

## RF Exposure Report

**Report No.:** SA181217C36 R1

**FCC ID:** A4RH2A

**Model Name:** H2A

**Received Date:** Dec. 17, 2018

**Date of Evaluation:** Mar. 21, 2019

**Issued Date:** Apr. 11, 2019

**Applicant:** Google LLC

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

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**Test Location:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)

**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record

Issue No.	Description	Date Issued
SA181217C36	Original Release	Mar. 22, 2019
SA181217C36 R1	Added H/W, S/W and revised WLAN 2.4G Max power	Apr. 11, 2019

## 1 Certificate of Conformity

**Product:** Interactive Video Streaming Device

**Test Model:** H2A

**Sample Status:** Engineering Sample

**Applicant:** Google LLC

**HW Version:** EVT

**SW Version:** 173539

**Date of Evaluation:** Mar. 21, 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 RF characteristics under the conditions specified in this report.

**Prepared by :**



**Date:** Apr. 11, 2019

Gina Liu / Specialist

**Approved by :**



**Date:** Apr. 11, 2019

Dylan Chiou / Project Engineer

## 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

Antenna Type	Antenna Gain (dBi)		
	2.4 G WLAN / BT	5G WLAN	Thread
PIFA	1.7	5.0	2.2

## 2.5 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN	2412-2472	20.0	1.7	20	0.029	1.00
	5180-5240	17.0	5.0	20	0.032	1.00
	5260-5320	19.0	5.0	20	0.050	1.00
	5500-5720	19.0	5.0	20	0.050	1.00
	5745-5825	19.0	5.0	20	0.050	1.00
BT	2402-2480	9.0	1.7	20	0.002	1.00
Thread	2405-2475	20.5	2.2	20	0.037	1.00

### 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 2.4GHz + Thread =  $0.029/1 + 0.037/1 = 0.066$

WLAN 5GHz + Thread =  $0.050/1 + 0.037/1 = 0.087$

BT + Thread =  $0.002/1 + 0.037/1 = 0.039$

WLAN 5GHz + BT + Thread =  $0.050/1 + 0.002/1 + 0.037/1 = 0.089$

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

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