

1 Cover Page

RF Exposure Evaluation Report

Application No.: SHCR2112000904MI
FCC ID: 2A3VDCTB-485WL
Applicant: Hangzhou Huasu Technology Co Ltd
Address of Applicant: Building 3, 1418-50 Moganshan Road, Hangzhou, Zhejiang, China
Manufacturer: Hangzhou Huasu Technology Co Ltd
Address of Manufacturer: Building 3, 1418-50 Moganshan Road, Hangzhou, Zhejiang, China
Factory: Hangzhou Huasu Technology Co Ltd
Address of Factory: Building 3, 1418-50 Moganshan Road, Hangzhou, Zhejiang, China
Equipment Under Test (EUT):
EUT Name: Wireless Converter
Model No.: CTB-485WL
Standard(s) : FCC Rules 47 CFR §2.1093
 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2021-12-02
Date of Test: 2021-12-04 to 2021-12-24
Date of Issue: 2021-12-27

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan

Parlam Zhan
Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Original	2021-12-27	/

Authorized for issue by:			
			
		Bill Wu / Project Engineer	
			
		Parlam Zhan / Reviewer	



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SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Testing Center EMC Laboratory

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3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 12V
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3.2 General Description of E.U.T.

Antenna Gain:	5dBi (Provided by manufacturer)
Antenna Type:	PCB Antenna
Channel Spacing:	5MHz
Modulation Type:	O-QPSK
Number of Channels:	16
Operation Frequency:	2405MHz to 2480MHz



3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

3.4 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 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.

- **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

- **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory Company Number: 8617A

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.



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4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max power of channel})/(\text{min test separation distance})] \cdot [\sqrt{f}(\text{GHz})] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion. For 2.4G band device, the limit of worse case is

$$P_{\text{max}} \leq 3.0 \cdot D_{\text{min}} / \sqrt{f} = 3.0 \cdot 5 / \sqrt{2.480} = 9.525 \text{ mW}$$



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5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHCR211200090401

Test Mode	Test Channel	Power [dBm]	EIRP [dBm]	EIRP [mW]
ZIGBEE	2405	0.30	5.30	3.39
ZIGBEE	2440	0.25	5.25	3.35
ZIGBEE	2480	0.90	5.90	3.89

5.2 MPE Calculation

The Max Peak Output Power is 3.89mW.

According to the formula, calculate the Peak Output Power test result:

The Max Peak Output Power = 3.89mW < 9.525mW

So the SAR report is not required.

--End of the Report--



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