



# FCC SAR Evaluation Report

**Report No.** : SA130509C08  
**Applicant** : Quanta Computer Inc.  
**Address** : No. 188, Wen Hwa 2nd RD., Kuei Shan Hsiang, Tao Yuan Shien, Taiwan  
**Product** : Laptop  
**FCC ID** : HFS-Y  
**Model No.** : CB2  
**Standards** : FCC 47 CFR Part 2 (2.1093) / IEEE C95.1:1991 / IEEE 1528:2003  
FCC OET Bulletin 65 Supplement C (Edition 01-01)  
KDB 447498 D01 v05 / KDB 616217 D04 v01

**CERTIFICATION:** The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch - Taiwan HwaYa Lab**, 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 SAR characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies.

**Prepared By :** Evonne Lin  
Evonne Liu / Specialist



**Approved By :** Roy Wu  
Roy Wu / Manager

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### Appendix A. Photographs of EUT and Setup



## Release Control Record

Issue No.	Reason for Change	Date Issued
R01	Initial release	Jun. 20, 2013



## 1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest Reported Body SAR <sub>1g</sub> (0.0 cm Gap) (W/kg)
DTS	2.4G WLAN	N/A
	5.8G WLAN	N/A
NII	5.2G WLAN	N/A
	5.3G WLAN	N/A
	5.6G WLAN	N/A
DSS	Bluetooth	N/A

**Note:**

1. The SAR limit (**Head & Body: SAR<sub>1g</sub> 1.6 W/kg**) for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1991.



## 2. Description of Equipment Under Test

EUT Type	Laptop
FCC ID	HFS-Y
Model Name	CB2
Tx Frequency Bands (Unit: MHz)	WLAN : 2412 ~ 2462, 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825 Bluetooth : 2402 ~ 2480
Uplink Modulations	802.11b : DSSS 802.11a/g/n : OFDM Bluetooth : GFSK
Maximum Tune-up Conducted Power (Unit: dBm)	WLAN 2.4G : 14.5 WLAN 5.2G : 11.3 WLAN 5.3G : 12.0 WLAN 5.6G : 13.7 WLAN 5.8G : 13.4 Bluetooth : 8.3
Antenna Type	PIFA Antenna
EUT Stage	Identical Prototype

**Note:**

1. The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

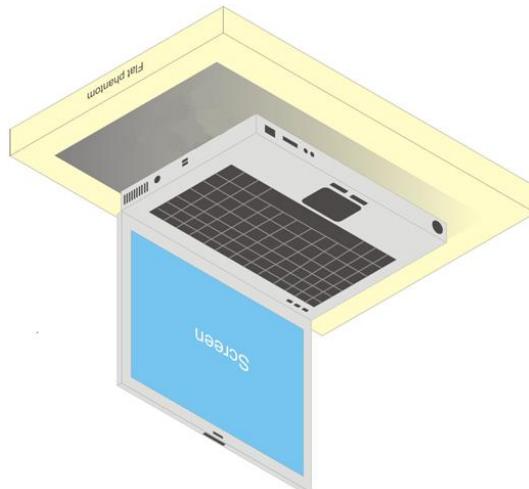
**List of Accessory:**

Li-ion Battery	<b>Brand Name</b>	SMP
	<b>Model Name</b>	SQU-1208
	<b>Power Rating</b>	11.1Vdc, 2700mAh
WLAN + Bluetooth	<b>Brand Name</b>	AZUREWAVE
	<b>Model Name</b>	AW-AH397
Camera	<b>Brand Name</b>	Lite-on
	<b>Model Name</b>	12P2SF004
11.6" LCD Panel	<b>Brand Name</b>	LG
	<b>Model Name</b>	LP116WH6
Battery Pack	<b>Brand Name</b>	SMP
	<b>Model Name</b>	SQU-1208
CPU	<b>Brand Name</b>	Samsung
	<b>Model Name</b>	Exynos 5250
Memory Capacity	<b>Remark</b>	2GB

### **3. SAR Measurement Evaluation**

#### **3.1 EUT Testing Position**

According to KDB 447498, SAR testing for laptop PC is required for bottom surface. This EUT was tested in the base of EUT directly against the flat phantom.



**Fig-4.1 Illustration for Laptop Setup**



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A D T

According to KDB 447498 D01v05, the SAR test exclusion condition is based on source-based time-averaged maximum conducted output power, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The SAR exclusion threshold is determined by the following formula.

1. For the test separation distance  $\leq 50$  mm

$$\frac{\text{Max. Tune up Power}_{(\text{mW})}}{\text{Min. Test Separation Distance}_{(\text{mm})}} \times \sqrt{f_{(\text{GHz})}} \leq 3.0$$

When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.

2. For the test separation distance  $> 50$  mm, and the frequency at 100 MHz to 1500 MHz

$$\left[ (\text{Threshold at } 50 \text{ mm in Step 1}) + (\text{Test Separation Distance} - 50 \text{ mm}) \times \left( \frac{f_{(\text{MHz})}}{150} \right) \right]_{(\text{mW})}$$

3. For the test separation distance  $> 50$  mm, and the frequency at  $> 1500$  MHz to 6 GHz

$$[(\text{Threshold at } 50 \text{ mm in Step 1}) + (\text{Test Separation Distance} - 50 \text{ mm}) \times 10]_{(\text{mW})}$$

Mode	Frequency (MHz)	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Rear Face		
				Ant. to Surface (mm)	Exclusion Threshold (mW)	Require SAR Testing?
WLAN 2.4G	2.462	14.5	28	78	376	No
WLAN 5.2G	5.24	11.3	13	78	346	No
WLAN 5.3G	5.32	12.0	16	78	345	No
WLAN 5.6G	5.7	13.7	23	78	343	No
WLAN 5.8G	5.825	13.4	22	78	342	No
BT	2.48	8.3	7	78	375	No



### 3.2 Maximum Output Power

#### 3.2.1 Maximum Conducted Power

The maximum conducted power (Unit: dBm) including tune-up tolerance is shown as below.

Mode	Tx Antenna	2.4G WLAN	5.2G WLAN	5.3G WLAN	5.6G WLAN	5.8G WLAN
802.11b	0	13.2	N/A	N/A	N/A	N/A
	1	14.5	N/A	N/A	N/A	N/A
802.11g	0	9.0	N/A	N/A	N/A	N/A
	1	9.0	N/A	N/A	N/A	N/A
802.11a	0	N/A	8.0	8.0	10.1	10.0
	1	N/A	8.2	9.3	10.0	10.5
802.11n HT20	0	9.1	8.0	8.0	10.0	10.0
	1	9.0	8.2	9.1	10.0	10.5
	0+1	12.0	11.3	11.6	12.4	12.8
802.11n HT40	0	9.2	8.0	9.0	11.3	10.1
	1	9.3	9.0	10.3	11.2	10.7
	0+1	12.0	11.3	12.0	13.7	13.4

Mode	Bluetooth
All	8.3

### 3.3 SAR Testing Results

#### 3.3.1 SAR Results for Body

Standalone SAR for this device is not required.

Test Engineer : Ulysses Liu



#### **4. Information on the Testing Laboratories**

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

**Taiwan HwaYa EMC/RF/Safety/Telecom Lab:**

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The road map of all our labs can be found in our web site also.

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