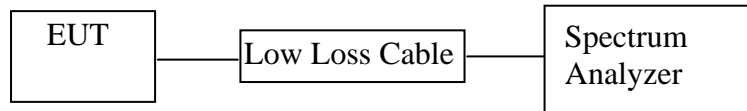


11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: COLOR CHANGING BLUETOOTH TRIANGLE SPEAKERS)

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.

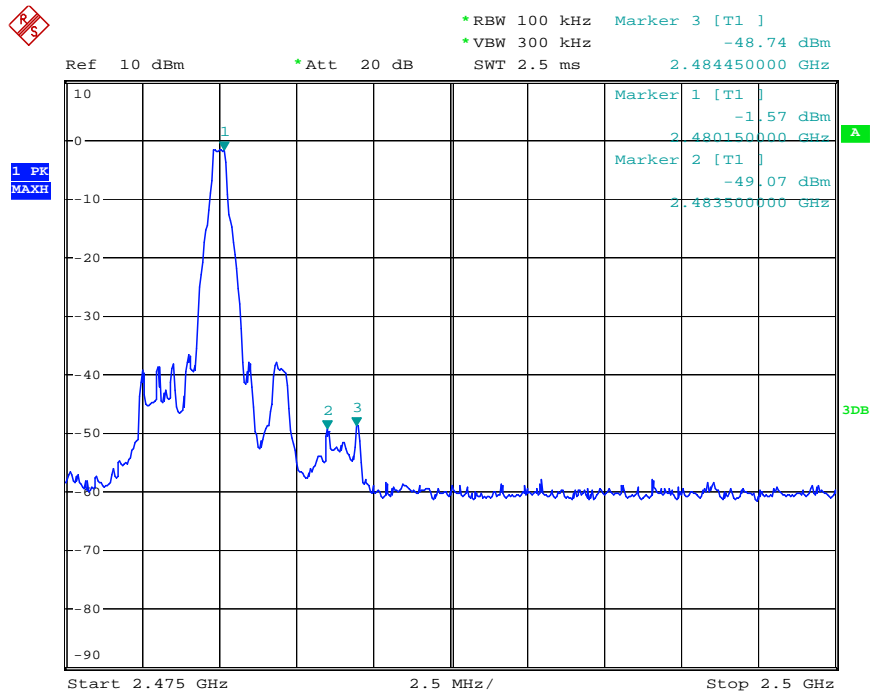
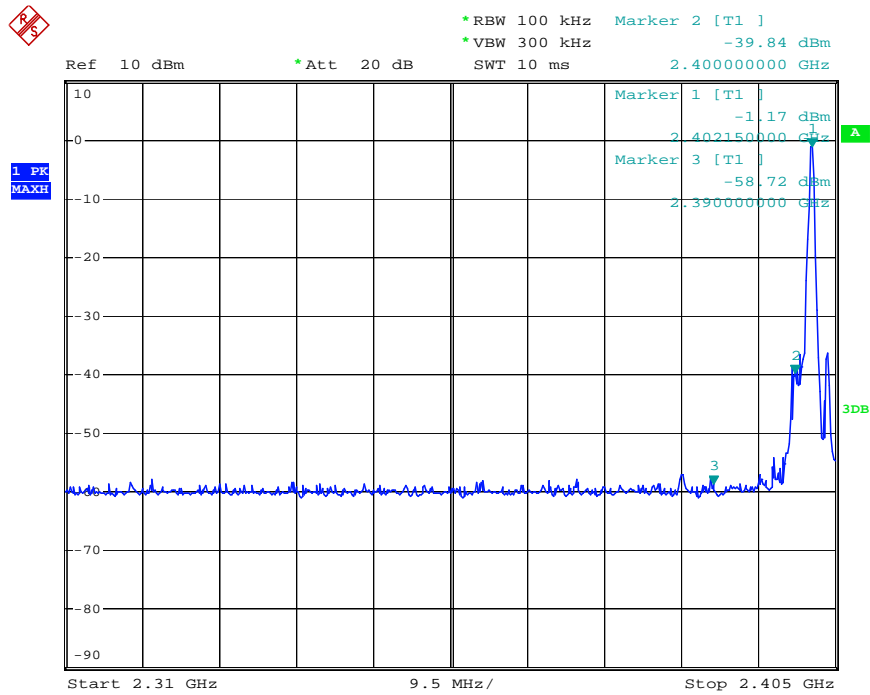
11.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

11.5.3. The band edges was measured and recorded.

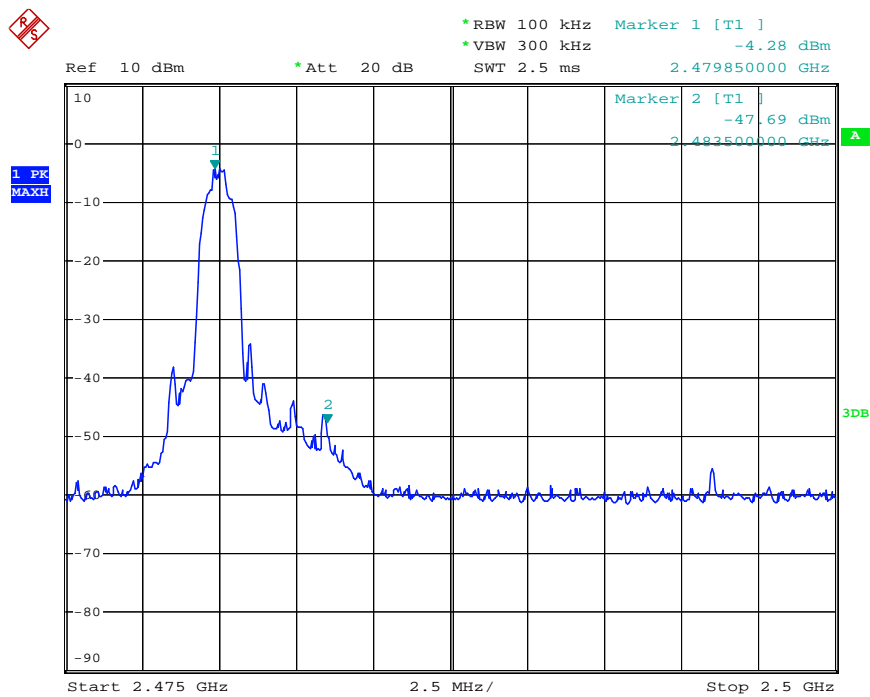
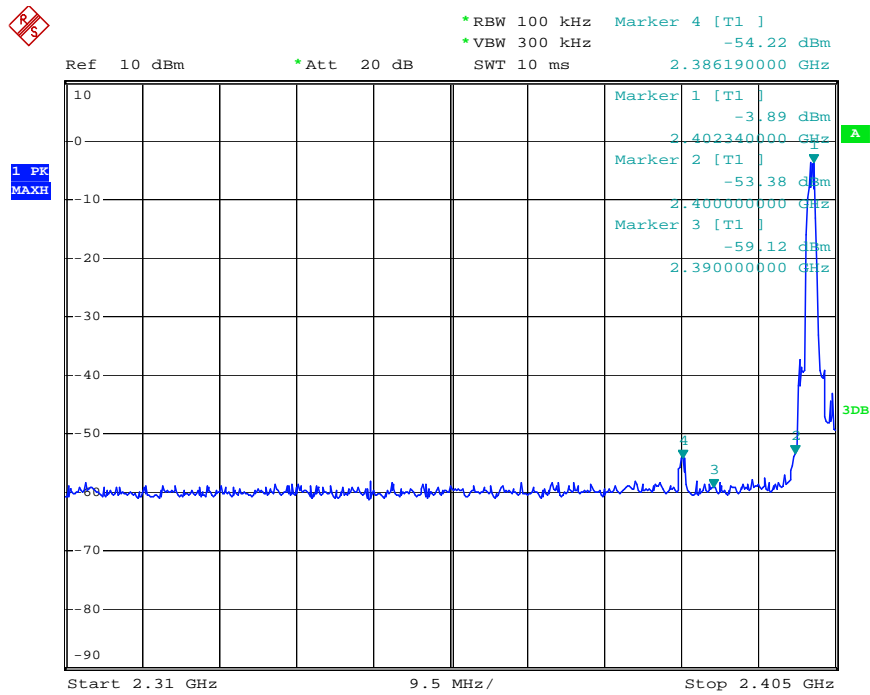
11.6. Test Result

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK		
2400.00	38.67	> 20dBc
2484.45	47.17	> 20dBc
Π/4-DQPSK Mode		
2400.00	49.49	> 20dBc
2483.50	43.41	> 20dBc
8QPSK		
2400.00	49.25	> 20dBc
2483.50	43.41	> 20dBc

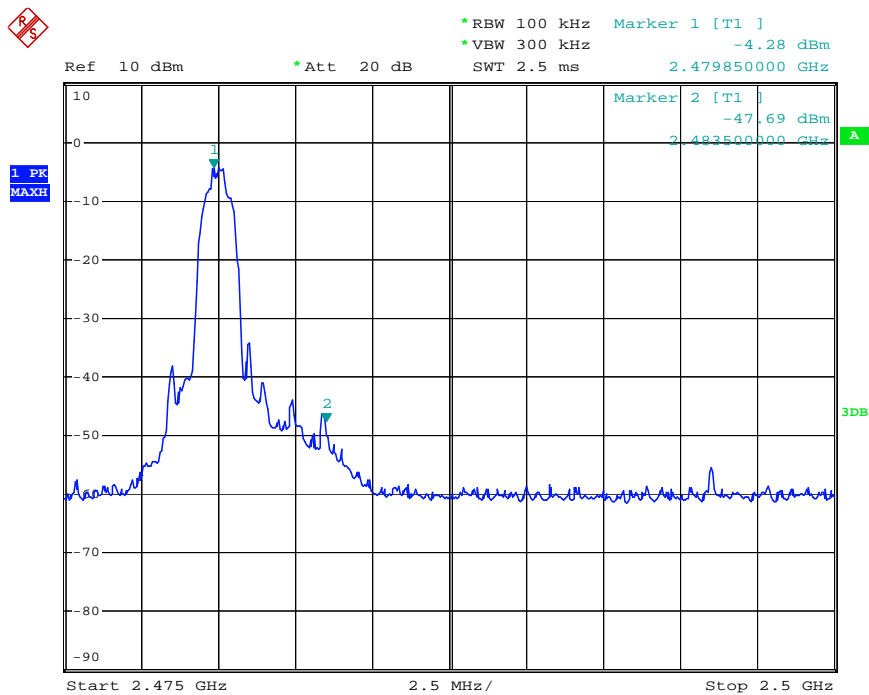
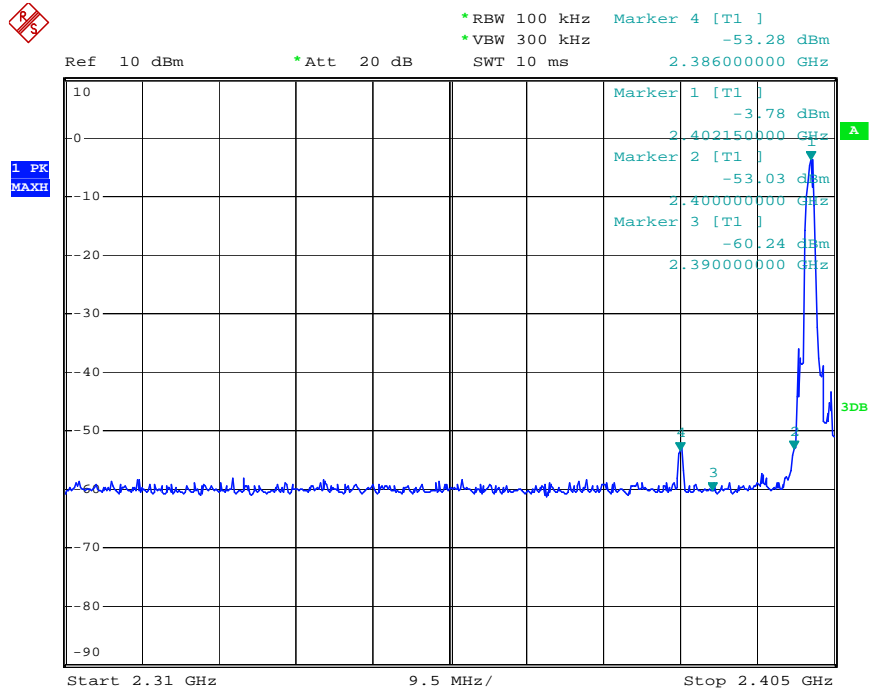
GFSK



Π/4-DQPSK Mode



8DPSK



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 1.5 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

Job No.: star2015 #1524

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: TX 2402MHz(GFSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Horizontal

Power Source: DC 3.7V

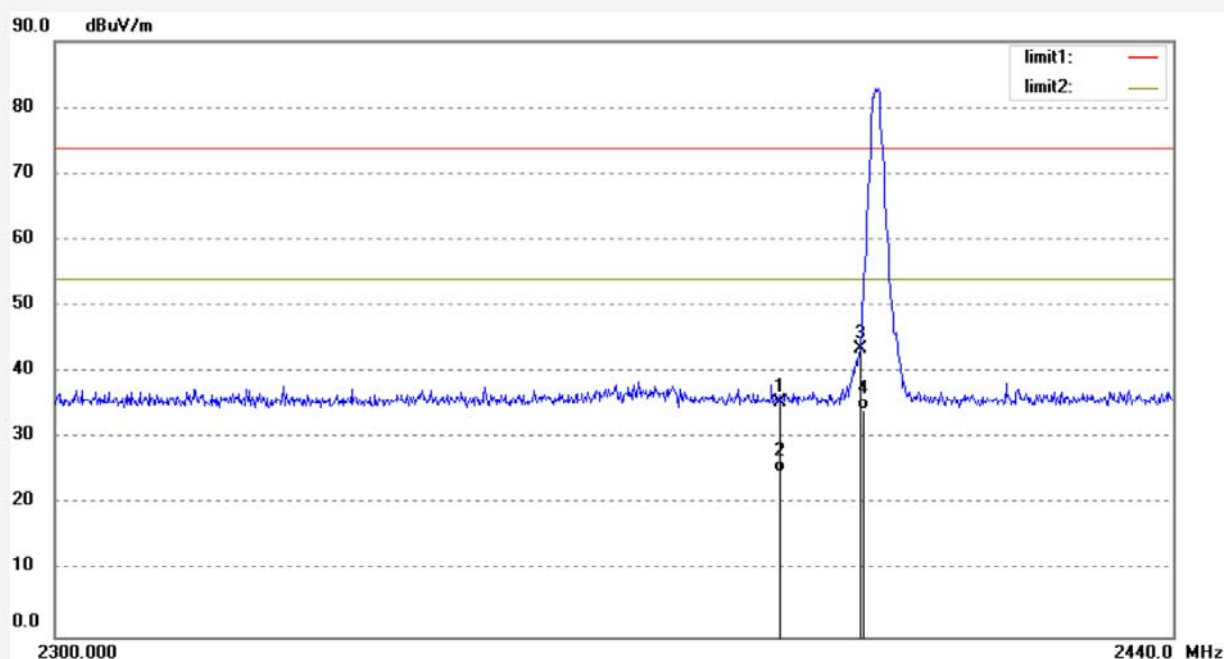
Date: 16/03/23/

Time: 9/33/57

Engineer Signature:

Distance: 1m
3m

Note: Report No.:ATE20160473



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	43.38	-8.00	35.38	74.00	-38.62	peak			
2	2390.000	32.97	-8.00	24.97	54.00	-29.03	AVG			
3	2400.000	51.56	-7.97	43.59	74.00	-30.41	peak			
4	2400.000	42.22	-7.97	34.25	54.00	-19.75	AVG			

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

Job No.: star2015 #1523

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: TX 2402MHz(GFSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Vertical

Power Source: DC 3.7V

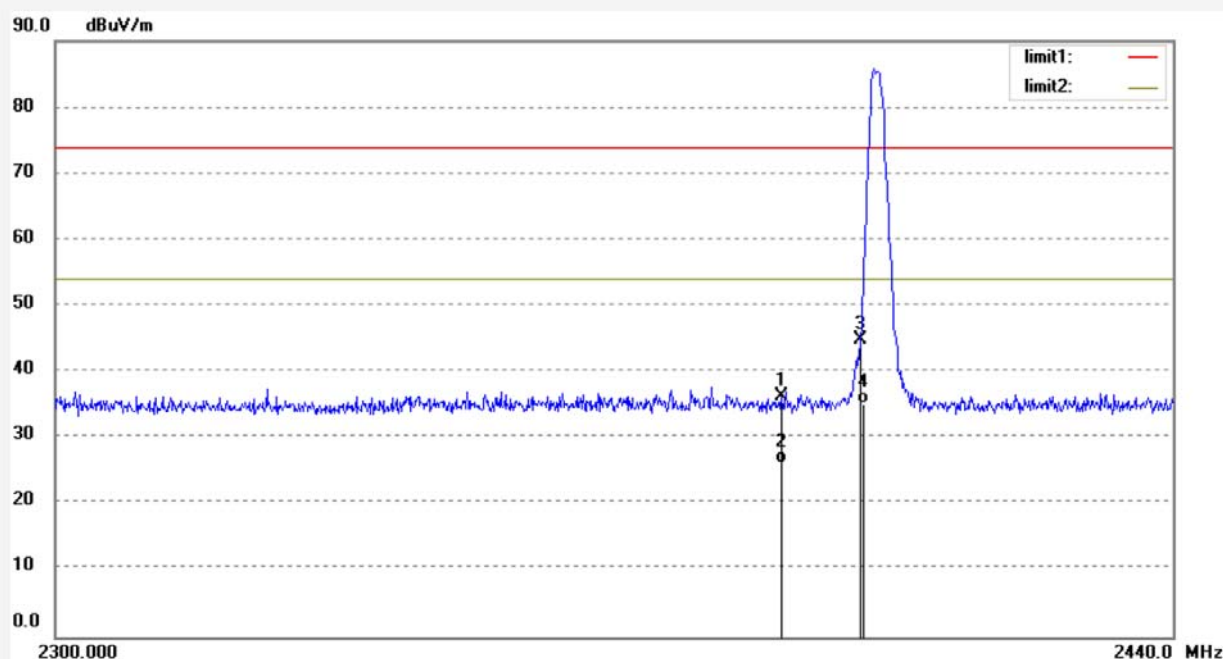
Date: 16/03/23/

Time: 9/30/43

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	44.32	-8.00	36.32	74.00	-37.68	peak			
2	2390.000	34.25	-8.00	26.25	54.00	-27.75	AVG			
3	2400.000	52.85	-7.97	44.88	74.00	-29.12	peak			
4	2400.000	43.29	-7.97	35.32	54.00	-18.68	AVG			

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

Job No.: star2015 #1525

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: TX 2480MHz(GFSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Horizontal

Power Source: DC 3.7V

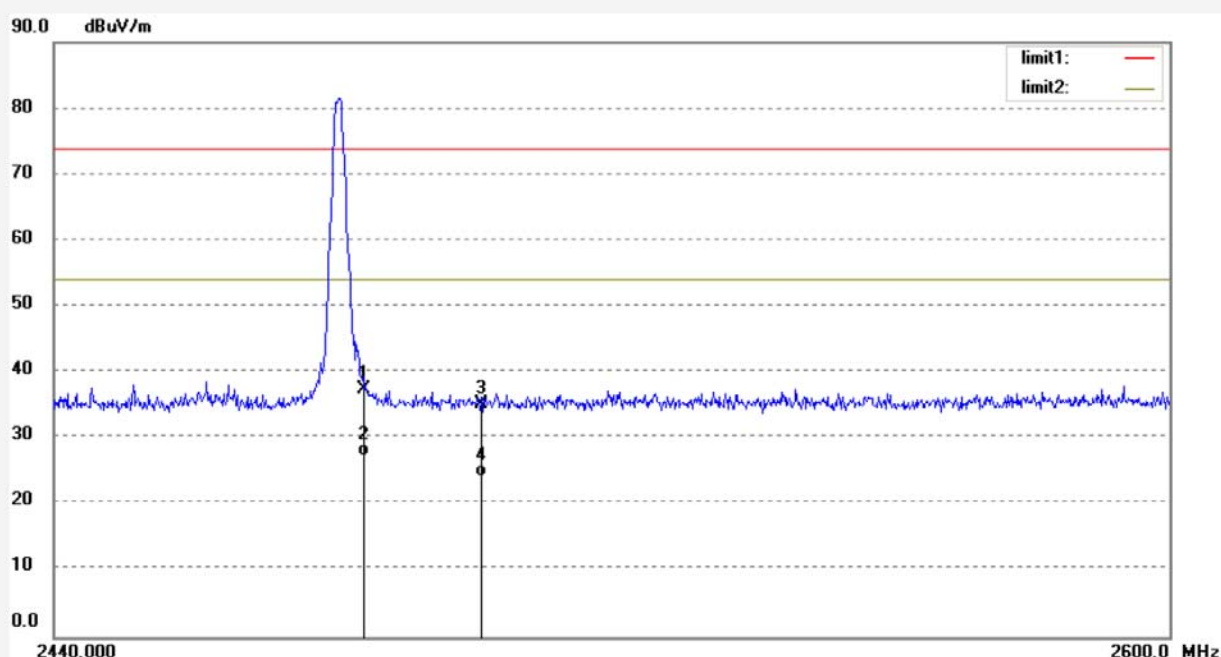
Date: 16/03/23/

Time: 9/35/23

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	45.31	-7.76	37.55	74.00	-36.45	peak			
2	2483.500	35.14	-7.76	27.38	54.00	-26.62	AVG			
3	2500.000	42.99	-7.71	35.28	74.00	-38.72	peak			
4	2500.000	31.99	-7.71	24.28	54.00	-29.72	AVG			

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

Job No.: star2015 #1526

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: TX 2480MHz(GFSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Vertical

Power Source: DC 3.7V

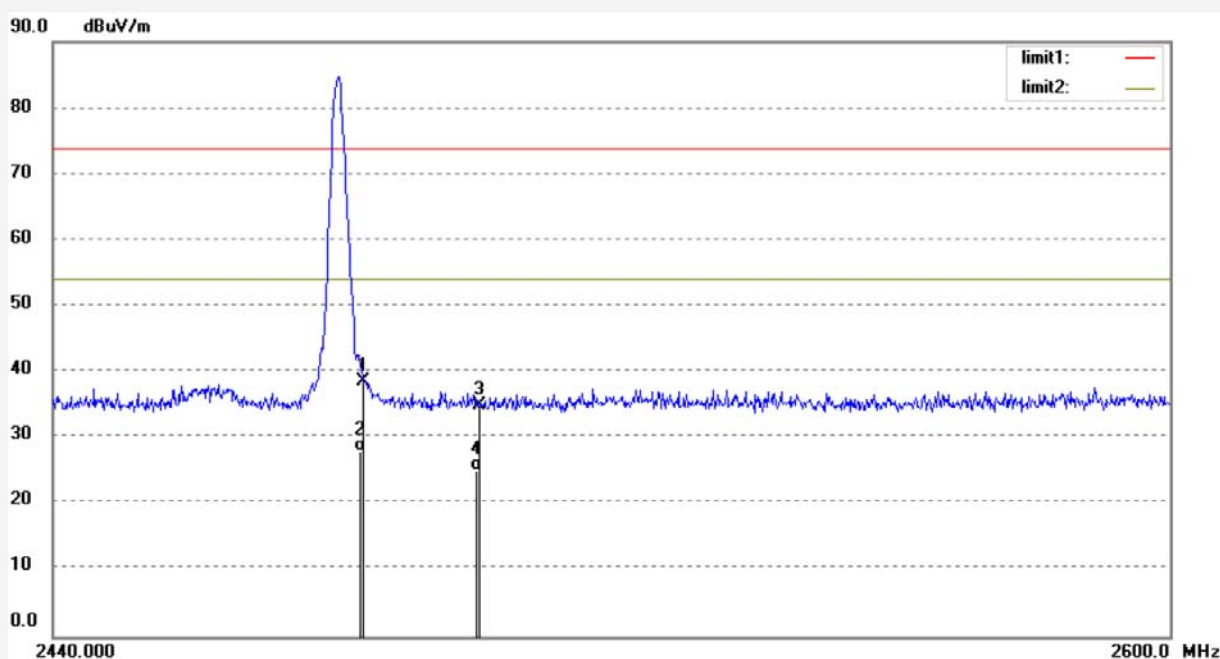
Date: 16/03/23/

Time: 9/36/11

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	46.45	-7.76	38.69	74.00	-35.31	peak			
2	2483.500	35.87	-7.76	28.11	54.00	-25.89	AVG			
3	2500.000	42.59	-7.71	34.88	74.00	-39.12	peak			
4	2500.000	32.69	-7.71	24.98	54.00	-29.02	AVG			

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

Job No.: star2015 #1529

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS Engineer Signature:

Mode: TX 2402MHz($\pi/4$ DQPSK)

Distance: 3m

Model: CB-335072

Manufacturer: CLEVER BRIGHT

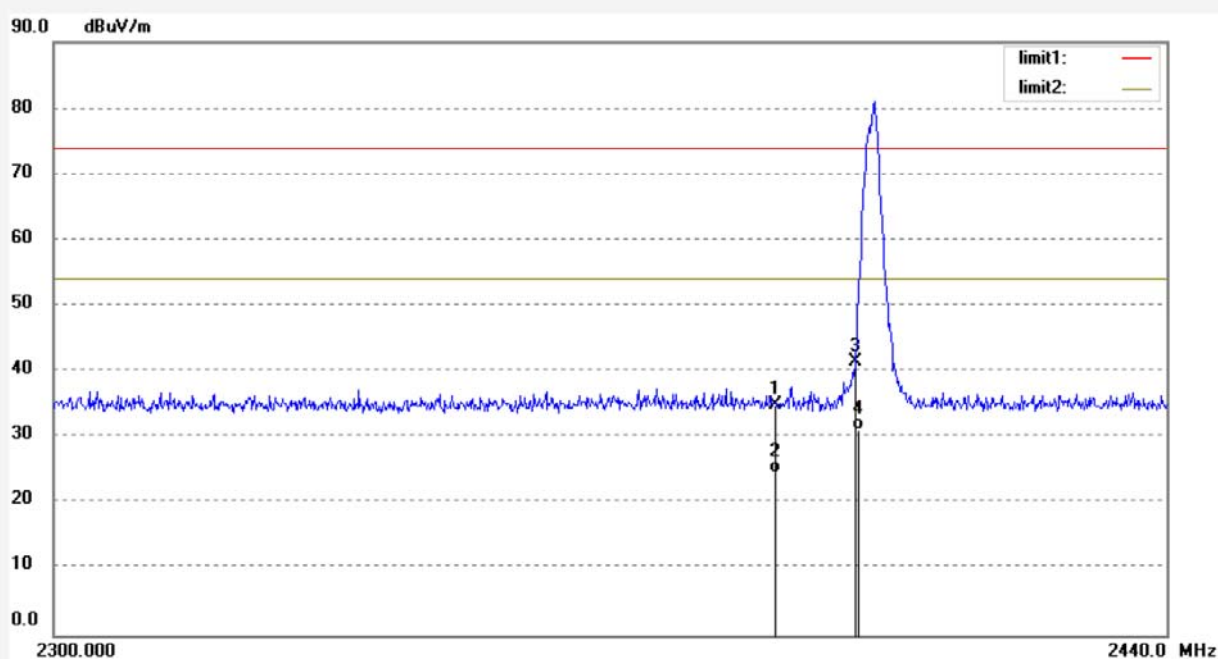
Polarization: Horizontal

Power Source: DC 3.7V

Date: 16/03/23/

Time: 9/41/53

Note: Report No.:ATE20160473



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	42.93	-8.00	34.93	74.00	-39.07	peak			
2	2390.000	32.67	-8.00	24.67	54.00	-29.33	AVG			
3	2400.000	49.50	-7.97	41.53	74.00	-32.47	peak			
4	2400.000	39.11	-7.97	31.14	54.00	-22.86	AVG			

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

Job No.: star2015 #1530

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: TX 2402MHz($\pi/4$ DQPSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Vertical

Power Source: DC 3.7V

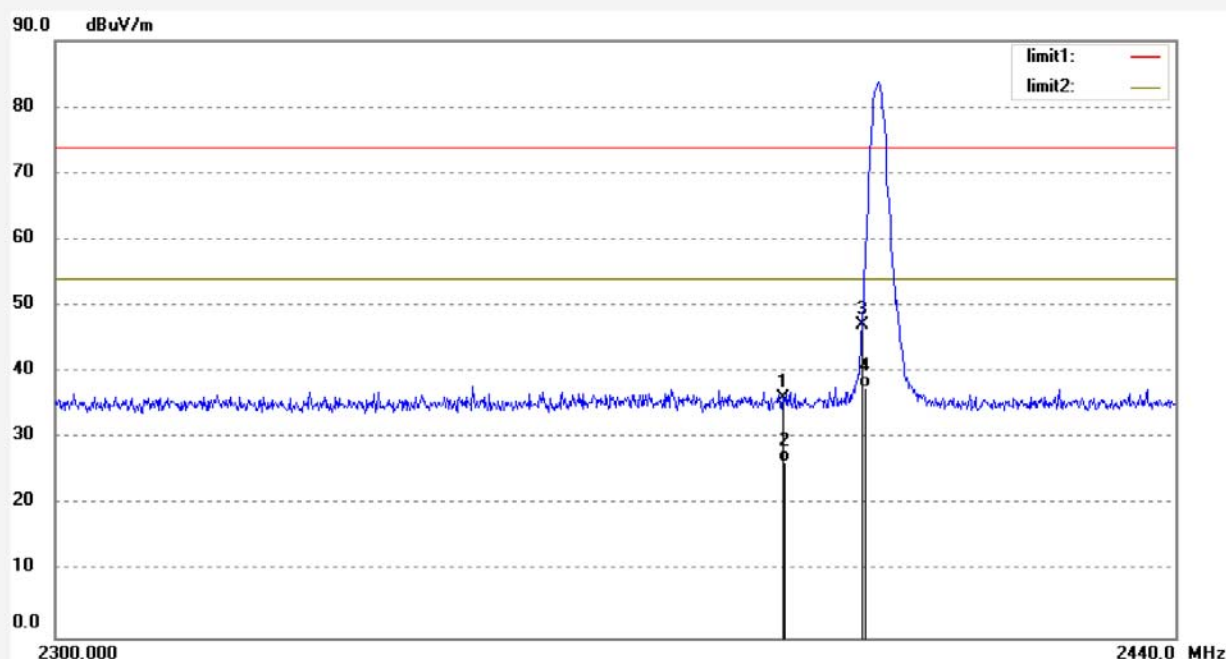
Date: 16/03/23/

Time: 9/42/50

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	44.10	-8.00	36.10	74.00	-37.90	peak			
2	2390.000	34.52	-8.00	26.52	54.00	-27.48	AVG			
3	2400.000	55.18	-7.97	47.21	74.00	-26.79	peak			
4	2400.000	45.69	-7.97	37.72	54.00	-16.28	AVG			

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

Job No.: star2015 #1528

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: TX 2480MHz($\pi/4$ DQPSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Horizontal

Power Source: DC 3.7V

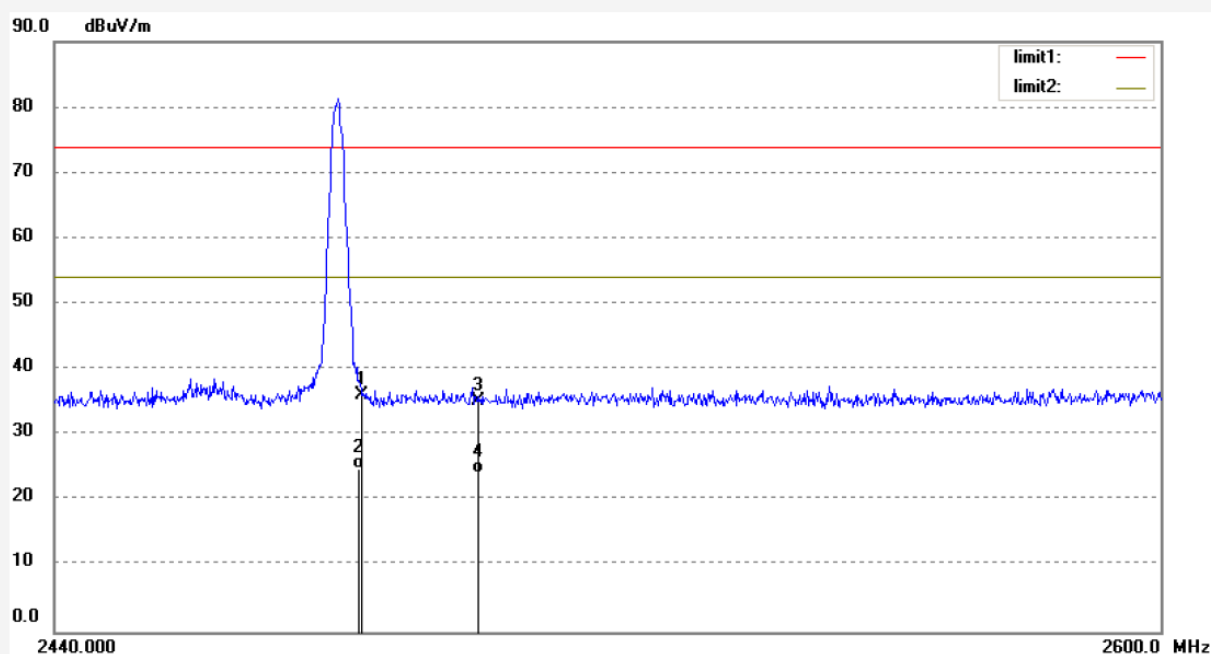
Date: 16/03/23/

Time: 9/40/42

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	43.79	-7.76	36.03	74.00	-37.97	peak			
2	2483.500	32.58	-7.76	24.82	54.00	-29.18	AVG			
3	2500.000	42.93	-7.71	35.22	74.00	-38.78	peak			
4	2500.000	32.00	-7.71	24.29	54.00	-29.71	AVG			

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

Job No.: star2015 #1527

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: TX 2480MHz($\pi/4$ DQPSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Vertical

Power Source: DC 3.7V

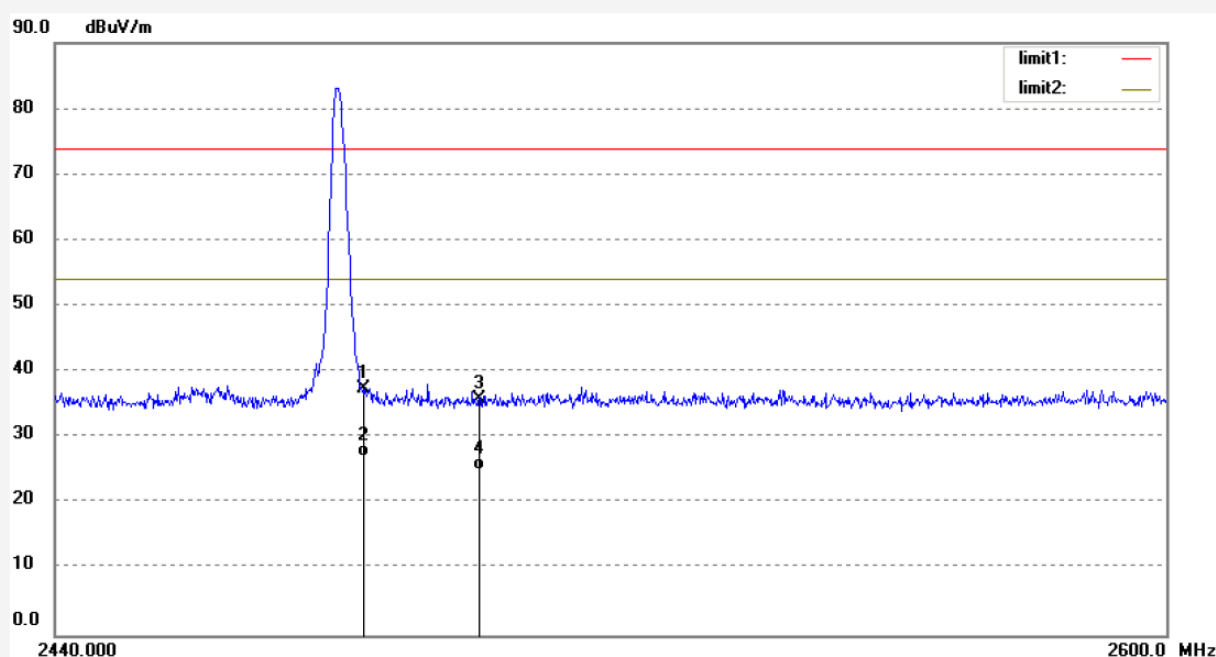
Date: 16/03/23/

Time: 9/39/39

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	45.28	-7.76	37.52	74.00	-36.48	peak			
2	2483.500	34.88	-7.76	27.12	54.00	-26.88	AVG			
3	2500.000	43.62	-7.71	35.91	74.00	-38.09	peak			
4	2500.000	32.69	-7.71	24.98	54.00	-29.02	AVG			

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

Job No.: star2015 #1532

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS Engineer Signature:

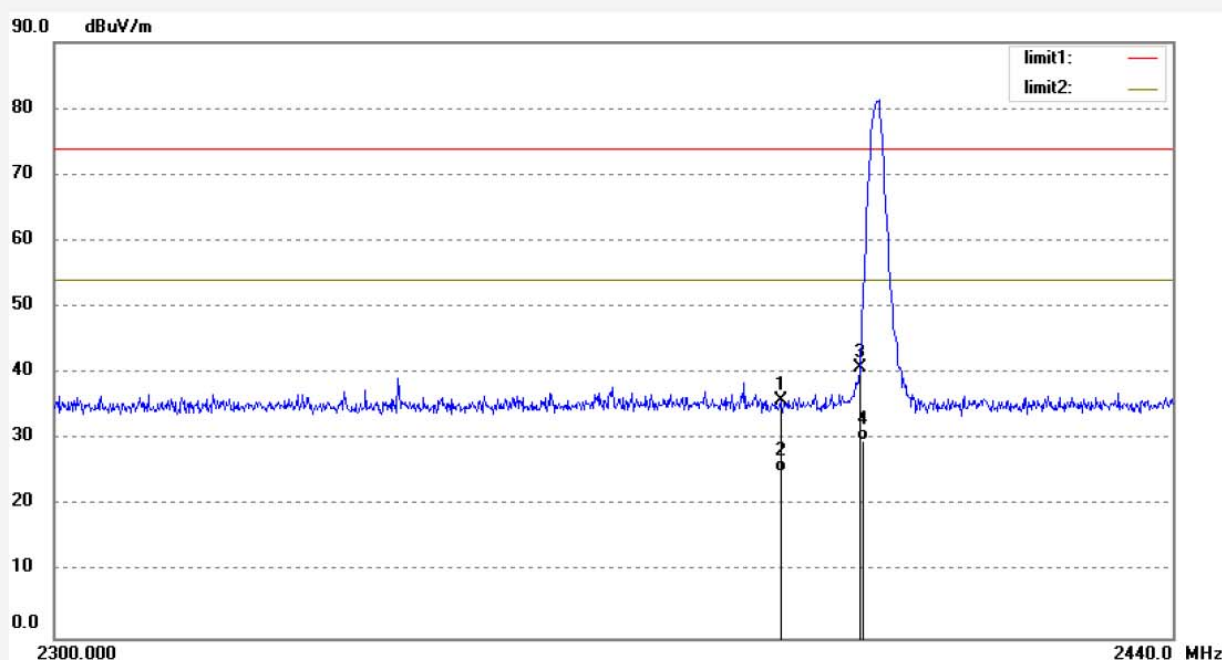
Mode: TX 2402MHz(8DPSK)

Distance: 3m

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Note: Report No.:ATE20160473



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	43.97	-8.00	35.97	74.00	-38.03	peak			
2	2390.000	32.99	-8.00	24.99	54.00	-29.01	AVG			
3	2400.000	48.87	-7.97	40.90	74.00	-33.10	peak			
4	2400.000	37.69	-7.97	29.72	54.00	-24.28	AVG			

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

Job No.: star2015 #1531

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: TX 2402MHz(8DPSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Vertical

Power Source: DC 3.7V

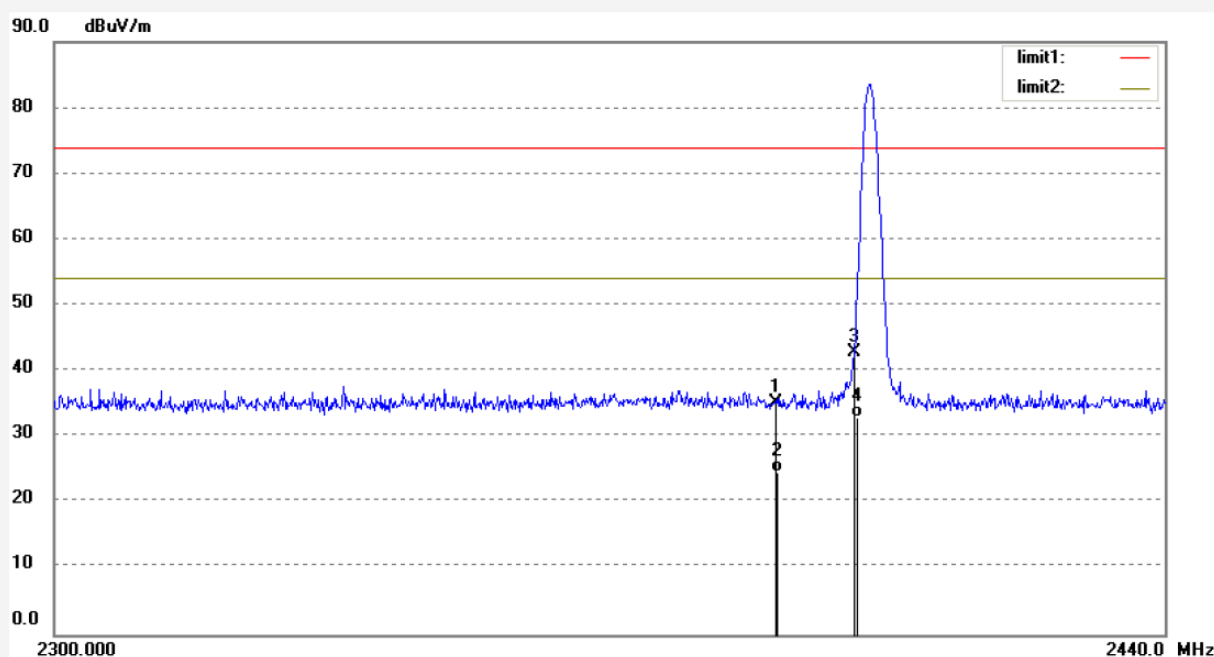
Date: 16/03/23/

Time: 9/45/11

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	43.18	-8.00	35.18	74.00	-38.82	peak			
2	2390.000	32.58	-8.00	24.58	54.00	-29.42	AVG			
3	2400.000	50.94	-7.97	42.97	74.00	-31.03	peak			
4	2400.000	40.84	-7.97	32.87	54.00	-21.13	AVG			

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

Job No.: star2015 #1533

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS Engineer Signature:

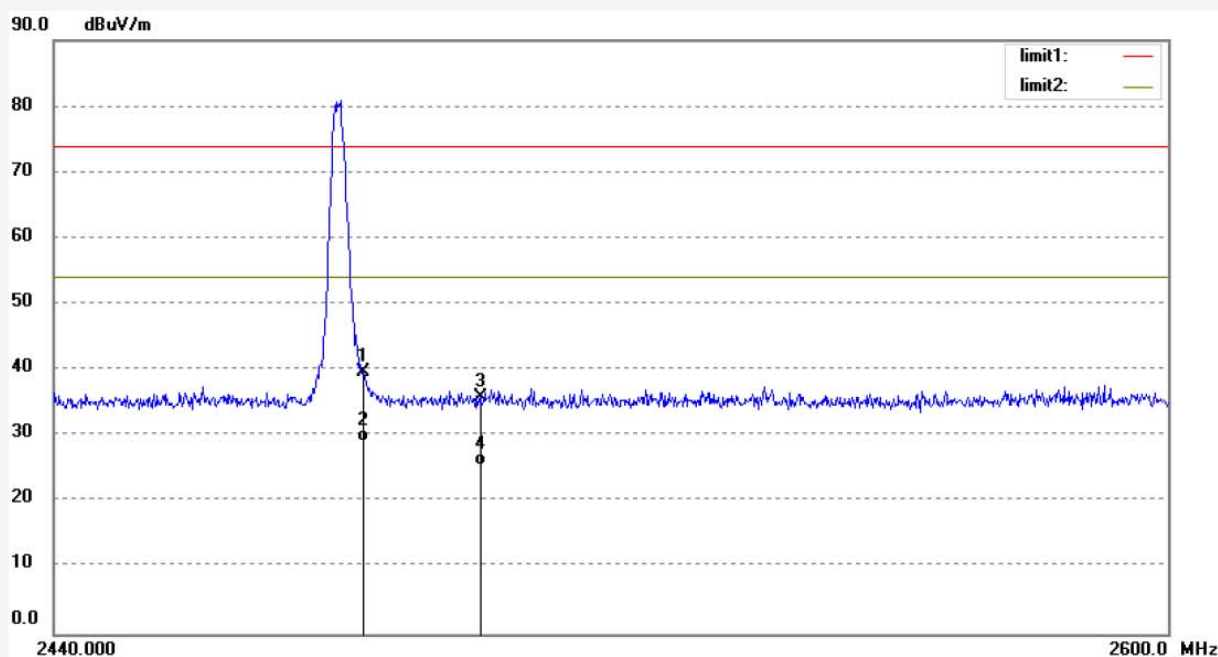
Mode: TX 2480MHz(8DPSK)

Distance: 3m

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Note: Report No.:ATE20160473



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	47.57	-7.76	39.81	74.00	-34.19	peak			
2	2483.500	36.89	-7.76	29.13	54.00	-24.87	AVG			
3	2500.000	43.63	-7.71	35.92	74.00	-38.08	peak			
4	2500.000	33.25	-7.71	25.54	54.00	-28.46	AVG			

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

Job No.: star2015 #1534

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: TX 2480MHz(8DPSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Vertical

Power Source: DC 3.7V

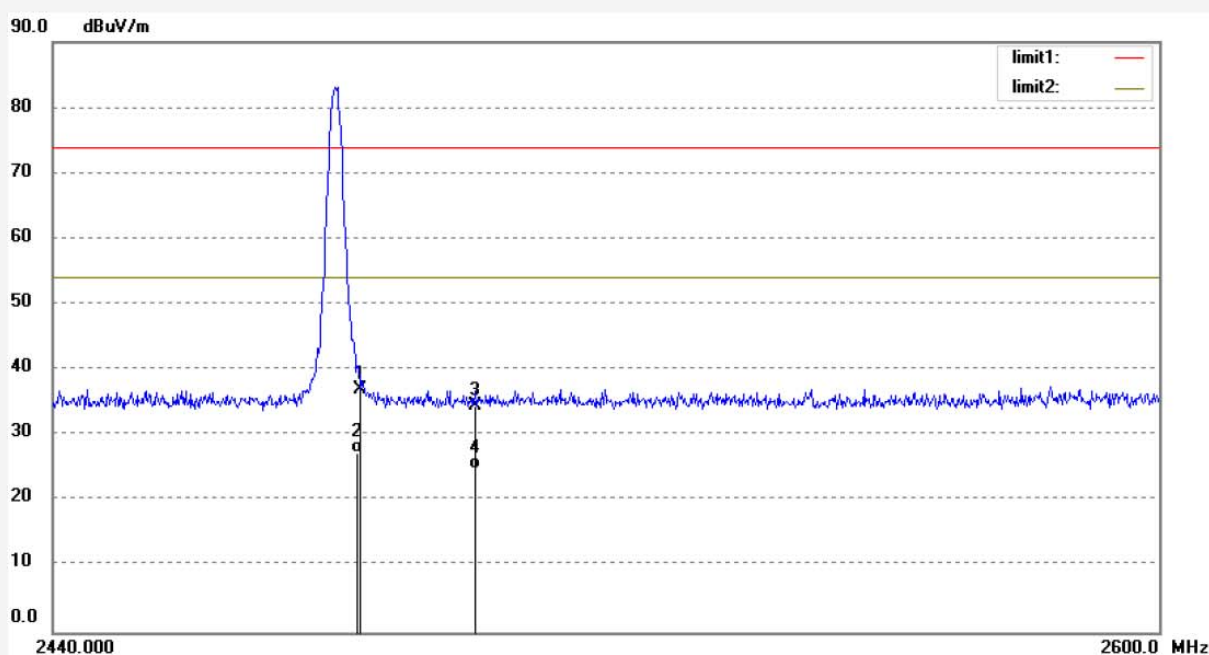
Date: 16/03/23/

Time: 9/48/03

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	44.88	-7.76	37.12	74.00	-36.88	peak			
2	2483.500	35.10	-7.76	27.34	54.00	-26.66	AVG			
3	2500.000	42.27	-7.71	34.56	74.00	-39.44	peak			
4	2500.000	32.67	-7.71	24.96	54.00	-29.04	AVG			

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

Hopping mode



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Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: star2015 #1540

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: HOPPING (GFSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Horizontal

Power Source: DC 3.7V

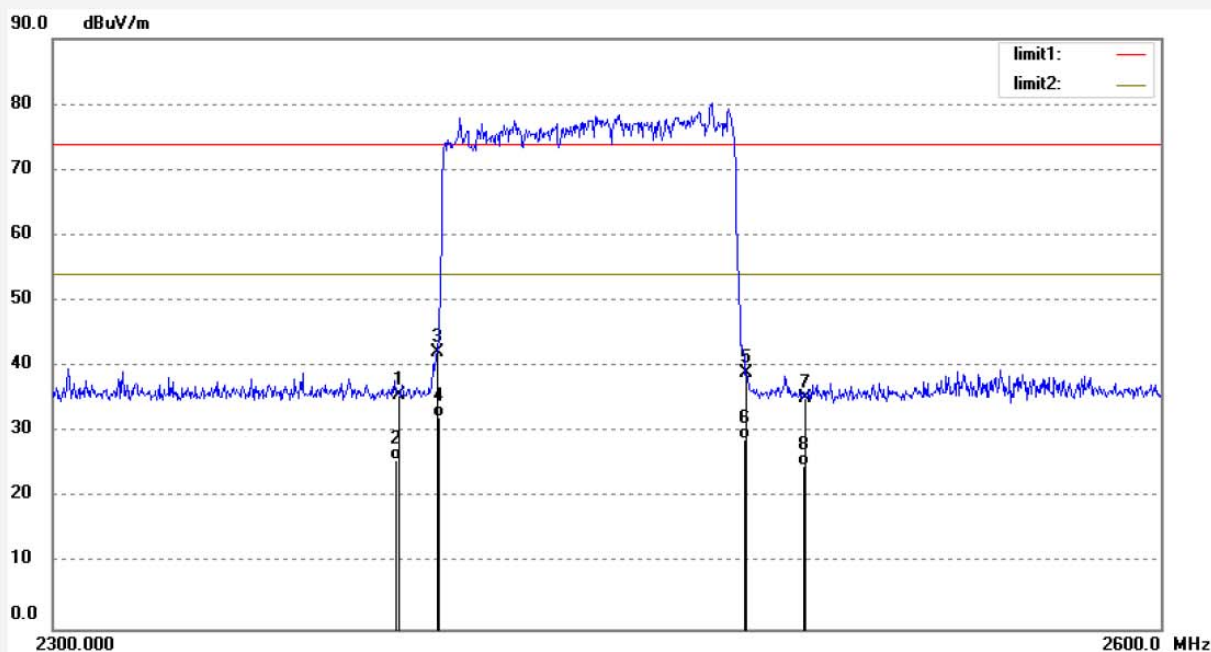
Date: 16/03/23/

Time: 8/40/05

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	43.73	-8.00	35.73	74.00	-38.27	peak			
2	2390.000	33.67	-8.00	25.67	54.00	-28.33	AVG			
3	2400.000	50.11	-7.97	42.14	74.00	-31.86	peak			
4	2400.000	40.24	-7.97	32.27	54.00	-21.73	AVG			
5	2483.500	46.70	-7.76	38.94	74.00	-35.06	peak			
6	2483.500	36.58	-7.76	28.82	54.00	-25.18	AVG			
7	2500.000	42.97	-7.71	35.26	74.00	-38.74	peak			
8	2500.000	32.57	-7.71	24.86	54.00	-29.14	AVG			

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



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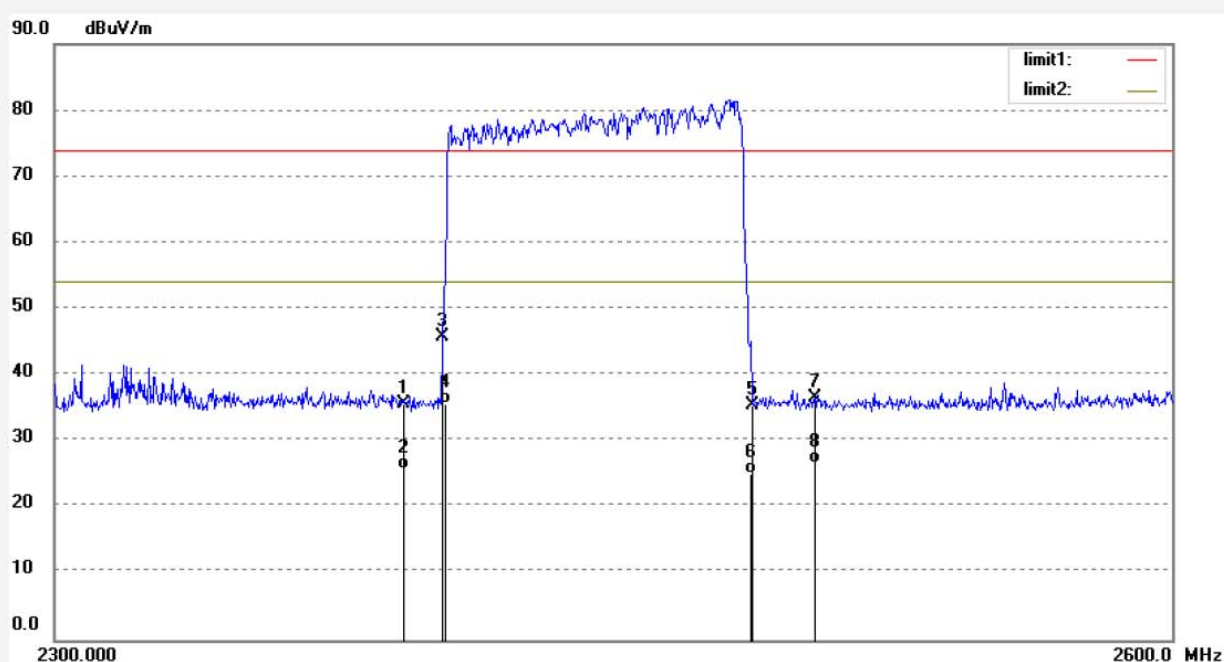
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: star2015 #1539
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS
Mode: HOPPING (GFSK)
Model: CB-335072
Manufacturer: CLEVER BRIGHT

Polarization: Vertical
Power Source: DC 3.7V
Date: 16/03/23/
Time: 8/37/04
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20160473



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	43.59	-8.00	35.59	74.00	-38.41	peak			
2	2390.000	33.69	-8.00	25.69	54.00	-28.31	AVG			
3	2400.000	53.83	-7.97	45.86	74.00	-28.14	peak			
4	2400.000	43.72	-7.97	35.75	54.00	-18.25	AVG			
5	2483.500	43.21	-7.76	35.45	74.00	-38.55	peak			
6	2483.500	32.81	-7.76	25.05	54.00	-28.95	AVG			
7	2500.000	44.38	-7.71	36.67	74.00	-37.33	peak			
8	2500.000	34.27	-7.71	26.56	54.00	-27.44	AVG			

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

Job No.: star2015 #1541

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: HOPPING ($\pi/4$ DQPSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Horizontal

Power Source: DC 3.7V

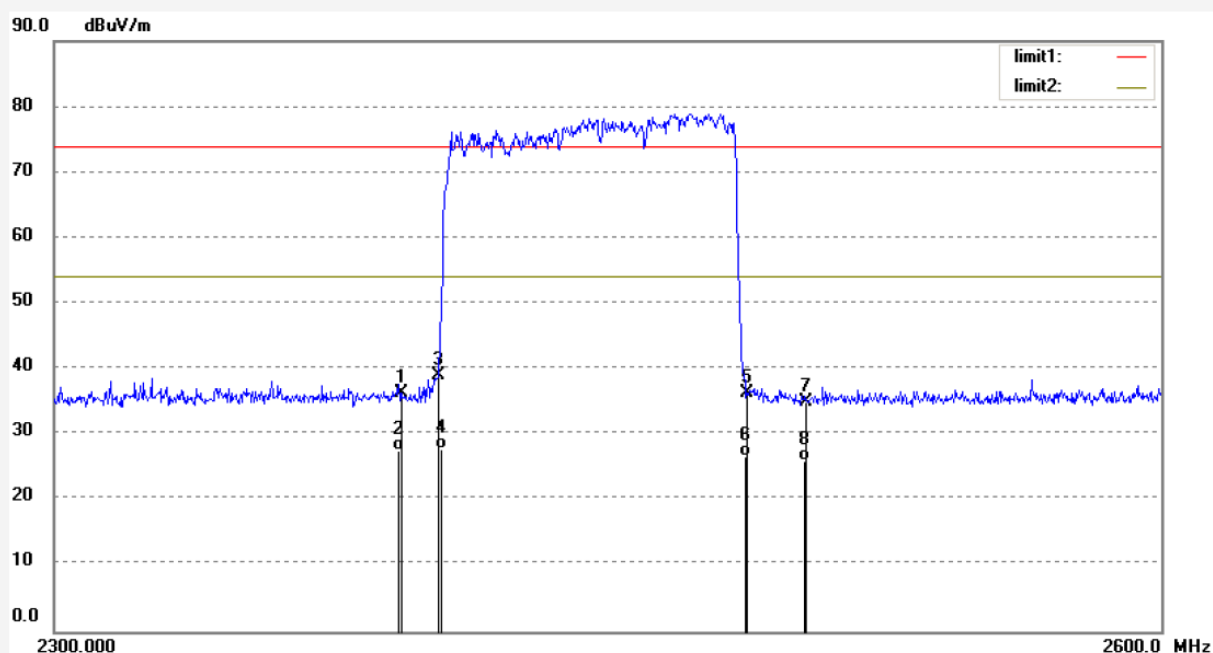
Date: 16/03/23/

Time: 8/43/34

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	44.33	-8.00	36.33	74.00	-37.67	peak			
2	2390.000	35.61	-8.00	27.61	54.00	-26.39	AVG			
3	2400.000	46.91	-7.97	38.94	74.00	-35.06	peak			
4	2400.000	35.87	-7.97	27.90	54.00	-26.10	AVG			
5	2483.500	44.01	-7.76	36.25	74.00	-37.75	peak			
6	2483.500	34.52	-7.76	26.76	54.00	-27.24	AVG			
7	2500.000	42.73	-7.71	35.02	74.00	-38.98	peak			
8	2500.000	33.66	-7.71	25.95	54.00	-28.05	AVG			

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

Job No.: star2015 #1542

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: HOPPING ($\pi/4$ DQPSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Vertical

Power Source: DC 3.7V

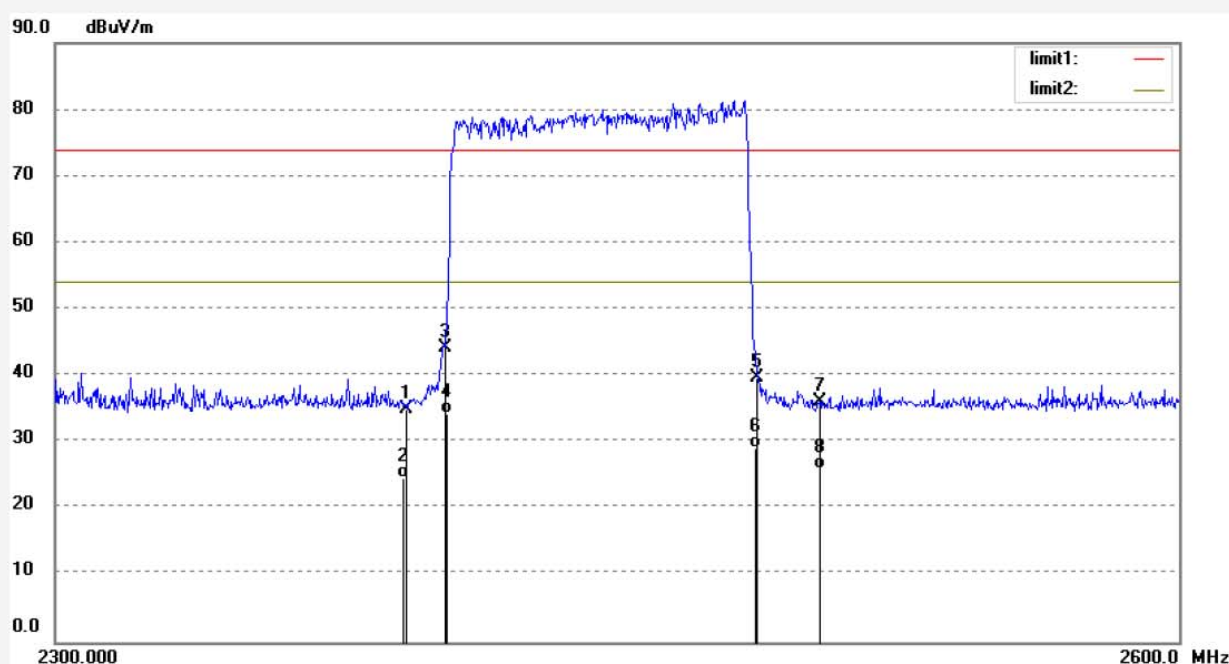
Date: 16/03/23/

Time: 8/47/07

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



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	42.93	-8.00	34.93	74.00	-39.07	peak			
2	2390.000	32.61	-8.00	24.61	54.00	-29.39	AVG			
3	2400.000	52.26	-7.97	44.29	74.00	-29.71	peak			
4	2400.000	42.17	-7.97	34.20	54.00	-19.80	AVG			
5	2483.500	47.44	-7.76	39.68	74.00	-34.32	peak			
6	2483.500	36.87	-7.76	29.11	54.00	-24.89	AVG			
7	2500.000	43.85	-7.71	36.14	74.00	-37.86	peak			
8	2500.000	33.66	-7.71	25.95	54.00	-28.05	AVG			

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



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Fax:+86-0755-26503396

Job No.: star2015 #1544

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS Engineer Signature:

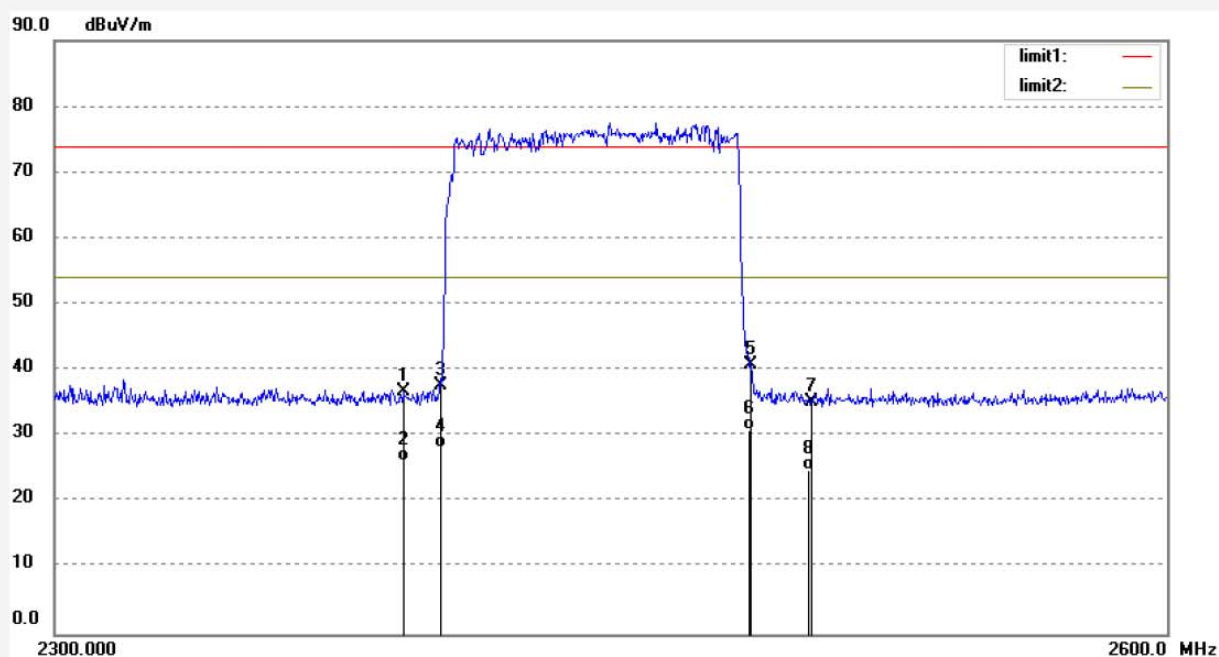
Mode: HOPPING (8DPSK)

Distance: 3m

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Note: Report No.:ATE20160473



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	44.81	-8.00	36.81	74.00	-37.19	peak			
2	2390.000	34.22	-8.00	26.22	54.00	-27.78	AVG			
3	2400.000	45.75	-7.97	37.78	74.00	-36.22	peak			
4	2400.000	36.10	-7.97	28.13	54.00	-25.87	AVG			
5	2483.500	48.64	-7.76	40.88	74.00	-33.12	peak			
6	2483.500	38.67	-7.76	30.91	54.00	-23.09	AVG			
7	2500.000	42.92	-7.71	35.21	74.00	-38.79	peak			
8	2500.000	32.57	-7.71	24.86	54.00	-29.14	AVG			

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

Job No.: star2015 #1543

Standard: FCC PK

Test item: Radiation Test

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

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS

Mode: HOPPING (8DPSK)

Model: CB-335072

Manufacturer: CLEVER BRIGHT

Polarization: Vertical

Power Source: DC 3.7V

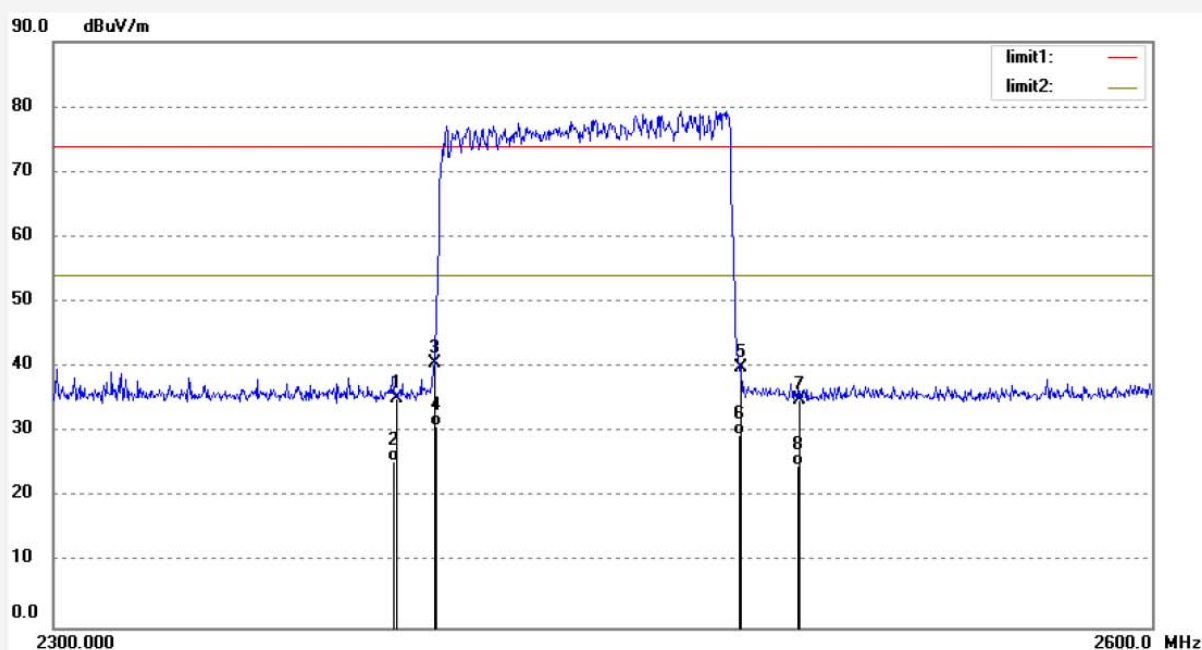
Date: 16/03/23/

Time: 8/50/57

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20160473



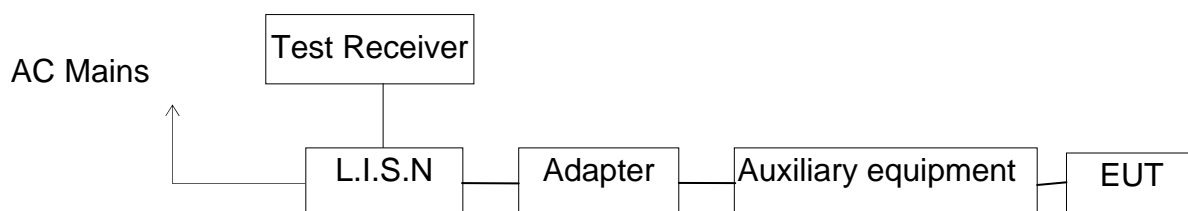
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.11	-8.00	35.11	74.00	-38.89	peak			
2	2390.000	33.56	-8.00	25.56	54.00	-28.44	AVG			
3	2400.000	48.63	-7.97	40.66	74.00	-33.34	peak			
4	2400.000	38.94	-7.97	30.97	54.00	-23.03	AVG			
5	2483.500	47.72	-7.76	39.96	74.00	-34.04	peak			
6	2483.500	37.24	-7.76	29.48	54.00	-24.52	AVG			
7	2500.000	42.65	-7.71	34.94	74.00	-39.06	peak			
8	2500.000	32.60	-7.71	24.89	54.00	-29.11	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: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS)

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 : BT communicating(AC 120V/60Hz)
EUT mode : CB-335072

MEASUREMENT RESULT: "CHBA004_fin"

3/24/2016 5:47PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	50.70	10.5	66	15.3	QP	L1	GND
0.500000	39.50	10.7	56	16.5	QP	L1	GND
2.140000	34.20	11.0	56	21.8	QP	L1	GND

MEASUREMENT RESULT: "CHBA004_fin2"

3/24/2016 5:47PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.155000	39.50	10.5	56	16.2	AV	L1	GND
0.490000	35.10	10.7	46	11.1	AV	L1	GND
2.140000	28.90	11.0	46	17.1	AV	L1	GND

MEASUREMENT RESULT: "CHBA003_fin"

3/24/2016 5:40PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.170000	50.80	10.5	65	14.2	QP	N	GND
0.495000	39.70	10.7	56	16.4	QP	N	GND
1.840000	34.40	11.0	56	21.6	QP	N	GND

MEASUREMENT RESULT: "CHBA003_fin2"

3/24/2016 5:40PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.165000	39.50	10.5	55	15.7	AV	N	GND
0.490000	34.90	10.7	46	11.3	AV	N	GND
1.840000	29.80	11.0	46	16.2	AV	N	GND

Test mode : BT communicating(AC 240V/60Hz)
EUT mode : CB-335072

MEASUREMENT RESULT: "IC-0314-08_fin"

2016-3-24 9:04

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.150000	65.30	10.3	66	0.7	QP	L1	GND
4.961000	33.10	11.8	56	22.9	QP	L1	GND
6.959000	39.30	11.8	60	20.7	QP	L1	GND

MEASUREMENT RESULT: "IC-0314-08_fin2"

2016-3-24 9:04

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.152000	46.70	10.4	56	9.2	AV	L1	GND
4.961000	24.20	11.8	46	21.8	AV	L1	GND
7.256000	29.60	11.8	50	20.4	AV	L1	GND

MEASUREMENT RESULT: "IC-0314-07_fin"

2016-3-24 9:02

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.150000	65.10	10.3	66	0.9	QP	N	GND
4.880000	35.50	11.8	56	20.5	QP	N	GND
7.152500	41.90	11.8	60	18.1	QP	N	GND

MEASUREMENT RESULT: "IC-0314-07_fin2"

2016-3-24 9:02

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.150000	49.00	10.3	56	7.0	AV	N	GND
4.758500	27.40	11.8	46	18.6	AV	N	GND
7.310000	34.20	11.8	50	15.8	AV	N	GND

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

The spectral diagrams are attached as below.

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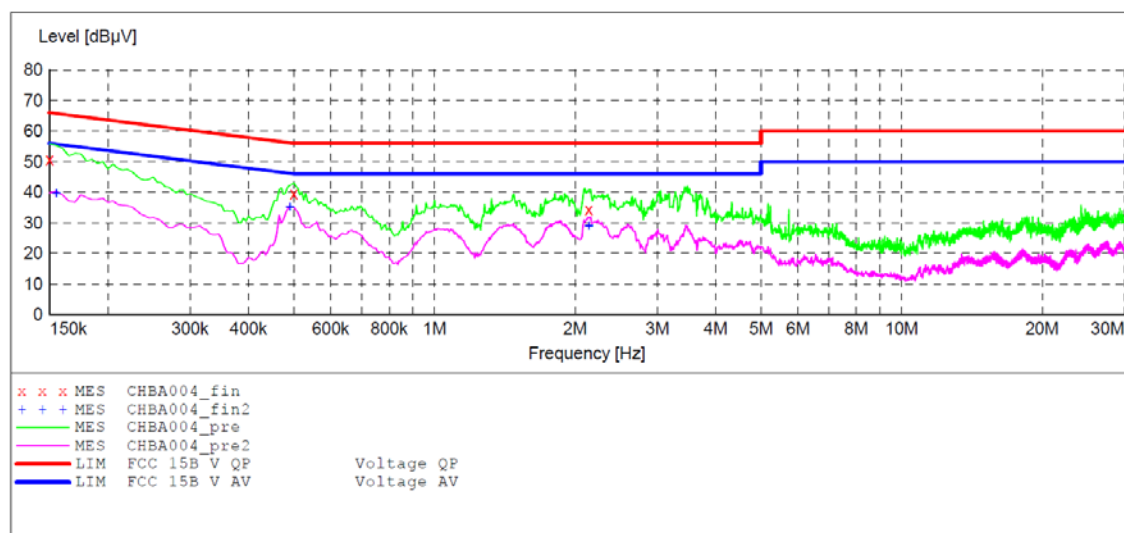
CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS
 Manufacturer: CLEVER BRIGHT
 Operating Condition: BT Communicating
 Test Site: 1#Shielding Room
 Operator: STAR
 Test Specification: L 120V/60Hz
 Comment: Report No.:ATE20160473
 M/N:CB-335072

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
Average						
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
Average						



MEASUREMENT RESULT: "CHBA004_fin"

3/24/2016 5:47PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	50.70	10.5	66	15.3	QP	L1	GND
0.500000	39.50	10.7	56	16.5	QP	L1	GND
2.140000	34.20	11.0	56	21.8	QP	L1	GND

MEASUREMENT RESULT: "CHBA004_fin2"

3/24/2016 5:47PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.155000	39.50	10.5	56	16.2	AV	L1	GND
0.490000	35.10	10.7	46	11.1	AV	L1	GND
2.140000	28.90	11.0	46	17.1	AV	L1	GND

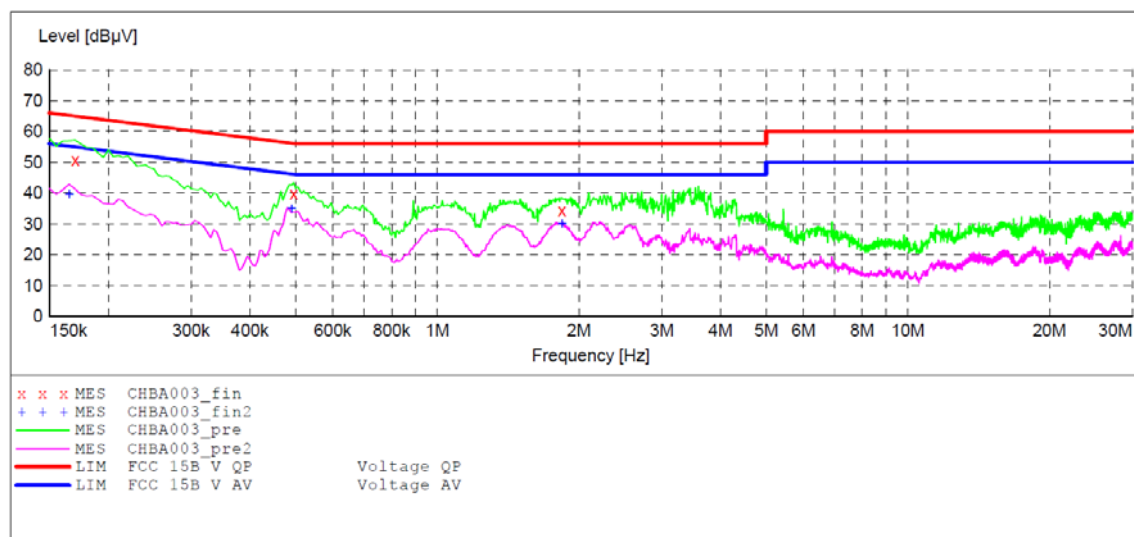
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS
 Manufacturer: CLEVER BRIGHT
 Operating Condition: BT Communicating
 Test Site: 1#Shielding Room
 Operator: STAR
 Test Specification: N 120V/60Hz
 Comment: Report No.:ATE20160473
 M/N:CB-335072

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "CHBA003_fin"

3/24/2016 5:40PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.170000	50.80	10.5	65	14.2	QP	N	GND
0.495000	39.70	10.7	56	16.4	QP	N	GND
1.840000	34.40	11.0	56	21.6	QP	N	GND

MEASUREMENT RESULT: "CHBA003_fin2"

3/24/2016 5:40PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.165000	39.50	10.5	55	15.7	AV	N	GND
0.490000	34.90	10.7	46	11.3	AV	N	GND
1.840000	29.80	11.0	46	16.2	AV	N	GND

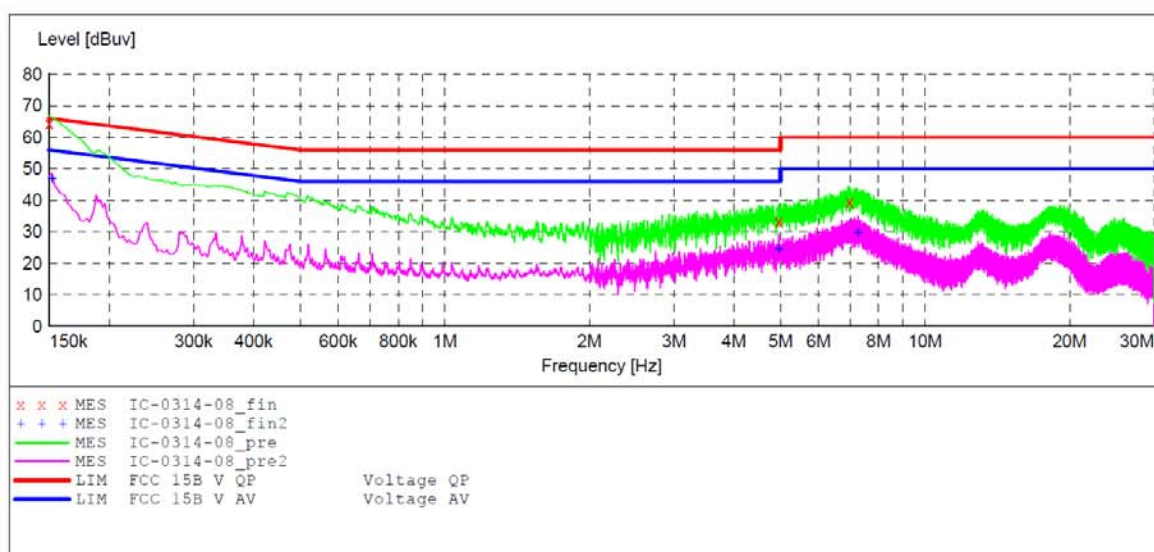
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS
 Manufacturer: CLEVER BRIGHT
 Operating Condition: BT Communicating
 Test Site: 1#Shielding Room
 Operator: STAR
 Test Specification: L 240V/60Hz
 Comment: Report No.:ATE20160473
 Start of Test: M/N:CB-335072

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 LISN(ESH3-Z5)
 Average



MEASUREMENT RESULT: "IC-0314-08_fin"

2016-3-24 9:04

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	65.30	10.3	66	0.7	QP	L1	GND
4.961000	33.10	11.8	56	22.9	QP	L1	GND
6.959000	39.30	11.8	60	20.7	QP	L1	GND

MEASUREMENT RESULT: "IC-0314-08_fin2"

2016-3-24 9:04

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.152000	46.70	10.4	56	9.2	AV	L1	GND
4.961000	24.20	11.8	46	21.8	AV	L1	GND
7.256000	29.60	11.8	50	20.4	AV	L1	GND

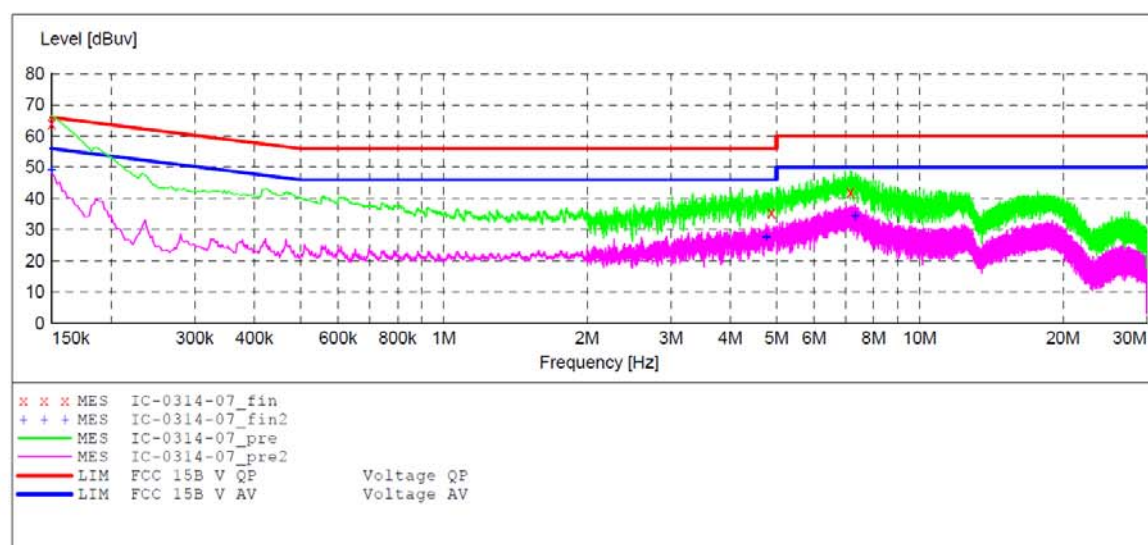
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: COLOR CHANGING BLUETOOTH TRANGLE SPEAKERS
 Manufacturer: CLEVER BRIGHT
 Operating Condition: BT Communicating
 Test Site: 1#Shielding Room
 Operator: STAR
 Test Specification: N 240V/60Hz
 Comment: Report No.:ATE20160473
 Start of Test: M/N:CB-335072

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 LISN (ESH3-Z5)
 Average



MEASUREMENT RESULT: "IC-0314-07_fin"

2016-3-24 9:02

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	65.10	10.3	66	0.9	QP	N	GND
4.880000	35.50	11.8	56	20.5	QP	N	GND
7.152500	41.90	11.8	60	18.1	QP	N	GND

MEASUREMENT RESULT: "IC-0314-07_fin2"

2016-3-24 9:02

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	49.00	10.3	56	7.0	AV	N	GND
4.758500	27.40	11.8	46	18.6	AV	N	GND
7.310000	34.20	11.8	50	15.8	AV	N	GND

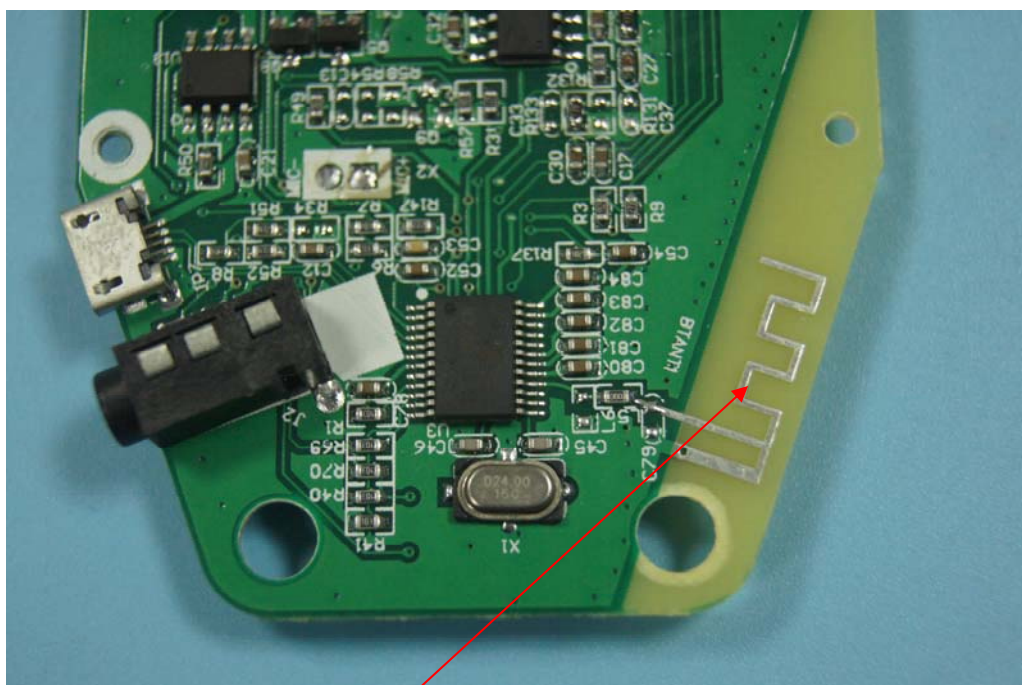
13.ANTENNA REQUIREMENT

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 Integral antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 1dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna