



RF Exposure Evaluation

For

NINGBO ZHAOLONG OPTOELECTRONIC TECHNOLOGY CO.,LTD

Remote

Test Model: ZL10078

Prepared for : NINGBO ZHAOLONG OPTOELECTRONIC TECHNOLOGY CO.,LTD
Address : NO.58 YONGNING ROAD, DONGJIAO INDUSTRIAL PARK, YUYAO,
ZHEJIANG PROVINCE,CHINA

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : June 12, 2025
Number of tested samples : 2
Sample No. : A250611047-1, A250611047-2
Serial number : Prototype
Date of Test : June 12, 2025 ~ June 20, 2025
Date of Report : June 23, 2025



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RF Exposure Evaluation	
Report Reference No.	LCSA06115056EB
Date of Issue.....	June 23, 2025
Testing Laboratory Name	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
Testing Location/ Procedure	Full application of Harmonised standards ☒ Partial application of Harmonised standards ☐ Other standard testing method ☐
Applicant's Name.....	NINGBO ZHAOLONG OPTOELECTRONIC TECHNOLOGY CO.,LTD
Address	NO.58 YONGNING ROAD, DONGJIAO INDUSTRIAL PARK, YUYAO, ZHEJIANG PROVINCE,CHINA
Test Specification	
Standard	FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06 FCC CFR 47 part1 1.1310 FCC CFR 47 part2 2.1093
Test Report Form No.	TRF-4-E-215 A/0
TRF Originator	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF.....	Dated 2011-03
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Test Item Description..... : Remote	
Trade Mark	N/A
Test Model.....	ZL10078
Ratings	Please Refer to Page 6
Result	PASS

Compiled by:

Jack Liu/Administrator

Supervised by:

Cary Luo/ Technique principal

Approved by:

Gavin Liang/ Manager



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RF Exposure Evaluation

Test Report No. : LCSA06115056EB	<u>June 23, 2025</u> Date of issue
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EUT.....	: Remote
Test Model.....	: ZL10078
Applicant.....	NINGBO ZHAOLONG OPTOELECTRONIC TECHNOLOGY CO.,LTD
Address.....	NO.58 YONGNING ROAD, DONGJIAO INDUSTRIAL PARK, YUYAO, ZHEJIANG PROVINCE,CHINA
Telephone.....	: 86-574-62652916
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Manufacturer.....	SUN-ALPS (CAMBODIA) CO., LTD.
Address.....	: 0,0,EUNG BUN PENG, Prakar, Prey Sa, Dangkao, Phnom Penh, Cambodia
Telephone.....	: 855-87790580
Fax.....	: /
Factory.....	SUN ALPS ELECTRIC(CAMBODIA)CO.,LTD
Address.....	: #Land No. 664, Trapeang Kieb Village, Trapeang Krasang Commune, Bati District, Takeo Province, Cambodia
Telephone.....	: 855-87790580
Fax.....	: /

Test Result	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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Revision History

Report Version	Issue Date	Revision Content	Revised By
000	June 23, 2025	Initial Issue	---



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TABLE OF CONTENTS

Description	Page
1. PRODUCT INFORMATION.....	6
2.EVALUATION METHOD AND LIMIT	7
3. REFER EVALUATION METHOD	8
4. CONDUCTED POWER	8
5. EVALUATION RESULTS.....	8
6. CONCLUSION.....	8
7. DESCRIPTION OF TEST FACILITY.....	8
8. STATEMENT OF THE MEASUREMENT UNCERTAINTY	9



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1. Product Information

Product name	Remote
Test Model	ZL10078
Ratings	Battery: DC 12V, 23A
Hardware Version	/
Software Version	/
Frequency Range	433.92MHz
Channel Number	1
Modulation Type	ASK
Antenna Description	PCB Antenna, 0dBi(Max)
Exposure category	General population/uncontrolled environment
EUT Type	Production Unit
Device Type	Portable Device

Note: For a more detailed antenna description, please refer to the antenna specifications or the antenna report provided by the customer.



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2. Evaluation method and Limit

According to KDB447498 D01 General RF Exposure Guidance v06 Section 4.3.1 Standalone SAR test exclusion considerations: "Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition, listed below, is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.²² The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander (see 5) of section 4.1). To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, typically in the SAR measurement or SAR analysis report, according to the required published RF exposure KDB procedures. When no other RF exposure testing or reporting is required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for the SAR test exclusion. When required, the device specific conditions described in the other published RF exposure KDB procedures must be satisfied before applying these SAR test exclusion provisions; for example, handheld PTT two-way radios, handsets, laptops & tablets etc."

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

- f (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
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 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 f) in section 4.1 is applied to determine SAR test exclusion.

When one of the following test exclusion conditions is satisfied for all combinations of simultaneous transmission configurations, further equipment approval is not required to incorporate transmitter modules in host devices that operate in the mixed mobile and portable host platform exposure conditions. The grantee is responsible for documenting this according to Class I permissive change requirements. Antennas that qualify for standalone SAR test exclusion must apply the estimated standalone SAR to determine simultaneous transmission test exclusion.

- a) The $[\sum \text{ of (the highest measured or estimated SAR for each standalone antenna configuration, adjusted for maximum tune-up tolerance) / 1.6 W/kg}] + [\sum \text{ of MPE ratios}] \leq 1.0$.
- b) The SAR to peak location separation ratios of all simultaneously transmitting antenna pairs operating in portable device exposure conditions are all ≤ 0.04 , and the $[\sum \text{ of MPE ratios}] \leq 1.0$.



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3. Refer Evaluation Method

[ANSI C95.1-1999](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.
[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.
[FCC CFR 47 part2 2.1093](#): Radiofrequency radiation exposure evaluation: portable devices

4. Conducted Power Test Procedure

TX frequency range: 433.92MHz

Device category: Portable device (Distance: 5mm)

Max. Field Strength: 60.57dBuV/m @3m

EIRP=E-104.8+20logD=60.57-104.8+20log3=-34.69Bm

Maximum Conducted Output Power: -34.0dBm

Tune up: -34±1dBm

5. Evaluation Results

Band/Mode	f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
			dBm	mW		
ASK	0.43392	5	-33	0.0005	0.0001<3.0	Yes

Remark:

1. Output power including tune up tolerance;
2. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to f) in section 4.1 is applied to determine SAR test exclusion.

6. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

7. Description of Test Facility

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024

CAB identifier is CN0071.

CNAS Registration Number is L4595.

Test Firm Registration Number: 254912.



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8. Statement of The Measurement Uncertainty

ISO Guide 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 and were calculated in accordance with NAMAS document NIS 81.

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	9KHz~30MHz	$\pm 3.10\text{dB}$	(1)
	:	30MHz~200MHz	$\pm 2.96\text{dB}$	(1)
	:	200MHz~1000MHz	$\pm 3.10\text{dB}$	(1)
	:	1GHz~26.5GH	$\pm 4.20\text{dB}$	(1)
Conduction Uncertainty	:	150kHz~30MHz	$\pm 1.63\text{dB}$	(1)
Power disturbance	:	30MHz~300MHz	$\pm 1.60\text{dB}$	(1)
Occupied Channel Bandwidth	:	0.01MHz~26.5GHz	5%	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

.....THE END OF REPORT.....



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