# Positec Technology (China)Co., Ltd

# MPE ASSESSMENT REPORT

**Report Type:**
FCC Part §2.1091, §2.1093 and §1.1307(b) assessment report

**Model:**
NR001L, NR001L.*
(*=0-20, A-Z, * denote different accessories)

**REPORT NUMBER:**
201000238SHA-002

**ISSUE DATE:**
June 17, 2021

**DOCUMENT CONTROL NUMBER:**
TTRFFCCMPE-01_V1 

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Total Quality. Assured.

# TEST REPORT

Report no.: 201000238SHA-002

| | |
|---|---|
| **Applicant:** | Positec Technology (China) Co., Ltd<br>18, Dongwang Road, Suzhou Industrial park, Jiangsu 215123, P.R. China |
| **Manufacturer:** | Positec Technology (China) Co., Ltd<br>18, Dongwang Road, Suzhou Industrial park, Jiangsu 215123, P.R. China |
| **Factory:** | Positec Technology (China) Co., Ltd<br>18, Dongwang Road, Suzhou Industrial park, Jiangsu 215123, P.R. China |
| **FCC ID:** | 2ASC3NR001L |

**SUMMARY:**

| The equipment complies with the requirements according to the following standard(s) or Specification: |
|---|
| KDB447498 D01 General RF Exposure Guidance v06<br>FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b) |

| **PREPARED BY:** | **REVIEWED BY:** |
|---|---|
|  |  |
| Project Engineer<br>Eric Li | Reviewer<br>Daniel Zhao |

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# Revision History

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| 201000238SHA-002 | Rev. 01 | Initial issue of report | June 17, 2021 |

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**TEST REPORT**

# 1 GENERAL INFORMATION

## 1.1 Description of Equipment Under Test (EUT)

| | |
|---|---|
| Product name: | Robotic mopping cleaner |
| Type/Model: | NR001L, NR001L.* (*=0-20, A-Z, * denote different accessories) |
| Description of EUT: | EUT is Robotic mopping cleaner with WIFI function, we test it and list the worst results in this report. |
| Rating: | Adapter:<br>Input: 100-240V~ 50-60Hz 0.5A<br>Output: 19Vd.c. 0.6A 11.4W<br>Working: 14.4V d.c. |
| EUT type: | ☒ Table top ☐ Floor standing |
| Software Version: | / |
| Hardware Version: | / |
| Sample received date: | December 8, 2020 |
| Date of test: | December 12, 2020~ December 16, 2020 |

## 1.2 Technical Specification

| | |
|---|---|
| Frequency Band: | 2400MHz ~ 2483.5MHz |
| Support Standards: | IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE 802.11n(HT40) |
| Operating Frequency: | 2412MHz to 2462MHz for IEEE 802.11b/g/n(HT20)<br>2422MHz to 2452MHz for IEEE 802.11n(HT40) |
| Type of Modulation: | IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK)<br>IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK)<br>IEEE 802.11n(HT20): OFDM (64-QAM, 16-QAM, QPSK, BPSK)<br>IEEE 802.11n(HT40): OFDM (64-QAM, 16-QAM, QPSK, BPSK) |
| Channel Number: | 11 Channels for 802.11b, 802.11g and 802.11n(HT20)<br>7 Channels for 802.11n(HT40) |
| Channel Separation: | 5 MHz |
| Antenna Information: | PCB Antenna, gain is 4.0dBi |

## 1.3 Description of Test Facility

| | |
|---|---|
| Name: | Intertek Testing Services Shanghai |
| Address: | Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China |
| Telephone: | 86 21 61278200 |
| Telefax: | 86 21 54262353 |

| | |
|---|---|
| The test facility is recognized, certified, or accredited by these organizations: | CNAS Accreditation Lab<br>Registration No. CNAS L0139 |
| | FCC Accredited Lab<br>Designation Number: CN1175 |
| | IC Registration Lab<br>CAB identifier.: CN0051 |
| | VCCI Registration Lab<br>Registration No.: R-14243, G-10845, C-14723, T-12252 |
| | A2LA Accreditation Lab<br>Certificate Number: 3309.02 |

# 2 MPE Assessment

**Test result: Pass**

## 2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

| Frequency range | E-field strength (V/m) | H-field strength (A/m) | B-field (uT) | Equivalent plane wave power density $S_{eq}$ ($W/m^2$) |
|---|---|---|---|---|
| 0-1 Hz | - | $3,2 \times 10^4$ | $4 \times 10^4$ | - |
| 1-8 Hz | 10 000 | $3,2 \times 10^4/f^2$ | $4 \times 10^4/f^2$ | - |
| 8-25 Hz | 10 000 | 4 000/f | 5 000/f | - |
| 0,025-0,8 kHz | 250/f | 4/f | 5/f | - |
| 0,8-3 kHz | 250/f | 5 | 6,25 | - |
| 3-150 kHz | 87 | 5 | 6,25 | - |
| 0,15-1 MHz | 87 | 0,73/f | 0,92/f | - |
| 1-10 MHz | $87/f^{1/2}$ | 0,73/f | 0,92/f | - |
| 10-400 MHz | 28 | 0,073 | 0,092 | 2 |
| 400-2 000 MHz | $1,375\ f^{1/2}$ | $0,0037\ f^{1/2}$ | $0,0046\ f^{1/2}$ | f/200 |
| 2-300 GHz | 61 | 0,16 | 0,20 | 10 |

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

## 2.2 Assessment Results

Power density (S) is calculated according to the formula:

$S = PG / (4\pi R^2)$

Where S = power density in $mW/cm^2$

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 201000238SHA-001:

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

The WiFi can support simultaneous transmission.

| Mode | Frequency band | Max Power | Antenna Gain | R | S | Limits |
|---|---|---|---|---|---|---|
| | (MHz) | dBm | dBi | (cm) | (mW/cm2) | (mW/cm2) |
| WiFi | 2400 -2483.5 | 11.60 | 4.0 | 20 | 0.0072 | 1 |

Note: 1 mW/cm2 from 1.310 Table 1

For the device can support simultaneous transmission, according to 447498 D01 General RF Exposure Guidance v06,

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# Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operations at closer than this distance is not recommended.

********** END **********