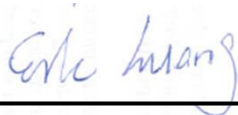


RF Exposure Evaluation Report

APPLICANT : Quanta Computer Inc.
EQUIPMENT : Clover Mini WiFi
BRAND NAME : Clover
MODEL NAME : C300
FCC ID : HFS-C300
STANDARD : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Eric Huang / Deputy Manager



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)



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1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Quanta Computer Inc.
Address	No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan

Manufacturer	
Company Name	Quanta Computer Inc.
Address	No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Clover Mini WiFi
Brand Name	Clover
Model Name	C300
Integrated Module	Brand Name: AzureWave Model Name: AW-AH691A
FCC ID	HFS-C300
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	<ul style="list-style-type: none"> • 802.11a/b/g/n HT20/HT40 • Bluetooth v2.1+EDR , Bluetooth v4.0-LE • NFC:ASK
Antenna Type	WLAN: PIFA Antenna Bluetooth: PIFA Antenna NFC: Loop Antenna
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



3. Maximum RF average output power among production units

Mode / Band	Average Power (dBm)			
	v3.0+EDR			v4.0+LE
	1Mbps	2Mbps	3Mbps	
Bluetooth	8.5	5.5	5.5	6.5

Band / Frequency (MHz)		IEEE 802.11 Average Power (dBm)						
		Ant 0			Ant 1			Ant 0+1
		11b	11g	HT20	11b	11g	HT20	HT20
2.4GHz Band	2412	16	13	10.5	15	12	12	13.5
	2437	16	15	14	16	15	14	18
	2462	16	12.5	10	16	11	10	12.5

Band / Frequency (MHz)		IEEE 802.11 Average Power (dBm)							
		Ant 0			Ant 1			Ant 0+1	
		11a	HT20	HT40	11a	HT20	HT40	HT20	HT40
5.2GHz Band	5180	12.5	12.5		13.5	13		15	
	5190			10			10.5		12
	5200	14	12.5		14.5	13		18.5	
	5220	14	12.5		14.5	13		18.5	
	5230			12			13		16.5
	5240	14	12.5		14.5	13		18.5	
5.3GHz Band	5260	14	12.5		14.5	12.5		18.5	
	5270			12			13		16.5
	5280	14	12.5		14.5	12.5		18.5	
	5300	14	12.5		14.5	12.5		17.5	
	5310			11			10.5		11.5
5.5GHz Band	5320	13	12.5		13	12		15	
	5500	14	12.5		13.5	13.5		15.5	
	5510			9			11		13
	5520	14	12.5		14.5	13.5		18	
	5540	14	12.5		14.5	13.5		18	
	5550			12			13		17
	5560	14	12.5		14.5	13.5		18	
	5580	14	12.5		14.5	13.5		18	
	5600	14	12.5		14.5	13.5		18	
	5620	14	12.5		14.5	13.5		18	
	5630			12			13		17
	5640	14	12.5		14.5	13.5		18	
	5660	14	12.5		14.5	13.5		18	
	5670			12			12		13
5680	14	12.5		14.5	13.5		18		
5700	13	12		11	9.5		12.5		
5.8GHz Band	5745	13	12		12	12		15	
	5755			12			10		12
	5765	14	12		14	12		18	
	5785	14	12		14	12		18	
	5795			12			12		16
	5805	14	12		14	12		18	
5825	14	12		14	12		16		



4. 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



5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	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
Bluetooth	2402.0	2.66	8.50	11.160	0.013	13.062	0.003	1.000	0.003
2.4GHz WLAN	2412.0	2.66	18.00	20.660	0.116	116.413	0.023	1.000	0.023
5GHz WLAN	5180.0	5.84	18.50	24.340	0.272	271.644	0.054	1.000	0.054

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

5.2. Collocated Power Density Calculation

WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ(Power Density / Limit) of WLAN+Bluetooth
0.054	0.003	0.057

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 WLAN + Bluetooth.
- Considering the WLAN collocation with the 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.