# 1. GENERAL INFORMATION

## 1.1 CLIENT INFORMATION

| | |
|---|---|
| **Applicant:** | ThinkGeek, Inc. |
| **Address of Applicant:** | 625 Westport Parkway, Grapevine, TX 76051, United States |
| **Manufacturer:** | ThinkGeek, Inc. |
| **Address of Manufacturer:** | 625 Westport Parkway, Grapevine, TX 76051, United States |

## 1.2 EUT INFORMATION

| | |
|---|---|
| **Product Name:** | Millenium Falcon Wireless Charger - With AC Adapter |
| **Model No.:** | LJSG-SW-MIL |
| **Trade Mark:** | N/A |
| **DUT Stage:** | *Identical Prototype* |
| **Operating Frequency Range:** | *110KHz -205KHz* |
| **Antenna Type:** | Coil antenna |
| **Power Supply** | 100-240V~50/60Hz |
| **Sample Received Date:** | October 24, 2019 |
| **Sample Tested Date:** | October 24, 2019 to November 4, 2019 |

## 1.3 OTHER INFORMATION

**Support Equipment**

| Description | Manufacturer | Model No. | Input/ Output |
|---|---|---|---|
| Mobile phone | XIAOMI | M1803D5XA | N/A |

## 1.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

**FCC 47 CFR Part 1 Subpart I**

All test items have been performed and recorded as per the above standards

## 1.5 DEVIATION FROM STANDARDS

None.

## 1.6 ABNORMALITIES FROM STANDARD CONDITIONS

None.

## 1.7 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

# 2. EQUIPMENT LIST

| Test Equipment List | | | | | | |
|---|---|---|---|---|---|---|
| **Used** | **Equipment** | **Manufacturer** | **Model No.** | **Serial Number** | **Cal. date (mm dd, yyyy)** | **Cal. Due date (mm dd, yyyy)** |
| ☒ | Broadband Field meter | STT | SEM-600 | D-1044 | May 28, 2019 | May 27, 2020 |
| ☒ | Probe | STT | LF-04 | I-1044 | May 28, 2019 | May 27, 2020 |
| ☒ | Probe holder | STT | TR-01 | N/A | N/A | N/A |
| ☒ | Optical fiber line | STT | L=5M | N/A | N/A | N/A |

# 3. MPE EVALUATION

## 3.1 REFERENCE DOCUMENTS FOR EVALUATION

| No. | Identity | Document Title |
|---|---|---|
| 1 | FCC 47 CFR Part 1 Subpart I | PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 |

## 3.2 MPE COMPLIANCE REQUIREMENT

### 3.2.1 Limits

#### 3.2.1.1 FCC 47 CFR Part 1 Subpart I

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) ($mW/cm^2$) | Averaging Times $\|E\|^2$, $\|H\|^2$ 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) ($mW/cm^2$) | Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes) |
|---|---|---|---|---|
| 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 |
| 300-1,500 | / | / | 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

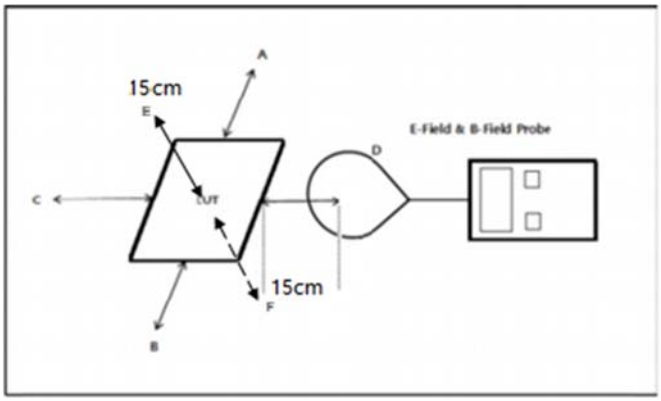
Enabled the EUT to transmit and receive data continue

a. The field strength of both E-field and H-field was measured at 15 cm surrounding the device and 15 cm above the top surface using the equipment list above for determining compliance with the MPE requirements of FCC Part 1.1310.

b. The RF power density was measured with the battery at 3 different charge conditions: battery at less than 1 % , battery at 50% charger, battery at 99% charger,.

c. 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 EU T, the field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.
d. This device uses a wireless charging circuit for power transfer operating at the frequency of 110-205 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




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 15 cm above the top surface from all simultaneous transmitting coils are demonstrate

## 3.3 TEST DATA

| Test Mode | Battery status | Probe Position (V/m) right | Probe Position (V/m) left | Probe Position (V/m) after | Probe Position (V/m) before | Probe Position (V/m) Top | Probe Position (V/m) down | Limits (V/m) |
|---|---|---|---|---|---|---|---|---|
| Mode 1 | <1% Battery status | 1.82 | 1.32 | 0.98 | 1.19 | 4.88 | 0.48 | 614 |
| Mode 2 | 50% Battery status | 1.88 | 1.38 | 1.28 | 1.34 | 5.35 | 0.56 | 614 |
| Mode 3 | 99% Battery status | 1.87 | 1.36 | 0.96 | 1.26 | 4.86 | 0.54 | 614 |

E-Field Strength

| Test Mode | Battery status | Probe Position (A/m) right | Probe Position (A/m) left | Probe Position (A/m) after | Probe Position (A/m) before | Probe Position (A/m) Top | Probe Position (A/m) down | Limits (A/m) |
|---|---|---|---|---|---|---|---|---|
| Mode 1 | <1% Battery status | 0.0162 | 0.0204 | 0.0159 | 0.0143 | 0.0288 | 0.0342 | 1.63 |
| Mode 2 | 50% Battery status | 0.0169 | 0.0211 | 0.0167 | 0.0155 | 0.0313 | 0.0355 | 1.63 |
| Mode 3 | 99% Battery status | 0.0168 | 0.0216 | 0.0164 | 0.0149 | 0.0278 | 0.0379 | 1.63 |

H-Field Strength

Remark:
The device meets the mobile RF exposure limit at a 15cm and 15cm separation distance as specified in &2.1091 of the FCC Rules.

All simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.