RF Exposure Evaluation Report

APPLICANT: Zebra Technologies Corporation

EQUIPMENT: Presentation Cradle

BRAND NAME: Zebra

MODEL NAME : CR8178-PC

FCC ID : UZ7CRD8178PC

STANDARD : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Cole huan'

Innes/sai

Approved by: Jones Tsai / Manager





Report No. : FA680209

SPORTON INTERNATIONAL INC.

No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)

TEL: 886-3-327-3456 FAX: 886-3-328-4978 FCC ID: UZ7CRD8178PC Page Number : 1 of 6

Report Issued Date : Sep. 14, 2016

Report Version : Rev. 01

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SPORTON LAB. RF Exposure Evaluation Report

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA680209	Rev. 01	Initial issue of report	Sep. 14, 2016

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1. Administration Data

1.1. <u>Testing Laboratory</u>

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

	Applicant				
Company Name	Zebra Technologies Corporation				
Address	1 Zebra Plaza, Holtsville, NY 11742				

	Manufacturer				
Company Name	Zebra Technologies Corporation				
Address	1 Zebra Plaza, Holtsville, NY 11742				

2. <u>Description of Equipment Under Test (EUT)</u>

Product Feature & Specification					
EUT Type	Presentation Cradle				
Brand Name	Zebra				
Model Name	CR8178-PC				
FCC ID	UZ7CRD8178PC				
Wireless Technology and Bluetooth: 2402 MHz ~ 2480 MHz					
Mode	Bluetooth EDR/LE				
Antenna Type	SMD Antenna				
Antenna Gain	2.7 dBi				
HW Version	Rev A				
SW Version	Rev A				
MFD	05MAY16				
EUT Stage	Identical Prototype				

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

3. Maximum RF average output power among production units

	Average Power (dBm)				
Mode / Band		1E			
	1Mbps	2Mbps	3Mbps	LE	
2.4 GHz Bluetooth	5.0	5.0	5.0	5.0	

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4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range Electric field strength (V/m)		Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)	
(A) (S)	(A) Limits for O	ccupational/Controlled Expos	sures	W +2	
0.3-3.0	614	1.63	*(100)	6	
3.0-30	1842/	f 4.89/1	*(900/f2)	6	
30-300	61.4	0.163	1.0	6	
300-1500			f/300	6	
1500-100,000			5	6	
	(B) Limits for Gene	ral Population/Uncontrolled I	Exposure		
0.3-1.34	614	1.63	*(100)	30	
1.34-30	824/	f 2.19/1	*(180/f2)	30	
30-300	27.5	0.073	0.2	30	
300-1500			f/1500	30	
1500-100,000			1.0	30	

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:

$$S=\frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna

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5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	(mW/cm^2)
Bluetooth	2402.0	2.70	5.00	7.700	0.006	5.888	0.001	1.000

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

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