS
	-	0°	5	2.0	PASS
	-	90°	5	2.0	PASS
	-	180°	5	2.0	PASS
	-	270°	5	2.0	PASS
N-PE	+	0°	5	2.0	PASS
	+	90°	5	2.0	PASS
	+	180°	5	2.0	PASS
	+	270°	5	2.0	PASS
	-	0°	5	2.0	PASS
	-	90°	5	2.0	PASS
	-	180°	5	2.0	PASS
	-	270°	5	2.0	PASS
Signal Line					
Note					

12. INJECTED CURRENTS SUSCEPTIBILITY TEST

12.1. Block Diagram of Test Setup



12.2. Test Standard

EN 55024: 2010(EN 61000-4-6: 2014, Severity Level: Level 2, 3V (rms), (0.15MHz ~ 80MHz))

12.3. Severity Levels and Performance Criterion

12.3.1. Severity level

Level	Field Strength (V)
1	1
2	3
3	10
X	Special

12.3.2. Performance Criterion: A

12.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3.3

12.5. Operating Condition of EUT

- 12.5.1. Setup the EUT as shown in Section 12.1.
- 12.5.2. Turn on the power of all equipments.
- 12.5.3. Let the EUT work in test mode (ON) and measure it.

12.6. Test Procedure

- 12.6.1. Set up the EUT, CDN and test generators as shown on Section 12.1.
- 12.6.2. Let the EUT work in test mode and measure it.
- 12.6.3. The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 12.6.4. The disturbance signal described below is injected to EUT through CDN.
- 12.6.5. The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 12.6.6. The frequency range is swept from 150kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
- 12.6.7. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 12.6.8. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

12.7. Test Results

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results

Standard	<input type="checkbox"/> IEC 61000-4-6 <input checked="" type="checkbox"/> EN 61000-4-6		
Applicant	Gztod. Co., Ltd.		
EUT	Smart USB Charger	Temperature	24°C
M/N	YA50WS3-8U	Humidity	53%
Test Mode	ON	Criterion	A
Test Engineer	Cherry Chen		

Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
0.15 ~ 80	AC Mains	3V	A	PASS

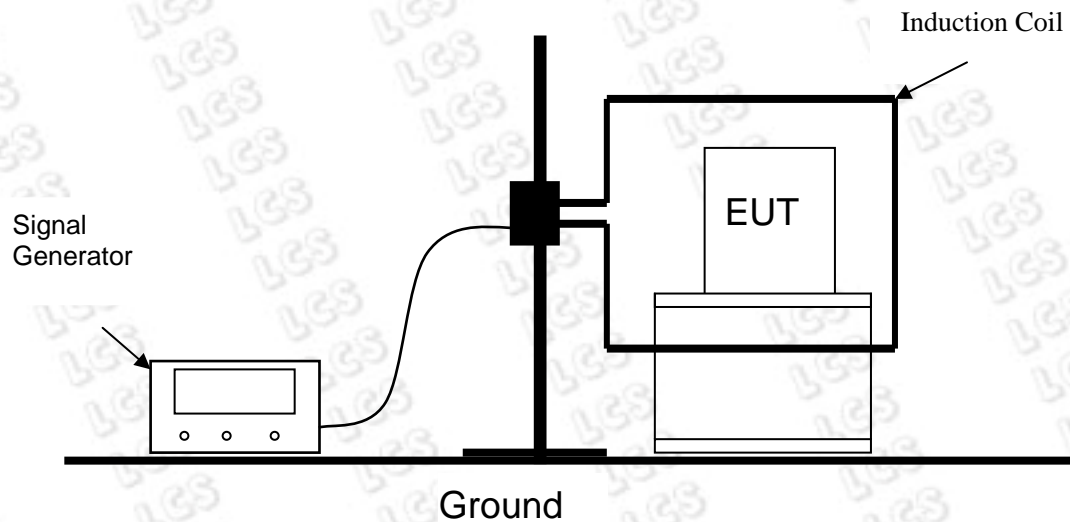
Remark:

1. Modulation Signal: 1kHz 80% AM
2. Measurement Equipment :
 - Simulator: CIT-10 (FRANKONIA)
 - CDN : CDN-M2 (FRANKONIA)
 - CDN-M3 (FRANKONIA)

Note:

13. MAGNETIC FIELD SUSCEPTIBILITY TEST

13.1. Block Diagram of Test Setup



13.2. Test Standard

EN 55024: 2010 (EN 61000-4-8: 2010, Severity Level: Level 1, 1A / m)

13.3. Severity Levels and Performance Criterion

13.3.1. Severity Levels

Level	Field Strength (A/m)
1	1
2	3
3	10
4	30
5	100
X	Special

13.3.2. Performance Criterion: A

13.4. EUT Configuration on Test

The configuration of the EUT is same as Section 3.3

13.5. Test Procedure

The EUT is placed in the middle of a induction coil (1*1m), under which is a 1*1*0.1m (high) table, this small table is also placed on a larger table, 0.8 m above the ground. Both horizontal and vertical polarization of the induction coil is set on test, so that each side of the EUT is affected by the magnetic field. Also can reach the same aim by change the position of the EUT.

13.6. Test Results

PASS.

Please refer to the following page.

Magnetic Field Immunity Test Result

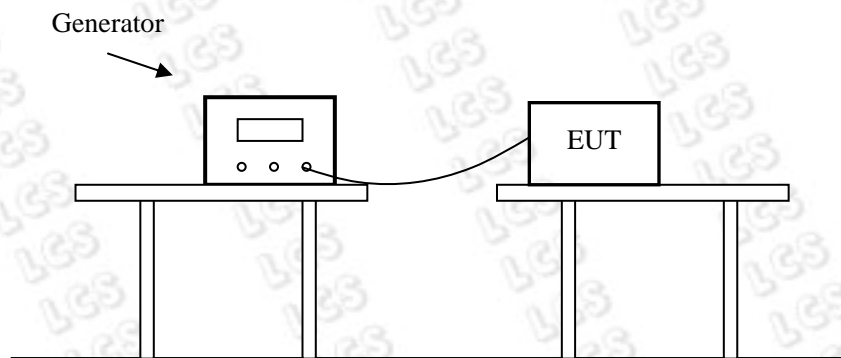
Standard	<input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8		
Applicant	Gztod. Co., Ltd.		
EUT	Smart USB Charger	Temperature	24°C
M/N	YA50WS3-8U	Humidity	53%
Test Mode	ON	Criterion	A
Test Engineer	Cherry Chen		

Test Level (A/M)	Testing Duration	Coil Orientation	Criterion	Result
1	5 mins	X	A	PASS
1	5 mins	Y	A	PASS
1	5 mins	Z	A	PASS

Note:

14. VOLTAGE DIPS AND INTERRUPTIONS TEST

14.1. Block Diagram of Test Setup



14.2. Test Standard

EN 55024: 2010 (EN 61000-4-11: 2004)

14.3. Severity Levels and Performance Criterion

14.3.1. Severity level

Test Level (% UT)	Voltage dip and short interruptions (% UT)	Duration (in period)
0	100	0.5
70	30	25
0	100	250

14.3.2. Performance Criterion: B&C

14.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.3.

14.5. Operating Condition of EUT

14.5.1. Setup the EUT as shown in Section 14.1.

14.5.2. Turn on the power of all equipments.

14.5.3. Let the EUT work in test mode (ON) and measure it.

14.6. Test Procedure

14.6.1. Set up the EUT and test generator as shown on Section 14.1.

14.6.2. The interruptions are introduced at selected phase angles with specified duration.

14.6.3. Record any degradation of performance.

14.7. Test Results

PASS.

Please refer to the following page.

Voltage Dips And Interruptions Test Results

Standard	<input type="checkbox"/> IEC 61000-4-11 <input checked="" type="checkbox"/> EN 61000-4-11		
Applicant	Gztod. Co., Ltd.		
EUT	Smart USB Charger	Temperature	24°C
M/N	YA50WS3-8U	Humidity	53%
Test Mode	ON	Criterion	B&C
Test Engineer	Cherry Chen		

Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Criterion	Result
0	100	0.5P	B	PASS
70	30	25P	C	PASS
0	100	250P	C	PASS

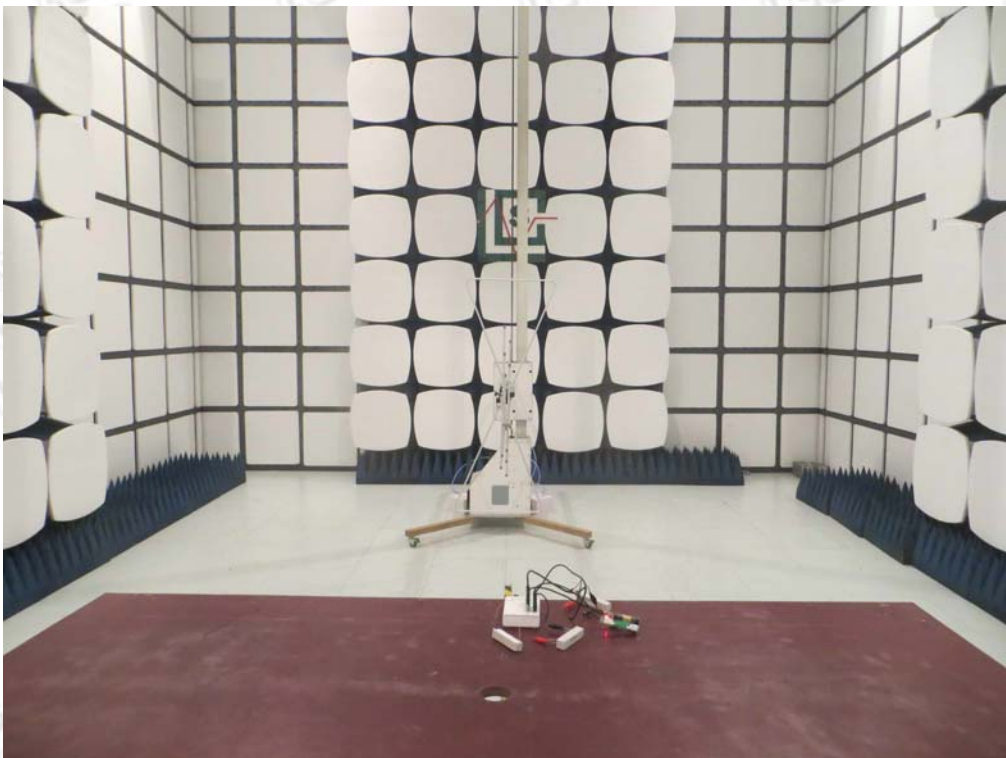
Note:

15. PHOTOGRAPH

15.1. Photo of Power Line Conducted Measurement



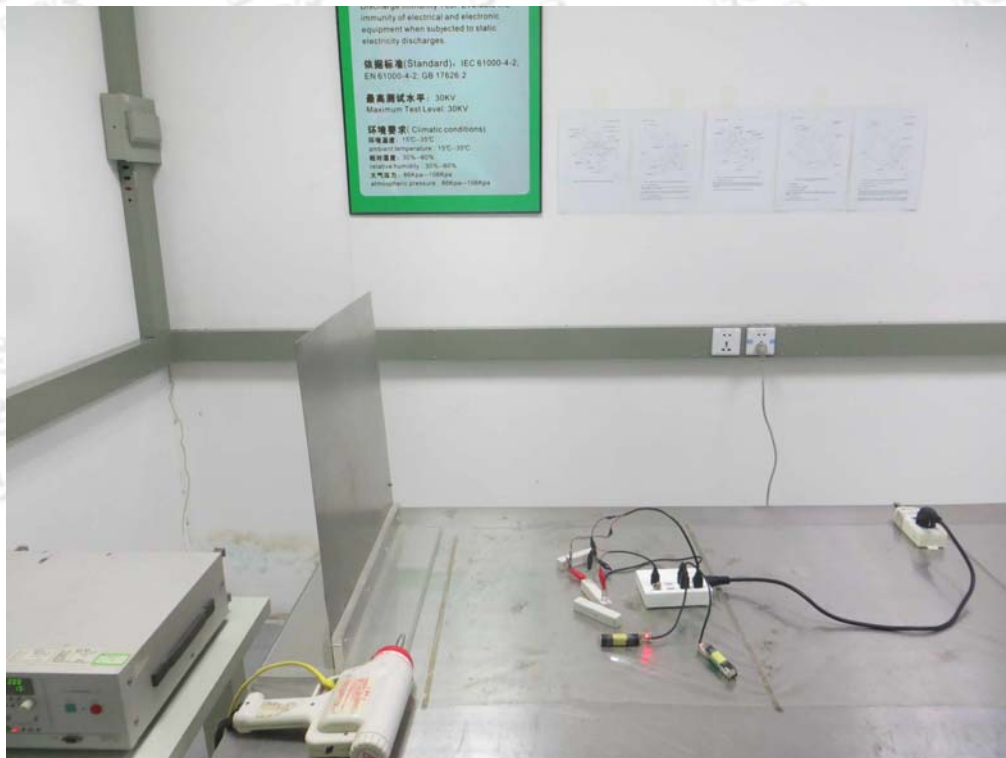
15.2. Photo of Radiated Measurement



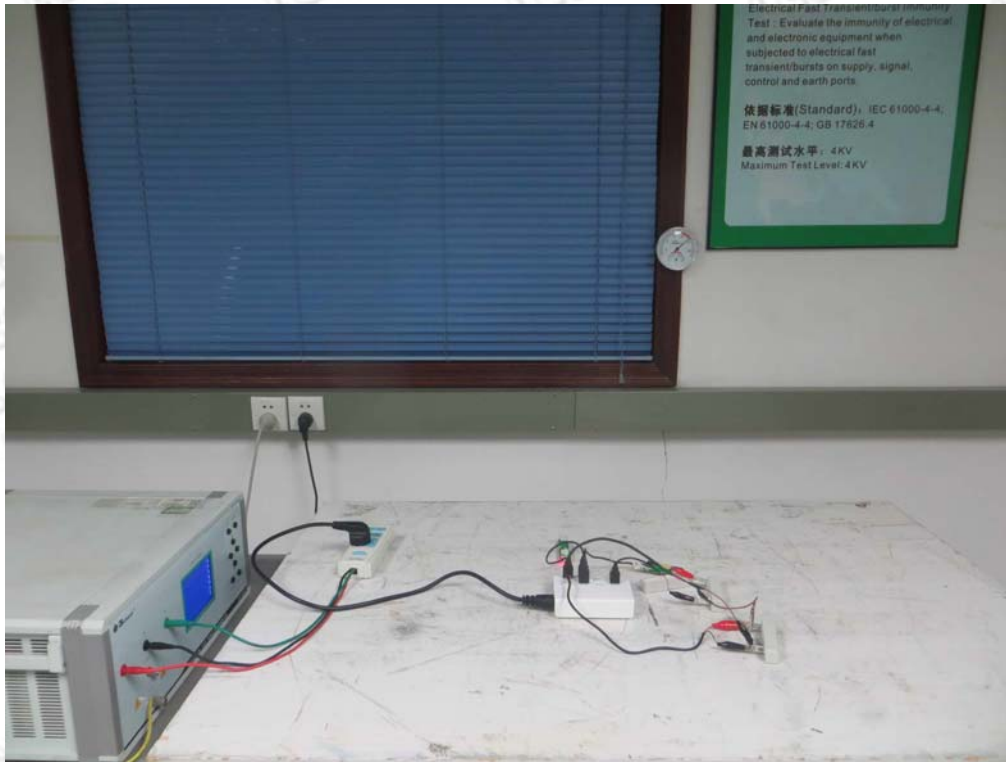
15.3. Photo of Harmonic & Flicker Measurement



15.4. Photo of Electrostatic Discharge Test



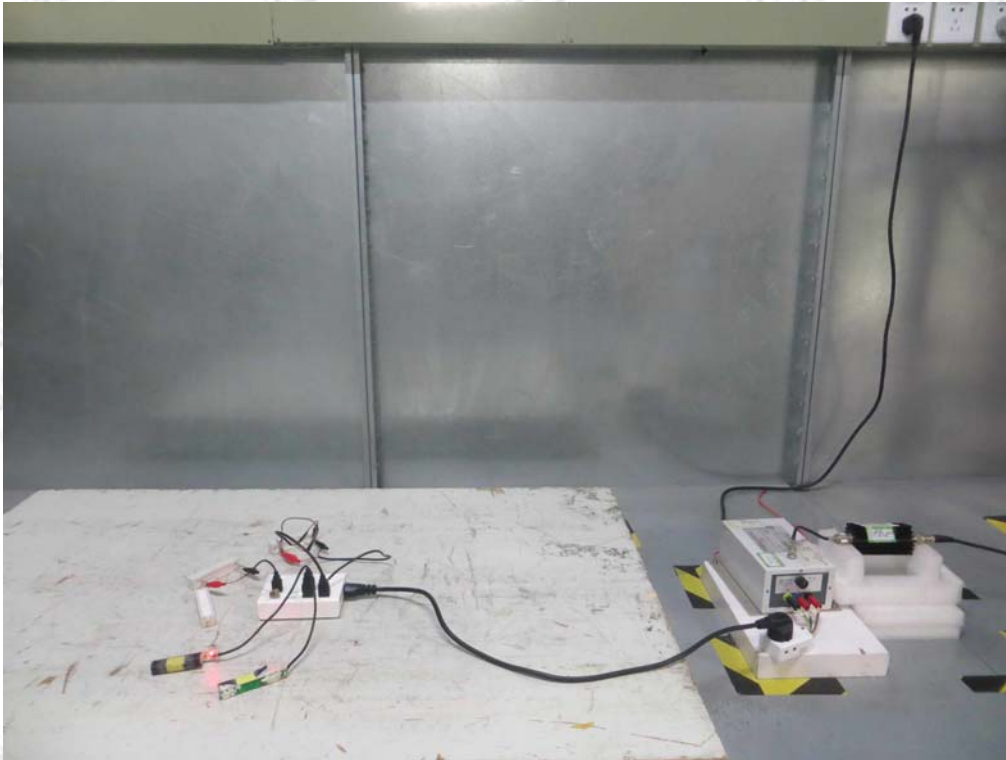
15.5. Photo of Electrical Fast Transient/Burst Test



15.6. Photo of Surge Test



15.7. Photo of Injected Currents Susceptibility Test



15.8. Photo of Magnetic Field Immunity Test



15.9. Photo of Voltage Dips and Interruptions Test



16. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

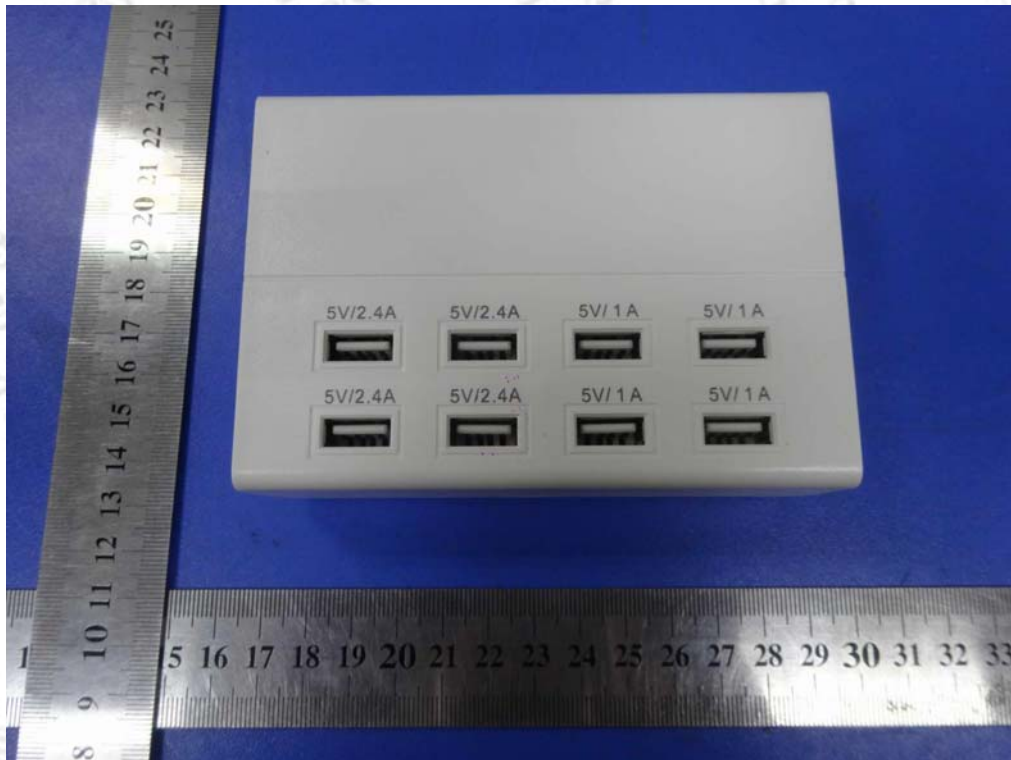


Fig. 1



Fig. 2

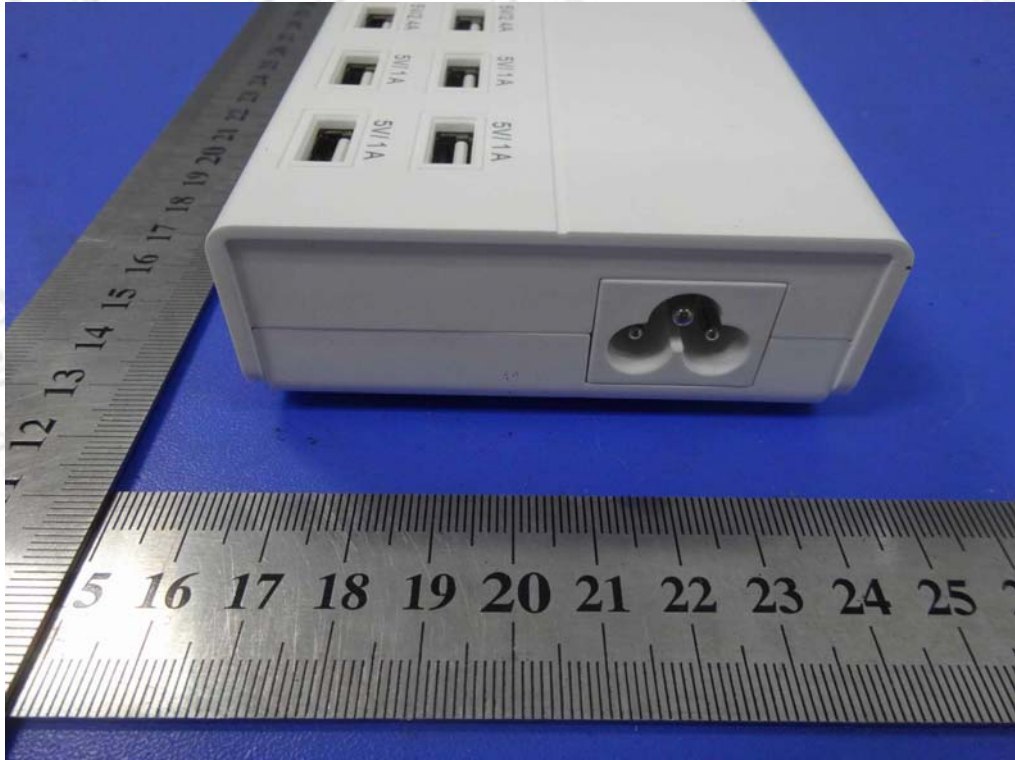


Fig. 3

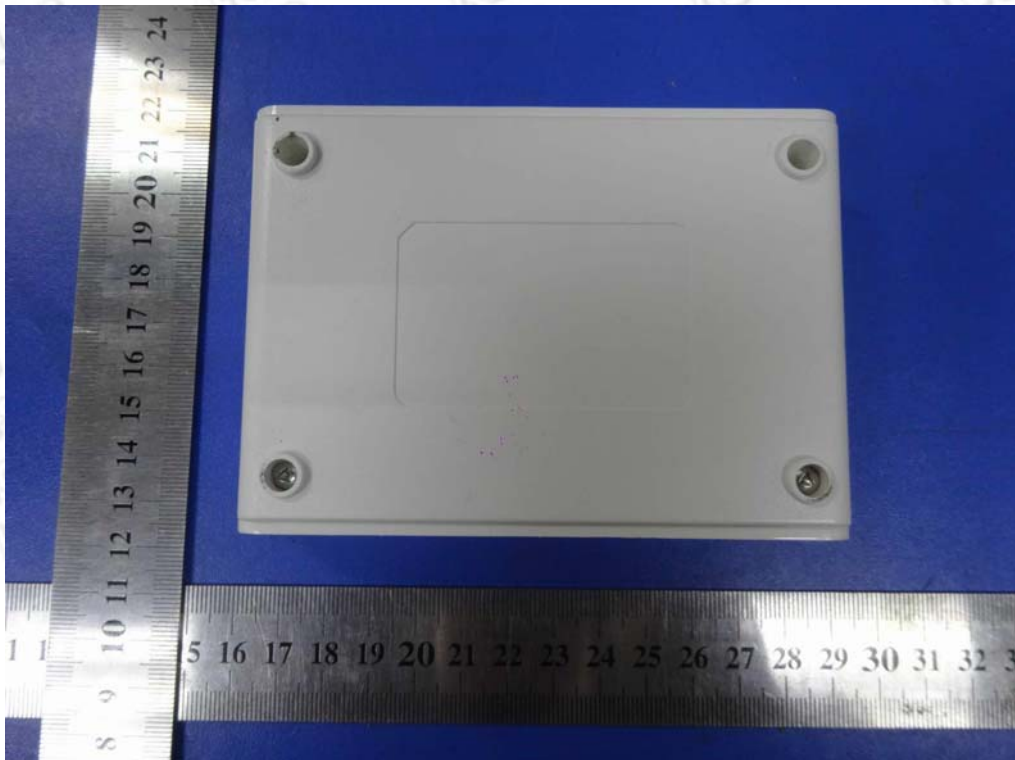


Fig. 4

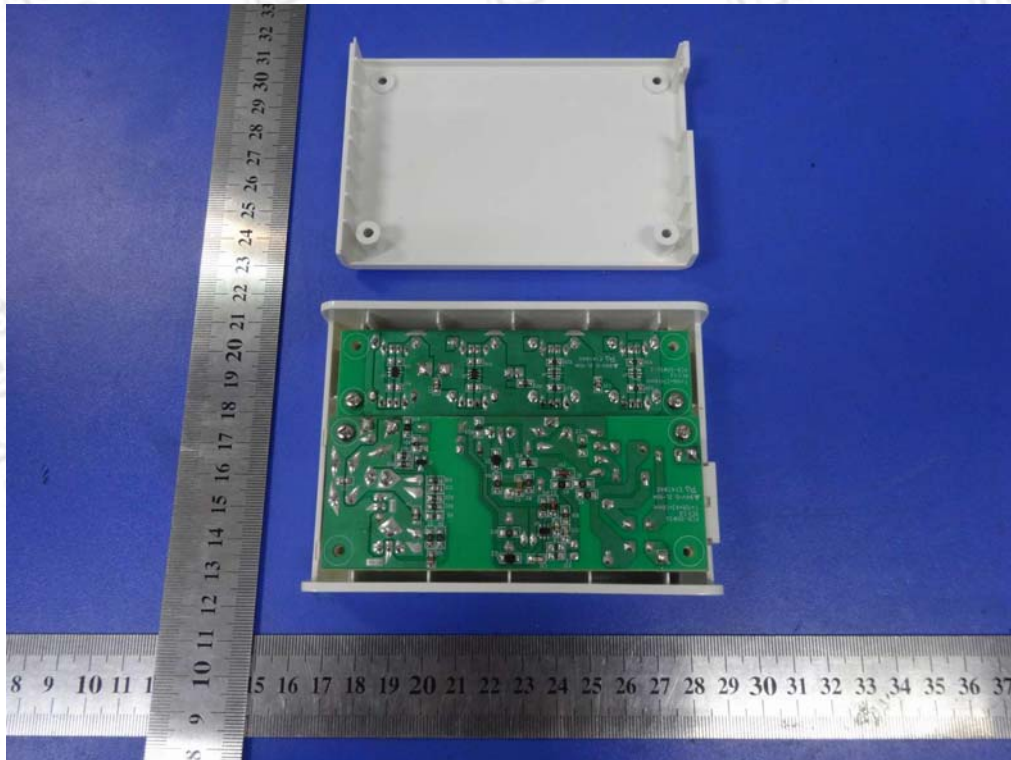


Fig. 5

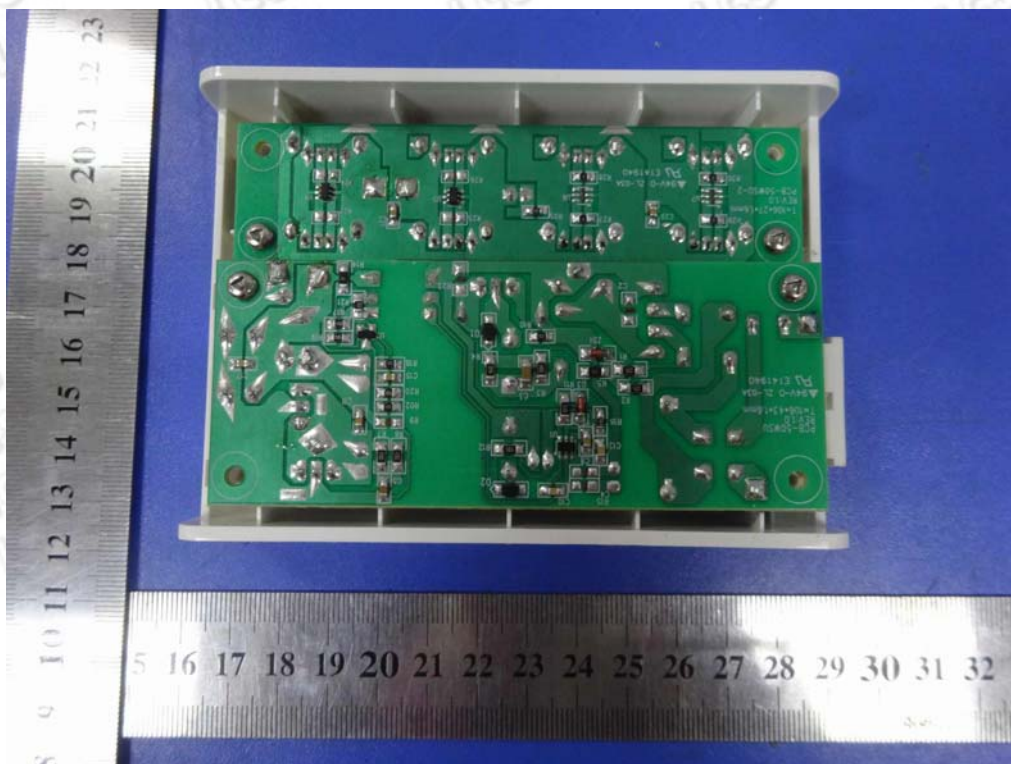


Fig. 6

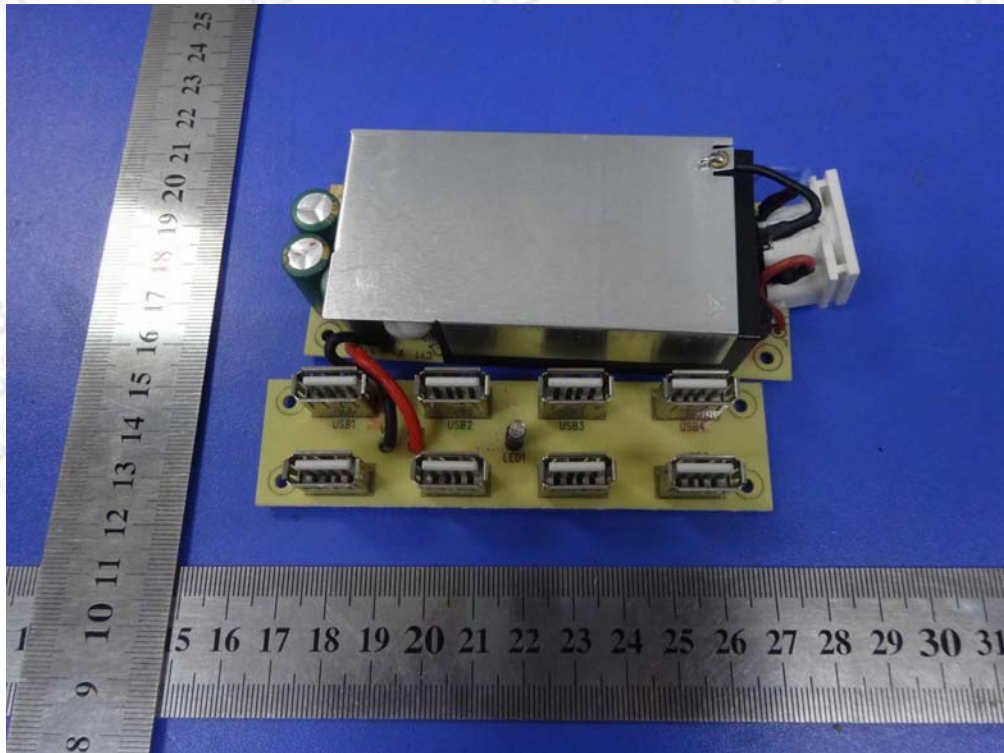


Fig. 7

-----THE END OF TEST REPORT-----