

## RF Exposure Report

**Report No.:** SA160902E01

**FCC ID:** U8G-P1AC8

**Test Model:** Surf SOHO MK-III

**Series Model:** Pismo AC8, SOHO-AC-T, Surf SOHO

**Received Date:** Sep. 02, 2016

**Test Date:** Oct. 01, 2016

**Issued Date:** Oct. 24, 2016

**Applicant:** Pismo Labs Technology Limited

**Address:** FLAT/RM A5, 5/F, HK SPINNERS IND BLDG PHASE 6, 481 CASTLE PEAK ROAD, CHEUNG SHA WAN, HONG KONG.

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

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

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## Table of Contents

<b>Release Control Record .....</b>	<b>3</b>
<b>1      Certificate of Conformity.....</b>	<b>4</b>
<b>2      RF Exposure.....</b>	<b>5</b>
2.1    Limits For Maximum Permissible Exposure (MPE).....	5
2.2    MPE Calculation Formula .....	5
2.3    Classification .....	5
2.4    Antenna Gain .....	5
2.5    Calculation Result Of Maximum Conducted Power .....	6

### Release Control Record

Issue No.	Description	Date Issued
SA160902E01	Original release.	Oct. 24, 2016

## 1 Certificate of Conformity

**Product:** Pepwave / Peplink / Pismo Labs Wireless Product

**Brand:** Pepwave / Peplink / Pismo

**Test Model:** Surf SOHO MK-III

**Series Model:** Pismo AC8, SOHO-AC-T, Surf SOHO

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Pismo Labs Technology Limited

**Test Date:** Oct. 01, 2016

**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 :** Wendy Wu, **Date:** Oct. 24, 2016

Wendy Wu / Specialist

**Approved by :** May Chen, **Date:** Oct. 24, 2016

May Chen / Manager

## 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				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = 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 22cm away from the body of the user. So, this device is classified as **Mobile Device**.

This product could be applied with a plug-in USB Cellular device, and the safe distance is 40cm for collocated radio.

### 2.4 Antenna Gain

Antenna No.	Chain No.	Brand	Model	Antenna Net Gain(dBi)	Frequency range (GHz ~ GHz)	Antenna Type	Connector Type	Cable Length (mm)	Cable Loss (dB)	Antenna Gain(dBi) <excluding cable loss>
1	Chain 0	SmartAnt	SAA06-220690-V1	1.4	2.4~2.4835	Dipole	R-SMA	210	1.6	3
				3.9	5.15~5.35					5.5
				4.4	5.35~5.85					6
2	Chain 1	SmartAnt	SAA06-220690-V1	1.8	2.4~2.4835	Dipole	R-SMA	150	1.2	3
				4.3	5.15~5.35					5.5
				4.8	5.35~5.85					6
3	Chain 2	SmartAnt	SAA06-220690-V1	2	2.4~2.4835	Dipole	R-SMA	120	1	3
				4.5	5.15~5.35					5.5
				5	5.35~5.85					6

## 2.5 Calculation Result Of Maximum Conducted Power

For WLAN:

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	850.531	6.51	22	0.62609	1
5180-5240	214.299	9.01	22	0.28052	1
5745-5825	189.083	9.51	22	0.27771	1

NOTE:

2.4GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 6.51 \text{dBi}$

5GHz:

UNII-1: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.01 \text{dBi}$

UNII-3: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.51 \text{dBi}$

## For WLAN / WWAN(USB Cellular device) coexistence mode:

Condition	Coexistence		
1	WLAN(2.4GHz)	WLAN(5GHz)	-
2	WLAN(2.4GHz)	WLAN(5GHz)	WWAN

### Condition 1

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	850.531	6.51	22	0.62609	1
5180-5240	214.299	9.01	22	0.28052	1

### Condition 2

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	850.531	6.51	40	0.18939	1
5180-5240	214.299	9.51	40	0.08486	1
824.2-848.8	7000*	-	40	0.34815	0.5495

\*This product can operate with a plug-in USB Cellular device which has maximum power of 7W.

**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

**Condition 1:**

Therefore, the worst-case situation is  $0.62609 / 1 + 0.28052 / 1 = 0.90661$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

**Condition 2:**

Therefore, the worst-case situation is  $0.18939 / 1 + 0.08486 / 1 + 0.34815 / 0.5495 = 0.90787$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

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