

## RF Exposure Report

**Report No.:** SA140402E02F

**FCC ID:** HEDAC1200

**Test Model:** SF-AC1200, SF-AC1200-1, SF-AC1200-2

**Series Model:** ECWO5320, ECWO5320-L, ECWO5320-C, ECWO5324, ECWO5324-L, ECWO5324-C

**Received Date:** Apr. 08, 2014

**Test Date:** Mar. 19 to Apr. 10, 2015

**Issued Date:** Apr. 17, 2015

**Applicant:** Accton Technology Corporation

**Address:** No.1, Creation Rd. III, Science-based Industrial Park, Hsinchu, Taiwan, R.O.C.

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

**Lab Address:** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

**Test Location (1):** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

**Test Location (2):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

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### Release Control Record

Issue No.	Description	Date Issued
SA140402E02F	Original release.	Apr. 17, 2015

## 1 Certificate of Conformity

**Product:** Dualband Outdoor AP, 802.11ac Outdoor Dual Band Access Point

**Brand:** IgniteNet, Edge-CorE

**Test Model:** SF-AC1200, SF-AC1200-1, SF-AC1200-2

**Series Model:** ECWO5320, ECWO5320-L, ECWO5320-C, ECWO5324, ECWO5324-L, ECWO5324-C

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Accton Technology Corporation

**Test Date:** Mar. 19 to Apr. 10, 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 :** Phoenix Huang, **Date:** Apr. 17, 2015  
Phoenix Huang / Specialist

**Approved by :** May Chen, **Date:** Apr. 17, 2015  
May Chen / 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

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

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

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.

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

## 2.4 Antenna Gain

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

### External antenna 1 (Signal Band Ant.)

Brand Name: Cortec / Model Name: AN2400-0334RS

Transmitter Circuit	Antenna Type	Connector Type	Antenna Gain(dBi) <excluding cable loss>	Inside EUT		Outside EUT		Net. Gain (dBi)	Frequency range (MHz to MHz)
				Cable Loss (dB)	Cable Length (mm)	Cable Loss (dB)	Cable Length (mm)		
Chain (0)	Dipole	RP-SMA	2.65	1	250	1.5	500	0.15	2400~2500
Chain (1)	Dipole	RP-SMA	2.65	1	250	1.5	500	0.15	2400~2500

### External antenna 2 (Signal Band Ant.)

Brand Name: Cortec / Model Name: AN5000-0301RS

Transmitter Circuit	Antenna Type	Connector Type	Antenna Gain(dBi) <excluding cable loss>	Inside EUT		Outside EUT		Net. Gain (dBi)	Frequency range (MHz to MHz)
				Cable Loss (dB)	Cable Length (mm)	Cable Loss (dB)	Cable Length (mm)		
Chain (0)	Dipole	RP-SMA	2.7	1.2	250	2.9	500	-1.4	5150~5850
Chain (1)	Dipole	RP-SMA	2.7	1.2	250	2.9	500	-1.4	5150~5850

### Internal antenna 1 (Signal Band Ant.)

Brand Name: Accton / Model Name: 123800000297A

Transmitter Circuit	Antenna Type	Connector Type	Antenna Gain(dBi)	Frequency range (MHz to MHz)
Chain (0)	Patch Array	MMCX	13.81	5150~5850
Chain (1)	Patch Array	MMCX	13.72	5150~5850

### Internal antenna 2 (Dual Band Ant.)

Brand Name: Accton / Model Name: 123800000295A

Transmitter Circuit	Antenna Type	Connector Type	Antenna Gain(dBi)	Frequency range (MHz to MHz)
Chain (0)	Dipole	MMCX	3.03	2400~2500
	Patch Array		11.94	5150~5850
Chain (1)	Dipole	MMCX	5.58	2400~2500
	Patch Array		12.19	5150~5850

### Internal antenna 3 (Signal Band Ant.)

Brand Name: Accton / Model Name: OAP1232RL-FLF-EC

Transmitter Circuit	Antenna Type	Connector Type	Antenna Gain(dBi)	Frequency range (MHz to MHz)
Chain (0)	Patch Array	MMCX	12.5	5150~5850
Chain (1)	Patch Array	MMCX	12.5	5150~5850

Note:

1. For 802.11a/b/g mode will fix transmission on Chain (0)

### 3 Calculation Result of Maximum Conducted Power

For External antenna (2.4GHz):

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 (1TX mode)	148.594	0.15	20	0.03060	1
2412-2462 (2TX mode)	260.942	0.15	20	0.05374	1

For External antenna (5GHz):

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180-5240, 5745-5825 (1TX mode)	265.461	-1.4	20	0.03826	1
5180-5240, 5745-5825 (2TX mode)	283.351	-1.4	20	0.04084	1

For Internal antenna 1 (5GHz):

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180-5240, 5745-5825 (1TX mode)	142.561	13.81	20	0.68191	1
5180-5240, 5745-5825 (2TX mode)	130.78	13.81	20	0.62556	1

For Internal antenna 2 (2.4GHz):

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 (1TX mode)	209.894	3.03	20	0.08389	1
2412-2462 (2TX mode)	120.881	5.58	20	0.08691	1

For Internal antenna 2 (5GHz):

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180-5240, 5745-5825 (1TX mode)	142.561	12.19	20	0.46960	1
5180-5240, 5745-5825 (2TX mode)	130.78	12.19	20	0.43079	1

**CONCLUSION:**

Both of the 2.4GHz and 5GHz 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

For External antenna (2.4GHz) + Internal antenna 1 (5GHz): (Model No.: **SF-AC1200**)

Therefore, the worst-case situation is  $0.05374 / 1 + 0.68191 / 1 = 0.736$ , which is less than "1".

For External antenna (2.4GHz) + External antenna (5GHz): (Model No.: **SF-AC1200-1**)

Therefore, the worst-case situation is  $0.05374 / 1 + 0.04084 / 1 = 0.095$ , which is less than "1".

For Internal antenna 2 (2.4GHz) + Internal antenna 2 (5GHz): (Model No.: **SF-AC1200-2**)

Therefore, the worst-case situation is  $0.08691 / 1 + 0.46960 / 1 = 0.557$ , which is less than "1".

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