

TEST REPORT

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|--|--|---|
| FCC ID. | 2A5HQ-48831 | |
| Test Report No. | TCT250407E020 | |
| Date of issue | Apr. 25, 2025 | |
| Testing laboratory | SHENZHEN TONGCE TESTING LAB | |
| Testing location/ address: | 2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China | |
| Applicant's name | Ciro Corporation | |
| Address | 1310 Gateway Circle Hudson, Wisconsin 54016, United States | |
| Manufacturer's name | Ciro Corporation | |
| Address | 1310 Gateway Circle Hudson, Wisconsin 54016, United States | |
| Standard(s) | FCC CFR Title 47 Part 1.1307 | |
| Product Name | Shock & Awe EVOLVED™ | |
| Trade Mark | Ciro | |
| Model/Type reference | 48831, 40800, 40804 | |
| Rating(s) | DC 12 V | |
| Date of receipt of test item | Apr. 07, 2025 | |
| Date (s) of performance of test | Apr. 07, 2025 ~ Apr. 25, 2025 | |
| Tested by (+signature) | Onnado YE |  |
| Check by (+signature) | Beryl ZHAO |  |
| Approved by (+signature) : | Tomsin |  |

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1. General Product Information

1.1. EUT description

| | |
|---------------------------|----------------------|
| Product Name..... | Shock & Awe EVOLVED™ |
| Model/Type reference..... | 48831 |
| Sample Number..... | TCT250407E019-0101 |
| Operation Frequency | 2402MHz~2480MHz |
| Modulation Type | GFSK |
| Antenna Type..... | PCB Antenna |
| Antenna Gain..... | 2.21dBi |
| Rating(s) | DC 12 V |

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

1.2. Model(s) list

| No. | Model No. | Tested with |
|--------------|--------------|-------------------------------------|
| 1 | 48831 | <input checked="" type="checkbox"/> |
| Other models | 40800, 40804 | <input type="checkbox"/> |

Note: 48831 is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of 48831 can represent the remaining models.

2. General Information

2.1. Test environment and mode

| | |
|-----------------------|---|
| Item | Normal condition |
| Temperature | +25°C |
| Voltage | DC 12 V |
| Humidity | 56% |
| Atmospheric Pressure: | 1008 mbar |
| Test Mode: | |
| Transmitting Mode: | Keep the EUT in continuous transmitting by select channel |

2.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Equipment | Model No. | Serial No. | FCC ID | Trade Name |
|-----------|-----------|------------|--------|------------|
| / | / | / | / | / |

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, 20dB Occupied Bandwidth, Carrier Frequencies Separation, Hopping Channel Number, Dwell Time, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

3. Facilities and Accreditations

3.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098
SHENZHEN TONGCE TESTING LAB
Designation Number: CN1205

The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- A2LA-No.: 4320.01
SHENZHEN TONGCE TESTING LAB

The testing lab has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.

3.2. Location

SHENZHEN TONGCE TESTING LAB

Address: 2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict,

Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

4. Limit

According to §1.1310, the limit is as follow,

TABLE 1 TO § 1.1310(e)(1)–LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm ²) | Averaging time (minutes) |
|-----------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
|-----------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|

(i) LIMITS FOR OCCUPATIONAL/CONTROLLED EXPOSURE

| | | | | |
|---------------|--------|--------|------------------------|----|
| 0.3-3.0 | 614 | 1.63 | *(100) | ≤6 |
| 3.0-30 | 1842/f | 4.89/f | *(900/f ²) | <6 |
| 30-300 | 61.4 | 0.163 | 1.0 | <6 |
| 300-1,500 | | | f/300 | <6 |
| 1,500-100,000 | | | 5 | <6 |

(ii) LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

| | | | | |
|---------------|-------|--------|------------------------|-----|
| 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 |

*f = frequency in MHz. * = Plane-wave equivalent power density.*



5. Test Results and Measurement Data

According to §1.1307(b), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Remark: 1) **For BLE:** The maximum output power for antenna is -3.22dBm (0.48mW) at 2480MHz, 2.21dBi antenna gain (with 1.66 numeric antenna gain.)

2) For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20cm, even if the calculation indicate that the MPE distance would be lesser.

Calculation

$$\text{Given } E = \sqrt{\frac{30 \times P \times G}{d}} \quad \& \quad S = \frac{E^2}{3770}$$

Where E = Field Strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power Density in milliwatts / square centimeter

Substituting the MPE safe distance using $d=20\text{cm}$ into above equation.

Yields: $S=0.000199 \times P \times G$

| Mode | Power (dBm) | Power (mW) | numeric antenna gain | Power density (mW/cm ²) | Limit (mW/cm ²) | Result |
|------|-------------|------------|----------------------|-------------------------------------|-----------------------------|--------|
| BLE | -3.22 | 0.48 | 1.66 | 0.000159 | 1.00 | PASS |

*******END OF REPORT*******