

Verification Of Conformity
On Behalf of
Smart Team Holdings Limited

ULTRA THIN SOLAR FLASHLIGHT
Model No.: ST-TSF2013

Prepared for : Smart Team Holdings Limited
Address : FLAT A01, 5F., Great Wall Fty Bldg., 11 Cheung Shun Street, Lai
Chi Kwok, Kowloon, HK
Tel: 0755-84115784
Fax: 0755-89995954

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 : 201308750F
Date of Test : Aug. 09~15, 2013
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TEST REPORT VERIFICATION

Applicant : Smart Team Holdings Limited
Manufacturer : Shenzhen Smart Team Technology Ltd.
EUT : ULTRA THIN SOLAR FLASHLIGHT
Model No. : ST-TSF2013
Rating : Input: DC 5V, 900mA
Output: DC 5V, 1A(MAX)
Trade Mark : N.A.

Measurement Procedure Used:

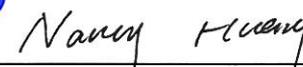
FCC Rules and Regulations Part 15 Subpart B 2011 & FCC / ANSI C63.4-2009

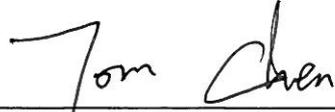
The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

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

Date of Test : Aug. 09~15, 2013

Prepared by : 
(Engineer/ Barak Ban)

Reviewer : 
(Project Manager/ Nancy Huang)

Approved & Authorized Signer : 
(Manager/ Tom Chen)



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : ULTRA THIN SOLAR FLASHLIGHT

Model Number : ST-TSF2013

Test Power Supply : DC 5V via adapter AC 120V, 60Hz/DC 5V

Applicant : Smart Team Holdings Limited
Address : FLAT A01, 5F., Great Wall Fty Bldg., 11 Cheung Shun Street, Lai Chi Kwok, Kowloon, HK

Manufacturer : Shenzhen Smart Team Technology Ltd.
Address : Xutai Industrial Zone, Long Wo Road, Long Tian Village, Keng Zi Town, Longgang District, Shenzhen, Guangdong, China

Date of receipt : Aug. 09, 2013

Date of Test : Aug. 09~15, 2013

1.2. Description of Test Facility

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

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.

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 Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, July 10, 2013

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, February 22, 2013

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

1.3. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.3dB
Conduction Uncertainty	:	Uc = 3.4dB

1.4. Test Summary

For the EUT described above. The standards used were FCC Part 15 Subpart B for Emissions.

Table 1 : Tests Carried Out Under FCC Part 15 Subpart B

Standard	Test Items	Status
FCC Part 15 Subpart B	Power Line Conducted Emission Test (150KHz To 30MHz)	√
FCC Part 15 Subpart B	Radiated Emission Test (30MHz To 1000MHz)	√

√ Indicates that the test is applicable

x Indicates that the test is not applicable

2. POWER LINE CONDUCTED MEASUREMENT

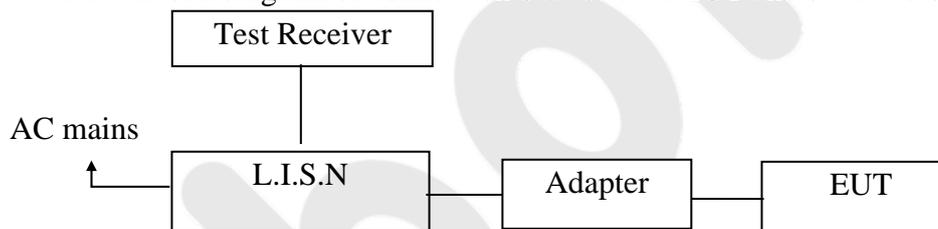
2.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	10055	Apr. 23, 2013	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Apr. 23, 2013	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Apr. 23, 2013	1 Year

2.2. Block Diagram of Test Setup

2.2.1 Block diagram of connection between the EUT and simulators



(EUT: ULTRA THIN SOLAR FLASHLIGHT)

2.3. Power Line Conducted Emission Measurement Limits (FCC Part 15

Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

2.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a

manner which tends to maximize its emission characteristics in a normal application.

EUT : ULTRA THIN SOLAR FLASHLIGHT
Model Number : ST-TSF2013
Applicant : Smart Team Holdings Limited

2.5. Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown as Section 2.2.

2.5.2. Turn on the power of all equipment.

2.5.3. Let the EUT work in test mode (Charging to adapter) and measure it.

2.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2009 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test result are reported on Section 2.7.

2.7. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150KHz to 30 MHz is investigated.

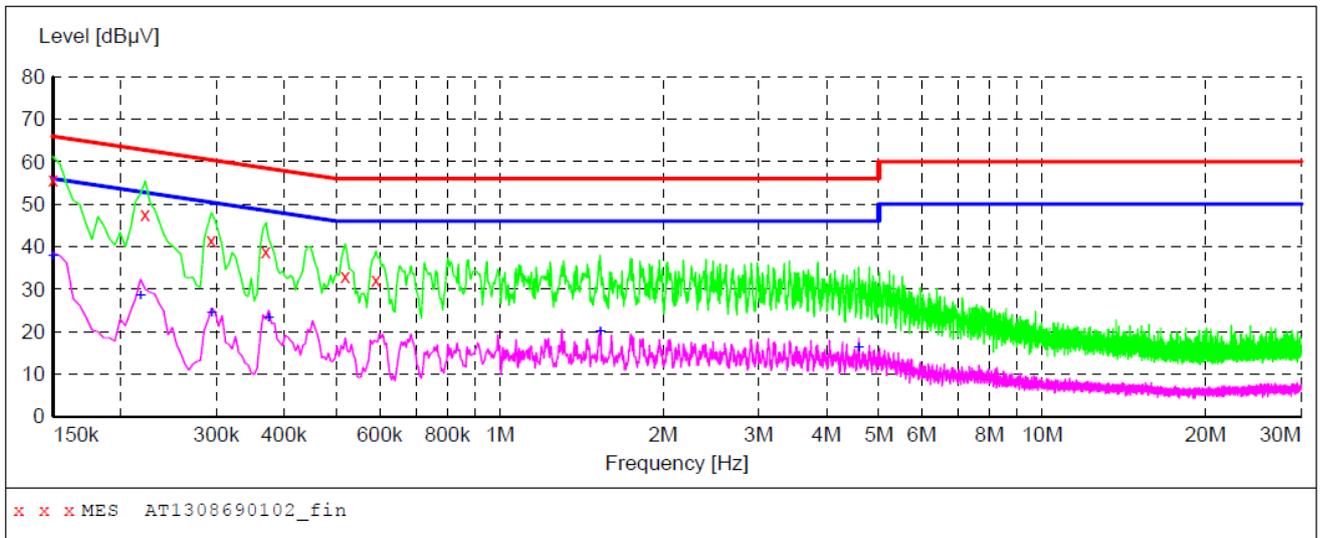
The test curves are shown in the following pages.

CONDUCTED EMISSION TEST DATA

EUT: ULTRA THIN SOLAR FLASHLIGHT M/N:ST-TSF2013
 Operating Condition: Charging to adapter
 Test Site: 1# Shielded Room
 Operator: Finley Li
 Test Specification: DC 5V via adapter AC 120V, 60Hz
 Comment: L
 Tem:25°C Hum:50%

SCAN TABLE: "Voltage (150K~30M) FIN"

Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1308690102_fin"

8/10/2013 10:52AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	55.80	20.1	66	10.2	QP	L1	GND
0.222000	47.60	20.1	63	15.1	QP	L1	GND
0.294000	41.60	20.1	60	18.8	QP	L1	GND
0.370500	39.00	20.1	59	19.5	QP	L1	GND
0.519000	33.20	20.1	56	22.8	QP	L1	GND
0.591000	32.20	20.1	56	23.8	QP	L1	GND

MEASUREMENT RESULT: "AT1308690102_fin2"

8/10/2013 10:52AM

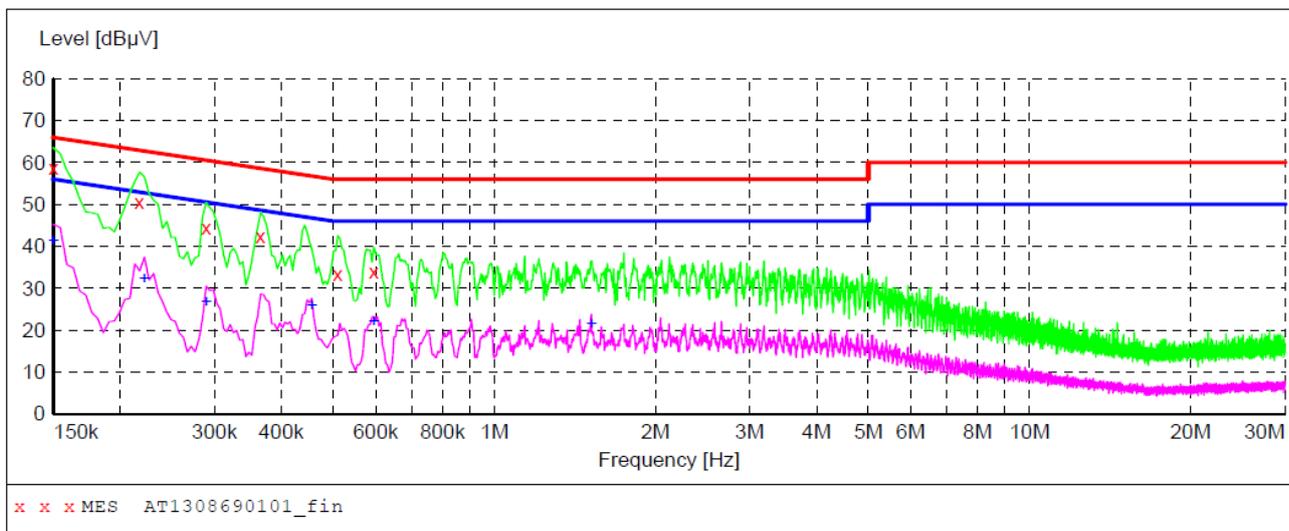
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	37.90	20.1	56	18.1	AV	L1	GND
0.217500	28.50	20.1	53	24.4	AV	L1	GND
0.294000	24.40	20.1	50	26.0	AV	L1	GND
0.375000	23.30	20.1	48	25.1	AV	L1	GND
1.531000	20.10	20.3	46	25.9	AV	L1	GND
4.591000	16.10	20.5	46	29.9	AV	L1	GND

CONDUCTED EMISSION TEST DATA

EUT: ULTRA THIN SOLAR FLASHLIGHT M/N:ST-TSF2013
 Operating Condition: Charging to adapter
 Test Site: 1# Shielded Room
 Operator: Finley Li
 Test Specification: DC 5V via adapter AC 120V, 60Hz
 Comment: N
 Tem:25°C Hum:50%

SCAN TABLE: "Voltage (150K~30M) FIN"

Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1308690101_fin"

8/10/2013 10:49AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	58.70	20.1	66	7.3	QP	N	GND
0.217500	50.70	20.1	63	12.2	QP	N	GND
0.289500	44.60	20.1	61	15.9	QP	N	GND
0.366000	42.50	20.1	59	16.1	QP	N	GND
0.510000	33.30	20.1	56	22.7	QP	N	GND
0.595500	33.90	20.1	56	22.1	QP	N	GND

MEASUREMENT RESULT: "AT1308690101_fin2"

8/10/2013 10:49AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	41.40	20.1	56	14.6	AV	N	GND
0.222000	32.30	20.1	53	20.4	AV	N	GND
0.289500	26.70	20.1	51	23.8	AV	N	GND
0.456000	25.80	20.1	47	21.0	AV	N	GND
0.595500	22.00	20.1	46	24.0	AV	N	GND
1.517500	21.30	20.3	46	24.7	AV	N	GND

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the radiated emission measurement:

3.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 23, 2013	3 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 23, 2013	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Apr. 23, 2013	1 Year

3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators

3.2.1.1. For Charging to adapter mode



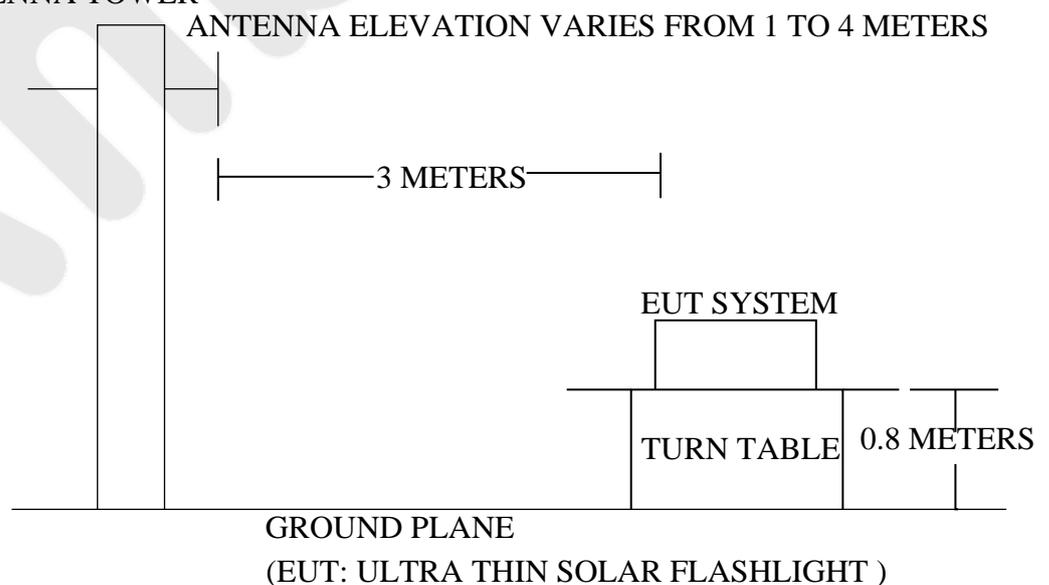
3.2.1.2. For Discharging mode



(EUT: ULTRA THIN SOLAR FLASHLIGHT)

3.2.2. Anechoic Chamber Test Setup Diagram

ANTENNA TOWER



3.3. Radiated Emission Limit (Subpart B Class B)

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMIT
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MHz	Meters	$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30~88	3	100	40.0
88~216	3	150	43.5
216~960	3	200	46.0
960~1000	3	500	54.0

- Remark :
- (1) Emission level $(\text{dB})\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

EUT : ULTRA THIN SOLAR FLASHLIGHT
 Model Number : ST-TSF2013
 Applicant : Smart Team Holdings Limited

3.5. Operating Condition of EUT

3.5.1. Setup the EUT as shown in Section 3.2.

3.5.2. Let the EUT work in test mode (Charging to adapter/Discharging) and measure it.

3.6. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2009 on radiated emission measurement.

The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.

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

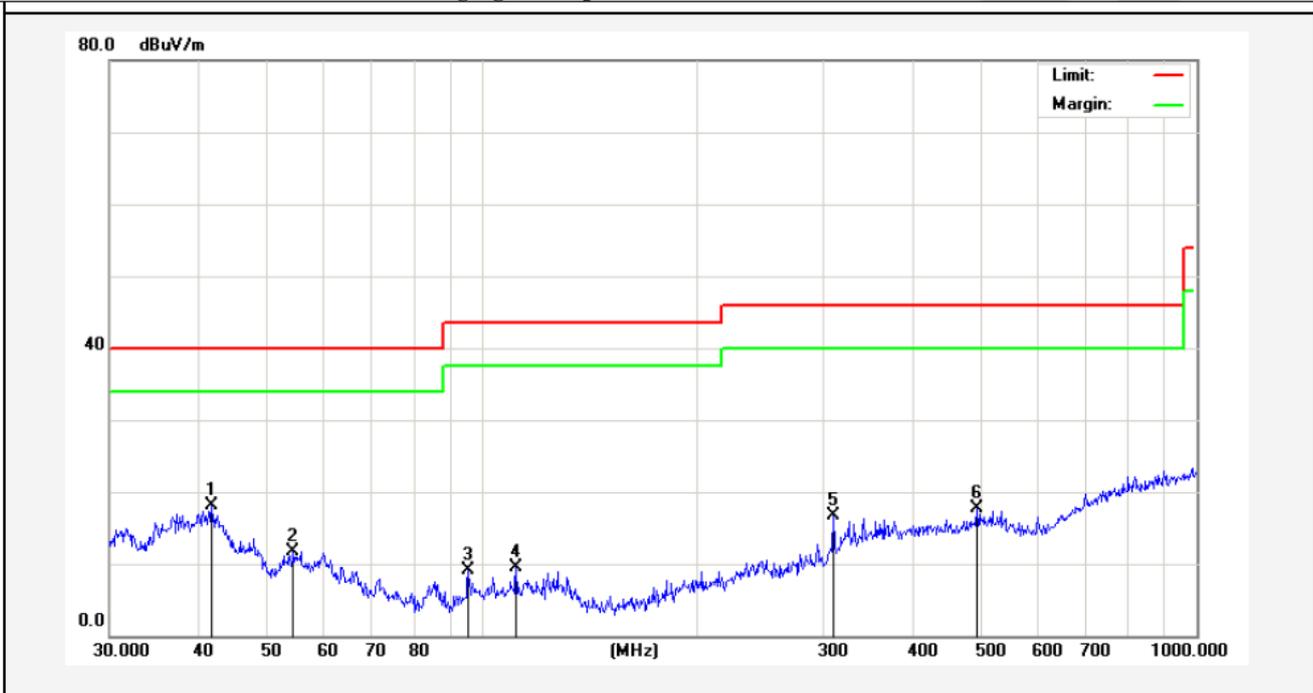
The test mode (Charging to adapter/Discharging) is tested in chamber and all the test results are listed in Section 3.7.

3.7. Radiated Emission Measurement Results

PASS.

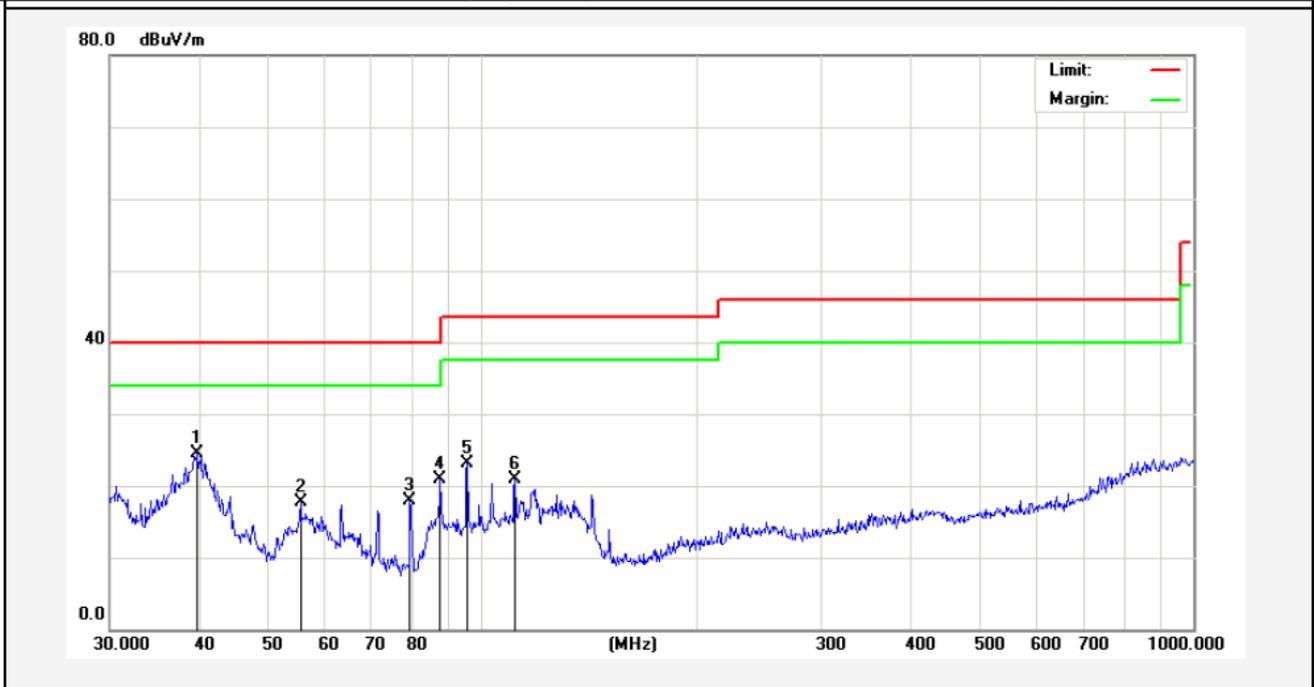
The test curves are shown in the following pages.

Job No.:	AT1308690F	Polarization:	Horizontal
Standard:	(RE)FCC PART15 B _3m	Power Source:	DC 5V via adapter AC 120V, 60Hz
Test item:	Radiation Test	Date:	2013/08/09
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	20:08:46
EUT:	ULTRA THIN SOLAR FLASHLIGHT	Test By:	Jimly Chen
Model:	ST-TSF2013	Distance:	3m
Note:	Charging to adapter		



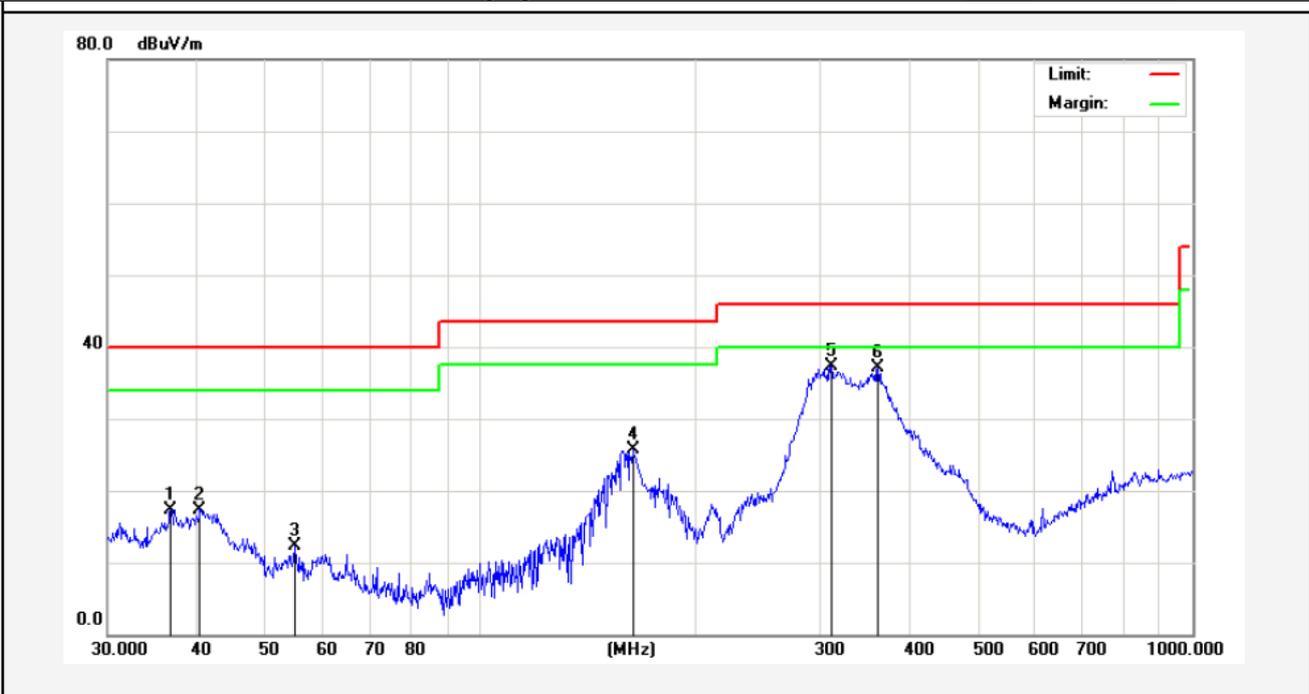
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	41.7129	39.75	-21.68	18.07	40.00	-21.93	peak			
2	54.2610	39.58	-27.81	11.77	40.00	-28.23	peak			
3	95.4270	41.23	-32.10	9.13	43.50	-34.37	peak			
4	111.3468	40.97	-31.56	9.41	43.50	-34.09	peak			
5	309.9977	42.99	-26.35	16.64	46.00	-29.36	peak			
6	492.4685	39.34	-21.61	17.73	46.00	-28.27	peak			

Job No.:	AT1308690F	Polarization:	Vertical
Standard:	(RE)FCC PART15 B _3m	Power Source:	DC 5V via adapter AC 120V, 60Hz
Test item:	Radiation Test	Date:	2013/08/09
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	20:05:27
EUT:	ULTRA THIN SOLAR FLASHLIGHT	Test By:	Jimly Chen
Model:	ST-TSF2013	Distance:	3m
Note:	Charging to adapter		



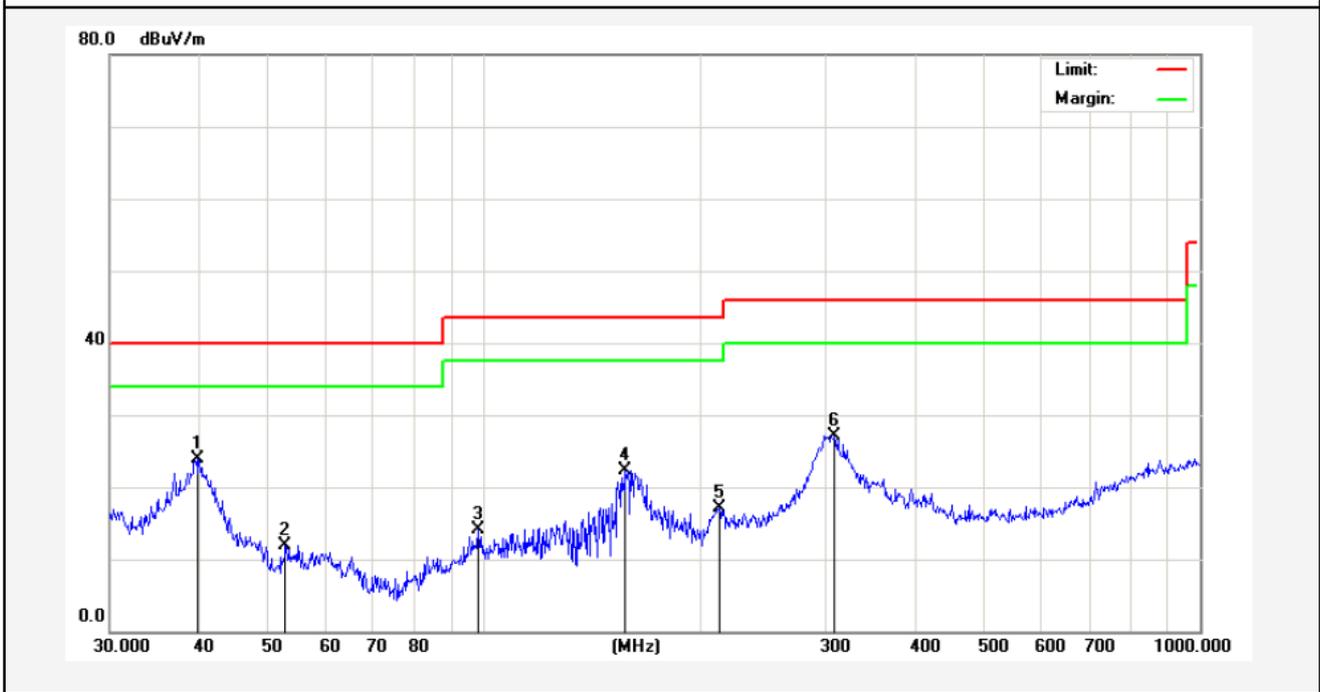
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	39.8541	45.00	-20.57	24.43	40.00	-15.57	peak			
2	55.6094	45.54	-27.87	17.67	40.00	-22.33	peak			
3	79.2425	49.81	-31.90	17.91	40.00	-22.09	peak			
4	87.4176	50.49	-29.57	20.92	40.00	-19.08	peak			
5	95.4270	50.19	-27.10	23.09	43.50	-20.41	peak			
6	111.3468	47.43	-26.56	20.87	43.50	-22.63	peak			

Job No.:	AT1308690F	Polarization:	Horizontal
Standard:	(RE)FCC PART15 B _3m	Power Source:	DC 5V
Test item:	Radiation Test	Date:	2013/08/09
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	20:00:16
EUT:	ULTRA THIN SOLAR FLASHLIGHT	Test By:	Jimly Chen
Model:	ST-TSF2013	Distance:	3m
Note:	Discharging		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	36.7662	39.50	-22.16	17.34	40.00	-22.66	peak			
2	40.4172	38.17	-20.77	17.40	40.00	-22.60	peak			
3	54.8348	40.05	-27.83	12.22	40.00	-27.78	peak			
4	163.7550	59.09	-33.31	25.78	43.50	-17.72	peak			
5	311.0867	63.51	-26.22	37.29	46.00	-8.71	peak			
6	361.7139	60.85	-23.72	37.13	46.00	-8.87	peak			

Job No.:	AT1308690F	Polarization:	Vertical
Standard:	(RE)FCC PART15 B _3m	Power Source:	DC 5V
Test item:	Radiation Test	Date:	2013/08/09
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	19:56:39
EUT:	ULTRA THIN SOLAR FLASHLIGHT	Test By:	Jimly Chen
Model:	ST-TSF2013	Distance:	3m
Note:	Discharging		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	39.7146	44.59	-20.63	23.96	40.00	-16.04	peak			
2	52.7600	39.63	-27.77	11.86	40.00	-28.14	peak			
3	98.1419	40.99	-26.84	14.15	43.50	-29.35	peak			
4	157.5588	50.85	-28.58	22.27	43.50	-21.23	peak			
5	213.0151	42.83	-25.67	17.16	43.50	-26.34	peak			
6	308.9126	51.55	-24.37	27.18	46.00	-18.82	peak			

4. PHOTOGRAPHS

4.1. Photo of Power Line Conducted Emission Test



4.2. Photo of Radiated Emission Test

Charging to adapter



Discharging



Anbotek

APPENDIX I
(Photos of EUT)

Figure 1
The EUT- Front View

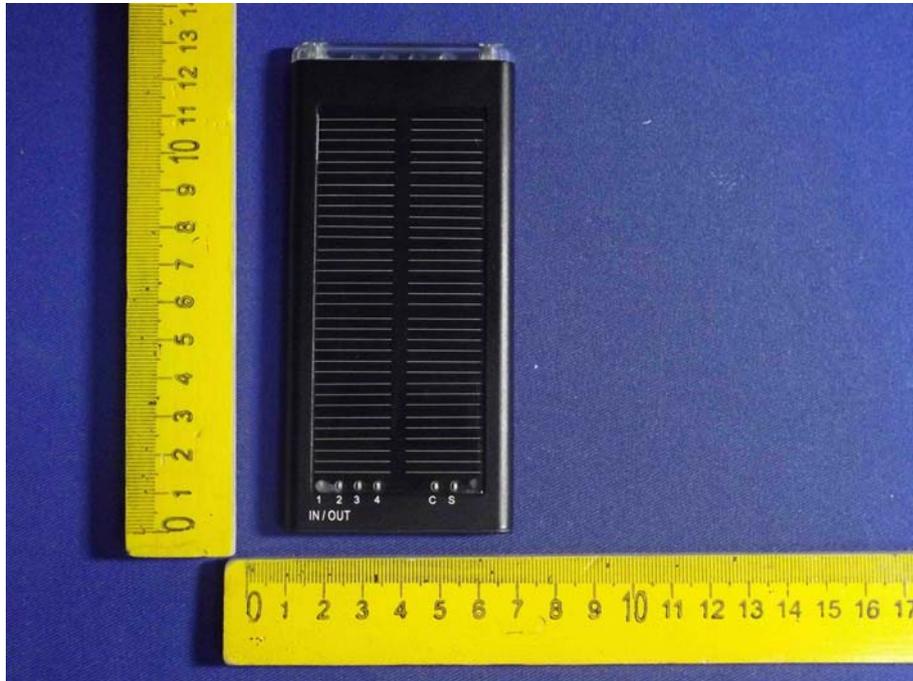


Figure 2
The EUT- Back View



Figure 3
The EUT- Side View



Figure 4
The EUT- Inside View

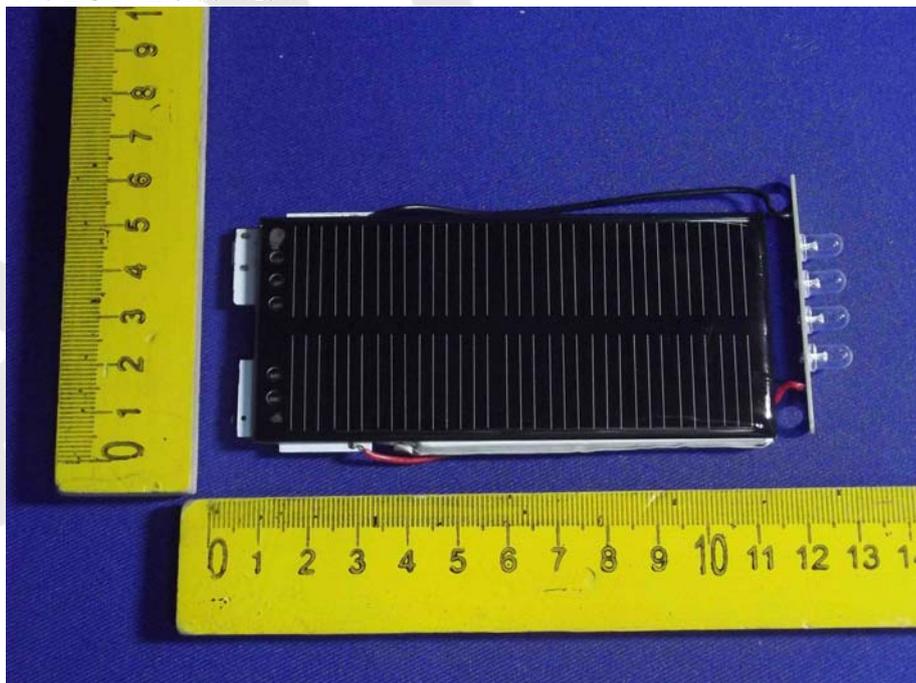


Figure 5
PCB Of The EUT- Front View

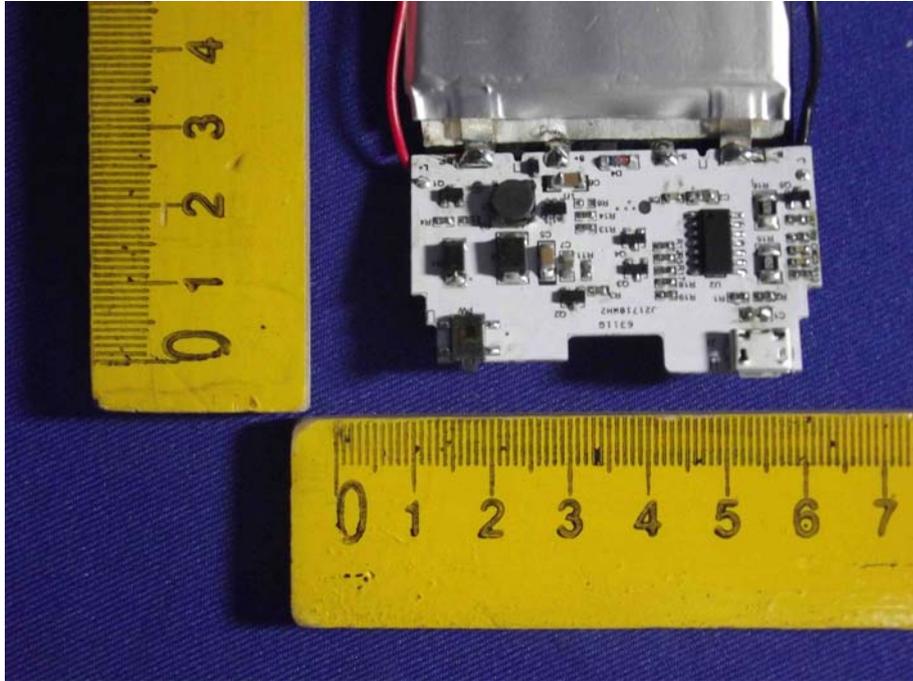


Figure 6
PCB Of The EUT- Back View

