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# EXPOSURE REPORT

**REPORT NO.:** SA141108C01A

**MODEL NO.:** AP 100X

**FCC ID:** 2ACTO-AP100X

**RECEIVED:** Nov. 08, 2014

**TESTED:** Nov. 17 ~ Dec. 03, 2014

**ISSUED:** Dec. 23, 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
SA141108C01A	Original release	Dec. 23, 2014



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## 1. CERTIFICATION

**PRODUCT:** Sophos wireless Access Point AP 100X  
**MODEL NO.:** AP 100X  
**BRAND:** Sophos  
**APPLICANT:** Sophos Ltd  
**TESTED:** Nov. 17 ~ Dec. 03, 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.

**PREPARED BY :** Celine Chou , **DATE :** Dec. 23, 2014  
Celine Chou / Specialist

**APPROVED BY :** Ken Liu , **DATE :** Dec. 23, 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
5260-5320	802.11a	20.85	6	28	0.049	1
	802.11n (20MHz)	19.62	10.77	28	0.111	1
	802.11n (40MHz)	20.85	10.77	28	0.147	1
	802.11ac (20MHz)	19.57	10.77	28	0.110	1
	802.11ac (40MHz)	20.92	10.77	28	0.150	1
	802.11ac (80MHz)	15.75	10.77	28	0.046	1
5500-5700	802.11a	20.81	6	28	0.049	1
	802.11n (20MHz)	19.51	10.77	28	0.108	1
	802.11n (40MHz)	20.82	10.77	28	0.146	1
	802.11ac (20MHz)	19.41	10.77	28	0.106	1
	802.11ac (40MHz)	20.89	10.77	28	0.149	1
	802.11ac (80MHz)	14.56	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



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**NOTE:**

1. 2.4GHz: Directional gain = 4dBi +  $10\log(3)$  = 8.77dBi
2. 5GHz: Directional gain = 6dBi +  $10\log(3)$  = 10.77dBi.

**CONCLUSION:**

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$$2.4\text{GHz} + 5\text{GHz} = 0.699 + 0.271 = 0.970$$

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