MPE REPORT

Report No.:	SRTC2024-9004(F)-24072202(I)
Product Name:	Bluetooth Module
Model Name:	HBK1-40
Applicant:	ZHEJIANG HAERS VACUUM CONTAINERS CO., LTD.
Manufacturer:	ZHEJIANG HAERS VACUUM CONTAINERS CO., LTD.
FCC ID:	2BHDPHBK1-40

Reference Specification
FCC Part §1.1310

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30, Shixing Street, Shijingshan District, Beijing, P.R.China

Tel: 86-10-57996183 Fax: 86-10-57996388

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1 GENERAL INFORMATION

1.1 Notes of the test report

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1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Test Site 1:	15th Building, No.30 Shixing Street, Shijingshan District
Test Site 2:	No.80, Zhaojiachang, Beizang, Daxing District
City:	Beijing
Country or Region:	P.R.China
Contacted person:	Liu Jia
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Designation Number:	CN1267
Registration number:	239125

1.3 Applicant’s details

Company:	ZHEJIANG HAERS VACUUM CONTAINERS CO., LTD.
Address:	No.1 Haers Road, Economic Development Zone, Yongkang, Zhejiang, China 321000
City:	Yongkang
Country or Region:	P.R.China
Contacted person:	Wu Xiaogang
Tel:	+86 15572233613
Email:	wuxiaogang@haers.com

1.4 Manufacturer’s details

Company:	ZHEJIANG HAERS VACUUM CONTAINERS CO., LTD.
Address:	No.1 Haers Road, Economic Development Zone, Yongkang, Zhejiang, China 321000
City:	Yongkang
Country or Region:	P.R.China
Contacted person:	Wu Xiaogang
Tel:	+86 15572233613
Email:	wuxiaogang@haers.com

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2024-07-22
Testing Start Date:	2024-07-23
Testing End Date:	2024-07-26

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	20	40
Maximum Extreme	125	--
Minimum Extreme	-40	--

Normal Supply Voltage (V d.c.):	3.3
Maximum Extreme Supply Voltage (V d.c.):	3.6
Minimum Extreme Supply Voltage (V d.c.):	2.0

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Frequency Range:	2.402GHz~2.480GHz
Number of Channel:	40
Modulation Type:	GFSK
Equipment Class:	DTS
Channel Spacing:	2MHz
Data Rate:	LE 1Mbps/2Mbps
Power Supply:	DC supply
Software Revision:	V1.0.8
Hardware Revision:	HB1-32_V1.0
IMEI:	No.1
Antenna gain	1.87dBi
Antenna type:	PCB Antenna
Antenna connector:	N/A

3 REFERENCE SPECIFICATION

Specification	Version	Title
Part 1.1310	Latest	Radio frequency radiation exposure limits.

4 RESULT SUMMARY

Case	Verdict
MPE	Pass

Note 1: According to the test specification limit (The test results fully compliance with the test standard limit requirements)
Note 2: According to test specification limits plus uncertainties (The test results exceed the standard limit requirements and meet the standard limit requirements after adding the system uncertainty)

This Test Report Is Issued by: Mr. Peng Zhen	Checked by: Mr. Li Bin
Tested by: Mr. Huang Yubin	Issued date: 20240805

5 CALCULATION RESULT

5.1 Maximum permissible exposure (MPE)

Limit:

(A) Limits for Occupational/Controlled Exposure ☐

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time |E|2, |H|2 or S (minutes)
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f^2	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure ☑

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time |E|2, |H|2 or S (minutes)
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	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

Result:

According to §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

The $S = PG / (4\pi R^2)$

Where S = power density in mW/cm^2

P = transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

Standalone Transmission Result

Band	Freq. (MHz)	Maximum Power (dBm)	Directional Gain (dBi)	Maximum EIRP (dBm)	Maximum EIRP(mW)	Power Density (mW/cm^2)	Power Density/ Limit
BLE	2402	8.05	1.87	9.92	9.82	0.001	0.001

---End of Test Report---