

FCC TEST REPORT  
for  
Guangzhou Shangchen Electronics Co., LTD.

Wireless Laser Barcode Scanner  
Model No.: 880W, 810W, 830W, 870W

Prepared for : Guangzhou Shangchen Electronics Co., LTD.  
Address : 1th floor, 4th Building, Shuguang industrial area, Baoya North  
road, Tan Village, Shijing Town, Baiyun Area, Guangzhou,  
China

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Report Number : 201207800F  
Date of Test : Jun.16~Sept.04, 2012  
Date of Report : Sept.04, 2012

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APPENDIX I (External Photos) (3 Pages)

APPENDIX II (Internal Photos) (4 Pages)

## TEST REPORT

Applicant : Guangzhou Shangchen Electronics Co., LTD.  
 Manufacturer : Guangzhou Shangchen Electronics Co., LTD.  
 EUT : Wireless Laser Barcode Scanner  
 Model No. : 880W, 810W, 830W, 870W  
 Serial No. : N/A  
 Rating : DC 5V±5% ,30mA-100mA  
 Trade Mark : N/A

## Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.249 & 15.209

The device described above is tested by 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 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 FCC Part 15 Subpart C requirements.

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

Date of Test :

Jun.16~Sept.04, 2012



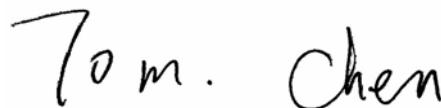
Prepared by :

\_\_\_\_\_  
(Tested Engineer / Andy Chen)



Reviewer :

\_\_\_\_\_  
(Project Manager / Jerry Du)



Approved & Authorized Signer :

\_\_\_\_\_  
(Manager / Tom Chen)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT : Wireless Laser Barcode Scanner

Model Number : 880W, 810W, 830W, 870W (Note: All samples are the same except the model number & shape of appliances, so we prepare “880W” for EMC test only. )

Test Power Supply : DC 5V

Frequency : 2400MHz-2480MHz

Antenna Specification : Printed Antenna:0dBi

Applicant Address : Guangzhou Shangchen Electronics Co., LTD.  
: 1th floor, 4th Building, Shuguang industrial area, Baoya North road, Tan Village, Shijing Town, Baiyun Area, Guangzhou, China

Manufacturer Address : Guangzhou Shangchen Electronics Co., LTD.  
: 1th floor, 4th Building, Shuguang industrial area, Baoya North road, Tan Village, Shijing Town, Baiyun Area, Guangzhou, China

Date of receiver : Jun.16, 2012

Date of Test : Jun.16~Sept.04, 2012

## 1.2. Auxiliary Equipment Used during Test

PC	: Manufacturer: DELL M/N: OPTIPLEX 380 S/N: 1J63X2X CE , FCC: DOC
MONITOR	: Manufacturer: DELL M/N: E170Sc S/N: CN-00V539-64180-055-0UPS CE , FCC: DOC
MOUSE	: Manufacturer: DELL M/N: M-UARDEL7 S/N: N/A CE , FCC: DOC Cable: 1m, unshielded
Printer	: Manufacturer: Brother M/N: MFC-3360C S/N: N/A CE, FCC: DOC
Power Line	: Non-Shielded, 1.5m
VGA Cable	: Non-Shielded, 1.5m
USB Cable	: Non-Shielded, 0.5m

### 1.3. Description of Test Facility

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

#### **CNAS - LAB Code: L3503**

Anbotech 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**

Anbotech 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, August 20, 2010.

#### **IC-Registration No.: 8058A-1**

Anbotech 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, August 30, 2010.

#### **Test Location**

All Emissions tests were performed at

Anbotech Compliance Laboratory Limited. at 1/F, 1 /Building, SEC Industrial Park, No. 4 Qianhai Road, Nanshan District, Shenzhen, 518054, China

### 1.4. Measurement Uncertainty

Radiation Uncertainty : Ur = 4.3dB

Conduction Uncertainty : Uc = 3.4dB

## 2. Test Procedure

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

**RADIATION INTERFERENCE:** The test procedure used was ANSI STANDARD C63.4-2009 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

**Example:**

Freq (MHz) METER READING + ACF = FS  
20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

**ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

### 3. Radiation Interference

#### 3.1. Requirements (15.249, 15.209):

FIELD STRENGTH of Fundamental: 902-928 MHZ 2.4-2.4835 GHz 94 dB $\mu$ V/m @3m	FIELD STRENGTH of Harmonics 54 dB $\mu$ V/m @3m	S15.209 30 - 88 MHz 88 - 216 MHz 216 - 960 MHz ABOVE 960 MHz	40 dB $\mu$ V/m @3M 43.5 46 54dB $\mu$ V/m
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Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

#### 3.2 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. Both horizontal and vertical polarization of the antenna are set on test.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz. The EUT is tested in 9\*6\*6 Chamber.

The test results are listed in Section 5.3.

#### 3.3 Test Results

PASS.

Please refer the following pages.

**Data:****Horizontal  
CH Low(2421MHz)**

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dB $\mu$ V	Level dB $\mu$ V/m	Limit dB $\mu$ V/m	Over Limit dB	Remark
239.98	1.58	13.50	38.90	57.46	33.66	46.00	-12.34	QP
2421.00	2.17	31.21	35.30	86.55	84.63	114.0	-29.37	Peak
2421.00	2.17	31.21	35.30	84.71	82.79	94.0	-11.21	AV
4842.10	2.56	34.01	34.71	41.15	43.01	74.0	-30.99	Peak
4842.10	2.56	34.01	34.71	38.26	40.12	54.0	-13.88	AV
7263.97	2.98	36.16	35.15	38.33	42.32	74.0	-31.68	Peak
7263.97	2.98	36.16	35.15	35.55	39.54	54.0	-14.46	AV
9684.00	---	---	---	---	---	---	---	---
12105.00	---	---	---	---	---	---	---	---
14526.00	---	---	---	---	---	---	---	---
16947.00	---	---	---	---	---	---	---	---
19368.00	---	---	---	---	---	---	---	---
21789.00	---	---	---	---	---	---	---	---
24210.00	---	---	---	---	---	---	---	---

**Vertical  
CH Low(2421MHz)**

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dB $\mu$ V	Level dB $\mu$ V/m	Limit dB $\mu$ V/m	Over Limit dB	Remark
30.42	1.43	12.13	38.45	53.51	28.62	40.00	-11.38	QP
2421.00	2.17	31.21	35.30	84.23	82.31	114.0	-31.69	Peak
2421.00	2.17	31.21	35.30	81.85	79.93	94.0	-14.07	AV
4842.10	2.56	34.01	34.71	41.05	42.91	74.0	-31.09	Peak
4842.10	2.56	34.01	34.71	38.61	40.47	54.0	-13.53	AV
7263.97	2.98	36.16	35.15	37.46	41.45	74.0	-32.55	Peak
7263.97	2.98	36.16	35.15	34.50	38.49	54.0	-15.51	AV
9684.00	---	---	---	---	---	---	---	---
12105.00	---	---	---	---	---	---	---	---
14526.00	---	---	---	---	---	---	---	---
16947.00	---	---	---	---	---	---	---	---
19368.00	---	---	---	---	---	---	---	---
21789.00	---	---	---	---	---	---	---	---
24210.00	---	---	---	---	---	---	---	---

## 4. Occupied Bandwidth

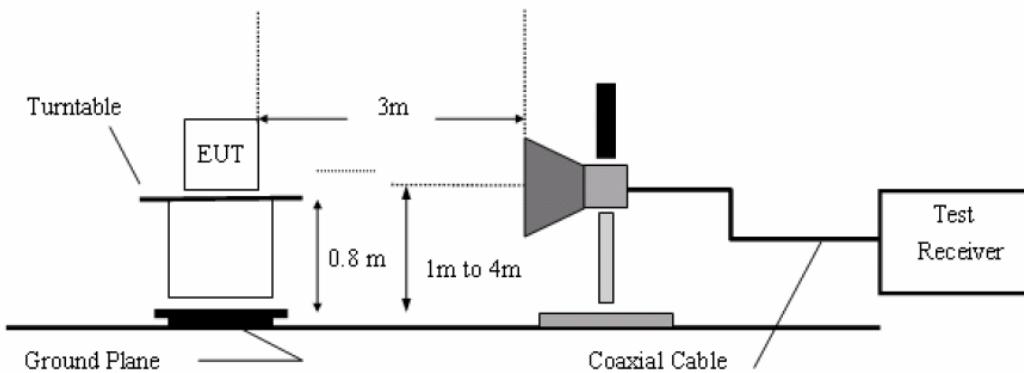
### 4.1. Requirements (15.249):

The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

### 4.2. 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. Both horizontal and vertical polarization of the antenna are set on test.

### 4.3. Test Configuration:



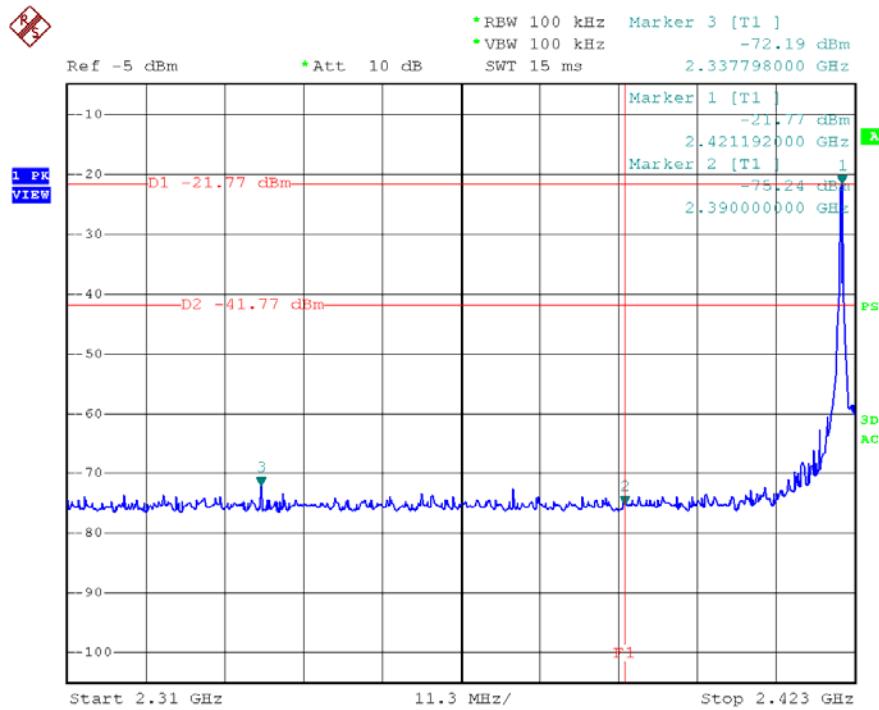
### 4.4. Test Results

Pass.

Please refer the following plot.

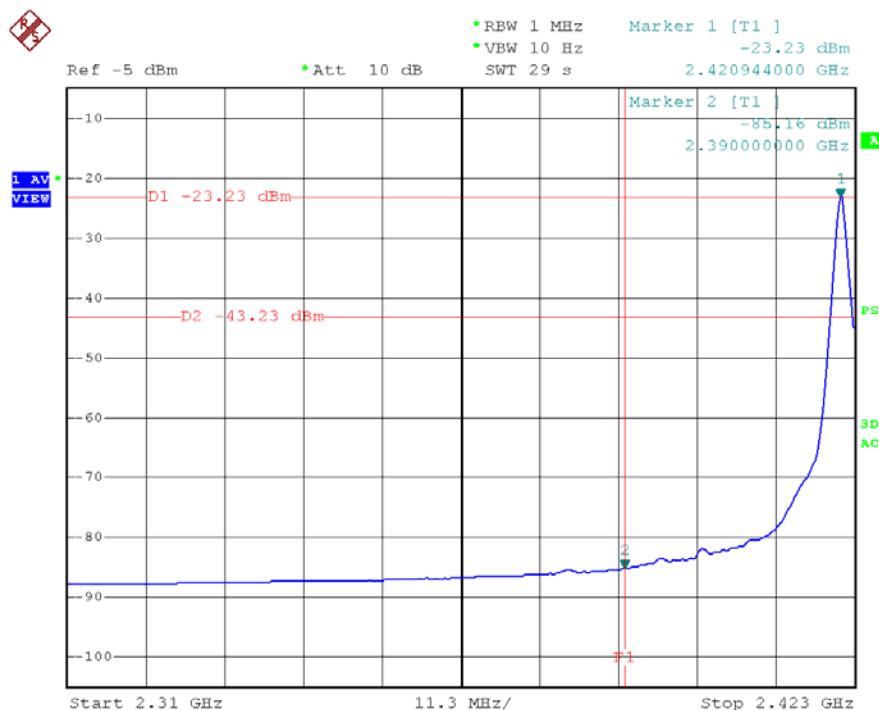
(Note: Marker 3 means the highest value in 2.39GHz~2.4GHz or 2.4835~2.5GHz)

FCC ID: PRZ880W



L

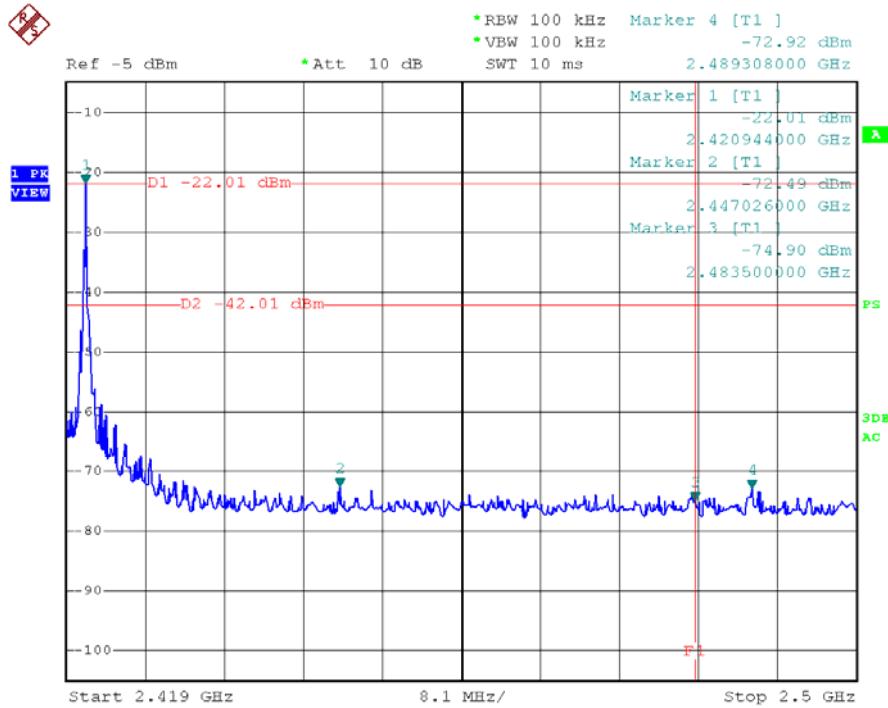
Date: 4.SEP.2012 17:39:00



L

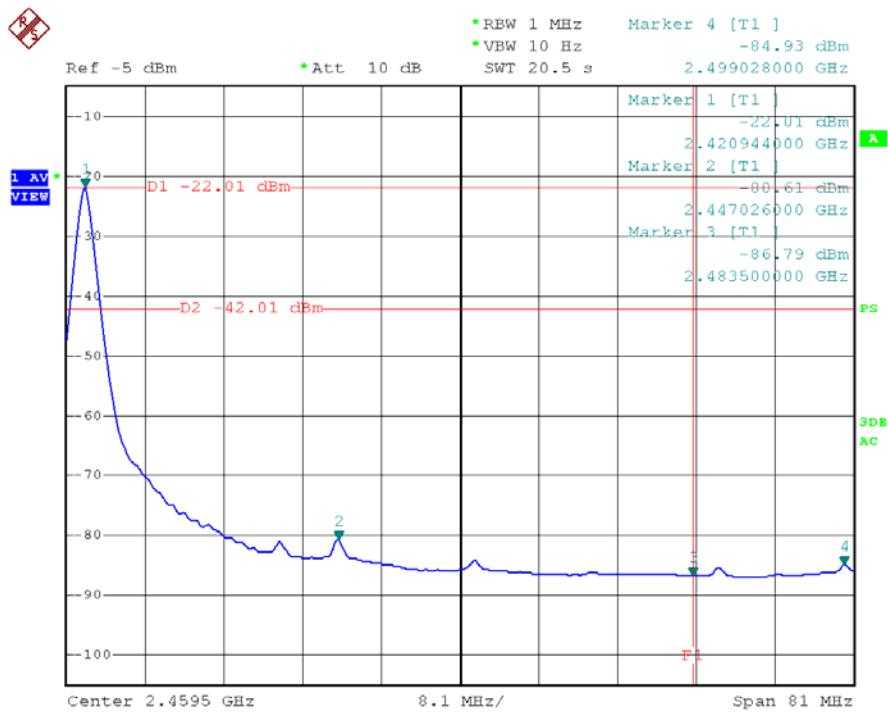
Date: 4.SEP.2012 17:44:21

FCC ID: PRZ880W



L

Date: 4.SEP.2012 17:40:46



H

Date: 4.SEP.2012 17:42:34