SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

Project No: CB10501350

Maximum Permissible Exposure Report

Applicant's company	**Acer Incorporated**
Applicant Address	8F, 88, Sec 1, Hsin Tai Wu Rd, Hsichih, Taipei Hsien, 221 Taiwan
FCC ID	**HLZPDW1**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Ave. II, Hsinchu Science park, Hsinchu 308, Taiwan

Product Name	Acer ProDock
Brand Name	acer
Model Name	PDW1
Ref. Standard(s)	47 CFR FCC Part 2 Subpart J, section 2.1091
Received Date	Sep. 24, 2015
Final Test Date	Jan. 23, 2016
Submission Type	Original Equipment

Testing Laboratory
1190

Sam Chen
SPORTON INTERNATIONAL INC.

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA592324	Rev. 01	Initial issue of report	Feb. 05, 2016

1. GENERAL DESCRIPTION

1.1. EUT General Information

RF General Information			
Evaluation Mode	**Frequency Range (MHz)**	**Operating Frequency (MHz)**	**Modulation Type**
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
5GHz WLAN	5150-5250 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Evaluation Mode	**Operating Frequency (MHz)**		**Modulation Type**
60GHz WiGig	58.32 GHz, 60.48 GHz, 62.64 GHz.		π/2-BPSK, π/2-QPSK, π/2-16QAM

Note: This device contains 60GHz WiGig transmitter module FCC ID: PPD-QCA9008-SBD1.

1.2. Testing Location

Testing Location			
☐	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
☒	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/ cm²)	Averaging Time |E|², |H|² 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/ cm²)	Averaging Time |E|², |H|² 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 (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

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 2.4GHz WLAN:

Antenna Type : PCB Antenna

Conducted Power for IEEE 802.11g: 23.53 dBm

Distance (cm)	Test Freq. (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	The maximum combined Average Output Power		Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
				(dBm)	(mW)			
20	2412	2.73	1.8750	23.5250	225.1662	0.084034	1	Complies

For 5GHz WLAN:

Antenna Type : PCB Antenna

Conducted Power for IEEE 802.11a: 24.13 dBm

Distance (cm)	Test Freq. (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	The maximum combined Average Output Power		Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
				(dBm)	(mW)			
20	5785	4.91	3.0974	24.1313	258.8969	0.159616	1	Complies

For 60GHz WiGig:

Antenna Type : Integral Antenna

Conducted Power for 60GHz WiGig: 29.80 dBm

Distance (cm)	Test Freq. (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
				(dBm)	(mW)			
20	60480	14.00	25.1189	29.8000	954.993	0.190000	1	Complies

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ...etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Mode 1. 2.4GHz WLAN function + 60GHz WiGig function

Therefore, the worst-case situation is 0.084034 / 1 + 0.190000 / 1 = 0.274034, which is less than “1”. This confirmed that the device complies.

Mode 2. 5GHz WLAN function + 60GHz WiGig function

Therefore, the worst-case situation is 0.159616 / 1 + 0.190000 / 1 = 0.349616, which is less than “1”. This confirmed that the device complies.