

RF Exposure Evaluation Report

Applicant: Rajant Corporation

Address of Applicant: 200 Chesterfield Parkway, Malvern PA 19355, United States

Equipment Under Test (EUT)

Product Name: Breadcrumb Module AG1

Model No.: AG1-5250M

Trade mark: Cardinal

FCC ID: VJA-AG15250M

Applicable standards: FCC CFR Title 47 Part 2 (§2.1091)

Date of sample receipt: 19 Jun., 2023

Date of Test: 20 Jun., to 24 Aug., 2023

Date of report issue: 25 Aug., 2023

Test Result: PASS

Tested by: JianYan Li

Date: 25 Aug., 2023

Reviewed by: JianYan Li

Date: 25 Aug., 2023

Approved by: JianYan Li

Date: 25 Aug., 2023

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

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1 Version

Version No.	Date	Description
00	25 Aug., 2023	Original

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3 General Information

3.1 Client Information

Applicant:	Rajant Corporation
Address:	200 Chesterfield Parkway, Malvern PA 19355, United States
Manufacturer:	8devices
Address:	Antakalnio g. 17, LT-10312 Vilnius
Factory	8devices
Address:	Zirniu g. 26D, LT-02119 Vilnius

3.2 General Description of E.U.T.

Product Name:	Breadcrumb Module AG1		
Model No.:	AG1-5250M		
Operation Frequency:	2.4G Wi-Fi: 2412MHz~2462MHz 5.2G Wi-Fi Band 1: 5180MHz~5240MHz 5.8G Wi-Fi Band 4: 5725MHz~5875MHz		
Modulation technology:	802.11b: DSSS, 802.11a/g/n/ac: OFDM		
Antenna Type:	External Antenna		
Antenna gain:	2.4G Wi-Fi:	ANT A (KMA-2400-5-NM): 5 dBi ANT B (PUCK-12): 7.5 dBi	
	5.2G Wi-Fi:	ANT A (KMA-5250-7-NM): 7 dBi ANT B (PUCK-12): 7.5 dBi	
	5.8G Wi-Fi:	ANT A (KMA-5800-6-NM): 6 dBi ANT B (PUCK-12): 7.5 dBi	
Test Sample Condition:	The test samples were provided in good working order with no visible defects.		

3.3 Operating Modes

Operating mode	Detail description
2.4G WIFI mode	Keep the EUT in continuously transmitting in 2.4G WIFI mode
5G WIFI mode	Keep the EUT in continuously transmitting in 5G WIFI mode

3.4 Additions to, deviations, or exclusions from the method

No

3.5 Laboratory Facility

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

● **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

● **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

● **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

3.6 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info-JYTeel@lets.com, Website: <http://jyt.lets.com>

4 Technical Requirements Specification

4.1 Limits

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 1.1307(b)

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

4.2 Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

4.3 Result

Frequency (MHz)	Maximum Output power (dBm)	Maximum Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm ²)	Limits for General Population/ Uncontrolled Exposure (mW/cm ²)
2.4G Wi-Fi							
2462	24.22	264.241	7.5	5.62	20.00	0.296	1.0
5.2G Wi-Fi							
5230	21.97	157.398	7.5	5.62	20.00	0.176	1.0
5.8G Wi-Fi							
5825	23.835	241.824	7.5	5.62	20.00	0.271	1.0

Note: Just the worst case mode was shown in report.

4.4 Conclusion

The device is exempt from the SAR test and satisfies RF exposure evaluation.

-----End of report-----