RF Exposure Report

Report No.:	SA180108C15
FCC ID:	TOR-W118
Test Model:	W-118
Received Date:	Jan. 08, 2018
Test Date:	Feb. 22 ~ Mar. 16, 2018
Issued Date:	Mar. 20, 2018
Applicant:	Mojo Networks, Inc.
Address:	339 N. Bernardo Avenue, Suite #200, Mountain View, California United States 94043
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.)

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Release Control Record

Issue No.	Description	Date Issued
SA180108C15	Original release.	Mar. 20, 2018

1 Certificate of Conformity

Product:	Wall Jack Access Point
Brand:	Mojo
Test Model:	W-118
Sample Status:	Engineering sample
Applicant:	Mojo Networks, Inc.
Test Date:	Feb. 22 ~ Mar. 16, 2018
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.1

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 RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Mar. 20, 2018

Pettie Chen / Senior Specialist

Approved by : _____ , **Date:** Mar. 20, 2018

Bruce Chen / Project Engineer

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 23cm away from the body of the user. So, this device is classified as Mobile Device.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
Radio 1					
WLAN 2412~2462 (CDD mode)	26.09	7.32	23	0.330	1
WLAN 2412~2462 (Beamforming mode)	21.70	7.32	23	0.120	1
Radio 2					
WLAN 5180~5240 (CDD mode)	23.44	9	23	0.264	1
WLAN 5745~5825 (CDD mode)	26.63	9	23	0.550	1
WLAN 5180~5240 (Beamforming mode)	21.43	9	23	0.166	1
WLAN 5745~5825 (Beamforming mode)	23.62	9	23	0.275	1
Radio 3					
WLAN 2412~2462 (CDD mode)	18.80	5.79	23	0.043	1
WLAN 5180~5240 (CDD mode)	17.29	7.84	23	0.049	1
WLAN 5745~5825 (CDD mode)	17.09	7.84	23	0.047	1
BT LE/Zigbee					
BT LE 2402~2480	2.38	2.76	23	0.0005	1
Zigbee	2.36	2.76	23	0.0005	1

Note:
2.4GHz:
Radio 1: Directional gain = 4.31dBi +10log(2) = 7.32dBi
Radio 3: Directional gain = 2.78dBi +10log(2) = 5.79dBi

5.0GHz:
Radio 2: Directional gain = 5.99dBi+10log(2) = 9dBi
Radio 3: Directional gain = 4.83dBi+10log(2) = 7.84dBi

Frequency Band	Max. Power (dBm)				Total Power (dBm)	Power Limit (dBm)
	Radio 1	Radio 3 (WLAN 2.4GHz)	BT LE	Zigbee		
2.4GHz	26.09	18.80	2.38	-	26.85	30
2.4GHz	26.09	18.80	-	2.36	26.85	30

Conclusion:
The formula of calculated the MPE is:
CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1
CPD = Calculation power density
LPD = Limit of power density

The simultaneous operation mode was determined by client.

No	Mode
1	Radio 1 + Radio 2 + Radio 3(2.4GHz) + BT LE
2	Radio 1 + Radio 3(5GHz) + BT LE
3	Radio 1 + Radio 2 + Radio 3(2.4GHz)+ Zigbee
4	Radio 1 + Radio 3(5GHz) + Zigbee

*The Radio 2 and Radio 3(5GHz) cannot transmit simultaneously.

Radio 1 + Radio 2 + Radio 3(2.4GHz) + BT LE = 0.330 + 0.550 + 0.043 + 0.0005 = 0.9235
Radio 1 + Radio 3(5GHz) + BT LE = 0.330 + 0.049 + 0.0005 = 0.3795
Radio 1 + Radio 2 + Radio 3(2.4GHz) + Zigbee = 0.330 + 0.550 + 0.043 + 0.0005 = 0.9235
Radio 1 + Radio 3(5GHz) + Zigbee =0.330 + 0.049 + 0.0005 = 0.3795

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

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