



MPE Test Report

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FCC ID: 2AYF8-YBES53

Product: Instrument

Model: HY_LEB_IG

Received Date: Feb.08, 2025

Test Date: Feb.08 to Apr.10, 2025

Issued Date: Apr.21, 2025

Applicant: ZHEJIANG OKAI VEHICLE CO., LTD.

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Manufacturer: ZHEJIANG OKAI VEHICLE CO., LTD.

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Issued By: BUREAU VERITAS ADT (Shanghai) Corporation

Lab Address: No. 829, Xinzhuang Road, Shanghai, P.R.China (201612)

FCC Registration /

Designation Number: 176467/ CN1213



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Release Control Record

Issue No.	Description	Date Issued
OKA-ESH-P25011102B-4	Original release	Apr.21, 2025



1 Certificate of Conformity

Product: Instrument

Brand: OKAI

Model: HY_LEB_IG

Applicant: ZHEJIANG OKAI VEHICLE CO., LTD.

Test Date: Feb.08 to Apr.10, 2025

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **BUREAU VERITAS ADT (Shanghai) Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :

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, Date: Apr.21, 2025

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Approved by :



, Date: Apr.21, 2025



2 General Information

2.1 General Description of EUT

BLE

Product	Instrument
Brand	
Model	HY_LEB_IG
Difference	--
Power Rating	36Vdc ~ 48Vdc
Modulation Type	GFSK
Modulation Technology	Bluetooth Low Energy 5.0
Operating Frequency	2402MHz ~ 2480MHz
Number of Channel	40
Output Power	-5.88 dBm
Antenna Type	PCB Antenna
Antenna Connector	--
Antenna Gain	2.49dBi

Note:

1. For more details, please refer to the User's manual of the EUT.
2. The cable loss of the cable from EUT will be compensated in the test data.



NFC

Product	Instrument
Brand	OKAI
Model	HY_LEB_IG
Power Rating	36Vdc ~ 48Vdc
Modulation Type	ASK
Modulation Technology	NFC
Operating Frequency	13.56MHz
Number of Channel	1
Antenna Type	PCB Antenna
Antenna Connector	--

Note:

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

3 RF Exposure

The corresponding SAR Exclusion Threshold condition, listed below:

1) 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:

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

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

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 is applied to determine SAR test exclusion.

2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:

- a) $[\text{Threshold at } 50 \text{ mm in step1} + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)] \text{ mW, at 100MHz to 1500 MHz}$
- b) $[\text{Threshold at } 50 \text{ mm in step1} + (\text{test separation distance} - 50 \text{ mm}) \cdot 10] \text{ mW at } > 1500 \text{ MHz and } \leq 6 \text{ GHz}$
- 3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion.
 - a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by $[1 + \log(100/f(\text{MHz}))]$ for test separation distances > 50 mm and < 200 mm.
 - b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$ for test separation distances ≤ 50 mm.
 - c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

Appendix C

SAR Test Exclusion Thresholds for < 100 MHz and < 200 mm

Approximate SAR test exclusion power thresholds at selected frequencies and test separation distances are illustrated in the following table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	< 50	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	mm
100	237	474	481	487	494	501	507	514	521	527	534	541	547	554	561	567	mW
50	308	617	625	634	643	651	660	669	677	686	695	703	712	721	729	738	
10	474	948	961	975	988	1001	1015	1028	1041	1055	1068	1081	1095	1108	1121	1135	
1	711	1422	1442	1462	1482	1502	1522	1542	1562	1582	1602	1622	1642	1662	1682	1702	
0.1	948	1896	1923	1949	1976	2003	2029	2056	2083	2109	2136	2163	2189	2216	2243	2269	
0.05	1019	2039	2067	2096	2125	2153	2182	2211	2239	2268	2297	2325	2354	2383	2411	2440	
0.01	1185	2370	2403	2437	2470	2503	2537	2570	2603	2637	2670	2703	2737	2770	2803	2837	

3.1 Classification

The antenna of this product, under normal use condition, is at less than 20cm from the body of the user. So the device is classified as **Portable Device**.



3.2 SAR Test Exclusion Thresholds

For BLE

The tuned conducted Power (declared by client)

Mode	Frequency (MHz)	Target Power (dBm)	Tolerance (dBm)	Lower Tolerance (dBm)	Upper Tolerance (dBm)
BT-LE(GFSK)	2402-2480	-6	±1	-7	-5

The measured conducted Power

Mode	Frequency (MHz)	Max. Conducted Output power(dBm)
BT-LE(GFSK)	2440	-5.88

SAR Test Exclusion Thresholds

Frequency Band (MHz)	Max. source-based time averaged conducted output power(dBm)	Distance (mm)	Result of Eq. 1	Limit for 1-g SAR	Limit for 10-g Extremity SAR	Verdict
2402-2480	-5	5	0.0996	3	7.5	Exempt from SAR

For NFC

Frequency Band (MHz)	Max. Field Strength @3m (dBuV/m)	Max. ERP (dBm)	Max. ERP (mW)	Limit (mW)	Verdict
13.56-13.56	56.14	-50.78	0.0000084	308	Exempt from SAR

ERP= P+ (20*Log(D)) - 104.77 - 2.15 (dB)

P: Max. Field Strength (dBuV/m)

D: Measured Distance (m)

Conclusion:

Both of the wireless module can transmit simultaneously, the formula of calculated the exposure is:

(0.0996/3) + (0.0000084/308) = 0.0332, which is less than the “1” limit.

Therefore this device complies with FCC's RF radiation exposure limits for general population without SAR evaluation.

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