

TEST REPORT

Reference No...... : WTF21D01002802W003
FCC ID : 2AYSN-DB21
Applicant..... : Duckieworks Ltd.
Address..... : Turnerstrasse 39 8006, Zurich, Switzerland
Manufacturer : The same as above
Address..... : The same as above
Product..... : Duckiebot Founder edition
Model(s) : DB21, DB21-M, DB21-MNoJet, DB21-M-NoBat, DB21-M-NoJetNoBat
Brand Name..... : N/A
Standards..... : FCC Part 2.1091
Date of Receipt sample : 2021-01-15
Date of Test : 2021-01-18 to 2021-01-27
Date of Issue..... : 2021-01-28
Test Result..... : Pass

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTF21D01002 802W003	2021-01-15	2021-01-18 to 2021-01-27	2021-01-28	original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	Duckiebot Founder edition
Model(s):	DB21, DB21-M, DB21-MNoJet, DB21-M-NoBat, DB21-M-NoJetNoBat
Model Description:	Only different for the model names.
Wi-Fi Specification:	2.4G-802.11b/g/n HT20/n HT40 5G-802.11a/n/ac HT20 /n/ac HT40 /ac HT80
Hardware Version:	A
Software Version:	V1.0

4.2 Details of E.U.T.

Ratings:	DC 5V from battery
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4.3 Test Facility

The test facility has a test site registered with the following organizations:

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Testing Group Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Testing Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration number 523476, September 10, 2019.

5 Test Summary

Test Items	Test Requirement	Result
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	2.1091	PASS

6 RF Exposure

Test Requirement:

FCC Part 2.1091

Test Mode:

The EUT work in test mode(Tx).

6.1 Procedures and Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

FCC Part 1.1307:

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	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

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ;

*Plane-wave equivalent power density

Predication of MPE limit at a given distance

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

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

From the peak EUT RF output power, the minimum mobile separation distance, d=20cm, as well as the gain of the used antenna, the RF power density can be obtained

6.2 Test Result

FCC Part 2.1091:

A distance of 20cm normally can be maintained between the user and the device.

Mode	Antenna Gain (dBi)	Antenna Gain (numeric)	Max.Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)
2.4G WIFI	2.00	1.585	15.98	39.63	0.012495	1
5G WIFI	2.00	1.585	11.54	14.26	0.004495	1

=====End of Report=====