



# RF Exposure Evaluation Report

**Application No.:** SZEM2008008378CR  
**Applicant:** Echelon Fitness Multimedia LLC  
**Address of Applicant:** 6011 Century Oaks Drive, Chattanooga, Tennessee 37416 United States  
**Manufacturer:** SHENZHEN KINSTONE D&T DEVELOP CO., LTD  
**Address of Manufacturer:** 5F, A2 B, XinJianXing Tech Industrial Park, Fengxin Road, Lou Cun, Gongming Street, Guangming New Dist., Shenzhen, China  
**Factory:** SHENZHEN KINSTONE D&T DEVELOP CO., LTD  
**Address of Factory:** 5F, A2 B, XinJianXing Tech Industrial Park, Fengxin Road, Lou Cun, Gongming Street, Guangming New Dist., Shenzhen, China

**Equipment Under Test (EUT):**

**Product Name:** TEMP CHECK IN  
**Model No.:** E-TEMP-C2  
**Trade mark:** ECHELON  
**FCC ID:** 2AWD4-TEMPC2  
**Standards:** 47 CFR PART 1, Subpart I, Section 1.1307  
 47 CFR PART 1, Subpart I, Section 1.1310  
 47 CRF PART 2, Subpart J, Section 2.1091  
 KDB 447498 D01 General RF Exposure Guidance v06

**Date of Receipt:** 2020-08-25  
**Date of Test:** 2020-08-25 to 2020-11-03  
**Date of Issue:** 2020-11-03

<b>Test Result :</b>	<b>PASS*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu  
 EMC Laboratory Manager



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## 2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-11-03		Original

<b>Authorized for issue by:</b>			
		<i>Damon Su</i>	
		<hr/>	
		<b>Damon Su/Project Engineer</b>	
		<i>Eric Fu</i>	
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		<b>Eric Fu/Reviewer</b>	





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## 4 General Information

### 4.1 General Description of EUT

Rated voltage:	DC 12V
Test voltage:	DC 12V
Power adapter:	Model No.: JHD-AP036U-120300AA-A Input: AC 100-240V 50/60Hz 1.2A Output: DC 12V 3000mA
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11
Channel Spacing:	5MHz
Antenna Gain:	-1.7dBi
Antenna Type:	PIFA Antenna



## 4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China

518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

## 4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

## 4.4 Deviation from Standards

None.

## 4.5 Abnormalities from Standard Conditions

None.

## 4.6 Other Information Requested by the Customer

None.



## 5 RF Exposure Evaluation

### 5.1 RF Exposure Compliance Requirement

#### 5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

**TABLE 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> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30–300 .....	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/150	30
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

#### 5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



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### 4.1.3 EUT RF Exposure Evaluation

Antenna Gain: -1.7dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 0.68 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	Result
Lowest	2437	23.22	209.89	0.028	1.0	PASS

Note: Refer to report No. SZEM200800837802 for EUT test Max Conducted Peak Output Power value.

The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

- End of the Report -



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