

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

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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		
Test Result :	PASS*		

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

Keny. Ku

Keny Xu EMC Laboratory Manager



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2 Version

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

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



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General Information 4

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



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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) (A/m)		Power density (mW/cm ²)	Averaging time (minutes)					
(A) Lim	(A) Limits for Occupational/Controlled Exposures								
0.3–3.0 3.0–30	614 1842/f	1.63 4.89/f	*(100) *(900/f²)	6 6					
30–300 300–1500	61.4	0.163	1.0 f/300	6 6					
1500–100,000			5	6					
(B) Limits for General Population/Uncontrolled Exposure									

0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500 1500–100,000			f/1500 1.0	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.



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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	Max Conducted	Output Power	Power Density	Limit	Result
	(MHz)	Peak Output	to Antenna	at R = 20 cm		
		Power (dBm)	(mW)	(mW/cm²)		
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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