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RF Exposure Evaluation Report

SZEM1404001700RF **Application No:**

Applicant: CANARY CONNECT INC. CANARY CONNECT INC. Manufacturer:

Factory: SKY LIGHT Electronic (ShenZhen) Limited

Product Name: Canary

CAN100, CAN100XXYY 'XX' means Region (X= alphabet A-Z), 'YY' means Color (Y= alphabet A-Z) Model No.(EUT):

Trade Mark: Canary

FCC ID: 2ACDL-C100

Standards: 47 CFR Part 1.1307(2013)

47 CFR Part 1.1310(2013)

Date of Receipt: 2014-04-22

Date of Test: 2014-05-04 to 2014-08-04

Date of Issue: 2014-08-18

Test Result: PASS*

Authorized Signature:



Jack Zhang **EMC Laboratory Manager**

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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In the configuration tested, the EUT complied with the standards specified above.



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2 Version

Revision Record							
Version Chapter Date Modifier Remark							
00		2014-08-18		Original			

Authorized for issue by:		
Tested By	Owen Zhon	2014-08-04
	(Owen Zhou) /Project Engineer	Date
Prepared By	Mohrda Ii	2014-08-18
	(Molinda Li) /Clerk	Date
Checked By	Emen-Li	2014-08-19
	(Emen Li) /Reviewer	Date

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4 General Information

4.1 Client Information

Applicant:	CANARY CONNECT INC.		
Address of Applicant:	96 Spring Street 7th Floor, New York, NY 10012, USA		
Manufacturer:	CANARY CONNECT INC.		
Address of Manufacturer:	96 Spring Street 7th Floor, New York, NY 10012, USA		
Factory:	SKY LIGHT Electronic (ShenZhen) Limited		
Address of Factory:	No. 5&6 Building, JinBi Industrial Area, HuangTian, BaoAn, Shenzhen, China.		

4.2 General Description of EUT

Product Name:	Canary	
Model No.:	CAN100, CAN100XXYY, 'XX' means Region (X= alphabet A-Z), 'YY' means Color (Y= alphabet A-Z)	
Trade Mark:	Canary	
For WIFI mode:		
Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz	
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels	
Channel Separation:	5MHz	
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK)	
	IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK)	
	IEEE for 802.11n(HT20): OFDM (64QAM, 16QAM,QPSK,BPSK)	
Sample Type:	Fixed production	
Antenna Type:	Integral	
Antenna Gain:	3.5dBi	
Power Supply:	Supply by adapter through USB port	
For BLE mode:		
Operation Frequency:	2402MHz~2480MHz	
Bluetooth Version:	4.0	
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)	
Modulation Type:	GFSK	
Number of Channel:	40	
Test Software of EUT:	manufacturer declare	
Sample Type:	manufacturer declare	
Antenna Type	Integral	
Antenna Gain	0dBi	

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Power Supply:	Supply by adapter through USB port		
Test Voltage:	AC 120V 60Hz		
AC Adapter:			
MODEL:	PA03-050200U-U		
INPUT:	100-240V~50/60Hz 0.3A		
OUTPUT:	5V==2A		
USB cable:	200cm (Unshielded)		
Audio cable:	105cm (Unshielded)		
Remark:	Only the model CAN100USBK was tested, since the electrical circuit design, PCB layout, components used and internal wiring were identical for the above models, only different on model name and color		



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4.3 Test Location

All tests were performed at:

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

4.4 Test Facility

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

• CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

VCCI

The 3m Semi-anechoic chamber, Full-anechoic Chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197, G-416, T-1153 and C-2383 respectively.

FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

Industry Canada (IC)

Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.



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4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None

4.7 Other Information Requested by the Customer

None.



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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)	strength strength		Averaging time (minutes)				
(A) Limits for Occupational/Controlled Exposures								
0.3–3.0 3.0–30 30–300 300–1500 1500–100,000	614 1842/f 61.4	1.63 4.89/f 0.163	*(100) *(900/f²) 1.0 f/300 5	6 6 6 6				
(B) Limits for General Population/Uncontrolled Exposure								
0.3–1.34 1.34–30 30–300 300–1500 1500–100,000	614 824/f 27.5	1.63 2.19/f 0.073	*(100) *(180/f²) 0.2 f/1500 1.0	30 30 30 30 30				

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4* Pi * R 2)

Where

Pd = power density in mW/cm2

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

Pd id the limit of MPE, 1 mW/cm2. 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.

eive data at lowest, middle and SGS 深圳

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4.1.3 EUT RF Exposure Evaluation

For BLE mode

Antenna Gain: 0dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.0 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency	Max Conducted	Output Power	Power Density	Limit	Result
	(MHz)	Peak Output	to Antenna	at R = 20 cm		
		Power (dBm)	(mW)	(mW/cm ²)		
Highest	2480	1.56	1.432	0.000285	1.0	PASS

Note: Refer to report No. SZEM140400170001 for EUT test Max Conducted Peak Output Power value.

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

For WIFI mode

Antenna Gain: 3.5dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.995 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency	Max Conducted	Output Power	Power Density	Limit	Result
	(MHz)	Peak Output	to Antenna	at R = 20 cm		
		Power (dBm)	(mW)	(mW/cm ²)		
Middle	2437	16.43	98.40	0.04383	1.0	PASS

Note: Refer to report No. SZEM140400170002 for EUT test Max Conducted Peak Output Power value. The distancer (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.