

## RF Exposure Report

**Report No.:** SA160726C12B

**FCC ID:** 2AGMRAP12I360

**Test Model:** AP12I360

**Received Date:** Jul. 26, 2016

**Test Date:** Jul. 29 ~ Sep. 09, 2016

**Issued Date:** Nov. 10, 2016

**Applicant:** Tembo Systems, Inc.

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**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
SA160726C12B	Original release	Nov. 10, 2016

## 1 Certificate of Conformity

**Product:** AP1002Oi 2-Radio Omni-Directional Indoor Access Point

**Brand:** EVEREST™ Network Solutions

**Test Model:** AP12I360

**Sample Status:** Engineering sample


**Applicant:** Tembo Systems, Inc.

**Test Date:** Jul. 29 ~ Sep. 09, 2016

**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 EMC characteristics under the conditions specified in this report.

**Prepared by :** , **Date:** Nov. 10, 2016  
Rolly Chien / Specialist

**Approved by :** , **Date:** Nov. 10, 2016  
Ken Liu / Senior 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

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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 28cm 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 <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
Radio 1					
WLAN: CDD mode					
2412-2462	24.99	9.78	28	0.304	1
WLAN: Beamforming mode					
2412-2462	18.77	9.78	28	0.073	1
Radio 2					
WLAN: CDD mode					
5180-5240	24.28	11.73	28	0.405	1
5745-5825	25.46	11.73	28	0.531	1
WLAN: Beamforming mode					
5180-5240	18.26	11.73	28	0.101	1
5745-5825	19.44	11.73	28	0.133	1
Radio 3					
WLAN: CDD mode					
2412-2462	13.03	2.9	28	0.004	1
Radio 4					
BT LE					
2402-2480	0.11	3.93	28	0.0003	1

Note:

Radio 1: 2.4GHz Band:  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.78\text{dBi}$

Radio 2: 5GHz Band: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 11.73\text{dBi}$

Radio 3: 2.4GHz Band: Directional gain = 2.9dBi

### Conclusion:

Both of the WLAN 2.4G & WLAN 5G & BT LE can transmit simultaneously, the formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

Frequency Band	Max. Power (dBm)			Total Power (dBm)	Power Limit (dBm)
	WLAN 2.4GHz		BT EDR		
	Radio 1	Radio 3	Radio 4		
2.4GHz	24.99	13.03	0.11	25.27	30

$$\begin{aligned} &\text{Radio 1} + \text{Radio 2} + \text{Radio 3 (2.4G)} + \text{Radio 4} \\ &= 0.304 + 0.531 + 0.004 + 0.0003 = 0.839 \end{aligned}$$

Therefore, the maximum calculation of this situation is 0.839, which is less than the "1" limit.

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