

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

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

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm²

Pout = 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 ²)	Limit (mW/cm ²)
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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