

# EXPOSURE REPORT

**REPORT NO.:** SA141108C01

**MODEL NO.:** AP 100X

**FCC ID:** 2ACTO-AP100X

**RECEIVED:** Nov. 08, 2014

**TESTED:** Nov. 17 ~ Nov. 26, 2014

**ISSUED:** Dec. 02, 2014

**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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**TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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## RELEASE CONTROL RECORD

| ISSUE NO.   | REASON FOR CHANGE | DATE ISSUED   |
|-------------|-------------------|---------------|
| SA141108C01 | Original release  | Dec. 02, 2014 |

## 1. CERTIFICATION

**PRODUCT:** Sophos wireless Access Point AP 100X  
**MODEL NO.:** AP 100X  
**BRAND:** Sophos  
**APPLICANT:** Sophos Ltd  
**TESTED:** Nov. 17 ~ Nov. 26, 2014  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**STANDARDS:** FCC Part 2 (Section 2.1091)  
KDB 447498 D03  
IEEE C95.1

The above equipment (model: AP 100X) 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.

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Celine Chou / Specialist

**APPROVED BY :** Ken Liu , **DATE :** Dec. 02, 2014  
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**.

## 2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

| FREQUENCY BAND (MHz) | MODULATION MODE  | MAX POWER (dBm) | ANTENNA GAIN (dBi) | DISTANCE (cm) | POWER DENSITY (mW/cm <sup>2</sup> ) | LIMIT (mW/cm <sup>2</sup> ) |
|----------------------|------------------|-----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2412-2462            | 802.11g          | 28.78           | 4                  | 28            | 0.193                               | 1                           |
|                      | 802.11n (20MHz)  | 29.61           | 8.77               | 28            | 0.699                               | 1                           |
|                      | 802.11n (40MHz)  | 29.48           | 8.77               | 28            | 0.678                               | 1                           |
| 5180-5240            | 802.11a          | 14.93           | 6                  | 28            | 0.013                               | 1                           |
|                      | 802.11n (20MHz)  | 14.60           | 10.77              | 28            | 0.035                               | 1                           |
|                      | 802.11n (40MHz)  | 14.69           | 10.77              | 28            | 0.036                               | 1                           |
|                      | 802.11ac (20MHz) | 14.69           | 10.77              | 28            | 0.036                               | 1                           |
|                      | 802.11ac (40MHz) | 14.57           | 10.77              | 28            | 0.035                               | 1                           |
|                      | 802.11ac (80MHz) | 14.59           | 10.77              | 28            | 0.035                               | 1                           |
| 5745-5825            | 802.11a          | 25.74           | 6                  | 28            | 0.152                               | 1                           |
|                      | 802.11n (20MHz)  | 23.44           | 10.77              | 28            | 0.268                               | 1                           |
|                      | 802.11n (40MHz)  | 22.94           | 10.77              | 28            | 0.238                               | 1                           |
|                      | 802.11ac (20MHz) | 23.49           | 10.77              | 28            | 0.271                               | 1                           |
|                      | 802.11ac (40MHz) | 22.93           | 10.77              | 28            | 0.238                               | 1                           |
|                      | 802.11ac (80MHz) | 18.37           | 10.77              | 28            | 0.083                               | 1                           |

### NOTE:

- 2.4GHz: Directional gain = 4dBi + 10log(3) = 8.77dBi
- 5GHz: Directional gain = 6dBi + 10log(3) = 10.77dBi.

### CONCLUSION:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$$2.4GHz + 5GHz = 0.699 + 0.271 = 0.970$$

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