



RF EXPOSURE Test Report

Report No.: MTi210713015-04E4

Date of issue: Aug. 17, 2021

Applicant: Guangdong WiiRobot Co., Ltd

Product name: Speedbird mini

Model(s): I20E, I20E Bundle A, I20E Bundle B, I20E Bundle C, I20E Bundle D, I20E Bundle E, I20E Bundle F, I20EA, I20EB, I20EC

FCC ID: 2AZ7PI20E

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



1Instructions

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TEST RESULT CERTIFICATION

Applicant's name.....	Guangdong WiiRobot Co., Ltd
Address.....	Room 401, Building 1, No.11 Yinghe 1st Street, Yaoshan, Xiegang Town, Dongguan City, Guangdong Province, China
Manufacturer's Name	Guangdong WiiRobot Co., Ltd
Address.....	Room 401, Building 1, No.11 Yinghe 1st Street, Yaoshan, Xiegang Town, Dongguan City, Guangdong Province, China

Product description

Product name	Speedbird mini
Trademark	ING
Model Name	I20E
Serial Model	I20E Bundle A, I20E Bundle B, I20E Bundle C, I20E Bundle D, I20E Bundle E, I20E Bundle F, I20EA, I20EB, I20EC
Standards.....	N/A
Test procedure	KDB 447498 D01 v06

Date of Test

Date (s) of performance of tests	July 30, 2021 ~ Aug. 17, 2021
Test Result.....	Pass

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Testing Engineer

:

Cindy Qin

(Cindy Qin)

Technical Manager

:

Leon Chen

(Leon Chen)

Authorized Signatory

:

Tom Xue

(Tom Xue)



RF EXPOSURE EVALUATION

According to FCC 1.1310: 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 §1.1307(b)

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

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

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm (20cm)

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



Measurement Result

5GWiFi:

802.11a: 20 MHz

802.11n: 20 MHz

Antenna Type: FPC Antenna;

WIFI antenna gain: 2dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}=10^{(2/10)}=1.58$ (SISO)

antenna gain Numeric= $10^{(dBi/10)}=10^{(5.01/10)}=3.17$ (MIMO)

5GWiFi : UNII-1

Channel Freq. (MHz)	modulation	conducted power		Tune-up power		Max				Antenna		Evaluation result at 20cm			Power density Limits
		(dBm)		(dBm)		tune-up power				Gain		Power density(mW/cm2)			(mW/cm2)
						(dBm)		(mW)		Numeric					
		Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Sum	
5180	11a	8.55	8.56	8±1	8±1	9	9	7.943	7.943	1.58	1.58	0.00250	0.00250	/	
5200	11a	9.22	9.20	9±1	9±1	10	10	10.000	10.000	1.58	1.58	0.00314	0.00314	/	1
5240	11a	10.17	9.89	10±1	10±1	11	11	12.589	12.589	1.58	1.58	0.00396	0.00396	/	1
5180	11n (HT20)	8.60	8.57	8±1	8±1	9	9	7.943	7.943	3.17	3.17	0.00501	0.00501	0.01002	1
5200	11n (HT20)	9.05	9.26	9±1	9±1	10	10	10.000	10.000	3.17	3.17	0.00631	0.00631	0.01261	1
5240	11n (HT20)	10.13	9.14	10±1	9±1	11	10	12.589	10.000	3.17	3.17	0.00794	0.00631	0.01425	1



5GWiFi : UNII-3

Channel Freq. (MHz)	modulation	conducted power		Tune-up power		Max				Antenna		Evaluation result at 20cm			Power density Limits
		(dBm)		(dBm)		tune-up power				Gain		Power density(mW/cm2)			(mW/cm2)
						(dBm)		(mW)		Numeric					
		Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Sum	
5745	11a	11.60	11.55	11±1	11±1	12	12	15.849	15.849	1.58	1.58	0.00498	0.00498	/	
5785	11a	11.43	11.24	11±1	11±1	12	12	15.849	15.849	1.58	1.58	0.00498	0.00498	/	1
5825	11a	12.04	11.68	12±1	12±1	13	13	19.953	19.953	1.58	1.58	0.00627	0.00627	/	1
5745	11n (HT20)	10.90	11.61	11±1	11±1	12	12	15.849	15.849	3.17	3.17	0.01000	0.01000	0.02000	1
5785	11n (HT20)	11.44	11.32	11±1	11±1	12	12	15.849	15.849	3.17	3.17	0.01000	0.01000	0.02000	1
5825	11n (HT20)	11.66	11.72	11±1	11±1	12	12	15.849	15.849	3.17	3.17	0.01000	0.01000	0.02000	1

Conclusion:

For the max result: $0.02000 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----