

RF EXPOSURE EVALUATION REPORT

Product Name: ONEBOT Educational Robot Kit
Trade Mark: ONEBOT
Model No. / HVIN: AIQIEDU#01
Add. Model No. / HVIN: AIQIEDU#XX
Report Number: 180912010RFC-3
Test Standards: FCC 47 CFR Part 1 Subpart I
FCC ID: 2ALJ6-AIQIEDU
Test Result: PASS
Date of Issue: December 7, 2018

Prepared for:

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Date: December 7, 2018

Version

Shenzhen UnionTrust Quality and Technology Co., Ltd.

| Version No. | Date | Description |
|-------------|------------------|-------------|
| V1.0 | December 7, 2018 | Original |



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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

| | |
|---------------------------------|---|
| Applicant: | Beijing AIQI Technology Co., LTD. |
| Address of Applicant: | Room.D1203, The 11th floor, Block D, No.9 Shangdi 3rd St., Haidian District, Beijing, 100085, China |
| Manufacturer: | Beijing AIQI Technology Co., LTD. |
| Address of Manufacturer: | Room.D1203, The 11th floor, Block D, No.9 Shangdi 3rd St., Haidian District, Beijing, 100085, China |

1.2 EUT INFORMATION

| | | |
|---|--|----------------|
| Product Name: | ONEBOT Educational Robot Kit | |
| Model No.: | AIQIEDU#01 | |
| Add. Model No.: | AIQIEDU#XX (See Note 1) | |
| Trade Mark: | ONEBOT | |
| DUT Stage: | Production Unit | |
| EUT Supports Function: | 2.4 GHz ISM Band: | Bluetooth V4.2 |
| Software Version: | V1.0 | |
| Hardware Version: | V2.0 | |
| Sample Received Date: | September 20, 2018 | |
| Sample Tested Date: | September 22, 2018 to October 10, 2018 | |
| Note 1: The additional model AIQIEDU#XX is identical with the test model AIQIEDU#01 except the model number for marketing purpose. | | |

1.2.1 Description of Accessories

None.

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

| | |
|-----------------------------|------------------------|
| Frequency Band: | 2400 MHz to 2483.5 MHz |
| Frequency Range: | 2402 MHz to 2480 MHz |
| Bluetooth Version: | Bluetooth V4.2 LE |
| Type of Modulation: | GFSK |
| Number of Channels: | 40 |
| Channel Separation: | 2 MHz |
| Antenna Type: | External Antenna |
| Antenna Gain: | 0 dBi |
| Maximum Peak Power: | -1.87 dBm |
| Normal Test Voltage: | 9 Vdc |

1.4 OTHER INFORMATION

| Operation Frequency Each of Channel | |
|---|-----------------------------------|
| $f = 2402 + 2k \text{ MHz}, k = 0, \dots, 39$ | |
| Note: | |
| f | is the operating frequency (MHz); |
| k | is the operating channel. |

1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR Part 1 Subpart I

All test items have been performed and recorded as per the above standards

1.6 DEVIATION FROM STANDARDS

None.

1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

2. EQUIPMENT LIST

Please refer to the RF test report.

3. MPE EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

| No. | Identity | Document Title |
|-----|---|---|
| 1 | FCC 47 CFR Part 1 Subpart I | PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 |
| 2 | KDB 447498 D01 General RF Exposure Guidance v06 | RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES |

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 Limits

3.2.1.1 FCC 47 CFR Part 1 Subpart I

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

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 Times 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 |
| 1500-100000 | / | / | 5 | 6 |

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 Times 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 |
| 1500-100000 | / | / | 1 | 30 |

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

3.2.2 Test Procedure

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

3.3 MPE CALCULATION METHOD

3.3.1 FCC 47 CFR Part 1 Subpart I

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

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 (in appropriate units, e.g., cm)

3.4 MPE CALCULATION RESULTS

Note: For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

3.4.1 For WLAN

For BT_LE function, operating at 2402MHz to 2480 MHz for GFSK.

3.4.1.1 Antenna Type:

Chain 0: External Antenna

3.4.1.2 Antenna Gain:

Chain 0: 2402 MHz to 2480 MHz z: 0 dBi

3.4.1.3 Results for FCC 47 CFR Part 1 Subpart I

| Operating Mode | Freq. | Declared maximum conducted average output power | Max. positive tolerance according manufacturer | Antenna Gain | Calculated maximum EIRP | Declared maximum EIRP | MPE Limit | MPE Value |
|----------------|-------|---|--|--------------|-------------------------|-----------------------|-----------------------|-----------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (mW) | (mw/cm ²) | |
| LE | 2402 | -2 | 1 | 0 | -1 | 0.7943 | 1 | 0.0002 |
| | 2440 | -2 | 1 | 0 | -1 | 0.7943 | 1 | 0.0002 |
| | 2480 | -2 | 1 | 0 | -1 | 0.7943 | 1 | 0.0002 |

APPENDIX 1 PHOTOS OF TEST SETUP

N/A

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal Photos.

*** End of Report ***

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