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Environmental Assessment

for

Mobiles/Fixed Base Station

for

Mini-Card Module

Model: ES720

to

Federal Communications Commission

47 CFR 1.1310 (MPE)

Radiofrequency Radiation Exposure Limits

Date Of Report: July 25, 2006

On the Behalf of the Applicant:

Novatel Wireless Inc.

At the Request of:

Novatel Wireless Inc.
9645 Scranton Rd, Suite 205
San Diego, CA 92121

Attention of:

John Jiang, Project Manager
888-888-9231; FAX: -2888
Email: jjiang@novatelwireless.com

Supervised By:


Hoosamuddin S. Bandukwala, Lab Director

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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a)

Test Report (Supplemental)

b) Laboratory:
(FCC: 31040/SIT)
(Canada: IC 2044)

M. Flom Associates, Inc.
3356 N. San Marcos Place, Suite 107
Chandler, AZ 85225

c) Report Number:

d0670026

d) Client:

Novatel Wireless Inc.
9645 Scranton Rd, Suite 205
San Diego, CA 92121

e) Identification:

Mini-Card
FCC ID: PKRNVWES720
CDMA Cell-PCS Module

Description:

f) EUT Condition:

Not required unless specified in individual tests.

g) Report Date:

July 25, 2006

h, j, k):

As indicated in individual tests.

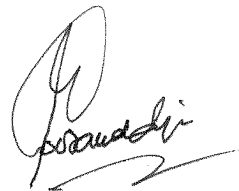
i) Sampling method:

No sampling procedure used.

l) Uncertainty:

In accordance with MFA internal quality manual.

m) Supervised by:



Hoosamuddin S. Bandukwala, Lab Director

n) Results:

The results presented in this report relate only to the item tested.

o) Reproduction:

This report must not be reproduced, except in full, without written permission from this laboratory.

Identification of the Equipment Under Test (EUT)

Name and Address of Applicant:

Novatel Wireless Inc.
9645 Scranton Rd, Suite 205
San Diego, CA 92121

Manufacturer:

Novatel Wireless Inc.
9645 Scranton Rd, Suite 205
San Diego, CA 92121

FCC ID: PKRNVWES720

Model Number: ES720 (Mini-Card Module)

Description: CDMA Cell-PCS Module

Type of Emission: 1M28F9W

Frequency Range, MHz: 824.7 to 848.3
1851.3 to 1908.7

Power Rating, Watts: 0.295 (Cell) & 0.282 (PCS)
☐ Switchable ☒ Variable ☐ N/A

Modulation: ☐ AMPS
☐ TDMA
☒ CDMA
☐ OTHER

Antenna: ☐ Helical
☒ Monopole
☐ Whip
☐ Other

Note: For RF Safety test antenna gain taken at the upper range of expected gain (i.e. 3 dBi) and RF Power set to highest nominal power across all channels.

Standard Test Conditions and Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2000, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.



A2LA

"A2LA has accredited M. Flom Associates, Inc. Chandler, AZ for technical competence in the field of Electrical Testing. The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 – 1999 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Certificate Number: **2152-01**

Name of test: Environmental Assessment

Specification: FCC: 47 CFR 1.1310

$$S = PG/4\pi R^2$$

Where,

S: power density (mW/cm²)

P: output power at the antenna terminal (mW)

G: gain of transmit antenna (numeric)

R: distance from transmitting antenna (cm)

Cellular CDMA

	MPE Calculated
Frequency	836.52 MHz
S (Limit)	$f/1500 = 0.5577 \text{ mW/cm}^2$
P	295 mW
G = max gain of antenna	3 dBi
Emission Limit at 20 cm	$(295.0 \times 3) / (4\pi \times 20^2) = 0.176 \text{ mW/cm}^2$

PCS CDMA

	MPE Calculated
Frequency	1880 MHz
Limit	1.0 mW/cm ²
Power	282.0 mW
Emission Limit at 20cm	$(282.0 \times 3) / (4\pi \times 20^2) = 0.168 \text{ mW/cm}^2$

Calculated By:



David McPherson, Compliance Engineer

(The following will be placed in the Instruction Manual)

Mandatory Safety Instructions to Installers & Users

Use only manufacturer or dealer supplied antenna.

Antenna Minimum Safe Distance: 20 cm.

Antenna Gain: 3 dBi referenced to a dipole.

The Federal Communications Commission has adopted a safety standard for human exposure to RF (Radio Frequency) energy which is below the OSHA (Occupational Safety and Health Act) limits.

Antenna Mounting: The antenna supplied by the manufacturer or radio dealer must not be mounted at a location such that during radio transmission, any person or persons can come closer than the above indicated minimum safe distance to the antenna i.e. 20 cm.

To comply with current FCC RF Exposure limits, the antenna must be installed at or exceeding the minimum safe distance shown above, and in accordance with the requirements of the antenna manufacturer or supplier.

Base Station Installation: The antenna should be fixed-mounted on an outdoor permanent structure. RF Exposure compliance must be addressed at the time of installation.

Antenna Substitution: Do not substitute any antenna for the one supplied or recommended by the manufacturer or radio dealer. You may be exposing person or persons to excess radio frequency radiation. You may contact your radio dealer or the manufacturer for further instructions.

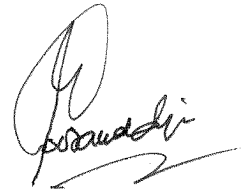
Warning: Maintain a separation distance from the antenna to a person(s) of at least 20 cm.

You, as the qualified end-user of this radio device must control the exposure conditions of bystanders to ensure the minimum separation distance (above) is maintained between the antenna and nearby persons for satisfying RF Exposure compliance. The operation of this transmitter must satisfy the requirements of Occupational/Controlled Exposure Environment, for work-related use. Transmit only when person(s) are at least the minimum distance from the properly installed, externally mounted antenna.

**Testimonial
and
Statement of Certification**

This is to certify that:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.
2. **That** the technical data supplied with the application was taken under my direction and supervision.
3. **That** the data was obtained on representative units, randomly selected.
4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.



Supervised By:

Hoosamuddin S. Bandukwala, Lab Director