HERMON LABORATORIES

ELECTRICAL TESTING
0839.01

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# TEST REPORT

**ACCORDING TO: FCC 47CFR part 1 section 1.1310**
**KDB 680106 D01 v03, section 3(c)**

**FOR:**

## Essence Smartcare Ltd.
## Wireless Charger of Mobile Personal Emergency Response System
## Model: ES902MPRS-CRADLE

# Table of contents

# 1 Applicant information

| | |
|---|---|
| **Client name:** | Essence Smartcare Ltd. |
| **Address:** | 12 Abba Eban avenue, Ackerstein Tower Bldg. D, P.O.Box 2073, Herzliya 4612001, Israel |
| **Telephone:** | +972 732 447 735 |
| **Fax:** | +972 9772 9962 |
| **E-mail:** | israelgo@essence-grp.com |
| **Contact name:** | Mr. Israel Gottesman |

# 2 Equipment under test attributes

| | |
|---|---|
| **Product name:** | Wireless Charger of Mobile Personal Emergency Response System |
| **Model(s):** | ES902MPRS-CRADLE |
| **Serial number:** | 1623095800001533 |
| **Hardware version:** | A0 |
| **Software release:** | NA |
| **Receipt date** | 23-Jun-23 |

# 3 Manufacturer information

| | |
|---|---|
| **Client name:** | Odsonic Computer Co. |
| **Telephone:** | +86-755-814 663 242 |
| **Website:** | www.odsound.com |

# 4 Test details

| | |
|---|---|
| **Project ID:** | 50382 |
| **Location:** | Hermon Laboratories Ltd. P.O. Box 23, Binyamina 3055001, Israel |
| **Test started:** | 13-Aug-23 |
| **Test completed:** | 13-Aug-23 |
| **Test specification(s):** | FCC 47CFR part 1:2020, KDB 680106 D01 v03 |

# 5 Tests summary

| Test | Status |
|---|---|
| H-field mesurment | Pass |

This test report supersedes the previously issued test report identified by Doc ID: ESSRAD_FCC.50382_RFexp

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

| | Name and Title | Date | Signature |
|---|---|---|---|
| **Tested by:** | Mrs. M. Evsuk, certification specialist, EMC & Radio | 13-Aug-23 |  |
| **Reviewed by:** | Mrs. S. Peysahov Sheynin, certification specialist, EMC & Radio | 22-Dec-23 – 07-Jan-25 |  |
| **Approved by:** | Mr. M. Nikishin, group leader, EMC & Radio | 07-Jan-25 |  |

# 6 EUT description

Note: The following data in this clause is provided by the customer and represents his sole responsibility

## 6.1 General information

The EUT is a wireless charger for Mobile Personal Emergency Response System, which includes a pendant and a charging cradle.

The EUT in charging mode is receiving power wirelessly from a WPT source (charging cradle).

The EUT is powered from AC mains via AC/DC adapter, model DSA-10PF06-05, manufactured by DEE VAN ENTERPRISE Co. Ltd.

## 6.2 Ports and lines

| Port type | Port description | Connected from | Connected to | Qty. | Cable type | Cable length, m |
|---|---|---|---|---|---|---|
| Power | AC | AC/DC adapter | AC mains | 1 | Shielded | 1.6 m |
| Power | DC | AC/DC adapter | Wireless charger | 1 | Unshielded | 1.8 m |

## 6.3 EUT modes of operation

**Charge mode**

There is RF receiver consuming RF energy continuously, RF power transmitter is active at maximum power

**Operating frequencies**

| Source | Frequency, kHz |
|---|---|
| WPT (wireless power transfer) transmitter | 162.5 |

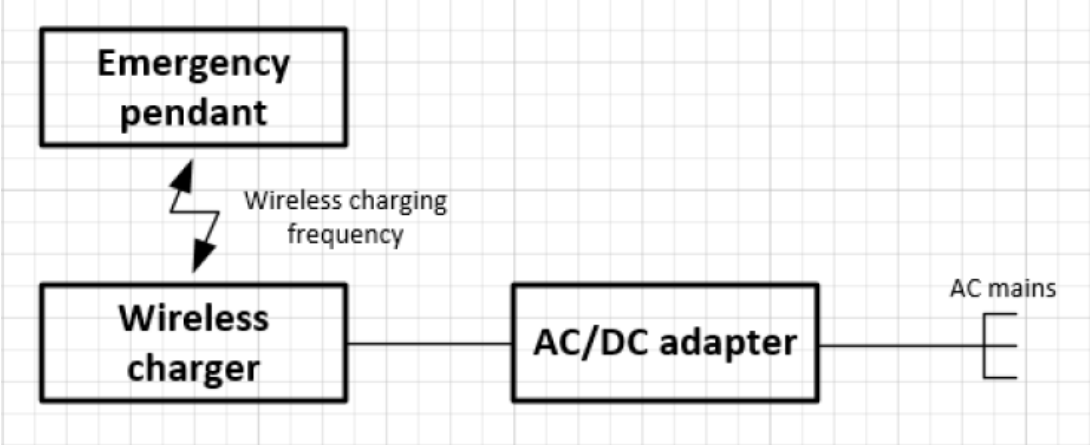
**Idle mode**

There is no RF receiver consuming RF energy.

## 6.4 Changes made in EUT

No changes were performed in the EUT during testing.

## 6.5 Test configuration



# 7 RF exposure assessment

## 7.1 RF exposure

### 7.1.1 General

This test was performed to verify compliance with the relevant limits for general public exposure specified as basic restrictions or reference levels in the KDB 680106 D01 v02, section 3.3) & FCC sections 1.1307(b), 1.1310.. Specification test limits are given in Table 7.1.1.

**Table 7.1.1 Reference levels for electric, magnetic and electromagnetic fields**

| Frequency range, kHz | H-field, A/m | B-field, µT | Electric field strength, V/m |
|---|---|---|---|
| **KDB 680106 D01 v03, section 3(c) & FCC section1.1310 Limits for general population/ uncontrolled exposure** | | | |
| 0.1-0.3 | 1.63 | 2.05 | 614 |

*More stringent for the highest frequency of the range

### 7.1.2 Test procedure

**7.1.2.1** The EUT was set up as shown in Figure 7.1.1 and the associated photographs. The RF exposure test was performed in free space conditions with isotropic magnetic field probe.

**7.1.2.2** The ambient noise was measured and the result was recorded in Table 7.1.2.

**7.1.2.3** The test was performed in charging mode.

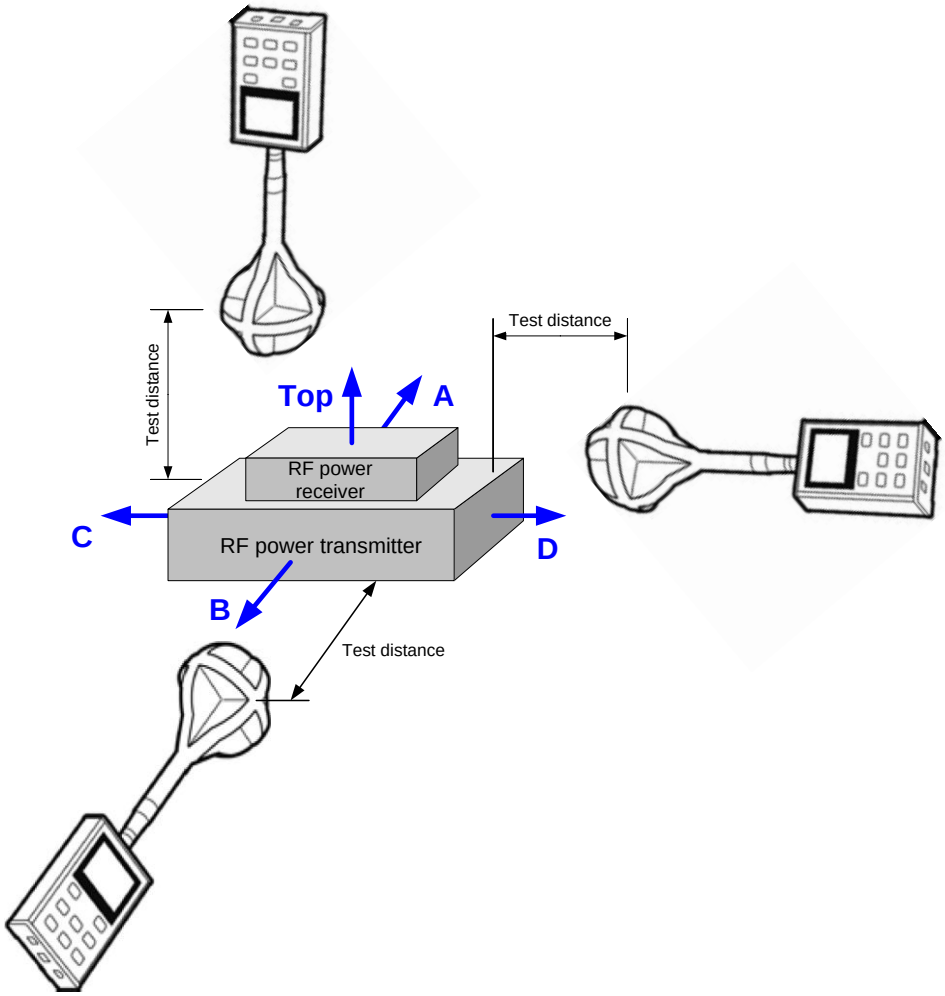
**7.1.2.4** The Magnetic Field Tester (measurement probe) was placed at a 20 cm test distance, which is between the the edge of the charger and geometric center of the probe.

**7.1.2.5** The upper side of the charging spotand nearby area at the edges were searched for the maximum probe reading while keeping 20 cm distance beween the center of the probe and the closest EUT surface.

**7.1.2.6** The highest emission level was recorded in Table 7.1.3 and compared with the limit.

**7.1.2.7** The test was repeated at the rest of test points (top, A, B, C, D) according to Table 7.1.3.

**Figure 7.1.1 Setup for RF exposure measurements**



**Photograph 7.1.1 Setup for RF exposure measurements, noise measurements**

**Photograph 7.1.2 Setup for RF exposure measurements, idle mode (without Receiver)**

**Photograph 7.1.3 Setup for RF exposure measurements, charging mode**

**Table 7.1.2 Magnetic flux density measurement according to FCC section 1.1310 limits, noise measurement**

| Frequency, kHz | Operating mode | Test distance, m | H-Field result, A/m | Limit, A/m | Margin, A/m | Verdict |
|---|---|---|---|---|---|---|
| Noise | Without EUT | 0.20 | 0.058 | 1.63 | -1.572 | Pass |

**Table 7.1.3 Electric flux density measurement according to FCC section 1.1310 limits, noise measurement**

| Frequency, kHz | Operating mode | Test distance, m | H-Field result, V/m | Limit, V/m | Margin, V/m | Verdict |
|---|---|---|---|---|---|---|
| Noise | Without EUT | 0.20 | 0.48 | 614 | -613.52 | Pass |

**Table 7.1.4 Magnetic flux density measurement according to FCC section 1.1310 limits**

| Frequency, kHz | Aux receiver antenna | Magnetic field strength, A/m | | | | | | Limit, A/m | Margin, A/m | Verdict |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Side A | Side B | Side C | Side D | Top | Max | | | |
| 162.5 | Idle | 0.058 | 0.058 | 0.058 | 0.059 | 0.067 | 0.067 | 1.63 | -1.563 | Pass |
| 162.5 | Charging | 0.064 | 0.065 | 0.065 | 0.067 | 0.209 | 0.209 | 1.63 | -1.421 | Pass |

**Table 7.1.5 Electric flux density measurement according to FCC section 1.1310 limits**

| Frequency, kHz | Aux receiver antenna | Magnetic field strength, V/m | | | | | | Limit, V/m | Margin, V/m | Verdict |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Side A | Side B | Side C | Side D | Top | Max | | | |
| 162.5 | Idle | 0.5 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 614 | -613.4 | Pass |
| 162.5 | Charging | 0.8 | 0.9 | 0.8 | 1.0 | 1.3 | 1.3 | 614 | -612.7 | Pass |

**Reference numbers of test equipment used**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HL 4976 | HL 2976 | | | | | | |

Full description is given in Appendix A.

# RF Exposure evaluation according to FCC §1.1310

The wireless charger transmitter operates in 110-205 kHz range. It transfers power to WiFi emergency pendant transmitter. The wireless charger is classified as a mobile device.

Limit for power density for general population/uncontrolled exposure is 1 mW/cm$^2$ for 2.4 GHz band.

The power density **P (mW/cm$^2$) = $P_T$ / 4$\pi$ r$^2$**

1) EUT:
   Max H-Field result is 0.209 A/m, that corresponds to power density 1.63 mW/cm$^2$ at limit 100 mW/cm$^2$
   (limit from ANSI/IEEE Std C95.1–2019)

2) Emergency pendant transmitter (2412-2462 MHz): the maximum equivalent isotropically radiated power EIRP is 22.52 dBm which corresponds to 178.64 mW (please refer to test report ESSRAD_FCC.50382_WiFi).

   The power density at 20 cm (minimum safe distance, required by KDB 680106), calculated as follows:

   $$178.64 \text{ mW} / 4\pi (20 \text{ cm})^2 = 0.035 \text{ mW/cm}^2 << 1 \text{ mW/cm}^2$$

   **<u>Summation</u>**

   When all the antennas are at least 10 cm away from the user but individual antennas cannot be separated by 10 cm from each other, the following equation shall be fulfilled

   $$S1/\text{Limit} + S2/\text{Limit} < 1, \text{ i.e.}$$
   $$1.63 \text{ mW/cm}^2 / 100 \text{ mW/cm}^2 + 0.035 \text{ mW/cm}^2 / 1 \text{ mW/cm}^2 = 0.0163 + 0.035 = 0.0513 < 1$$

   Therefore, the charging spot including pendant transmitter complies with FCC RF exposure limit for mobile device for general population.

   General public cannot be exposed to dangerous RF level.

# 8 APPENDIX A Test equipment and ancillaries used for tests

| HL No | Description | Manufacturer | Model | Ser. No. | Last Cal./ Check | Due Cal./ Check |
|---|---|---|---|---|---|---|
| 4976 | Magnetic Field HiTester, with 100 cm² and 3 cm² sensors, ICNIRP 2010 | Hioki | FT3470-50 | 150232060 | 13-Apr-22 | 13-Apr-24 |
| 2976 | Fieldmeter with EF2 isotropic probe (100 kHz to 2.5 GHz, 0.1 V/m to 200 V/m). | CHAUVIN ARNOUX | C.A 43 | 2976 | 15-Dec-22 | 15-Dec-23 |

# 9 APPENDIX B Measurement uncertainties

**Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements**

| Test description | Expanded uncertainty |
|---|---|
| H-field | ± 5.5 % |

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

# 10 APPENDIX C Test laboratory description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, Radio, Safety, Environmental and Telecommunication testing facility.
Hermon Laboratories is recognized and accredited by the Federal Communications Commission (USA) for relevant parts of Code of Federal Regulations 47 (CFR 47), Test Firm Registration Number is 927748, Designation Number is IL1001; Recognized by Innovation, Science and Economic Development Canada for wireless and terminal testing (ISED), ISED #2186A, CAB identifier is IL1001; Certified by VCCI, Japan (the registration numbers for OATS are R-10808 for RE measurements below 1 GHz, G-20112 for RE measurements above 1 GHz, R-11082 for anechoic chamber for RE measurements below 1 GHz, G-10869 for RE measurements above 1 GHz, C-10845 for conducted emissions site and T-11606 for conducted emissions at telecommunication ports).
The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing, environmental simulation and calibration (for exact scope please refer to Certificate No. 839.01, 839.03 and 839.04).

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Person for contact: Mr. Michael Nikishin, EMC&Radio group manager

# 11 APPENDIX D Specification references

| | |
|---|---|
| FCC 47CFR part 1:2020 | Subpart I-Procedures Implementing the National Environmental Policy Act of 1969. |
| KDB680106 D01 v03r01 | RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Application |

# 12 APPENDIX E Abbreviations and acronyms

| | |
|---|---|
| A | ampere |
| A/m | ampere per meter |
| AVRG | average (detector) |
| cm | centimeter |
| dB | decibel |
| dBm | decibel referred to one milliwatt |
| dB(μV) | decibel referred to one microvolt |
| dB(μV/m) | decibel referred to one microvolt per meter |
| dB(μA) | decibel referred to one microampere |
| DC | direct current |
| EIRP | equivalent isotropically radiated power |
| ERP | effective radiated power |
| EUT | equipment under test |
| F | frequency |
| GHz | gigahertz |
| GND | ground |
| H | height |
| HL | Hermon laboratories |
| Hz | hertz |
| ICNIRP | International Commission on Non-Ionizing Radiation Protection |
| k | kilo |
| kHz | kilohertz |
| LO | local oscillator |
| m | meter |
| MHz | megahertz |
| min | minute |
| mm | millimeter |
| ms | millisecond |
| μs | microsecond |
| NA | not applicable |
| OATS | open area test site |
| Ω | Ohm |
| PS | power supply |
| ppm | part per million ($10^{-6}$) |
| QP | quasi-peak |
| RE | radiated emission |
| RF | radio frequency |
| rms | root mean square |
| Rx | receive |
| s | second |
| T | temperature |
| Tx | transmit |
| V | volt |

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