



## RF Exposure Evaluation Report

**Application No.:** SZEM2102001945CR  
**Applicant:** Dongguan Sunhans Technology Company Limited  
**Address of Applicant:** Room 1103, Building 8, Gemdale Wisdom Park, No. 95 Jiaoping Road, 523722 Tangxia, Dongguan, 523722 China  
**Manufacturer:** Dongguan Sunhans Technology Company Limited  
**Address of Manufacturer:** Room 1103, Building 8, Gemdale Wisdom Park, Tangxia Town, Dongguan City, Guangdong Province  
**Factory:** Dongguan Sunhans Technology Company Limited  
**Address of Factory:** Room 1103, Building 8, Gemdale Wisdom Park, Tangxia Town, Dongguan City, Guangdong Province  
**Equipment Under Test (EUT):**  
**Product Name:** Wireless Bridge System  
**Model No.:** SHPRO24G10WANT  
**Trade Mark:** Sunhans  
**FCC ID:** 2AYN6S0002Z  
**Standards:** 47 CFR Part 1.1307  
47 CFR Part 1.1310  
47 CFR Part 2.1091  
**Date of Receipt:** 2021-02-24  
**Date of Test:** 2021-02-24 to 2021-03-31  
**Date of Issue:** 2021-06-23

<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

Keny Xu  
EMC Laboratory Manager



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


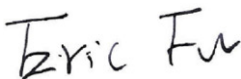
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## 2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-06-23		Original

Authorized for issue by:				
				
		Damon Su/Project Engineer		
				
		Eric Fu/Reviewer		





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## 4 General Information

### 4.1 General Description of EUT

Power supply:	DC 12V-18V by DC adapter or DC 12V-18V by POE adapter. POE Aadpter Model: DSX-150100 Input: AC 100-240V 50/60Hz 0.4A Output: DC 15V 1A.
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11 802.11n(HT40):7
Channel Spacing:	5MHz
Antenna Type:	Panel antenna
Antenna Gain:	24.4dBi



## 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.



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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)	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/1500	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.





#### 4.1.3 EUT RF Exposure Evaluation

Antenna Gain: 24.4dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 275.42 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
High	2462	8.14	6.52	0.357	1.0	PASS

Note: Refer to report No. SZEM210200194502 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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