RF Exposure Report

Report No.:	SA180509C32A
FCC ID:	2ABRC-ACWZZN
Test Model:	ACWZZN
Series Model:	WUSB (Refer to section 2 for more detail)
Received Date:	May 17, 2018
Date of Evaluation:	Jun. 05, 2018
Issued Date:	Jun. 19, 2018
Applicant:	Optoma Corporation
Address:	12F., No. 213, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City, Taiwan 231
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
Test Location:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)
FCC Registration / Designation Number:	788550 / TW0003

Table of Contents

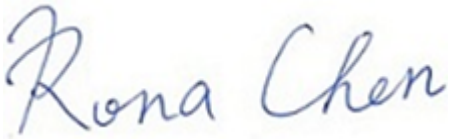
Release Control Record

Issue No.	Description	Date Issued
SA180509C32A	Original Release	Jun. 19, 2018

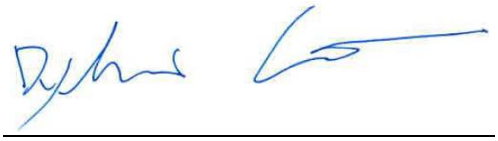
1 Certificate of Conformity

Product:	WIRELESS DONGLE MODULE
Brand:	Optoma
Test Model:	ACWZZN
Series Model:	WUSB (Refer to section 2 for more detail)
Sample Status:	Identical Prototype
Applicant:	Optoma Corporation
Date of Evaluation:	Jun. 05, 2018
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:** Jun. 19, 2018

Rona Chen / Specialist

Approved by :  , **Date:** Jun. 19, 2018

Dylan Chiou / Project Engineer

2 General Description

Brand	Model	Difference
Optoma	ACWZZN	All models are electrically identical, different model names are for marketing purpose.
	WUSB	

3 RF Exposure

3.1 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				
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

f = Frequency in MHz ; *Plane-wave equivalent power density

3.2 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

3.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.

So, this device is classified as **Mobile Device**.

3.4 Antenna Gain

PIFA antenna with gain	0.5 dBi (Chain 0) 0.3 dBi (Chain 1)

3.5 Calculation Result Of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	29.90	966.873	3.41	20	0.422	1

NOTE:

1. 2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ dBi = $10 \log[(10^{0.5/20} + 10^{0.3/20})^2 / 2]$ = 3.41 dBi
2. The above Max Power is Tune-up Power which client declared.

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz = 0.422 / 1 = 0.422

Therefore the maximum calculations of above situations are less than the "1" limit.

--- END ---