



RF Exposure Evaluation Report

Application No.: SZEM2005003546CR
Applicant: SHENZHEN JIPUSLE TECHNOLOGY CO., LTD
Address of Applicant: 201, No. 20, Gushu Xijing Road, Gushu community, Xixiang street, Bao'an District, Shenzhen 518000 China
Manufacturer: SHENZHEN JIPUSLE TECHNOLOGY CO., LTD
Address of Manufacturer: 201, No. 20, Gushu Xijing Road, Gushu community, Xixiang street, Bao'an District, Shenzhen 518000 China
Factory: SHENZHEN JIPUSLE TECHNOLOGY CO., LTD
Address of Factory: 201, No. 20, Gushu Xijing Road, Gushu community, Xixiang street, Bao'an District, Shenzhen 518000 China

Equipment Under Test (EUT):

Product Name: 2.4G Wireless Module

Model No.: 2.4G-01, SPD200 ♣

♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Trade Mark: KINGPULSE

FCC ID: 2AWGP24G-01MODEL

Standards: 47 CFR PART 1, Subpart I, Section 1.1307
47 CFR PART 1, Subpart I, Section 1.1310
47 CFR PART 2, Subpart J, Section 2.1091
KDB 447498 D01 General RF Exposure Guidance v06

Date of Receipt: 2020-05-08

Date of Test: 2020-05-14 to 2020-07-24

Date of Issue: 2020-08-27

Test Result :	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu
EMC Laboratory Manager





SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch EMC Laboratory

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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-08-27		Original

Authorized for issue by:				
				
		Damon Su /Project Engineer		
				
		Eric Fu /Reviewer		





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3 General Information

3.1 General Description of EUT

Power Supply:	DC 3V.
Operation Frequency:	2405-2477MHz
Modulation Type:	GFSK
Number of Channels:	52
Antenna Type:	PCB Antenna
Antenna Gain:	0dBi

Frequency List

Channel No.	Frequency	Channel No.	Frequency	Channel No.	Frequency	Channel No.	Frequency
1	2405	16	2429	34	2453	52	2477
2	2406	17	2430	35	2454	/	/
3	2407	18	2431	36	2455	/	/
4	2409	19	2433	37	2457		
5	2410	20	2434	38	2458		
6	2411	21	2435	39	2459		
7	2413	22	2437	40	2461		
8	2414	23	2438	41	2462		
9	2415	24	2439	42	2463		
10	2417	25	2441	43	2465		
11	2418	26	2442	44	2466		
12	2419	27	2443	45	2467		
13	2421	28	2445	46	2469		
14	2422	29	2446	47	2470		
15	2423	30	2447	48	2471		
16	2425	31	2449	49	2473		
17	2426	32	2450	50	2474		
18	2427	33	2451	51	2475		



3.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

3.3 Test Facility

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

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

3.4 Deviation from Standards

None.

3.5 Abnormalities from Standard Conditions

None.

3.6 Other Information Requested by the Customer

None.



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4 RF Exposure Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

4.1.2 Test Procedure

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





4.1.3 EUT RF Exposure Evaluation

For 2.4G

The Max. power (including tune-up tolerance) is -2.06dBm(0.6223mW) (*)

Frequency (MHz)	Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Result
2405	-2.06	0.6223	0.00012	1.0	PASS

(*) Refer to test report SZEM200500354602 for EUT test Max Conducted Peak Output Power(including tune-up tolerance) value.

$E = EIRP - 20 \log D + 104.7$

$E = 93.10 \text{ dBuV/m}$ (Refer to test report SZEM200500354602)

$D = 3 \text{ m}$

$EIRP = 93.10 - (-20 \log(3) + 104.7)$

$EIRP = -2.06 \text{ dBm}$ (0.6223mW)

- End of the Report -

