

# **FCC Part 24E Transmitter Certification**

## **Test Report**

**FCC ID: DNY020MCELL1900**

**FCC Rule Part: CFR 47 Part 24 Subpart E**

**ACS Report Number: 06-0347-24E**

Manufacturer: EMS Wireless  
Equipment Type: PCS Bi-Directional Repeater  
Tradename: MirrorCell<sup>®</sup> II  
Model: CDM1912-743

## **RF Exposure**

**General Information:**

Applicant: EMS Technologies, Inc.  
 ACS Project: 06-0347  
 FCC ID: DNY020MCELL1900  
 Device Category: Fixed  
 Exposure Conditions: Uncontrolled/General Population

**Technical Information:****UPLINK:**

Antenna Type: Yagi  
 Antenna Gain Maximum: 15.1dBi  
 Max Transmitter Output Power: 29.64dBm  
 Max System EIRP: 44.74dBm / 29.8W  
 Operating Configuration: Fixed

**DOWNLINK:**

Antenna Type: Panel  
 Antenna Gain Maximum: 7.5dBi  
 Max Transmitter Output Power: 43.17dBm  
 Max System EIRP: 50.67dBm / 117W  
 Operating Configuration: Fixed

**NOTE:** Multiple antennas are available for both the uplink and downlink applications. Listed above are antennas with the highest gain.

**MPE Calculation**

The Power Density (mW/cm<sup>2</sup>) is calculated as follows:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Calculations were performed at the frequencies with the highest output power as determined during testing.

| Maximum Permissible Exposure (MPE)<br>General Population/Uncontrolled Exposure |                   |                                           |                  |                    |                       |               |                                     |               |
|--------------------------------------------------------------------------------|-------------------|-------------------------------------------|------------------|--------------------|-----------------------|---------------|-------------------------------------|---------------|
| Transmit Frequency (MHz)                                                       | Radio Power (dBm) | Power Density Limit (mW/Cm <sup>2</sup> ) | Radio Power (mW) | Antenna Gain (dBi) | Antenna Gain (mW eq.) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Configuration |
| 1851.25                                                                        | 29.64             | 1.00                                      | 920.45           | 15.1               | 32.359                | 49            | 0.987                               | Uplink        |
| 1989.92                                                                        | 43.17             | 1.00                                      | 20749.14         | 7.5                | 5.623                 | 97            | 0.987                               | Downlink      |

**Installation Guidelines**

End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.