

## RF Exposure Report

**Report No.:** SA150127C37

**FCC ID:** 2ACTO-AP55C

**Test Model:** AP 55C

**Received Date:** Dec. 27, 2014

**Test Date:** Jan. 20 ~ Mar. 05, 2015

**Issued Date:** Mar. 13, 2015

**Applicant:** Sophos Ltd

**Address:** The Pentagon, Abingdon, OX14 3YP, United Kingdom

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

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### Release Control Record

Issue No.	Description	Date Issued
SA150127C37	Original release.	Mar. 13, 2015

## 1 Certificate of Conformity

**Product:** Sophos wireless Access Point AP 55C

**Brand:** Sophos

**Test Model:** AP 55C

**Sample Status:** Engineering sample

**Applicant:** Sophos Ltd

**Test Date:** Jan. 20 ~ Mar. 05, 2015

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D03

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:**

Mar. 13, 2015

Pettie Chen / Senior Specialist

**Approved by :**



**Date:**

Mar. 13, 2015

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 22cm away from the body of the user.

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

## 3 Calculation Result Of Maximum Conducted Power

Antenna Type		PIFA	
Antenna Connector		NA	
		P/N	Gain (dBi)
2.4GHz Band	Ant. A	RFMTA230900NNAB001	4.65
	Ant. B	RFMTA230900NNAB002	4.36
5.0GHz Band	Ant. D	RFMTA100800NN5B001	6.13
	Ant. E	RFMTA100800NN5B002	5.96

\*The EUT doesn't support diversity function in 802.11a, g.

\*For 802.11b: Antenna A was for the final test.

\*For 802.11a was fixed in Antenna D.

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
<b>2412-2462MHz</b>					
1TX					
802.11b	23.75	4.65	22	0.114	1
802.11g	23.61	4.65	22	0.110	1
2TX					
802.11n(HT20)	25.47	7.52	22	0.327	1
802.11n(HT40)	21.04	7.52	22	0.118	1
<b>5180-5240MHz</b>					
1TX					
802.11a	23.32	6.13	22	0.145	1
2TX					
802.11n(HT20)	26.09	9.06	22	0.538	1
802.11n(HT40)	26.57	9.06	22	0.601	1
802.11ac(VHT20)	26.18	9.06	22	0.549	1
802.11ac(VHT40)	26.70	9.06	22	0.619	1
802.11ac(VHT80)	19.16	9.06	22	0.109	1
<b>5745-5825MHz</b>					
1TX					
802.11a	18.82	6.13	22	0.051	1
2TX					
802.11n(HT20)	18.30	9.06	22	0.090	1
802.11n(HT40)	19.91	9.06	22	0.130	1
802.11ac(VHT20)	18.24	9.06	22	0.088	1
802.11ac(VHT40)	19.82	9.06	22	0.127	1
802.11ac(VHT80)	18.24	9.06	22	0.088	1

NOTE:

**2.4GHz:**

2TX: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 7.52 \text{ dBi}$

**5.0GHz:**

2TX: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 9.06 \text{ dBi}$

**CONCLUSION:**

Both of the WLAN 2.4G & WLAN 5G 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

$WLAN 2.4G + WLAN 5.0G = 0.327 + 0.619 = 0.946$

Therefore, the maximum calculation of this situation is 0.946, which is less than the "1" limit.

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