

SAR Exclusion Evaluation Report

Applicant : Mobile Action Technology Inc.
Product Type : Bluetooth 4.0 Low Energy Wristband
Trade Name : Q-Watch
Model Number : Q-82
Date of Received : Jan. 03, 2019
Test Period : Jan. 17, 2019
Date of Issued : Jan. 19, 2019

Issue by

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Taiwan Accreditation Foundation accreditation number: 1330

Test Firm MRA designation number: TW0010



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Revision History

| Rev. | Issue Date | Revisions | Revised By |
|------|---------------|---------------|-------------|
| 00 | Jan. 19, 2019 | Initial Issue | Shelly Chen |
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1. Description of Equipment under Test (EUT)

| | | |
|---------------------|--|-----------------------|
| Applicant | Mobile Action Technology Inc. 5F., No.205-3, Sec.3, Beishin Rd., Shindian City Taipei Taiwan 231 | |
| Manufacturer | Heisei Technology Co., Ltd. 2F.,No.5,Aly.8,Ln.45.,Baoting Rd.,Xindian Dist.,New Taipei City 231,Taiwan,R.O.C. | |
| Product Type | Bluetooth 4.0 Low Energy Wristband | |
| Trade Name | Q-Watch | |
| Model Number | Q-82 | |
| FCC ID | Q7Z-19H82R1 | |
| Frequency Range | Operate Band | Frequency Range (MHz) |
| | Bluetooth LE | 2402 ~ 2480 |
| Antenna information | Type | Max. Gain (dBi) |
| | FPC Antenna | -6.53 |

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1093. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

2. Reference Testing Standards

| Standard | Description | Version |
|------------------------|---|---------|
| ANSI/IEEE C95.1 | American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 KHz to 100 GHz, New York. | 1992 |
| IEEE 1528 | IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head From Wireless Communications Devices: Measurement Techniques. | 2013 |
| FCC 47 CFR Part 2.1093 | Radiofrequency radiation exposure evaluation: portable devices. | --- |
| FCC KDB 865664 D01 | SAR measurement 100 MHz to 6 GHz - describes SAR measurement procedures for devices operating between 100 MHz to 6 GHz | v01r04 |
| FCC KDB 865664 D02 | RF Exposure Reporting - provides general reporting requirements as well as certain specific information required to support MPE and SAR compliance. | v01r02 |
| FCC KDB 447498 D01 | General RF Exposure Guidance - provides guidance pertaining to RF exposure requirements for mobile and portable device equipment authorizations. | v06 |



3. SAR Test Exclusion

As RF exposure evaluation of portable device, SAR test is not required when the evaluation results. According to KDB 447498 4.3.1, unless excluded by specific FCC test procedures, portable devices shall include SAR data for equipment approval. SAR test necessity will be based on the exclusion result.

The test exclusion refers KDB 447498 as below:

≤50 mm:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f}(\text{GHz})] \leq 3.0$$
 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

>50mm and <200mm:

- a) $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]$
mW, at 100 MHz to 1500 MHz
- b) $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10]$ mW at > 1500 MHz and ≤ 6 GHz

3.1 Conducted Power

The conducted power turn-up tolerance, please reference manufacturer specification.

| Operate Band | Modulation Type | Data Rate (Mbps) | Frequency (MHz) | Average Power (dBm) |
|--------------|-----------------|------------------|-----------------|---------------------|
| Bluetooth LE | GFSK | 1 | 2402.0 | -11.878 |
| | | | 2440.0 | -12.588 |
| | | | 2480.0 | -13.558 |

3.2 Antenna Location

| Transmitter and antenna implementation | |
|--|-------------------|
| Operate Band | Bluetooth Antenna |
| Bluetooth LE | V |

| Ant. Used | Antenna to user distance (mm) | |
|-------------------|-------------------------------|------|
| | Front | Back |
| Bluetooth Antenna | 5 | 5 |

Note : We use a minimum distance of 5mm for bluetooth function.



3.3 Evaluation Results

The evaluation of SAR test reduction according to KDB447498

SAR test is not required when the results showed "EXEMPT".

| SAR test reduction | | | | | | |
|--------------------|--------------|-----------------|------------|-------|----------------------------|--------|
| Ant. Used | Band | Frequency (GHz) | Tune-Power | | Calculated threshold value | |
| | | | (dBm) | (mW) | Front | Back |
| Bluetooth Antenna | Bluetooth LE | 2.48 | -11 | 0.079 | 0.0 | 0.0 |
| | | | | | EXEMPT | EXEMPT |

Exclusion Considerations: SAR is not required

- Note:
1. Calculated Value include string "mW", that is mean through compare output power with threshold, if the output power more than threshold value the SAR test should be perform. Otherwise, the SAR test could be exempt. (> 50 mm)
 2. Calculated Value only inculde number format, that is mean through compare output power with threshold, if the Calculated value more than 3, the SAR test should be perform. Otherwise, the SAR test could be exempt. (<50 mm)
 3. When an antenna qualifies for the standalone SAR test exclusion of KDB 447498 section 4.3.1 and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to KDB 447498 section "4.3.2. Simultaneous transmission SAR test exclusion considerations b) ".
 4. We used highest frequency and power, that result should be evaluated the worst case.
 5. Power and distance are rounded to the nearest mW and mm before calculation.
 6. The result is rounded to one decimal place for comparison.
 7. We use a minimum distance of 5 mm for bluetooth function.