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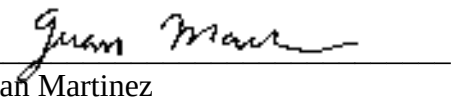
# *RF Hazard Evaluation Report on the Cellular OEM module Model: CRM4200*

| | |
|---|---|
| GRANTEE: | Standard Communications Corp.<br>1111 Knox St.<br>Torrance, CA 90502 |
| TEST SITE: | Elliott Laboratories, Inc.<br>684 W. Maude Ave<br>Sunnyvale, CA 94086 |
| REPORT DATE: | June 11, 2001 |
| FINAL TEST DATE: | June 7, 2001 |

AUTHORIZED SIGNATORY: 

Juan Martinez
EMC Engineer

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## *GENERAL INFORMATION*

Applicant: Standard Communication Corp.
1111 Knox St.
Torrance, CA 90502

FCC ID: **APV09002**

### Technical Description

The CRM 4200 is a fully functional AMPS cellular telephone module with a .631 Watts (Class III) of maximum output power. The CRM4200 Cellular Radio Module is an OEM radio module for use in embedded wireless data and other applications. It is part of a series of modules providing solutions for customers with limited levels of RF expertise.

Standard Communication will use the Centurion dipole antenna with their developer kit. The Centurion (Model: EXE-821-SM) 2.5 dBi gain antenna will be sold with the kit.

* Centurion Antenna (Model: EXE-821-SM), 2.5dBi gain

### Frequency Range

Transmitter: 824.01 – 848.97 MHz
Receiver: 869.01 – 893.97 MHz

### Range of Operation Power

.631-Watt maximum power output

## *SCOPE*

RF Hazard Evaluation testing was performed for the equipment mentioned in this report. OET Bulletin 65 or the ANSI/IEEE C95.3, "IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave" were used as a test procedure guideline to perform the required test. MPE measurements were performed for this product.

The intentional radiator above was tested in a simulated typical installation to demonstrate compliance with the relevant FCC performance and procedural standards.

## *OBJECTIVE*

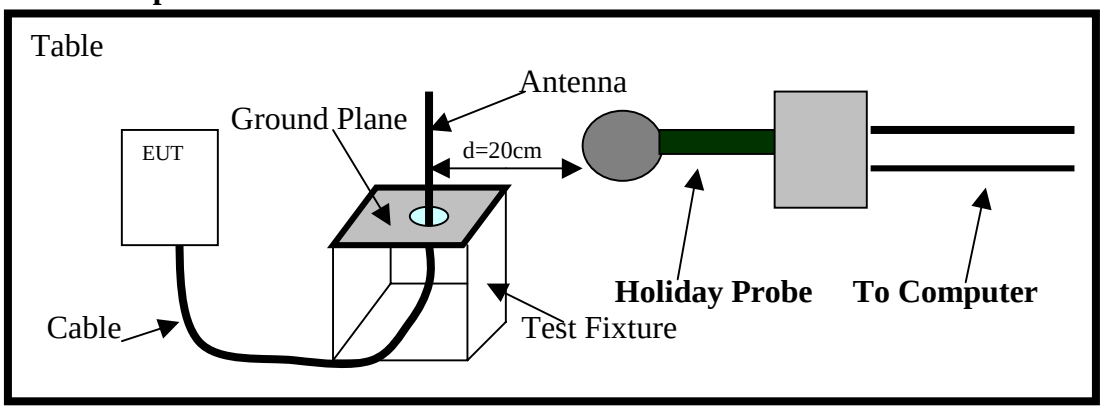
The primary objective of the manufacturer is compliance with Section 2.1091. Certification of these devices is required as a prerequisite to marketing as defined in Section 2.1033.

Certification is a procedure where the manufacturer or a contracted laboratory makes measurements and submits the test data and technical information to FCC. FCC issues a grant of equipment authorization and a certification number upon successful completion of their review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units subsequently manufactured.

## *TEST RESULTS*

***Section 2.1091: Radiofrequency radiation exposure evaluation: Mobile devices.***

**Test Setup:**




Standard Communication will use the Centurion antenna (Model: EXE-821-SM) 2.5dBi gain with their developer kits. The Centurion (Model: EXE-821-SM) is the highest gain antenna that will be sold with the CRM4200 OEM module.

MPE Evaluation was performed using the OET Bulletin 65 or the ANSI/IEEE C95.3, "IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave" test procedure, for mobile devices.

A test fixture was built to test the antenna mounted on a ground plane. The ground plane was grounded by braided wire to a known ground source. The antenna was then installed on the coax SMA connector. This configuration will demonstrate the RF exposure levels of the antenna mounted on a ground plane.

Only the Centurion (Model: EXE-821-SM) 2.5dBi antenna, was tested.
The EUT was set to transmit at maximum power; this was verified with a spectrum analyzer. The EUT was set to transmit continuous and the Fundamental frequency set to the middle of the EUT's frequency range. The EUT and its antenna were placed on top of a table, located in an Anechoic Chamber. The measuring probe was place 20-cm away from the EUT's antenna. The probe was moved around the antenna, while keeping the 20-cm separation. At the same time the probe was raised and lowered in height to measure the maximum points of the 2.5dBi antenna. The top of the antenna was also measured, 20-cm away. The probe was connected to a computer, which displayed the measured levels in mW/cm^2.

Please, refer to data included under **Exhibit 2**: Test Measurement Data

## *EQUIPMENT UNDER TEST (EUT) DETAILS*

The Standard Communication model CRM4200 is an 824.01 – 848.97 MHz wireless OEM module, which is to be used in industrial environments for financial transaction-oriented data. The EUT consisted of the following component(s):

| Manufacturer/Model/Description | Serial Number |
|---|---|
| Standard Comm./CRM4200/OEM module | N/A |
| Centurion/ EXE-821-SM/2.5 dBi Antenna | N/A |

### *ENCLOSURE*

The EUT does not have an enclosure of its own. But, small RF shields are installed to shield the transmitter circuitry.

### *SUPPORT EQUIPMENT*

The following equipment was used as remote support equipment for emissions testing:

| **Manufacturer/Model/Description** | **Serial Number** | **FCC ID Number** |
|---|---|---|
| | | |
| | | |

### *EXTERNAL I/O CABLING*

The I/O cabling configuration during emissions testing was as follows:

| Cable Description | Length (m) | From Unit/Port | To Unit/Port |
|---|---|---|---|
| N/A | | | |

### *TEST SOFTWARE*

During testing the EUT was set to transmit continuous at maximum power. Internal software was used to configure the EUT properly for the required tests.

### *TEST MODES*

During emissions testing the transmitter was set to the normal operating mode using AMPS modulation.

# *EXHIBIT 1: Test Equipment Calibration Data*

## *EXHIBIT 2: Test Measurement Data*

The following data includes conducted and radiated emission measurements of the Standard Communication model CRM4200.

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