



Report No.: 25030316389RFC-2

FCC RF EXPOSURE EVALUATION REPORT

Product Name: LED Controller

Trade Mark: SPERLL Model No.: SP318E

SP311E,SP312E,SP313E,SP314E,SP31

Add. Model No.: 5E,SP316E,SP317E,SP318E,SP319E,S

P31AE,SP31BE,SP31CE

Report Number: 25030316389RFC-2

Test Standards: FCC 47 CFR Part 1 Subpart I

FCC ID: 2ATV8SP31XE

Test Result: PASS

Date of Issue: March 20, 2025

Prepared for:

Shenzhen Sperll Optoelectronic Technology Co., Ltd.
4th Floor, Building 3, NO.1059 Songbai Road, Nanshan District,
Shenzhen, China

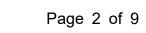
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Version

Version No.	Date	Description
V1.0	March 20, 2025	Original

Report No.: 25030316389RFC-2





CONTENTS

Report No.: 25030316389RFC-2

1.	GENE	ERAL INFORMATION
	1.1	CLIENT INFORMATION
	1.2	EUT INFORMATION
	1.3	PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD
	1.4	OTHER INFORMATION
	1.5	GENERAL DESCRIPTION OF APPLIED STANDARDS
	1.6	TEST LOCATION.
	1.7	TEST FACILITY
	1.8	DEVIATION FROM STANDARDS
	1.9	ABNORMALITIES FROM STANDARD CONDITIONS
	1.10	OTHER INFORMATION REQUESTED BY THE CUSTOMER
2.		PMENT LIST
3.	MPE	EVALUATION
	3.1	REFERENCE DOCUMENTS FOR EVALUATION
	3.2	MPE COMPLIANCE REQUIREMENT
	0.2	3.2.1 LIMITS
		3.2.2 TEST PROCEDURE
	3.3	MPE CALCULATION METHOD
	3.4	MPE CALCULATION RESULTS
	3.4	3.4.1 FOR BT
AP	PENDI	X 1 PHOTOS OF TEST SETUP
ΔΡ	PENDI	X 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Page 4 of 9 Report No.: 25030316389RFC-2

1. GENERAL INFORMATION 1.1 CLIENT INFORMATION

Applicant:	Shenzhen Sperll Optoelectronic Technology Co., Ltd.
Address of Applicant:	4th Floor, Building 3, NO.1059 Songbai Road, Nanshan District, Shenzhen, China
Manufacturer:	Shenzhen Sperll Optoelectronic Technology Co., Ltd.
Address of Manufacturer:	4th Floor, Building 3, NO.1059 Songbai Road, Nanshan District, Shenzhen, China

1.2 EUT INFORMATION

Product Name:	LED Controller				
Model No.:	SP318E				
Add. Model No.:	SP311E,SP312E,SP3 E,SP31AE,SP31BE,SF	13E,SP314E,SP315E,SP316E,SP317E,SP318E,SP319 P31CE			
Trade Mark:	SPERLL				
EUT Supports Function: (Provided by the customer)	2.4 GHz ISM Band: Bluetooth 5.0				
Sample Received Date:	March 3, 2025				
Sample Tested Date:	March 5, 2025 to March 11, 2025				
Note: The additional models	are identical with the tes	t model SP318E except the model number for marketing			
purpose.					

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

For BT_LE	For BT_LE				
Frequency Band:	2400 MHz to 2483.5 MHz				
Frequency Range:	2402 MHz to 2480 MHz				
Bluetooth Version:	Bluetooth LE				
Type of Modulation:	GFSK				
Number of Channels:	40				
Channel Separation:	2 MHz				
Antenna Type:	PCB Antenna				
Antenna Gain: (Provided by the customer)	1.3 dBi				
Maximum Peak Power:	1.20 dBm				

1.4 OTHER INFORMATION

Test channels for BT_LE						
Type of Modulation Tx/Rx Frequency Test RF Channel Lists						
		Lowest(L)	Middle(M)	Highest(H)		
GFSK	2402 MHz to 2480 MHz	Channel 0	Channel 19	Channel 39		
		2402 MHz	2440 MHz	2480 MHz		

1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR Part 1 Subpart I

Shenzhen UnionTrust Quality and Technology Co., Ltd.



Page 5 of 9 Report No.: 25030316389RFC-2

All test items have been performed and recorded as per the above standards

1.6 TEST LOCATION

All tests were performed at:

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6th, Baoneng Science and Technology Park, Longhua Street, Longhua District,

Shenzhen, China, China 518109 Telephone: +86 (0) 755 2823 0888 Fax: +86 (0) 755 2823 0886

1.7 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L9069

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01

Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories

CAB identifier: CN0032

FCC Accredited Lab.

Designation Number: CN1194

Test Firm Registration Number: 259480

1.8 DEVIATION FROM STANDARDS

None.

1.9 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.10 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

Report No.: 25030316389RFC-2



2. EQUIPMENT LIST

Please refer to the RF test report.



Page 7 of 9 Report No.: 25030316389RFC-2

3. MPE EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

No.	Identity	Document Title				
1	FCC 47 CFR Part 1 Subpart I	PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969				
2	KDB 447498 D01 General RF Exposure Guidance v06	RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES				

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 **Limits**

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

Limits for Occupational / Controlled Exposure

Frequency range (MHz)			Power Density (S) (mW/cm²)	Averaging Times E ², H ² or S (minutes)		
0.3-3.0	614 1.63 (100)*		6			
3.0-30	3.0-30 1842/f		(900/f)*	6		
30-300	61.4	61.4 0.163 1.0		6		
300-1500	1	1	F/300	6		
1500-100000	1	1	5	6		

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 Times 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)*	30	
30-300	27.5	0.073	0.2	30	
300-1500	1	1	F/1500	30	
1500-100000	1	1	1	30	

Note: f = frequency in MHz: * = Plane-wave equivalents power density.

3.2.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3.3 MPE CALCULATION METHOD

 $S = PG/4\pi R^2 = EIRP/4\pi R^2$

S = power density (in appropriate units, e.g., mw/cm2)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = 20cm, distance to the center of radiation of the antenna (in appropriate units, e.g., cm)



Page 8 of 9 Report No.: 25030316389RFC-2

3.4 MPE CALCULATION RESULTS

Note: For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

3.4.1 For BT

For BT_LE function, operating at 2402MHz to 2480 MHz for GFSK

3.4.1.1 Antenna Type:

Chain 0: PCB Antenna

3.4.1.2 Antenna Gain:

Chain 0: 2402MHz to 2480 MHz: 1.3 dBi

3.4.1.3 Results for BT

Operating Mode	Freq.	Declared maximum conducted average output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	MPE Limit	MPE Value
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(mW)	(m	w/cm²)
	2402	1.0	1	1.3	3.3	2.1380	1	0.0004
LE	2440	1.0	1	1.3	3.3	2.1380	1	0.0004
	2480	1.0	1	1.3	3.3	2.1380	1	0.0004



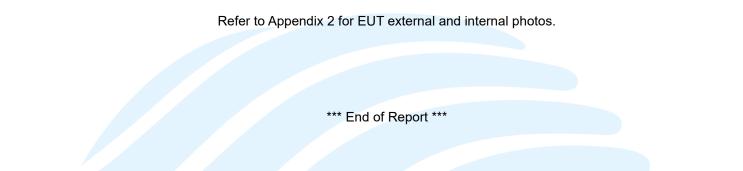


APPENDIX 1 PHOTOS OF TEST SETUP

N/A

Report No.: 25030316389RFC-2

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS



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