



## TEST REPORT

Product Name: LED Diving Flashlight

Trademark: **XTAR®**

Model Number: D26 1600

Prepared For: SHENZHEN XTAR ELECTRONICS CO., LTD

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Manufacturer: SHENZHEN XTAR ELECTRONICS CO., LTD

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Sample Received Date: Jul. 25, 2018

Sample tested Date: Jul. 25, 2018 to Jul. 31, 2018

Issue Date: Aug. 02, 2018

Report No.: BCTC-FY180704155E

Test Standards 47 CFR FCC Part 15 Subpart B

Test Results PASS

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(Note: N/A means not applicable)



## 1. VERSION

Report No.	Issue Date	Description	Approved
BCTC-FY180704155E	Aug. 02, 2018	Original	Valid



## 2. TEST SUMMARY

The Product has been tested according to the following specifications:

Standard	Test Item	Test result
FCC 15.107	Conducted Emission	Pass
FCC 15.109	Radiated Emission	Pass



### 3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	3.20
Radiated Emission(30MHz~1GHz)	4.80
Radiated Emission(1GHz~6GHz)	4.90



## 4. PRODUCT INFORMATION AND TEST SETUP

### 4.1 Product Information

Ratings: DC 3.7V

Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Specification	Note
1	--	--	Applicant	---	Shielded	With a ferrite ring in mid Detachable
2	--	--	BCTC	--	Unshielded	--

### 4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

### 4.3 Support Equipment

No	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

**Notes:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

### 4.4 Test Mode

Test item	Test Mode	Test Voltage
Radiated mission(30MHz-1GHz) Class B	Working	DC 3.7V*
All test mode were tested and passed, Radiated Emissions shows (*) is the worst case mode which were recorded in this report.		



## 5. TEST FACILITY AND TEST INSTRUMENT USED

### 5.1 Test Facility

All measurement facilities used to collect the measurement data are located at BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

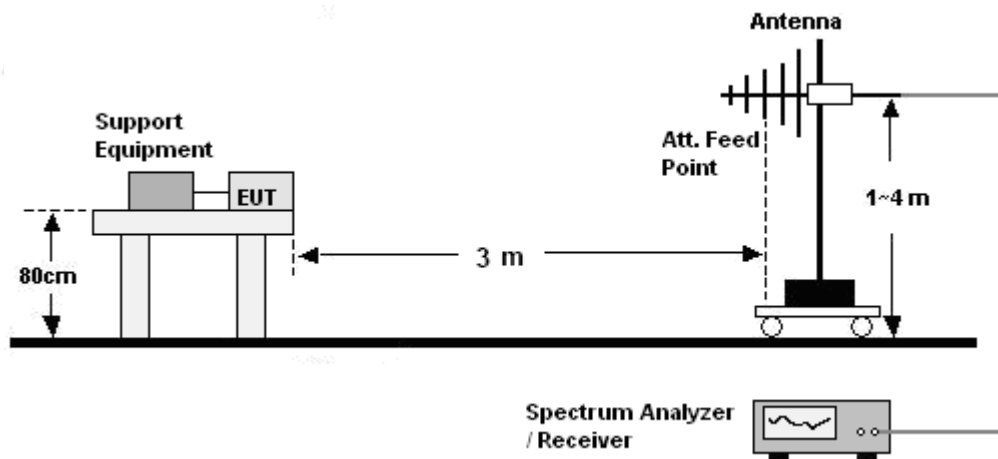
### 5.2 Test Instrument Used

Radiated emissions Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	Aug. 25, 2017	Aug. 24, 2018
Receiver	R&S	ESR	101154	Aug. 14, 2017	Aug. 13, 2018
Amplifier	Schwarzbeck	BBV9718	9718-309	Aug. 14, 2017	Aug. 13, 2018
Amplifier	Schwarzbeck	BBV9744	9744-0037	Aug. 14, 2017	Aug. 13, 2018
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163 -942	Aug. 13, 2017	Aug. 12, 2018
Horn Antenna	SCHWARZBECK	BBHA9120 D	1201	Aug. 16, 2017	Aug. 15, 2018

## 6. RADIATION EMISSION TEST

### 6.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



### 6.2 Limit

Limits for Class B devices

Frequency (MHz)	limits at 3m dB( $\mu$ V/m)		
	QP Detector	PK Detector	AV Detector
30-88	40.0	--	--
88-216	43.5	--	--
216-960	46.0	--	--
960 to 1000	54.0	--	--
Above 1000	--	74.0	54.0

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





## 6.3 Test Procedure

### 30MHz ~ 1GHz:

- a. The Product was placed on the nonconductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

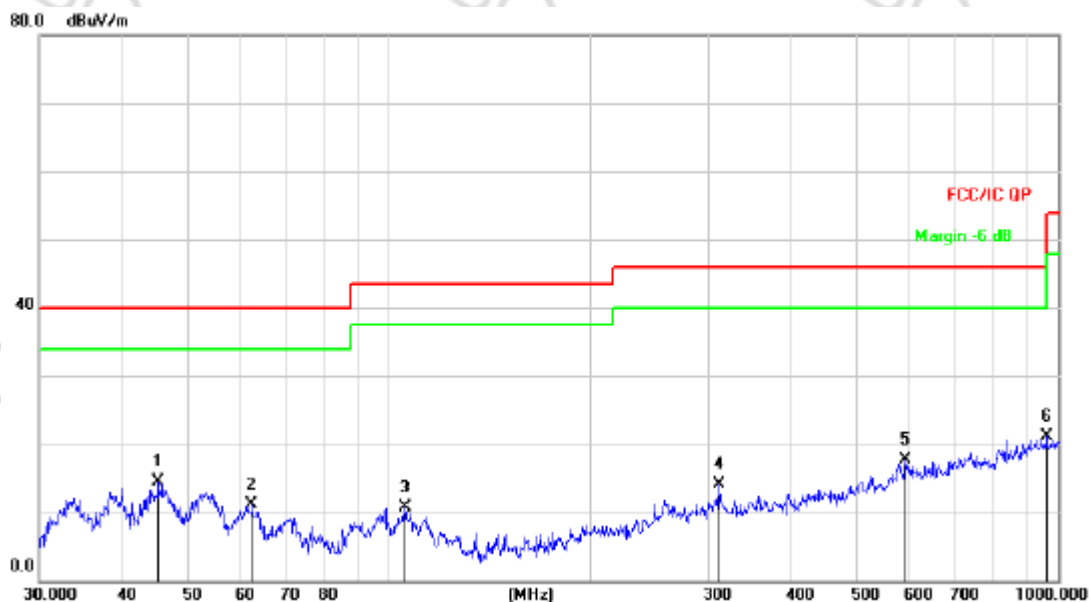
#### Remark:

The highest frequency of the internal sources of the EUT is less than 108 MHz, so the measurement shall only be made up to 1 GHz.



## 6.4 Test Result

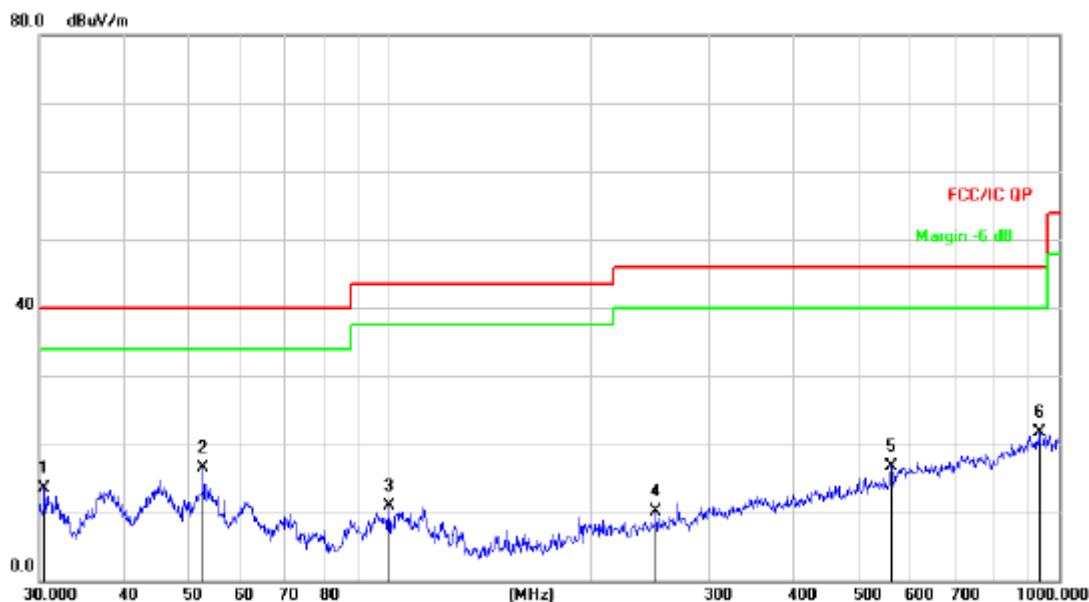
Temperature:	25 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Horizontal
Test Voltage :	DC 3.7V	Test Mode:	Working



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		45.2166	28.47	-14.03	14.44	40.00	-25.56	QP		
2		62.4314	27.13	-16.08	11.05	40.00	-28.95	QP		
3		105.6415	26.31	-15.66	10.65	43.50	-32.85	QP		
4		311.0867	27.60	-13.54	14.06	46.00	-31.94	QP		
5		590.9737	24.55	-6.85	17.70	46.00	-28.30	QP		
6	*	958.7943	23.09	-1.96	21.13	46.00	-24.87	QP		



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Vertical
Test Voltage :	DC 3.7V	Test Mode:	Working



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		30.5306	30.25	-16.81	13.44	40.00	-26.56	QP			
2	*	52.7600	30.98	-14.40	16.58	40.00	-23.42	QP			
3		99.8777	26.41	-15.56	10.85	43.50	-32.65	QP			
4		250.3012	25.20	-15.10	10.10	46.00	-35.90	QP			
5		560.6928	24.60	-7.85	16.75	46.00	-29.25	QP			
6		932.2715	23.88	-2.19	21.69	46.00	-24.31	QP			

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## 7. EUT PHOTOGRAPHS

EUT Photo 1



EUT Photo 2





EUT Photo 3



EUT Photo 4





EUT Photo 5





## 8. EUT TEST SETUP PHOTOGRAPHS

Radiated emission



\*\*\*\*\* END OF REPORT \*\*\*\*\*