RF Exposure Report

Report No.: SA170615E07

FCC ID: JNZPR0001

Test Model: P-R0001

Received Date: June 15, 2017

Test Date: June 23, 2017

Issued Date: June 30, 2017

Applicant: LOGITECH FAR EAST LTD.

Address: #2 Creation Rd. 4, Science-Based Ind. Park Hsinchu Taiwan, R.O.C.

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

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Table of Contents

Release Control Record

Issue No.	Description	Date Issued
SA170615E07	Original release.	June 30, 2017

1 Certificate of Conformity

Product:	Mouse Pad
Brand:	Logitech
Test Model:	P-R0001
Sample Status:	ENGINEERING SAMPLE
Applicant:	LOGITECH FAR EAST LTD.
Test Date:	June 23, 2017
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:** June 30, 2017

Wendy Wu / Specialist

Approved by : _____ , **Date:** June 30, 2017

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 ≤ 50 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
   - f(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 ≤ 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 ≤ 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(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 ½ for test separation distances ≤ 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

Standalone SAR test exclusion:

For BT-LE SAR Test Exclusion Thresholds

Frequency (GHz)	Max. Power (dBm)	Min. test separation distance (mm)	SAR test exclusion calculation value(NOTE 1)	10-g extremity SAR test exclusion thresholds	Result
2.402 ~ 2.480	-10.5	5	0.028	7.5	Pass

NOTE: 1. The antenna type is PCB printed antenna with 2.29dBi gain.
2. Calculate SAR test exclusion thresholds from condition "1" formulas.
3. This power is rated power that specified in OPDS document.

For GFSK SAR Test Exclusion Thresholds

Frequency (GHz)	Max. Power (dBm)	Min. test separation distance (mm)	SAR test exclusion calculation value(NOTE 1)	10-g extremity SAR test exclusion thresholds	Result
2.402 ~ 2.481	7.1	5	1.603	7.5	Pass

NOTE: 1. The antenna type is PCB printed antenna with -1.05dBi gain.
2. Calculate SAR test exclusion thresholds from condition "1" formulas.
3. This power is rated power that specified in OPDS document.

Simultaneous Transmission Evaluation:

This device contains transmitters that may operate simultaneously.Therefore simultaneous transmission analysis is reuired.
When standalone SAR is not required to be measured, per FCC KDB 447498 D01 V06 4.3.2 b), the following equations must be used to estimate the standalone 10g SAR, respectively, for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{\sqrt{f(GHz)}}{18.75} * \frac{(\text{Max Power of channel, mw})}{\text{Min. Separation Distance,mm}}$$

Mode	Frequency (GHz)	Maximum Allowed Power (dBm)	Separatio Distance (mm)	Estimated SAR (W/kg)
BT-LE	2.402 ~ 2.480	-10.5	5	0.001

Mode	Frequency (GHz)	Maximum Allowed Power (dBm)	Separatio Distance (mm)	Estimated SAR (W/kg)
GFSK	2.402 ~ 2.481	7.1	5	0.085

Mode	A4WP SAR (W/kg)	BT LE SAR (W/kg)	GFSK (W/kg)	∑SAR (W/kg)
Simultaneous Transmission Scenario	0.185	0.001	0.085	0.271

4 Conclusion

Since above numerical summed SAR result for simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficeient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publicaiton 447498 D01 V06.

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