

1-4F, Huafeng Science Park, Xin'an Sixth Road, 82<sup>th</sup> District, Bao'an,

Shenzhen, China.

Telephone: +86-755-29451282, Fax: +86-755-22639141

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# **FCC REPORT**

Applicant: QINGDAO YEELINK INFORMATION TECHNOLOGY CO., LTD

Address of Applicant: Room 1108, Building 1, 61 Haier Rd., Qingdao 266101, China

**Equipment Under Test (EUT)** 

Product Name: YEELIGHT BLUE

Model No.: BUL0201

Trade Mark: ----

FCC ID: 2ABEUBUL27BL01

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249:2012

Date of sample receipt: November 22, 2013

**Date of Test:** November 25 - December 5, 2013

**Date of report issued:** December 6, 2013

Test Result: PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Kevin Yu Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the EBO product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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### 2 Version

Version No.	Date	Description
00	December 06, 2013	Original

Prepared By:	Jason	Date:	December 06, 2013
	Project Engineer		
Check By:	Canjor	Date:	December 06, 2013
	Reviewer		



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## 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Field strength of the fundamental signal	15.249 (a)	Pass
Spurious emissions	15.249 (a) (d)/15.209	Pass
Band edge	15.249 (d)/15.205	Pass
20dB Occupied Bandwidth	15.215 (c)	Pass

Pass: The EUT complies with the essential requirements in the standard.

N/A: not applicable.



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### 5 General Information

### 5.1 Client Information

Applicant:	QINGDAO YEELINK INFORMATION TECHNOLOGY CO., LTD		
Address of Applicant: Room 1108, Building 1, 61 Haier Rd, Qingdao 266101, China			
Manufacturer/Factory:	QINGDAO YEELINK INFORMATION TECHNOLOGY CO., LTD		
Address of Manufacturer/Factory:	Room 1108, Building 1, 61 Haier Rd, Qingdao 266101, China		

### 5.2 General Description of EUT

Product Name:	YEELIGHT BLUE
Model No.:	BUL0201
Bluetooth Version:	V4.0 (Bluetooth Low Energy)
Operation Frequency:	2402- 2480 MHz
Channel numbers:	40
Channel separation:	2MHz
Modulation type:	GFSK
Antenna Type:	Integral
Antenna gain:	0dBi (declare by Applicant)
Power supply:	100~240V~,50/60Hz, 6W



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Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	11	2422MHz	21	2442MHz	31	2462MHz
2	2404MHz	12	2424MHz	22	2444MHz	32	2464MHz
				i		i	
9	2418MHz	19	2438MHz	29	2458MHz	39	2478MHz
10	2420MHz	20	2440MHz	30	2460MHz	40	2480MHz

#### Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2402MHz
The middle channel	2440MHz
The Highest channel	2480MHz

### 5.3 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode with GFSK modulation.
Transmitting mode	recop the Lot in continuously transmitting mode with or or modulation.

Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

#### Per-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	Χ	Υ	Z
Field Strength(dBuV/m)	96.16	94.57	92.33

### **Final Test Mode:**

According to ANSI C63.4 standards, the test results are both the "worst case" and "worst setup":

Y axis (see the test setup photo)



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### 5.4 Description of Support Units

None.

### 5.5 Test Facility

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

#### CNAS —Registration No.: CNAS L5775

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

### • FCC —Registration No.: 600491

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 28, 2013.

### • Industry Canada (IC) —Registration No.: 9079A-2

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. Has been

Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

### 5.6 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China

### 5.7 Other Information Requested by the Customer

None.



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### 6 Test Instruments list

Rad	Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)	
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 29 2013	Mar. 28 2014	
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A	
3	Spectrum Analyzer	Agilent	E4440A	GTS533	Dec. 6, 2013	Dec. 5, 2014	
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 02 2013	Jul. 01 2014	
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 24 2013	Feb. 23 2014	
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 28 2013	June 27 2014	
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 29 2013	Mar. 28 2014	
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A	
9	Coaxial Cable	GTS	N/A	GTS213	Mar. 30 2013	Mar. 29 2014	
10	Coaxial Cable	GTS	N/A	GTS211	Mar. 30 2013	Mar. 29 2014	
11	Coaxial cable	GTS	N/A	GTS210	Mar. 30 2013	Mar. 29 2014	
12	Coaxial Cable	GTS	N/A	GTS212	Mar. 30 2013	Mar. 29 2014	
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 02 2013	Jul. 01 2014	
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 02 2013	Jul. 01 2014	
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 28 2013	June 27 2014	
16	Band filter	Amindeon	82346	GTS219	Mar. 30 2013	Mar. 29 2014	

Con	Conducted Emission:							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)		
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 07 2013	Sep. 06 2015		
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 02 2013	Jul. 01 2014		
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 02 2013	Jul. 01 2014		
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 02 2013	Jul. 01 2014		
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 02 2013	Jul. 01 2014		
6	Coaxial Cable	GTS	N/A	GTS227	Jul. 02 2013	Jul. 01 2014		
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A		

Ger	General used equipment:								
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)			
1	Barometer	ChangChun	DYM3	GTS257	July 09 2013	July 08 2014			



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### 7 Test results and Measurement Data

### 7.1 Antenna requirement:

Standard requirement: FCC Part15 C Section 15.203

#### 15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### E.U.T Antenna:

The antenna is Integral Antenna, the best case gain of the antenna is 0dBi.



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### 7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207					
Test Method:	ANSI C63.4:2003					
Test Frequency Range:	150KHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9KHz, VBW=30KHz, Sv	weep time=auto				
Limit:	Fraguera, ranga (MIII-)	Limit (c	dBuV)			
	Frequency range (MHz)	Quasi-peak	Average			
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	56	46			
	5-30	60	50			
Toot actus:	* Decreases with the logarithm of the frequency.					
Test setup:	Reference Plane		-			
	AUX Equipment E.U.T Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m					
Test procedure:	The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.  The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).					
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be characteristic according to ANSI C63.4: 2003 on conducted measurement.						
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Pass					

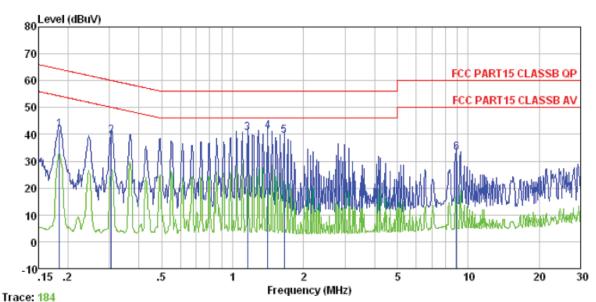
#### Measurement data:



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#### Line:



Condition : FCC PART15 CLASSB QP LISN-2013 LINE

Test Mode : Bluetooth mode

Test Engineer: Bing

	Freq	Read	LISN Factor				Over Limit	Remark	
	MHz	dBuV	dB	d₿	dBu₹	dBuV	dB		-
1 2 3 4 5	1.160 1.411 1.654	40.24 41.05 39.29	0.11 0.13 0.12 0.12	0.13 0.13 0.14	39.52 40.50 41.30 39.55	60.10 56.00 56.00 56.00	-20.58 -15.50 -14.70 -16.45	QP QP QP QP	
6	8.916	32.86	0.28	0.19	33. 33	60.00	-26.67	QP	

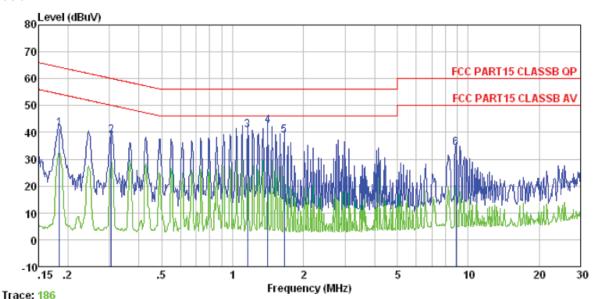
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#### Neutral



Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL

Test Mode : Bluetooth mode

Test Engineer: Bing

	Freq	Read	LISN Factor				Over Limit	Remark	
	MHz	dBuV	dB	dB	dBu₹	dBuV	dB		
1 2 3 4 5	0.305 1.160 1.411 1.654	40.60 42.12 38.46	0.06 0.08 0.09 0.09	0.13 0.13 0.14	38. 93 40. 81 42. 34 38. 69	60.10 56.00 56.00 56.00	-21.17 -15.19 -13.66 -17.31	QP QP QP QP	
6	8.869	33.75	0.21	0.19	34.15	60.00	-25.85	QP	

#### Notes:

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss
- 4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.



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### 7.3 Radiated Emission Method

7.0	Nadiated Ellission Metriod					
	Test Requirement:	FCC Part15 C S	Section 15.20	9		
	Test Method:	ANSI C63.4:200	03			
	Test Frequency Range:	30MHz to 25GH	łz			
	Test site:	Measurement D	Distance: 3m			
	Receiver setup:	Frequency	Detector	RBW	VBW	Remark
		30MHz- 1GHz	Quasi-peal	k 120KHz	300KHz	Quasi-peak Value
			Peak	1MHz	3MHz	Peak Value
		Above 1GHz	Peak	1MHz	10Hz	Average Value
		For field strengt	th test, the RI	BW and VBW	were set to	2MHz and 6MHz.
	Limit:	Freque	ency	Limit (dBuV	/m @3m)	Remark
	(Field strength of the				00	Average Value
	fundamental signal)	2400MHz-24	183.5MHZ	114.	00	Peak Value
	Limit:	Freque	encv	Limit (dBuV	/m @3m)	Remark
	(Spurious Emissions)	30MHz-8		40.0		Quasi-peak Value
	,	88MHz-2		43.5	50	Quasi-peak Value
		216MHz-9		46.0		Quasi-peak Value
		960MHz-	54.0		Quasi-peak Value	
		Above 1GHz		54.0	00	Average Value
		Above	IGHZ	74.0	00	Peak Value
	Limit:	Emissions radia	ated outside o	of the specified	d frequency	bands, except for
	(band edge)					w the level of the
					ission limits	in Section 15.209,
		whichever is the	e lesser atten	uation.		
	Test setup:	Below 1GHz				
		Tum Table Ground Plane	4m  4m  0.8m lm		Sea Anto	
		Above 1GHz				



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	Antenna Tower  Horn Antenna  Spectrum  Analyzer  Turn  Table  Amplifier
Test Procedure:	<ol> <li>The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> </ol>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test mode:	Pass
1 Ook 1 Oodiko.	1 . 400

#### Measurement data:



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### 7.3.1 Field Strength of The Fundamental Signal

#### Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402.00	91.96	27.58	5.39	30.18	94.75	114.00	-19.25	Vertical
2402.00	89.39	27.58	5.39	30.18	92.18	114.00	-21.82	Horizontal
2440.00	90.28	27.55	5.43	30.06	93.20	114.00	-20.80	Vertical
2440.00	88.39	27.55	5.43	30.06	91.31	114.00	-22.69	Horizontal
2480.00	93.10	27.52	5.47	29.93	96.16	114.00	-17.84	Vertical
2480.00	89.94	27.52	5.47	29.93	93.00	114.00	-21.00	Horizontal

### Average value:

	<u> </u>							
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402.00	80.98	27.58	5.39	30.18	83.77	94.00	-10.23	Vertical
2402.00	78.48	27.58	5.39	30.18	81.27	94.00	-12.73	Horizontal
2440.00	79.13	27.55	5.43	30.06	82.05	94.00	-11.95	Vertical
2440.00	76.22	27.55	5.43	30.06	79.14	94.00	-14.86	Horizontal
2480.00	82.20	27.52	5.47	29.93	85.26	94.00	-8.74	Vertical
2480.00	79.00	27.52	5.47	29.93	82.06	94.00	-11.94	Horizontal

According to the follow transmitter output power (Pt) formula:

 $P_t = (E \times d)^2 / (30 \times g_t)$ 

P<sub>t</sub> =transmitter output power in watts

g<sub>t</sub> =numeric gain of the transmitting antenna (unitless)

E=electric field strength in V/m

d= measurement distance in meters (m).

According to the above test data, Emax=96.16dBuV/m=0.064V/m, d=3m,  $g_t$ =1  $P_t$  =(E x d) $^2$ /(30 x  $g_t$ )= (0.064x 3) $^2$ /(30 x 1)=0.0012391W=1.2391mW



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### 7.3.2 Spurious emissions

#### **Measurement Data:**

#### **Below 1GHz**

### ■ Below 1GHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
34.88	48.60	14.30	0.61	32.06	31.45	40.00	-8.55	Vertical
53.88	47.57	15.07	0.81	31.95	31.50	40.00	-8.50	Vertical
80.36	55.34	10.69	1.03	31.76	35.30	40.00	-4.70	Vertical
166.07	58.62	10.85	1.66	32.04	39.09	43.50	-4.41	Vertical
210.05	56.93	12.87	1.90	32.15	39.55	43.50	-3.95	Vertical
370.70	50.54	16.51	2.72	31.97	37.80	46.00	-8.20	Vertical
71.83	54.69	10.32	0.96	31.85	34.12	40.00	-5.88	Horizontal
78.41	53.55	10.31	1.01	31.78	33.09	40.00	-6.91	Horizontal
131.30	56.43	10.82	1.44	31.91	36.78	43.50	-6.72	Horizontal
168.41	58.62	10.92	1.68	32.05	39.17	43.50	-4.33	Horizontal
187.75	53.59	12.32	1.78	32.11	35.58	43.50	-7.92	Horizontal
390.72	54.22	16.87	2.81	31.91	41.99	46.00	-4.01	Horizontal



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#### ■ Above 1GHz

Test channel: Lowest channel

### Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4804.00	36.86	31.78	8.60	32.09	45.15	74.00	-28.85	Vertical
7206.00	31.54	36.15	11.65	32.00	47.34	74.00	-26.66	Vertical
9608.00	31.21	37.95	14.14	31.62	51.68	74.00	-22.32	Vertical
12010.00	*					74.00		Vertical
14412.00	*					74.00		Vertical
4804.00	41.06	31.78	8.60	32.09	49.35	74.00	-24.65	Horizontal
7206.00	33.25	36.15	11.65	32.00	49.05	74.00	-24.95	Horizontal
9608.00	30.59	37.95	14.14	31.62	51.06	74.00	-22.94	Horizontal
12010.00	*					74.00		Horizontal
14412.00	*					74.00		Horizontal

#### Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4804.00	25.76	31.78	8.60	32.09	34.05	54.00	-19.95	Vertical
7206.00	20.27	36.15	11.65	32.00	36.07	54.00	-17.93	Vertical
9608.00	19.38	37.95	14.14	31.62	39.85	54.00	-14.15	Vertical
12010.00	*					54.00		Vertical
14412.00	*					54.00		Vertical
4804.00	29.94	31.78	8.60	32.09	38.23	54.00	-15.77	Horizontal
7206.00	22.42	36.15	11.65	32.00	38.22	54.00	-15.78	Horizontal
9608.00	19.07	37.95	14.14	31.62	39.54	54.00	-14.46	Horizontal
12010.00	*					54.00		Horizontal
14412.00	*					54.00		Horizontal

#### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 3. "\*", means this data is the too weak instrument of signal is unable to test.



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Test channel:	Middle channel
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#### Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4880.00	37.27	31.85	8.67	32.12	45.67	74.00	-28.33	Vertical
7320.00	31.81	36.37	11.72	31.89	48.01	74.00	-25.99	Vertical
9760.00	31.45	38.35	14.25	31.62	52.43	74.00	-21.57	Vertical
12200.00	*					74.00		Vertical
14640.00	*					74.00		Vertical
4880.00	41.55	31.85	8.67	32.12	49.95	74.00	-24.05	Horizontal
7320.00	33.56	36.37	11.72	31.89	49.76	74.00	-24.24	Horizontal
9760.00	30.87	38.35	14.25	31.62	51.85	74.00	-22.15	Horizontal
12200.00	*					74.00		Horizontal
14640.00	*					74.00		Horizontal

#### Average value:

, trorage rai								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4880.00	26.11	31.85	8.67	32.12	34.51	54.00	-19.49	Vertical
7320.00	20.51	36.37	11.72	31.89	36.71	54.00	-17.29	Vertical
9760.00	19.59	38.35	14.25	31.62	40.57	54.00	-13.43	Vertical
12200.00	*					54.00		Vertical
14640.00	*					54.00		Vertical
4880.00	30.33	31.85	8.67	32.12	38.73	54.00	-15.27	Horizontal
7320.00	22.68	36.37	11.72	31.89	38.88	54.00	-15.12	Horizontal
9760.00	19.31	38.35	14.25	31.62	40.29	54.00	-13.71	Horizontal
12200.00	*					54.00		Horizontal
14640.00	*					54.00		Horizontal

#### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 3. "\*", means this data is the too weak instrument of signal is unable to test.



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Test channel:	Highest channel	
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#### Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4960.00	36.48	31.93	8.73	32.16	44.98	74.00	-29.02	Vertical
7440.00	31.29	36.59	11.79	31.78	47.89	74.00	-26.11	Vertical
9920.00	30.98	38.81	14.38	31.88	52.29	74.00	-21.71	Vertical
12400.00	*					74.00		Vertical
14880.00	*					74.00		Vertical
4960.00	40.60	31.93	8.73	32.16	49.10	74.00	-24.90	Horizontal
7440.00	32.97	36.59	11.79	31.78	49.57	74.00	-24.43	Horizontal
9920.00	30.33	38.81	14.38	31.88	51.64	74.00	-22.36	Horizontal
12400.00	*					74.00		Horizontal
14880.00	*					74.00		Horizontal

#### Average value:

Average var	uc.							
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4960.00	25.52	31.93	8.73	32.16	34.02	54.00	-19.98	Vertical
7440.00	20.11	36.59	11.79	31.78	36.71	54.00	-17.29	Vertical
9920.00	19.23	38.81	14.38	31.88	40.54	54.00	-13.46	Vertical
12400.00	*					54.00		Vertical
14880.00	*					54.00		Vertical
4960.00	29.66	31.93	8.73	32.16	38.16	54.00	-15.84	Horizontal
7440.00	22.23	36.59	11.79	31.78	38.83	54.00	-15.17	Horizontal
9920.00	18.90	38.81	14.38	31.88	40.21	54.00	-13.79	Horizontal
12400.00	*					54.00		Horizontal
14880.00	*					54.00		Horizontal

#### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 3. "\*", means this data is the too weak instrument of signal is unable to test.



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### 7.3.3 Bandedge emissions

All of the restriction bands were tested, and only the data of worst case was exhibited.

Test channe	Test channel: Lowest channel							
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	39.55	27.59	5.38	30.18	42.34	74.00	-31.66	Horizontal
2400.00	55.86	27.58	5.39	30.18	58.65	74.00	-15.35	Horizontal
2390.00	39.78	27.59	5.38	30.18	42.57	74.00	-31.43	Vertical
2400.00	57.54	27.58	5.39	30.18	60.33	74.00	-13.67	Vertical
Average val	lue:							
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	30.85	27.59	5.38	30.18	33.64	54.00	-20.36	Horizontal
2400.00	41.89	27.58	5.39	30.18	44.68	54.00	-9.32	Horizontal
2390.00	30.56	27.59	5.38	30.18	33.35	54.00	-20.65	Vertical
2400.00	43.22	27.58	5.39	30.18	46.01	54.00	-7.99	Vertical
Test channel:					ghest channe	el		

### Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	41.25	27.53	5.47	29.93	44.32	74.00	-29.68	Horizontal
2500.00	41.06	27.55	5.49	29.93	44.17	74.00	-29.83	Horizontal
2483.50	41.54	27.53	5.47	29.93	44.61	74.00	-29.39	Vertical
2500.00	41.74	27.55	5.49	29.93	44.85	74.00	-29.15	Vertical

### Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	33.64	27.53	5.47	29.93	36.71	54.00	-17.29	Horizontal
2500.00	32.12	27.55	5.49	29.93	35.23	54.00	-18.77	Horizontal
2483.50	34.57	27.53	5.47	29.93	37.64	54.00	-16.36	Vertical
2500.00	31.76	27.55	5.49	29.93	34.87	54.00	-19.13	Vertical

Remark:

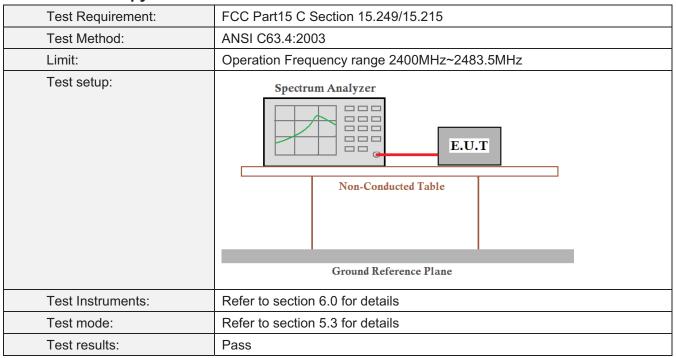
Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor



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### 7.4 20dB Occupy Bandwidth



### **Measurement Data**

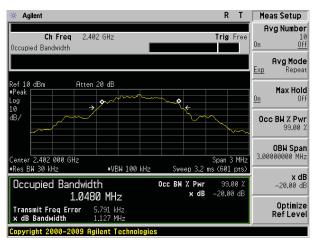
Test channel	20dB bandwidth(MHz)	Result
Lowest	1.127	Pass
Middle	1.122	Pass
Highest	1.123	Pass

Test plot as follows:

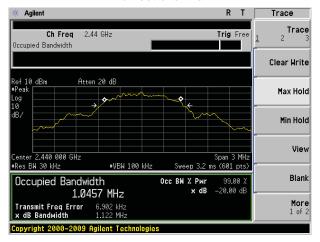
<sup>&</sup>quot;This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.ebotek.cn">http://www.ebotek.cn</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.ebotek.cn">http://www.ebotek.cn</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."



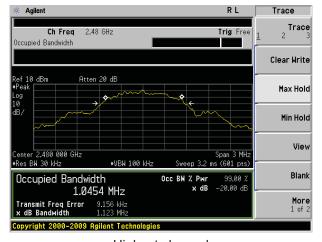
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#### Lowest channel



### Middle channel



Highest channel



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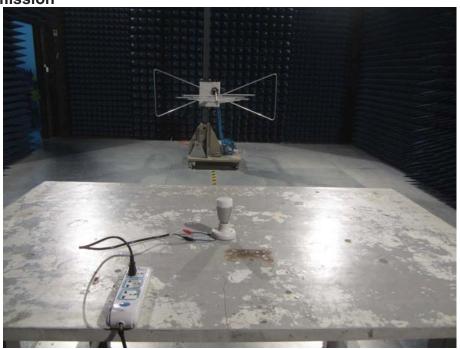
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## 8 Test setup photo

### **Conducted Emissions**



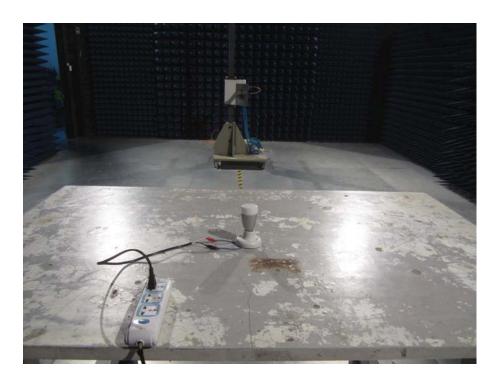
### Radiated Emission





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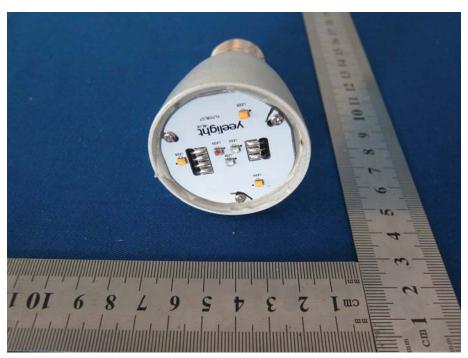


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### 9 EUT Constructional Details







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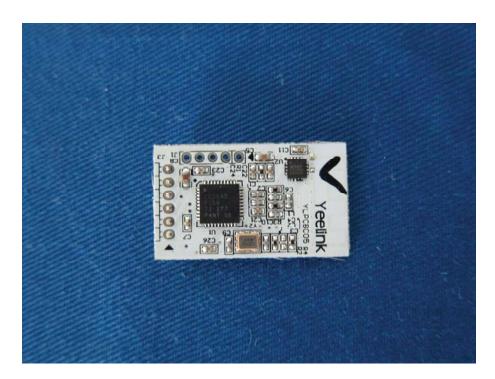


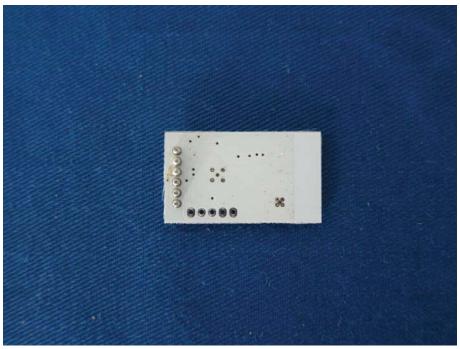




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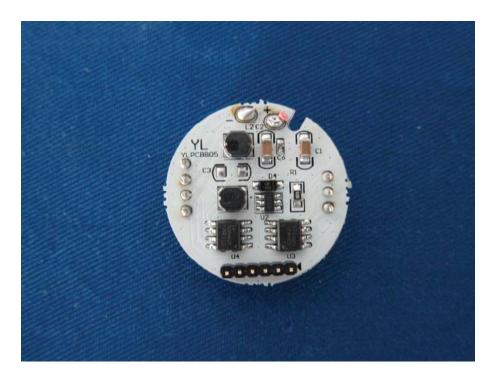


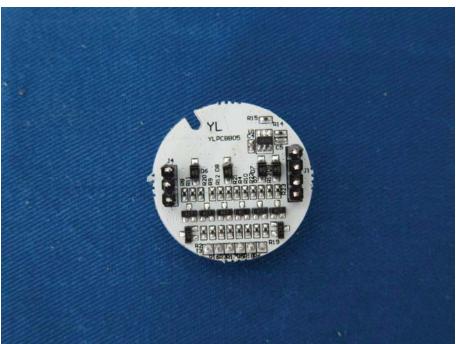




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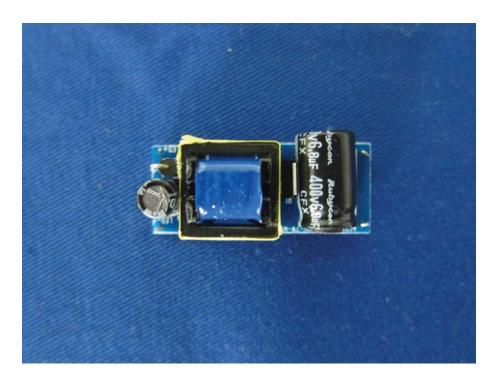


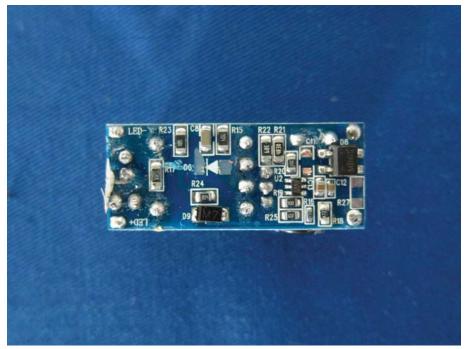




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End