

## RF EXPOSURE REPORT

OF

**FCC Applicant:** Quanta Computer Inc.  
No. 188, Wenhua 2nd Road, Guishan District, Taoyuan City  
33377, Taiwan

**Product Name:** Dev Board Mini

**Brand Name:** Google

**Model No.:** KA1

**Model Difference:** N/A

**Report Number:** E2/2020/50135

**FCC ID:** HFS-NX2KA1

**FCC Rule Part** Part 2.1091

**Issue Date:** Aug. 11, 2020

**We hereby certify that:**

The above equipment was verified by SGS Taiwan Ltd. The evaluation in this report is in compliance with the above rule(s).

The results of this report relate only to the sample identified in this report.

**Approved By:**

John Teh

**Yeh John / Asst. Manager**

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## Revision History

Report Number	Revision	Description	Issue Date	Remark
E2/2020/50135	Rev.00	Original.	Aug. 11, 2020	Revised By: Stefanie Yu

**Note:**

## 1、Disclaimer

Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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## 1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

### 1.1 General:

Product Name:	Dev Board Mini
Brand Name:	Google
Model No.:	KA1
Model Difference:	N/A
Hardware Version:	N/A
Software Version:	N/A
Power Supply:	5Vdc from Host

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## 1.2 Antenna Information:

### 1.2.1 BT / WLAN 2.4GHz

Antenna Type	Supplier	Antenna Part No.	Freq.	Peak Antenna Gain (dBi)	Worst Antenna Gain
Chip	TDK	N/A	2.4GHz	0.9	-

### 1.2.2 WLAN 5GHz

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)	Worst Antenna Gain
Chip	TDK	N/A	5150~5250	2.4	-
			5250~5350	2.4	-
			5470~5725	2.3	-
			5725~5850	2.8	-

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### 1.3 Rated Power

#### 1.3.1 Bluetooth / WLAN 2.4GHz

Mode	Freq. Range (MHz)	Channels	Modulation Technology	Max Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Worst Case
BR+EDR	2402-2480	79	GFSK + $\pi/4$ DQPSK + 8DPSK	0.92	0.90	1.82	
BLE	2402-2480	40	GFSK	0.88		1.78	
802.11b/g/n_HT20	2412-2462	11	DSSS & OFDM	15.12		16.02	V
802.11 n_HT40				12.61		13.51	
Modulation type:		CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM					

#### 1.3.2 WLAN 5GHz:

802.11	Freq. Range (MHz)	Modulation Technology	Max. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Worst Case
a	5150~5250	OFDM	12.76	2.40	15.16	
	5250~5350		12.99	2.40	15.39	
	5470~5725		12.81	2.30	15.11	
	5725~5850		12.78	2.80	<b>15.58</b>	V
n HT20 ac VHT20	5150~5250		11.90	2.40	14.30	
	5250~5350		11.97	2.40	14.37	
	5470~5725		11.95	2.30	14.25	
	5725~5850		11.58	2.80	14.38	
n HT40 ac VHT40	5150~5250		11.98	2.40	14.38	
	5250~5350		12.15	2.40	14.55	
	5470~5725		11.97	2.30	14.27	
	5725~5850		12.00	2.80	14.80	
ac VHT80	5150~5250		10.33	2.40	12.73	
	5250~5350		10.56	2.40	12.96	
	5470~5725		10.51	2.30	12.81	
	5725~5850		10.37	2.80	13.17	

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## 2 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### 2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

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> )	Averaging Time (minute)
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
1500-15000	/	/	1.0	30

f = frequency in MHz

\* = Plane-wave equipment power density

Prediction of MPE limit at a given distance

$$S = PG / 4\pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

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## 2.2 Power Density Calculation (Worst Case)

Operation Mode	Evaluation Frequency (MHz)	Operation Distance (cm)	Max. output Power (dBm)	Antenna Gain (dBi)	Max. output Power EIRP (mW)	Power Density (PD) (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass / Fail	Power Density / Limit
BT	2437.00	20	0.92	0.90	1.52	0.000	1.000	Pass	0.0003
WLAN 2.4G	2442.00	20	15.12	0.90	39.99	0.008	1.000	Pass	0.008
WLAN 5G	5180.00	20	12.78	2.80	36.14	0.007	1.000	Pass	0.007

**Note:** For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band.

## 2.3 Collocated Power Density Calculation

### FCC Collocated MPE

Max BT PD / Limit	Max WLAN PD / Limit	$\Sigma$ (Power Density / Limit) of BT+ WLAN + WWAN
0.0003	0.008	0.0083

**Note:**

1.  $\Sigma$ (E- Field Strength / Limit): This is a summation of [(E- Field Strength for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)].
2. Considering the collocated transmitters, the aggregated (E- Field Strength /limit) is smaller than 1, and MPE of collocated transmitters is compliant

~ End of Report ~

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