

	<p>depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.</p> <p>3. Set to the maximum power setting and enable the EUT transmit continuously.</p> <p>4. Use the following spectrum analyzer settings:</p> <p>(1) Span shall wide enough to fully capture the emission being measured;</p> <p>(2) Set RBW=100 kHz for $f < 1$ GHz, RBW=1MHz for $f > 1$GHz ; VBW\geqRBW; Sweep = auto; Detector function = peak; Trace = max hold for peak</p> <p>(3) For average measurement: use duty cycle correction factor method per 15.35(c). Duty cycle = On time/100 milliseconds On time = $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$ Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc. Average Emission Level = Peak Emission Level + $20 * \log(\text{Duty cycle})$</p> <p>Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level</p>
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Test results:	PASS
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6.11.2. Test Instruments

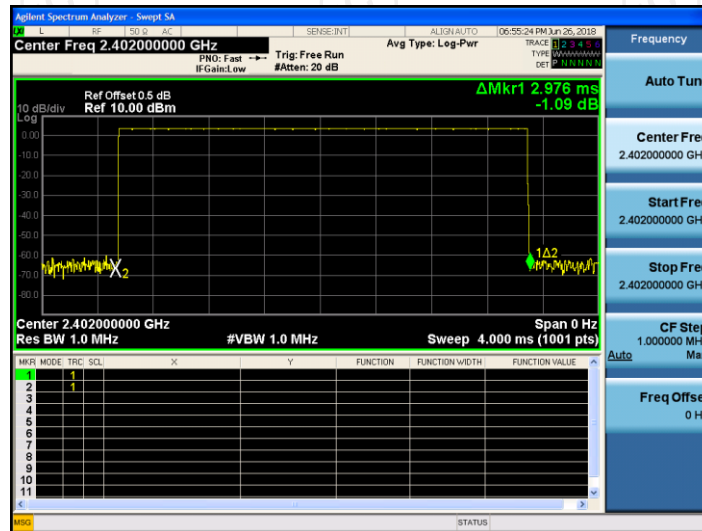
Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	ROHDE&SCHW ARZ	ESVD	100008	Sep. 27, 2018
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ	200061	Sep. 27, 2018
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 27, 2018
Pre-amplifier	HP	8447D	2727A05017	Sep. 27, 2018
Loop antenna	ZHINAN	ZN30900A	12024	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBH 9170	582	Sep. 27, 2018
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
Coax cable (9KHz-1GHz)	TCT	RE-low-01	N/A	Sep. 27, 2018
Coax cable (9KHz-40GHz)	TCT	RE-high-02	N/A	Sep. 27, 2018
Coax cable (9KHz-1GHz)	TCT	RE-low-03	N/A	Sep. 27, 2018
Coax cable (9KHz-40GHz)	TCT	RE-high-04	N/A	Sep. 27, 2018
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

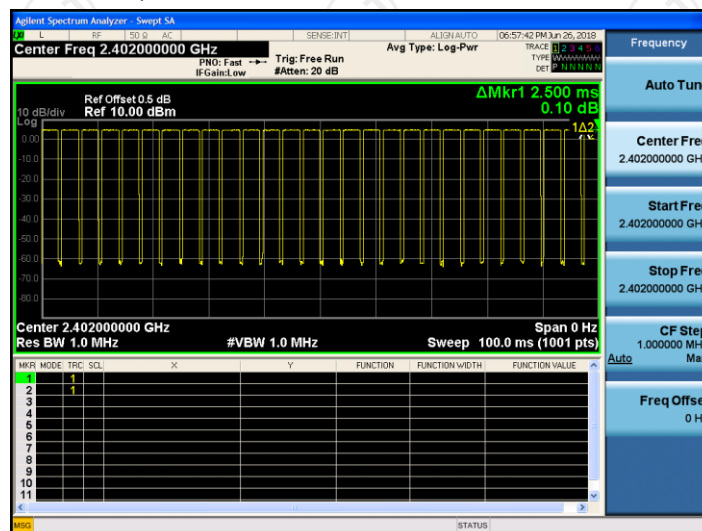
6.11.3. Test Data

Duty cycle correction factor for average measurement

DH5 on time (One Pulse) Plot on Channel 00



DH5 on time (Count Pulses) Plot on Channel 00



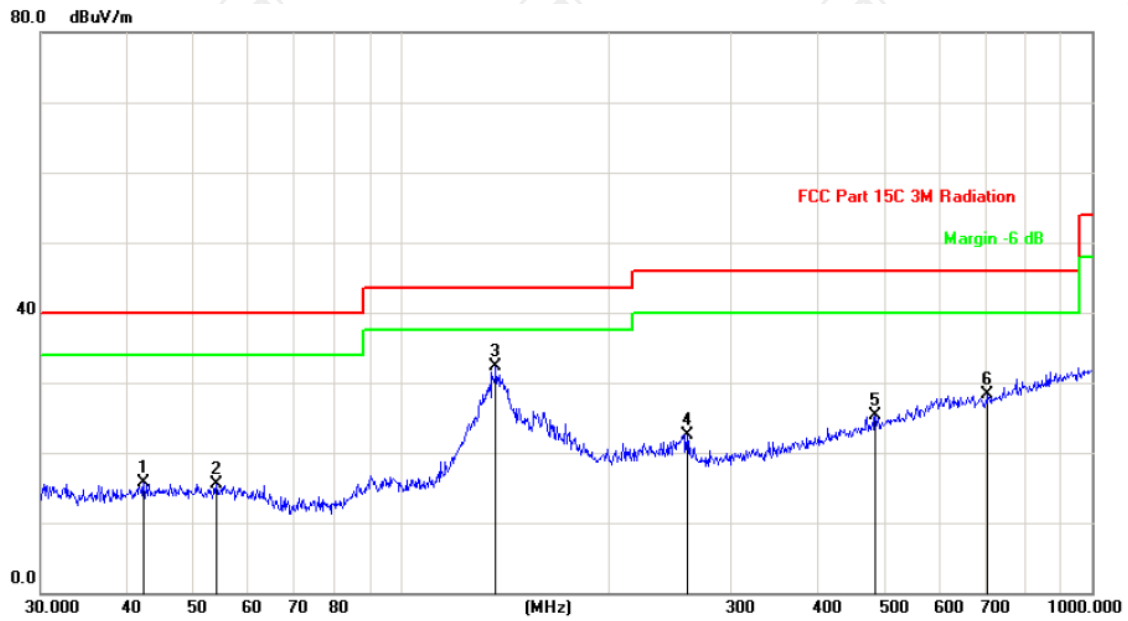
Note:

1. Worst case Duty cycle = on time/100 milliseconds = $(2.976*27+2.500)/100=0.8285$
2. Worst case Duty cycle correction factor = $20*\log(\text{Duty cycle}) = -1.63\text{dB}$
3. DH5 has the highest duty cycle worst case and is reported.
4. The average levels were calculated from the peak level corrected with duty cycle correction factor (-1.63dB) derived from $20\log(\text{dwell time}/100\text{ms})$. This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

Please refer to following diagram for individual

Below 1GHz

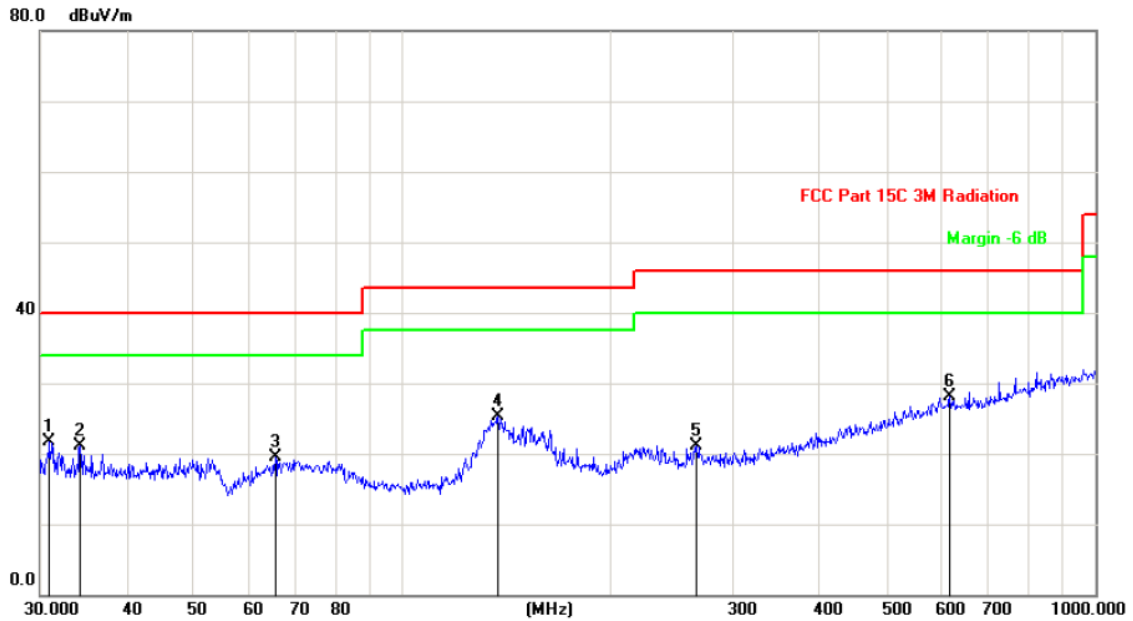
Horizontal:



Site: Polarization: **Horizontal** Temperature: 25
 Limit: FCC Part 15C 3M Radiation Power: Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		42.3022	28.49	-12.79	15.70	40.00	-24.30	peak		
2		53.8818	28.48	-12.95	15.53	40.00	-24.47	peak		
3	*	136.9391	48.18	-15.88	32.30	43.50	-11.20	peak		
4		259.2338	32.96	-10.41	22.55	46.00	-23.45	peak		
5		485.6093	28.78	-3.49	25.29	46.00	-20.71	peak		
6		706.6999	28.20	0.11	28.31	46.00	-17.69	peak		

Vertical:



Site: Polarization: **Vertical** Temperature: 25
Limit: FCC Part 15C 3M Radiation Power: Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		30.9619	35.36	-13.69	21.67	40.00	-18.33	peak		
2		34.2760	34.39	-13.38	21.01	40.00	-18.99	peak		
3		65.5727	35.10	-15.56	19.54	40.00	-20.46	peak		
4		137.4202	41.20	-15.90	25.30	43.50	-18.20	peak		
5		265.6757	31.27	-10.15	21.12	46.00	-24.88	peak		
6	*	616.3718	28.69	-0.64	28.05	46.00	-17.95	peak		

Note: 1. The low frequency, which started from 9KHz~30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported

2. Measurements were conducted in all three channels (high, middle, low) and two modulation (GFSK, Pi/4 DQPSK) and the worst case Mode (Lowest channel and Pi/4 DQPSK) was submitted only.

Above 1GHz

Modulation Type: Pi/4 DQPSK									
Low channel: 2402 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
2390	H	48.29	---	-8.27	40.02	---	74	54	-13.98
4804	H	45.36	---	0.66	46.02	---	74	54	-7.98
7206	H	36.85	---	9.50	46.35	---	74	54	-7.65
---	H	---	---	---	---	---	---	---	---
2390	V	46.47	---	-8.27	38.20	---	74	54	-15.80
4804	V	44.58	---	0.66	45.24	---	74	54	-8.76
7206	V	37.12	---	9.50	46.62	---	74	54	-7.38
---	V	---	---	---	---	---	---	---	---

Middle channel: 2441 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
4882	H	47.37	---	0.99	48.36	---	74	54	-5.64
7323	H	38.45	---	9.87	48.32	---	74	54	-5.68
---	H	---	---	---	---	---	---	---	---
4882	V	46.59	---	0.99	47.58	---	74	54	-6.42
7323	V	38.21	---	9.87	48.08	---	74	54	-5.92
---	V	---	---	---	---	---	---	---	---

High channel: 2480 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
2483.5	H	47.35	---	-7.83	39.52	---	74	54	-14.48
4960	H	46.46	---	1.33	47.79	---	74	54	-6.21
7440	H	36.74	---	10.22	46.96	---	74	54	-7.04
---	H	---	---	---	---	---	---	---	---
2483.5	V	48.76	---	-7.83	40.93	---	74	54	-13.07
4960	V	48.29	---	1.33	49.62	---	74	54	-4.38
7440	V	36.22	---	10.22	46.44	---	74	54	-7.56
---	V	---	---	---	---	---	---	---	---

Note:

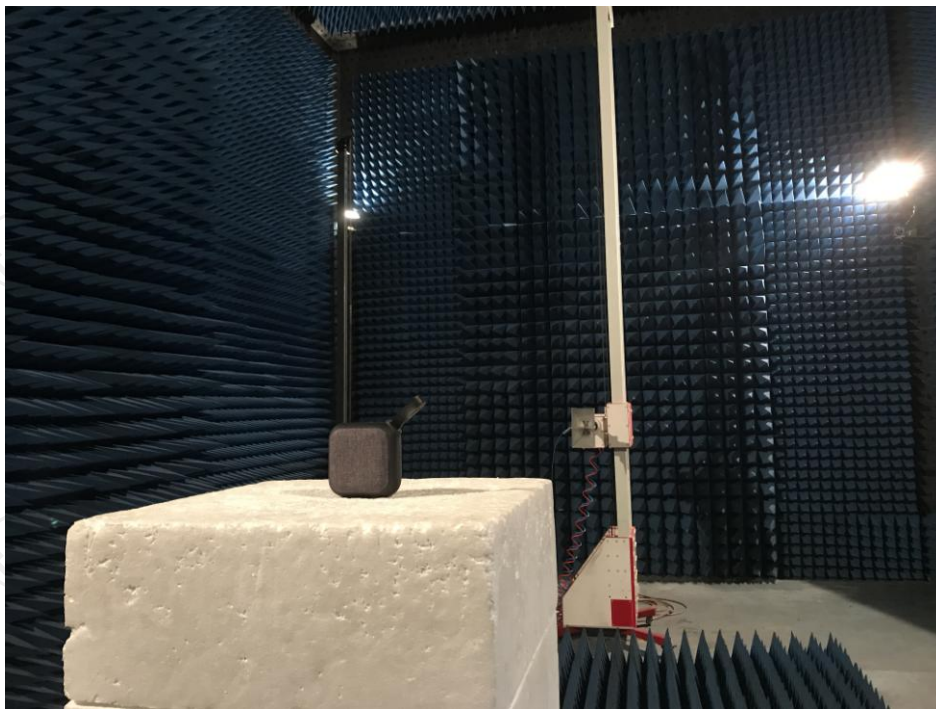
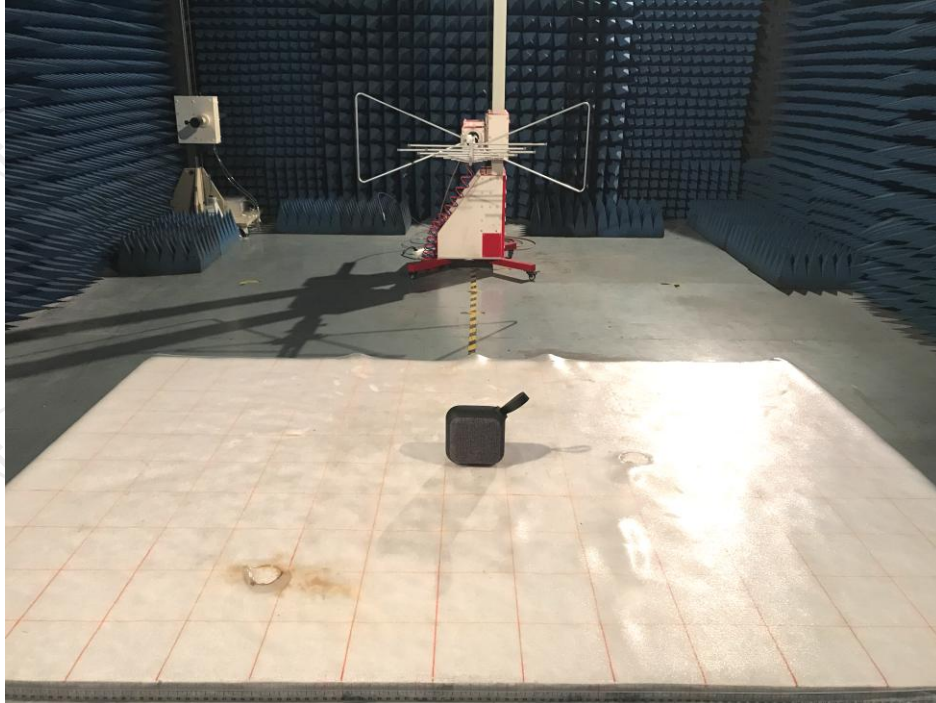
1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak) (dBμV/m)-Average limit (dBμV/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.
5. Data of measurement shown "----" in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
6. Measurements were conducted in all two modulation (GFSK, Pi/4 DQPSK), and the worst case Mode (Pi/4 DQPSK) was submitted only.

Appendix A: Photographs of Test Setup

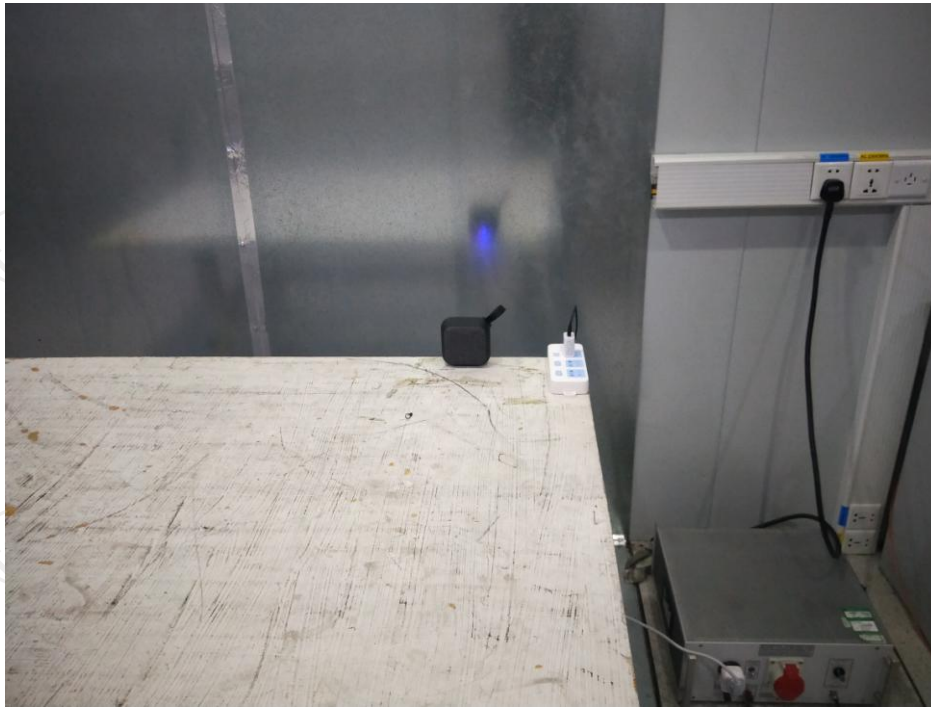
Product: Bluetooth Speaker

Model: CQL1624-B

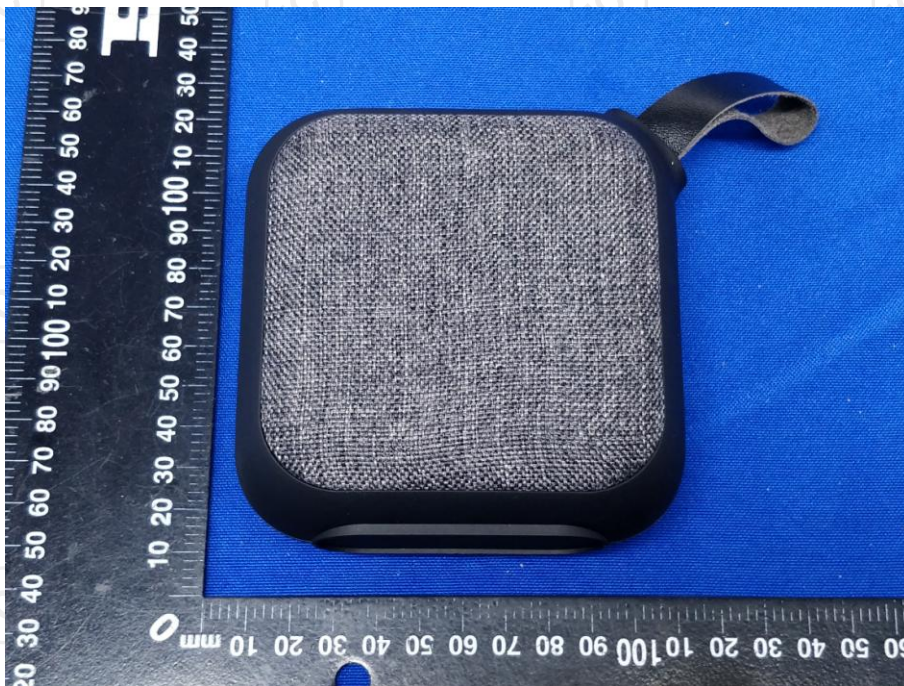
Radiated Emission



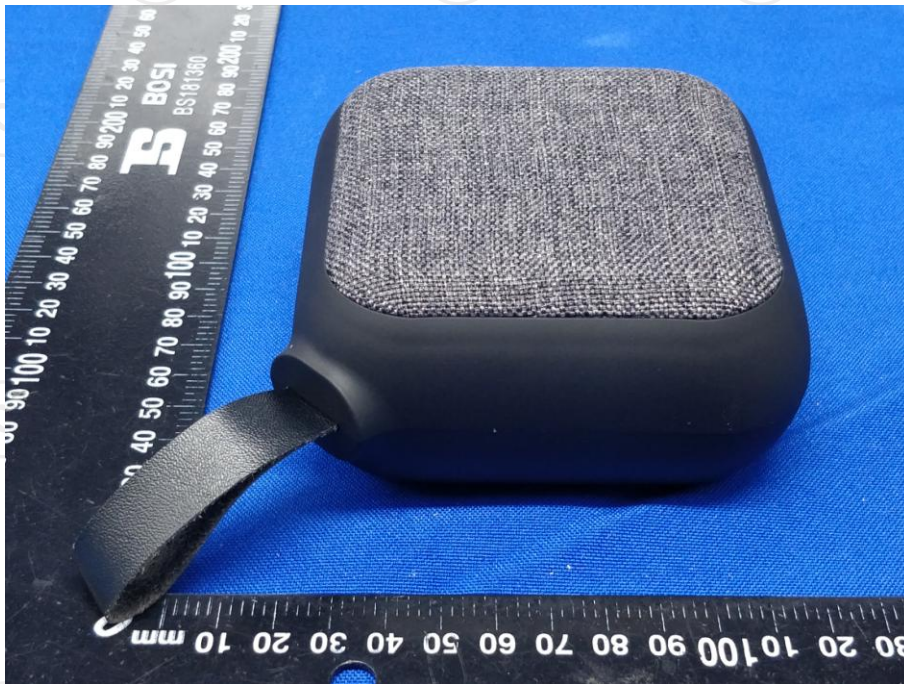
Conducted Emission

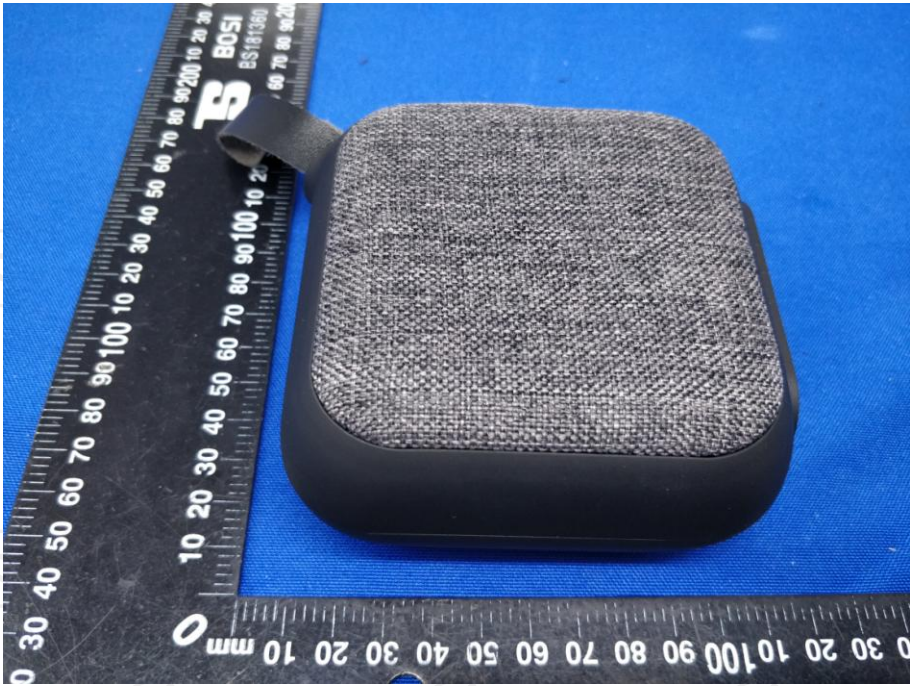


Appendix B: Photographs of EUT
Product: Bluetooth Speaker
Model: CQL1624-B
External Photos

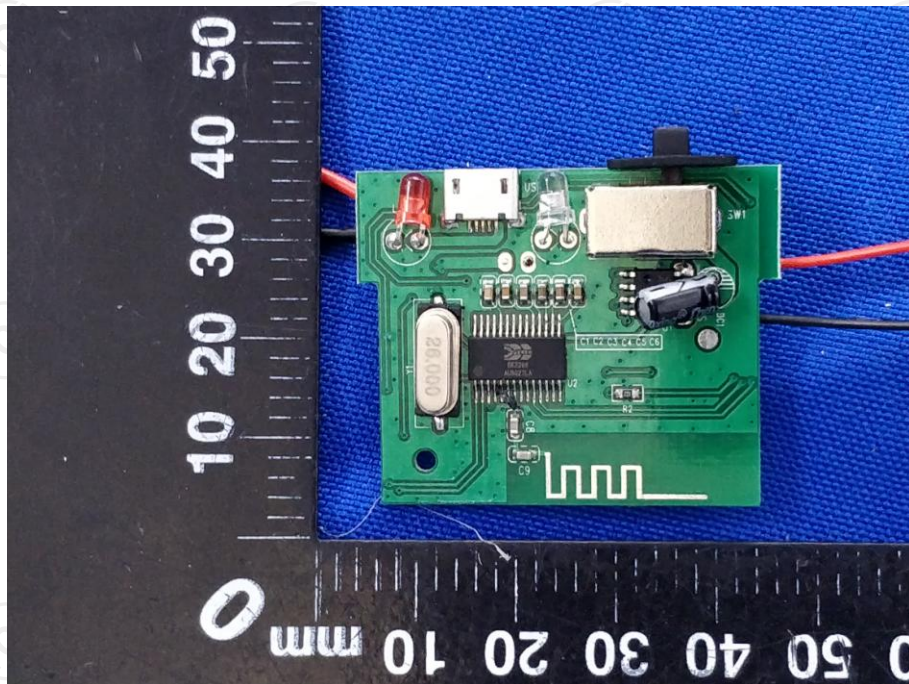


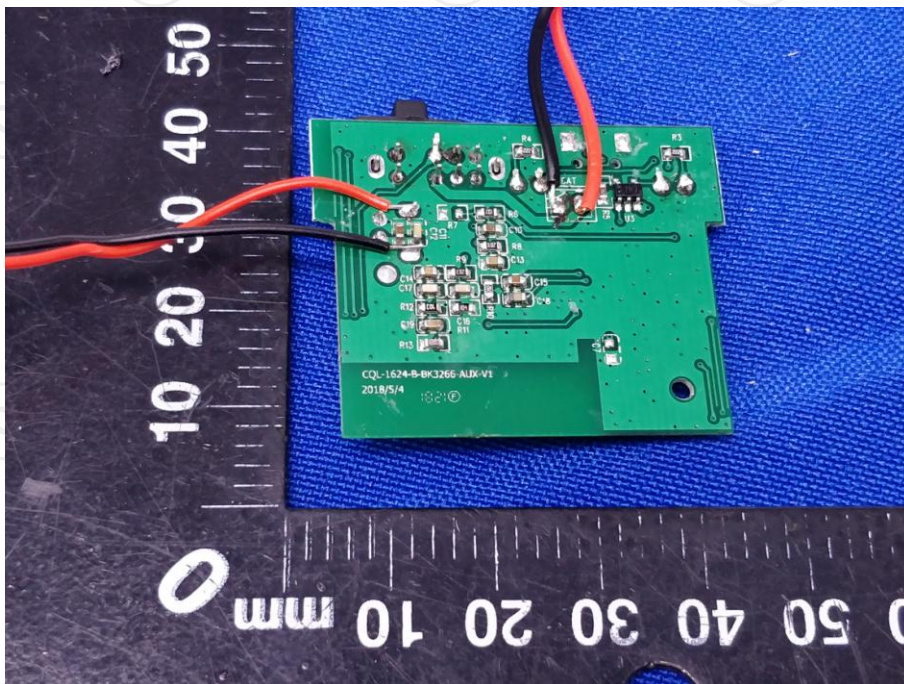
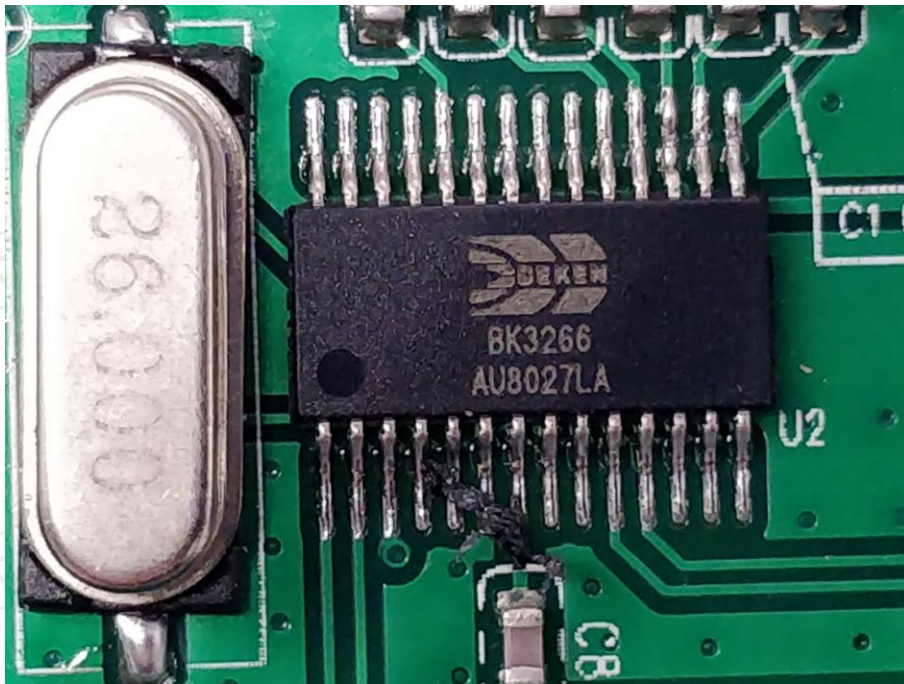


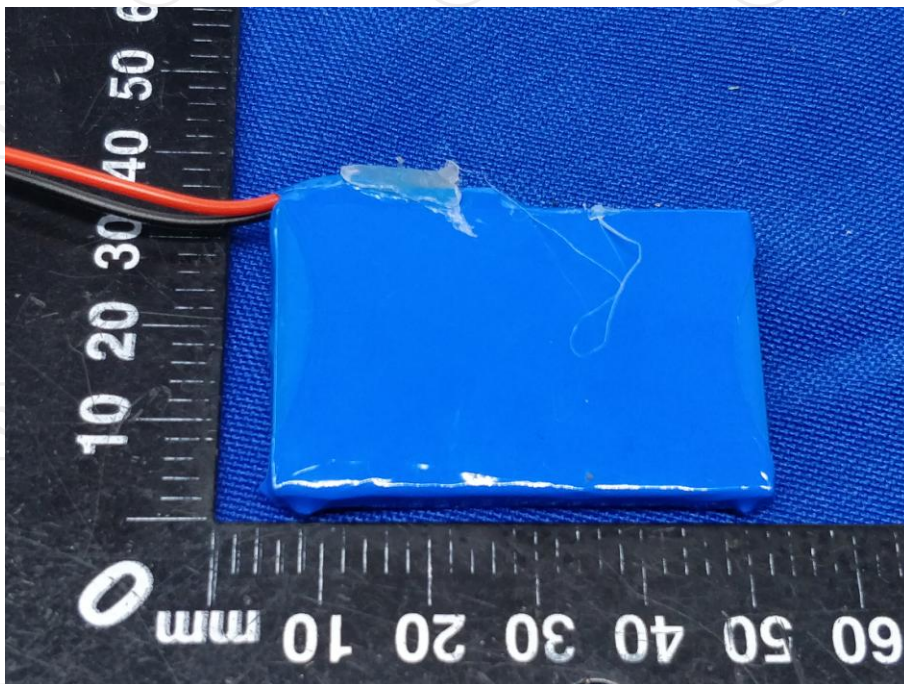
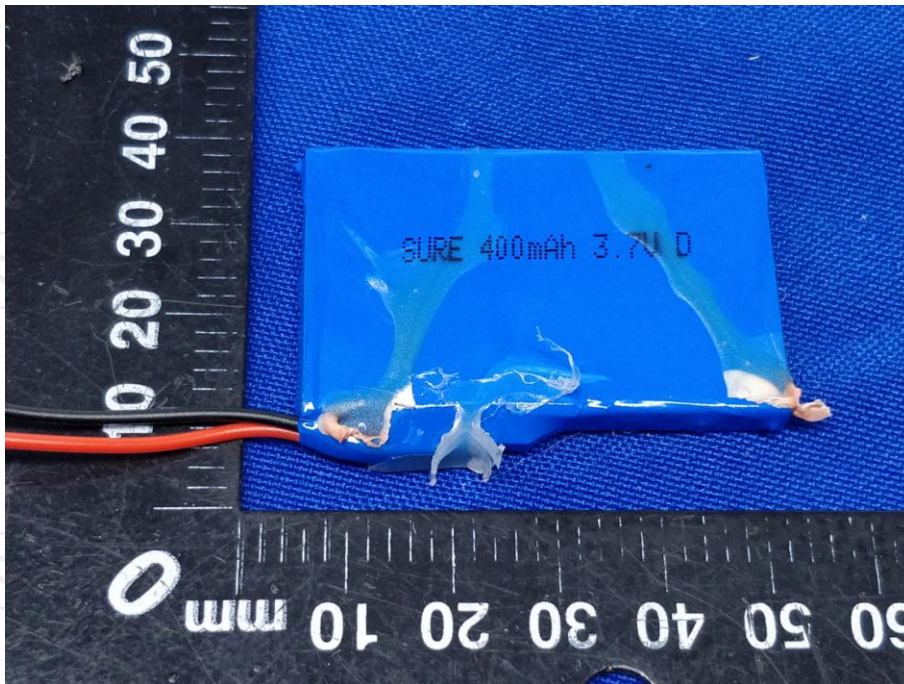




Product: Bluetooth Speaker
Model: CQL1624-B
Internal Photos







*****END OF REPORT*****