



RF MPE REPORT

Report No.: 20230517G05486X-W3

Product Name: InfiRay Laser Rangefinder

Model No.: ILR-1200-3

FCC ID: 2AYGT-41-ILR

Applicant: IRay Technology Co., Ltd.

Address: 11GUIYANG STREET, YANTAI ECONOMY AND TECHNOLOGY DEVELOPMENT DISTRICT, YANTAI SHANDONG P.R.CHINA.

Dates of Testing: 06/08/2023 - 06/16/2023

Issued by: CCIC Southern Testing Co., Ltd.

Lab Location: Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China.

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Test Report

Product.....: InfiRay Laser Rangefinder
Brand Name.....: InfiRay
Trade Name: InfiRay
Applicant.....: IRay Technology Co., Ltd.
Applicant Address.....: 11GUIYANG STREET, YANTAI ECONOMY AND TECHNOLOGY DEVELOPMENT DISTRICT, YANTAI SHANDONG P.R.CHINA.
Manufacturer.....: IRay Technology Co., Ltd.
Manufacturer Address.....: 11GUIYANG STREET, YANTAI ECONOMY AND TECHNOLOGY DEVELOPMENT DISTRICT, YANTAI SHANDONG P.R.CHINA.
Test Standards.....: 47 CFR Part 2.1093
Test Result.....: Pass

Tested by: Kim Li 2023.06.20
 Kim Li, Test Engineer

Reviewed by.....: Chris You 2023.06.20
 Chris You, Senior Engineer

Approved by.....: Yang Fan 2023.06.20
 Yang Fan, Manager



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Change History		
Issue	Date	Reason for change
1.0	2023.06.20	First edition



1. GENERAL INFORMATION

1.1. EUT Description

Product Name	InfiRay Laser Rangefinder
Model No.	ILR-1200-3
Hardware Version	1-1
Software Version	V1.0
EUT supports Radios application	2.4GHz 802.15.4 ZigBee
Frequency Range(Tx)	ZigBee: 2405MHz~2480MHz
Modulation Type	ZigBee: OQPSK
Antenna gain	ZigBee: 2.47dBi
Antenna Type	Internal Antenna



1.2. EUT Description

EUT has been tested according to the following standards.

No.	Identity	Document Title
1	47 CFR Part 1	Practice and Procedure
2	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
3	KDB 447498 D01 General RF Exposure Guidance v06	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices

1.3. Laboratory Facilities

FCC-Registration No.: 406086

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283, valid time is until Sep. 30, 2023.

ISED Registration: 11185A-1

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Sep. 30, 2023.

A2LA Code: 5721.01

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

1.4. Laboratory Location

Company Name:	CCIC Southern Testing Co., Ltd.
Address:	Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China

2. Technical Requirements Specification in CFR Title 47 Part 2.1093

2.1. Evaluation method

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(s), listed below, is (are) 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. The minimum test separation distance defined in 4.1 f) 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. To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified, typically in the SAR measurement or SAR analysis report, by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, according to the required published RF exposure KDB procedures. When no other RF exposure testing or reporting are required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for 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 and tablets, etc..

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:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})]$

- $[\sqrt{f_{(\text{GHz})}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 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 according to 4.1 f) is applied to determine SAR test exclusion.



2.2. Evaluation Results

Worst-Case mode Conducted Output Power Results for ZigBee

Band	Mode	Frequency (MHz)	Maximum Output power (dBm)	Max Tune up power (dBm)	Max Tune up power (mW)
ZigBee	OQPSK	2440	4.433	4 ± 1	3.16

Calculation results: Worst-Case mode

Band	Max Tune up power (dBm)	Distance (mm)	Result	SAR Test Exclusion Threshold	SAR Test Exclusion
ZigBee	5.0	5	0.99	0.99 < 3.0	Yes

2.3. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB447498 D01 General RF Exposure Guidance v06 section 4.3.1.

** END OF REPORT **