

Page 1 of 71

APPLICATION CERTIFICATION FCC Part 15C On Behalf of CLEVER BRIGHT INTERNATIONAL (H.K.) LTD.

Light Up Mini Speaker Teal & Black
Model No.: CB-335051, SKU#74348, SKU#74349, CB-335051C, CB-334060B, CB-335088,
CB-335089A, CB-335089B, CB-335089L, CB-335072D, N-037, CB-335045, CB-335083,
CB-335115

FCC ID: 2AD42-CB-335051

Prepared for Address

CLEVER BRIGHT INTERNATIONAL (H.K.) LTD.
 Rm 1701, Zhuoyue Building, Fuhua Yi Rd. Futian

Central Zone, Shenzhen, China

Prepared by Address

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Report No. : ATE20162470

Date of Test : November 25-December 16, 2016

Date of Report : December 19, 2016

Report No.: ATE20162470 Page 2 of 71

TABLE OF CONTENTS

Ι	Descrip	otion	Page
Т	est Re	eport Certification	
1.		NERAL INFORMATION	2
1.	1.1.	Description of Device (EUT)	
	1.1.	Accessory and Auxiliary Equipment	
	1.3.	Description of Test Facility	
	1.4.	Measurement Uncertainty	
2.	ME	EASURING DEVICE AND TEST EQUIPMENT	
3.		ERATION OF EUT DURING TESTING	
•	3.1.	Operating Mode	
	3.2.	Configuration and peripherals	
4.	TE	ST PROCEDURES AND RESULTS	
5.		OB BANDWIDTH TEST	
٥.	5.1.	Block Diagram of Test Setup.	
	5.1.	The Requirement For Section 15.247(a)(1)	
	5.3.	EUT Configuration on Measurement	
	5.4.	Operating Condition of EUT	
	5.5.	Test Procedure	10
	5.6.	Test Result	1
6.	CA	RRIER FREQUENCY SEPARATION TEST	14
	6.1.	Block Diagram of Test Setup	
	6.2.	The Requirement For Section 15.247(a)(1)	
	6.3.	EUT Configuration on Measurement	
	6.4.	Operating Condition of EUT	
	6.5.	Test Procedure	
_	6.6.	Test Result	
7.		MBER OF HOPPING FREQUENCY TEST	
	7.1.	Block Diagram of Test Setup	
	7.2. 7.3.	The Requirement For Section 15.247(a)(1)(iii)	
	7.3. 7.4.	Operating Condition of EUT	
	7.5.	Test Procedure	
	7.6.	Test Result	
8.	DW	VELL TIME TEST	20
	8.1.	Block Diagram of Test Setup	
	8.2.	The Requirement For Section 15.247(a)(1)(iii)	
	8.3.	EUT Configuration on Measurement	20
	8.4.	Operating Condition of EUT	
	8.5.	Test Procedure	
	8.6.	Test Result	
9.	MA	AXIMUM PEAK OUTPUT POWER TEST	
	9.1.	Block Diagram of Test Setup	
	9.2.	The Requirement For Section 15.247(b)(1)	
	9.3. 9.4.	EUT Configuration on Measurement	
	7 +	ADMARTING A ADMINISTRAÇÃO	/.(



9.5.	Test Procedure	26
9.6.	Test Result	27
10. RA	ADIATED EMISSION TEST	29
10.1.	Block Diagram of Test Setup	
10.2.	The Limit For Section 15.247(d)	
10.3.	Restricted bands of operation	31
10.4.	Configuration of EUT on Measurement	31
10.5.	Test Procedure	32
10.6.	The Field Strength of Radiation Emission Measurement Results	32
11. BA	ND EDGE COMPLIANCE TEST	45
11.1.	Block Diagram of Test Setup	45
11.2.	The Requirement For Section 15.247(d)	
11.3.	EUT Configuration on Measurement	45
11.4.	Operating Condition of EUT	45
11.5.	Test Procedure	46
11.6.	Test Result	46
12. AC	C POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION	N 15.207(A)56
12.1.	Block Diagram of Test Setup	56
12.2.	Power Line Conducted Emission Measurement Limits	56
12.3.	Configuration of EUT on Measurement	56
12.4.	Operating Condition of EUT	56
12.5.	Test Procedure	
12.6.	Power Line Conducted Emission Measurement Results	57
13. AN	TENNA REQUIREMENT	64
13.1.	The Requirement	64
13.2.	Antenna Construction	64
14. F	PHOTOGRAPHS	65
14.1.	Photo of Power Line Conducted Emission Measurement	65
14.2.	Photo of Radiation Emission Measurement	
1/2	Photo of ELIT	67



Report No.: ATE20162470 Page 4 of 71

Test Report Certification

Applicant : CLEVER BRIGHT INTERNATIONAL (H.K.) LTD. Manufacturer : CLEVER BRIGHT INTERNATIONAL (H.K.) LTD.

EUT Description: Light Up Mini Speaker Teal & Black

CB-335051, SKU#74348, SKU#74349, CB-335051C,

CB-334060B, CB-335088, CB-335089A, CB-335089B, Model No. CB-335089L, CB-335072D, N-037, CB-335045, CB-335083,

CB-335115

Trade Mark : N/A

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2016 ANSI C63.10: 2013

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD 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 ACCURATE TECHNOLOGY CO. LTD.

Date of Test:	November 25-December 16, 2016
Date of Report:	December 19, 2016
Prepared by :	(Bob Wang, Engineer)
Approved & Authorized Signer :	(Sean Liu, Manager)



Page 5 of 71

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT : Light Up Mini Speaker Teal & Black

Model Number : CB-335051, SKU#74348, SKU#74349, CB-335051C,

CB-334060B, CB-335088, CB-335089A, CB-335089B,

CB-335089L, CB-335072D, N-037, CB-335045,

CB-335083, CB-335115

(Note: We hereby state that these models are identical in interior structure, electrical circuits and components, and just model names are different for the marketing requirement. Therefore only model CB-335051 is tested for EMC

tests.)

Trade Mark : N/A
Bluetooth version : BT 2.1

Frequency Range : 2402MHz-2480MHz

Number of Channels : 79 Antenna Gain : 0dBi

Antenna type : Integral Antenna

Power Supply : DC 3.7V & DC 5V(Power by USB port)

Modulation mode : GFSK

Applicant : CLEVER BRIGHT INTERNATIONAL (H.K.) LTD.
Address : Rm 1701, Zhuoyue Building, Fuhua Yi Rd. Futian

Central Zone, Shenzhen, China

Manufacuter : CLEVER BRIGHT INTERNATIONAL (H.K.) LTD.
Address : Rm 1701, Zhuoyue Building, Fuhua Yi Rd. Futian

Central Zone, Shenzhen, China

Date of sample received: November 20, 2016

Date of Test : November 25-December 16, 2016

1.2. Accessory and Auxiliary Equipment

PC : Manufacturer: DELL

M/N: DMC S/N: HZXLM1



Page 6 of 71

1.3. Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC

The Registration Number is 752051

Listed by Industry Canada

The Registration Number is 5077A-2

Accredited by China National Accreditation Committee

for Laboratories

The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD

Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.

Science & Industry Park, Nanshan, Shenzhen, Guangdong

P.R. China

1.4. Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty 3.08dB, k=2

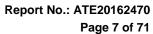
(9kHz-30MHz)

Radiated emission expanded uncertainty 4.42dB, k=2

(30MHz-1000MHz)

Radiated emission expanded uncertainty 4.06dB, k=2

(Above 1GHz)

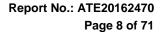




2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Туре	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 9, 2016	Jan. 09, 2017
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 9, 2016	Jan. 09, 2017
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 9, 2016	Jan. 09, 2017
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 9, 2016	Jan. 09, 2017
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 14, 2016	Jan. 13, 2017
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 14, 2016	Jan. 12, 2017
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 14, 2016	Jan. 13, 2017
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 9, 2016	Jan. 09, 2017
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 9, 2016	Jan. 09, 2017
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 9, 2016	Jan. 09, 2017
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 9, 2016	Jan. 09, 2017





3. OPERATION OF EUT DURING TESTING

3.1. Operating Mode

The mode is used: Transmitting mode

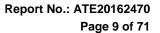
Low Channel: 2402MHz Middle Channel: 2441MHz High Channel: 2480MHz

Hopping

3.2. Configuration and peripherals

EUT
Figure 1 Setup: Transmitting mode

(EUT: Light Up Mini Speaker Teal & Black)





4. TEST PROCEDURES AND RESULTS

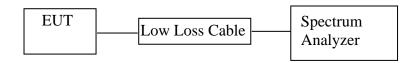
FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission Test	Compliant
Section 15.247(a)(1)	20dB Bandwidth Test	Compliant
Section 15.247(a)(1)	Carrier Frequency Separation Test	Compliant
Section 15.247(a)(1)(iii)	Number Of Hopping Frequency Test	Compliant
Section 15.247(a)(1)(iii)	Dwell Time Test	Compliant
Section 15.247(b)(1)	Maximum Peak Output Power Test	Compliant
Section 15.247(d) Section 15.209	Radiated Emission Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.203	Antenna Requirement	Compliant



Page 10 of 71

5. 20DB BANDWIDTH TEST

5.1.Block Diagram of Test Setup



(EUT: Light Up Mini Speaker Teal & Black)

5.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.3.EUT Configuration on Measurement

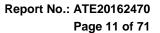
The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.4. Operating Condition of EUT

- 5.4.1. Setup the EUT and simulator as shown as Section 5.1.
- 5.4.2. Turn on the power of all equipment.
- 5.4.3.Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

5.5.Test Procedure

- 5.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 5.5.2.Set RBW of spectrum analyzer to 30 kHz and VBW to 100 kHz.
- 5.5.3. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.





5.6.Test Result

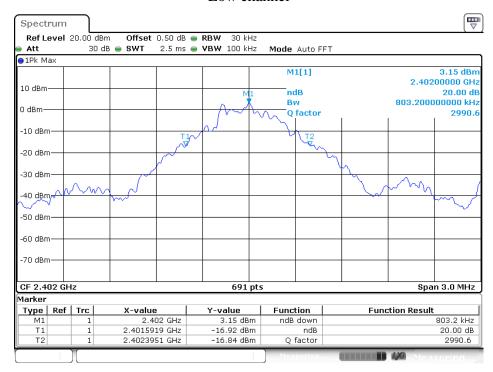
Channel	Frequency(MHz)	20dB Bandwidth(MHz)	Result
Low	2402	0.803	Pass
Middle	2441	0.803	Pass
High	2480	0.803	Pass

The spectrum analyzer plots are attached as below.

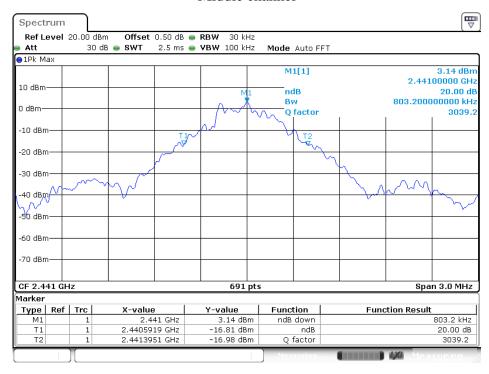


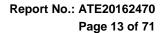
GFSK Mode

Low channel



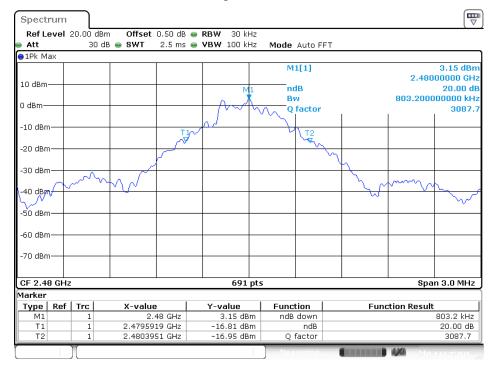
Middle channel







High channel

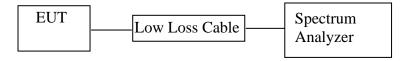




Report No.: ATE20162470 Page 14 of 71

6. CARRIER FREQUENCY SEPARATION TEST

6.1.Block Diagram of Test Setup



(EUT: Light Up Mini Speaker Teal & Black)

6.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

6.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4. Operating Condition of EUT

- 6.4.1. Setup the EUT and simulator as shown as Section 6.1.
- 6.4.2. Turn on the power of all equipment.
- 6.4.3.Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

Report No.: ATE20162470 Page 15 of 71



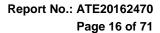
6.5. Test Procedure

- 6.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.
- $6.5.2. Set\ RBW$ of spectrum analyzer to 30 kHz and VBW to 100 kHz. Adjust Span to 2 MHz.
- 6.5.3.Set the adjacent channel of the EUT maxhold another trace.
- 6.5.4. Measurement the channel separation

6.6.Test Result

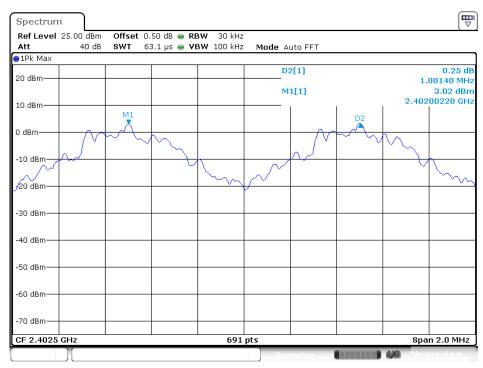
Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402 2403	1.0014	25KHz or 20dB bandwidth	PASS
Middle	2440 2441	1.0014	25KHz or20dB bandwidth	PASS
High	2479 2480	1.0014	25KHz or 20dB bandwidth	PASS

The spectrum analyzer plots are attached as below.

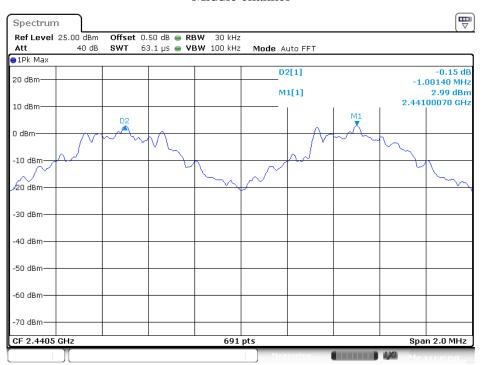




Low channel

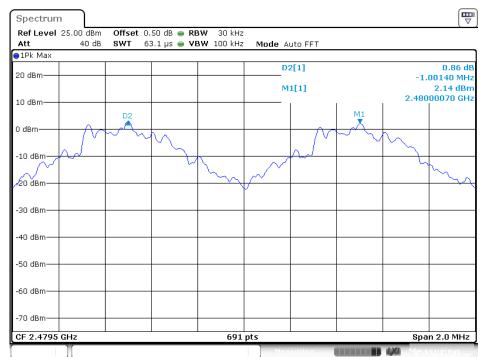


Middle channel





High channel

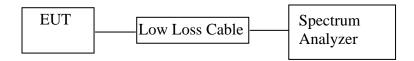




Page 18 of 71

7. NUMBER OF HOPPING FREQUENCY TEST

7.1.Block Diagram of Test Setup



(EUT: Light Up Mini Speaker Teal & Black)

7.2. The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

7.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4. Operating Condition of EUT

- 7.4.1. Setup the EUT and simulator as shown as Section 7.1.
- 7.4.2. Turn on the power of all equipment.
- 7.4.3.Let the EUT work in TX (Hopping on) modes measure it.

7.5. Test Procedure

- 7.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 7.5.2.Set the spectrum analyzer as Span=83.5MHz, RBW=100 kHz, VBW=300 kHz.
- 7.5.3.Max hold, view and count how many channel in the band.

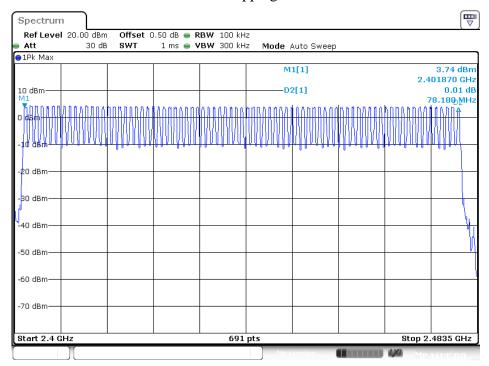


7.6.Test Result

Total number of	Measurement result(CH)	Limit(CH)
hopping channel	79	≥15

The spectrum analyzer plots are attached as below.

Number of hopping channels

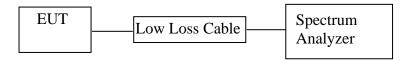




Report No.: ATE20162470 Page 20 of 71

8. DWELL TIME TEST

8.1.Block Diagram of Test Setup



(EUT: Light Up Mini Speaker Teal & Black)

8.2. The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

8.3.EUT Configuration on Measurement

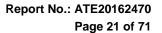
The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4. Operating Condition of EUT

- 8.4.1. Setup the EUT and simulator as shown as Section 8.1.
- 8.4.2. Turn on the power of all equipment.
- 8.4.3.Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

8.5. Test Procedure

- 8.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 8.5.2.Set center frequency of spectrum analyzer = operating frequency.
- 8.5.3.Set the spectrum analyzer as RBW=1MHz, VBW=3MHz, Span=0Hz, Adjust Sweep=5ms, 10ms, 15ms. Get the pulse time.





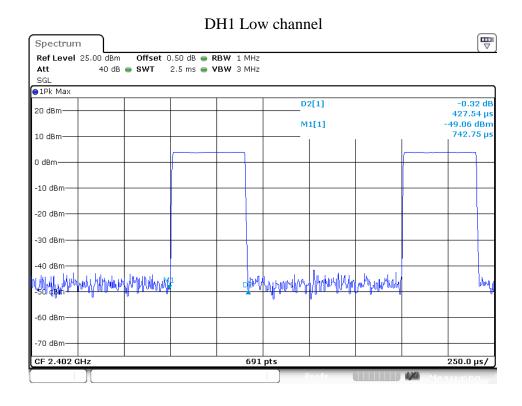
8.5.4.Repeat above procedures until all frequency measured were complete.

8.6.Test Result

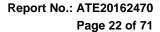
Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
	2402	0.428	136.96	400
DH1	2441	0.438	140.16	400
	2480	0.442	141.44	400
A period	transmit time = $0.4 \times 79 =$	= 31.6 Dwell time = pu	alse time \times (1600/(2*)	79))×31.6
	2402	1.746	279.36	400
DH3	2441	1.790	286.40	400
	2480	1.761	281.76	400
A period	transmit time = $0.4 \times 79 =$	= 31.6 Dwell time = pu	alse time \times (1600/(4*7)	79))×31.6
	2402	2.978	317.65	400
DHE	2441	2.978	317.65	400
DH5				

The spectrum analyzer plots are attached as below.

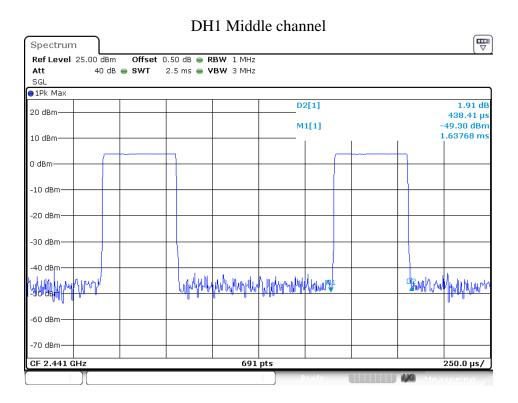
GFSK Mode

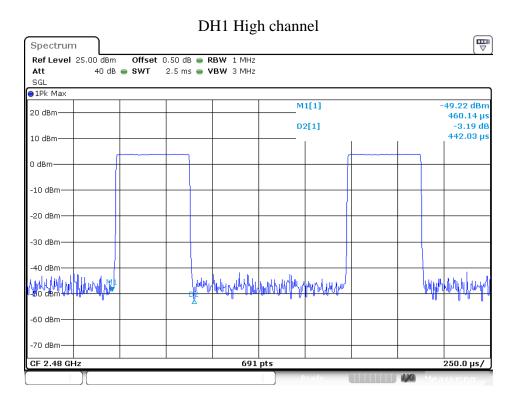


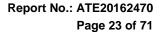
FCC ID: 2AD42-CB-335051



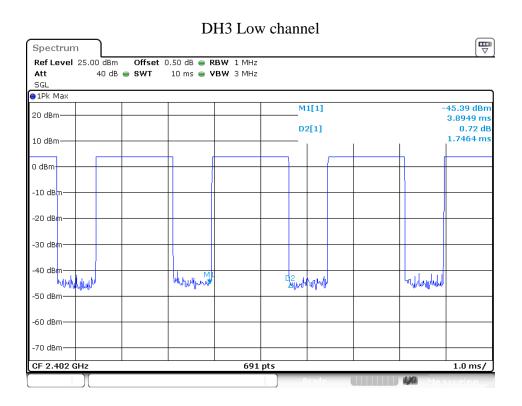


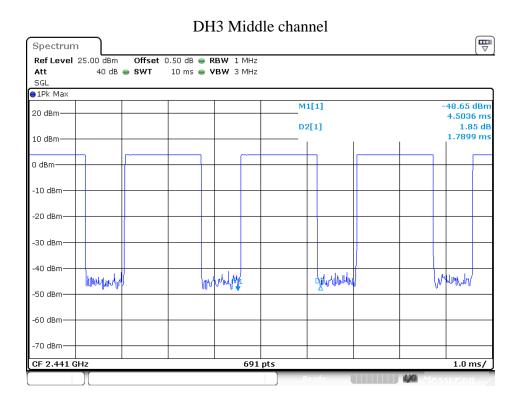


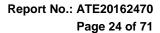




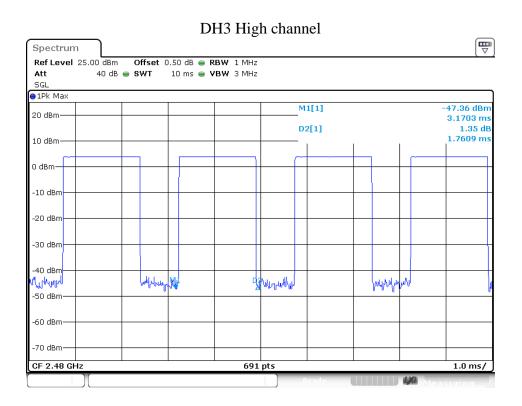


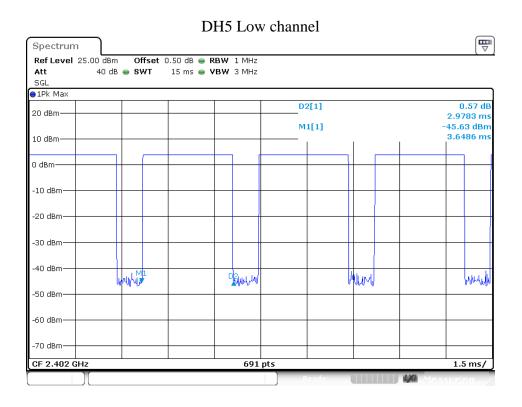


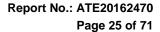




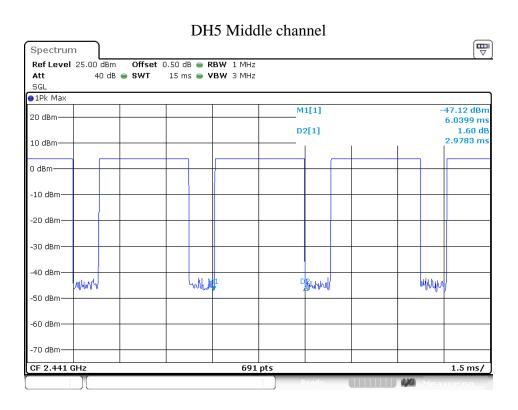


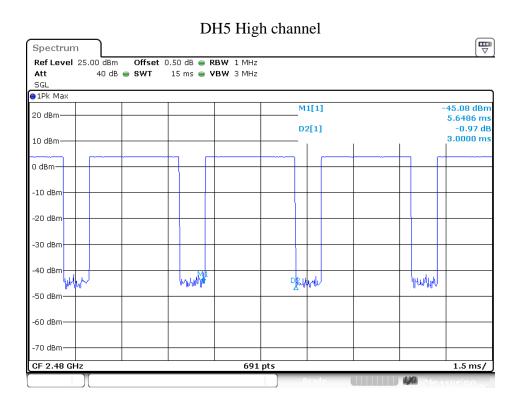










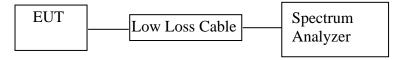




Page 26 of 71

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1.Block Diagram of Test Setup



(EUT: Light Up Mini Speaker Teal & Black)

9.2. The Requirement For Section 15.247(b)(1)

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

9.3.EUT Configuration on Measurement

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

9.4. Operating Condition of EUT

- 9.4.1. Setup the EUT and simulator as shown as Section 9.1.
- 9.4.2. Turn on the power of all equipment.
- 9.4.3.Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

9.5.Test Procedure

- 9.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 9.5.2.Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz for GFSK mode
- 9.5.3.Set RBW of spectrum analyzer to 3MHz and VBW to 10MHz for other mode
- 9.5.4. Measurement the maximum peak output power.



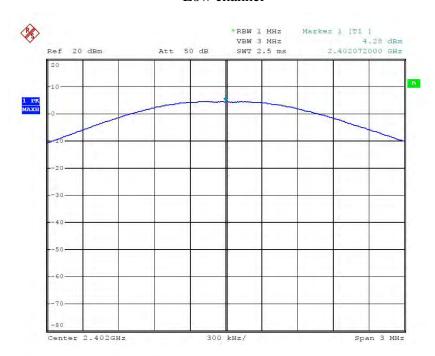
9.6.Test Result

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	4.28/0.0027	30 / 1.0
Middle	2441	4.24/0.0027	30 / 1.0
High	2480	4.10/0.0026	30 / 1.0

The spectrum analyzer plots are attached as below.

GFSK Mode

Low channel

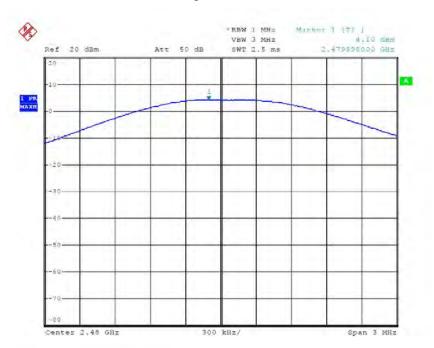


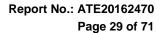


Middle channel



High channel

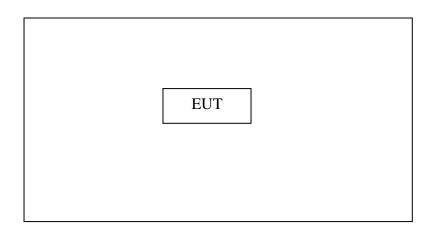






10. RADIATED EMISSION TEST

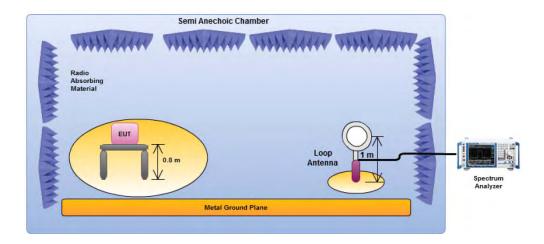
- 10.1.Block Diagram of Test Setup
- 10.1.1.Block diagram of connection between the EUT and peripherals



Setup: Transmitting mode

10.1.2. Semi-Anechoic Chamber Test Setup Diagram



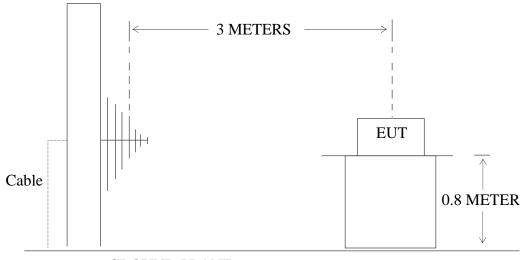




Page 30 of 71

30MHz-1GHz

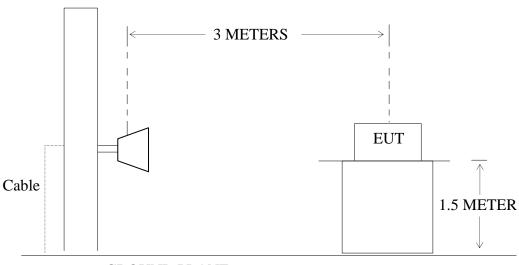
ANTENNA ELEVATION VARIES FROM 1 TO 4 METERS



GROUND PLANE

Above 1GHz

ANTENNA ELEVATION VARIES FROM 1 TO 4 METERS



GROUND PLANE

10.2. The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation



Report No.: ATE20162470 Page 31 of 71

required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

10.3.Restricted bands of operation

10.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

permitted in any of the frequency bands listed below:							
MHz	MHz	MHz	GHz				
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15				
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46				
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75				
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5				
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2				
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5				
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7				
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4				
6.31175-6.31225	123-138	2200-2300	14.47-14.5				
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2				
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4				
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12				
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0				
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8				
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5				
12.57675-12.57725	322-335.4	3600-4400	$\binom{2}{}$				
13.36-13.41							

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

10.4. Configuration of EUT on Measurement

The equipment is 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.

²Above 38.6



Page 32 of 71

10.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.1 meter high above ground(Below 1GHz). The EUT and its simulators are placed on a turntable, which is 0.1 meter high above ground(Above 1GHz). 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. Broadband antenna (calibrated bi-log 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 EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- 4. All modes of operation were investigated and the worst-case emissions are reported.

10.6. The Field Strength of Radiation Emission Measurement Results

Note: The test frequency is from 30MHz to 25GHz, The 18-25GHz emissions are not reported, because the levels are too low against the limit.



Page 33 of 71

Below 1GHz



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Site: 1# Chamber

Job No.: DING #3088

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2402MHz (GFSK)

Model: CB-335051

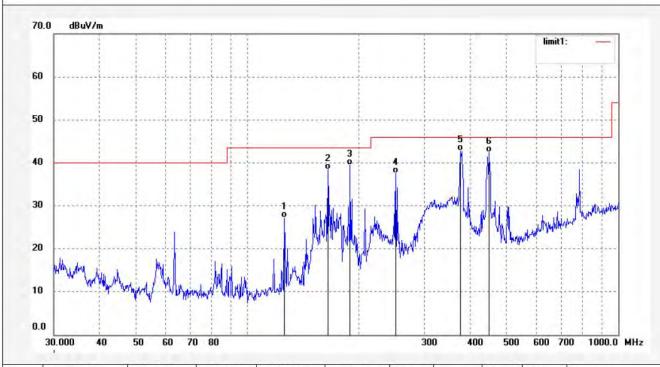
Manufacturer: CLEVER BRIGHT

Note: Report NO.:ATE20162470 Polarization: Horizontal Power Source: DC 5V

Date: 16/11/25/ Time: 10/32/25

Engineer Signature: DING

Distance: 3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark	
1	125.8058	49.30	-22.05	27.25	43.50	-16.25	QP				
2	164.8912	59.21	-20.85	38.36	43.50	-5.14	QP				
3	189.1076	58.94	-19.49	39.45	43.50	-4.05	QP				
4	251.3676	55.67	-18.05	37.62	46.00	-8.38	QP				
5	375.2022	56.15	-13.29	42.86	46.00	-3.14	QP				
6	448.8360	54.34	-11.88	42.46	46.00	-3.54	QP				





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Report No.: ATE20162470

Page 34 of 71

Job No.: DING #3089

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2402MHz (GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

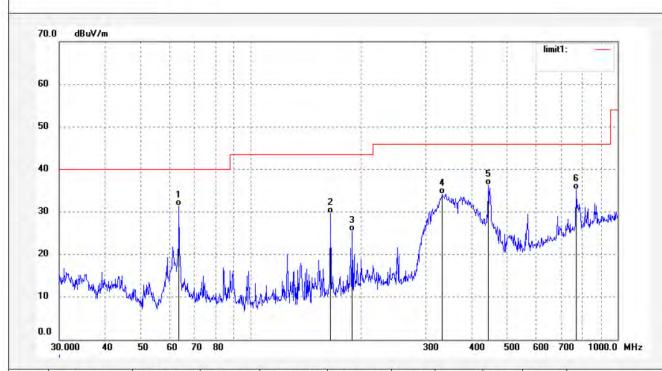
Note: Report NO.:ATE20162470

Polarization: Vertical Power Source: DC 5V

Date: 2016/11/25 Time: 10:34:51

Engineer Signature: DING

Distance: 3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	63.6311	53.29	-21.87	31.42	40.00	-8.58	QP	1		
2	164.8911	50.47	-20.85	29.62	43.50	-13.88	QP	11 11	7.71	1
3	189.1075	44.98	-19.49	25.49	43.50	-18.01	QP		7 7 1	1
4	332.9534	48.79	-14.49	34.30	46.00	-11.70	QP			1
5	444.1299	48.39	-12.00	36.39	46.00	-9.61	QP	11	7 7 11	
6	771.0475	39.97	-4.73	35.24	46.00	-10.76	QP			



Report No.: ATE20162470 Page 35 of 71

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Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DING #3090

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT:

Mode:

Model: CB-335051

Manufacturer: CLEVER BRIGHT

Light Up Mini Speaker Teal & Black TX 2441MHz (GFSK)

Distance: 3m

Polarization: Vertical

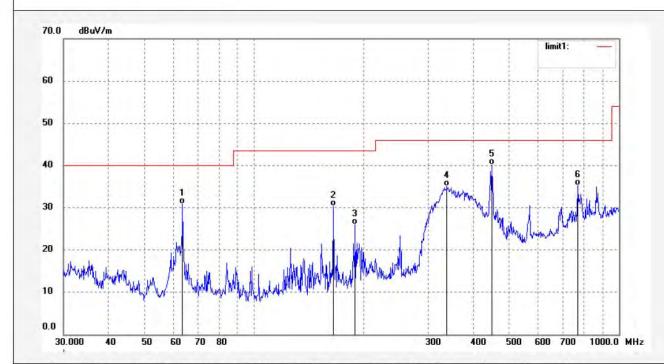
Power Source: DC 5V

Engineer Signature: DING

Date: 2016/11/25

Time: 10:37:30

Note: Report NO.:ATE20162470



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark	- 1
1	63.6311	52.79	-21.87	30.92	40.00	-9.08	QP				
2	164.8911	51.22	-20.85	30.37	43.50	-13.13	QP				
3	189.1075	45.48	-19.49	25.99	43.50	-17.51	QP				
4	337.6660	49.32	-14.31	35.01	46.00	-10.99	QP				
5	448.8360	52.01	-11.88	40.13	46.00	-5.87	QP				
6	771.0475	39.97	-4.73	35.24	46.00	-10.76	QP				



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Report No.: ATE20162470

Page 36 of 71

Job No.: DING #3091

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2441MHz (GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

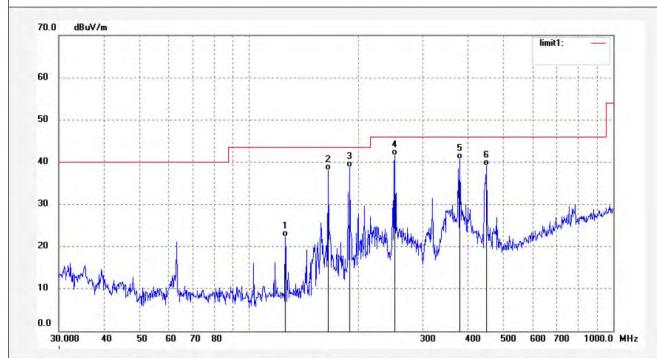
Note: Report NO.:ATE20162470

Polarization: Horizontal Power Source: DC 5V

Date: 2016/11/25 Time: 10:40:08

Engineer Signature: DING

Distance: 3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	125.8059	44.30	-22.05	22.25	43.50	-21.25	QP			
2	164.8912	58.89	-20.85	38.04	43.50	-5.46	QP			
3	189.1076	58.20	-19.49	38.71	43.50	-4.79	QP			
4	251.3676	59.67	-18.05	41.62	46.00	-4.38	QP			
5	379.1780	53.90	-13.24	40.66	46.00	-5.34	QP		-	
6	448.8361	50.93	-11.88	39.05	46.00	-6.95	QP			



Report No.: ATE20162470

Page 37 of 71



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Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DING #3092

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

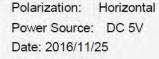
EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2480MHz (GFSK)

CB-335051 Model:

Manufacturer: CLEVER BRIGHT

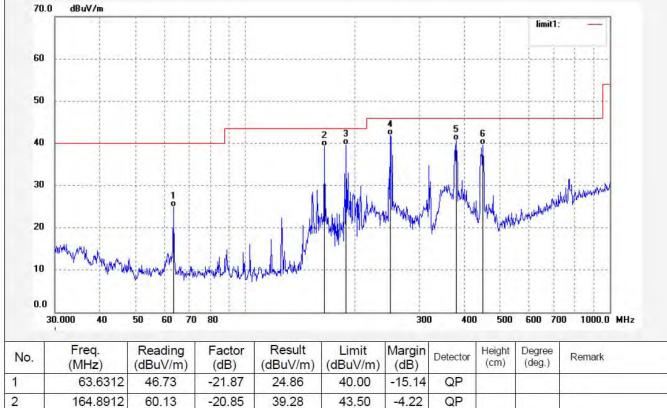
Report NO.:ATE20162470



Time: 10:42:51

Distance: 3m

Engineer Signature: DING



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	63.6312	46.73	-21.87	24.86	40.00	-15.14	QP			
2	164.8912	60.13	-20.85	39.28	43.50	-4.22	QP			
3	189.1076	59.20	-19.49	39.71	43.50	-3.79	QP			
4	249.6074	59.95	-18.12	41.83	46.00	-4.17	QP			
5	379.1780	53.90	-13.24	40.66	46.00	-5.34	QP			
6	448.8361	51.55	-11.88	39.67	46.00	-6.33	QP			



Report No.: ATE20162470 Page 38 of 71



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Job No.: DING #3093

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2480MHz (GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

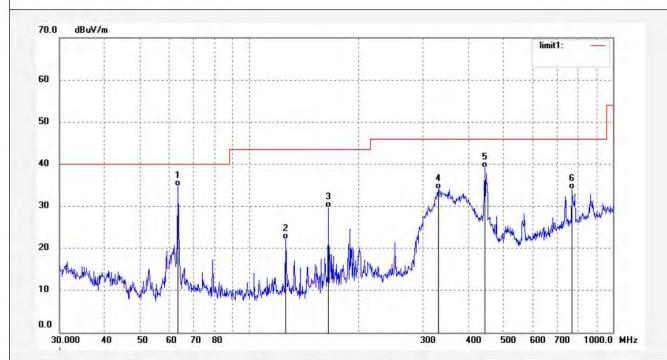
Note: Report NO.:ATE20162470

Polarization: Vertical Power Source: DC 5V

Date: 2016/11/25 Time: 10:44:35

Engineer Signature: DING

Distance: 3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	63.6312	56.63	-21.87	34.76	40.00	-5.24	QP			
2	125.8059	44.27	-22.05	22.22	43.50	-21.28	QP			
3	164.8912	50.45	-20.85	29.60	43.50	-13.90	QP			
4	330.6220	48.68	-14.63	34.05	46.00	-11.95	QP			
5	444.1299	51.06	-12.00	39.06	46.00	-6.94	QP			
6	771.0475	38.71	-4.73	33.98	46.00	-12.02	QP			



Report No.: ATE20162470 Page 39 of 71

Above 1GHz



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Job No.: DING #3202 Standard: FCC PK Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2402MHz (GFSK)

Model: CB-335051

Note:

Manufacturer: CLEVER BRIGHT

Report NO.:ATE20162470

Polarization: Horizontal Power Source: DC 5V

Date: 16/12/16/ Time: 9/11/58

Engineer Signature: DING

Distance: 3m

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10.	C	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	5000 Limit (dBuV/m)	Margin (dB)	7000 8000 Detector	9000 Height (cm)	Degree (deg.)	18000.0 MH Remark
10.	Freq.	Reading	Factor	Result	Limit	Margin		Height		
10.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height		

Note: Average measurement with peak detection at No.2

84.75

45.49

35.69

-5.98

3.15

3.15

78.77

48.64

38.84

94.00

74.00

54.00

-15.23

-25.36

-15.16

AVG

peak

AVG

4

5

6

2402.000

4804.000

4804.000



Report No.: ATE20162470 Page 40 of 71



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Job No.: DING #3203 Standard: FCC PK Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2402MHz (GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

Note: Report NO.:ATE20162470

Polarization: Vertical Power Source: DC 5V

Date: 16/12/16/ Time: 9/12/40

Engineer Signature: DING

Distance: 3m

	0 dBuV/m									- 71
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20 10.0		20	00	3000	5000	6000 7	7000 8000	9000	*********	18000.0 MHz
20 10.0 11			Factor (dB)	3000 Result (dBuV/m)	5000 Limit (dBuV/m)	Margin	7000 8000	Height (cm)	Degree (deg.)	18000.0 MHz Remark
20 10.0 11	000.000 Freq.	Reading	Factor	Result	Limit		Detector	Height		
20 10.0 11	000.000 Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height		
20 10.0 11	Freq. (MHz) 1848.118	Reading (dBuV/m) 51.96	Factor (dB) -8.55	Result (dBuV/m) 43.41	Limit (dBuV/m) 74.00	Margin (dB) -30.59	Detector peak AVG	Height		
20 10.0 11	Freq. (MHz) 1848.118 1848.118	Reading (dBuV/m) 51.96 41.85	Factor (dB) -8.55	Result (dBuV/m) 43.41 33.30	Limit (dBuV/m) 74.00 54.00	Margin (dB) -30.59 -20.70	Detector peak AVG peak	Height		
20 10.0	Freq. (MHz) 1848.118 1848.118 2402.000	Reading (dBuV/m) 51.96 41.85 95.62	Factor (dB) -8.55 -8.55 -5.98	Result (dBuV/m) 43.41 33.30 89.64	Limit (dBuV/m) 74.00 54.00 114.00	Margin (dB) -30.59 -20.70	Detector peak AVG peak	Height		



Report No.: ATE20162470 Page 41 of 71



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Job No.: DING #3204 Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2441MHz (GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

Note: Report NO.:ATE20162470

Polarization: Vertical Power Source: DC 5V

Date: 16/12/16/ Time: 9/14/13

Engineer Signature: DING

Distance: 3m

-	dBuV/m	-			-	-	-	-	7-17-5	
			3						limit1: limit2:	
90	************		Ť							
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20 10.0 100	00.000	200	00		1977				Degree	
20				3000 Result (dBuV/m)	5000 Limit (dBuV/m)	6000 7	7000 8000 Detector	9000 Height (cm)	Degree (deg.)	18000.0 MHz
20 10.0 100	00.000 Freq.	200 Reading	00 Factor	Result	Limit	Margin	Detector	Height		
20 10.0 100	00.000 Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height		
20 10.0 100	Freq. (MHz) 1908.248	Reading (dBuV/m) 55.09	Factor (dB) -8.64	Result (dBuV/m) 46.45	Limit (dBuV/m) 74.00	Margin (dB) -27.55	Detector peak AVG	Height		
20 10.0 100	Freq. (MHz) 1908.248 1908.248	Reading (dBuV/m) 55.09 45.07	Factor (dB) -8.64 -8.64	Result (dBuV/m) 46.45 36.43	Limit (dBuV/m) 74.00 54.00	Margin (dB) -27.55 -17.57	Detector peak AVG peak	Height		
20 10.0 100	Freq. (MHz) 1908.248 1908.248 2441.000	Reading (dBuV/m) 55.09 45.07 95.11	Factor (dB) -8.64 -8.64 -5.72	Result (dBuV/m) 46.45 36.43 89.39	Limit (dBuV/m) 74.00 54.00 114.00	Margin (dB) -27.55 -17.57	Detector peak AVG peak	Height		



Report No.: ATE20162470 Page 42 of 71



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Job No.: DING #3205 Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Light Up Mini Speaker Teal & Black Mode: TX 2441MHz (GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

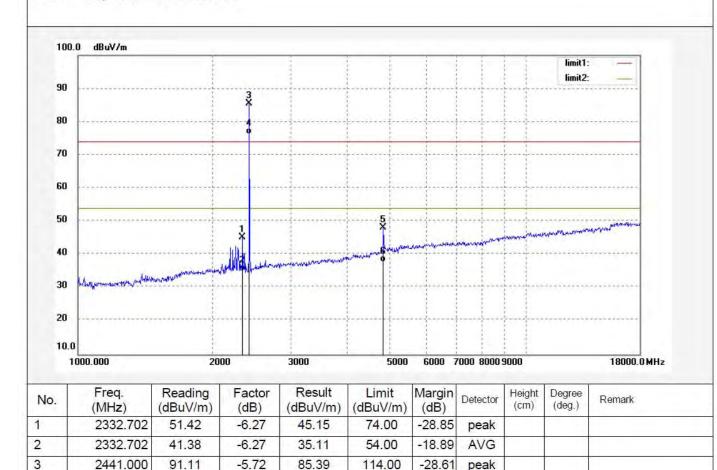
Note: Report NO.:ATE20162470

Polarization: Horizontal Power Source: DC 5V

Date: 16/12/16/ Time: 9/15/22

Engineer Signature: DING

Distance: 3m



Note: Average measurement with peak detection at No.2

81.94

44.45

34.13

-5.72

3.67

3.67

76.22

48.12

37.80

94.00

74.00

54.00

-17.78

-25.88

-16.20

AVG

peak

AVG

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4882,000

4882,000



Model:

Standard: FCC PK

Report No.: ATE20162470 Page 43 of 71

Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

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Job No.: DING #3206 Polarization: Horizontal Power Source: DC 5V

Test item: Radiation Test Date: 16/12/16/ Temp.(C)/Hum.(%) 25 C / 55 % Time: 9/16/27

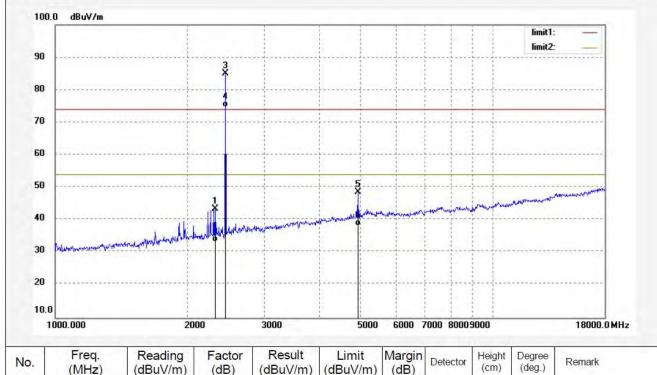
EUT: Light Up Mini Speaker Teal & Black Engineer Signature: DING

Mode: TX 2480MHz (GFSK) Distance: 3m

Manufacturer: CLEVER BRIGHT

CB-335051

Report NO.:ATE20162470



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark	
1	2319.162	49.80	-6.28	43.52	74.00	-30.48	peak				
2	2319.162	39.57	-6.28	33.29	54.00	-20.71	AVG				
3	2480.000	90.66	-5.55	85.11	114.00	-28.89	peak	2 17			
4	2480.000	80.19	-5.55	74.64	94.00	-19.36	AVG				
5	4960.000	43.94	4.54	48.48	74.00	-25.52	peak				
6	4960.000	33.61	4.54	38.15	54.00	-15.85	AVG				



Report No.: ATE20162470 Page 44 of 71



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Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DING #3207 Standard: FCC PK Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT:

Light Up Mini Speaker Teal & Black

Mode: TX 2480MHz (GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT Report NO.:ATE20162470 Polarization: Vertical Power Source: DC 5V

Date: 16/12/16/ Time: 9/17/56

Engineer Signature: DING

Distance: 3m

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30 20 10.0		Reading (dBuV/m)	Factor (dB)	3000 Result (dBuV/m)	5000 Limit (dBuV/m)	6000 7 Margin (dB)	7000 8000:	Height (cm)	Degree (deg.)	18000.0 MHz
30 20 10.0	000.000 Freq.	Reading	Factor	Result	Limit	Margin		Height		
30 20 10.0	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height		
30 20 10.0	Freq. (MHz) 1976.079	Reading (dBuV/m) 52.78	Factor (dB) -8.10	Result (dBuV/m) 44.68	Limit (dBuV/m) 74.00	Margin (dB) -29.32	Detector peak	Height		
30 20 10.0 10	Freq. (MHz) 1976.079	Reading (dBuV/m) 52.78 42.59	Factor (dB) -8.10	Result (dBuV/m) 44.68 34.49	Limit (dBuV/m) 74.00 54.00	Margin (dB) -29.32 -19.51	Detector peak AVG peak	Height		
30 20 10.0	Freq. (MHz) 1976.079 1976.079 2480.000	Reading (dBuV/m) 52.78 42.59 95.05	Factor (dB) -8.10 -8.55	Result (dBuV/m) 44.68 34.49 89.50	Limit (dBuV/m) 74.00 54.00 114.00	Margin (dB) -29.32 -19.51 -24.50	Detector peak AVG peak	Height		

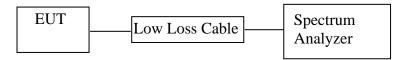


Report No.: ATE20162470

Page 45 of 71

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Light Up Mini Speaker Teal & Black)

11.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

11.3.EUT Configuration on Measurement

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

11.4. Operating Condition of EUT

- 11.4.1. Setup the EUT and simulator as shown as Section 11.1.
- 11.4.2. Turn on the power of all equipment.
- 11.4.3.Let the EUT work in TX (Hopping off, Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

Report No.: ATE20162470 Page 46 of 71



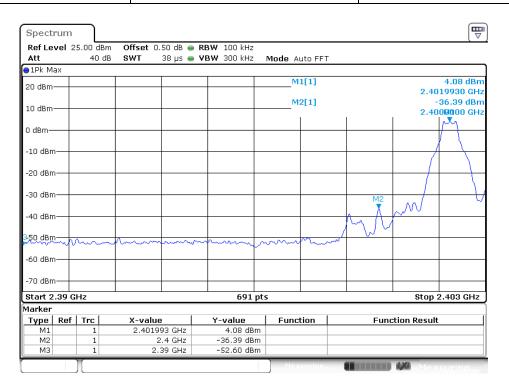
11.5.Test Procedure

- 11.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.
- 11.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.
- 11.5.3. The band edges was measured and recorded.

11.6.Test Result

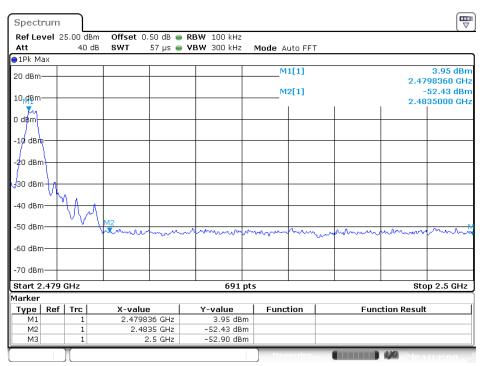
Non-hopping mode

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2400.00	40.47	> 20dBc
2483.50	56.38	> 20dBc



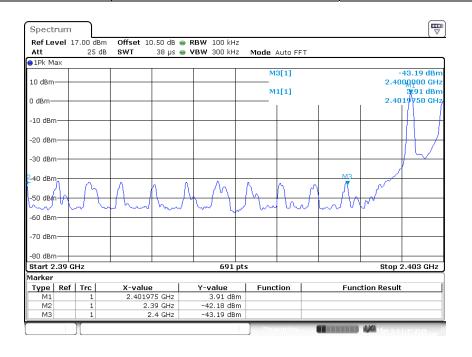
Report No.: ATE20162470 Page 47 of 71





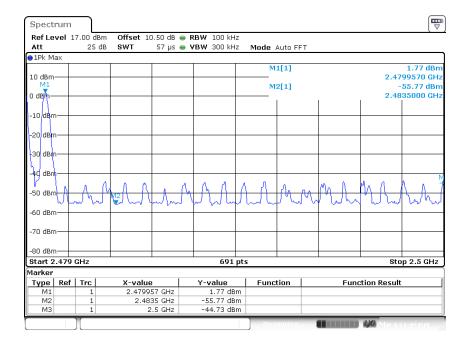
Hopping mode

Hopping mode		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2400.00	46.09	> 20dBc
2483.50	57.54	> 20dBc



Page 48 of 71







Report No.: ATE20162470 Page 49 of 71

Radiated Band Edge Result

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

3. Display the measurement of peak values.

Test Procedure:

The EUT and its simulators are placed on a turntable, which is 0.1 meter high above ground(Above 1GHz). 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. Broadband antenna (calibrated bi-log 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 EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

Let the EUT work in TX (Hopping off, Hopping on) modes measure it. We select 2402MHz, 2480MHz TX frequency to transmit(Hopping off mode). We select 2402-2480MHz TX frequency to transmit(Hopping on mode).

During the radiated emission test, the spectrum analyzer was set with the following configurations:

- 1. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.

 2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video
- bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- 3.All modes of operation were investigated and the worst-case emissions are reported.



Report No.: ATE20162470 Page 50 of 71

Non-hopping mode



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Job No.: DING2015 #437

Standard: FCC PK

Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2402MHz(GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

Note: Report NO.:ATE20162470

Polarization: Vertical Power Source: DC 5V

Date: 16/12/16/ Time: 18/10/02

Engineer Signature: DING

Distance: 3m

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30 20 10.0 2) 	Reading	Factor	Result	Limit	Margin		Height	Degree	2440.0 MI
30 20 10.0 2	7 2300.000 Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height	Degree	2440.0 MI
30 20 10.0	Freq. (MHz) 2390.000	Reading (dBuV/m) 45.86	Factor (dB) -7.53	Result (dBuV/m) 38.33	Limit (dBuV/m) 74.00	Margin (dB) -35.67	Detector	Height	Degree	2440.0 MI



Page 51 of 71

Report No.: ATE20162470



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Job No.: DING2015 #438

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2402MHz(GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

Note: Report NO .: ATE20162470

Polarization: Horizontal Power Source: DC 5V

Date: 16/12/16/ Time: 18/12/10

Engineer Signature: DING

Distance: 3m

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Report No.: ATE20162470 Page 52 of 71



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Job No.: DING2015 #439 Standard: FCC PK Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Light Up Mini Speaker Teal & Black

Report NO.:ATE20162470

Mode: TX 2480MHz(GFSK)

Model: CB-335051

Note:

Manufacturer: CLEVER BRIGHT

Polarization: Horizontal Power Source: DC 5V

Date: 16/12/16/ Time: 18/14/18

Engineer Signature: DING

Distance: 3m

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30 20 10.	0	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin		Height (cm)	Degree (deg.)	2600.0 MHz
30 20 10.	0 2440.000 Freq.	Reading	Factor	Result	Limit	Margin	Detector	Height	Degree	
30 20 10.	0 2440.000 Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height	Degree	



ATC[®]

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Report No.: ATE20162470

Page 53 of 71

Job No.: DING2015 #440

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Light Up Mini Speaker Teal & Black

Mode: TX 2480MHz(GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

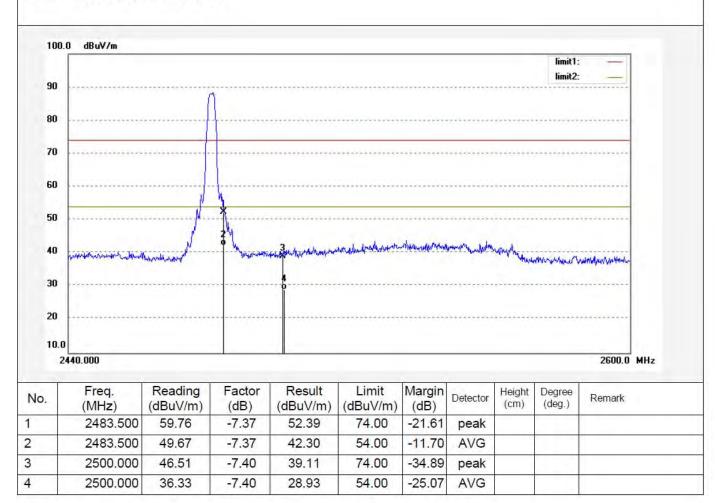
Note: Report NO.:ATE20162470

Polarization: Vertical Power Source: DC 5V

Date: 16/12/16/ Time: 18/15/42

Engineer Signature: DING

Distance: 3m





Report No.: ATE20162470 Page 54 of 71

Hopping mode



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Job No.: DING2015 #449

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Light Up Mini Speaker Teal & Black

Mode: HOPPING (GFSK)

Model: CB-335051

Manufacturer: CLEVER BRIGHT

Note: Report NO.:ATE20162470

Polarization: Vertical Power Source: DC 5V

Date: 16/12/16/ Time: 18/37/00

Engineer Signature: DING

Distance: 3m

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10.	2300.000 Freq.			the second control of	The state of the s		Detector peak				MHz
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10.	2300.000 Freq. (MHz) 2390.000 2390.000	(dBuV/m) 44.36 34.89	(dB) -7.53 -7.53	(dBuV/m) 36.83 27.36	(dBuV/m) 74.00 54.00	(dB) -37.17 -26.64	peak AVG				MHz
10.	2300.000 Freq. (MHz) 2390.000 2390.000 2400.000	(dBuV/m) 44.36 34.89 60.26	(dB) -7.53 -7.53 -7.46	(dBuV/m) 36.83 27.36 52.80	(dBuV/m) 74.00 54.00 74.00	(dB) -37.17 -26.64 -21.20	peak AVG peak AVG				MHz
10.	2300.000 Freq. (MHz) 2390.000 2390.000 2400.000 2400.000	(dBuV/m) 44.36 34.89 60.26 50.79	(dB) -7.53 -7.53 -7.46 -7.46	(dBuV/m) 36.83 27.36 52.80 43.33	(dBuV/m) 74.00 54.00 74.00 54.00	(dB) -37.17 -26.64 -21.20 -10.67	peak AVG peak AVG				MHz
10.	Freq. (MHz) 2390.000 2390.000 2390.000 2400.000 2400.000 2483.500	(dBuV/m) 44.36 34.89 60.26 50.79 63.32	(dB) -7.53 -7.53 -7.46 -7.46 -7.37	(dBuV/m) 36.83 27.36 52.80 43.33 55.95	(dBuV/m) 74.00 54.00 74.00 54.00 74.00	(dB) -37.17 -26.64 -21.20 -10.67 -18.05	peak AVG peak AVG				MHz



Report No.: ATE20162470 Page 55 of 71



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Site: 2# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DING2015 #450 Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Light Up Mini Speaker Teal & Black

Mode: HOPPING (GFSK) Model: CB-335051

Manufacturer: CLEVER BRIGHT

Note: Report NO.:ATE20162470 Polarization: Horizontal Power Source: DC 5V

Date: 16/12/16/ Time: 18/38/50

Engineer Signature: DING

Distance: 3m

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No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.48	-7.53	37.95	74.00	-36.05	peak			
2	2390.000	35.69	-7.53	28.16	54.00	-25.84	AVG			
3	2400.000	60.00	-7.46	52.54	74.00	-21.46	peak			
4	2400.000	50.88	-7.46	43.42	54.00	-10.58	AVG			
5	2483.500	54.24	-7.37	46.87	74.00	-27.13	peak			
6	2483.500	45.67	-7.37	38.30	54.00	-15.70	AVG			
7	2500.000	48.28	-7.40	40.88	74.00	-33.12	peak			
8	2500.000	38.88	-7.40	31.48	54.00	-22.52	AVG			



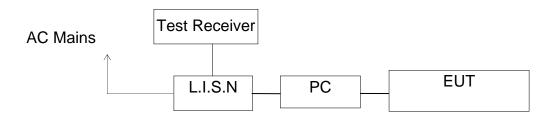
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Report No.: ATE20162470 Page 56 of 71

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

12.1.Block Diagram of Test Setup



(EUT: Light Up Mini Speaker Teal & Black)

12.2. Power Line Conducted Emission Measurement Limits

Frequency	Limit c	lB(μV)
(MHz)	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

NOTE1: The lower limit shall apply at the transition frequencies.

NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

12.3. 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.

12.4. Operating Condition of EUT

- 12.4.1. Setup the EUT and simulator as shown as Section 5.1.
- 12.4.2. Turn on the power of all equipment.
- 12.4.3.Let the EUT work in test mode and measure it.



Report No.: ATE20162470

Page 57 of 71

12.5.Test Procedure

The EUT is put on the plane 0.1m high above the ground by insulating support and 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 lines 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: 2014 on Conducted Emission Measurement.

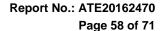
The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

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

12.6. Power Line Conducted Emission Measurement Results

PASS.

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





Test mode: Charging (AC 120V/60Hz) EUT mode: CB-335051 MEASUREMENT RESULT: "CB-1125-01 fin" 2016-11-25 10:07 Frequency Level Transd Limit Margin Detector Line PΕ dBuV dB dBuV 10.8 66 10.8 65.73 3.0 QP 0.150000 63.00 66 T.1 GND 3.23 0.155000 62.50 QΡ L1GND 0.425000 41.90 11.0 57.35 15.45 QΡ GND L111.1 28.20 0.895000 11.3 56 27.8 QΡ L1GND 25.60 30.4 QP 3.070000 56 L1GND 11.4 35.4 QP 5.250000 24.60 60 L1GND MEASUREMENT RESULT: "CB-1125-01 fin2" 2016-11-25 10:07 Level Transd Limit Margin Detector Line Frequency PF. dBµV dB dΒμV dB MHz 0.155000 39.00 10.8 55.73 16.73 AV T.1 GND 0.420000 29.10 11.0 47.45 18.35 AV L1GND 20.60 11.2 46 25.4 AV L1GND 1.160000 11.3 3.080000 18.20 46 27.8 AV L1GND 34.4 AV 34.9 AV 50 5.220000 15.60 11.4 L1GND 18.025000 15.10 11.7 50 L1GND MEASUREMENT RESULT: "CB-1125-02 fin" 2016-11-25 10:05 Frequency Level Transd Limit Margin Detector Line PE. MHz dBuV dB dBuV 18.03 0.155000 47.70 10.8 65.73 QΡ GND N 43.40 11.0 57.55 0.415000 14.15 QP N GND 1.450000 34.20 11.2 56 21.8 QP N GND 3.120000 34.50 11.3 60 21.5 QP GND 60 30.10 29.9 QP 5.280000 11.4 N GND 18.000000 27.40 11.7 60 32.6 QP N GND MEASUREMENT RESULT: "CB-1125-02 fin2" 2016-11-25 10:05 Frequency Level Transd Limit Margin Detector Line dB dBuV dB dBµV MHz 0.150000 25.50 10.8 56 30.5 AV Ν GND 0.425000 26.20 11.0 47.35 21.15 ΑV Ν GND 23.60 22.4 1.510000 11.2 46 ΑV Ν GND 22.40 11.3 23.6 AV 2.580000 46 Ν GND 5.270000 23.40 11.4 50 26.6 AV Ν GND

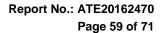
26.475000

15.90

11.8

50

GND

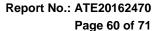




Test mode : Cha	-335051						
MEASUREMENT	RESULT	: "CB-1	125-03	fin"			
2016-11-25 10 Frequency MHz					Detector	Line	PE
0.155000 0.405000 1.090000 4.880000 5.410000 16.275000	62.80 41.30 31.90 32.00 26.10 22.30	11.0 11.1 11.4 11.5	56	16.45 24.1 24.0 33.9	QP QP QP QP	L1 L1 L1 L1 L1	GND GND GND GND GND GND
MEASUREMENT	RESULT	: "CB-1	125-03	_fin2"			
2016-11-25 10 Frequency MHz			Limit dBµV		Detector	Line	PE
0.200000 0.415000 1.575000 2.770000 5.520000 18.000000	35.60 28.50 14.30 23.20 13.90 16.30	11.0 11.2	47.55 46 46 50	31.7 22.8 36.1	AV AV AV	L1 L1 L1 L1 L1	GND GND GND GND GND GND
MEASUREMENT	RESULT	: "CB-1	125-04	_fin"			
2016-11-25 10 Frequency MHz			Limit dBµV		Detector	Line	PE
0.155000 0.385000 1.560000 3.240000 6.550000 24.075000	59.70 41.90 33.00 30.50 22.40 24.90	10.9 11.2 11.4	58.17 56 56 60	23.0 25.5 37.6	QP QP QP QP	N N N N N	GND GND GND GND GND GND
MEASUREMENT	RESULT	: "CB-1	125-04	_fin2"			
2016-11-25 10 Frequency MHz		Transd dB	Limit dBµV		Detector	Line	PE
0.165000 0.435000 1.490000 2.750000 5.860000 18.125000	40.70 30.10 26.00 24.80 19.20 20.80	11.0 11.2 11.3 11.5 11.7	46 50 50	17.06 20.0 21.2 30.8 29.2	AV AV AV	N N N N N	GND GND GND GND GND GND

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.





CONDUCTED EMISSION STANDARD FCC PART 15B

Light Up Mini Speaker Teal & Black M/N:CB-335051 CLEVER BRIGHT EUT:

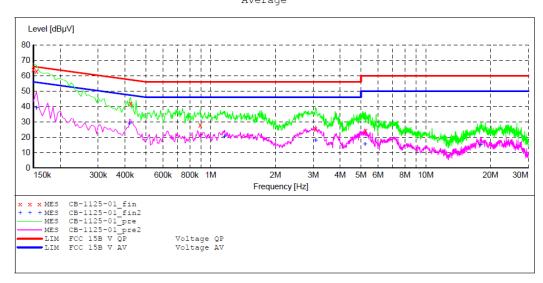
Manufacturer: Operating Condition: Charging 2#Shielding Room Test Site:

DING Operator:

Test Specification: L 120V/60Hz

Report NO.:ATE20162470 2016-11-25 / 10:06:47 Comment: Start of Test:

SCAN TABLE: "V 150K-30MHz fin"
Short Description: _SUB_STD_VTERM2 1.70
Start Stop Step Detector Meas.
Frequency Frequency Width Time
150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s TF Transducer Bandw. 9 kHz NSLK8126 2008 Average



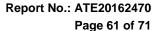
MEASUREMENT RESULT: "CB-1125-01 fin"

20	16-11-25 10	:07						
	Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
	0.150000	63.00	10.8	66	3.0	OP	L1	GND
	0.155000	62.50			3.23	OP	L1	GND
	0.425000	41.90	11.0	57.35	15.45	Q̈́Ρ	L1	GND
	0.895000	28.20	11.1	56	27.8	QP	L1	GND
	3.070000	25.60	11.3	56	30.4	QP	L1	GND
	5.250000	24.60	11.4	60	35.4	QP	L1	GND

MEASUREMENT RESULT: "CB-1125-01 fin2"

20	016-11-25 10 Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
	0.155000	39.00	10.8	55.73	16.73	AV	L1	GND
	0.420000	29.10	11.0	47.45	18.35	AV	L1	GND
	1.160000	20.60	11.2	46	25.4	AV	L1	GND
	3.080000	18.20	11.3	46	27.8	AV	L1	GND
	5.220000	15.60	11.4	50	34.4	AV	L1	GND
	18.025000	15.10	11.7	50	34.9	AV	L1	GND

FCC ID: 2AD42-CB-335051





CONDUCTED EMISSION STANDARD FCC PART 15B

Light Up Mini Speaker Teal & Black M/N:CB-335051 CLEVER BRIGHT

Manufacturer: Operating Condition: Charging 2#Shielding Room Test Site:

Operator: DING Test Specification: N 120V/60Hz

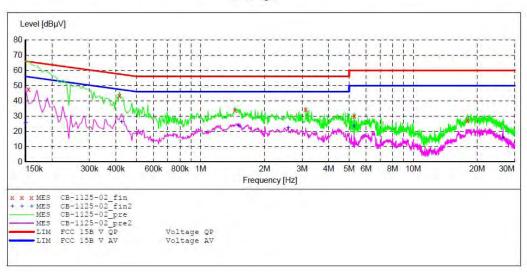
Report NO.:ATE20162470 Comment: Start of Test: 2016-11-25 / 10:05:17

SCAN TABLE: "V 150K-30MHz fin"
Short Description: SUB_STD_VTERM2 1.70

Stop Detector Meas. Start Step IF Transducer Bandw. Time

Frequency Frequency Width 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008

Average

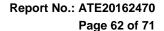


MEASUREMENT RESULT: "CB-1125-02 fin"

2	016-11-25 10	:05						
	Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
	0.155000	47.70	10.8	65.73	18.03	QP	N	GND
	0.415000	43.40	11.0	57.55	14.15	QP	N	GND
	1.450000	34.20	11.2	56	21.8	QP	N	GND
	3.120000	34.50	11.3	60	21.5	QP	N	GND
	5.280000	30.10	11.4	60	29.9	QP	N	GND
	18.000000	27.40	11.7		32.6	QP	N	GND

MEASUREMENT RESULT: "CB-1125-02_fin2"

2016-11-25 10	:05							
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.150000	25.50	10.8	56	30.5	AV	N	GND	
0.425000	26.20	11.0	47.35	21.15	AV	N	GND	
1.510000	23.60	11.2	46	22.4	AV	N	GND	
2.580000	22.40	11.3	46	23.6	AV	N	GND	
5.270000	23.40	11.4	50	26.6	AV	N	GND	
26.475000	15.90	11.8	50	34.1	AV	N	GND	





CONDUCTED EMISSION STANDARD FCC PART 15B

Light Up Mini Speaker Teal & Black M/N:CB-335051 CLEVER BRIGHT EUT:

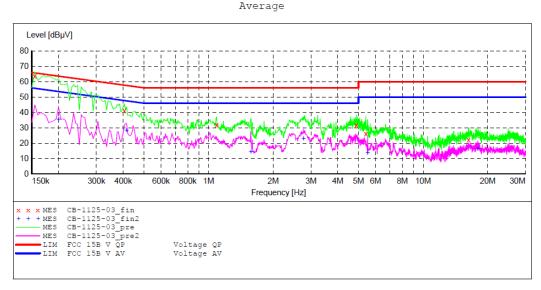
Manufacturer:
Operating Condition: Charging
The Site: 2#Shielding Room Manufacturer:

DING Operator:

Test Specification: L 240V/60Hz

Comment: Report NO.:ATE20162470 Start of Test: 2016-11-25 / 10:08:45

SCAN TABLE: "V 150K-30MHz fin"
Short Description: __SUB_STD_VTERM2 1.70
Start Stop Step __Detector_Moss Detector Meas. IF Transducer Frequency Frequency Width 150.0 kHz 30.0 MHz 4.5 kHz Time Bandw. 9 kHz NSLK8126 2008 QuasiPeak 1.0 s

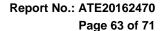


MEASUREMENT RESULT: "CB-1125-03 fin"

20	16-11-25 10	:09						
	Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
	0.155000	62.80	10.8	65.73	2.93	QP	L1	GND
	0.405000	41.30	11.0	57.75	16.45	QP	L1	GND
	1.090000	31.90	11.1	56	24.1	QP	L1	GND
	4.880000	32.00	11.4	56	24.0	QP	L1	GND
	5.410000	26.10	11.5	60	33.9	QP	L1	GND
	16.275000	22.30	11.7	60	37.7	QP	L1	GND

MEASUREMENT RESULT: "CB-1125-03 fin2"

2016-11-25 1 Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.200000	35.60	10.8	53.61	18.01	AV	L1	GND
0.415000	28.50	11.0	47.55	19.05	AV	L1	GND
1.575000	14.30	11.2	46	31.7	AV	L1	GND
2.770000	23.20	11.3	46	22.8	AV	L1	GND
5.520000	13.90	11.5	50	36.1	AV	L1	GND
18.000000	16.30	11.7	50	33.7	AV	L1	GND





CONDUCTED EMISSION STANDARD FCC PART 15B

Light Up Mini Speaker Teal & Black M/N:CB-335051

Manufacturer: CLEVER BRIGHT Operating Condition: Charging

2#Shielding Room Test Site: DING Operator: Test Specification: N 240V/60Hz

Report NO.:ATE20162470 Comment: Start of Test: 2016-11-25 / 10:10:52

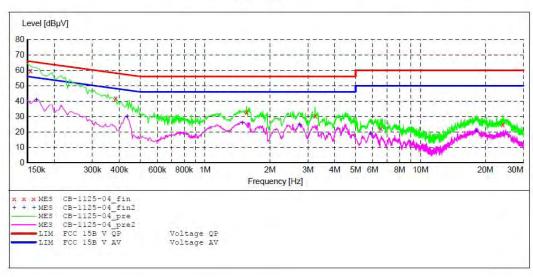
SCAN TABLE: "V 150K-30MHz fin"
Short Description: _SUB_STD_VTERM2 1.70

Start Stop Step Detector Meas. IF Transducer

Bandw. Time

Frequency Frequency Width 150.0 kHz 30.0 MHz 4.5 kHz 9 kHz NSLK8126 2008 QuasiPeak 1.0 s





MEASUREMENT RESULT: "CB-1125-04 fin"

2	016-11-25 10	:12						
	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dBµV	dB	dBµV	dB			
	0.155000	59.70	10.8	65.73	6.03	OP	N	GND
	0.385000	41.90	10.9	58.17	16.27	QP	N	GND
	1.560000	33.00	11.2	56	23.0	QP	N	GND
	3.240000	30.50	11.4	56	25.5	QP	N	GND
	6.550000	22.40	11.5	60	37.6	QP	N	GND
	24.075000	24.90	11.7	60	35.1	QP	N	GND

MEASUREMENT RESULT: "CB-1125-04 fin2"

2016-11-25 10	:12						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.165000	40.70	10.8	55.21	14.51	AV	N	GND
0.435000	30.10	11.0	47.16	17.06	AV	N	GND
1.490000	26.00	11.2	46	20.0	AV	N	GND
2.750000	24.80	11.3	46	21.2	AV	N	GND
5.860000	19.20	11.5	50	30.8	AV	N	GND
18.125000	20.80	11.7	50	29.2	AV	N	GND



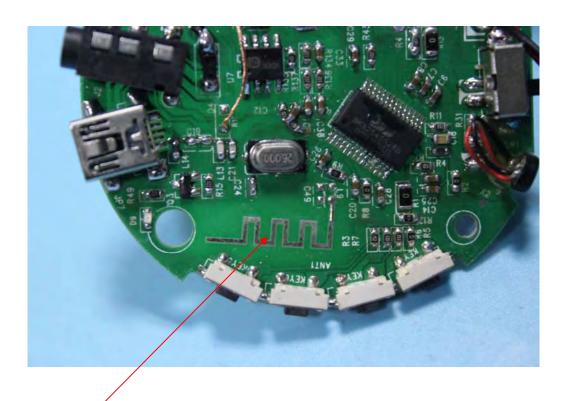
13.ANTENNA REQUIREMENT

13.1.The Requirement

According to Section 15.203, 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.

13.2. Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.

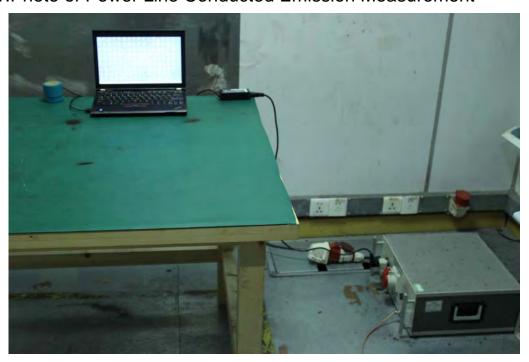


Antenna

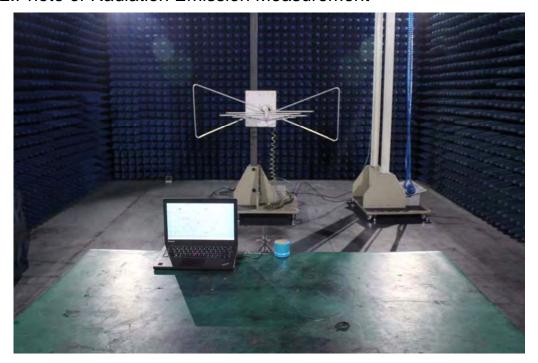


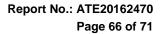
14.PHOTOGRAPHS

14.1.Photo of Power Line Conducted Emission Measurement



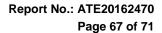
14.2.Photo of Radiation Emission Measurement







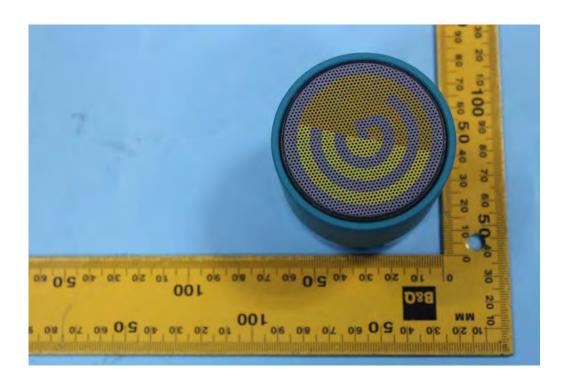




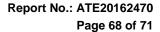


14.3.Photo of EUT





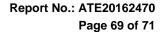
FCC ID: 2AD42-CB-335051 ACCURATE TECHNOLOGY CO. LTD









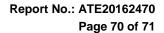






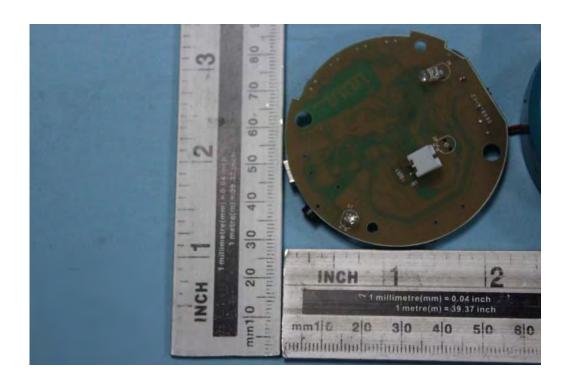


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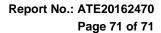




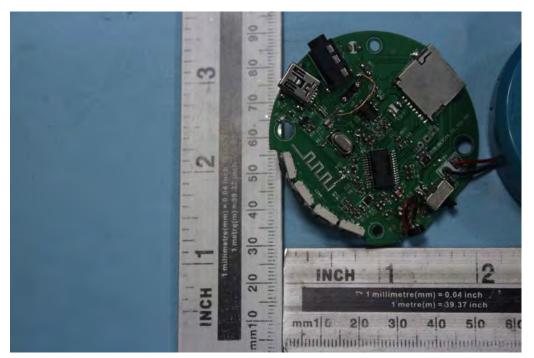


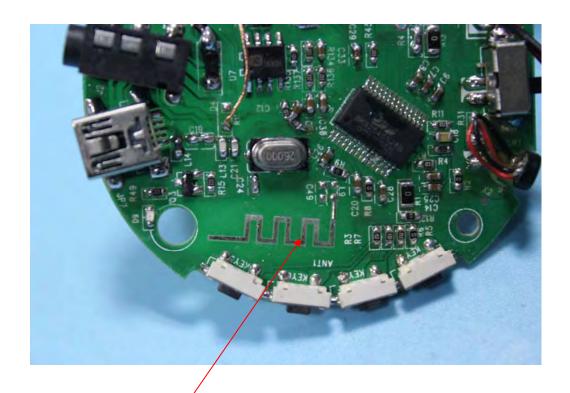


FCC ID: 2AD42-CB-335051 ACCURATE TECHNOLOGY CO. LTD









Antenna/