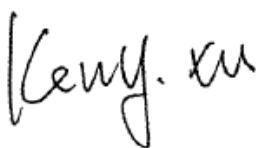


**RF EXPOSURE EVALUATION REPORT**

**Application No.:** SZCR2303000891AT  
**Applicant:** SHENZHEN SATLEAD TECHNOLOGY CO., LTD.  
**Address of Applicant:** TCL Science Park, NO.1001 Zhongshanyuan Road Shenzhen China  
**Manufacturer:** SHENZHEN SATLEAD TECHNOLOGY CO., LTD.  
**Address of Manufacturer:** TCL Science Park, NO.1001 Zhongshanyuan Road Shenzhen China  
**Equipment Under Test (EUT):**  
**EUT Name:** Wireless date transceiver  
**Model No.:** HX-DU1022D  
**FCC ID:** 2BA39HX-DU1022D  
**Standard(s) :** 47 CFR PART 1, Subpart I, Section 1.1307  
47 CFR PART 2, Subpart J, Section 2.1091  
**Date of Receipt:** 2023-03-30  
**Date of Evaluation:** 2023-05-01 to 2023-06-01  
**Date of Issue:** 2023-06-02

<b>Evaluation Result:</b>	<b>Pass*</b>
---------------------------	--------------

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



Keny Xu  
EMC Laboratory Manager



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

SZEMC-TRF-01 Rev. A/0 Aug01,2022

Report No.: SZCR230300089102

Page: 2 of 9

<b>Revision Record</b>				
<b>Version</b>	<b>Chapter</b>	<b>Date</b>	<b>Modifier</b>	<b>Remark</b>
01		2023-05-18		Original

<b>Authorized for issue by:</b>			
		 _____ <b>Darren Yuan</b>	
		<b>Darren Yuan/Project Engineer</b>	
		 _____ <b>Eric Fu</b>	
		<b>Eric Fu/Reviewer</b>	

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## 2 Evaluation Summary

**Note:**

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	DC 3.3V
Internal source:	More than 108MHz
Frequency Range:	421MHz to 470MHz
Modulation Type:	GMSK, 4FSK
Channel Separation:	12.5KHz
Number of Channels:	The equipment is able to operate on any designated channel within the specified frequency range.
Antenna Type:	IPEX Antenna Connector
Antenna Gain:	4dBi

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## 4.2 Evaluating 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, Nanshan District, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 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 (Member No. 1937)**

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. Shenzhen EMC laboratory 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: CN1336**

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

Designation Number: CN1336. Test Firm Registration Number: 787754.

- **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

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## 5 Technical Requirements Specification

### 5.1 RF Exposure Evaluation

#### 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:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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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**5.1.3 EUT RF Exposure Evaluation**

Antenna Gain: 4dBi

Output Power Into Antenna &amp; RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 30 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
Lowest	421.025	31.00	959.84	0.279	0.281	PASS
Middle	429.975	31.00	1006.24	0.279	0.286	PASS
Middle	450.025	31.00	1068.81	0.279	0.300	PASS
Highest	469.025	31.00	1088.43	0.279	0.312	PASS

Note: Refer to the tune-up procedure for EUT test Max Conducted Peak Output Power value.

The distance r (4th column) calculated from the Fries transmission formula is far greater than 30 cm separation requirement.

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## 6 EUT Constructional Details (EUT Photos)

Refer to appendix - external and internal photos for SZCR2303000891AT

- End of the Report -



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