

## RF Exposure Report

**Report No.:** SA181107E09

**FCC ID:** JNZNR0018

**Test Model:** N-R0018

**Received Date:** Oct. 31, 2018

**Test Date:** Oct. 31, 2018 to Feb. 14, 2019

**Issued Date:** Apr. 22, 2019

**Applicant:** LOGITECH FAR EAST LTD.

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

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
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
SA181107E09	Original release.	Apr. 22, 2019

## 1 Certificate of Conformity

**Product:** Wireless Hub

**Brand:** Logitech

**Test Model:** N-R0018

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** LOGITECH FAR EAST LTD.

**Test Date:** Oct. 31, 2018 to Feb. 14, 2019


**Standards:** FCC Part 2 (Section 2.1091)

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:**

Apr. 22, 2019

Wendy Wu / Specialist

**Approved by :**



**Date:**

Apr. 22, 2019

May Chen / Manager

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.

So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

For WLAN			
Antenna Gain (dBi)	Frequency range(GHz)	Antenna Type	Connector Type
4.87	2.4~2.4835	Printed Antenna	N/A
For Bluetooth			
Antenna Gain (dBi)	Frequency range(GHz)	Antenna Type	Connector Type
1.61	2.4~2.4835	Printed Antenna	N/A
For GFSK			
Antenna Gain (dBi)	Frequency range(GHz)	Antenna Type	Connector Type
3	2.4~2.4835	Dipole Antenna	R-SMA

## 2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN 2.4G GHz	2437	93.756	4.87	20	0.05724	1
Bluetooth	2480	8.414	1.61	20	0.00243	1
GFSK	2405	3.999	3.00	20	0.00159	1

### Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$WLAN\ 2.4G\ GHz + Bluetooth + GFSK = 0.05724 / 1 + 0.00243 / 1 + 0.00159 / 1 = 0.06126$

**Therefore the maximum calculations of above situations are less than the “1” limit.**

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