

Sterno, LLC

TEST REPORT

SCOPE OF WORK

EMC TESTING—ALL-IN-ONE FLAMELESS CANDLE

REPORT NUMBER

231206083GZU-002

ISSUE DATE

29-February-2024

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TEST REPORT

Applicant Name & : Sterno, LLC
Address : 6900 North Dallas Parkway, Suite 870, Plano, Texas, 75024,USA
Manufacturing Site : Same as applicant
Intertek Report No: 231206083GZU-002
FCC ID: 2BEHC-6019924

Test standards

47 CFR PART 1, Subpart I, Section 1.1310
KDB 680106 D01 Wireless Power Transfer v04

Sample Description

Product : Rechargeable Candle
Model No. : ALL-IN-ONE FLAMELESS CANDLE
Electrical Rating : 120VAC, 60Hz
Serial No. : Not Labeled
Date Received : 06 December 2023
Date Test : 18 December 2023-28-February-2024
Conducted

Prepared and Checked By



Elena Lei

Project Engineer

Approved By:



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Sr.Project Engineer

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1.0 TEST RESULT SUMMARY

Classification of EUT: Class B

| Test Item | Standard | Result |
|-----------|--|--------|
| EMF | 47 CFR PART 1, Subpart I, Section 1.1310 | PASS |

Remark:

When determining the test results, measurement uncertainty of tests has been considered.

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2.0 General Description

2.1 Product Description

| | |
|---------------------|-----------------------------|
| Operating Frequency | 63KHz |
| Type of Modulation: | Load modulation |
| Antenna Type | Inductive loop coil antenna |
| Power Supply: | 120VAC, 60Hz |
| Power cord: | wires unscreened cable |

2.2 Test Facility

Room102/104, No 203, KeZhu Road, Science City, GETDD Guangzhou, China

A2LA Certificate Number 0078.10

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch is accredited by A2LA and Listed in FCC website. FCC accredited test labs may perform both Certification testing under Parts 15 and 18 and Declaration of Conformity testing.

2.3 EUT Exercising Software

N/A

2.4 Special Accessories

N/A

2.5 Equipment Modification

Any modifications installed previous to testing by Sterno, LLC will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.

2.6 Support Equipment List and Description

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This product was tested with corresponding support equipment as below:

Support Equipment:

| Equipment | Model No. | Rating | Supplier |
|---------------|----------------|---|----------|
| AC DC ADAPTER | KS65DU-0500500 | INPUT:100~240VAC,50/60Hz,2.0A OUTPUT:5VDC/5.0A | Client |

Cabel:

| Description | Model No. | Connector type | Cable length/type | Supplied by |
|----------------------|-----------|----------------|--------------------|-------------|
| Adapter to EUT Cabel | -- | -- | 1.53 m(unshielded) | Client |
| AC to Adapter | -- | -- | 1.25 m(unshielded) | Client |

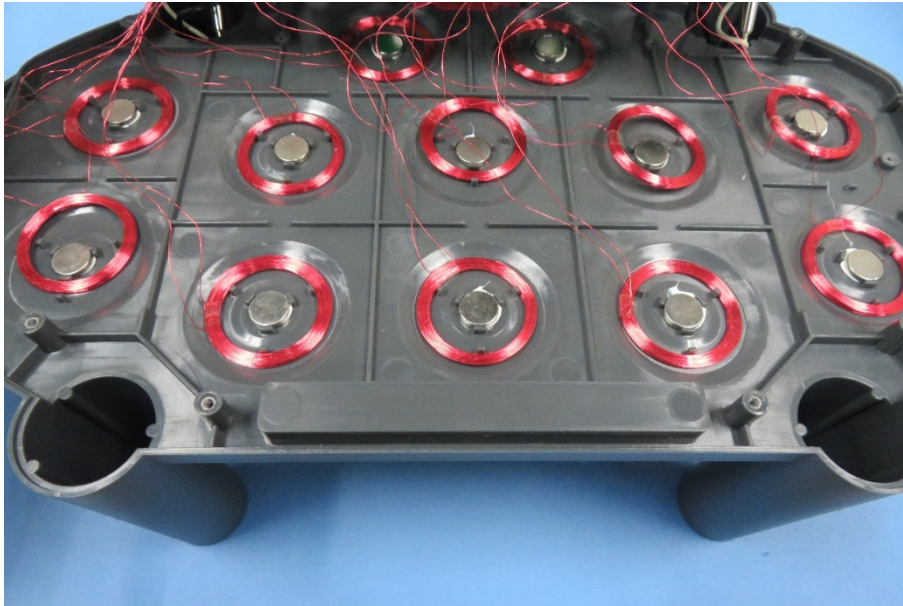
Remark: EUT has 12 coils, EUT can transmit simultaneously, The twelve coils are designed because the client candle lamp can be charged at the same time, and the candle lamp client is one of the typical client devices that is chosen so that the EUT is fully operational at its transmitter's maximum power. They are sold together.

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above evaluated respectively

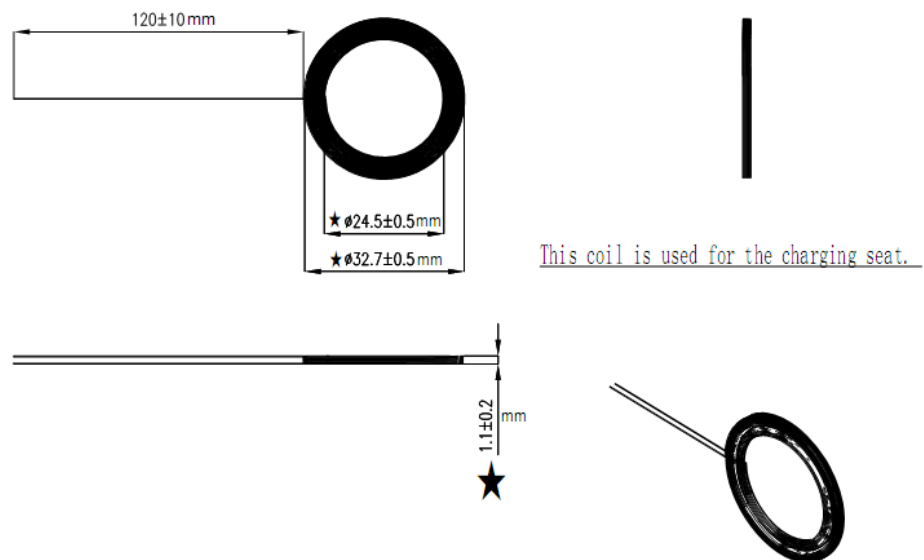
| Pre-test mode | Description | |
|---------------|--------------------------------|---|
| Standby Mode | kept transmitting continuously | |
| Charging Mode | CH: Low | Loaded candle lamp is charging at 1% battery power, 50% and 99% battery power respectively, keep transmitting continuously. |
| | CH: Middle | |
| | CH: High | |

The coil uses turn meter to measure the number of turns:90 turns.

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coil design:



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3.0 EMF TEST

3.1 Standard Requirement

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.1m normally can be maintained between the user and the device.

(a) 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 |

(b) 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)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | -- | -- | F/1500 | 30 |
| 1500-100000 | -- | -- | 1.0 | 30 |

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

3.2 Test Data

Input Voltage: 120V/60Hz

Ambient Condition: 24°C, 50%RH

Test distance: 20 cm surrounding the device.

H-Filed Strength:

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For one base/tray, One candle is placed on top of coil 1

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.082 | 0.081 | 0.081 | 0.815 | 1.63 |
| Side 2 | 0.051 | 0.051 | 0.050 | 0.815 | 1.63 |
| Side 3 | 0.089 | 0.088 | 0.088 | 0.815 | 1.63 |
| Side 4 | 0.063 | 0.063 | 0.064 | 0.815 | 1.63 |
| Top | 0.306 | 0.306 | 0.307 | 0.815 | 1.63 |

For one base/tray, One candle is placed on top of coil 2

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.083 | 0.082 | 0.082 | 0.815 | 1.63 |
| Side 2 | 0.053 | 0.052 | 0.052 | 0.815 | 1.63 |
| Side 3 | 0.089 | 0.090 | 0.090 | 0.815 | 1.63 |
| Side 4 | 0.063 | 0.063 | 0.064 | 0.815 | 1.63 |
| Top | 0.308 | 0.308 | 0.306 | 0.815 | 1.63 |

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For one base/tray, One candle is placed on top of coil 3

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.083 | 0.083 | 0.082 | 0.815 | 1.63 |
| Side 2 | 0.051 | 0.051 | 0.052 | 0.815 | 1.63 |
| Side 3 | 0.089 | 0.089 | 0.089 | 0.815 | 1.63 |
| Side 4 | 0.063 | 0.063 | 0.063 | 0.815 | 1.63 |
| Top | 0.306 | 0.306 | 0.307 | 0.815 | 1.63 |

For one base/tray, One candle is placed on top of coil 4

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.082 | 0.083 | 0.081 | 0.815 | 1.63 |
| Side 2 | 0.051 | 0.051 | 0.053 | 0.815 | 1.63 |
| Side 3 | 0.090 | 0.089 | 0.088 | 0.815 | 1.63 |
| Side 4 | 0.064 | 0.063 | 0.064 | 0.815 | 1.63 |
| Top | 0.309 | 0.308 | 0.307 | 0.815 | 1.63 |

For one base/tray, One candle is placed on top of coil 5

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.082 | 0.082 | 0.081 | 0.815 | 1.63 |
| Side 2 | 0.052 | 0.051 | 0.052 | 0.815 | 1.63 |
| Side 3 | 0.088 | 0.088 | 0.089 | 0.815 | 1.63 |
| Side 4 | 0.064 | 0.064 | 0.063 | 0.815 | 1.63 |
| Top | 0.307 | 0.307 | 0.306 | 0.815 | 1.63 |

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For one base/tray, One candle is placed on top of coil 6

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.083 | 0.082 | 0.083 | 0.815 | 1.63 |
| Side 2 | 0.051 | 0.052 | 0.052 | 0.815 | 1.63 |
| Side 3 | 0.087 | 0.087 | 0.088 | 0.815 | 1.63 |
| Side 4 | 0.064 | 0.064 | 0.063 | 0.815 | 1.63 |
| Top | 0.308 | 0.308 | 0.307 | 0.815 | 1.63 |

For one base/tray, One candle is placed on top of coil 7

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.082 | 0.081 | 0.081 | 0.815 | 1.63 |
| Side 2 | 0.051 | 0.051 | 0.050 | 0.815 | 1.63 |
| Side 3 | 0.088 | 0.089 | 0.088 | 0.815 | 1.63 |
| Side 4 | 0.062 | 0.062 | 0.061 | 0.815 | 1.63 |
| Top | 0.306 | 0.306 | 0.307 | 0.815 | 1.63 |

For one base/tray, One candle is placed on top of coil 8

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.081 | 0.082 | 0.082 | 0.815 | 1.63 |
| Side 2 | 0.051 | 0.052 | 0.051 | 0.815 | 1.63 |
| Side 3 | 0.088 | 0.089 | 0.089 | 0.815 | 1.63 |
| Side 4 | 0.062 | 0.063 | 0.062 | 0.815 | 1.63 |
| Top | 0.308 | 0.306 | 0.306 | 0.815 | 1.63 |

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For one base/tray, fully loaded

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.084 | 0.083 | 0.083 | 0.815 | 1.63 |
| Side 2 | 0.053 | 0.053 | 0.053 | 0.815 | 1.63 |
| Side 3 | 0.089 | 0.088 | 0.089 | 0.815 | 1.63 |
| Side 4 | 0.066 | 0.065 | 0.065 | 0.815 | 1.63 |
| Top | 0.340 | 0.340 | 0.341 | 0.815 | 1.63 |

For two bases/trays, fully loaded

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.092 | 0.091 | 0.092 | 0.815 | 1.63 |
| Side 2 | 0.087 | 0.087 | 0.088 | 0.815 | 1.63 |
| Side 3 | 0.129 | 0.128 | 0.128 | 0.815 | 1.63 |
| Side 4 | 0.072 | 0.071 | 0.072 | 0.815 | 1.63 |
| Top | 0.358 | 0.357 | 0.357 | 0.815 | 1.63 |

For three bases/trays, fully loaded

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---------------|--|---|---|-----------------|-------------|
| | Loaded candle lamp in 1% battery power | Loaded candle lamp in 50% battery power | Loaded candle lamp in 99% battery power | | |
| Side 1 | 0.211 | 0.210 | 0.211 | 0.815 | 1.63 |
| Side 2 | 0.162 | 0.161 | 0.161 | 0.815 | 1.63 |
| Side 3 | 0.168 | 0.168 | 0.167 | 0.815 | 1.63 |
| Side 4 | 0.170 | 0.168 | 0.168 | 0.815 | 1.63 |
| Top | 0.764 | 0.763 | 0.763 | 0.815 | 1.63 |

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4.0 Test Equipment List

| Equipment No. | Equipment | Model | Manufacturer | Cal. Due date (DD-MM-YYYY) | Last calibration date (DD-MM-YYYY) |
|---------------|-----------------------|---------|--------------|----------------------------|------------------------------------|
| EM007-03 | Exposure Level Tester | ELT-400 | Narda | 07/03/2024 | 08/03/2023 |

*****End of the test report*****