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	:	CLEVER BRIGHT INTERNATIONAL (H.K.) LTD.
Address	:	Rm 1701, Zhuoyue Building, Fuhua Yi Rd. Futian Central Zone, Shenzhen, China
Prepared by	:	ACCURATE TECHNOLOGY CO., LTD
Address	:	F1, Bldg. A, Chan Yuan New Material Port, Keyuan Rd. Science & Industry Park, Nan Shan, Shenzhen, Guangdong P.R. China
		Tel: (0755) 26503290 Fax: (0755) 26503396

Report No.	:	ATE20162470
Date of Test	:	November 25-December 16, 2016
Date of Report	:	December 19, 2016

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Description Page

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
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
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
(Bob Wang, Engineer)

Approved & Authorized Signer : Sean Liu
(Sean Liu, Manager)

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

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 (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	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	CBLU1183540-01	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	WHKX3.6/18G-10SS	N/A	Jan. 9, 2016	Jan. 09, 2017
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	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

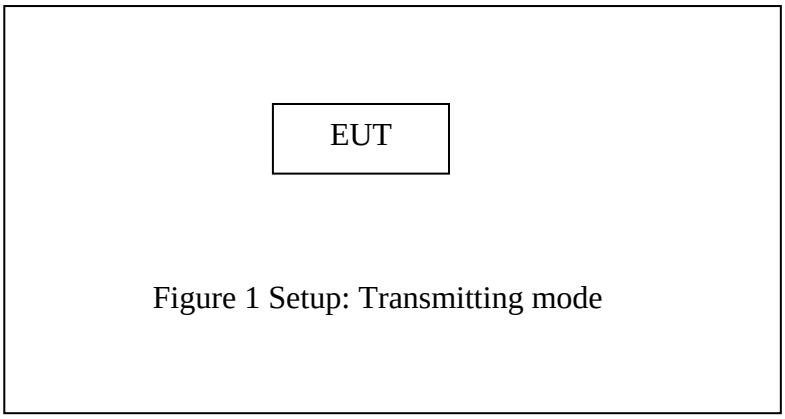


Figure 1 Setup: Transmitting mode

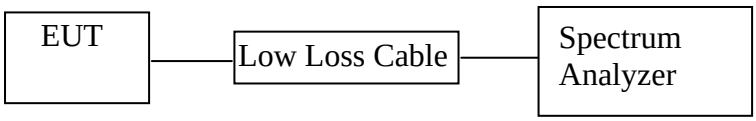
(EUT: Light Up Mini Speaker Teal & Black)

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

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.

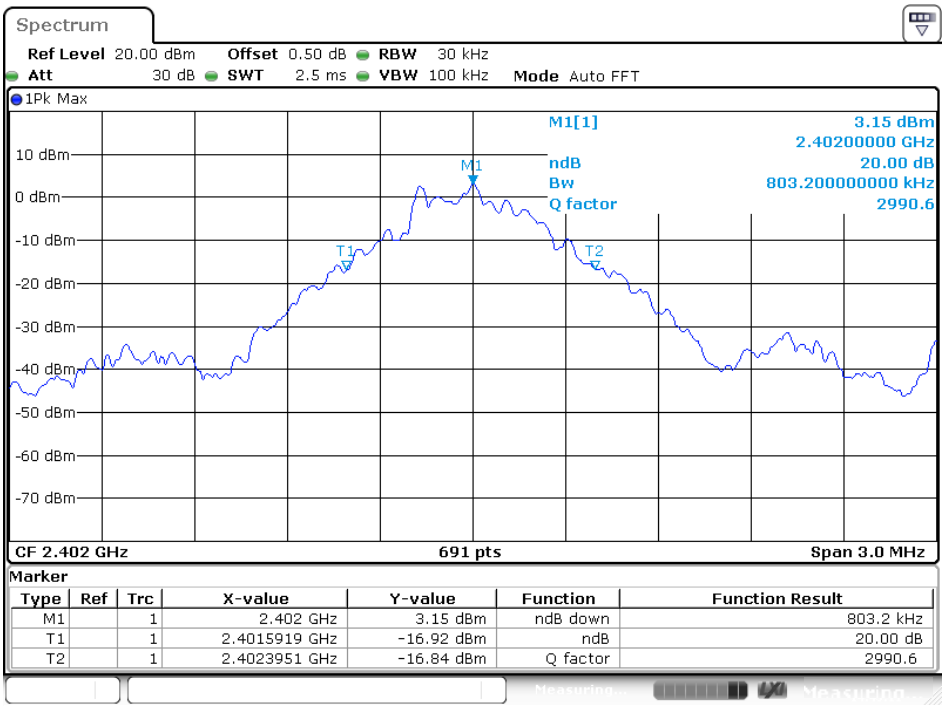
5.6.Test Result

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

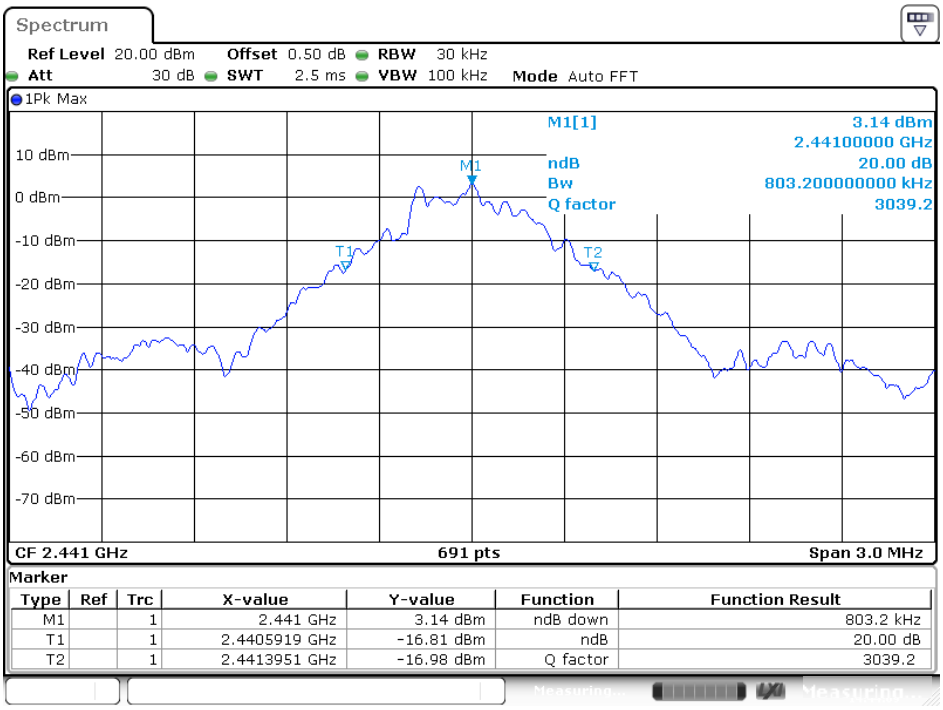
The spectrum analyzer plots are attached as below.

GFSK Mode

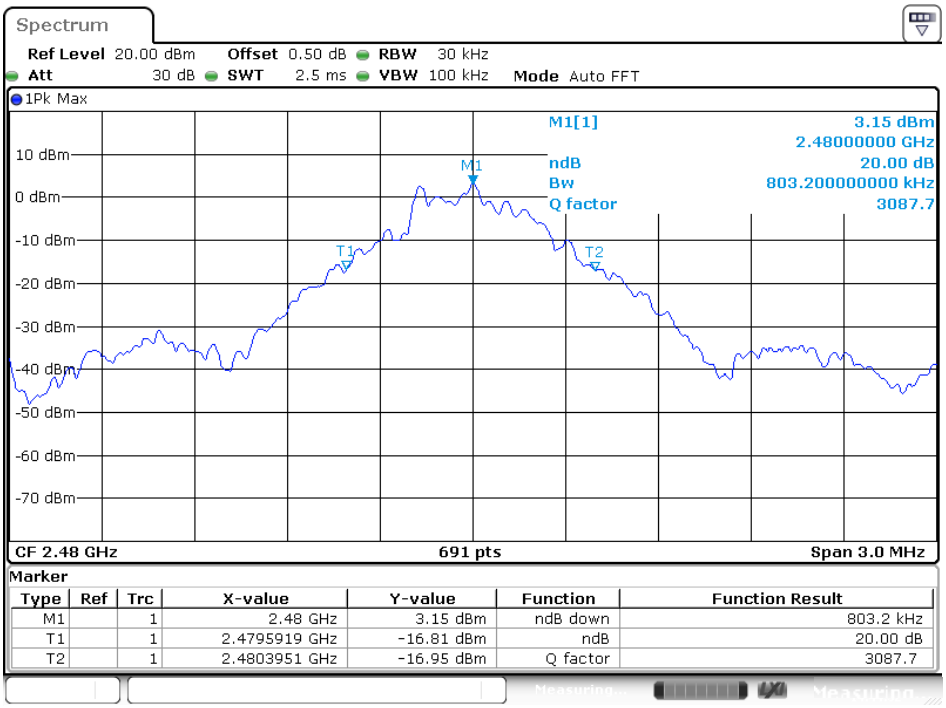
Low channel



Middle channel

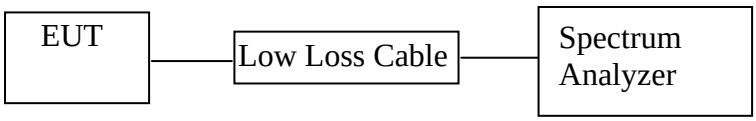


High channel



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.

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.

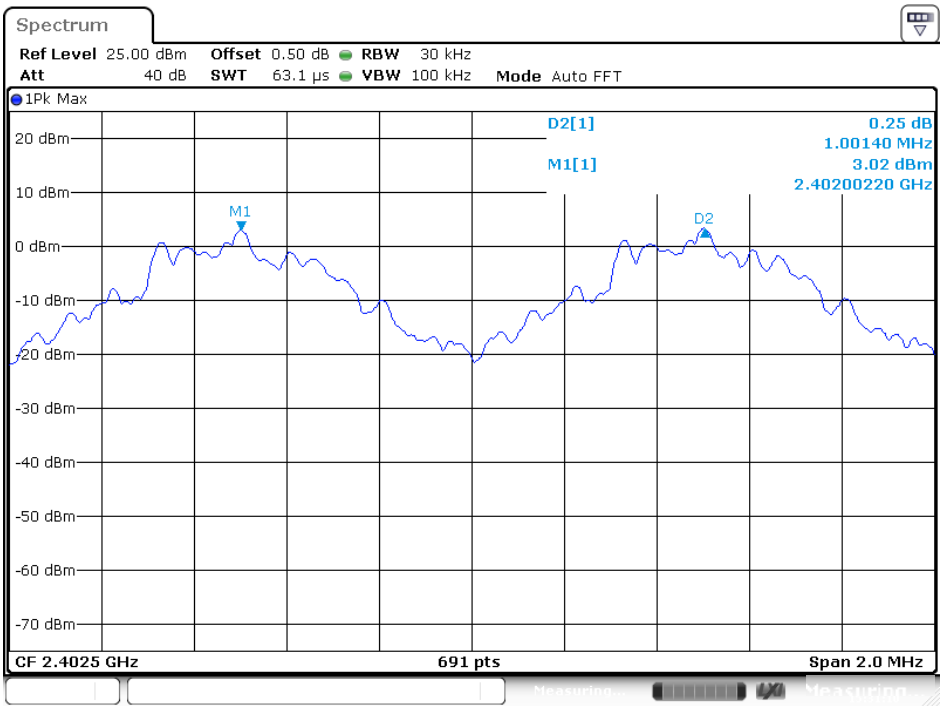
6.5.4.Measurement the channel separation

6.6.Test Result

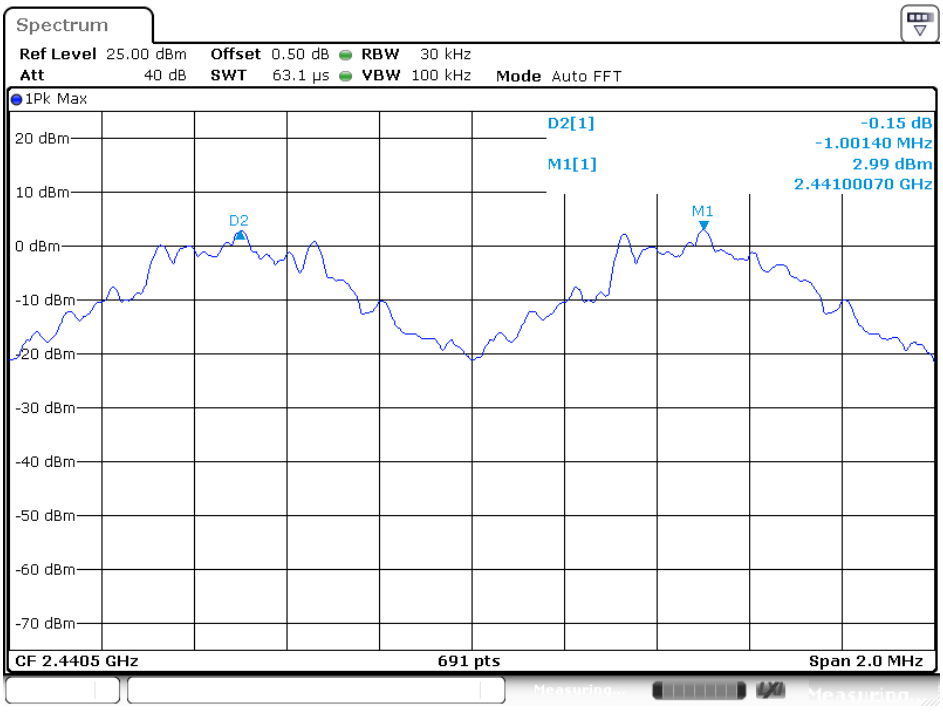
Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.0014	25KHz or 20dB bandwidth	PASS
	2403			
Middle	2440	1.0014	25KHz or20dB bandwidth	PASS
	2441			
High	2479	1.0014	25KHz or 20dB bandwidth	PASS
	2480			

The spectrum analyzer plots are attached as below.

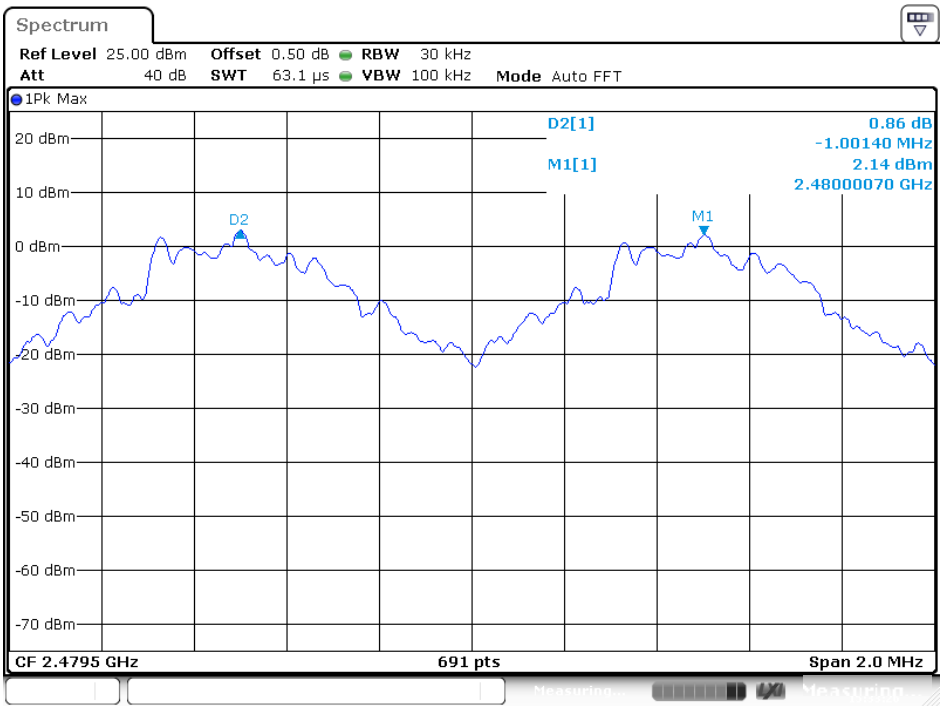
Low channel



Middle channel

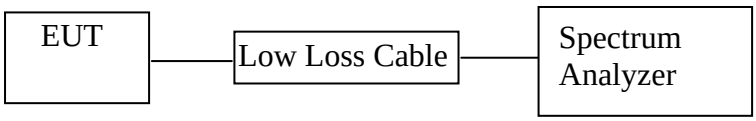


High channel



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.

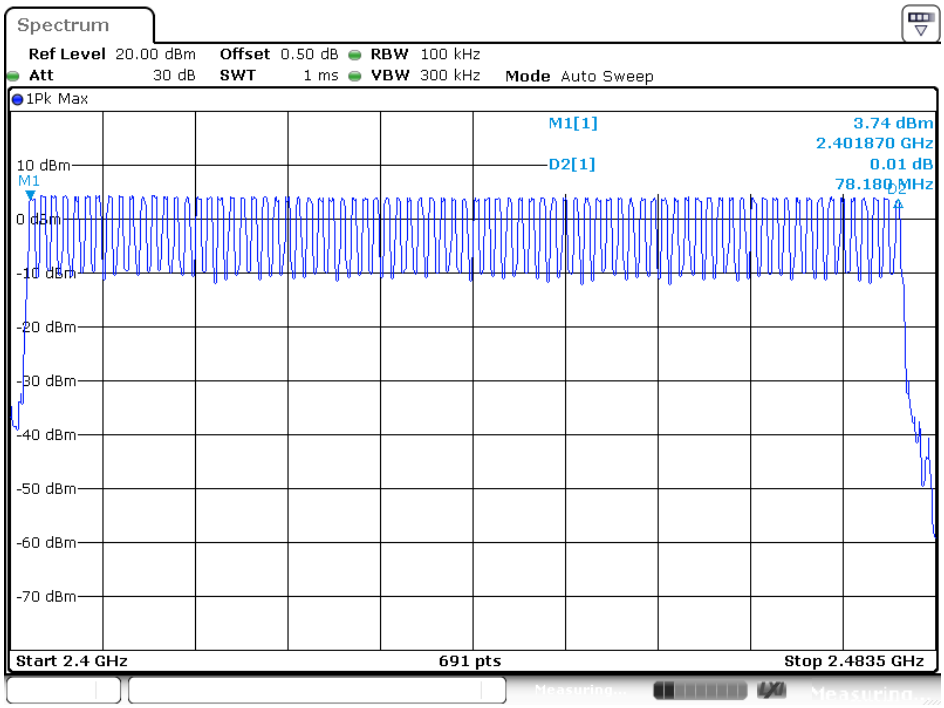
7.5.3.Max hold, view and count how many channel in the band.

7.6.Test Result

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

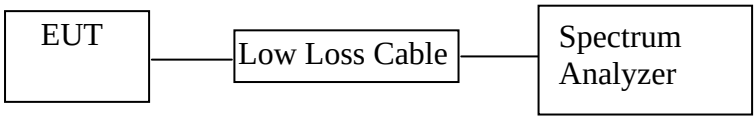
The spectrum analyzer plots are attached as below.

Number of hopping channels



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.

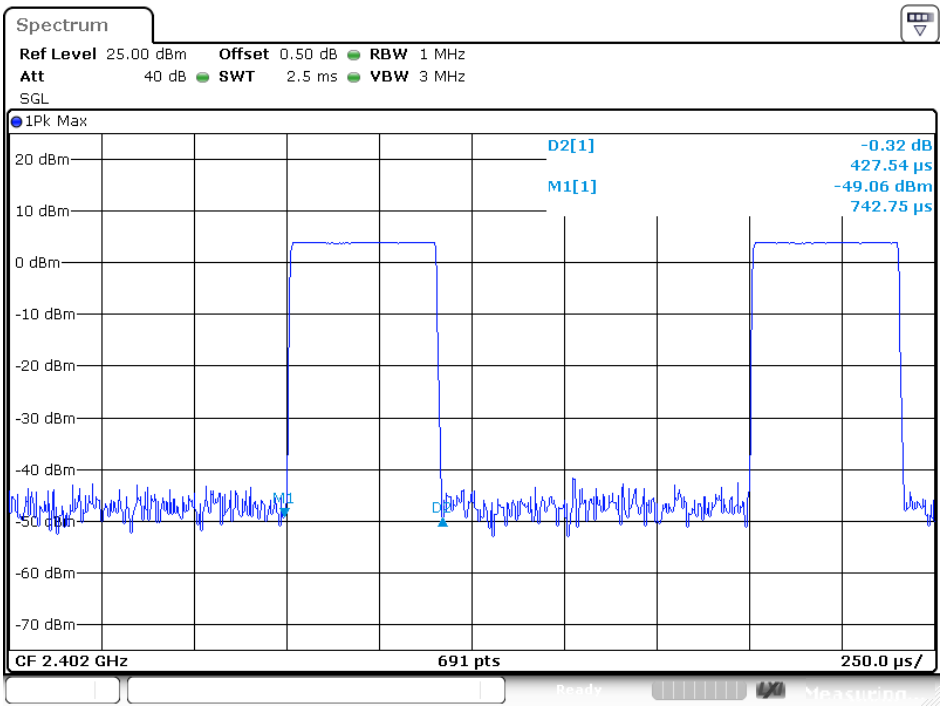
8.6.Test Result

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.428	136.96	400
	2441	0.438	140.16	400
	2480	0.442	141.44	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.746	279.36	400
	2441	1.790	286.40	400
	2480	1.761	281.76	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	2.978	317.65	400
	2441	2.978	317.65	400
	2480	3.000	320.00	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

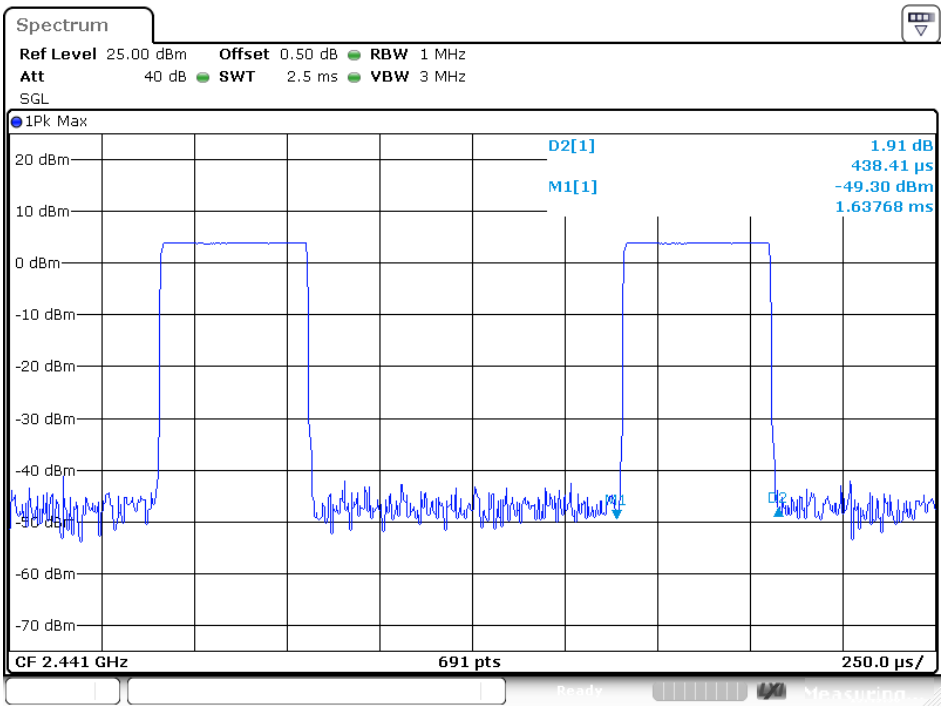
The spectrum analyzer plots are attached as below.

GFSK Mode

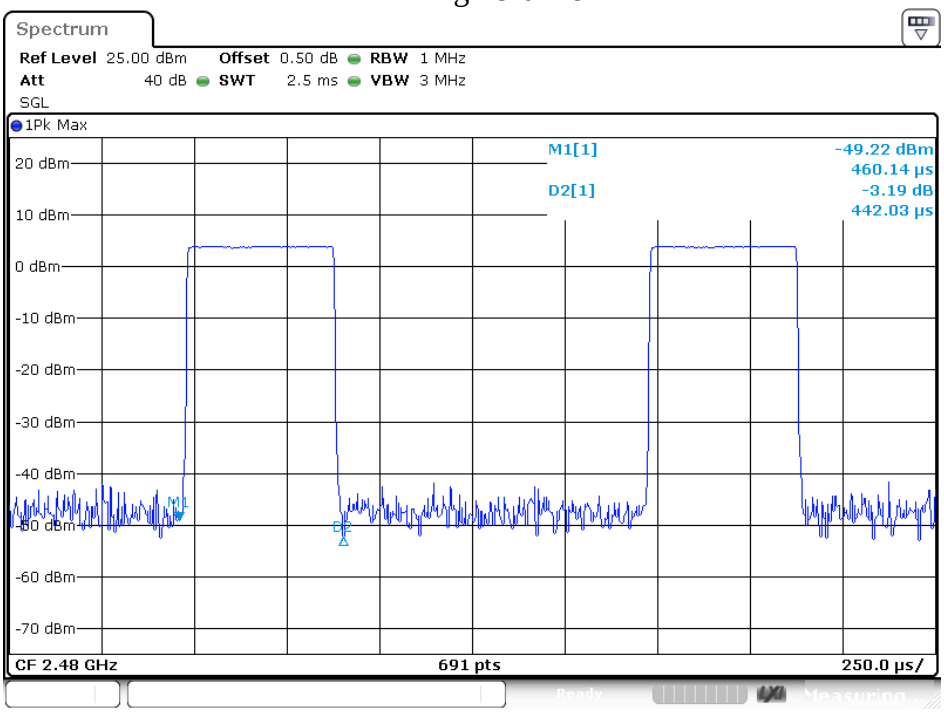
DH1 Low channel



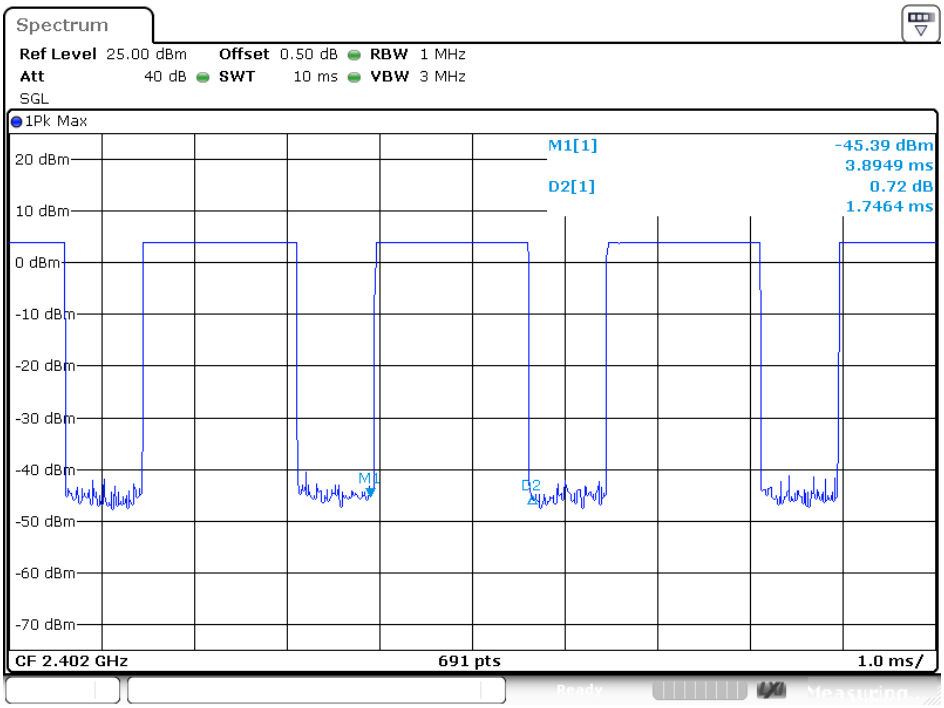
DH1 Middle channel



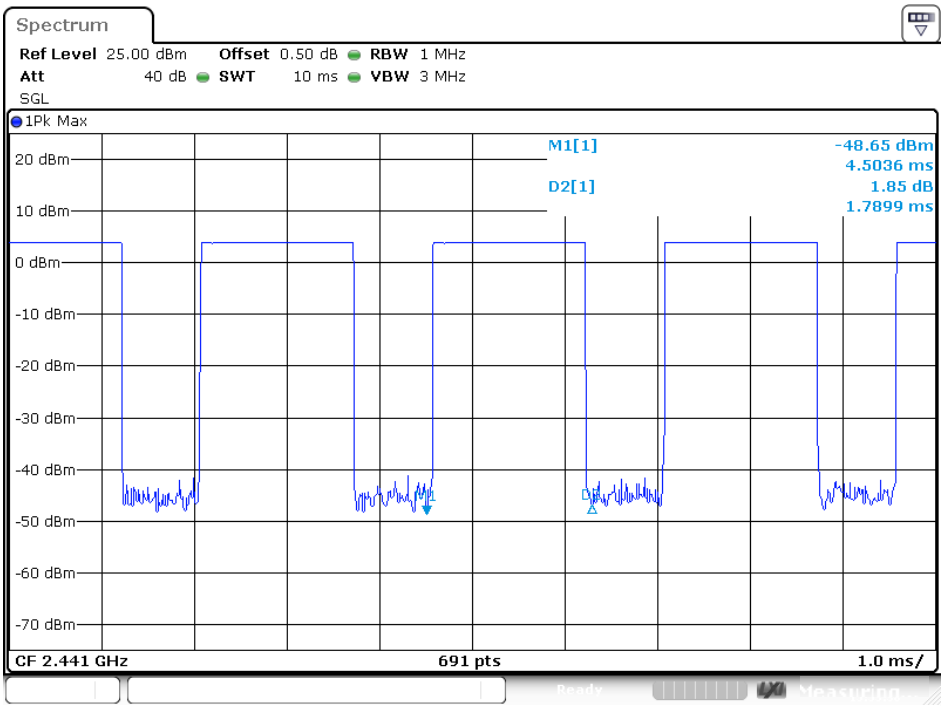
DH1 High channel



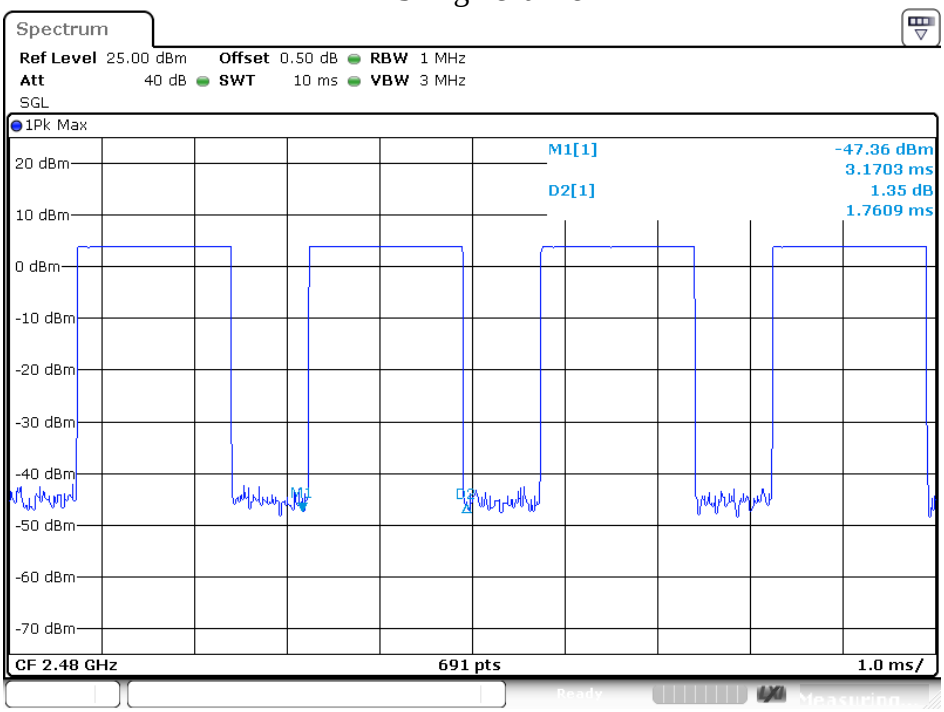
DH3 Low channel



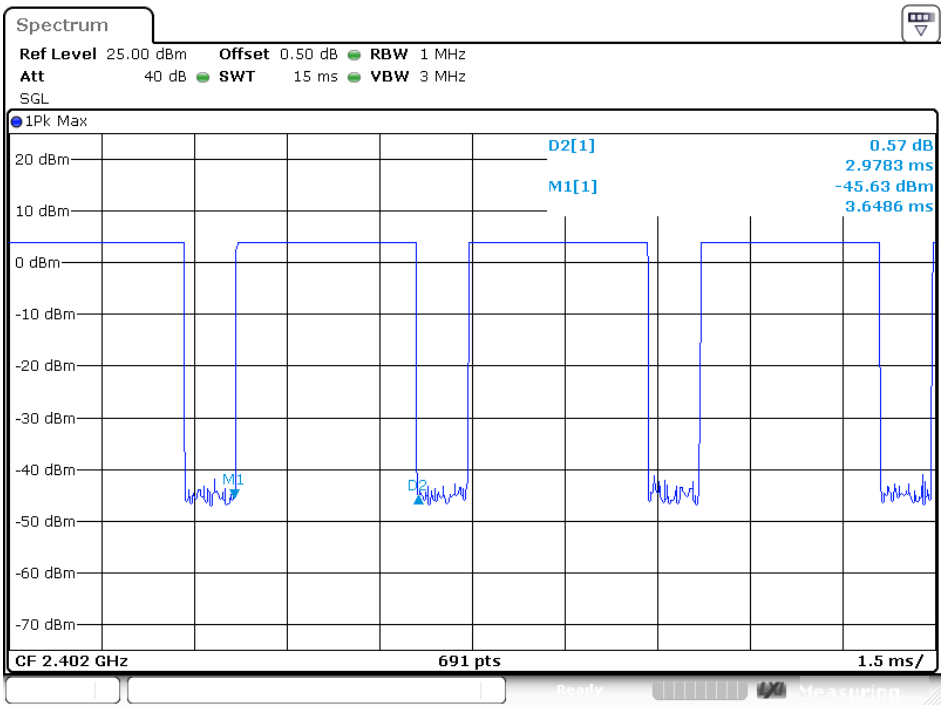
DH3 Middle channel



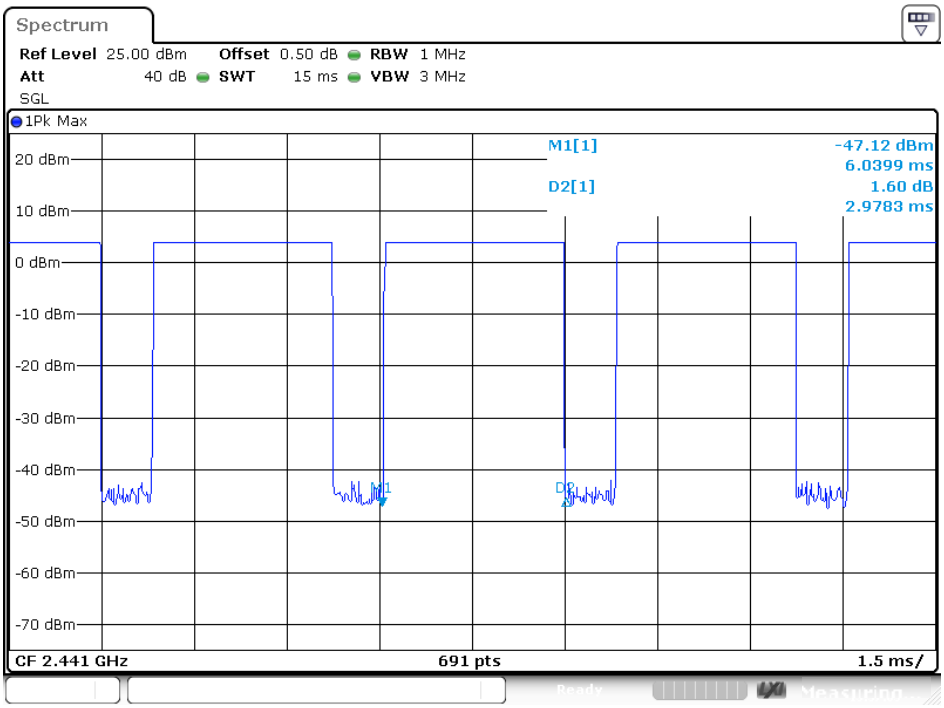
DH3 High channel



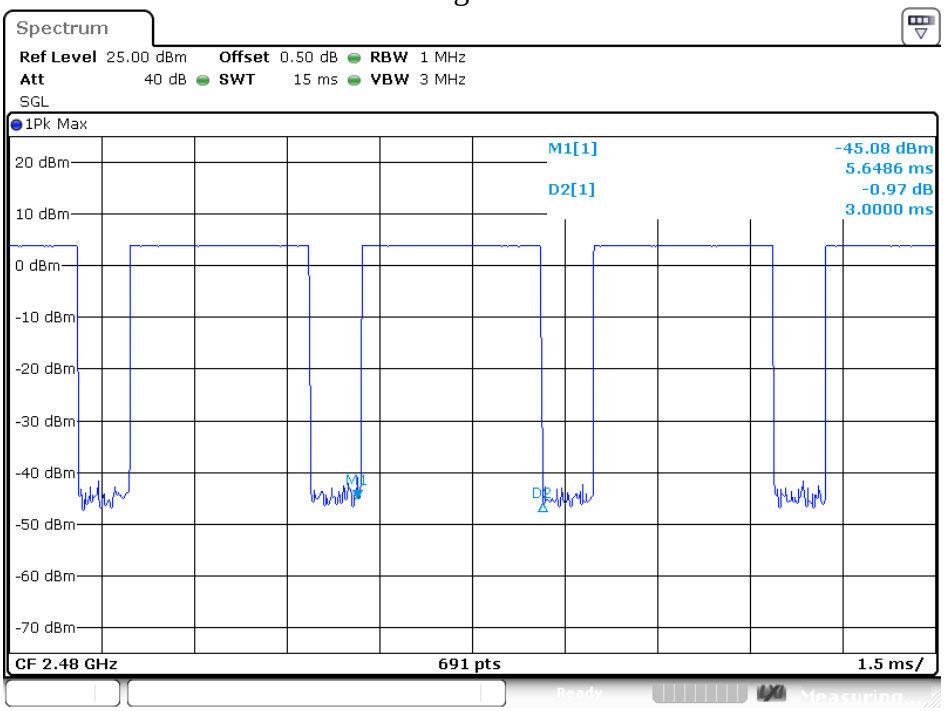
DH5 Low channel



DH5 Middle channel

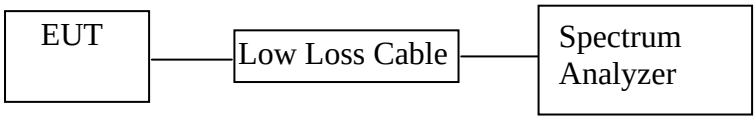


DH5 High channel



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.

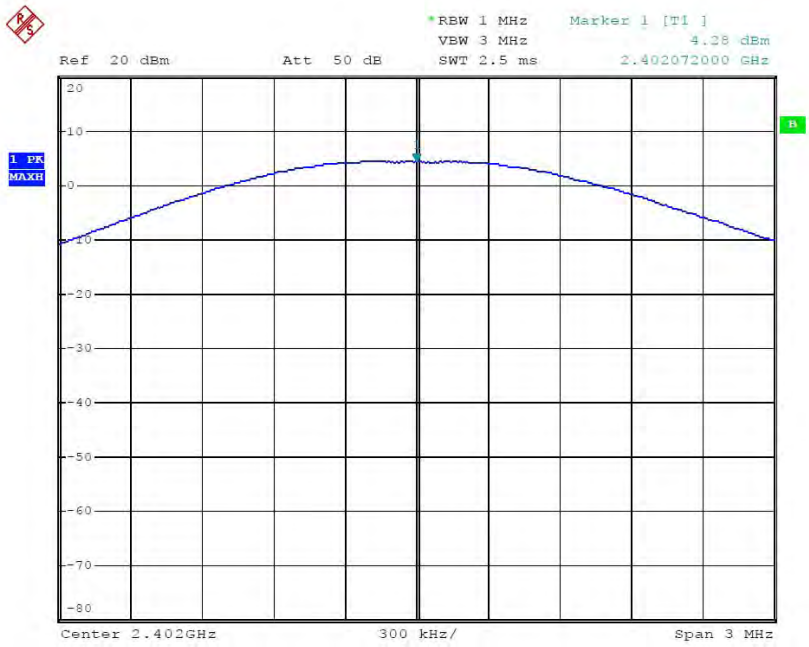
9.6.Test Result

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

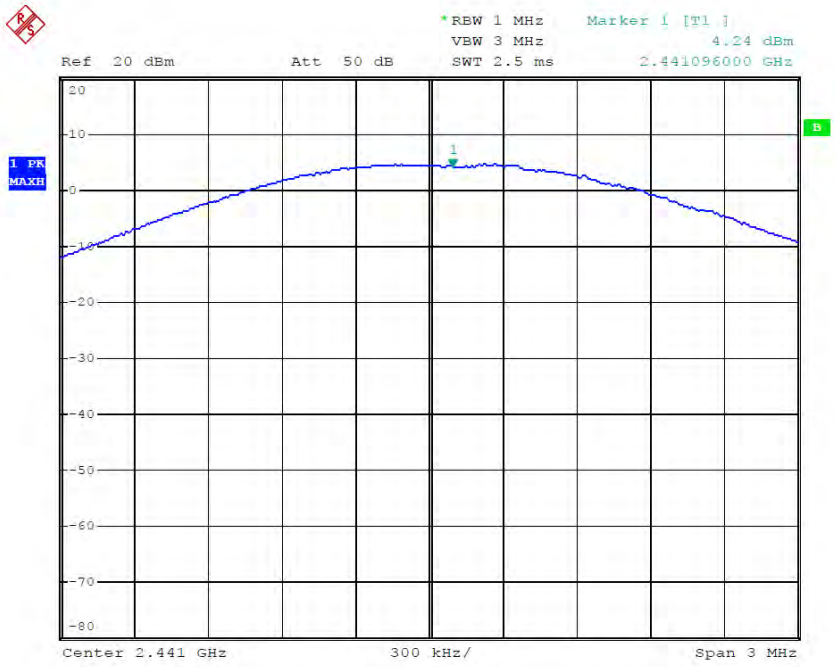
The spectrum analyzer plots are attached as below.

GFSK Mode

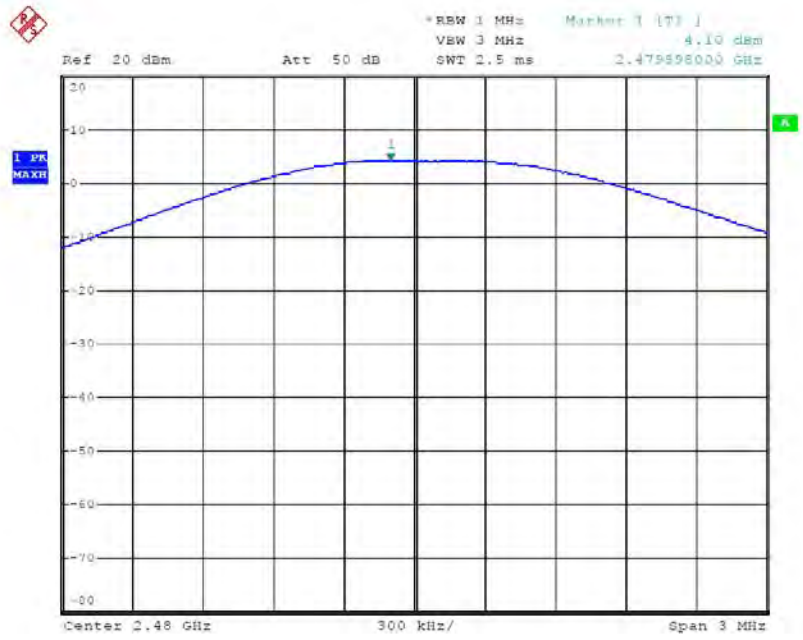
Low channel



Middle channel



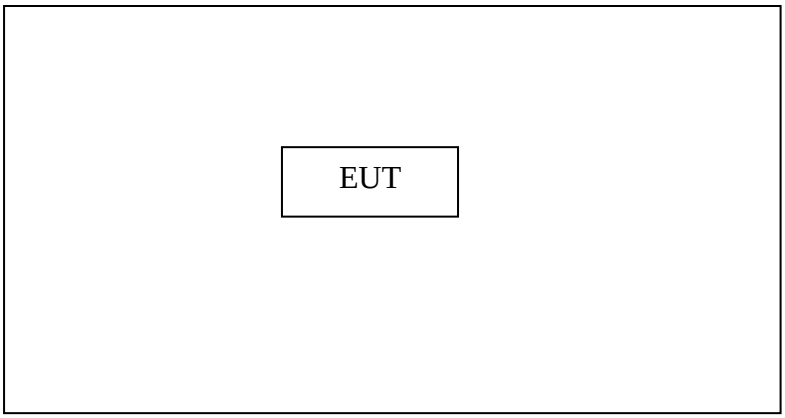
High channel



10.RADIATED EMISSION TEST

10.1.Block Diagram of Test Setup

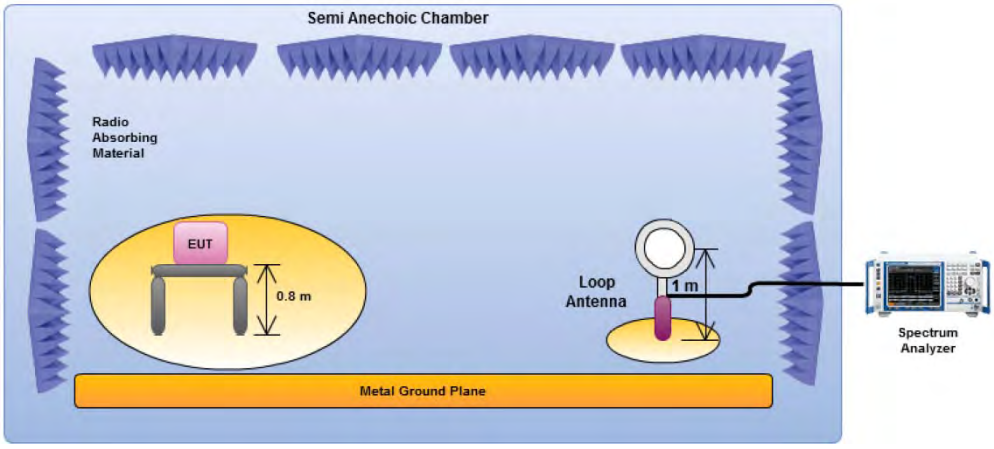
10.1.1.Block diagram of connection between the EUT and peripherals



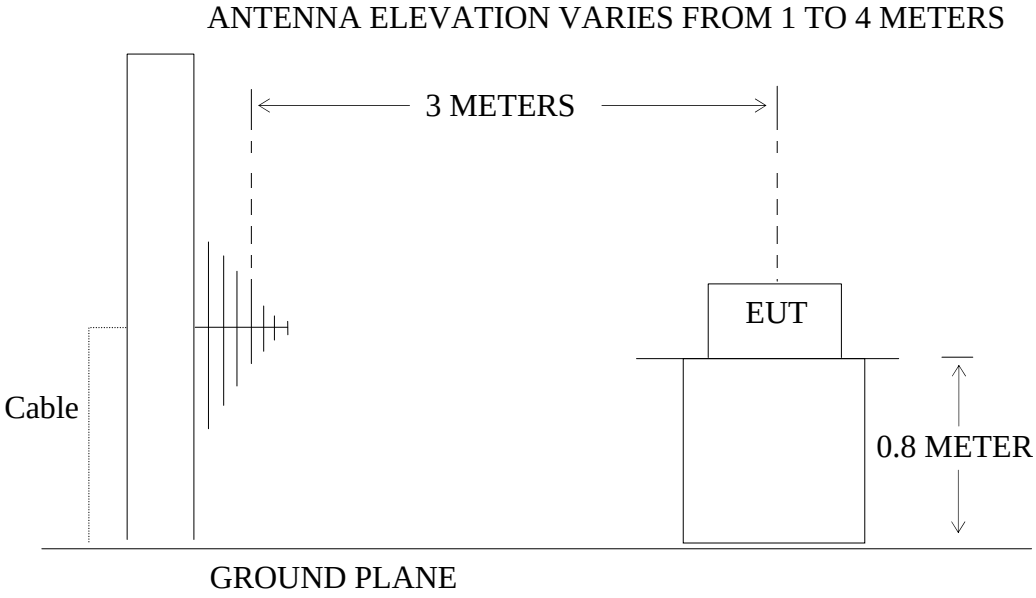
Setup: Transmitting mode

10.1.2. Semi-Anechoic Chamber Test Setup Diagram

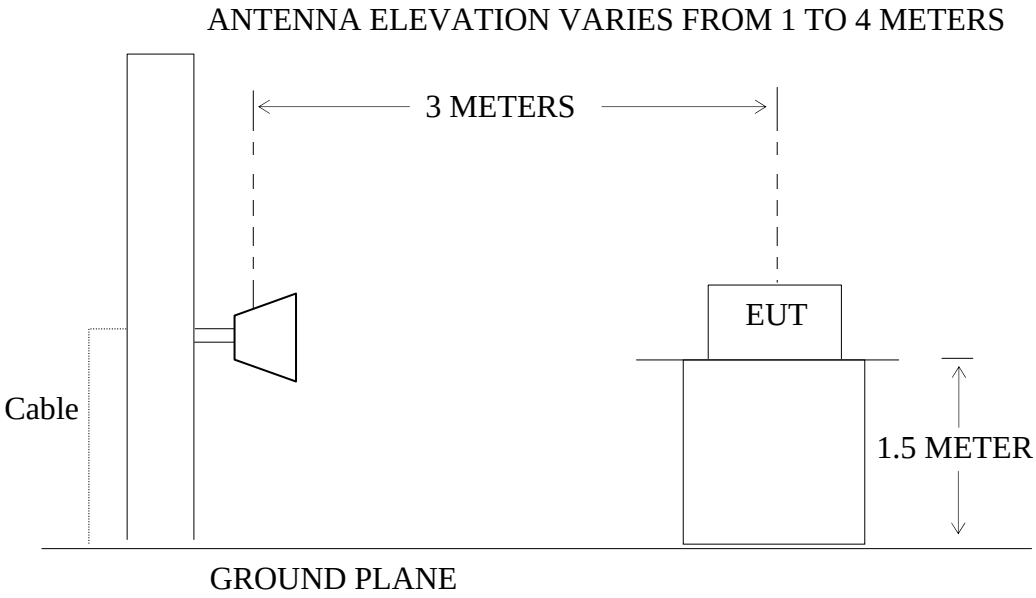
Below 30MHz



30MHz-1GHz



Above 1GHz



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

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:

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	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

(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.

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.

Below 1GHz

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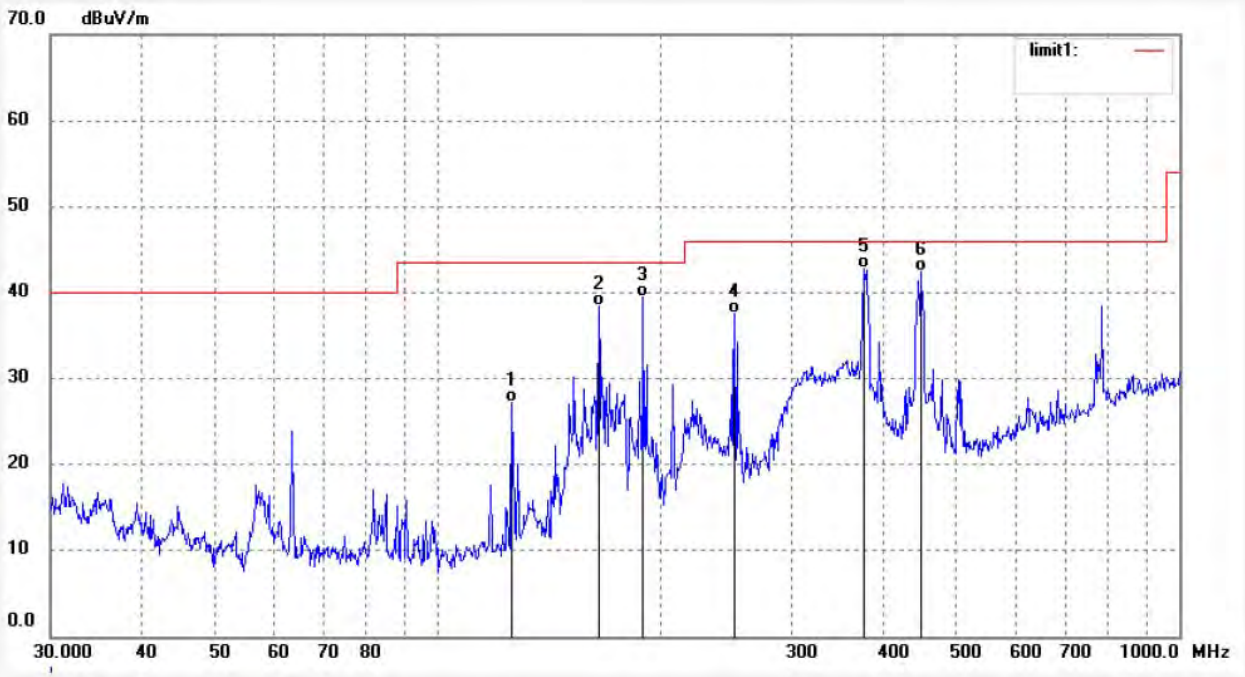
Job No.: DING #3088	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 16/11/25/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 10/32/25
EUT: Light Up Mini Speaker Teal & Black	Engineer Signature: DING
Mode: TX 2402MHz (GFSK)	Distance: 3m
Model: CB-335051	
Manufacturer: CLEVER BRIGHT	

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	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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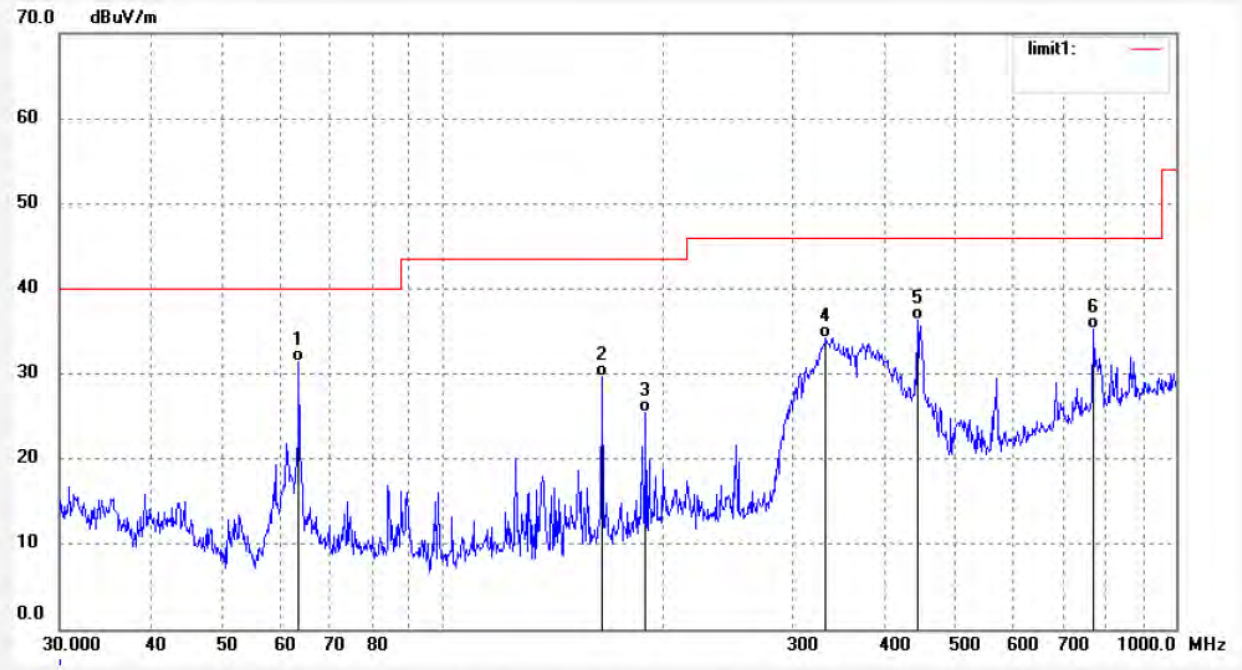
Job No.: DING #3089
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2402MHz (GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 5V
Date: 2016/11/25
Time: 10:34:51
Engineer Signature: DING
Distance: 3m

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	63.6311	53.29	-21.87	31.42	40.00	-8.58	QP			
2	164.8911	50.47	-20.85	29.62	43.50	-13.88	QP			
3	189.1075	44.98	-19.49	25.49	43.50	-18.01	QP			
4	332.9534	48.79	-14.49	34.30	46.00	-11.70	QP			
5	444.1299	48.39	-12.00	36.39	46.00	-9.61	QP			
6	771.0475	39.97	-4.73	35.24	46.00	-10.76	QP			

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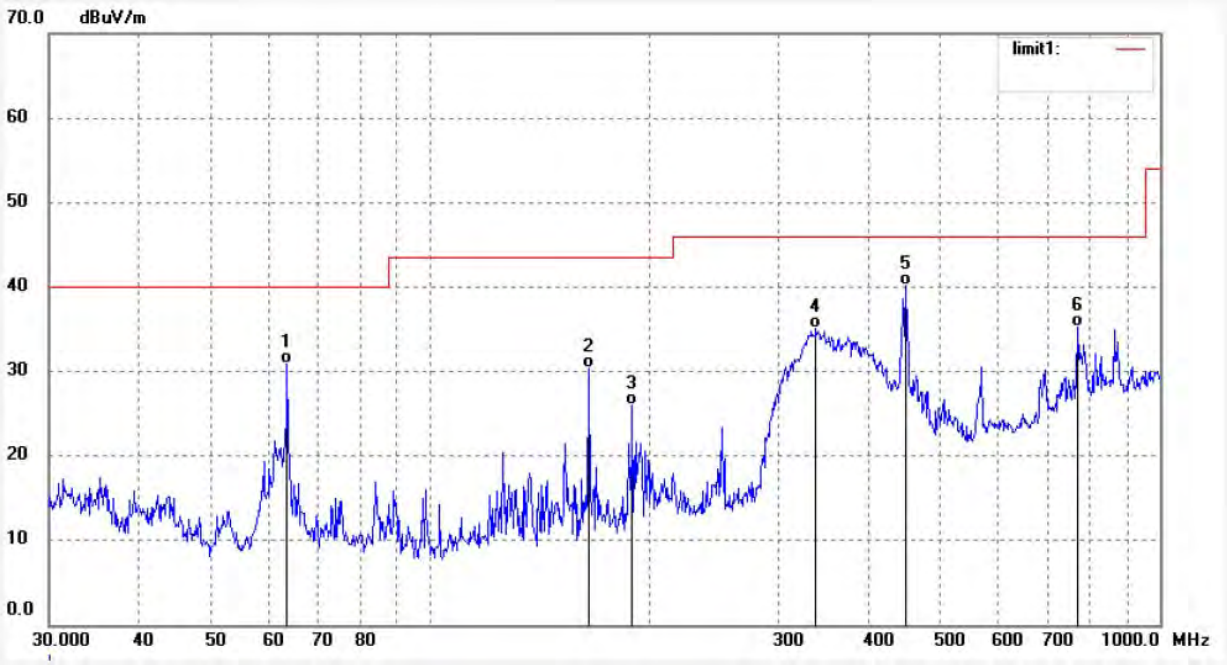
Job No.: DING #3090
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2441MHz (GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 5V
Date: 2016/11/25
Time: 10:37:30
Engineer Signature: DING
Distance: 3m

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	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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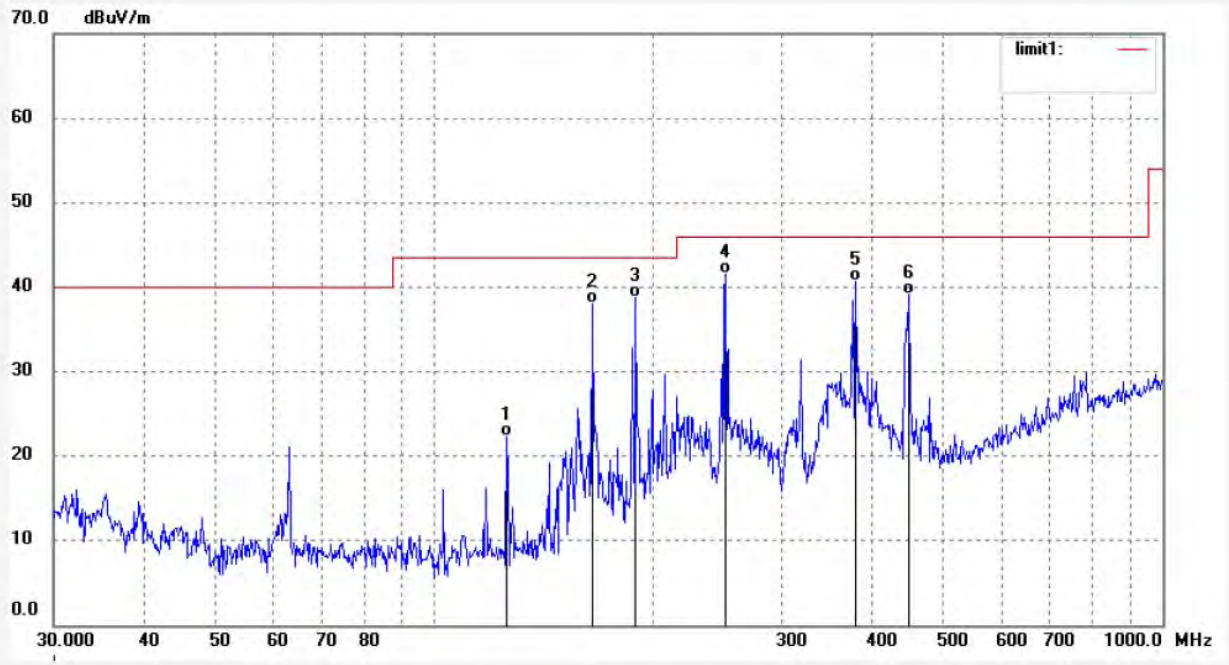
Job No.: DING #3091	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 2016/11/25
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 10:40:08
EUT: Light Up Mini Speaker Teal & Black	Engineer Signature: DING
Mode: TX 2441MHz (GFSK)	Distance: 3m
Model: CB-335051	
Manufacturer: CLEVER BRIGHT	

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	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			

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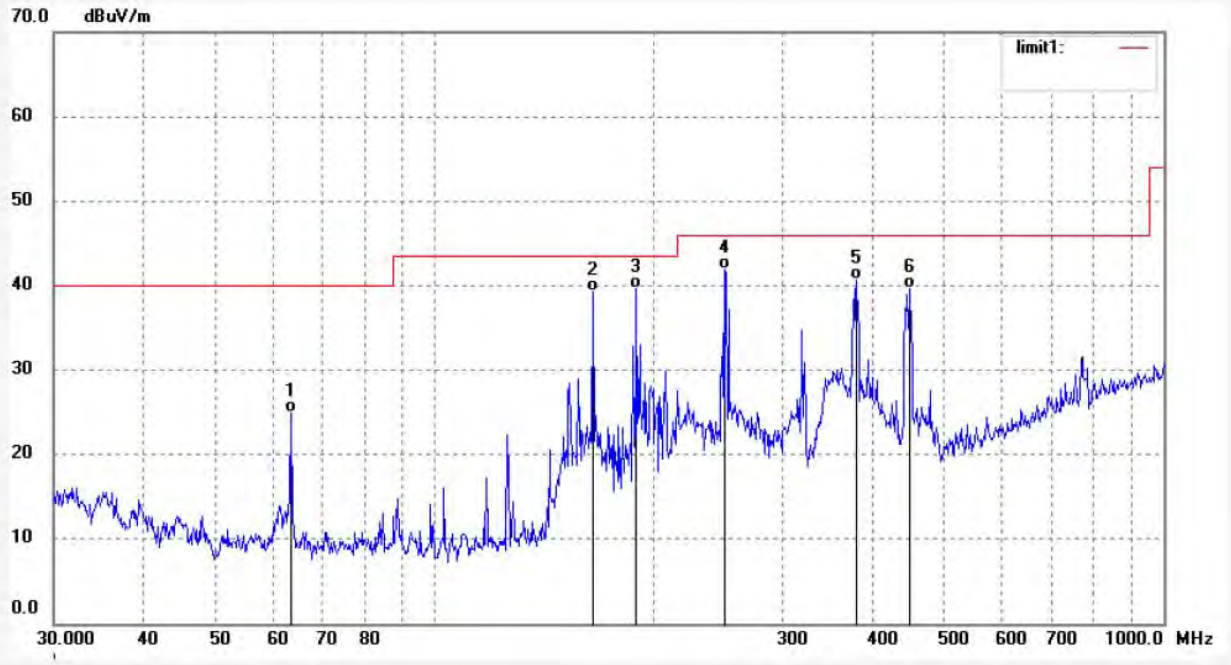
Job No.: DING #3092	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 2016/11/25
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 10:42:51
EUT: Light Up Mini Speaker Teal & Black	Engineer Signature: DING
Mode: TX 2480MHz (GFSK)	Distance: 3m
Model: CB-335051	
Manufacturer: CLEVER BRIGHT	

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	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			

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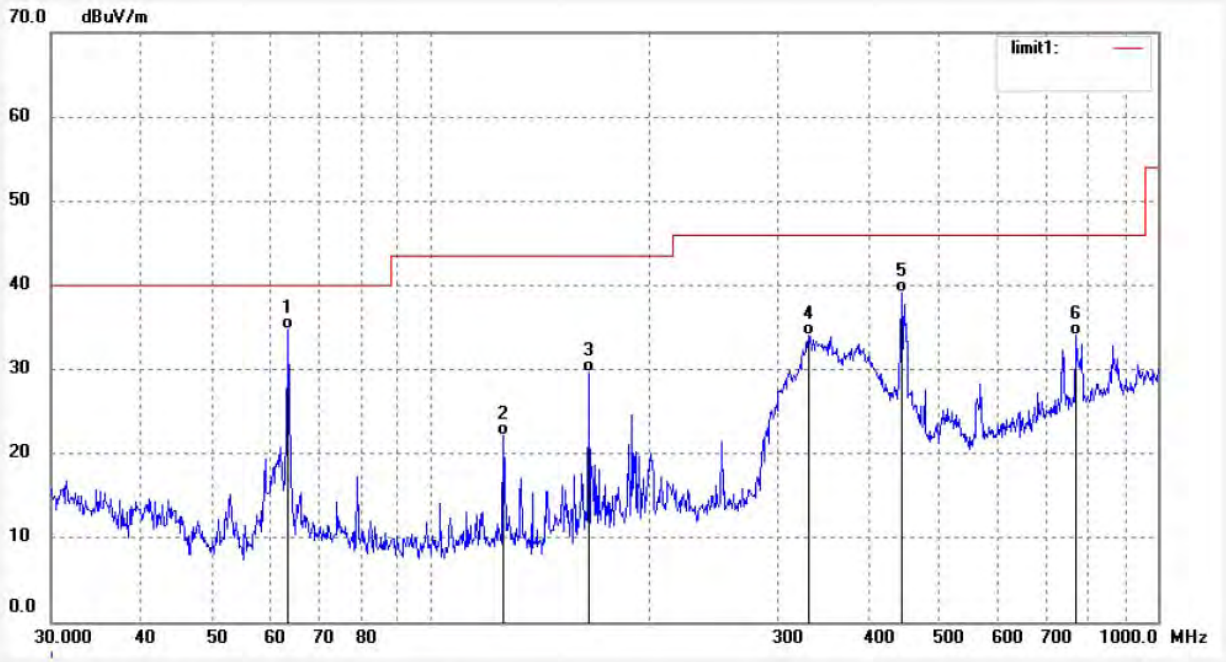
Job No.: DING #3093
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2480MHz (GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 5V
Date: 2016/11/25
Time: 10:44:35
Engineer Signature: DING
Distance: 3m

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	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			

Above 1GHz

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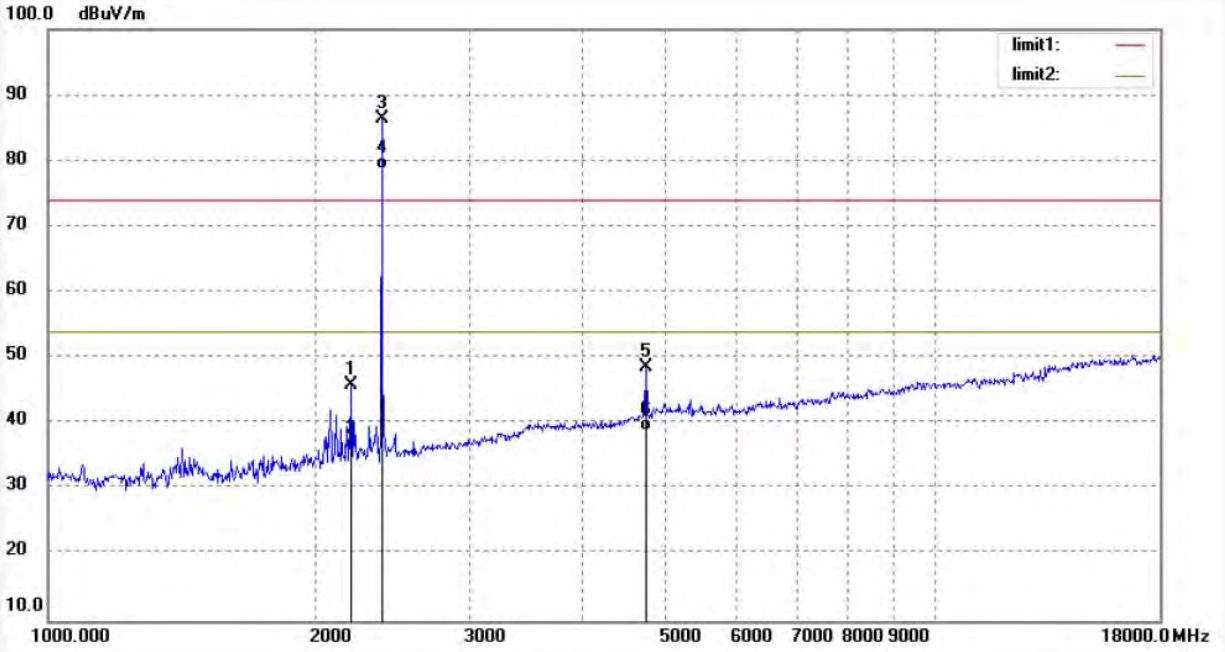
Job No.: DING #3202	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 5V
Test item: Radiation Test	Date: 16/12/16/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/11/58
EUT: Light Up Mini Speaker Teal & Black	Engineer Signature: DING
Mode: TX 2402MHz (GFSK)	Distance: 3m
Model: CB-335051	
Manufacturer: CLEVER BRIGHT	

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	2200.781	52.85	-6.90	45.95	74.00	-28.05	peak			
2	2200.781	42.98	-6.90	36.08	54.00	-17.92	AVG			
3	2402.000	92.30	-5.98	86.32	114.00	-27.68	peak			
4	2402.000	84.75	-5.98	78.77	94.00	-15.23	AVG			
5	4804.000	45.49	3.15	48.64	74.00	-25.36	peak			
6	4804.000	35.69	3.15	38.84	54.00	-15.16	AVG			

Note: Average measurement with peak detection at No.2

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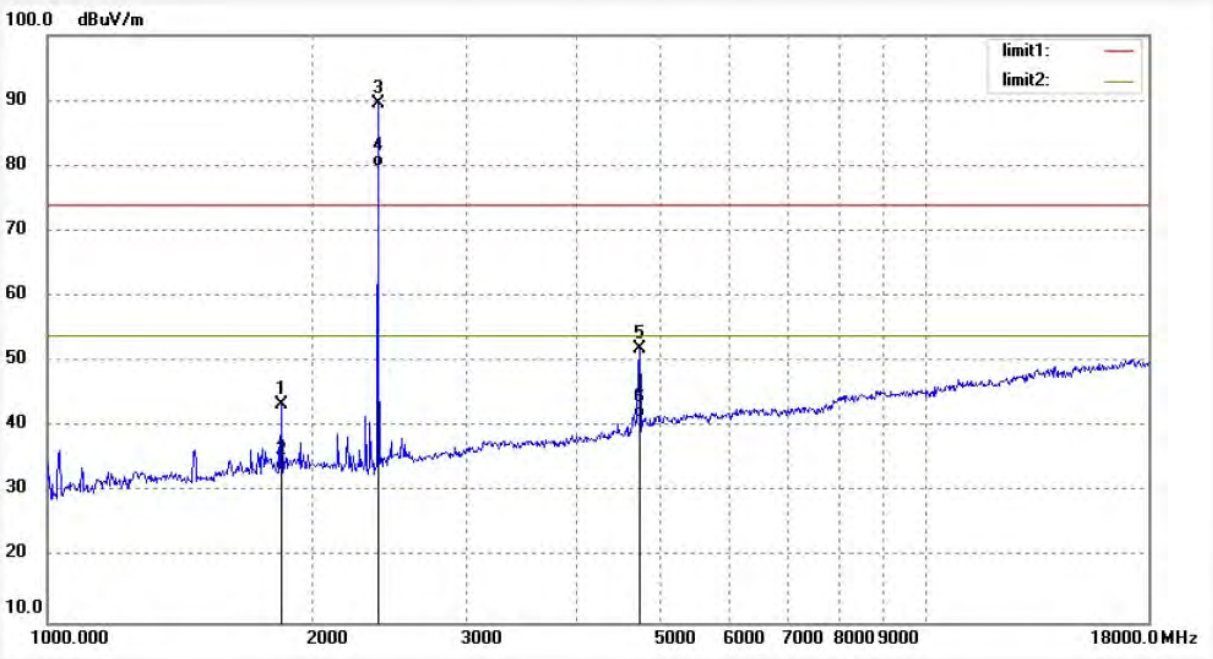
Job No.: DING #3203
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2402MHz (GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 5V
Date: 16/12/16/
Time: 9/12/40
Engineer Signature: DING
Distance: 3m

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	1848.118	51.96	-8.55	43.41	74.00	-30.59	peak			
2	1848.118	41.85	-8.55	33.30	54.00	-20.70	AVG			
3	2402.000	95.62	-5.98	89.64	114.00	-24.36	peak			
4	2402.000	85.91	-5.98	79.93	94.00	-14.07	AVG			
5	4804.000	48.92	3.15	52.07	74.00	-21.93	peak			
6	4804.000	38.20	3.15	41.35	54.00	-12.65	AVG			

Note: Average measurement with peak detection at No.2

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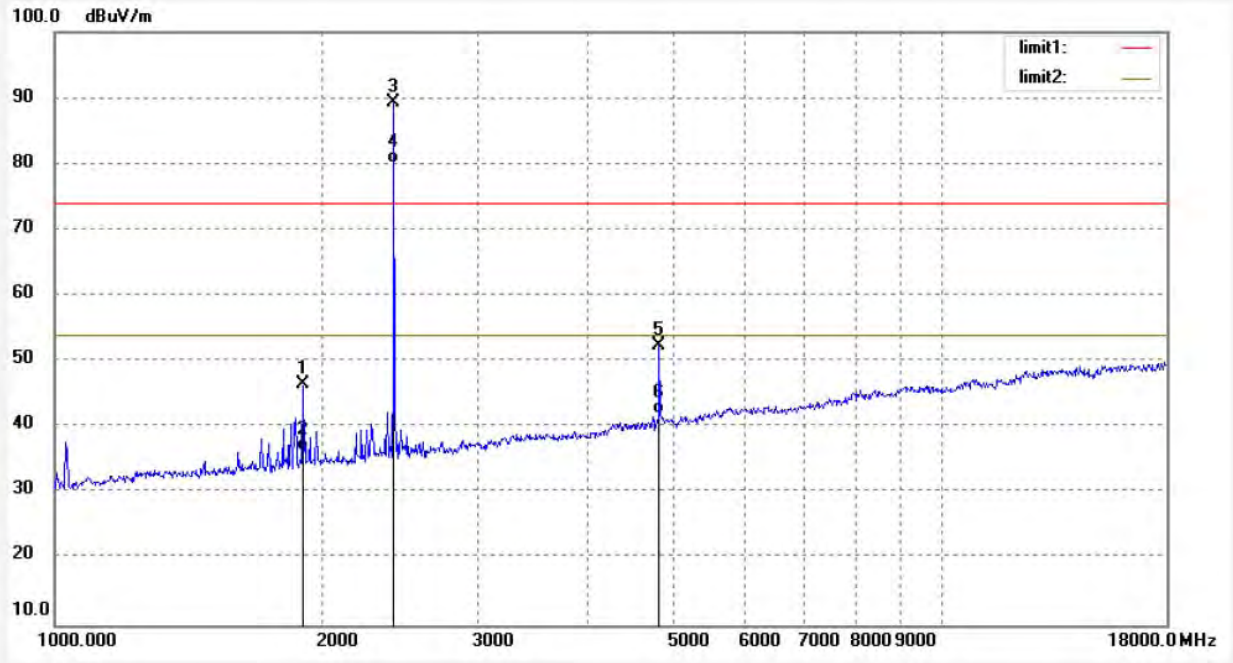
Job No.: DING #3204
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2441MHz (GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 5V
Date: 16/12/16/
Time: 9/14/13
Engineer Signature: DING
Distance: 3m

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	1908.248	55.09	-8.64	46.45	74.00	-27.55	peak			
2	1908.248	45.07	-8.64	36.43	54.00	-17.57	AVG			
3	2441.000	95.11	-5.72	89.39	114.00	-24.61	peak			
4	2441.000	85.82	-5.72	80.10	94.00	-13.90	AVG			
5	4882.000	48.69	3.67	52.36	74.00	-21.64	peak			
6	4882.000	38.47	3.67	42.14	54.00	-11.86	AVG			

Note: Average measurement with peak detection at No.2

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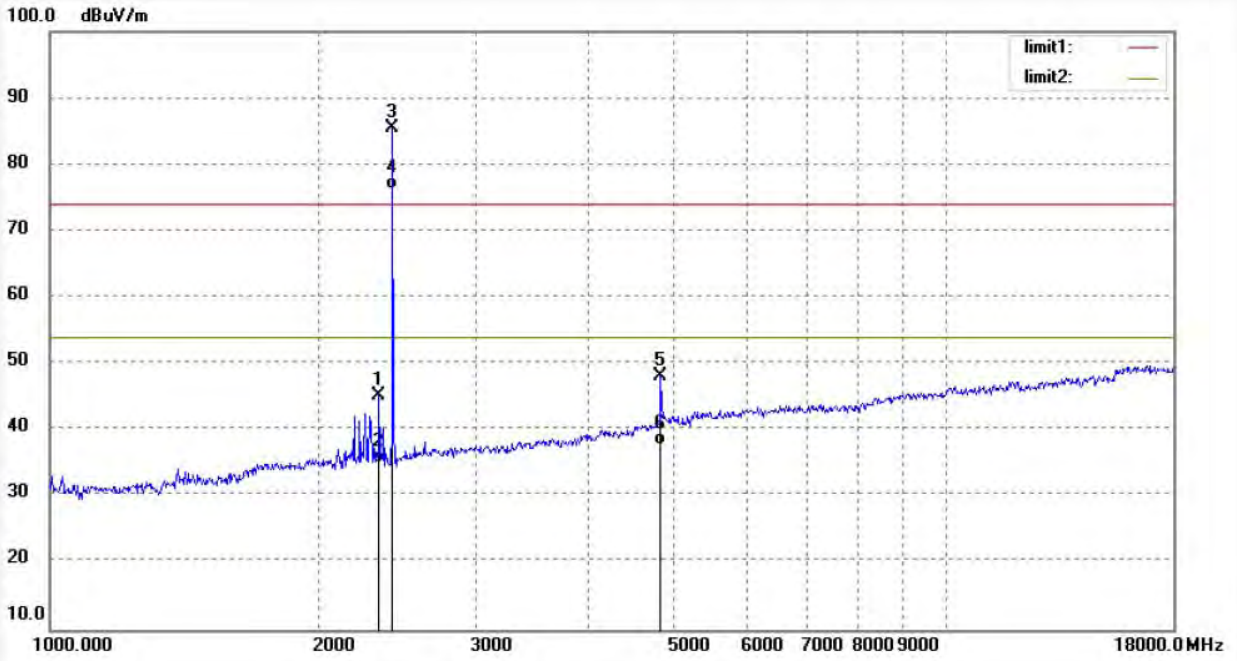
Job No.: DING #3205
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2441MHz (GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Horizontal
Power Source: DC 5V
Date: 16/12/16/
Time: 9/15/22
Engineer Signature: DING
Distance: 3m

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	2332.702	51.42	-6.27	45.15	74.00	-28.85	peak			
2	2332.702	41.38	-6.27	35.11	54.00	-18.89	AVG			
3	2441.000	91.11	-5.72	85.39	114.00	-28.61	peak			
4	2441.000	81.94	-5.72	76.22	94.00	-17.78	AVG			
5	4882.000	44.45	3.67	48.12	74.00	-25.88	peak			
6	4882.000	34.13	3.67	37.80	54.00	-16.20	AVG			

Note: Average measurement with peak detection at No.2

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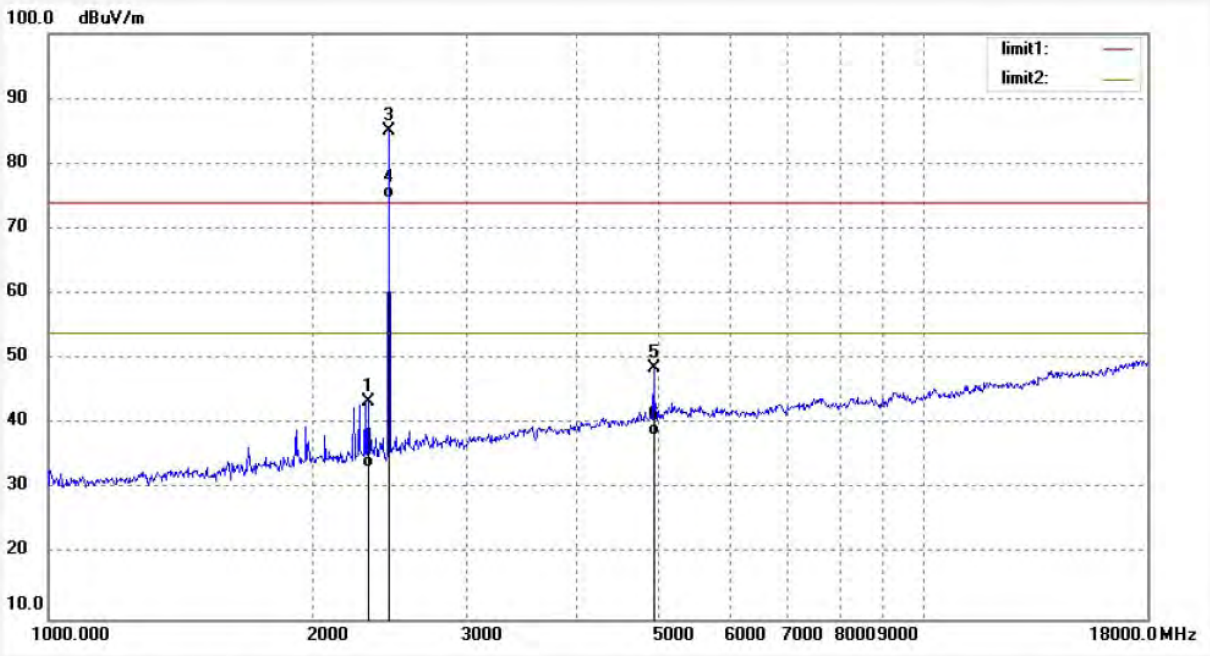
Fax:+86-0755-26503396

Job No.: DING #3206
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

Polarization: Horizontal
Power Source: DC 5V
Date: 16/12/16/
Time: 9/16/27
Engineer Signature: DING
Distance: 3m

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	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			
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			

Note: Average measurement with peak detection at No.2

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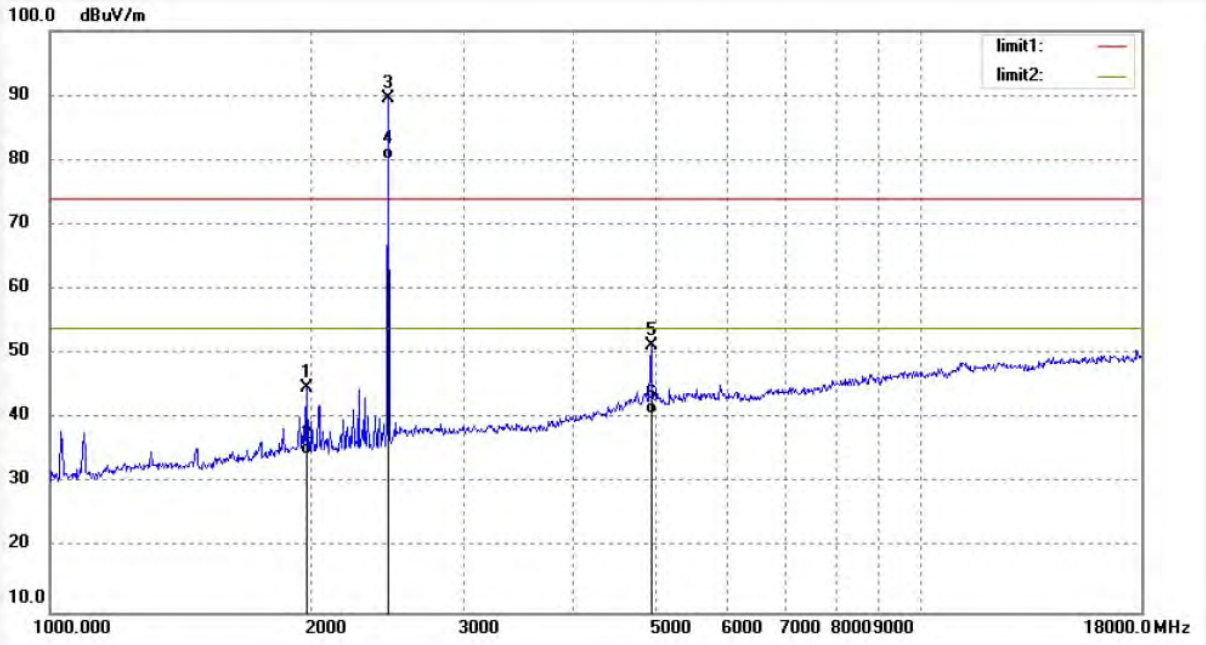
Job No.: DING #3207
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2480MHz (GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 5V
Date: 16/12/16/
Time: 9/17/56
Engineer Signature: DING
Distance: 3m

Note: Report NO.:ATE20162470

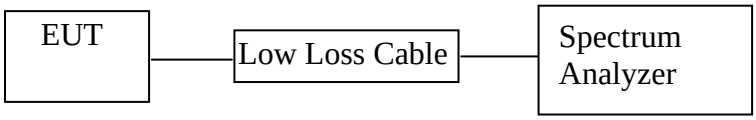


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1976.079	52.78	-8.10	44.68	74.00	-29.32	peak			
2	1976.079	42.59	-8.10	34.49	54.00	-19.51	AVG			
3	2480.000	95.05	-5.55	89.50	114.00	-24.50	peak			
4	2480.000	85.67	-5.55	80.12	94.00	-13.88	AVG			
5	4960.000	46.83	4.54	51.37	74.00	-22.63	peak			
6	4960.000	36.25	4.54	40.79	54.00	-13.21	AVG			

Note: Average measurement with peak detection at No.2

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.

11.5.Test Procedure

11.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.

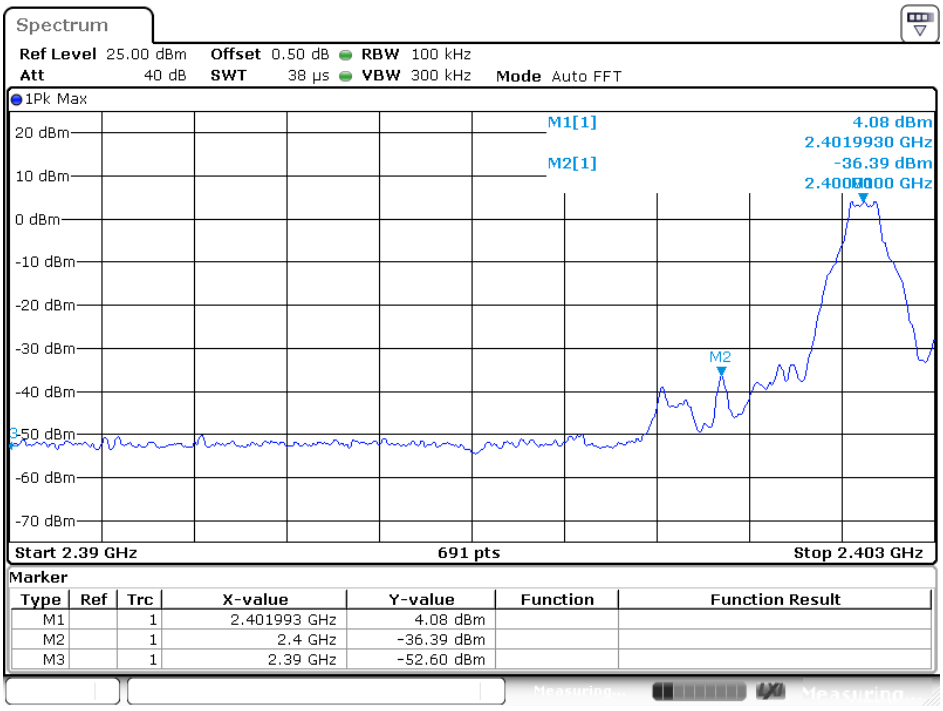
11.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

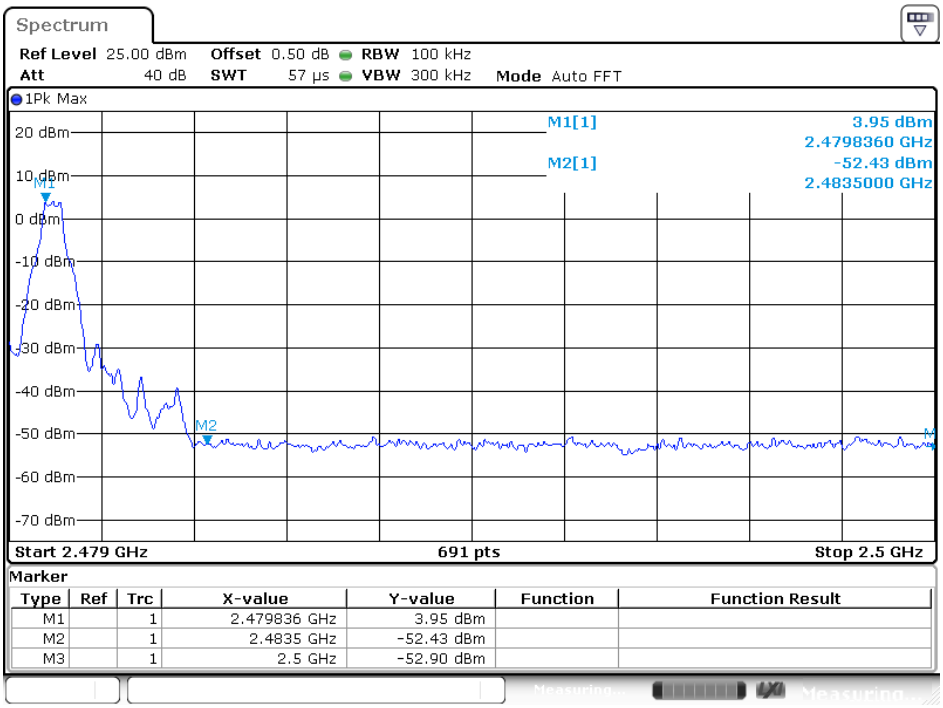
11.5.3.The band edges was measured and recorded.

11.6.Test Result

Non-hopping mode

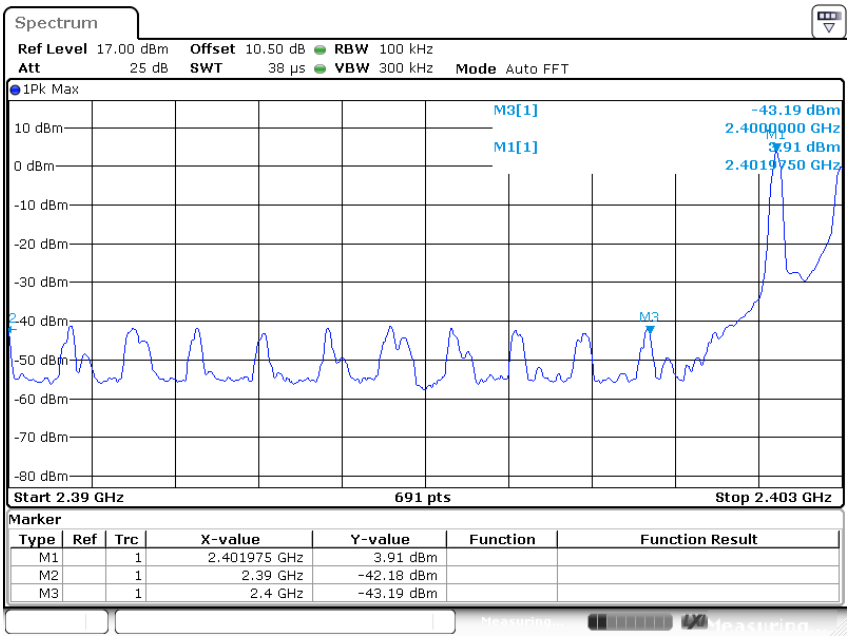
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2400.00	40.47	> 20dBc
2483.50	56.38	> 20dBc

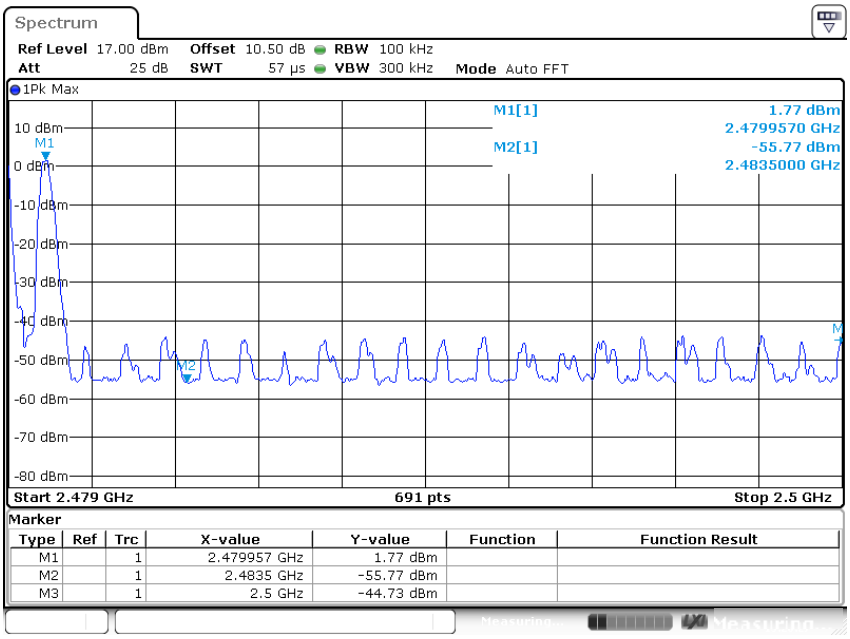




Hopping mode

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




Spectrum
Ref Level 17.00 dBm Offset 10.50 dB RBW 100 kHz
Att 25 dB SWT 57 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1] 1.77 dBm
2.4799570 GHz
M2[1] -55.77 dBm
2.4835000 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
Start 2.479 GHz
691 pts
Stop 2.5 GHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.479957 GHz 1.77 dBm
M2 1 2.4835 GHz -55.77 dBm
M3 1 2.5 GHz -44.73 dBm
Measuring

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.

Non-hopping mode

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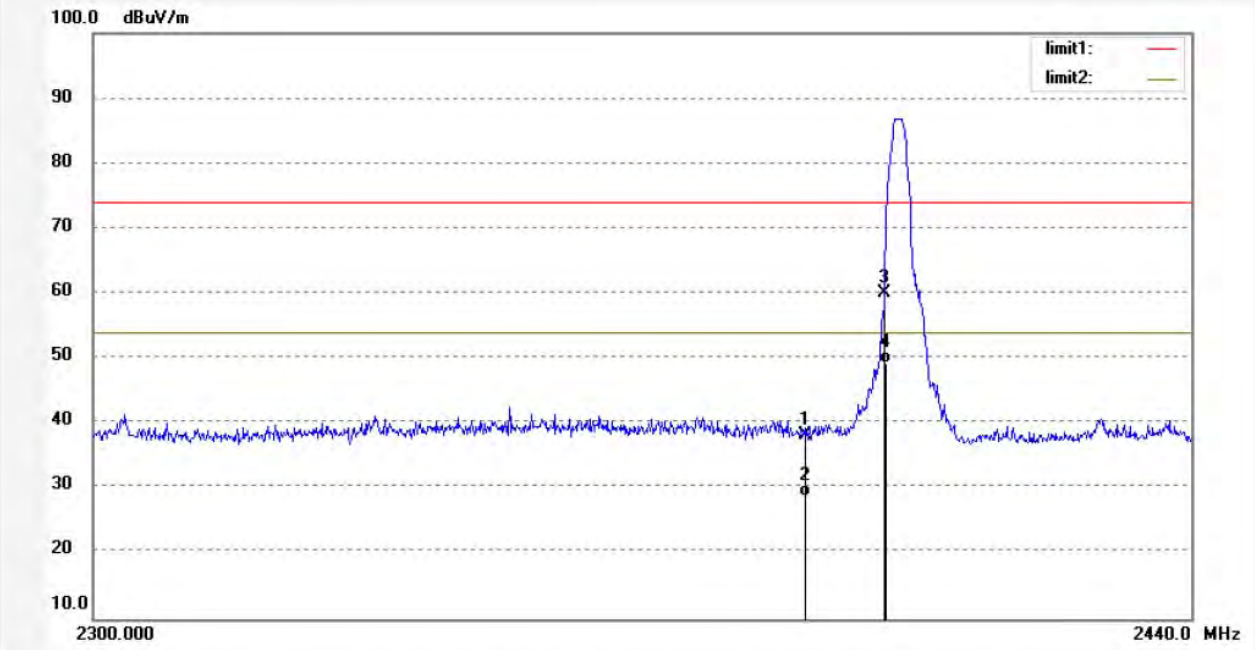
Job No.: DING2015 #437
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2402MHz(GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 5V
Date: 16/12/16/
Time: 18/10/02
Engineer Signature: DING
Distance: 3m

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	2390.000	45.86	-7.53	38.33	74.00	-35.67	peak			
2	2390.000	36.22	-7.53	28.69	54.00	-25.31	AVG			
3	2400.000	67.51	-7.46	60.05	74.00	-13.95	peak			
4	2400.000	56.79	-7.46	49.33	54.00	-4.67	AVG			

Note: Average measurement with peak detection at No.2&4

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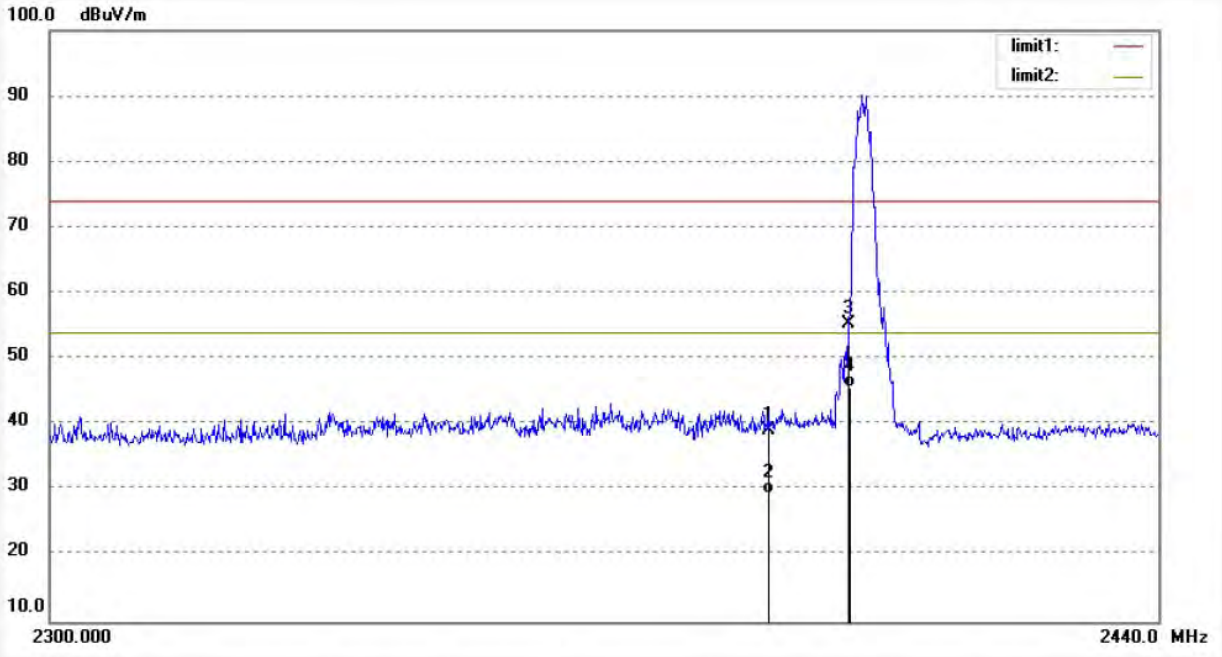
Fax:+86-0755-26503396

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

Polarization: Horizontal
Power Source: DC 5V
Date: 16/12/16/
Time: 18/12/10
Engineer Signature: DING
Distance: 3m

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	2390.000	46.68	-7.53	39.15	74.00	-34.85	peak			
2	2390.000	36.97	-7.53	29.44	54.00	-24.56	AVG			
3	2400.000	62.85	-7.46	55.39	74.00	-18.61	peak			
4	2400.000	53.16	-7.46	45.70	54.00	-8.30	AVG			

Note: Average measurement with peak detection at No.2&4

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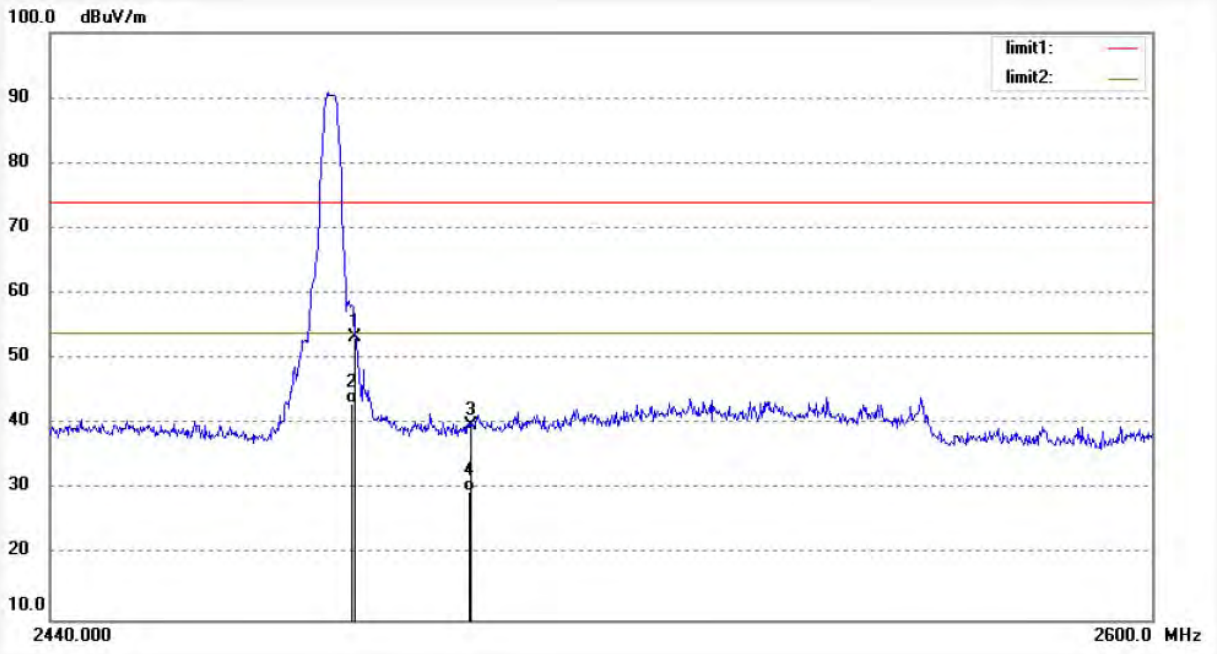
Job No.: DING2015 #439
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2480MHz(GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Horizontal
Power Source: DC 5V
Date: 16/12/16/
Time: 18/14/18
Engineer Signature: DING
Distance: 3m

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	2483.500	60.78	-7.37	53.41	74.00	-20.59	peak			
2	2483.500	50.67	-7.37	43.30	54.00	-10.70	AVG			
3	2500.000	47.31	-7.40	39.91	74.00	-34.09	peak			
4	2500.000	36.98	-7.40	29.58	54.00	-24.42	AVG			

Note: Average measurement with peak detection at No.2&4

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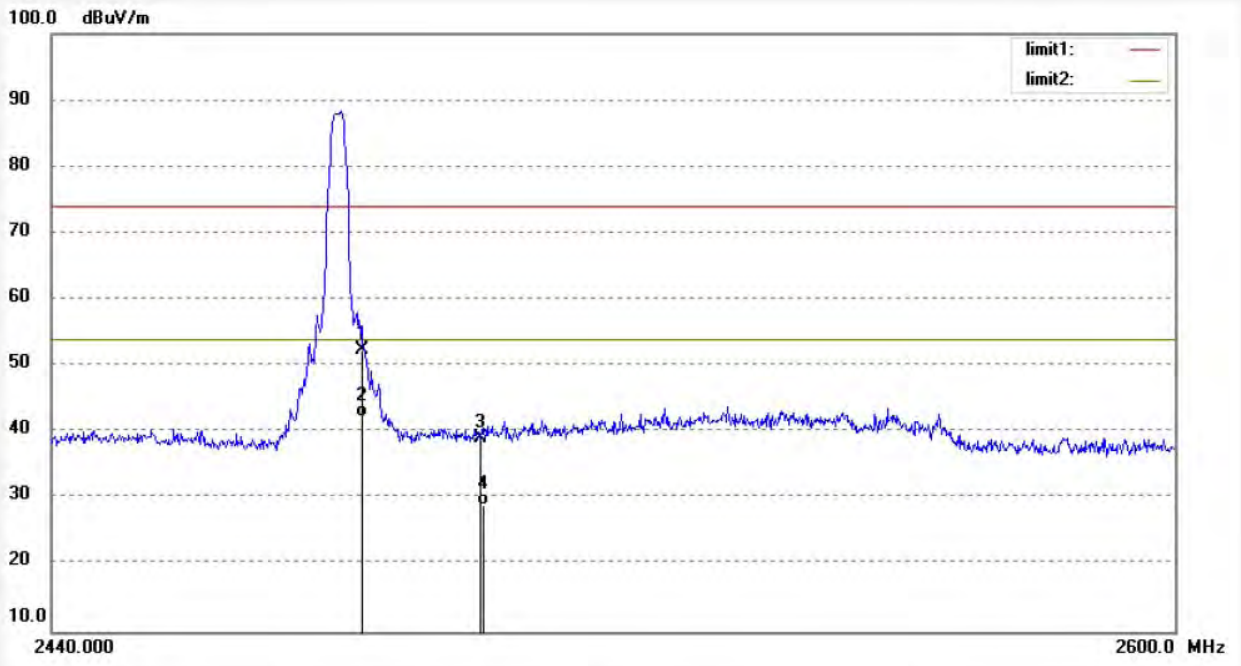
Job No.: DING2015 #440
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Light Up Mini Speaker Teal & Black
Mode: TX 2480MHz(GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 5V
Date: 16/12/16/
Time: 18/15/42
Engineer Signature: DING
Distance: 3m

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	2483.500	59.76	-7.37	52.39	74.00	-21.61	peak			
2	2483.500	49.67	-7.37	42.30	54.00	-11.70	AVG			
3	2500.000	46.51	-7.40	39.11	74.00	-34.89	peak			
4	2500.000	36.33	-7.40	28.93	54.00	-25.07	AVG			

Note: Average measurement with peak detection at No.2&4

Hopping mode

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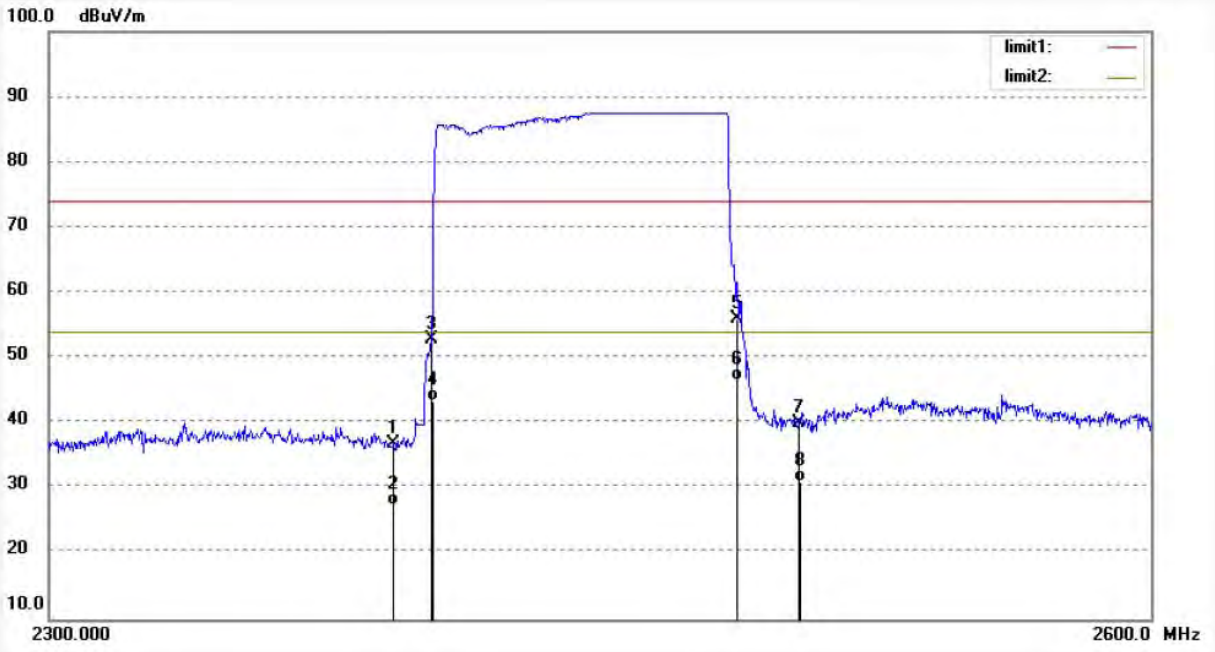
Job No.: DING2015 #449
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Light Up Mini Speaker Teal & Black
Mode: HOPPING (GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 5V
Date: 16/12/16/
Time: 18/37/00
Engineer Signature: DING
Distance: 3m

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	2390.000	44.36	-7.53	36.83	74.00	-37.17	peak			
2	2390.000	34.89	-7.53	27.36	54.00	-26.64	AVG			
3	2400.000	60.26	-7.46	52.80	74.00	-21.20	peak			
4	2400.000	50.79	-7.46	43.33	54.00	-10.67	AVG			
5	2483.500	63.32	-7.37	55.95	74.00	-18.05	peak			
6	2483.500	53.97	-7.37	46.60	54.00	-7.40	AVG			
7	2500.000	47.45	-7.40	40.05	74.00	-33.95	peak			
8	2500.000	38.37	-7.40	30.97	54.00	-23.03	AVG			

Note: Average measurement with peak detection at No.2, 4, 6, 8

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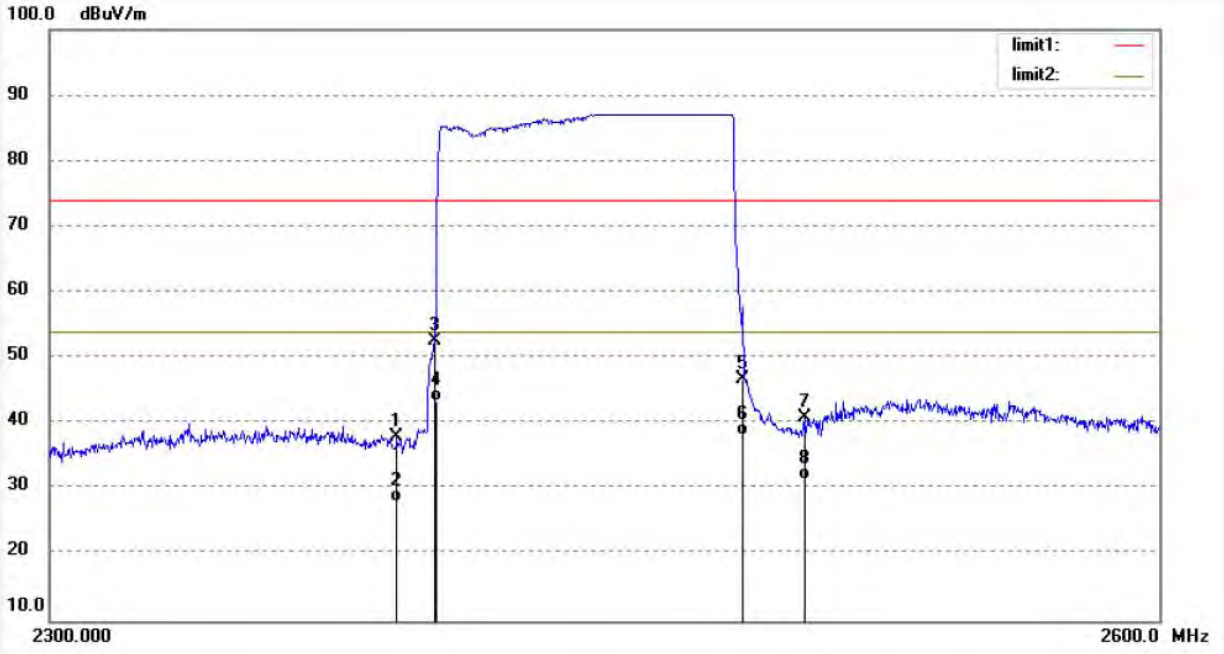
Job No.: DING2015 #450
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Light Up Mini Speaker Teal & Black
Mode: HOPPING (GFSK)
Model: CB-335051
Manufacturer: CLEVER BRIGHT

Polarization: Horizontal
Power Source: DC 5V
Date: 16/12/16/
Time: 18/38/50
Engineer Signature: DING
Distance: 3m

Note: Report NO.:ATE20162470

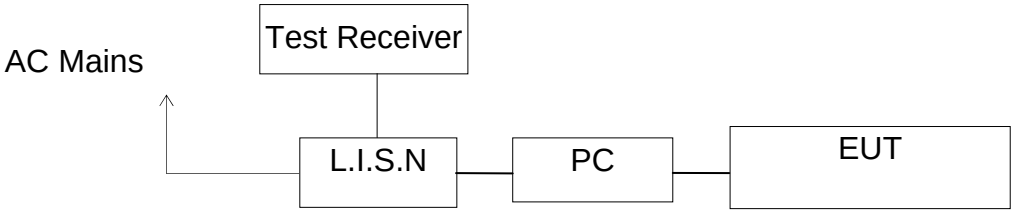


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.48	-7.53	37.95	74.00	-36.05	peak			
2	2390.000	35.69	-7.53	28.16	54.00	-25.84	AVG			
3	2400.000	60.00	-7.46	52.54	74.00	-21.46	peak			
4	2400.000	50.88	-7.46	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			

Note: Average measurement with peak detection at No.2, 4, 6, 8

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 (MHz)	Limit dB(μV)	
	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.

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 MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	63.00	10.8	66	3.0	QP	L1	GND
0.155000	62.50	10.8	65.73	3.23	QP	L1	GND
0.425000	41.90	11.0	57.35	15.45	QP	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"

2016-11-25 10:07

Frequency MHz	Level dBµV	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

MEASUREMENT RESULT: "CB-1125-02_fin"

2016-11-25 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	60	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

Test mode : Charging (AC 240V/60Hz)
EUT mode : CB-335051

MEASUREMENT RESULT: "CB-1125-03_fin"

2016-11-25 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 10:09

Frequency MHz	Level dBµV	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

MEASUREMENT RESULT: "CB-1125-04_fin"

2016-11-25 10:12

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.155000	59.70	10.8	65.73	6.03	QP	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

Emissions attenuated more than 20 dB below the permissible value are not reported.
The spectral diagrams are attached as below.

ACCURATE TECHNOLOGY CO.,LTD

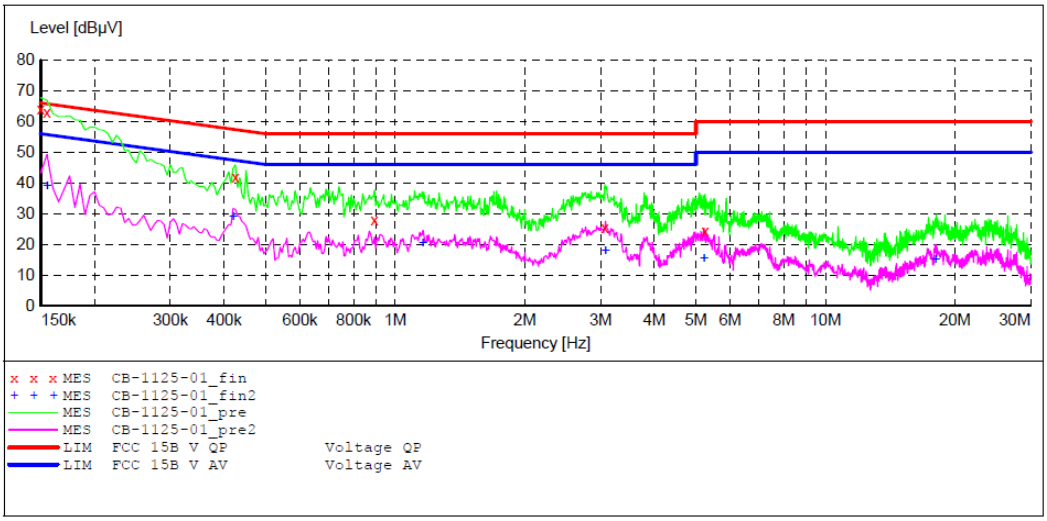
CONDUCTED EMISSION STANDARD FCC PART 15B

```
EUT:                  Light Up Mini Speaker Teal & Black M/N:CB-335051
Manufacturer:         CLEVER BRIGHT
Operating Condition:  Charging
Test Site:            2#Shielding Room
Operator:             DING
Test Specification:   L  120V/60Hz
Comment:              Report NO.:ATE20162470
Start of Test:        2016-11-25 / 10:06:47
```

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "CB-1125-01_fin"

2016-11-25 10:07

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	63.00	10.8	66	3.0	QP	L1	GND
0.155000	62.50	10.8	65.73	3.23	QP	L1	GND
0.425000	41.90	11.0	57.35	15.45	QP	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"

2016-11-25 10:07

Frequency MHz	Level dBµV	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

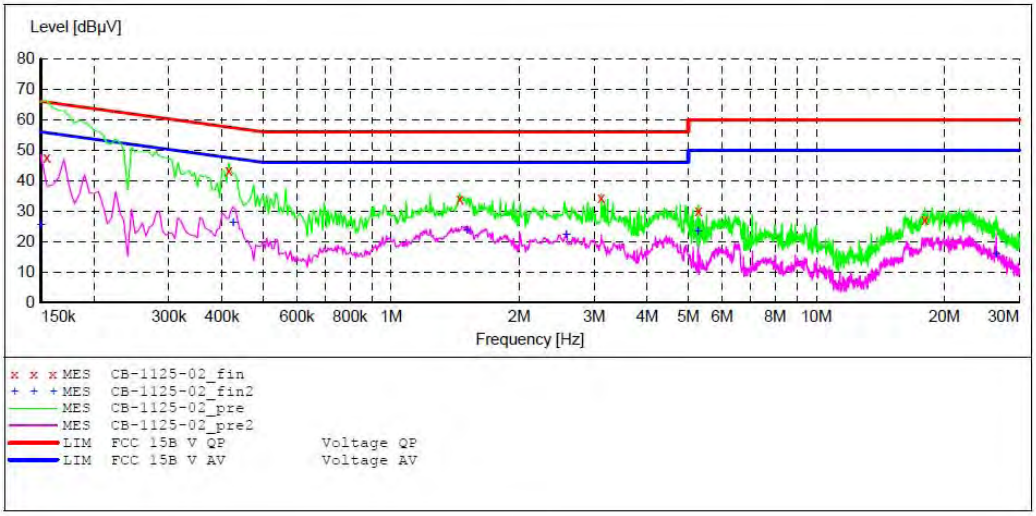
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

```
EUT:                  Light Up Mini Speaker Teal & Black M/N:CB-335051
Manufacturer:         CLEVER BRIGHT
Operating Condition:  Charging
Test Site:            2#Shielding Room
Operator:             DING
Test Specification:   N  120V/60Hz
Comment:              Report NO.:ATE20162470
Start of Test:        2016-11-25 / 10:05:17
```

SCAN TABLE: "V 150K-30MHz fin"

```
  Short Description:            _SUB_STD_VTERM2 1.70
  Start      Stop       Step      Detector  Meas.     IF       Transducer
  Frequency  Frequency  Width               Time      Bandw.
  150.0 kHz  30.0 MHz   4.5 kHz   QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "CB-1125-02_fin"

2016-11-25 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

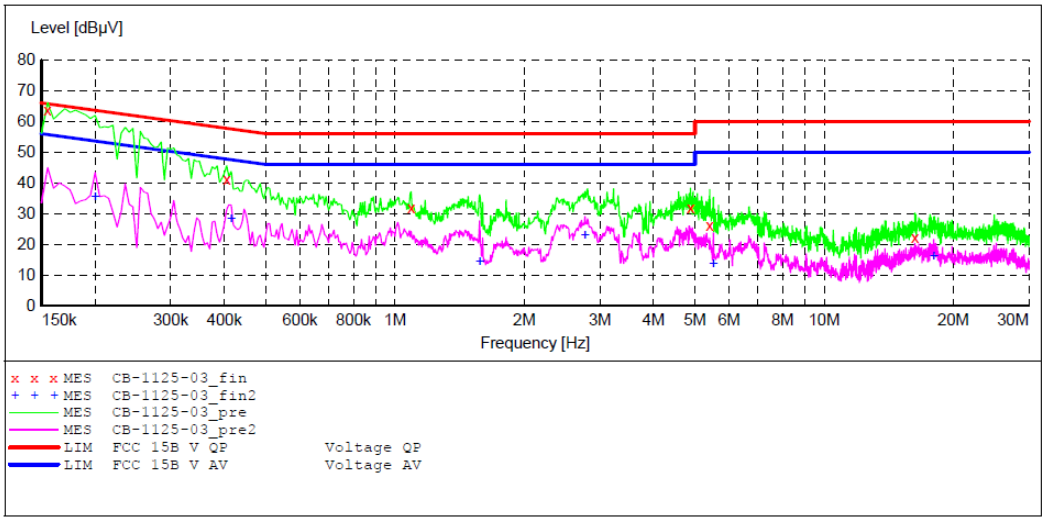
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

```
EUT:                  Light Up Mini Speaker Teal & Black M/N:CB-335051
Manufacturer:         CLEVER BRIGHT
Operating Condition:  Charging
Test Site:            2#Shielding Room
Operator:             DING
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  Meas.     IF       Transducer
  Frequency  Frequency  Width               Time      Bandw.
  150.0 kHz  30.0 MHz   4.5 kHz   QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "CB-1125-03_fin"

2016-11-25 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 10:09

Frequency MHz	Level dBµV	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

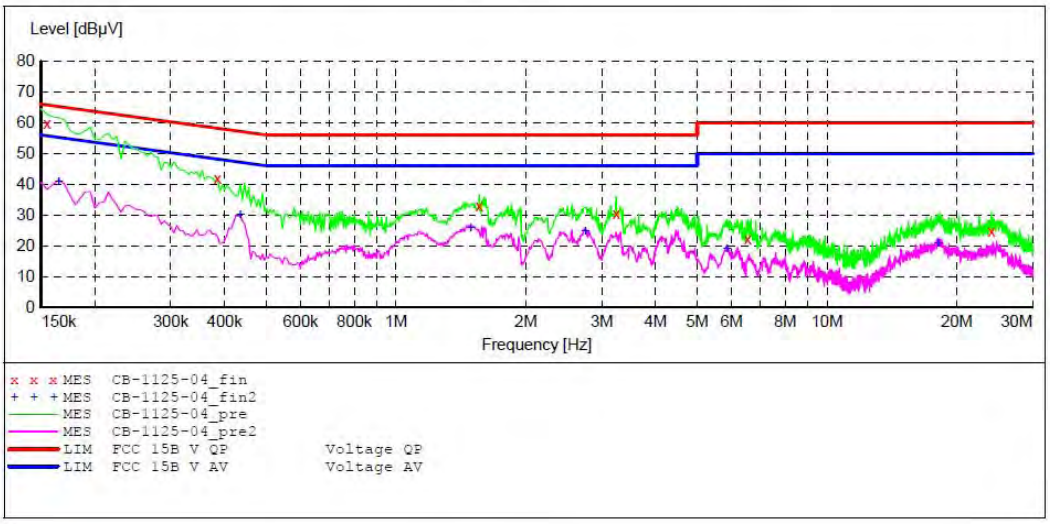
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

```
EUT:                  Light Up Mini Speaker Teal & Black M/N:CB-335051
Manufacturer:         CLEVER BRIGHT
Operating Condition:  Charging
Test Site:            2#Shielding Room
Operator:             DING
Test Specification:   N  240V/60Hz
Comment:              Report NO.:ATE20162470
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
  Frequency  Frequency  Width               Time      Bandw.
  150.0 kHz  30.0 MHz   4.5 kHz   QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "CB-1125-04_fin"

2016-11-25 10:12

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.155000	59.70	10.8	65.73	6.03	QP	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

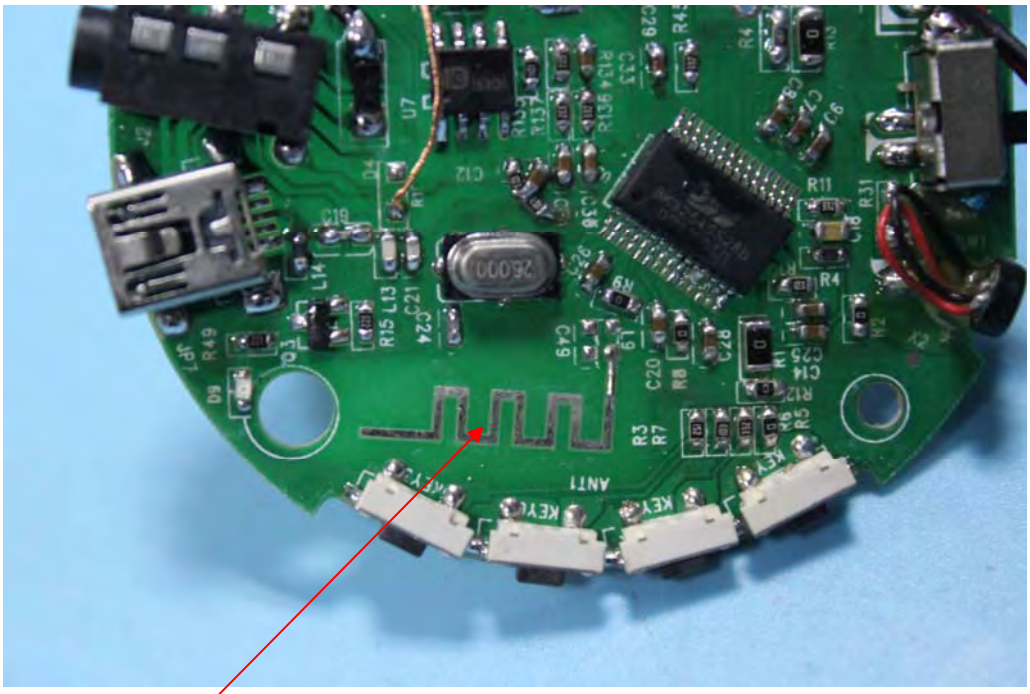
13. ANTENNA REQUIREMENT

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

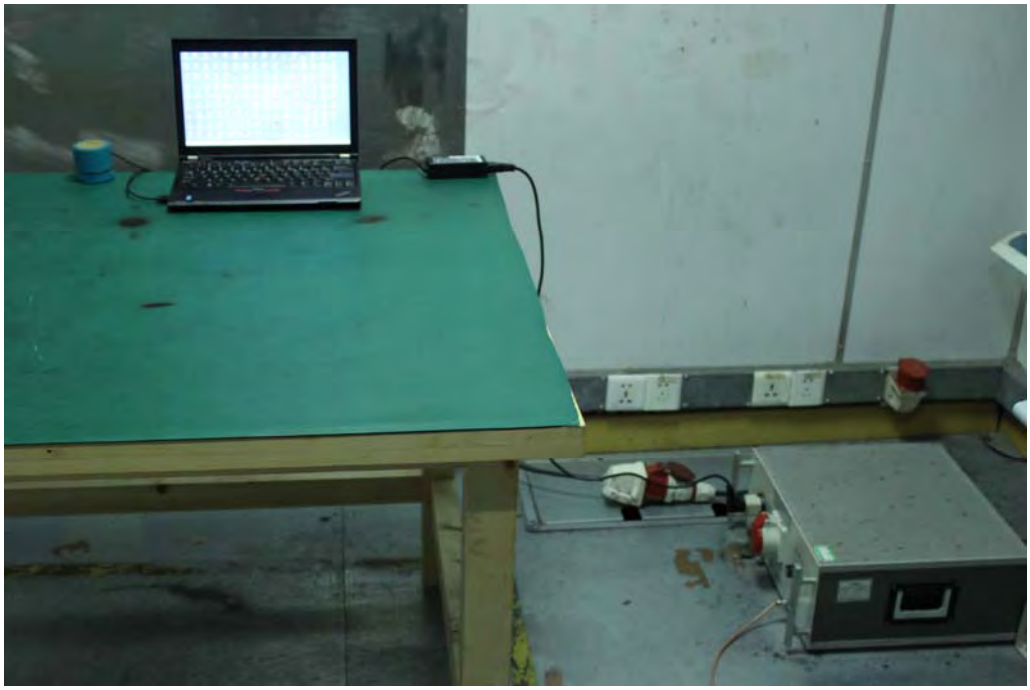
Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



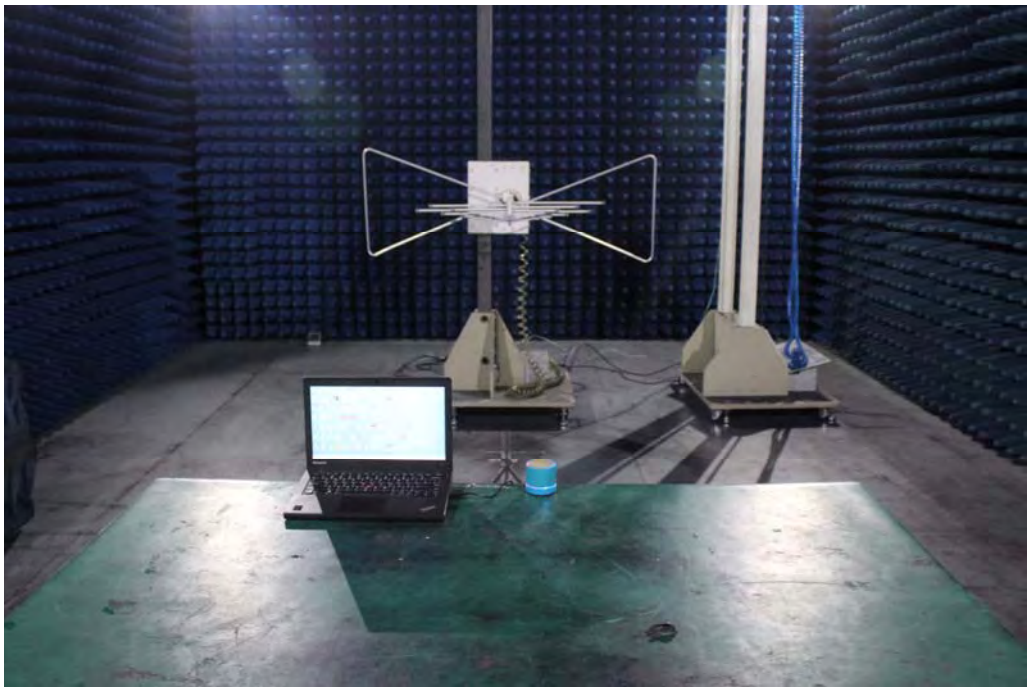
Antenna

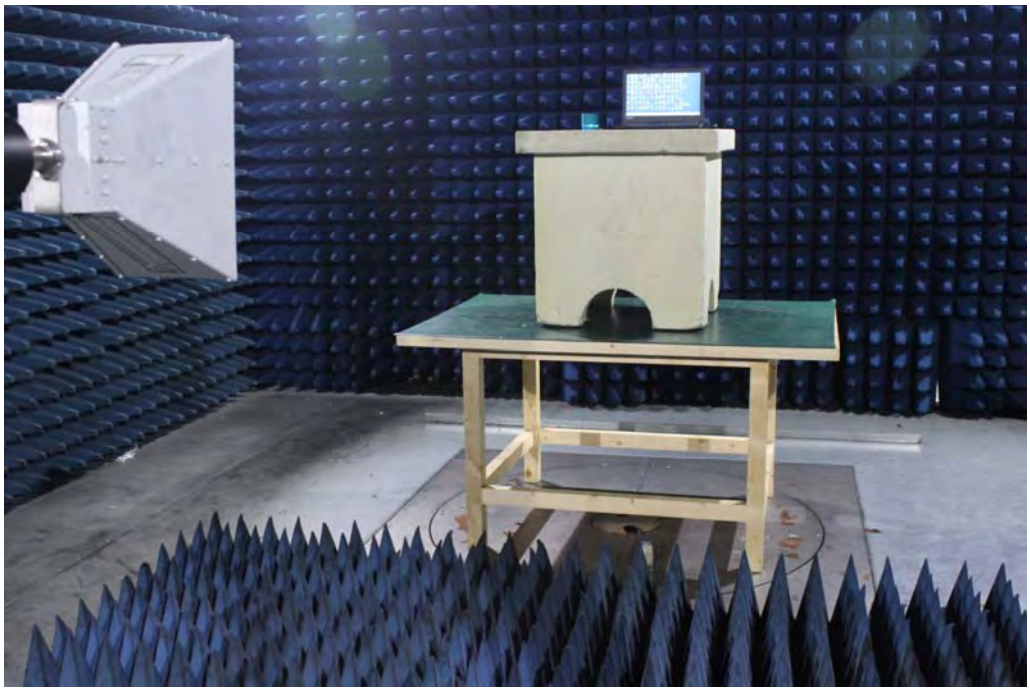
14.PHOTOGRAPHS

14.1.Photo of Power Line Conducted Emission Measurement

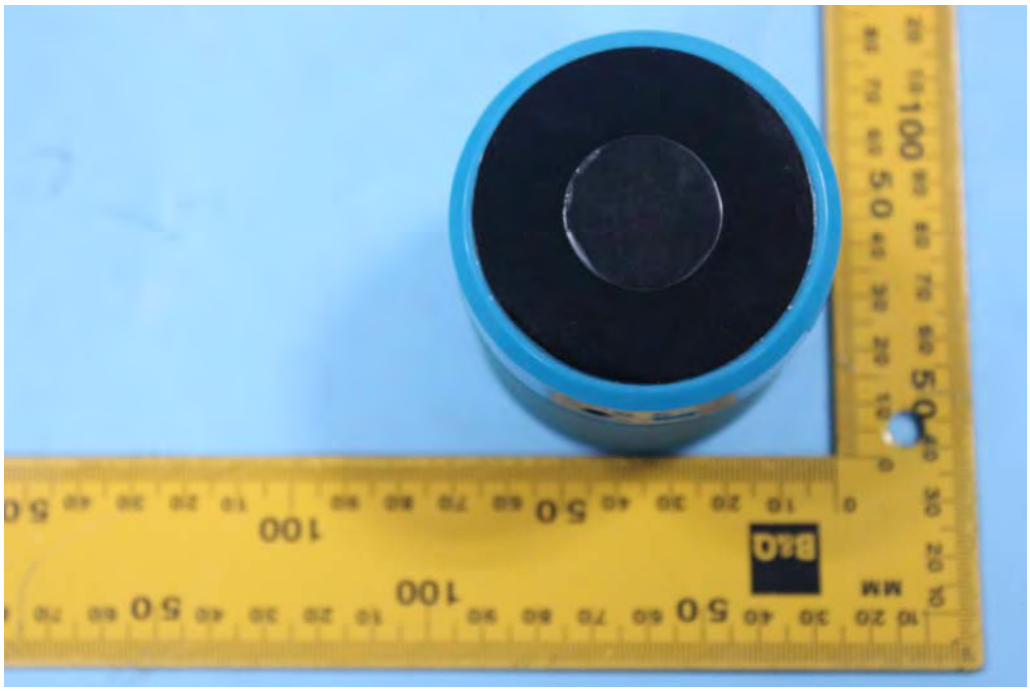


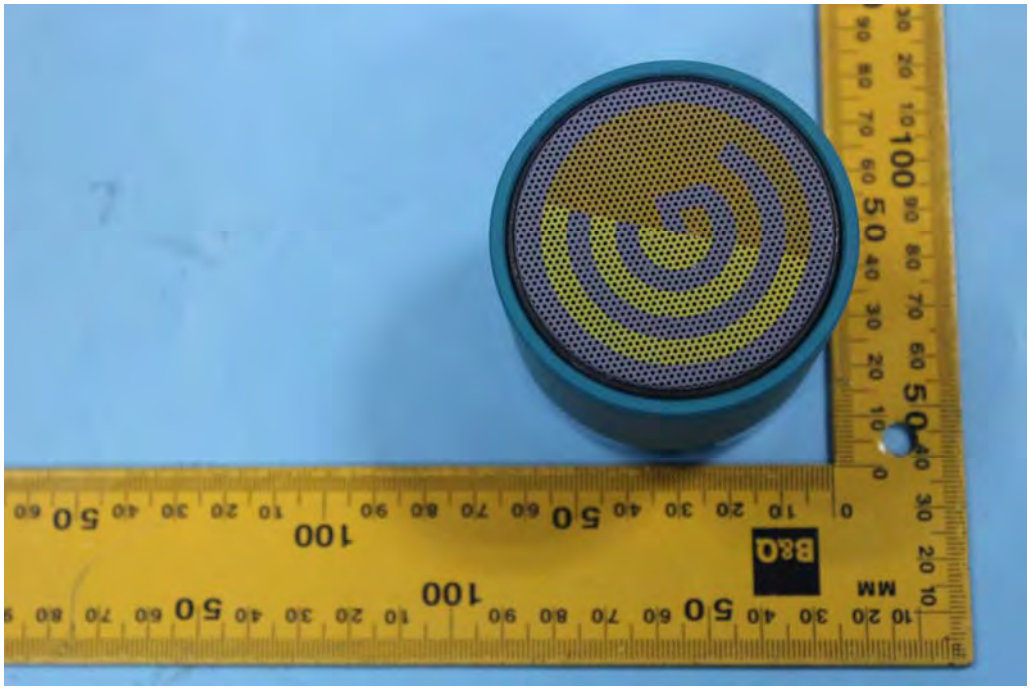
14.2.Photo of Radiation Emission Measurement

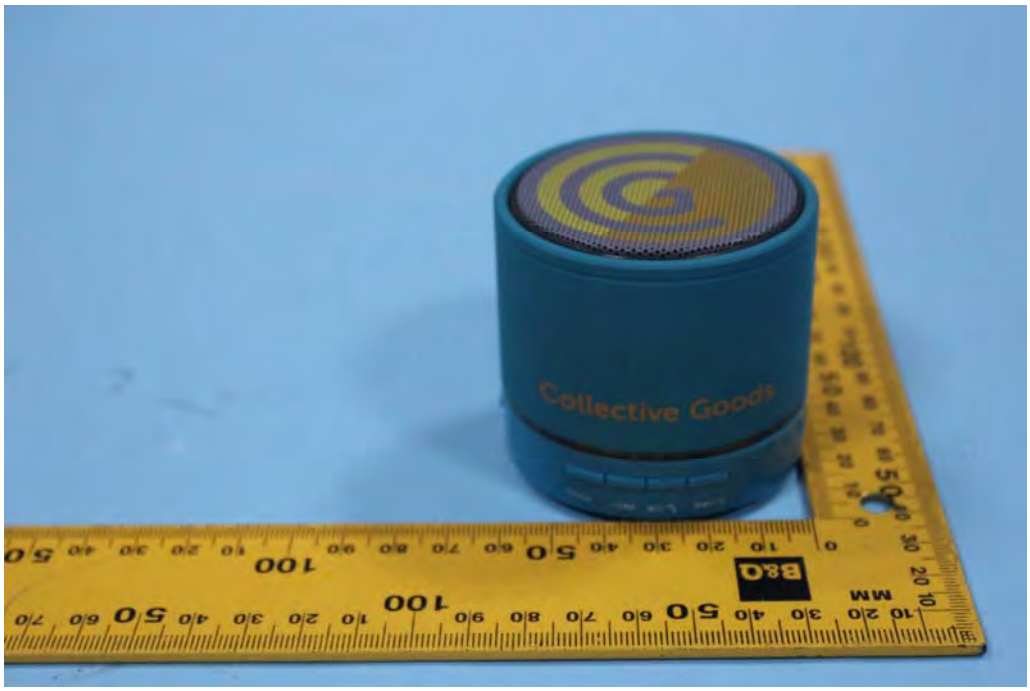


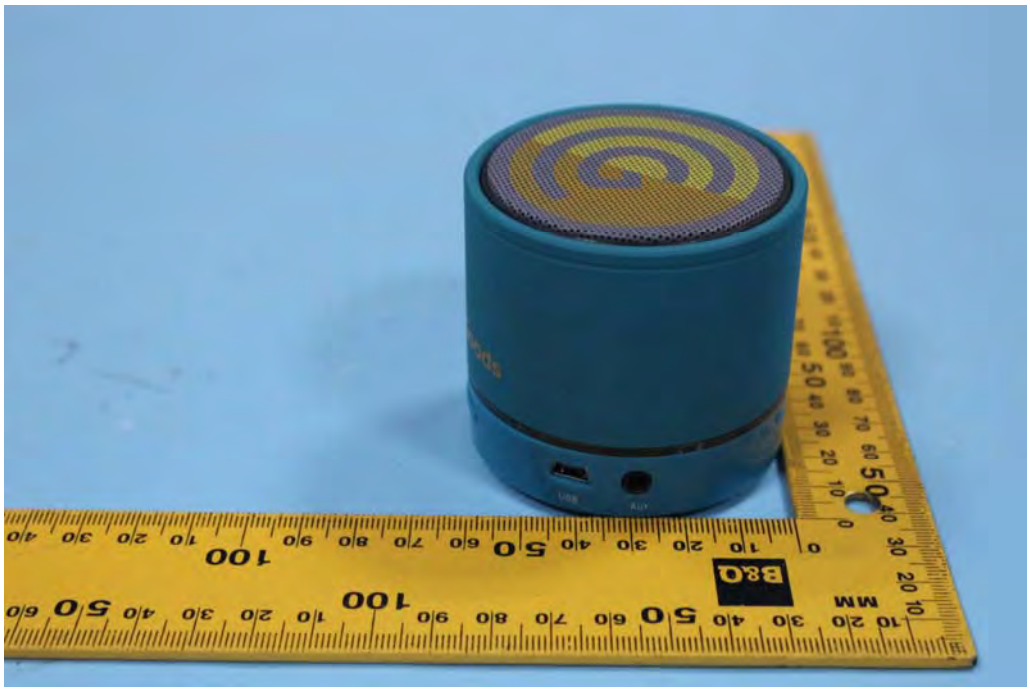


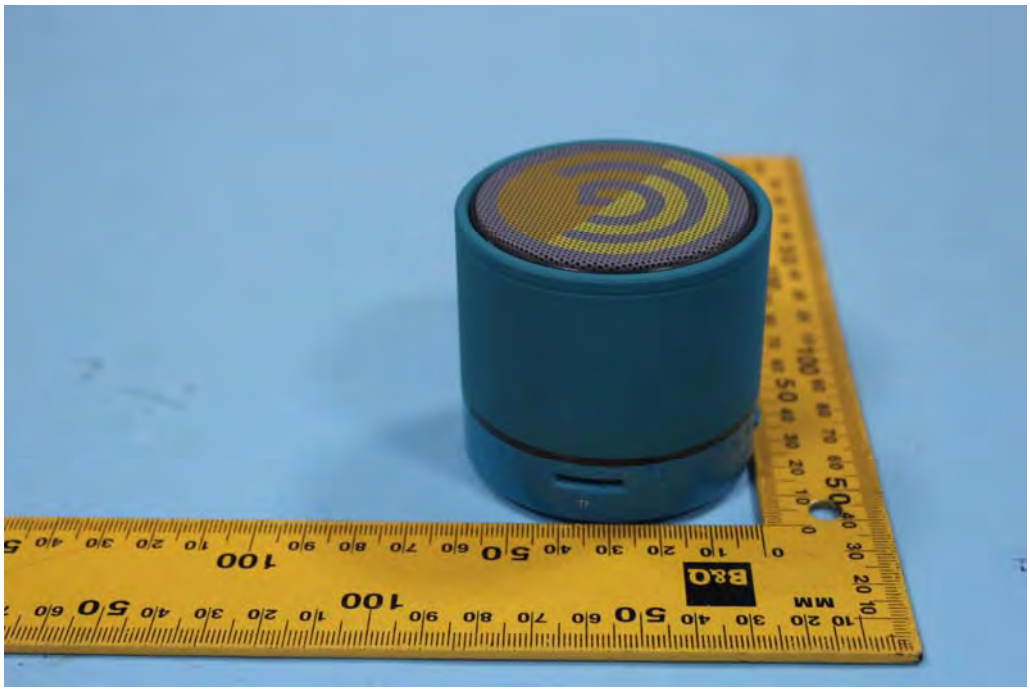
14.3.Photo of EUT

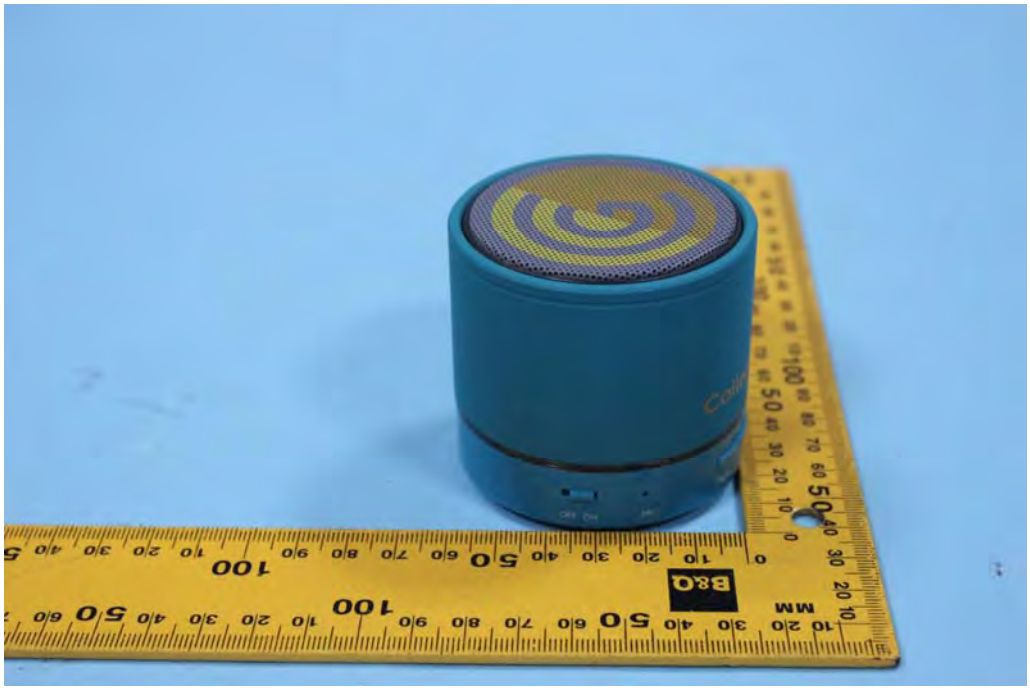




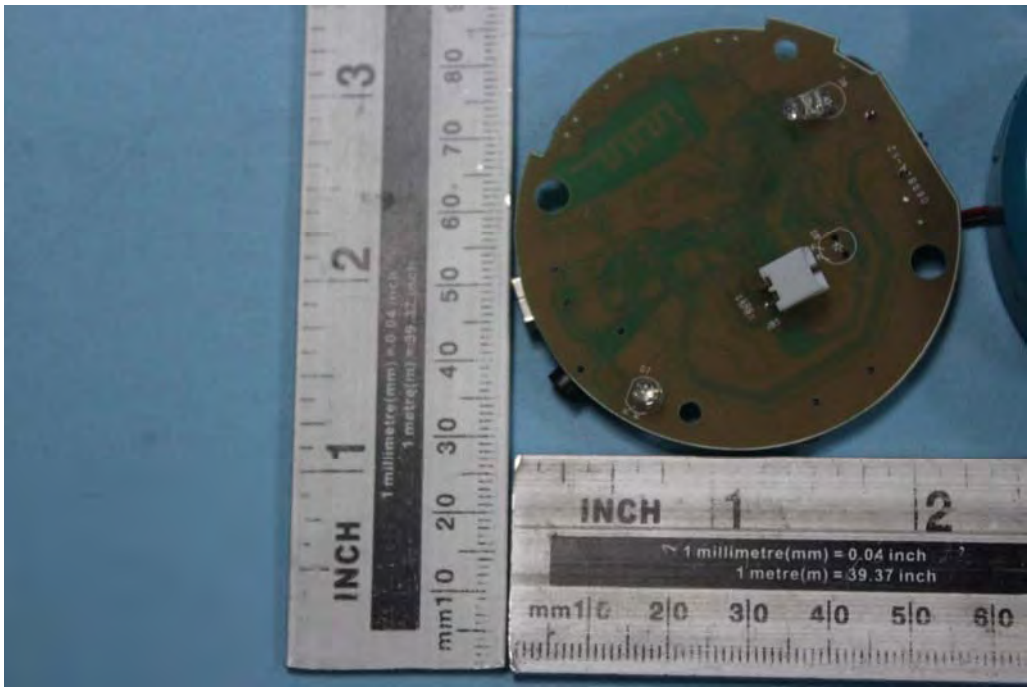

Collective Goods

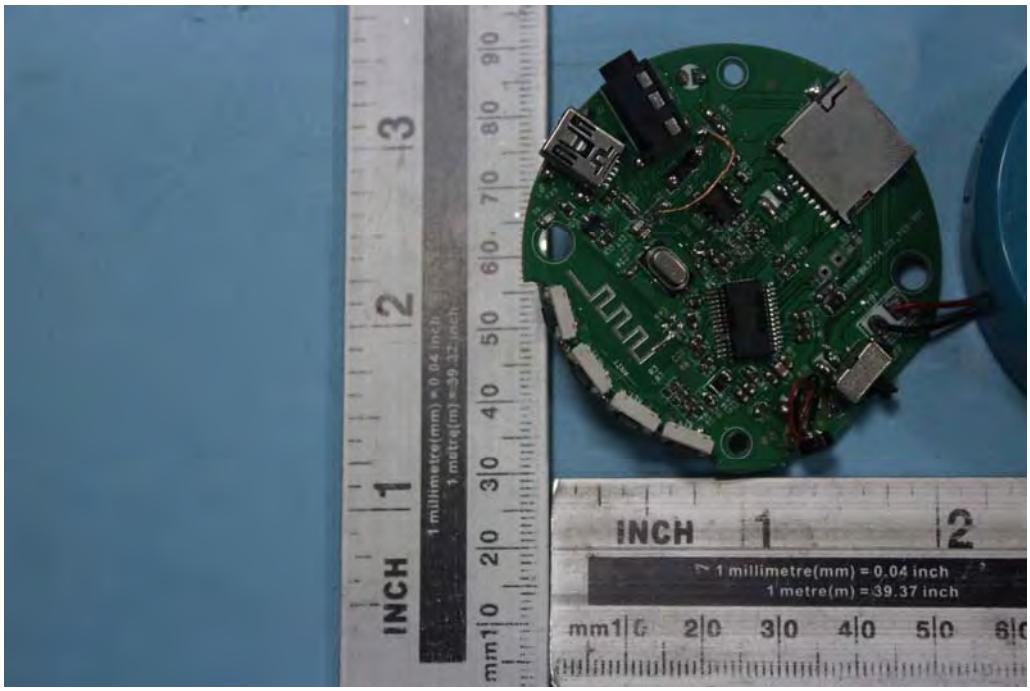


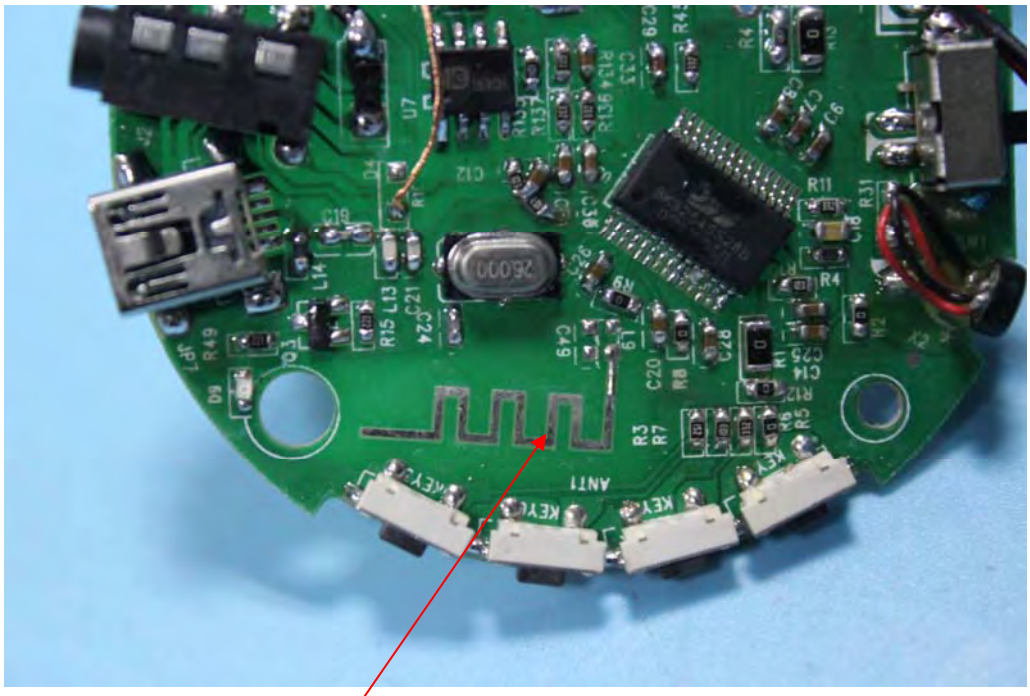





INCH
1
2
3
6


INCH
1
2
1 millimetre(mm) = 0.04 inch
1 metre(m) = 39.37 inch
mm
2|0
3|0
4|0
5|0
6|0


INCH
1 millimetre(mm) = 0.04 inch
1 metre(m) = 39.37 inch
mm


ANT1
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Antenna