

## RF Exposure Evaluation Report

**Report Reference No.**..... : **MTEB25040270-H**

**FCC ID**..... : **2BEJK-QT-07W**

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..... : **Apr.23,2025**

**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**..... : **Shenzhen Power-Tomorrow Actuator Valve Co.,Ltd.**

Address..... : 5th Floor, Building A , Mingjinhai industrial park, 1st Street ,Gushu  
Hongwan ,Bao' an District, Shenzhen, China.

**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.

**Shenzhen Most Technology Service Co., Ltd. All rights reserved.**

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen Most Technology Service Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen Most Technology Service Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

**Test item description**..... : Soil temperature and humidity sensor

Trade Mark..... : N/A

Model/Type reference..... : QT-07W

Listed Models ..... : N/A

Modulation Type..... : b: DSSS  
g/n: OFDM

Operation Frequency..... : From 2412MHz~2462MHz

Rating..... : DC 4.5V by Batteries

Hardware version..... : V1.0

Software version ..... : V1.0

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

## TEST REPORT

Equipment under Test : Soil temperature and humidity sensor

Model /Type : QT-07W

Listed Models : N/A

Remark : N/A

Applicant : Shenzhen Power-Tomorrow Actuator Valve Co.,Ltd.

Address : 5th Floor, Building A , Mingjinhai industrial park, 1st Street ,Gushu Hongwan ,Bao' an District, Shenzhen, China.

Manufacturer : Shenzhen Power-Tomorrow Actuator Valve Co.,Ltd.

Address : 5th Floor, Building A , Mingjinhai industrial park, 1st Street ,Gushu Hongwan ,Bao' an District, Shenzhen, China.

|                     |             |
|---------------------|-------------|
| <b>Test Result:</b> | <b>PASS</b> |
|---------------------|-------------|

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       | 2025.04.23 | 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 (MHz)                                          | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (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****WIFI 2.4G**

| 802.11b          |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2412MHz)  | 10.64                   | $10.64 \pm 1$           | 11.64                 |
| Middle(2437MHz)  | 11.61                   | $11.61 \pm 1$           | 12.61                 |
| Highest(2462MHz) | 12.29                   | $12.29 \pm 1$           | 13.29                 |

| 802.11g          |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2412MHz)  | 12.53                   | $12.53 \pm 1$           | 13.53                 |
| Middle(2437MHz)  | 11.76                   | $11.76 \pm 1$           | 12.76                 |
| Highest(2462MHz) | 12.44                   | $12.44 \pm 1$           | 13.44                 |

| 802.11n(H20)     |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2412MHz)  | 11.24                   | $11.24 \pm 1$           | 12.24                 |
| Middle(2437MHz)  | 11.35                   | $11.35 \pm 1$           | 12.35                 |
| Highest(2462MHz) | 12.09                   | $12.09 \pm 1$           | 13.09                 |

**WIFI 2.4G**

| Worst case: 802.11g |                             |                            |                    |                                                  |       |        |
|---------------------|-----------------------------|----------------------------|--------------------|--------------------------------------------------|-------|--------|
| Channel             | Maximum tune-up Power (dBm) | Maximum tune-up Power (MW) | Antenna Gain (dBi) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit | Result |
| Lowest(2412MHz)     | 13.53                       | 22.54                      | 2.2                | 0.0074                                           | 1.0   | Pass   |

Note: 1) Refer to report MTEB25040270-R1 for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (22.54 * 1.66) / (4 * 3.1416 * 20^2) = 0.0074$

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