

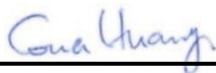
RF EXPOSURE EVALUATION REPORT

FCC ID : HFS-GRS6B
Equipment : Wireless Device
Model Name : GRS6B
Applicant : Quanta Computer Inc.
No.188, Wenhua 2nd Rd.,
Guishan Dist., Taoyuan City
33377, Taiwan
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part2.1091 and it complies with applicable limit.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full



Approved by: Cona Huang / Deputy Manager



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1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Wireless Device
Model Name	GRS6B
FCC ID	HFS-GRS6B
Wireless Technology and Frequency Range	WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz Thread:2405 MHz ~ 2480 MHz
Mode	WLAN: 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE Thread:OQPSK

Reviewed by: Jason Wang

Report Producer: Daisy Peng

2. Maximum RF average output power among production units

Mode	Maximum Average Power (dBm)
2.4GHz WLAN	20.66
5GHz WLAN	19.59
Bluetooth	6.76
Thread	18.91



3. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) 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

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



4. Radio Frequency Radiation Exposure Evaluation

4.1. Standalone Power Density Calculation

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
Thread	1.29	18.91	20.2	0.10	104.71	0.021	1.000	0.021
WLAN2.4GHz Band	1.43	20.66	22.1	0.16	161.81	0.032	1.000	0.032
WLAN5GHz Band	5.47	19.59	25.1	0.32	320.63	0.064	1.000	0.064
Bluetooth	1.43	6.76	8.2	0.01	6.59	0.001	1.000	0.001

4.2. Collocated Power Density Calculation

<5GHzWLAN + Bluetooth>

Maximum 5GHzWLAN Power Density / Limit	Maximum Bluetooth Power Density / Limit	Σ(Power Density / Limit) of 5GHzWLAN + Bluetooth
0.064	0.001	0.065

<5GHzWLAN + Thread>

Maximum Thread Power Density / Limit	Maximum 5GHzWLAN Power Density / Limit	Σ(Power Density / Limit) of Thread + 5GHzWLAN
0.021	0.064	0.085

Note:

- Σ(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for 5GHzWLAN + Bluetooth / 5GHzWLAN + Thread
- Considering the 5GHzWLAN module collocation with the Thread and Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 2 collocated transmitters is compliant

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.