# RF EXPOSURE
# Test Report

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|---|---|
| **Report No.:** | MTi240506010-01E2 |
| **Date of issue:** | 2024-07-17 |
| **Applicant:** | MODERN MARKETING CONCEPTS, INC. |
| **Product:** | SERENADE 8-IN-1 RECORD PLAYER |
| **Model(s):** | CR7023A, CR7023A-WA, CR7023A-XX, CR7023X-XX, CR7023XX-XXXX(X can be replaced by letter from "A" to "Z" ,number from "0" to "9" or blank) |
| **FCC ID:** | AUSCR7023A |

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# Instructions

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3. This report is invalid without the seal and signature of the laboratory;
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5. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

| Test Result Certification | |
|---|---|
| **Applicant:** | MODERN MARKETING CONCEPTS, INC. |
| Address: | 1220 East Oak St Louisville KY 40204 United States |
| **Manufacturer:** | Shenzhen Sign Gaole Technology Co.,Ltd |
| Address: | 2/F, Building A, Xufa Science Park Factory Building, No.2 Fenghuang Second Industrial Zone, No.2,No. 1 Tengfeng Road,Fenghuang Community, Fuyong Street, Baoan District, Shenzhen |
| **Product description** | |
| Product name: | SERENADE 8-IN-1 RECORD PLAYER |
| Trademark: | Crosley |
| Model name: | CR7023A |
| Series Model: | CR7023A-WA, CR7023A-XX, CR7023X-XX, CR7023XX-XXXX(X can be replaced by letter from "A" to "Z" ,number from "0" to "9" or blank) |
| Standards: | N/A |
| Test procedure: | KDB 447498 D01 v06 |
| **Date of Test** | |
| Date of test: | 2024-05-23 to 2024-06-25 |
| Test result: | Pass |

| | | |
|---|---|---|
| **Test Engineer** | : | Yanice Xie |
| | | (Yanice.Xie) |
| **Reviewed By** | : | David. Lee |
| | | (David Lee) |
| **Approved By** | : | Leon chen |
| | | (Leon Chen) |

# RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

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) |
|---|---|---|---|---|
| (A) 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 |
| (B) 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

MPE Calculation Method

Friis transmission formula: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in $mW/cm^2$

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1415926

R= distance between observation point and center of the radiator in cm(20cm)

Pd the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

# Measurement Result

**BR+EDR:**

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm2

Antenna Type: PCB Antenna

Antenna gain: -0.58dBi

R=20cm

mW=10^(dBm/10)

Antenna gain Numeric=10^(dBi/10)= 10^(-0.58/10)=0.87

BR+EDR:

| Channel Freq. (MHz) | modulation | conducted power | Tune-up power (dBm) | Max | | Antenna | | Evaluation result | Power density Limits |
|---|---|---|---|---|---|---|---|---|---|
| | | (dBm) | | tune-up power | | Gain | | ($mW/cm^2$) | ($mW/cm^2$) |
| | | | | (dBm) | (mW) | (dBi) | Numeric | | |
| 2402 | GFSK | -0.68 | 0±1 | 1 | 1.259 | -0.58 | 0.87 | 0.0002 | 1 |
| 2441 | | -0.07 | 0±1 | 1 | 1.259 | -0.58 | 0.87 | 0.0002 | 1 |
| 2480 | | 0.35 | 0±1 | 1 | 1.259 | -0.58 | 0.87 | 0.0002 | 1 |
| 2402 | π/4-DQPSK | -0.22 | 0±1 | 1 | 1.259 | -0.58 | 0.87 | 0.0002 | 1 |
| 2441 | | 0.31 | 0±1 | 1 | 1.259 | -0.58 | 0.87 | 0.0002 | 1 |
| 2480 | | 0.57 | 0±1 | 1 | 1.259 | -0.58 | 0.87 | 0.0002 | 1 |

**Conclusion**:

For the max result: 0.0002≤ 1.0 test exclusion threshold, No SAR is required.

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