

RF EXPOSURE REPORT



Applicant: BOTS UNLIMITED LLC
5817 La Colonia, San Antonio, Texas 78218, USA
Manufacturer: BOTS UNLIMITED LLC
5817 La Colonia, San Antonio, Texas 78218, USA
Product Name: Sparrow Wi-Fi Module
Brand Name: Bots Unlimited
Model No.: SP-01-100
FCC ID 2BPPF-SP01
Date of EUT Received: Jun. 6, 2025
Issue Date: Sep. 09, 2025

Approved By

John Yeh

We hereby certify that:

The above equipment was evaluated by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §2.1091, KDB 447498 D01 v06.

The results of this report relate only to the sample identified in this report.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2506000482ES	00	Original	Aug. 22, 2025	Cindy Chou	
TESA2506000482ES	01	Add 5.9G	Sep. 03, 2025	Cindy Chou	*
TESA2506000482ES	02	Modify comment	Sep. 09, 2025	Cindy Chou	*

Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

Product Name:	Sparrow Wi-Fi Module
Brand Name:	Bots Unlimited
Model No.:	SP-01-100

1.2 Evaluation site

Laboratory	Site Address		FCC Designation number	ISED Company Number	CAB Identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	<input checked="" type="checkbox"/>	No. 134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, 24803, Taiwan.	TW0027	4620A	TW3702
	<input type="checkbox"/>	No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 333 Taiwan.	TW0028	4620E	
	<input type="checkbox"/>	1F, No. 8, Alley 15, Lane 120, Sec. 1, Nei Hu Road, Neihu District, Taipei City, 222 Taiwan.	TW0029	23862	

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1.3 Antenna Information:

Brand	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)
ABRACON	AFG4507W2	2400~2500	6.62
		5150~5250	7.68
		5250~5350	8.12
		5470~5725	8.12
		5725~5850	6.91
		5850~5895	6.91

Note: Antenna information is provided by the applicant.

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2 MAXIMUM PERMISSIBLE EXPOSURE (MPE)

2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

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 (minute)
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
1500-100000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equipment power density

Prediction of MPE limit at a given distance

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

Where: S = Power density

P = Power input to antenna

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

R = Distance to the center of radiation of the antenna

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2.2 Power Density Calculation (Worst Case)

Operation Mode	Evaluation Frequency (MHz)	Operation Distance (cm)	Max. Output Power Include Tolerance (dBm)	Antenna Gain (dBi)	Max. EIRP (mW)	Power Density (PD) (mW/cm ²)	Limit (mW/cm ²)	Pass / Fail	Power Density / Limit	Collocated MPE
BT	2480	20	9	6.62	36.48	0.0073	1.000	Pass	0.007	V
WLAN 2.4G	2442	20	24	6.62	1153.45	0.230	1.000	Pass	0.230	V
WLAN 5.2G	5180	20	21	7.68	737.90	0.147	1.000	Pass	0.147	
WLAN 5.3G	5280	20	21.5	8.12	916.22	0.182	1.000	Pass	0.182	
WLAN 5.6G	5500	20	22	8.12	1028.02	0.205	1.000	Pass	0.205	
WLAN 5.8G	5755	20	28	6.91	3097.42	0.617	1.000	Pass	0.617	V
WLAN 5.9G	5855	20	20.5	6.91	550.81	0.110	1.000	Pass	0.110	

Conclusion: The maximum power density is below Exemption Criteria and/or Routine Evaluation MPE thresholds, therefore the device is compliant FCC RF exposure requirement.

Note: For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band.

2.2.1 Collocated Power Density Calculation

Operation Mode	Σ (Power Density / Limit)
BT + WLAN 2.4G	0.237
BT + WLAN 5G	0.624

Note:

1. Σ (Power Density / Limit): This is a summation of [(Power Density for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)].
2. Considering the collocated transmitters, the aggregated (Power Density /limit) is smaller than 1, and MPE of collocated transmitters is compliant

~ End of Report ~

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