# Test Report

| | |
|---|---|
| **Report No.:** | MTi231027001-50E2 |
| **Date of issue:** | 2024-04-12 |
| **Applicant:** | Raycon Inc. |
| **Product:** | RAYCON MAGIC POWER BANK STAND |
| **Model(s):** | RAPBAN300, RAPBAN300 Pro, N30, N30 Pro, RAPBAN300-24E-BLA, RAPBAN300-24E-BLU, RAPBAN300-24E-ROS, RAPBAN300-24E-SIL, RAPBAN300-25E-BLA, RAPBAN300-25E-BLU, RAPBAN300-25E-ROS, RAPBAN300-25E-SIL |
| **FCC ID:** | 2AZOV-RAPBAN300 |

Shenzhen Microtest Co., Ltd.

http:// Web: www.mtitest.cn

# Instructions

1. This test report shall not be partially reproduced without the written consent of the laboratory.

2. The test results in this test report are only responsible for the samples submitted

3. This test report is invalid without the seal and signature of the laboratory.

4. This test report is invalid if transferred, altered, or tampered with in any form without authorization.

5. Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

# Contents

| Test Result Certification | |
|---|---|
| **Applicant:** | Raycon Inc. |
| Address: | 1115 Broadway, Suite 12, New York, NY 10010 |
| **Manufacturer:** | Raycon Inc. |
| Address: | 1115 Broadway, Suite 12, New York, NY 10010 |
| **Product description** | |
| Product name: | RAYCON MAGIC POWER BANK STAND |
| Trademark: | Raycon |
| Model name: | RAPBAN300 |
| Series Model: | RAPBAN300 Pro, N30, N30 Pro, RAPBAN300-24E-BLA, RAPBAN300-24E-BLU, RAPBAN300-24E-ROS, RAPBAN300-24E-SIL, RAPBAN300-25E-BLA, RAPBAN300-25E-BLU, RAPBAN300-25E-ROS, RAPBAN300-25E-SIL |
| Standards: | FCC CFR 47 PART 1, § 1.1310 |
| Test method: | KDB 680106 D01 Wireless Power Transfer v04 |
| **Date of Test** | |
| Date of test: | 2024-03-20 to 2024-04-12 |
| Test result: | Pass |

| | | |
|---|---|---|
| **Test Engineer** | : | James Qin |
| | | (James Qin) |
| **Reviewed By** | : | David. Lee |
| | | (David Lee) |
| **Approved By** | : | Leon chen |
| | | (Leon Chen) |

# 1 General Description

## 1.1 Description of the EUT

| | |
|---|---|
| Product name: | RAYCON MAGIC POWER BANK STAND |
| Model name: | RAPBAN300 |
| Series Model: | RAPBAN300 Pro, N30, N30 Pro, RAPBAN300-24E-BLA, RAPBAN300-24E-BLU, RAPBAN300-24E-ROS, RAPBAN300-24E-SIL, RAPBAN300-25E-BLA, RAPBAN300-25E-BLU, RAPBAN300-25E-ROS, RAPBAN300-25E-SIL |
| Model difference: | All the models are the same circuit and module, except the model name. |
| Electrical rating: | Battery Capacity: DC3.7V 37Wh, 10000mAh<br>Lighting: Input 20W, DC5V2.5A, 9V2A,<br>Type C: Input&Output 20W, DC5V2.5A, 9V2A, 12V1.67A<br>Wireless Charger Output: 5W, 7.5W, 10W, 15W |
| Accessories: | N/A |
| Hardware version: | MP01-V1.1 |
| Software version: | MP01-6206-V10 |
| Test sample(s) number: | MTi231027001-50S1001 |
| **RF specification:** | |
| Operation frequency: | Coil1: 115-205kHz<br>Coil2: 325kHz |
| Modulation type: | ASK |
| Antenna type: | Coil |

## 1.2 Description of test modes

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

| No. | Test modes |
|---|---|
| Mode1 | Wireless Output(5W) |
| Mode2 | Wireless Output(7.5W) |
| Mode3 | Wireless Output(10W) |
| Mode4 | Wireless Output(15W) |
| Mode5 | Wireless Output(2.5W) |
| Mode6 | Wireless Output(5W+2.5W) |
| Mode7 | Wireless Output(7.5W+2.5W) |
| Mode8 | Wireless Output(10W+2.5W) |
| Mode9 | Wireless Output(15W+2.5W) |
| Mode10 | Stand by |

### 1.3 Description of support units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| **Support equipment list** | | | |
|---|---|---|---|
| Description | Model | Serial No. | Manufacturer |
| Mobile phone | S9+ | / | SAMSUNG |
| iWatch | iwatch 7 | / | apple |
| HUAWEI QUICK CHARGE(65W) | HW-200200ZP1 | JN67LSN7N03451 | HUAWEI |
| **Support cable list** | | | |
| Description | Length (m) | From | To |
| / | / | / | / |

## 2 Measurement uncertainty

| Parameter | Expanded Uncertainty |
|---|---|
| Magnetic field measurement (3kHz~10MHz) | ±14.8% |
| Electric field measurements (3kHz~10MHz) | ±17.5% |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

# 3 Test facilities and accreditations

## 3.1 Test laboratory

| | |
|---|---|
| Test laboratory: | Shenzhen Microtest Co., Ltd. |
| Test site location: | 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China |
| Telephone: | (86-755)88850135 |
| Fax: | (86-755)88850136 |
| CNAS Registration No.: | CNAS L5868 |
| FCC Registration No.: | 448573 |

# 4 List of test equipment

| No. | Equipment | Manufacturer | Model | Serial No. | Cal. date | Cal. Due |
|---|---|---|---|---|---|---|
| MTI-E143 | Near-field Electric and Magnetic Field Sensor System | Speag | MAGPy-8H3D +ED3 V2 | 3101 | 2024/3/12 | 2027/3/11 |

| No. | Equipment | Manufacturer | Model | Software version: | Cal. date | Cal. Due |
|---|---|---|---|---|---|---|
| MTI-E016S | MPE test software | SPEAG | MAGPY 2.4 | 2.4.1 | / | / |

# 5 Test result

### 5.1.1 Requirement

§1.1310: 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 §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

**Table 1 to §1.1310(e)(1) - Limits for Maximum Permissible Exposure (MPE)**

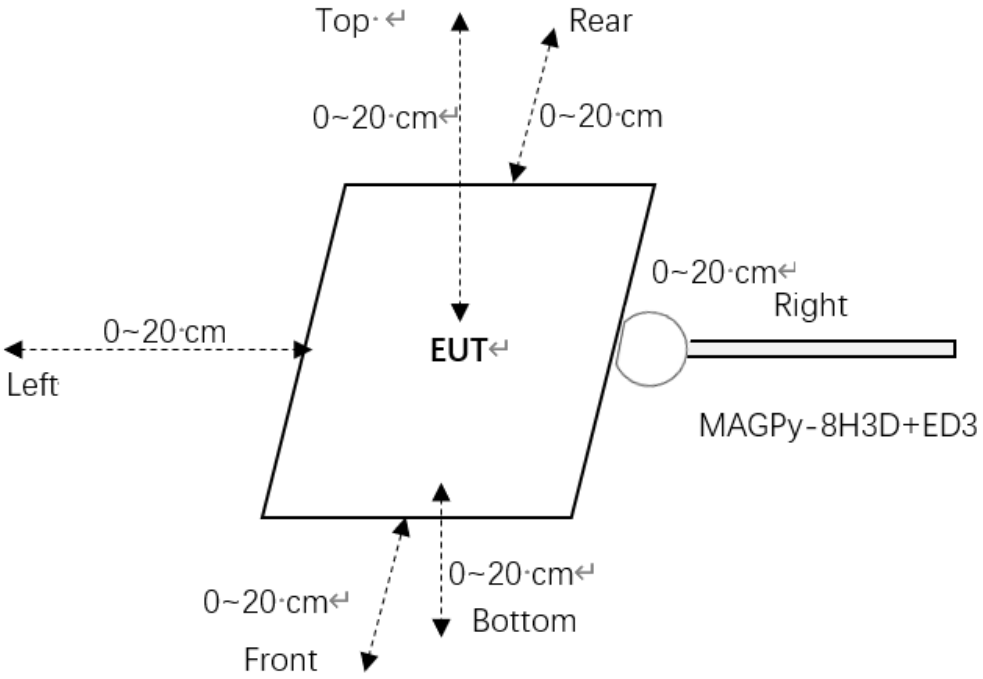
| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density ($mW/cm^2$) | Averaging time (minutes) |
|---|---|---|---|---|
| **(i) Limits for Occupational/Controlled Exposure** | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | ≤6 |
| 3.0-30 | 1842/f | 4.89/f | *($900/f^2$) | <6 |
| 30-300 | 61.4 | 0.163 | 1.0 | <6 |
| 300-1500 | | | f/300 | <6 |
| 1500-100000 | | | 5 | <6 |
| **(ii) 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 |
| 1500-100000 | | | 1.0 | <30 |

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

**Note 1:** Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

**Note 2:** General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

### 5.2 Test setup




Note: tips mode of the test probe is used for 0cm measurement.

### 5.3 Test Procedures

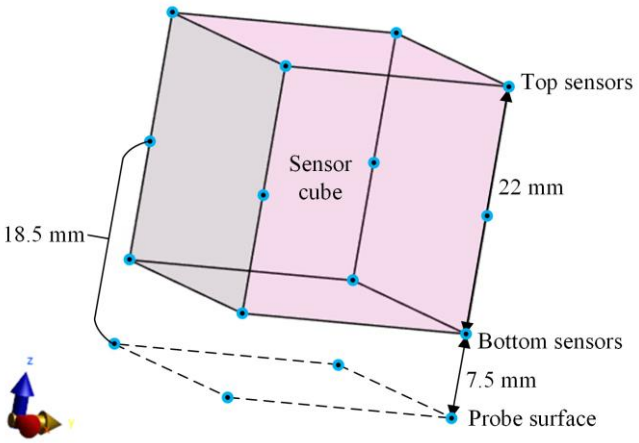
**For portable exposure conditions:**

a. H-field measurements should be taken 0 cm ~ 20 cm with 2 cm increments from the center of the probe.

The center of the probe to the tip surface of the probe is 18.5 mm, so the directly testing can be performed at the probe center from 2 cm to 20 cm.

To measure the 0 cm H-filed, the probe tip mode is used. The total H-field at the tip-surface $H_{tip-surface}$ can be extrapolated using the total H-field measured at the top and bottom sensors, $H_{top}$ and $H_{bottom}$, as well as the normalized H-field gradient $G_n$. The field extrapolation formula is a polynomial function of $G_n$ ($\Delta$d = 18.5 mm)

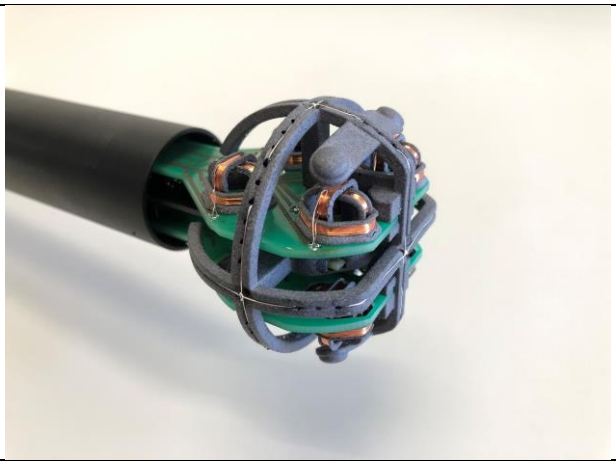
$$H_{tip-surface} = \frac{H_{bottom} + H_{top}}{2} \sum_{i=0}^{7} ci(G_n \Delta d)^i$$




**Notes: The EUT was setted to transmit continuously with the duty cycle of 100%.**

## 5.4 Information of test equipment

| Test equipment: MAGPy-8H3D+ED3 | |
|---|---|
| Diameter | 60mm |
| 8 isotropic H-field sensors | Concentric loops of 1cm$^2$ arranged at the corner of a cube of 22mm side length |
| 1 isotropic E-field sensor | Orthogonal dipole/monopple(arm length:50mm) |
| Measurement center | 18.5mm from the probe tip |
| Dimensions | 110*635*35mm<br>(MAGPy-8H3D+E3D V2 & MAGPy-DAS V2) |



Test probe, without the casing

| Item | Specification |
|---|---|
| Test frequency range: | 3kHz ~ 10MHz |
| Probe sensitivity | E-filed: 0.08-2000 V/m<br>H-filed: 0.1-3200 A/m |
| Probe level response | E-filed: ±1dB<br>H-field: ±1dB |
| linearity error | E-filed: ±0.3dB<br>H-field: ±0.3dB |
| Isotropy | E-filed: ±0.8dB<br>H-field: ±0.6dB |

## 5.5 Test results

**Test condition 1: Mode 4 operating mode with client device (1 % battery status of client device)**
**- Test distance: 0cm**
**Estimated value for H-Filed Strength at 0 cm from the edges surrounding the EUT (A/m)**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 1.4321 | 1.63 | 87.86% |
| | Left | 1.3845 | | |
| | Right | 1.2917 | | |
| | Front | 1.3473 | | |
| | Rear | 1.1712 | | |
| | Bottom | 0.8763 | | |

**Test condition 2: Mode 4 operating mode with client device (1 % battery status of client device)**
**- Test distance: 2cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 1.0502 | 1.63 | 64.43% |
| | Left | 0.9254 | | |
| | Right | 0.8378 | | |
| | Front | 1.0211 | | |
| | Rear | 0.7123 | | |
| | Bottom | 0.5863 | | |

**Test condition 3: Mode 4 operating mode with client device (1 % battery status of client device) - Test distance 4cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 0.6111 | 1.63 | 37.49% |
| | Left | 0.4432 | | |
| | Right | 0.5456 | | |
| | Front | 0.4421 | | |
| | Rear | 0.4411 | | |
| | Bottom | 0.2376 | | |

**Test condition 4: Mode 4 operating mode with client device (1 % battery status of client device) - Test distance 6cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 0.2421 | 1.63 | 14.85% |
| | Left | 0.1036 | | |
| | Right | 0.0980 | | |
| | Front | 0.0810 | | |
| | Rear | 0.0808 | | |
| | Bottom | 0.0550 | | |

**Test condition 5: Mode 4 operating mode with client device (1 % battery status of client device) - Test distance 8cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 0.0964 | 1.63 | 5.91% |
| | Left | 0.0505 | | |
| | Right | 0.0564 | | |
| | Front | 0.0551 | | |
| | Rear | 0.0513 | | |
| | Bottom | 0.0526 | | |

**Test condition 6: Mode 4 operating mode with client device (1 % battery status of client device) - Test distance 10cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 0.0672 | 1.63 | 4.12% |
| | Left | 0.0441 | | |
| | Right | 0.0501 | | |
| | Front | 0.0542 | | |
| | Rear | 0.0576 | | |
| | Bottom | 0.0599 | | |

**Test condition 7: Mode 4 operating mode with client device (1 % battery status of client device) - Test distance 12cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 0.0671 | 1.63 | 4.12% |
| | Left | 0.0501 | | |
| | Right | 0.0408 | | |
| | Front | 0.0585 | | |
| | Rear | 0.0571 | | |
| | Bottom | 0.0632 | | |

**Test condition 8: Mode 4 operating mode with client device (1 % battery status of client device) - Test distance 14cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 0.0576 | 1.63 | 3.53% |
| | Left | 0.0497 | | |
| | Right | 0.0451 | | |
| | Front | 0.0542 | | |
| | Rear | 0.0516 | | |
| | Bottom | 0.0512 | | |

**Test condition 9: Mode 4 operating mode with client device (1 % battery status of client device) - Test distance 16cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 0.0661 | 1.63 | 4.06% |
| | Left | 0.0482 | | |
| | Right | 0.0473 | | |
| | Front | 0.0502 | | |
| | Rear | 0.0516 | | |
| | Bottom | 0.0466 | | |

**Test condition 10: Mode 4 operating mode with client device (1 % battery status of client device) - Test distance 18cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 0.0618 | 1.63 | 4.00% |
| | Left | 0.0513 | | |
| | Right | 0.0408 | | |
| | Front | 0.0585 | | |
| | Rear | 0.0652 | | |
| | Bottom | 0.0597 | | |

**Test condition 11: Mode 4 operating mode with client device (1 % battery status of client device) - Test distance 20cm**

| Antenna | Probe Position | H–field (A/m) | | |
|---|---|---|---|---|
| | | Measurement | Limit | Max. Percentage (%) |
| 1 | Z axis | 0.0675 | 1.63 | 4.14% |
| | Left | 0.0462 | | |
| | Right | 0.0505 | | |
| | Front | 0.0614 | | |
| | Rear | 0.0522 | | |
| | Bottom | 0.0562 | | |

## Photographs of the Test Setup

See the Appendix - Test Setup Photos.

## Photographs of the EUT

See the Appendix - EUT Photos.

**----End of Report----**