

RF Exposure Evaluation Report

Applicant: 8Devices

Address of Applicant: Gedimino 47, Kaunas, LT-44242, Lithuania

Equipment Under Test (EUT)

Product Name: Habanero

Model No.: Habanero

FCC ID: Z9W-HAB

Applicable standards: FCC CFR Title 47 Part 2 Subpart J Section 2.1091

Date of sample receipt: 21 Apr., 2020

Date of Test: 22 Apr., to 29 Jun., 2020

Date of report issue: 01 Jul., 2020

Test Result: PASS*

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

| Version No. | Date | Description |
|-------------|---------------|-------------|
| 00 | 01 Jul., 2020 | Original |
| | | |
| | | |
| | | |
| | | |

Tested by: Mike.ou
Test Engineer

Date: 01 Jul., 2020

Reviewed by: Winner Zhang
Project Engineer

Date: 01 Jul., 2020

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4 General Information

4.1 Client Information

| | |
|-----------------------|------------------------------------------|
| Applicant: | 8Devices |
| Address: | Gedimino 47, Kaunas, LT-44242, Lithuania |
| Manufacturer/Factory: | 8Devices |
| Address: | Gedimino 47, Kaunas, LT-44242, Lithuania |

4.2 General Description of E.U.T.

| | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name: | Habanero |
| Model No.: | Habanero |
| HVIN: | HAB1003, HAB1004 |
| Operation Frequency: | 2.4G Wi-Fi: 2412MHz~2472MHz 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: | Chip Antenna Whip Antenne Planare WLAN Antenne |
| Antenna gain: | Chip Antenna 2.4G WiFi: 2.09dBi Whip Antennel 2.4G WiFi: 4.0dBi Planare WLAN Antenne 2.4G WiFi: 1.0dBi Chip Antenna 5G WiFi: Band 1 and Band 4: 4.32dBi Whip Antennel 5G WiFi: Band 1: 4.5dBi Band 4: 5.0dBi Planare WLAN Antenne 5G WiFi: Band 1: -3.6dBi Band 4: -5.5dBi |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

4.3 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 |

4.4 Additions to, deviations, or exclusions from the method

| |
|----|
| No |
|----|

4.5 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

Shenzhen Zhongjian Nanfang Testing 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 of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

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

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 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>

4.6 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China

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

Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>

5 Technical Requirements Specification in FCC CFR Title 47 Part 2.1091

5.1 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 |

5.2 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

5.3 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 | | | | | | | |
| 2437 | 23.45 | 221.31 | 2.09 | 1.62 | 20.00 | 0.0712 | 1.0 |
| 2437 | 23.45 | 221.31 | 4.00 | 2.51 | 20.00 | 0.1106 | 1.0 |
| 2437 | 23.45 | 221.31 | 1.00 | 1.26 | 20.00 | 0.0554 | 1.0 |
| 5.2G Wi-Fi | | | | | | | |
| 5190 | 21.03 | 126.77 | 4.32 | 2.70 | 20.00 | 0.0682 | 1.0 |
| 5190 | 21.03 | 126.77 | 4.50 | 2.82 | 20.00 | 0.0710 | 1.0 |
| 5190 | 21.03 | 126.77 | -3.60 | 0.44 | 20.00 | 0.0110 | 1.0 |
| 5.8G Wi-Fi | | | | | | | |
| 5775 | 22.24 | 68.23 | 4.32 | 2.70 | 20.00 | 0.0901 | 1.0 |
| 5775 | 22.24 | 68.23 | 5.00 | 3.16 | 20.00 | 0.1054 | 1.0 |
| 5775 | 22.24 | 68.23 | -5.50 | 0.28 | 20.00 | 0.0094 | 1.0 |

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

5.4 Conclusion

The device is exempt from the RF exposure evaluation.

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