

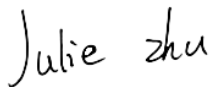
TEST REPORT

Applicant: Shenzhen SEI Robotics Co., Ltd
Address: 4th Floor Building-D, #5 Hi-Tech Middle 2nd Road, Shenzhen Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R. China
Equipment Type: Streaming Dongle
Model Name: HTS-G01 (refer section 2.4)
Brand Name: Homatics
FCC ID: 2AOVU-SN8BKCA
Test Standard: 47 CFR Part 2.1091
KDB 447498 D04 v01
Test Date: Aug. 08, 2022 - Sep. 20, 2022
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ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Julie Zhu



Checked by: Xu Rui



Approved by: Wei Yanquan
(Chief Engineer)



Revision History		
Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Sep. 28, 2022</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Oct. 09, 2022</u>	<u>Updated FCC ID</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	<input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	<input type="checkbox"/> 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Shenzhen SEI Robotics Co., Ltd
Address	4th Floor Building-D, #5 Hi-Tech Middle 2nd Road, Shenzhen Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R. China

2.2 Manufacturer Information

Manufacturer	Shenzhen SEI Robotics Co., Ltd
Address	4th Floor Building-D, #5 Hi-Tech Middle 2nd Road, Shenzhen Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R. China

2.3 Factory Information

Factory	Shenzhen SEI Robotics Co., Ltd
Address	4th Floor Building-D, #5 Hi-Tech Middle 2nd Road, Shenzhen Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R. China

2.4 General Description for Equipment under Test (EUT)

EUT Name	Streaming Dongle
Model Name Under Test	HTS-G01
Series Model Name	SN8BKCX(X->A~Z); SEI700DHMG, SEI700DHG, SEI700SKY, Dongle G 4K, Sky Pod, HTS-G01x(x=A-Z, 0-9)
Description of Model name differentiation	The model names are different due to different market and customer needs, and the rest are exactly the same(this information provided by the customer).
Hardware Version	SMB.306.03
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Not applicable.

2.6 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE) WIFI 802.11a, 802.11b, 802.11g, 802.11n and 802.11ac U-NII-1/4
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	Bluetooth, WLAN	
Frequency Range	Bluetooth	2400 ~ 2483.5 MHz
	WLAN 2.4G	2412 ~ 2462 MHz
	WLAN 5G	5150 ~ 5850 MHz
Antenna Type	Bluetooth	Internal Antenna
	WLAN	Internal Antenna
Exposure Category	General Population/Uncontrolled Exposure	
EUT Stage	Mobile Device	

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices
2	KDB 447498 D04	447498 D04 Interim General RF Exposure Guidance v01

4 DEVICE CATEGORY AND LEVELS LIMITS

Mobile Device:

CFR Title 47 §2.1091(b)

(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

FCC KDB 447498 D04 General RF Exposure Guidance v01 Limit

Evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i. e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad \text{(B. 2)}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20\text{cm}}$ is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

5 ASSESSMENT RESULT

5.1 Output Power

Mode	Bluetooth	WLAN 2.4G	WLAN 2.4G	WLAN 5G	WLAN 5G
		Main Antenna	Aux. Antenna	Main Antenna	Aux. Antenna
Conducted Power (dBm)	8.01	20.09	19.99	13.99	13.95
Antenna Gain (dBi)	2.29	2.65	2.29	4.10	4.19
EIRP (dBm)	10.30	22.74	22.28	18.09	18.14

Note: This report listed the worst case power value, please refer to BL-SZ2280207-601, BL-SZ2280207-602, BL-SZ2280207-603, BL-SZ2280207-604 report for more details.

5.2 Turn-up power

Mode		Conducted Power Range (dBm)	EIRP Range (dBm)	ERP Range (dBm)
Bluetooth		7.00-9.00	9.29-11.29	7.14-9.14
WLAN 2.4G	Main Antenna	19.00-21.00	21.65-23.65	19.50-21.50
WLAN 2.4G	Aux. Antenna	19.00-21.00	21.29-23.29	19.14-21.14
WLAN 5G	Main Antenna	12.00-14.00	16.10-18.10	13.95-15.95
WLAN 5G	Aux. Antenna	12.00-14.00	16.19-18.19	14.04-16.04

Note1: ERP= EIRP -2.15dB.

Note2: According KDB 447498 D04, used the greater of maximum conducted power and ERP to compare with the threshold value Pth.

5.3 RF Exposure Evaluation Result

Evolution mode		Distance (mm)	Maximum power (dBm)	Maximum power (mW)	Threshold Power (mW)	Power / Limit	Verdict
Bluetooth		200	9.14	8.20	3060.00	0.0027	Pass
WLAN 2.4G	Main Antenna	200	21.50	141.25	3060.00	0.0462	Pass
WLAN 2.4G	Aux. Antenna	200	21.14	130.02	3060.00	0.0425	Pass
WLAN 5G	Main Antenna	200	15.95	39.36	3060.00	0.0129	Pass
WLAN 5G	Aux. Antenna	200	16.04	40.18	3060.00	0.0131	Pass

5.4 Collocated Power Calculation

Evolution mode		Frequency (MHz)	Power /Limit	$\Sigma(\text{Power} / \text{Limit})$ of Bluetooth + WLAN 2.4G	Verdict
Bluetooth		2400 ~ 2483.5 MHz	0.0027	0.0914	Pass
WLAN 2.4G	Main Antenna	2412 ~ 2462 MHz	0.0462		
WLAN 2.4G	Aux. Antenna	2412 ~ 2462 MHz	0.0425		
Evolution mode		Frequency (MHz)	Power /Limit	$\Sigma(\text{Power} / \text{Limit})$ of Bluetooth + WLAN 5G	Verdict
Bluetooth		2400 ~ 2483.5 MHz	0.0027	0.0287	Pass
WLAN 5G	Main Antenna	5150 ~ 5850 MHz	0.0129		
WLAN 5G	Aux. Antenna	5150 ~ 5850 MHz	0.0131		

Note:

1. $\Sigma(\text{Power} / \text{Limit})$: This is a summation of [(power for each transmitter/ antenna included in the simultaneous transmission)/ (corresponding Power limit)], for Bluetooth + WLAN.
2. The worst-case situation is 0.0914, which is less than "1". This confirmed that the device comply with FCC KDB 447498 D04 Power limit.
3. The DUT work frequency range used is 2400 MHz ~ 2483.5 MHz, 2412 ~ 2462 MHz and 5150 ~ 5850 MHz the result close to the limit by the above formula, so we select worst case power to calculate the exclusion power threshold.
4. More power list please refer to BL-SZ2280207-601, BL-SZ2280207-602, BL-SZ2280207-603, BL-SZ2280207-604 test report.

5.5 Conclusion

This EUT is deemed to comply with the reference level limits, therefore the basic restrictions are compliant with human exposure limits.

Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
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7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT--