

## RF Exposure Report

**Report No.:** SA180730E06

**FCC ID:** JNZS00173

**Test Model:** S00173

**Received Date:** July 30, 2018

**Test Date:** Aug. 09, 2018

**Issued Date:** Aug. 22, 2018

**Applicant:** LOGITECH FAR EAST LTD.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

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Taiwan R.O.C.

**Test Location :** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**FCC Registration /  
Designation Number:** 723255 / TW2022

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### Release Control Record

Issue No.	Description	Date Issued
SA180730E06	Original release.	Aug. 22, 2018

## 1 Certificate of Conformity

**Product:** Bluetooth Speaker

**Brand:** ULTIMATE EARS

**Test Model:** S00173

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** LOGITECH FAR EAST LTD.


**Test Date:** Aug. 09, 2018


**Standards:** FCC Part 2 (Section 2.1093)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**  , **Date:** Aug. 22, 2018  
Claire Kuan / Specialist

**Approved by :**  , **Date:** Aug. 22, 2018  
May Chen / Manager

## 2 Evaluation Result

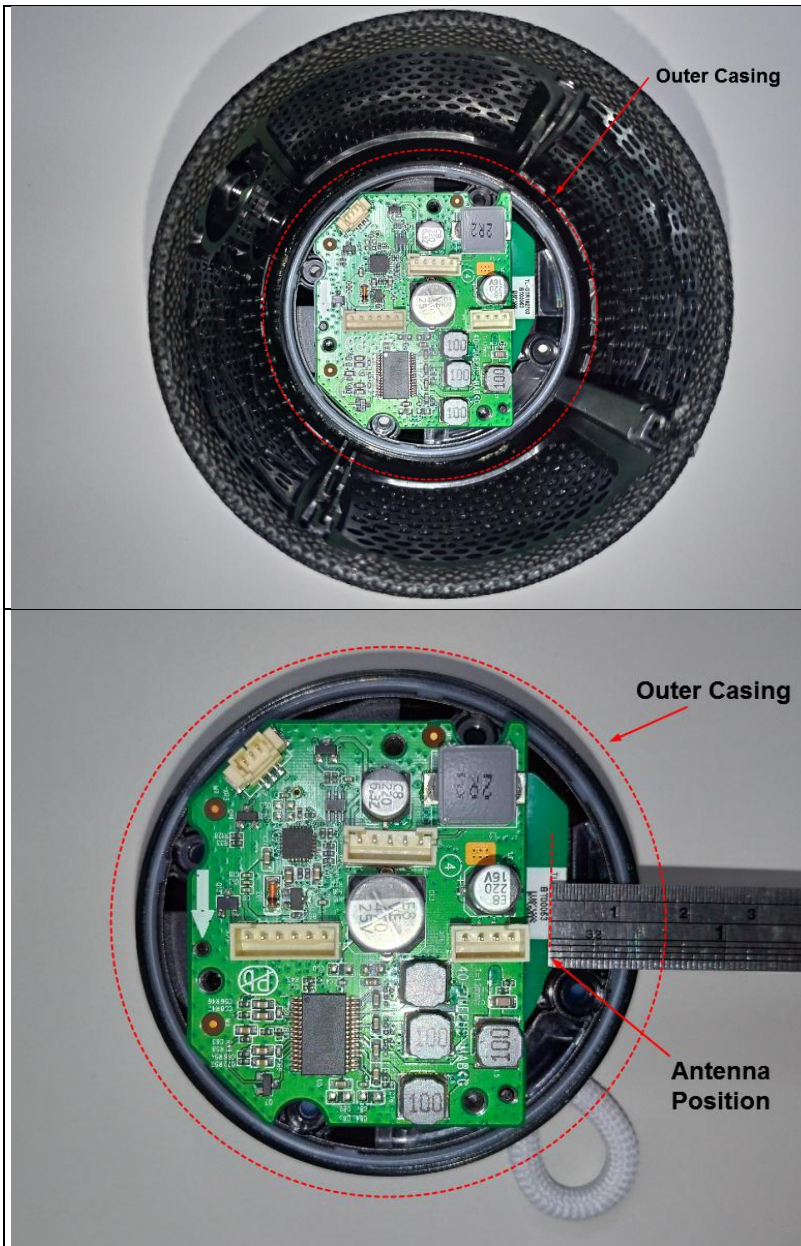
Following FCC KDB 447498 D01 “General SAR test exclusion guidance”

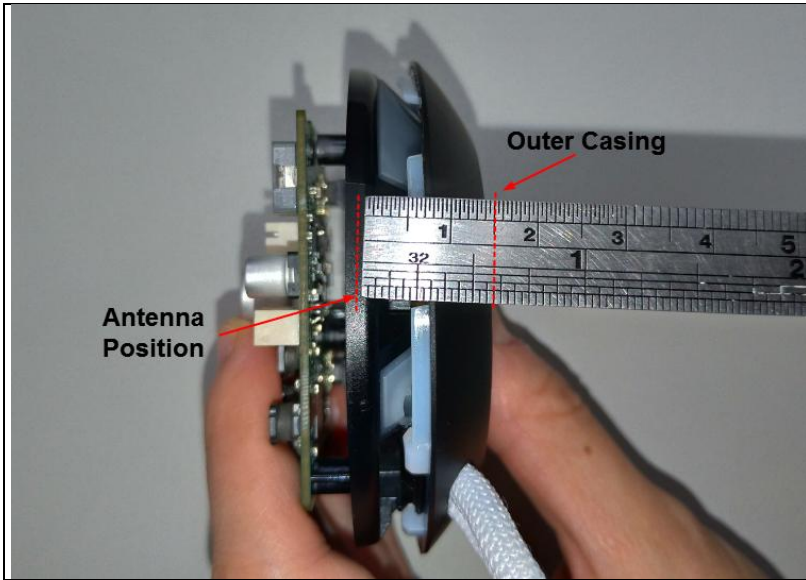
The corresponding SAR Exclusion Threshold condition, listed below:

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:  
$$\left[ \frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})}$$
$$\leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$
  - $f(\text{GHz})$  is the RF channel transmit frequency in GHz.
  - Power and distance are rounded to the nearest mW and mm before calculation.
  - The result is rounded to one decimal place for comparison. The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.
- 2) At 100 MHz to 6 GHz and for test separation distances  $> 50$  mm, the SAR test exclusion threshold is determined according to the following:
  - a) [Threshold at 50 mm in step 1) + (test separation distance - 50mm) · ( f(MHz)/150)] mW, at 100MHz to 1500 MHz
  - b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at  $> 1500$  MHz and  $\leq 6$  GHz
- 3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion.
  - a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by  $[1 + \log(100/f(\text{MHz}))]$  for test separation distances  $> 50$  mm and  $< 200$  mm.
  - b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by  $\frac{1}{2}$  for test separation distances  $\leq 50$  mm.
  - c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

### 3 SAR Test Exclusion Thresholds

Smallest distance from the antenna and radiating structures or outer surface of the device





**BT-EDR Avg. Power Table**

Channel	Frequency (MHz)	GFSK		8DPSK	
		Avg. Power (mW)	Avg. Power (dBm)	Avg. Power (mW)	Avg. Power (dBm)
0	2402	8.61	9.35	9.705	9.87
39	2441	7.87	8.96	8.77	9.43
78	2480	6.998	8.45	6.138	7.88

**For BT-EDR SAR Test Exclusion Thresholds**

Frequency (MHz)	Max Avg. Power (dBm)	*Max Time Avg. Power (dBm)	Max Time Avg. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value <sup>(NOTE 1)</sup>	1-g SAR test exclusion thresholds	Result
2402 ~ 2480	9.87	-5.18	0.303	15	0.032	3	Pass

- NOTE:** 1. Calculate SAR test exclusion thresholds from condition "1" formulas.  
 2. \*Time Avg. Power= Avg. Power+Duty factor

**BT-EDR Duty Cycle of Test Signal**

Duty Cycle	Tx on (ms)	Tx total (ms)	Duty Factor (dB)
		3.125	100

The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 \* 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to:  
 $10\log(3.125 / 100) = -15.05 \text{ dB}$



### BT-LE Avg. Power Table

Channel	Frequency (MHz)	Avg. Power	
		(mW)	(dBm)
0	2402	9.078	9.58
19	2440	6.383	8.05
39	2480	4.989	6.98

### For BT-LE SAR Test Exclusion Thresholds

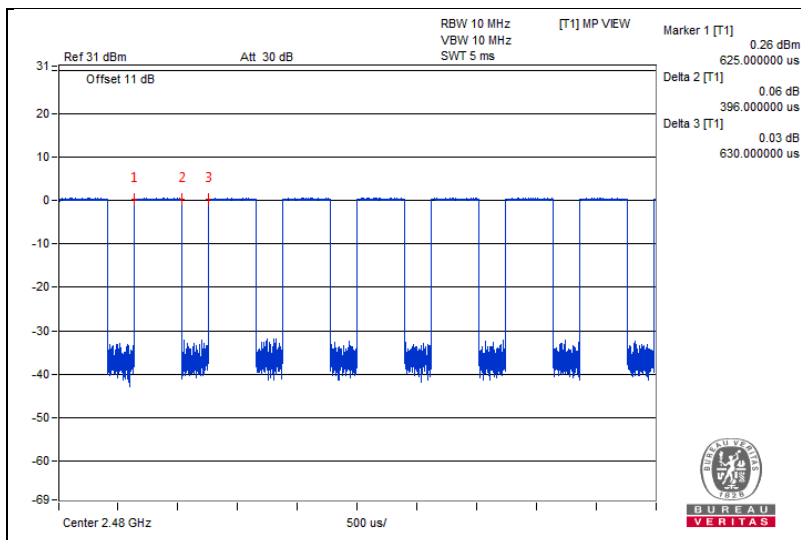
Frequency (MHz)	Max Avg. Power (dBm)	*Max Time Avg. Power (dBm)	Max Time Avg. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value <sup>(NOTE 1)</sup>	1-g SAR test exclusion thresholds	Result
2402 ~ 2480	9.58	7.56	5.702	15	0.589	3	Pass

**NOTE:** 1. Calculate SAR test exclusion thresholds from condition "1" formulas.  
 2. \*Time Avg. Power= Avg. Power+Duty factor

### BT-LE Duty Cycle of Test Signal

Duty Cycle	Tx on (ms)	Tx total (ms)	Duty Factor (dB)
		0.396	0.63

Duty Factor =  $10 \cdot \log(\text{Tx on} / \text{Tx total})$



## 4 Conclusion

The device of BT-EDR and BT-LE modulation type can't transmit simultaneously. Since Source-base time average power is below SAR test exclusion power thresholds, the SAR evaluation is not required.

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