



# SPORTON International Inc.

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Project No: CB10504177

## Maximum Permissible Exposure Report

Applicant's company	Accton Technology Corporation
Applicant Address	No. 1 Creation Rd., III, Science-based Industrial Park, Hsin chu 30077, Taiwan
FCC ID	HED-HWG6507CAM
Manufacturer's company	Accton Technology Corporation
Manufacturer Address	No. 1 Creation Rd., III, Science-based Industrial Park, Hsin chu 30077, Taiwan

Product Name	WaltzOne All-in-One IP Cam
Brand Name	Accton
Model Name	HWG6507
Ref. Standard(s)	47 CFR FCC Part 2 Subpart J, section 2.1091
Received Date	Oct. 05, 2012
Final Test Date	Apr. 06, 2016
Submission Type	Original Equipment



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SPORTON INTERNATIONAL INC.



Testing Laboratory  
1190



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## History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA620101	Rev. 01	Initial issue of report	May 03, 2016
FA620101	Rev. 02	Change Product Name to WaltzOne All-in-One IP Cam from Waltz All-in-One IP CAM.	May 05, 2016

## 1. GENERAL DESCRIPTION

### 1.1. EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
Zigbee	2400-2483.5	2405-2475	DSSS (O-QPSK)
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)

Note: This device contains WiFi transmitter module FCC ID: HED7822GMN.

### 1.2. Testing Location

Testing Location		
<input type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456      FAX : 886-3-327-0973
<input checked="" type="checkbox"/>	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065      FAX : 886-3-656-9085

## 2. MAXIMUM PERMISSIBLE EXPOSURE

### 2.1. Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; \*Plane-wave equivalent power density

### 2.2. MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

**E** = Electric field (V/m)

**P** = Peak RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

### 2.3. Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

For Zigbee:

Antenna Type : Chip Antenna

Conducted Power for IEEE 802.15.4 Zigbee: 21.58 dBm

Distance (cm)	Test Freq. (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
				(dBm)	(mW)			
20	2405	3.20	2.0893	21.5800	143.8799	0.059834	1	Complies

For 2.4GHz Band:

Antenna Type : Chip Antenna

Conducted Power for IEEE 802.11 n MCS8 20MHz: 22.38 dBm

Distance (cm)	Test Freq. (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
				(dBm)	(mW)			
20	2462	2.00	1.5849	22.3768	172.8551	0.054530	1	Complies

Note: Please refer to report sporton no.: 2O0531 for collocation testing

#### Conclusion:

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

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

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is  $0.059834 / 1 + 0.054530 / 1 = 0.114364$ , which is less than "1". This confirmed that the device complies.