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.

Table of Contents

Release Control Record **3**

1 Certificate of Conformity **4**

2 RF Exposure **5**

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

Wendy Wu / Specialist

Approved by : _____ , **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^2)	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^2

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	Connecter 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^2)	Limit (mW/cm^2)
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 = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 6.51$dBi

5GHz:

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

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