

## RF Exposure Report

**Report No.:** SA181001E01

**FCC ID:** JNZMR0075

**Test Model:** MR0075

**Received Date:** Oct. 01, 2018

**Test Date:** Oct. 05, 2018

**Issued Date:** Oct. 12, 2018

**Applicant:** LOGITECH FAR EAST LTD.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
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**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
SA181001E01	Original release.	Oct. 12, 2018

## 1 Certificate of Conformity

**Product:** Wireless Mouse

**Brand:** logitech

**Test Model:** MR0075

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** LOGITECH FAR EAST LTD.

**Test Date:** Oct. 05, 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 :** Wendy Wu , **Date:** Oct. 12, 2018  
Wendy Wu / Specialist

**Approved by :** May Chen , **Date:** Oct. 12, 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

#### GFSK Avg. Power Table

Channel	Frequency (MHz)	Avg. Power	
		(mW)	(dBm)
1	2405	3.069	4.87
8	2444	3.048	4.84
12	2474	3.006	4.78

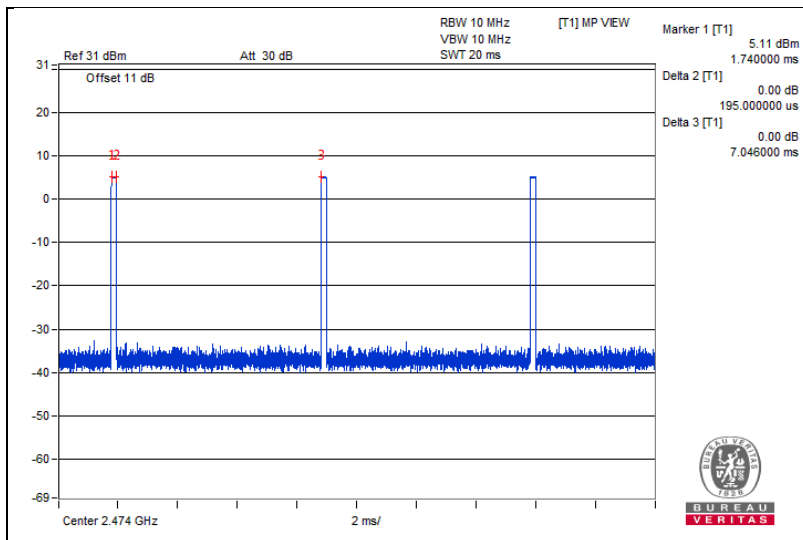
#### For GFSK SAR Test Exclusion Thresholds

Frequency (MHz)	Max Avg. Power (dBm)	*Max Time Avg. Power (dBm)	Max Time Avg. Power (mW)	SAR test exclusion calculation value <sup>(NOTE 1)</sup>	10-g SAR test exclusion thresholds	Result
2.405 ~ 2.474	4.87	-10.71	0.085	0.02636	7.5	Pass

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

#### GFSK Duty Cycle of Test Signal

Duty Cycle	Tx on (ms)	Tx total (ms)	Duty Factor (dB)
	0.195	7.046	-15.58
Duty Factor = 10 * log(Tx on / Tx total)			



**BT-LE 1M (BT 4.0) Avg. Power Table**

Channel	Frequency (MHz)	Avg. Power	
		(mW)	(dBm)
0	2402	3.048	4.84
19	2440	3.041	4.83
39	2480	2.999	4.77

**For BT-LE 1M (BT 4.0) SAR Test Exclusion Thresholds**

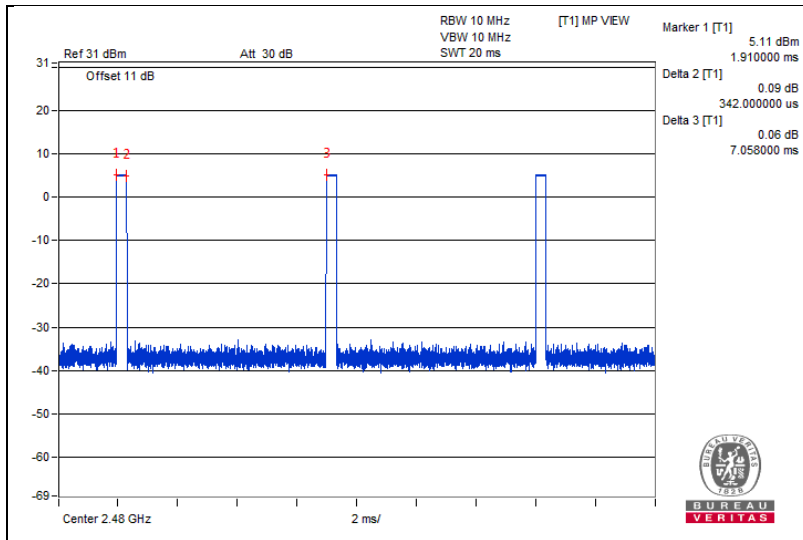
Frequency (MHz)	Max Avg. Power (dBm)	*Max Time Avg. Power (dBm)	Max Time Avg. Power (mW)	SAR test exclusion calculation value <sup>(NOTE 1)</sup>	10-g SAR test exclusion thresholds	Result
2402 ~ 2480	4.84	-8.31	0.148	0.0459	7.5	Pass

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

**BT-LE 1M (BT 4.0) Duty Cycle of Test Signal**

Duty Cycle	Tx on (ms)	Tx total (ms)	Duty Factor (dB)
	0.342	7.058	-13.15

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



Note: This is highest operational duty cycle.

### BT-LE 2M (BT 5.0) Avg. Power Table

Channel	Frequency (MHz)	Avg. Power	
		(mW)	(dBm)
1	2404	3.055	4.85
19	2440	3.048	4.84
38	2478	2.999	4.77

### For BT-LE 2M (BT 5.0) SAR Test Exclusion Thresholds

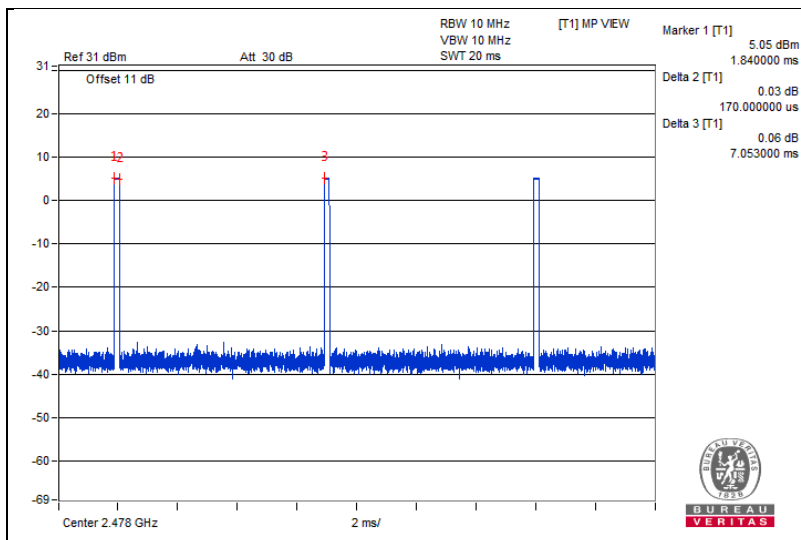
Frequency (MHz)	Max Avg. Power (dBm)	*Max Time Avg. Power (dBm)	Max Time Avg. Power (mW)	SAR test exclusion calculation value <sup>(NOTE 1)</sup>	10-g SAR test exclusion thresholds	Result
2404 ~ 2478	4.85	-11.33	0.074	0.02295	7.5	Pass

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

### BT-LE 2M (BT 5.0) Duty Cycle of Test Signal

Duty Cycle	Tx on (ms)	Tx total (ms)	Duty Factor (dB)
	0.17	7.053	-16.18

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



Note: This is highest operational duty cycle.

## 4 Conclusion

The device of GFSK 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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