



# RF EXPOSURE EVALUATION REPORT

**FCC ID** : S9GR850  
**Equipment** : Wireless Access Point  
**Brand Name** : RUCKUS  
**Model Name** : R850  
**Marketing Name** : Ruckus Access Point  
**Applicant** : Ruckus Wireless Inc.  
350 W. Java Dr., Sunnyvale CA 94089 USA  
**Manufacturer** : Ruckus Wireless Inc.  
350 W. Java Dr., Sunnyvale CA 94089 USA  
**Standard** : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 2.1091 and it complies with applicable limit.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

Approved by: Cona Huang / Deputy Manager

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## History of this test report



## 1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Wireless Access Point
Brand Name	RUCKUS
Model Name	R850
Marketing Name	Ruckus Access Point
FCC ID	S9GR850
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz Zigbee: 2405 MHz ~ 2475 MHz
Mode	WLAN: 802.11a/b/g/ax HE20 / HE40 / HE80 Bluetooth LE Zigbee: BPSK
EUT Stage	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

**Reviewed by: Jason Wang**

**Report Producer: Daisy Peng**

**2. Maximum RF average output power among production units**

Band / Mode	Maximum Average Power (dBm)
	LE
	GFSK
Bluetooth	17.85

Band / Mode	Maximum Average Power (dBm)
Zigbee	18.60

Band / Frequency (MHz)	Maximum Average Power (dBm)
2.4GHz WLAN	28.09

Band / Frequency (MHz)	Maximum Average Power (dBm)
	4TX
5.2GHz WLAN	28.72
5.8GHz WLAN	27.79

Band / Frequency (MHz)	Maximum Average Power (dBm)
	8TX
5.2GHz WLAN	26.54
5.8GHz WLAN	26.62



### 3. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

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

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



## 4. Radio Frequency Radiation Exposure Evaluation

### 4.1. Standalone Power Density Calculation

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
2.4GHz WLAN	0.00	28.09	28.090	0.644	644.169	0.128	1.000	0.128
5GHz WLAN	1.50	28.72	30.220	1.052	1051.962	0.209	1.000	0.209
Bluetooth	0.55	17.85	18.400	0.069	69.183	0.014	1.000	0.014
Zigbee	0.55	18.60	19.150	0.082	82.224	0.016	0.937	0.017

### 4.2. Collocated Power Density Calculation

2.4GHz WLAN Power Density / Limit	5GHz WLAN Power Density / Limi	Zigbee Power Density / Limit	$\Sigma$ (Power Density / Limit) of 2.4GHz WLAN + 5GHz WLAN + Zigbee
0.128	0.209	0.017	0.354

**Note:**

1.  $\Sigma$ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for 2.4GHz WLAN + 5GHz WLAN + Zigbee.
2. Considering the 2.4GHz WLAN collocation with the Zigbee and 5GHz WLAN transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant

2.4GHz WLAN Power Density / Limit	5GHz WLAN Power Density / Limi	Bluetooth Power Density / Limit	$\Sigma$ (Power Density / Limit) of 2.4GHz WLAN + 5GHz WLAN + Bluetooth
0.128	0.209	0.014	0.351

**Note:**

3.  $\Sigma$ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for 2.4GHz WLAN + 5GHz WLAN + Bluetooth.
4. Considering the 2.4GHz WLAN collocation with the 5GHz WLAN and Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant

### Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.