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 : , **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^2)	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

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

Pout = 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	Connecter 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	Connecter 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	Connecter 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	Connecter 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	Connecter 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^2)	Limit (mW/cm^2)
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^2)	Limit (mW/cm^2)
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^2)	Limit (mW/cm^2)
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^2)	Limit (mW/cm^2)
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^2)	Limit (mW/cm^2)
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:

$CPD_1 / LPD_1 + CPD_2 / LPD_2 + ……etc. < 1$

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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