

## RF Exposure Evaluation Report

**Report Reference No.....:** MTWG22040296-H

**FCC ID..... :** 2A6KZ-HM-CATBOX-V2

Compiled by

( position+printed name+signature)...: File administrators Alisa Luo

Supervised by

( position+printed name+signature)...: Test Engineer Sunny Deng

Approved by

( position+printed name+signature)...: Manager Yvette Zhou

Date of issue.....: April 21,2022

**Representative Laboratory Name .:** Shenzhen Most Technology Service Co., Ltd.

Address .....: No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,  
Nanshan, Shenzhen, Guangdong, China.

**Applicant's name.....:** V

Address .....: 18961 Arenth Ave, City of Industry, CA 91748

**Test specification/ Standard .....:** 47 CFR Part 1.1307  
47 CFR Part 1.1310  
KDB447498D01 General RF Exposure Guidance v06

TRF Originator.....: Shenzhen Most Technology Service Co., Ltd.

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**Test item description .....**: Automatic Cat Litter Box

Trade Mark .....: N/A

**Manufacturer.....:** Qingdao Azulsky Biological Technology Co.,Ltd.

Model/Type reference.....: HM-CATBOX-V2

Listed Models .....: N/A

Ratings .....: DC 12V by Adapter

Modulation .....: OFDM

Frequency.....: From 2402MHz to 2480MHz, 2412 - 2462MHz,  
5180MHz-5240MHz; 5745MHz-5825MHz

Hardware version .....: V3.0

Software version .....: V3.8

Result.....: **PASS**

TEST REPORT

Equipment under Test : Automatic Cat Litter Box

Model /Type : HM-CATBOX-V2

Listed Models : N/A

Remark : N/A

Applicant : **GIGACLOUD TECHNOLOGY(USA) INC.**

Address : 18961 Arenth Ave,City of Industry, CA 91748

Manufacturer : **Qingdao Azulsky Biological Technology Co,Ltd.**

Address : Room 1106, Block B, China Resources Building, Shi Nan District, Qingdao

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

The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

## 1. Revision History

| Revision | Issue Date | Revisions     | Revised By |
|----------|------------|---------------|------------|
| 00       | 2022-04-21 | Initial Issue | Alisa Luo  |
|          |            |               |            |
|          |            |               |            |

## 2. SAR Evaluation

### 2.1 RF Exposure Compliance Requirement

#### 2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

##### 4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

#### 2.1.2 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<br>(MHz)                                       | Electric field<br>strength<br>(V/m) | Magnetic field<br>strength<br>(A/m) | Power density<br>(mW/cm <sup>2</sup> ) | Averaging time<br>(minutes) |
|----------------------------------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|-----------------------------|
| <b>(A) Limits for Occupational/Controlled Exposures</b>        |                                     |                                     |                                        |                             |
| 0.3–3.0 .....                                                  | 614                                 | 1.63                                | *(100)                                 | 6                           |
| 3.0–30 .....                                                   | 1842/f                              | 4.89/f                              | *(900/f <sup>2</sup> )                 | 6                           |
| 30–300 .....                                                   | 61.4                                | 0.163                               | 1.0                                    | 6                           |
| 300–1500 .....                                                 | .....                               | .....                               | f/300                                  | 6                           |
| 1500–100,000 .....                                             | .....                               | .....                               | 5                                      | 6                           |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                                     |                                     |                                        |                             |
| 0.3–1.34 .....                                                 | 614                                 | 1.63                                | *(100)                                 | 30                          |
| 1.34–30 .....                                                  | 824/f                               | 2.19/f                              | *(180/f <sup>2</sup> )                 | 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/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. 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.

**2.1.3 EUT RF Exposure**

Antenna Gain: 2dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2 in linear scale. Output Power Into Antenna &amp; RF Exposure Evaluation Distance:

BLE

| GFSK             |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2402      | -0.56                   | $-0.56 \pm 1$           | 0.44                  |
| Middle(2440MHz)  | 1.54                    | $1.54 \pm 1$            | 2.54                  |
| Highest(2480MHz) | 2.53                    | $2.53 \pm 1$            | 3.53                  |

BLE

| Worst case: GFSK  |                                           |                                          |                    |                                                  |       |        |
|-------------------|-------------------------------------------|------------------------------------------|--------------------|--------------------------------------------------|-------|--------|
| Channel           | Maximum Peak Conducted Output Power (dBm) | Maximum Peak Conducted Output Power (MW) | Antenna Gain (dBi) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit | Result |
| Highest(2480 MHz) | 3.53                                      | 2.25                                     | 2                  | 0.0007                                           | 1.0   | Pass   |

Note: 1) Refer to report **MTWG22020077-R1** for EUT test Max Conducted average Output Power value.Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (2.25 * 1.58) / (4 * 3.1416 * 20^2) = 0.0007$ 

WIFI 2.4G

| 802.11b          |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2412MHz)  | 12.05                   | $12.05 \pm 1$           | 13.05                 |
| Middle(2437MHz)  | 12.15                   | $12.15 \pm 1$           | 13.15                 |
| Highest(2462MHz) | 12.12                   | $12.12 \pm 1$           | 13.12                 |

| 802.11g          |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2412MHz)  | 12.01                   | $12.01 \pm 1$           | 13.01                 |
| Middle(2437MHz)  | 11.81                   | $11.81 \pm 1$           | 12.81                 |
| Highest(2462MHz) | 11.80                   | $11.80 \pm 1$           | 12.80                 |

| 802.11n(H20)     |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2412MHz)  | 11.12                   | $11.12 \pm 1$           | 12.12                 |
| Middle(2437MHz)  | 10.51                   | $10.51 \pm 1$           | 11.51                 |
| Highest(2462MHz) | 10.84                   | $10.84 \pm 1$           | 11.84                 |

| 802.11n(H40)     |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2422MHz)  | 10.62                   | $10.62 \pm 1$           | 11.62                 |
| Middle(2437MHz)  | 10.46                   | $10.46 \pm 1$           | 11.46                 |
| Highest(2452MHz) | 9.88                    | $9.88 \pm 1$            | 10.88                 |

## WIFI 2.4G

| Worst case: 802.11b |                                           |                                          |                    |                                                  |       |        |
|---------------------|-------------------------------------------|------------------------------------------|--------------------|--------------------------------------------------|-------|--------|
| Channel             | Maximum Peak Conducted Output Power (dBm) | Maximum Peak Conducted Output Power (MW) | Antenna Gain (dBi) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit | Result |
| Highest(2437 MHz)   | 13.15                                     | 20.65                                    | 2                  | 0.0065                                           | 1.0   | Pass   |

Note: 1) Refer to report **MTWG22020077-R2** for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (20.65 * 1.58) / (4 * 3.1416 * 20^2) = 0.0065$

Antenna Gain: 2dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2 in linear scale. Output Power Into Antenna & RF Exposure Evaluation Distance:

#### WIFI 5G U-NII 1

| 802.11a          |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(5180MHz)  | 12.05                   | $12.05 \pm 1$           | 13.05                 |
| Middle(5200MHz)  | 12.12                   | $12.12 \pm 1$           | 13.12                 |
| Highest(5240MHz) | 12.20                   | $12.20 \pm 1$           | 13.20                 |

| 802.11n(HT20)    |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(5180MHz)  | 11.42                   | $11.42 \pm 1$           | 12.42                 |
| Middle(5200MHz)  | 12.04                   | $12.04 \pm 1$           | 13.04                 |
| Highest(5240MHz) | 12.21                   | $12.21 \pm 1$           | 13.21                 |

| 802.11n(HT40)    |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(5190MHz)  | 12.11                   | $12.11 \pm 1$           | 13.11                 |
| Highest(5230MHz) | 12.04                   | $12.04 \pm 1$           | 13.04                 |

#### WIFI 5G U-NII 1

| Worst case: 802.11n(HT20) |                                           |                                          |                    |                                                  |       |        |
|---------------------------|-------------------------------------------|------------------------------------------|--------------------|--------------------------------------------------|-------|--------|
| Channel                   | Maximum Peak Conducted Output Power (dBm) | Maximum Peak Conducted Output Power (MW) | Antenna Gain (dBi) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit | Result |
| Highest(5240 MHz)         | 13.21                                     | 20.99                                    | 2                  | 0.0066                                           | 1.0   | Pass   |

Note: 1) Refer to report **MTWG22020077-R2** for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (20.99 * 1.58) / (4 * 3.1416 * 20^2) = 0.0066$

## WIFI 5G U-NII 3

| 802.11a          |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(5745MHz)  | 12.54                   | $12.54 \pm 1$           | 13.54                 |
| Middle(5785MHz)  | 12.42                   | $12.42 \pm 1$           | 13.42                 |
| Highest(5825MHz) | 12.22                   | $12.22 \pm 1$           | 13.22                 |

| 802.11n(HT20)    |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(5745MHz)  | 12.14                   | $12.14 \pm 1$           | 13.14                 |
| Middle(5785MHz)  | 12.15                   | $12.15 \pm 1$           | 13.15                 |
| Highest(5825MHz) | 12.12                   | $12.12 \pm 1$           | 13.12                 |

| 802.11n(HT40)    |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(5755MHz)  | 11.88                   | $11.88 \pm 1$           | 12.88                 |
| Highest(5795MHz) | 11.82                   | $11.82 \pm 1$           | 12.82                 |

## WIFI 5G U-NII 3

| Worst case: 802.11a |                                           |                                          |                    |                                                  |       |        |
|---------------------|-------------------------------------------|------------------------------------------|--------------------|--------------------------------------------------|-------|--------|
| Channel             | Maximum Peak Conducted Output Power (dBm) | Maximum Peak Conducted Output Power (MW) | Antenna Gain (dBi) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit | Result |
| Highest(5745MHz)    | 13.54                                     | 22.59                                    | 2                  | 0.007                                            | 1.0   | Pass   |

Note: 1) Refer to report **MTWG22020077-R2** for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (22.59 * 1.58) / (4 * 3.1416 * 20^2) = 0.007$

.....**THE END OF REPORT**.....