

## 1. GENERAL INFORMATION

### 1.1 CLIENT INFORMATION

|            |                     |
|------------|---------------------|
| Applicant: | DESIGN POOL LIMITED |
| FCC ID:    | X3QDROMS01          |

### 1.2 EUT INFORMATION

|                            |                                                                         |
|----------------------------|-------------------------------------------------------------------------|
| Product Name:              | Wireless Charger                                                        |
| Model No.:                 | DROP Magnetic Charger                                                   |
| Brand Name:                | Native Union                                                            |
| DUT Stage:                 | Production Unit                                                         |
| Operating Frequency Range: | 127.6kHz                                                                |
| Antenna Type:              | Coil Antenna                                                            |
| Power Supply               | USB Port of AC/DC Adaptor (Input: 110-240VAC 50/60Hz A; Output: VDC A). |
| Sample Received Date:      | March 10, 2022                                                          |
| Sample Tested Date:        | April 29, 2022.                                                         |

### 1.3 OTHER INFORMATION

#### Support Equipment

- 2) 15W Loading (Provided by Intertek)
- 3) 1 x USB cable with length of 2.02m (Provided by Applicant)
- 4) AC/DC Adaptor with USB -C port of 5-12VDC (Provided by Applicant)
  - Model: SMPD02
  - Input: 100-240VAC 50-60Hz
  - Output: 5.0 – 12.0VDC 1.5A -3A

### 1.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

According to KDB680106 D01 RF Exposure Wireless Charging Apps v03r1 (January 27, 2021), the requirement of RF exposure for the Wireless Charging device shall be met.

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## 2. EQUIPMENT LIST

| Test Equipment List |                                              |              |           |               |                         |                             |
|---------------------|----------------------------------------------|--------------|-----------|---------------|-------------------------|-----------------------------|
| Equipment No.       | Equipment                                    | Manufacturer | Model No. | Serial Number | Cal. date (mm dd, yyyy) | Cal. Due date (mm dd, yyyy) |
| EW-3412             | Electric and Magnetic Field Probe - Analyzer | NARDASAFETY  | EHP-200A  | 170WX91004    | Jan 23, 2022            | Jan 23, 2023                |

## 3. MPE EVALUATION

### 3.1 REFERENCE DOCUMENTS FOR EVALUATION

According to KDB680106 D01 RF Exposure Wireless Charging Apps v03r1 (January 27, 2021), the requirement of RF exposure for the Wireless Charging device shall be met.

### 3.2 MPE COMPLIANCE REQUIREMENT

#### 3.2.1 Limits

##### 3.2.1.1

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

#### Limits for Occupational / Controlled Exposure

| Frequency range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------------|------------------------------------------------------------------------|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                  | 6                                                                      |
| 3.0-30                | 1842/f                            | 4.89/f                            | (900/f)*                                | 6                                                                      |
| 30-300                | 61.4                              | 0.163                             | 1.0                                     | 6                                                                      |
| 300-1500              | /                                 | /                                 | F/300                                   | 6                                                                      |
| 1500-100000           | /                                 | /                                 | 5                                       | 6                                                                      |

#### Limits for General Population/Uncontrolled Exposure

| Frequency range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------------|------------------------------------------------------------------------|
| 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                                                                     |
| 300-1,500             | /                                 | /                                 | f/1500                                  | 30                                                                     |
| 1,500-100,000         | /                                 | /                                 | 1.0                                     | 30                                                                     |

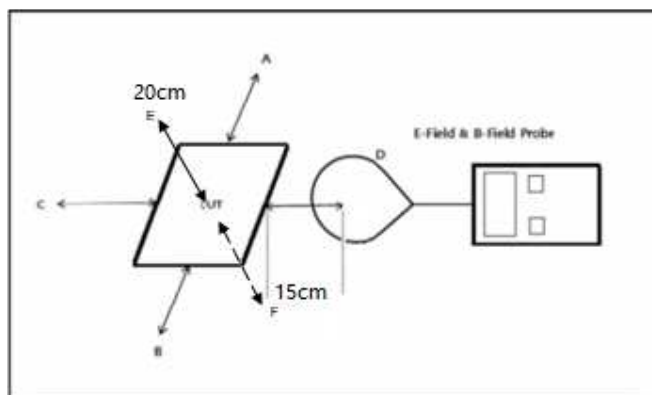
**Note:** f = frequency in MHz; \* = Plane-wave equivalents power density.

### 3.2.2 Test Procedure

Enabled the EUT to transmit and receive data continue

- The field strength of both E-field and H-field was measured at 15 cm surrounding the device and 20 cm above the top surface using the equipment list above for determining compliance with the MPE requirements of FCC Part 1.1310.
- For 15W wireless charging, specific loading is required for providing Max. output power for testing.
- Maximum E-field and H-field measurements were made 15cm from each side of the EUT. Along the side of the EUT and still 15cm away from the edge of the EUT, the field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.
- This device uses a wireless charging circuit for power transfer operating at the frequency of 127.6 kHz. Thus, the 300 kHz limits were used: E-field Limit = 614 (V/m); H-field limit = 1.63 (A/m).

### 3.2.3 Test setup



Since this application applied short-term confidentiality, thus the outlook photos of the Coil Plates are saved with filename: test setup photo

#### Note

- The RF exposure test is performed in the shield room
- The test distance is between the edge of the charger and the geometric center of probe
- The aggregate at 15 cm surrounding the device and 20 cm above the top surface from transmitting coil is demonstrated.
- Test Position: Rear, Right, Front, Left, Top, Bottom

### 3.3 TEST DATA

#### Charging with specific receiver loading (15W) – Max. output power

##### E-Field Strength

| Test Mode             | Probe Position (V/m)<br>C-Rear | Probe Position (V/m)<br>B-Right | Probe Position (V/m)<br>D-Front | Probe Position (V/m)<br>A-Left | Probe Position (V/m)<br>E-Top | Probe Position (V/m)<br>F-Bottom | Limits (V/m)  | Result   |
|-----------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|-------------------------------|----------------------------------|---------------|----------|
| 15W Wireless Charging | 0.1713                         | 0.2007                          | 0.1518                          | 0.1725                         | 0.3063                        | 0.0700                           | $614/2 = 307$ | Complied |

##### H-Field Strength

| Test Mode             | Probe Position (A/m)<br>C-Rear | Probe Position (A/m)<br>B-Right | Probe Position (A/m)<br>D-Front | Probe Position (A/m)<br>A-Left | Probe Position (A/m)<br>E-Top | Probe Position (A/m)<br>F-Bottom | Limits (A/m) | Result   |
|-----------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|-------------------------------|----------------------------------|--------------|----------|
| 15W Wireless Charging | 0.0144                         | 0.0444                          | 0.0558                          | 0.0428                         | 0.0381                        | 0.0146                           | 1.63         | Complied |

### Standby Mode

#### E-Field Strength

| Test Mode | Probe Position (V/m)<br>C-Rear | Probe Position (V/m)<br>B-Right | Probe Position (V/m)<br>D-Front | Probe Position (V/m)<br>A-Left | Probe Position (V/m)<br>E-Top | Probe Position (V/m)<br>F-Bottom | Limits (V/m) | Result   |
|-----------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|-------------------------------|----------------------------------|--------------|----------|
| Standby   | 0.0191                         | 0.0201                          | 0.0184                          | 0.0192                         | 0.0275                        | 0.0175                           | 614/2 = 307  | Complied |

#### H-Field Strength

| Test Mode | Probe Position (A/m)<br>C-Rear | Probe Position (A/m)<br>B-Right | Probe Position (A/m)<br>D-Front | Probe Position (A/m)<br>A-Left | Probe Position (A/m)<br>E-Top | Probe Position (A/m)<br>F-Bottom | Limits (A/m) | Result   |
|-----------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|-------------------------------|----------------------------------|--------------|----------|
| Standby   | 0.0064                         | 0.0027                          | 0.0031                          | 0.0032                         | 0.0222                        | 0.0020                           | 1.63         | Complied |

Test Setup Photo:

Since this application applied short-term confidentiality, thus the setup photos of RF exposure test are saved with filename: test setup photo.pdf

\*\*\* End of Report \*\*\*

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