



Radio Frequency Exposure

Applicant : SteelSeries ApS.

Address : 656 W Randolph St., Suite 3E Chicago,
IL 60661, USA

Equipment : Wireless Headset

Model No. : HS31

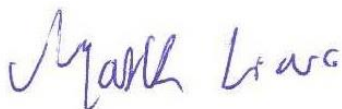
Trade Name : 

FCC ID : ZHK-HS31

I HEREBY CERTIFY THAT :

The sample was received on Feb. 10, 2025 and the testing was completed on Apr. 21, 2025 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:



Mark Liao / Supervisor

Laboratory Accreditation:

Cerpass Technology Corporation Test Laboratory





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History of this test report

Report No.	Issued Date	Description
25020008-TRFCC05	Apr. 21, 2025	Original



1. Summary of Test Procedure and Test Results

1.1. Applicable Standards

FCC Rules and Regulations Part 2.1091

FCC Rule	Description of Test	Result
2.1091	Radio Frequency Exposure	PASS

*The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement, measurement uncertainty evaluation is not considered.

*Modify headset structure, the differences is list below:

1.Update charger IC.

2.Add new battery.

*After engineering evaluation, the test results can refer to original report number:

21090127-TRFCC01&21090127-TRFCC02&21090127-TRFCC05



2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

Operation Frequency Range	BT / BLE: 2400-2483.5MHz
Center Frequency Range	BT / BLE: 2402MHz-2480MHz
Modulation Type	BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE / 2.4G: GFSK
Modulation Technology	FHSS, DTS
Data Rate	BT: GFSK: 1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK: 3Mbps BLE / 2.4G: GFSK: 1Mbps, 2Mbps
Antenna Type	monopole Antenna
Antenna Gain	For BT / BLE: 2402-2480MHz: 0.9dBi For 2.4G: 2402-2480MHz: 1.1dBi
Charging cable	Brand: steelseries Model: usb_cable01
Audio cable	Brand: steelseries Model: audio_01
Battery	Brand: HUIZHOU EVERPOWER TECHNOLOGY CO.,LTD Model: PL603033
	New addition: Brand: Chongqing VDL Electronics Co.,Ltd. Model: 653033PN3

Note: For more details, please refer to the User's manual of the EUT.

Charger IC (Original)	With Battery Brand: HUIZHOU EVERPOWER TECHNOLOGY CO.,LTD Model: PL603033
Charger IC (New)	With Battery Brand: Chongqing VDL Electronics Co.,Ltd. Model: 653033PN3



2.2. General Information of Test

Organization	Cerpass Technology Corp.		
<input checked="" type="checkbox"/> Test Site	Cerpass Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel: +886-3-3226-888 Fax: +886-3-3226-881		
	FCC	TW1439, TW1079	
	IC	4934E-1, 4934E-2	
Frequency Range Investigated	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 40,000MHz		
Test Distance	The test distance of radiated emission from antenna to EUT is 3 M.		

For 2.4G

Test Item	Test Site	Test period	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2021/12/22~2022/01/06	23~26°C / 50~53%	Dian Chen

For BLE

Test Item	Test Site	Test period	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2021/12/25~2021/12/29	23~25°C / 50~51%	Dian Chen

For BT

Test Item	Test Site	Test period	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2021/12/30	25°C / 49%	Dian Chen



2.3. Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Measurement Item	Uncertainty
Conducted Spurious Emission	$\pm 1.8\text{dB}$
6dB Bandwidth	$\pm 4.4\%$
20dB Bandwidth	$\pm 4.4\%$
Occupied Bandwidth	$\pm 4.4\%$
Peak Output Power(Conducted Power Meter)	$\pm 1.1\text{dB}$
Dwell Time / Deactivation Time	$\pm 1.2\%$
Power Spectral Density	$\pm 1.8\text{dB}$
Duty Cycle	$\pm 1.2\%$



3. Test Equipment and Ancillaries Used for Tests

Test Item	RF Conducted				
Test Site	RFCON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2021/04/19	2022/04/18
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200207	2021/04/21	2022/04/20
Attenuator	KEYSIGHT	8491B	MY39250703	2021/04/09	2022/04/08
TEMP & HUMI CHAMBER	T-MACHINE	TMJ-9712	T-12-040111	2021/08/27	2022/08/26
Cable-0.5m(1G-26.5G)	HUBER SUHNER	SUCOFLEX 102	28422/2	2021/04/08	2022/04/07
Power Meter	Anritsu	ML2495A	1224005	2021/04/14	2022/04/13
Power Sensor	Anritsu	MA2411B	1207295	2021/04/14	2022/04/13
Switch Box	Theda	1-4	TW5451159	NA	NA
MXG-B RF Vector Signal Generator	KEYSIGHT	N5182B	MY53051383	2021/06/30	2022/06/29



4. Radio Frequency Exposure

4.1. Applicable Standards

The measurements shown in this test report were made in accordance with the procedures given in FCC Part 2 (Section 2.1093)

LIMIT

KDB 447498 D01 § 4.3(a)

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

*f(GHz) is the RF channel transmit frequency in GHz

* Power and distance are rounded to the nearest mW and mm before calculation

*The result is rounded to one decimal place for comparison

*The values 3.0 and 7.5 are referred to as numeric thresholds in step b) below

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

4.2. EUT Specification

Frequency band (Operating)	<input checked="" type="checkbox"/> 2.4G: 2402MHz ~ 2480MHz <input checked="" type="checkbox"/> Bluetooth: 2402MHz ~ 2480MHz
Device category	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation)
Antenna diversity	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Evaluation applied	<input type="checkbox"/> Blanket 1 mW Blanket Exemption <input type="checkbox"/> MPE-based Exemption <input checked="" type="checkbox"/> SAR-based Exemption
Remark: 1. For 2.4G: The maximum conducted output power is <u>3.89 dBm (2.449 mW)</u> at <u>2402MHz</u> (with <u>1.1dBi antenna gain.</u>) 2. For BLE: The maximum conducted output power is <u>3.17 dBm (2.075 mW)</u> at <u>2440MHz</u> (with <u>0.9dBi antenna gain.</u>) 3. For BT: The maximum conducted output power is <u>4.47 dBm (2.799mW)</u> at <u>2441MHz</u> (with <u>0.9dBi antenna gain.</u>)	



4.3. Test Result

According to the KDB447498:

The SAR test exclusion thresholds Level:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * \text{sqrt}(\text{freq. in GHz}) < 3$$

Calculation

For 2.4G

Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Max. Tune up power (mW)	Distance (mm)	SAR test exclusion thresholds (mW)
2402-2480	3.89	4.39	2.75	5	10.00

For BLE

Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Max. Tune up power (mW)	Distance (mm)	SAR test exclusion thresholds (mW)
2402-2480	3.17	3.67	2.33	5	10.00

For BT

Modulation Mode	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Max. Tune up power (mW)	Distance (mm)	SAR test exclusion thresholds (mW)
GFSK	2402-2480	4.40	4.90	3.09	5	10.0000
$\pi/4$ -DQPSK	2402-2480	4.43	4.93	3.11	5	10.0000
8DPSK	2402-2480	4.47	4.97	3.14	5	10.0000

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing

-----THE END OF REPORT-----