

# RF EXPOSURE REPORT

**REPORT NO.:** SA120517E03A

**MODEL NO.:** WS-AP3705i

**FCC ID:** QXO-WSAP3705I

**RECEIVED:** May 23, 2012

**TESTED:** June 16 to 21, 2012

**ISSUED:** Sep. 20, 2012

**APPLICANT:** Enterasys Networks, Inc.

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**ISSUED BY:** Bureau Veritas Consumer Products Services  
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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA120517E03A	Original release	Sep. 20, 2012

## 1. CERTIFICATION

**PRODUCT:** Wireless Access Point  
**BRAND NAME:** Enterasys Networks  
**MODEL NO.:** WS-AP3705i  
**TEST SAMPLE:** MASS-PRODUCTION  
**APPLICANT:** Enterasys Networks, Inc.  
**TESTED DATE:** June 16 to 21, 2012  
**STANDARDS:** FCC Part 2 (Section 2.1091)  
FCC OET Bulletin 65, Supplement C (01-01)  
IEEE C95.1

The above equipment (Model: WS-AP3705i ) 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 :** Phoenix Huang, **DATE:** Sep. 20, 2012  
( Phoenix Huang, Specialist )

**APPROVED BY :** May Chen, **DATE:** Sep. 20, 2012  
( May Chen, Deputy Manager )

## 2. RF EXPOSURE LIMIT

### 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

### 3. MPE CALCULATION FORMULA

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

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

### 4. 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**.

## 5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

For 2.4GHz					
Transmitter Circuit	Manufacture	Model name	Antenna Gain Gain (dBi)	Antenna Type	Connector
Chain (0)	WHA YU GROUP	C037-511135-A (SSR-13314)	3.97	PIFA	I-PEX
Chain (1)	WHA YU GROUP	C037-511135-A (SSR-13314)	3.91	PIFA	I-PEX
For 5GHz					
Transmitter Circuit	Manufacture	Model name	Antenna Gain Gain (dBi)	Antenna Type	Connector
Chain (0)	WHA YU GROUP	C037-511135-A (SSR-13314)	5G Band1: 3.74 5G Band2: 3.92 5G Band3: 3.95 5G Band4: 3.87	PIFA	I-PEX
Chain (1)	WHA YU GROUP	C037-511135-A (SSR-13314)	5G Band1: 3.87 5G Band2: 3.84 5G Band3: 3.72 5G Band4: 3.98	PIFA	I-PEX

## 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

For 15.247(2.4GHz):

**MAX POWER DENSITY<802.11g>:**

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412-2462	626.252	6.95	22	0.51014	1

Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$

Effective Legacy Gain (dBi) = 6.95

For 15.407(5GHz):

Band 2: 5250MHz ~ 5350MHz

802.11a:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5260 ~ 5320	182.838	6.89	22	0.14690	1

Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$   
 Effective Legacy Gain (dBi) = 6.89

802.11n(20MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5260 ~ 5320	186.849	3.92	22	0.07576	1

802.11n(40MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5270 ~ 5310	197.828	3.92	22	0.08021	1



### Band 3: 5470MHz ~ 5725MHz

#### 802.11a:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5500 ~ 5580, 5660 ~ 5700	178.439	6.85	22	0.14205	1

Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$   
 Effective Legacy Gain (dBi) = 6.85

#### 802.11n(20MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5500 ~ 5580, 5660 ~ 5700	172.301	3.95	22	0.07034	1

#### 802.11n(40MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5510 ~ 5550, 5670	171.855	3.95	22	0.07016	1

**CONCLUSION:**

Both of the 2.4GHz and 5GHz WLAN can transmit simultaneously, the formula of calculated the MPE is:

$$CPD_1 / LPD_1 + CPD_2 / LPD_2 + \dots \text{etc.} < 1$$

**CPD = Calculation power density**

**LPD = Limit of power density**

Therefore, the worst-case situation is  $0.51014 / 1 + 0.14690 / 1 = 0.65704$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

**--- END ---**