

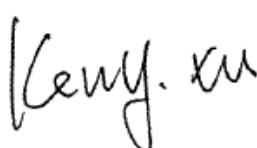
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RF Exposure Evaluation Report

Application No.: SZEM2009009510CR
Applicant: Amazrock Pte Ltd
Address of Applicant: 10 Anson Road#10-11 International Plaza, SG 079903 Singapore
Manufacturer: Amazrock Pte Ltd
Address of Manufacturer: 10 Anson Road#10-11 International Plaza, SG 079903 Singapore
Equipment Under Test (EUT):
Product Name: Amazrock Robot Vacuum Cleaner(LIDAR)
Model No.: AVE-L10
Trade mark: Amazrock
FCC ID: 2AXGIAMZAVEL10
Standards: 47 CFR Part 1.1307 (2016)
47 CFR Part 1.1310 (2016)
47 CFR PART 2, Subpart J, Section 2.1091
Date of Receipt: 2020-09-23
Date of Test: 2020-10-13 to 2020-10-13
Date of Issue: 2020-10-16

| | |
|----------------------|--------------|
| Test Result : | PASS* |
|----------------------|--------------|

* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu
EMC Laboratory Manager

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2 Version

| Revision Record | | | | |
|------------------------|----------------|-------------|-----------------|---------------|
| Version | Chapter | Date | Modifier | Remark |
| 01 | | 2020-10-16 | | Original |
| | | | | |
| | | | | |

| | | | |
|---------------------------------|--|---|--|
| Authorized for issue by: | | | |
| | |  | |
| | | Leo Li/Project Engineer | |
| | |  | |
| | | Eric Fu/Reviewer | |

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4 General Information

4.1 General Description of EUT

| | |
|----------------------|---|
| Rated voltage: | AC 120V/60Hz |
| Power adapter: | Adapter model: NLD100240W1A4 Input: 100-240V~50/60Hz 0.6A Max. Output: 24V/1A |
| Battery: | Li-ion Cylindrical rechargeable Battery 2400mAh 14.4V 34.56Wh |
| Operation Frequency: | 802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz |
| Modulation Type: | 802.11b: DSSS (CCK, DQPSK, DBPSK); 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK) |
| Number of Channels: | 802.11b/g/n(HT20): 11 802.11n(HT40): 7 |
| Channel Spacing: | 5MHz |
| Antenna Type: | Integral Antenna |
| Antenna Gain: | 2dBi |

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4.2 Test Location

All tests were performed at:

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No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.3 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.

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5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: 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 part1.1307(b)

TABLE 1—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 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 |

F= Frequency in MHz

Friis Formula

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 = gain of antenna in linear scale

π = 3.1416

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

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

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



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5.1.3 EUT RF Exposure Evaluation

Antenna Gain: 2dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.58 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

| Channel | Frequency (MHz) | Max Conducted Peak Output Power (dBm) | Output Power to Antenna (mW) | Power Density at R = 20 cm (mW/cm ²) | Limit | Result |
|---------|-----------------|---------------------------------------|------------------------------|--|-------|--------|
| Lowest | 2412 | 20.01 | 100.23 | 0.0315 | 1.0 | PASS |

Note: Refer to report No. SZEM200900951002 for EUT test Max Conducted Peak Output Power value. The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

- End of the Report -



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