



# FCC TEST REPORT

**Test report  
On Behalf of  
JUPITER SYSTEMS, INC.**

**For  
Pana Pen Charger  
Model No.: Pana Pen IC Charger**

**FCC ID: 2A3TE-PANACHARGER**

**Prepared For :** JUPITER SYSTEMS, INC.  
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**Date of Test:** Nov. 30, 2021 ~Mar. 10, 2022

**Date of Report:** Mar. 10, 2022

**Report Number:** HK2111304663-3E



Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.

| Channel List |                 |         |                 |         |                 |         |                 |
|--------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel      | Frequency (KHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 01           | 126             |         |                 |         |                 |         |                 |
|              |                 |         |                 |         |                 |         |                 |
|              |                 |         |                 |         |                 |         |                 |
|              |                 |         |                 |         |                 |         |                 |

The EUT antenna is Coil Antenna. No antenna other than that furnished by the responsible party shall be used with the device.

## 2. SUMMARY OF TEST RESULTS

### 2.1. Test Procedures According to The Technical Standards:

FCC KDB680106 D01 RF Exposure Wireless Charging Apps v03r01

| FCC CFR 47                                                 |                                   |          |        |
|------------------------------------------------------------|-----------------------------------|----------|--------|
| Standard Section                                           | Test Item                         | Judgment | Remark |
| FCC CFR 47 part1,<br>1.1310 KDB680106<br>D01 v03r01 (3)(3) | Electric Field Strength (E) (V/m) | PASS     |        |
|                                                            | Magnetic Field Strength (H) (A/m) | PASS     |        |

### 2.2. Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

| No. | Item                                      | Uncertainty             |
|-----|-------------------------------------------|-------------------------|
| 1   | All emissions, radiated(<30M)(9KHz-30MHz) | $\pm 3.90\text{dB}$     |
| 2   | Temperature                               | $\pm 0.5^\circ\text{C}$ |
| 3   | Humidity                                  | $\pm 2\%$               |



### 2.3. Test Instruments

| Description                    | Brand     | Model No. | Frequency Range | Calibrated Date | Calibrated Until |
|--------------------------------|-----------|-----------|-----------------|-----------------|------------------|
| Broadband Field Meter          | NARDA     | NBM-550   | -               | Dec. 10, 2020   | Dec. 09, 2021    |
| Magnetic Field Meter           | NARDA     | ELT-400   | 1 – 400kHz      | Dec. 10, 2020   | Dec. 09, 2021    |
| Magnetic Probe                 | NARDA     | HF-3061   | 300kHz – 30MHz  | Dec. 10, 2020   | Dec. 09, 2021    |
| Magnetic Probe                 | NARDA     | HF-0191   | 27 – 1000MHz    | Dec. 10, 2020   | Dec. 09, 2021    |
| Broadband Field Meter          | NARDA     | NBM-550   | -               | Dec. 10, 2020   | Dec. 09, 2021    |
| Electric Field Meter           | COMBINOVA | EFM 200   | 5Hz – 400kHz    | Dec. 10, 2020   | Dec. 09, 2021    |
| E-Field Probe                  | NARDA     | EF-0391   | 100kHz – 3GHz   | Dec. 10, 2020   | Dec. 09, 2021    |
| E-Field Probe                  | NARDA     | EF-6091   | 100MHz – 60GHz  | Dec. 10, 2020   | Dec. 09, 2021    |
| Isotropic Electric Field Probe | NARDA     | EP-601    | 511WX60706      | Dec. 10, 2020   | Dec. 09, 2021    |

NOTE: 1. The calibration interval of the above test instruments is 12 months .



### 3. MAXIMUM PERMISSIBLE EXPOSURE

#### Limit of 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 Time  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                                                                 |
| 1500-100,000                                          |                                   |                                   | 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 Time  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)*                               | 30                                                                |
| 30-300                                                | 27.5                              | 0.073                             | 0.2                                      | 30                                                                |
| 300-1500                                              |                                   |                                   | F/1500                                   | 30                                                                |
| 1500-100,000                                          |                                   |                                   | 1                                        | 30                                                                |

Note 1: f = frequency in MHz ; \*Plane-wave equivalent power density.

Note 2: For the applicable limit, see FCC 1.1310, 680106 D01 RF Exposure Wireless Charging Apps v03r01.

Note 3: Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63A/m. A KDB inquiry is required to determine the applicable exposure limits below 100 kHz.

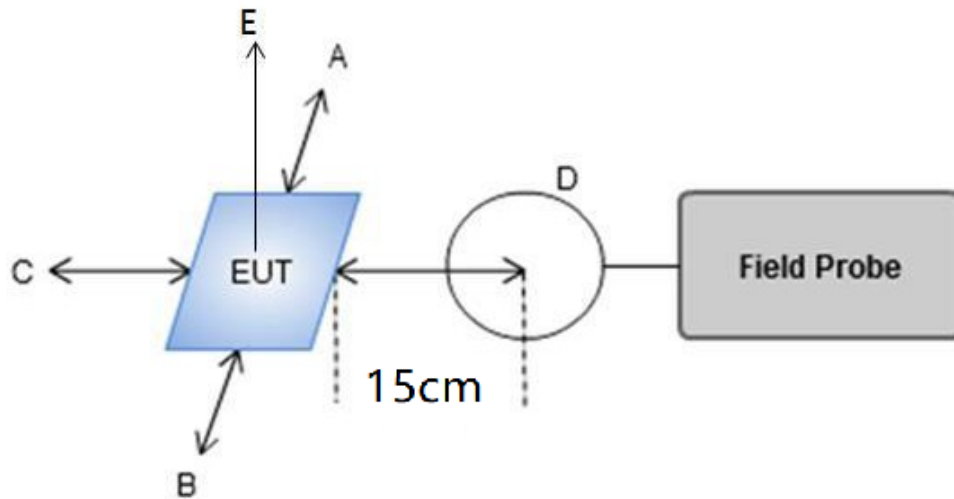


#### 4. TEST PROCEDURE

a. For devices designed for typical desktop applications, such as wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of (H-field & E-field strengths for all sides is 15cm, H-field strengths of top side is 20cm).

E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device.

##### 4.1 Test Setup



##### 4.2 Result of Maximum Permissible Exposure



For Full load mode:

H-Field Strength at 15 cm (E top side: 20cm) from the edges surrounding the EUT (A/m)

| Field strength | Test Position A | Test Position B | Test Position C | Test Position D | Test Position E | Limits (A/m) |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------|
| uT             | 0.443           | 0.329           | 0.514           | 0.457           | 0.521           | /            |
| A/m            | 0.35            | 0.26            | 0.41            | 0.37            | 0.42            | 1.63         |

Note.

Calculation:  $A/m = uT/1.25$

For Half Load mode:

H-Field Strength at 15 cm (E top side: 20cm) from the edges surrounding the EUT (A/m)

| Field strength | Test Position A | Test Position B | Test Position C | Test Position D | Test Position E | Limits (A/m) |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------|
| uT             | 0.413           | 0.366           | 0.608           | 0.330           | 0.424           | /            |
| A/m            | 0.33            | 0.29            | 0.49            | 0.26            | 0.34            | 1.63         |

Note.

Calculation:  $A/m = uT/1.25$

For No load mode:

H-Field Strength at 15 cm (E top side: 20cm) from the edges surrounding the EUT (A/m)

| Field strength | Test Position A | Test Position B | Test Position C | Test Position D | Test Position E | Limits (A/m) |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------|
| uT             | 0.479           | 0.336           | 0.365           | 0.427           | 0.541           | /            |
| A/m            | 0.38            | 0.27            | 0.29            | 0.34            | 0.43            | 1.63         |

Note.

Calculation:  $A/m = uT/1.25$



Remark: According KDB 680106 D01 RF Exposure Wireless Charging App v03r01, section 5, b). The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit. The E- field evaluation conducted assuming a user separation distance of 15 cm according to the KDB 680106 D01 RF Exposure Wireless Charging App v03r01 section 3, c).

Result: The device comply with the RF exposure requirement according to 680106 D01 v03r01, section 5, b):

(1) Power transfer frequency is less than 1 MHz.

-The device operate in the frequency range for 111.5KHz~205KHz

(2) Output power from each primary coil is less than or equal to 15 watts.

-The maximum output power of the primary coil is 2.25W

(3) The system may consist of more than one source primary coils, charging one or more clients. If

more than one primary coil is present, the coil pairs may be powered on at the same time

-The transfer system including a charging system with only single primary coils is to detect and allow only

(4) Client device is placed directly in contact with the transmitter

-The EUT is placed directly in contact with the transmitter

(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

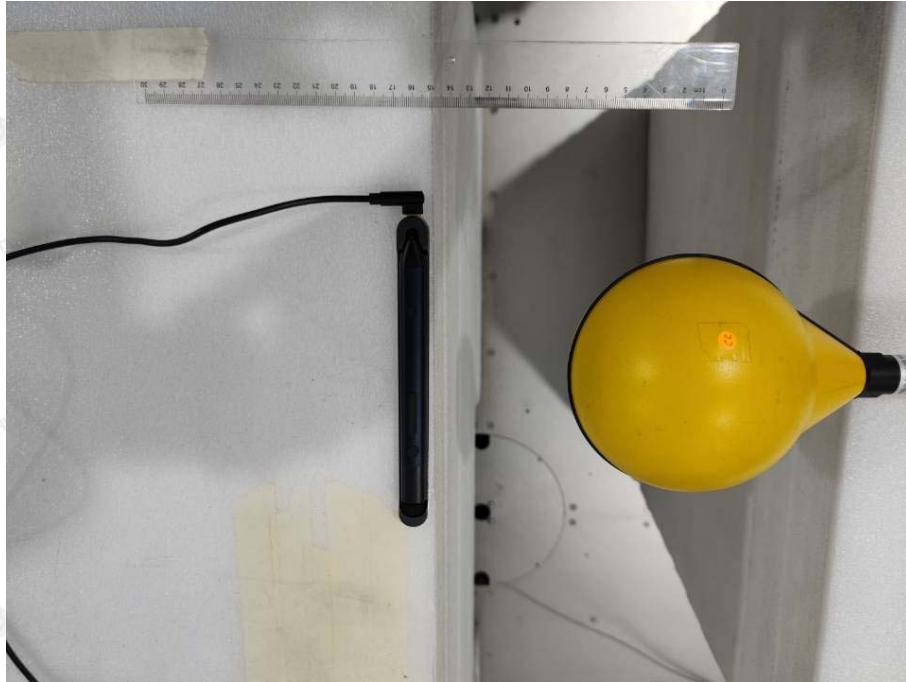
- Yes, mobile device only.

(6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

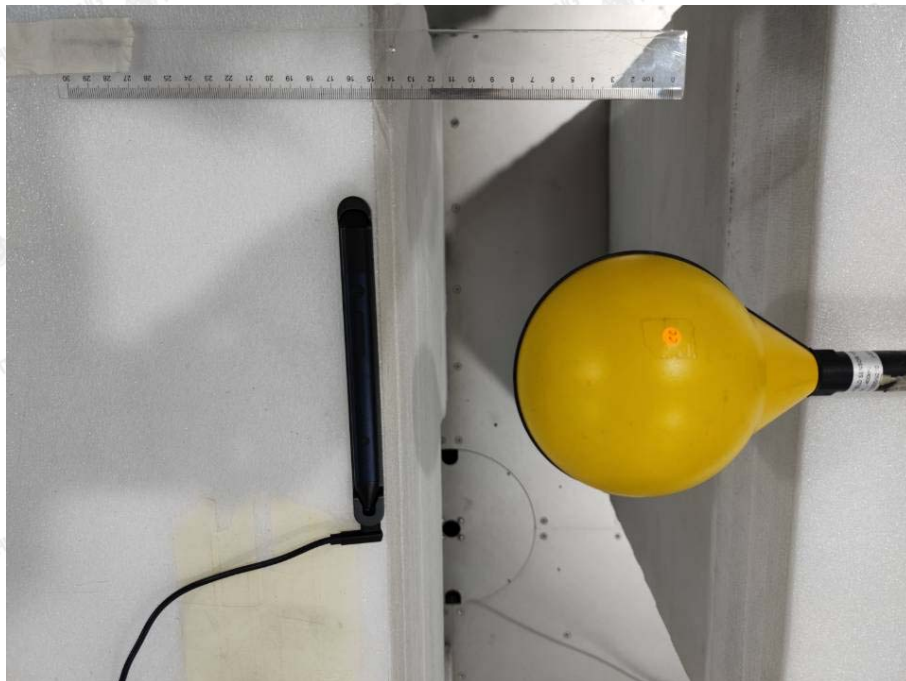
- The EUT meet the conditions.



PHOTOGRAPH OF TEST  
A



B



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C



D



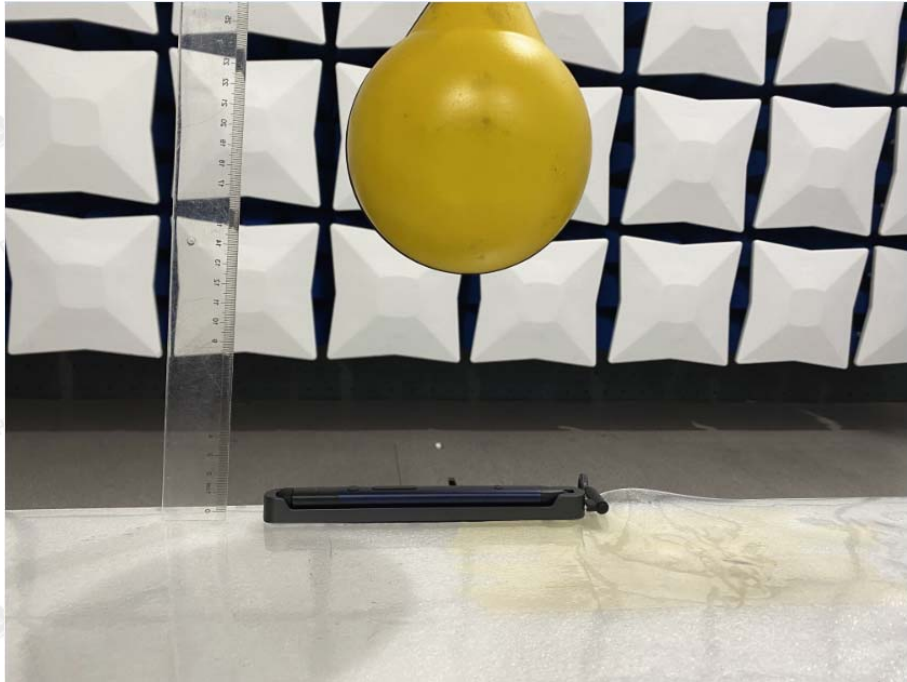
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E



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