

## RF Exposure Report

**Report No.:** SA180604C04 R1

**FCC ID:** (1) A4R-WT3

(2) A4R-WT4

**Test Model:** WT3

**Received Date:** Jun. 04, 2018

**Date of Evaluation:** Jul. 13, 2018

**Issued Date:** Sep. 03, 2018

**Applicant:** Google LLC

**Address:** 1600 Amphitheatre Parkway, Mountain View, California, United States  
94043

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

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan,  
R.O.C.

**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
SA180604C04	Original Release	Jul. 23, 2018
SA180604C04 R1	Add FCC ID	Sep. 03, 2018

## 1 Certificate of Conformity

**Product:** Study Hub

**Brand:** Verily

**Test Model:** WT3

**Sample Status:** Production Unit

**Applicant:** Google LLC

**Date of Evaluation:** Jul. 13, 2018

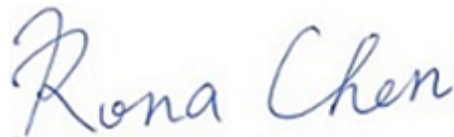
**Standards:** FCC Part 2 (Section 2.1091)

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 :**

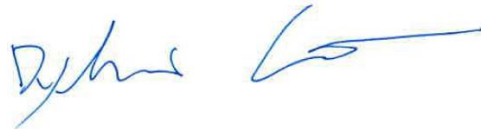


**Date:**

Sep. 03, 2018

Rona Chen / Specialist

**Approved by :**



**Date:**

Sep. 03, 2018

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

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

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

WWAN Antenna											
Antenna Type	Fixed Internal										
Band	WCDMA			LTE							
	II	VI	V	2	4	5	12	17	30	38	66
Gain	3.81	2.51	1.53	3.81	2.51	1.53	2.63	2.35	3.68	1.87	2.51

BT/WLAN Antenna						
Antenna Type	PIFA					
Frequency	BT		WLAN			
	2.4 GHz	2.4 GHz	5.15~5.25 GHz	5.25~5.35 GHz	5.47~5.725 GHz	5.725~5.825 GHz
Gain	1.72	2.42	3.61	3.48	3.08	3.35

## 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> )
WCDMA II	1850-1910	23.62	3.81	20	0.110	1.00
WCDMA IV	1710-1755	23.77	2.51	20	0.084	1.00
WCDMA V	824-849	23.76	1.53	20	0.067	0.55
LTE 2	1850-1910	22.75	3.81	20	0.090	1.00
LTE 4	1710-1755	23.27	2.51	20	0.075	1.00
LTE 5	824-849	22.72	1.53	20	0.053	0.55
LTE 12	699-716	22.88	2.63	20	0.071	0.47
LTE 17	704-716	23.00	2.35	20	0.068	0.47
LTE 30	2305-2315	23.03	3.68	20	0.093	1.00
LTE 38	2570-2620	22.96	1.87	20	0.060	1.00
LTE 66	1710-1780	23.25	2.51	20	0.075	1.00
WLAN	2412-2462	19.42	5.43	20	0.061	1.00
	5180-5240	18.10	6.62	20	0.059	1.00
	5260-5320	18.50	6.62	20	0.065	1.00
	5500-5700	18.76	6.62	20	0.069	1.00
	5745-5825	18.45	6.62	20	0.064	1.00
BT	2402-2480	9.55	1.72	20	0.003	1.00

### NOTE:

1. Max power used is already max. tune up power for RF exposure evaluation
2. 2.4GHz: Directional gain = 2.42 dBi + 10log(2) = 5.43dBi
3. 5.0GHz: Directional gain = 3.61 dBi + 10log(2) = 6.62dBi

### 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

$$WWAN + WLAN + BT = 0.071 / 0.47 + 0.069 / 1.00 + 0.003 / 1.00 = 0.223$$

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

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