FCC TEST REPORT

REPORT NO.:SE07FCI048R

MODEL NO.: YS005

RECEIVED: Sep 26, 2007

TESTED: Sep 26, 2007 to Oct 14, 2007

APPLICANT: Ningbo Jiangbei Yangsheng Electronic Co., Ltd

ADDRESS: No.285-4,Xingmenkou,Yaojiangcun,Jiangbei,Ningbo,China

ISSUED BY: SHENZHEN SETEK TECHNOLOGY CO., LTD.

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SHENZHEN SETEK TECHNOLOGY CO., LTD.

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Prepared for	:	Ningbo Jiangbei Yangsheng Electronic Co., Ltd
Address	:	No.285-4,Xingmenkou,Yaojiangcun,Jiangbei,Ningbo,China
Product	:	LED Lamp
Model No.	:	YS005
Trademark	:	N/A
Test Standard	:	FCC Part 15 Paragraph 15.207, Paragraph 15.209, Paragraph 15.35 and Paragraph 15.231
Prepared by	:	SHENZHEN SETEK TECHNOLOGY CO., LTD.
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Prepared by	:	(Engineer)
Reviewer by	:	(Project Engineer)
Approved by	:	(Manager)

Report Number	:	SE07FCI048R
Date of Test	:	Sep 26, 2007 to Oct 14, 2007
Date of Report	:	Oct 14, 2007

The device described above is tested by SHENZHEN SETEK TECHNOLOGY CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. This report applies to above tested sample only and shall not be reproduced in part without written approval of SHENZHEN SETEK TECHNOLOGY CO., LTD.

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Description Page

The Report Description

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

Applicant	:	Ningbo Jiangbei Yangsheng Electronic Co., Ltd
Address	:	No.285-4,Xingmenkou,Yaojiangcun,Jiangbei,Ningbo,China
Manufacturer	:	Ningbo Jiangbei Yangsheng Electronic Co., Ltd
Address	:	No.285-4,Xingmenkou,Yaojiangcun,Jiangbei,Ningbo,China
EUT	:	LED Lamp
Model Number	:	YS005
Description of EUT	:	SRD, transmitter
Description of Antenna	:	A permanent fixed antenna, which is built-in, designed as an indispensable part of the EUT.
Power Supply	:	DC 12V (internal Battery)
Operation Frequency	:	315MHz
Modulation	:	Pulse Modulation
Received	:	Sep 26, 2007
Date of Test	:	Sep 26, 2007 to Oct 14, 2007

1.2.Summary of test results

FCC Rules	Description Of Test	Result
Paragraph 15.207	Conducted Emission	N/A
Paragraph 15.231	Radiated Emission	Compliant
Paragraph 15.231	Band Edge	Compliant
Paragraph 15.231	Release Time	Compliant

1.3.Test Facility

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

FCC – Registration No.: 966959

SHENZHEN SETEK TECHNOLOGY CO., LTD, the EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission.

1.4.Measurement Uncertainty

Radiation Uncertainty **:** Ur = ±3.84dB

Conduction Uncertainty **:** Uc = ±2.72dB

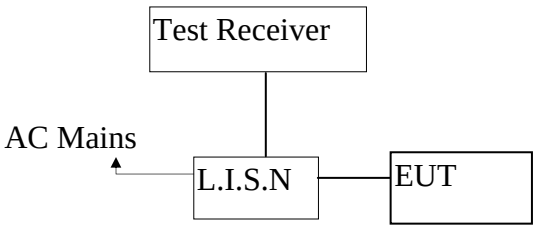
2. POWER LINE CONDUCTED MEASUREMENT

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.	Test Receiver	Rohde & Schwarz	ESCS30	8289851018	May 29,2007	1 Year
2.	L.I.S.N.	Rohde & Schwarz	ESH2-Z5	834549/005	May 29,2007	1 Year
3.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	May 29,2007	1 Year
4.	RF Cable	FUJIKURA	RG-55/U	LISN Cable	May 29,2007	1 Year

2.2.Block Diagram of Test Setup



2.3.Power Line Conducted Emission Measurement Limits(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	:	LED Lamp
Model Number	:	YS005

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 (Normal) 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 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 ANSI C63.4-2003 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9KHz.

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

2.7.Power Line Conducted Emission Measurement Results

N/A

Note: EUT powered by internal battery, this test item not applicant

3. RADIATED EMISSION MEASUREMENT

3.1.Test Equipment

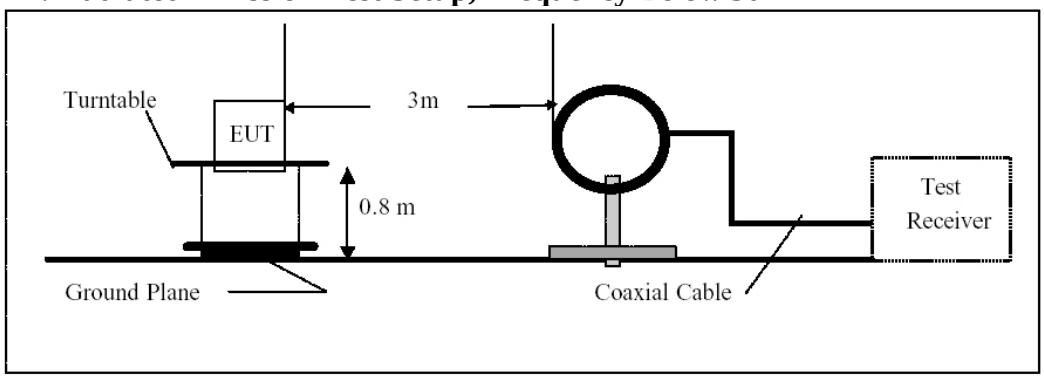
The following test equipments are used during the radiated emission measurement:

3.1.1.For Anechoic Chamber

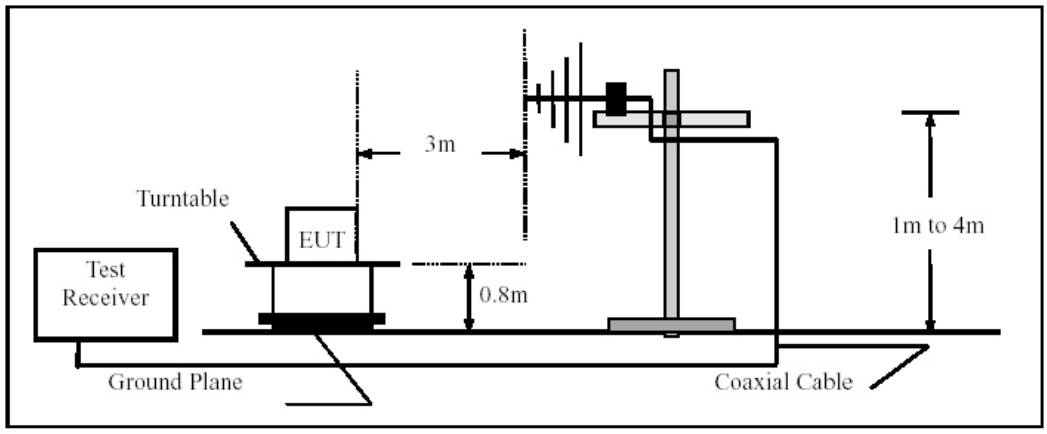
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	ANRITSU	MS2661C	6200140915	May 29,2007	1 Year
2.	Test Receiver	Rohde & Schwarz	ESCS30	828985/018	May 29,2007	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	May 29,2007	1 Year
4.	Loop Antenna	EMCO	6502	00042960	Dec 11,2006	1 Year
5.	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	May 29,2007	1 Year
6.	Cable	Schwarzbeck	AK9513(1m)	CR RX2	May 29,2007	1 Year
7.	Cable	Schwarzbeck	AK9513(10m)	AC RX1	May 29,2007	1 Year
8.	Cable	Rosenberger	N/A(6m)	CR RX1	May 29,2007	1 Year
9.	Cable	Rosenberger	N/A(10m)	FP2RX2	May 29,2007	1 Year
9.	DC Power Filter	MPE	23872C	N/A	May 29,2007	1 Year
10.	Single Phase Power Line Filter	MPE	23332C	N/A	May 29,2007	1 Year
11.	3 Phase Power Line Filter	MPE	23333C	N/A	May 29,2007	1 Year
12.	Signal Generator	HP	8648A	3625U00573	May 29,2007	1 Year

3.2.Block Diagram of Test Setup

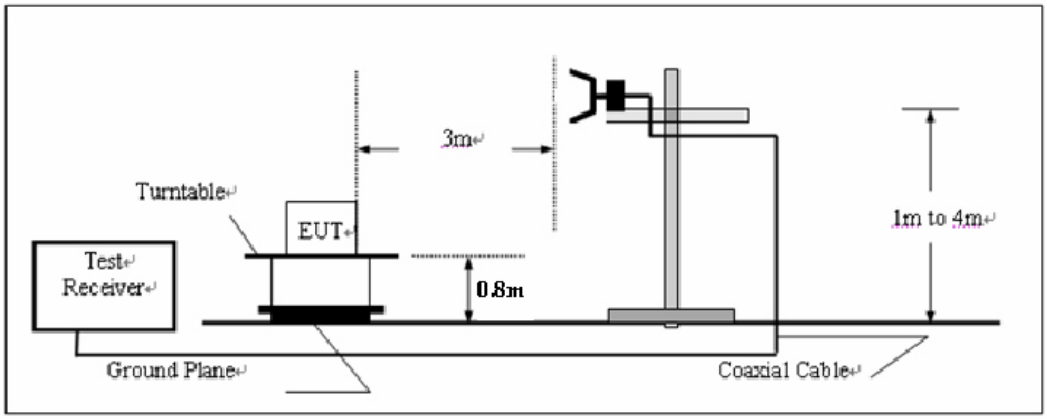
A: Radiated Emission Test Setup, Frequency Below 30MHz



B: Radiated Emission Test Setup, Frequency 30M to 1000MHz



C: Radiated Emission Test Setup, Frequency above 1000MHz



(EUT: LED Lamp)

3.3.Radiated Emission Limit

A: FCC Part 15 Subpart C Paragraph 15.231 Limit

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750 **	125 to 375 **
174-260	3750	375
260-470	3750 to 12500 **	375 to 1250 **
Above 470	12500	1250

** linear interpolations

Note: Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, uV/m at 3 meters = 56.81818(F) - 6136.3636; for the band 260-470 MHz, uV/m at 3 meters = 41.6667(F) - 7083.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.

B: Frequencies in restricted band are complied to limit on Paragraph 15.209

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
1.705 ~ 30	30	30	69.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above960	3	500	54.0

Remark： (1) Emission level (dB)μV = 20 log Emission level μV/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.

As shown in 15.35(b),for frequencies above 1000MHz,the field strength limits are based on average detector,however,the peak field strength of any emission shall not exceed the maximum permitted average limits,specified above by more than 20dB under any condition of modulation.

3.4.EUT Configuration on Measurement

The following equipment 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.

LED Lamp (EUT)

Model Number	:	YS005
Serial Number	:	N/A

3.5.Operating Condition of EUT

1. Setup the EUT as shown in Section 3.2.
2. Let the EUT work in test mode (ON TX: transmitting mode) and measure it.

3.6.Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable 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 an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2003 on radiated emission measurement.
The test method based on FCC Part15 Paragraph 15.209 and Paragraph 15.231.

The RBW of the EMI test receiver (R&S ESCS30) is set at 120KHz between 30MHz and 1000MHz, and the RBW is 9KHz between 0.15MHz and 30MHz.

3.7. Radiated Emission Measurement Results

PASS

Power Supply: 12V DC BATTERY

Test Mode: ON TX (transmitting mode)

Temperature: 25°C

Humidity: 60%RH

Test Result: PASS

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
315.01	Horizontal	69.8	75.6	5.8	F
315.01	Vertical	67.7	75.6	7.9	F
630.02	Horizontal	30.5	55.6	25.1	H
630.02	Vertical	29.1	55.6	26.5	H
945.03	Horizontal	18.7	55.6	36.9	H
945.03	Vertical	17.3	55.6	38.3	H
Others	--	--	--	--	

Note:

(1) Measuring frequencies from 30MHz to 4GHz.

(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.

(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.

(4) Spurious radiated emissions of measurement within this frequency range shown “-” in the table above means the reading of emissions are attenuated more than 20dB below the 15.209 limit or the field strength is too small to be measured.

(5) The IF bandwidth of EMI Test Receiver was 120KHz for measuring from 30MHz to 1 GHz and 1 MHz for measuring above 1GHz.

4. EMISSION BANDWIDTH TESTING

4.1.Measurement Procedure

1. The EUT was placed on a turn table which is 0.8 m above ground plane.
2. Set Spectrum Analyzer Center Frequency = fundamental frequency, RBW=100KHz, VBW= 300KHz. Measured the spectrum width with power higher than 20dB below carrier.
3. Set Spectrum Analyzer Max hold, that PK detector was used.

4.2.Test SETUP (Block Diagram of Configuration)

Same as 3.2 Radiated Emission Measurement.

4.3.Bandwidth Limit

According to FCC 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

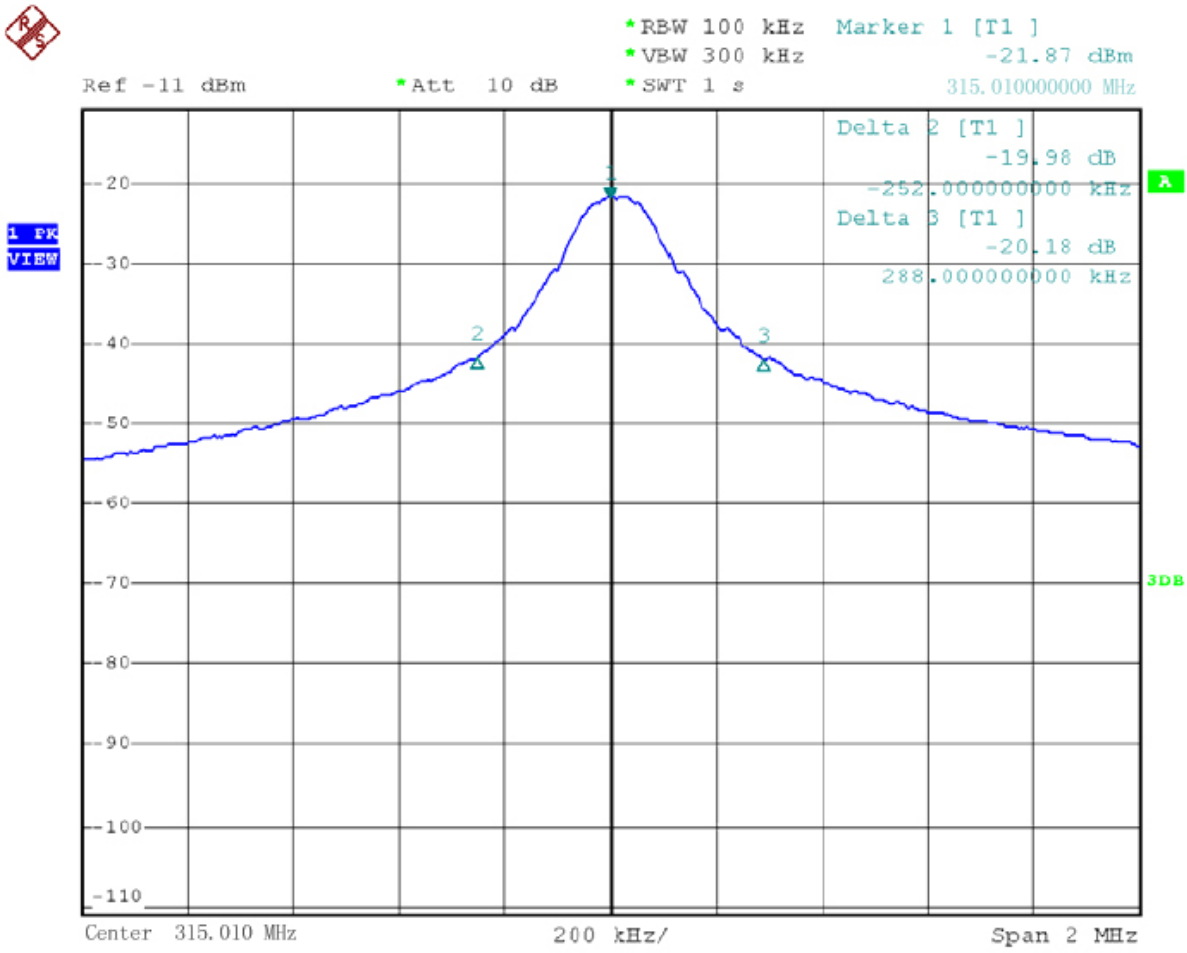
4.4.Bandwidth Test Result

PASS

Test Item:	**Fundamental Radiated Emission Data**
Test Voltage:	12V DC BATTERY
Test Mode:	ON TX(transmitting mode)
Temperature:	25^{o}C
Humidity:	60%RH
Test Result:	PASS

Frequency MHz	Emission Bandwidth KHz	Limit KHz
315.01	540	787.5

Refer to attached data chart.



5. RELEASE TIME MEASUREMENT

5.1.Measurement Procedure

Release Time Measurement According To FCC Part 15 Section 15.231(a).

1. Set SPA Center Frequency = Fundamental frequency, RBW=100 KHz, VBW=300KHz, Span=0Hz. Sweep time=5 seconds.
2. Set EUT as normal operation and press Transmitter button.
3. Set SPA View. Delta Mark time.

5.2.Test SET-UP (Block Diagram of Configuration)

Same as 3.2 Radiated Emission Measurement.

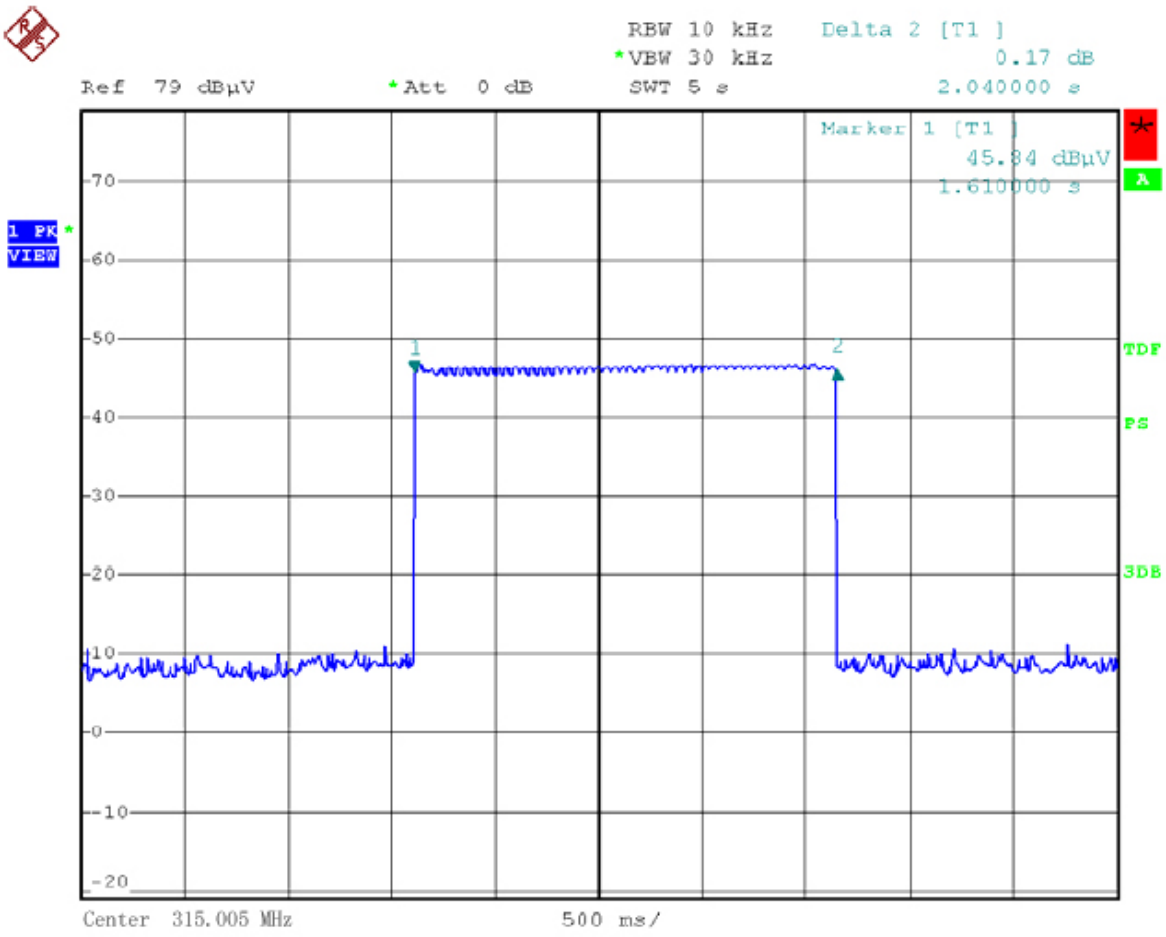
5.3.Measurement Equipment Used:

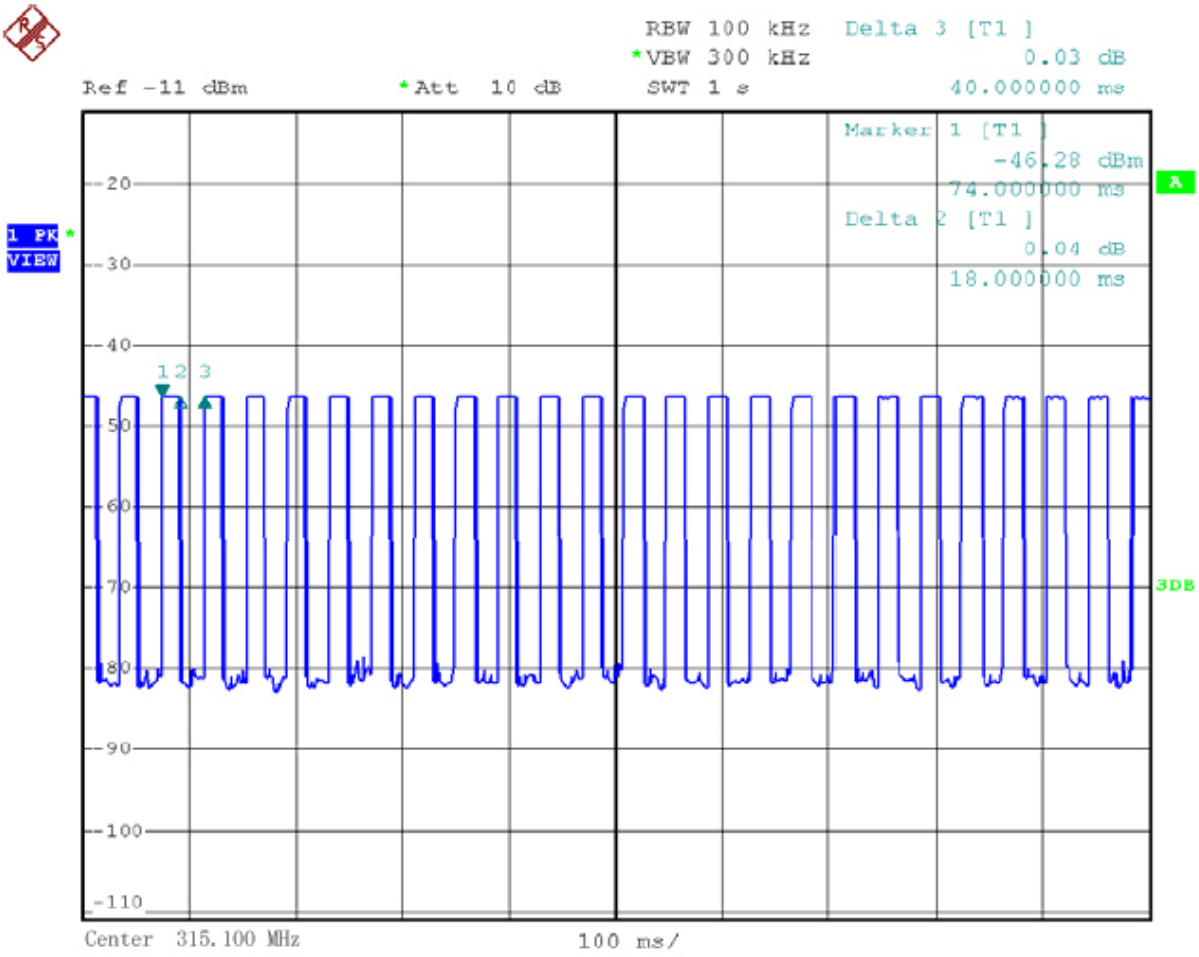
Same as 3.2 Radiated Emission Measurement.

5.4.Test Results:

PASS

Refer to attached data chart.

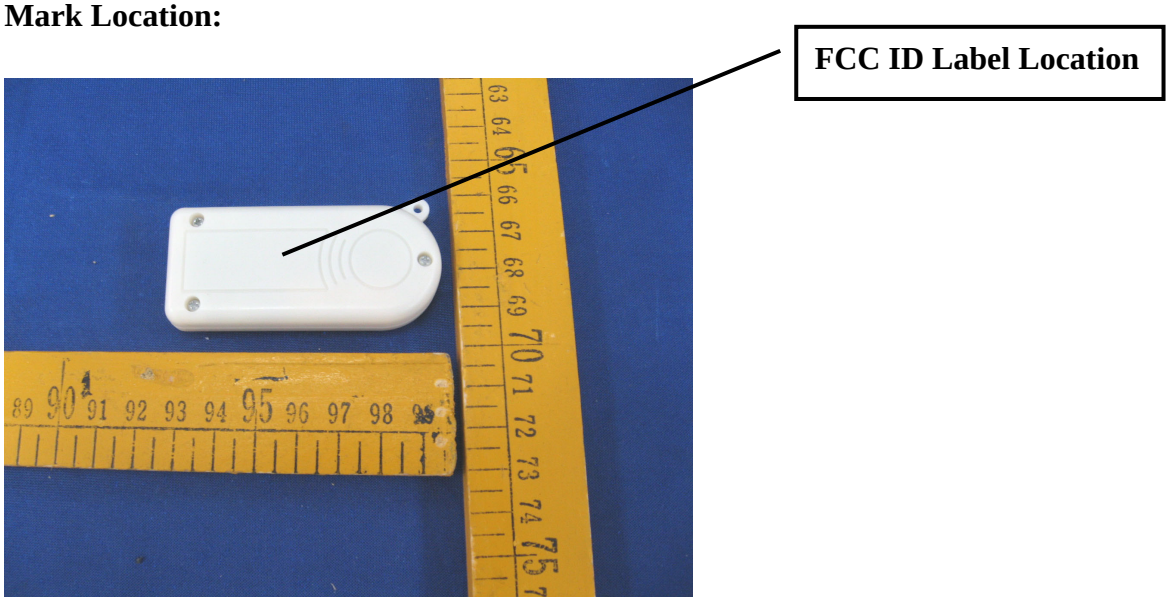

RBW 10 kHz
*VBW 30 kHz
SWT 5 s
Delta 2 [T1]
0.17 dB
2.040000 s
Ref 79 dBµV
*Att 0 dB
Marker 1 [T1]
45.84 dBµV
1.610000 s
1 PK
VIEW
TDF
PS
3DB
70
60
50
40
30
20
10
0
-10
-20
Center 315.005 MHz
500 ms/


RBW 100 kHz
*VBW 300 kHz
SWT 1 s
Delta 3 [T1]
0.03 dB
40.000000 ms
Ref -11 dBm
*Att 10 dB
Marker 1 [T1]
-46.28 dBm
74.000000 ms
Delta 2 [T1]
0.04 dB
18.000000 ms
1 PK
VIEW
A
3DB
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
1 2 3
Center 315.100 MHz
100 ms/

6. FCC ID LABEL

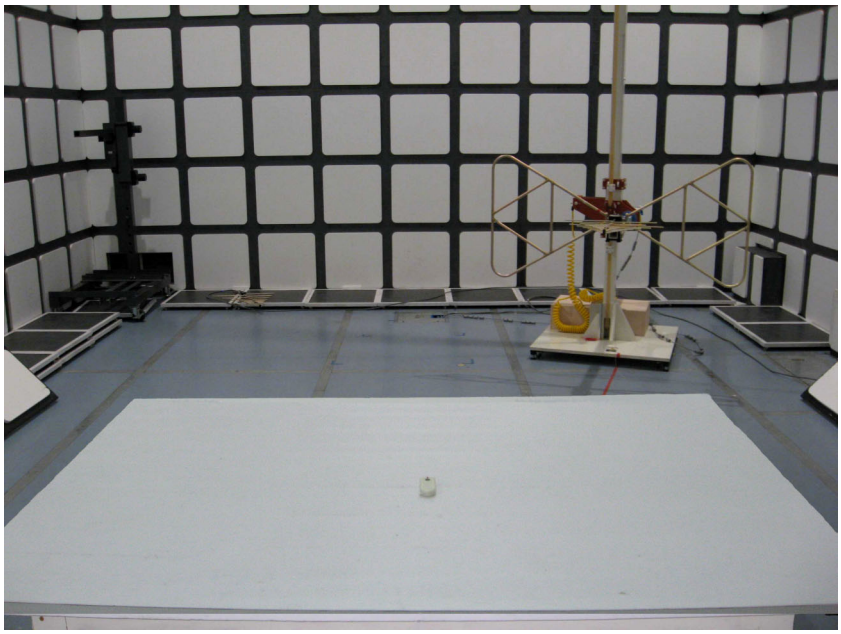
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
The above of FCC statement only put into the user manual, haven't onto the device.
The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



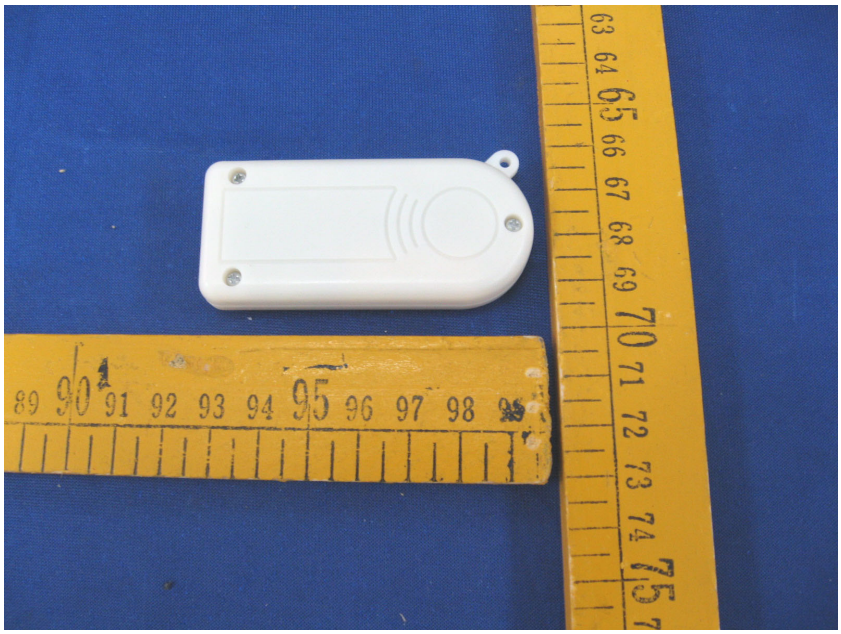
7. PHOTOGRAPH

7.1.Photo of Radiated Measurement

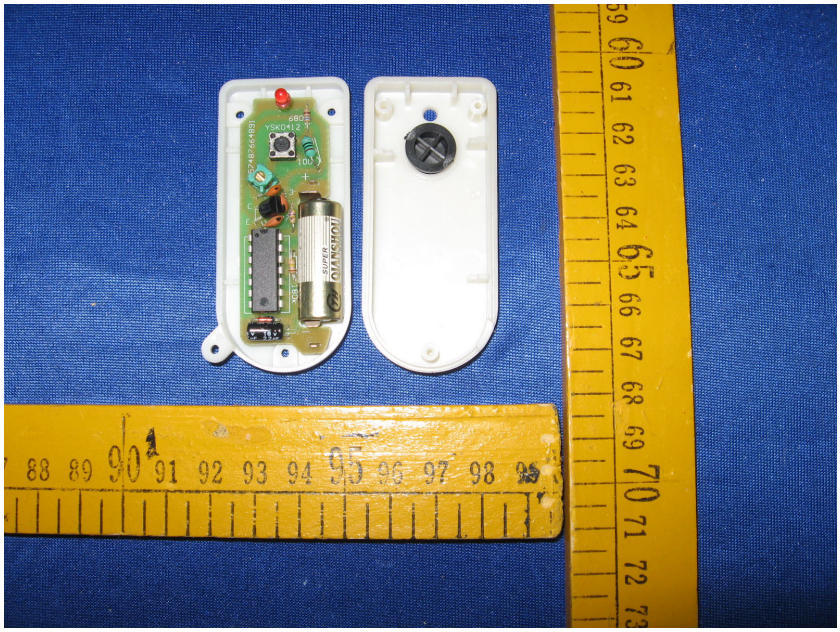


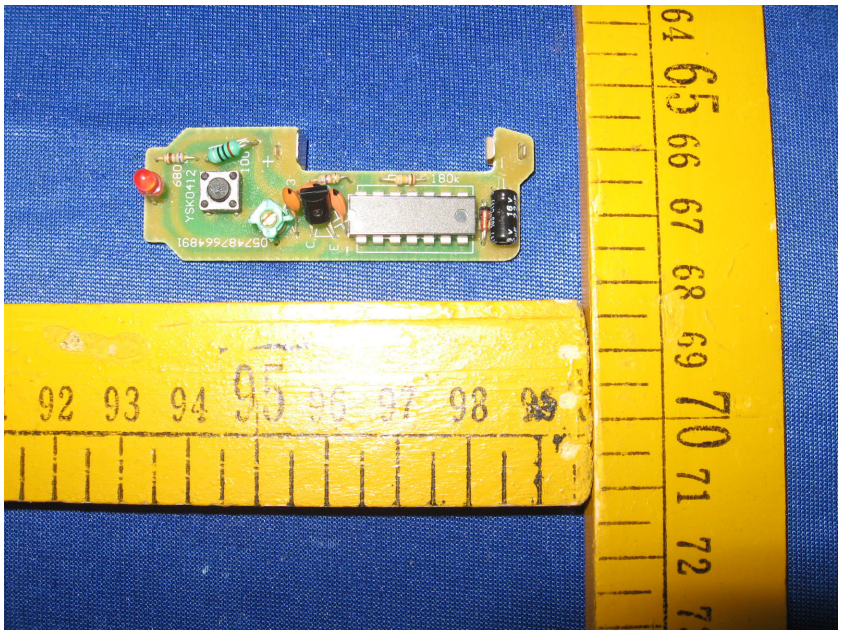
APPENDIX I
(Photos of EUT)

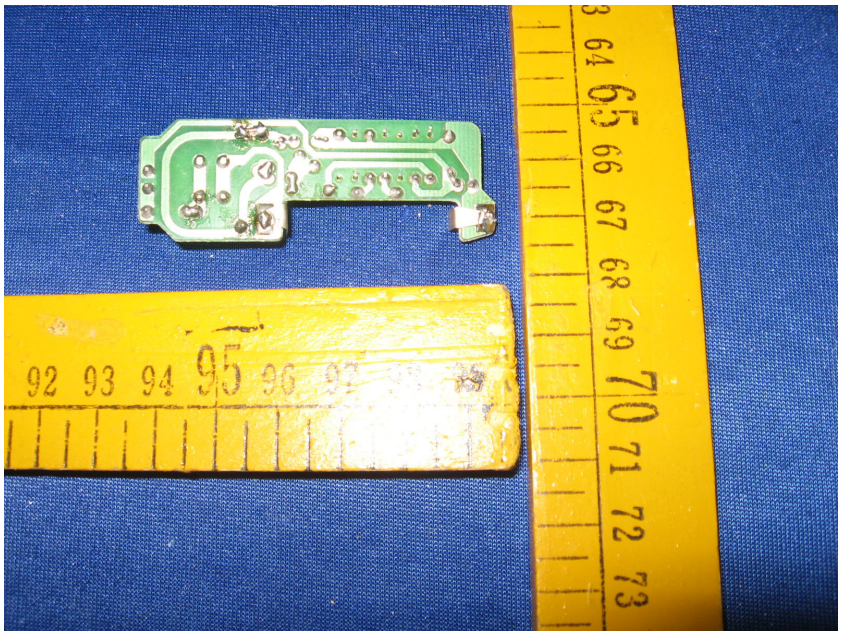
Outside View



Interior View







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