



**Flom Test Lab**  
EMI, EMC, RF Testing Experts Since 1963

toll-free: ( 866 ) 311-3268

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**Date:** January 20, 2009

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

**Attention of:** John Spall, Project Manager  
Ph: 858-812-0697  
Fax: 858-450-7183  
email: jspall@nvtl.com

**Equipment:** NBZNRUMUNDP-D1 collocated with E2K512ANHMW

**FCC ID:** NBZNRUMUNDP-D1

**FCC Rules:** Radio Frequency Radiation Exposure Limits  
47 CFR 1.1310

MPE - Mobiles   X  

Fixed Based Station           

Gentlemen:

Enclosed please find your copy of the Supplemental Test Data Report, the whole for Environmental Assessment (MPE) of the referenced equipment as shown.

Please allow from 8-12 weeks to hear from the Commission, who may request additional data or information, and even a sample for pre-grant audit testing.

Should you need any clarification, just fax or phone. Thank you again for this order - it has been a pleasure to be of service.

Supervised By:

Hoosamuddin S. Bandukwala, Lab Director



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**Date:** January 20, 2009

**Attention:** Federal Communications Commission  
Authorization & Evaluation Division

**Via:** Electronic Filing

**Applicant:** Novatel Wireless Inc.

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**FCC ID:** NBZNRUMUNDP-D1

**FCC Rules:** Radio Frequency Radiation Exposure Limits  
47 CFR 1.1310  
MPE - Mobiles   X   Fixed Based Station           

Gentlemen:

On behalf of the Applicant, enclosed please find the Supplemental Test Data Report, the whole for Environmental Assessment (MPE) of the referenced equipment as shown.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Supervised By:

Hoosamuddin S. Bandukwala, Lab Director



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## **Environmental Assessment**

for

**Mobiles**

for

**FCC ID: NBZNRUMUNDP-D1**

**Model: UNDP-D1**

to

**Federal Communications Commission**

**47 CFR 1.1310**

Radio Frequency Radiation Exposure Limits

**Date Of Report:** January 20, 2009

**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 Spall, Project Manager  
Ph: 858-812-0697  
Fax: 858-450-7183  
email: [jspall@nvtl.com](mailto:jspall@nvtl.com)

Supervised By:

Hoosamuddin S. Bandukwala, Lab Director

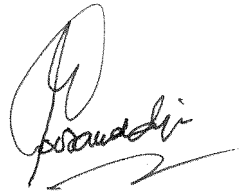
### Test Report Revision History

| Revision | Date             | Revised By | Reason for revision |
|----------|------------------|------------|---------------------|
| 1.0      | January 20, 2009 | J Erhard   | Original Document   |
|          |                  |            |                     |
|          |                  |            |                     |
|          |                  |            |                     |

### 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

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*Required information per ISO 17025-2005, paragraph 5.10:*

a)

**Test Report (Supplemental)**

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

Flom Test Labs  
3356 N. San Marcos Place, Suite 107  
Chandler, AZ 85225

c) Report Number:

d0910015

d) Client:

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

e) Identification:  
Description:

NBZNRUMUNDP-D1 collocated with E2K512ANHMW  
UNDP-D1

f) EUT Condition:

Not required unless specified in individual tests.

g) Report Date:

January 20, 2009

h, j, k):

As indicated in individual tests.

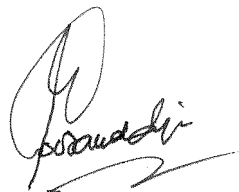
i) Sampling method:

No sampling procedure used.

l) Uncertainty:

In accordance with FTL 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:** NBZNRUMUNDP-D1

**Model Number:** UNDP-D1

**Description:** Laptop model latitude XT2

**Type of Emission:** CDMA

**Frequency Range, MHz:** CDMA 824.2 – 848.8 and 1850.2 – 1909.9  
 2412 – 2462, 5180 – 5320, 5500 – 5700, 5745 - 5825

**Power Rating, Watts:** 1.986  
☐ 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. 0 dBd) 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 C63.4-2003 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 Flom Test Labs, 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 17025:2005 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Please refer to [www.a2la.org](http://www.a2la.org) for current scope of accreditation.

Certificate number: 2152.01



**Name of Test:** Environmental Assessment

**Specification:** FCC: 47 CFR 1.1310

**Measurement Guide:** ANSI/IEEE C95.1 1992

**Name of Test:** R.F. Radiation Exposure

**FCC Rules:** 1.1307, 1.1310, 1.1311, 2.1091

|                                                                         |                   |                                                     |
|-------------------------------------------------------------------------|-------------------|-----------------------------------------------------|
| <b>Limits: Uncontrolled Exposure<br/>47 CFR 1.1310<br/>Table 1, (B)</b> | 0.3-1.234 MHz:    | Limit [mW/cm <sup>2</sup> ] = 100                   |
|                                                                         | 1.34-30 MHz:      | Limit [mW/cm <sup>2</sup> ] = (180/f <sup>2</sup> ) |
|                                                                         | 30-300 MHz:       | Limit [mW/cm <sup>2</sup> ] = 0.2                   |
|                                                                         | 300-1500 MHz:     | Limit [mW/cm <sup>2</sup> ] = f/1500                |
|                                                                         | 1500-100,000 MHz: | Limit [mW/cm <sup>2</sup> ] = 1.0                   |

|                              |                           |
|------------------------------|---------------------------|
| <b>Test Frequencies, MHz</b> | 824 – 848                 |
| <b>Power, Conducted, mW</b>  | = 1986                    |
| <b>Antenna Gain</b>          | = 4 dBi                   |
| <b>Antenna Model</b>         | Planer Inverted F Antenna |
| <b>Distance cm</b>           | 20                        |

**Limit Calculations**      Limit<sub>[mW/cm<sup>2</sup>]</sub> = 0.549

|                              |                           |
|------------------------------|---------------------------|
| <b>Test Frequencies, MHz</b> | 1850 - 1909               |
| <b>Power, Conducted, mW</b>  | = 885                     |
| <b>Antenna Gain</b>          | = 3.5 dBi                 |
| <b>Antenna Model</b>         | Planer Inverted F Antenna |
| <b>Distance cm</b>           | 20                        |

**Limit Calculations**      Limit<sub>[mW/cm<sup>2</sup>]</sub> = 1.0

**NBZNRUMUNDP-D1 CDMA**

| CDMA Frequency MHz | TX Power (mW) | Duty Cycle (%) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Result |
|--------------------|---------------|----------------|-------------------------------------|-----------------------------|--------|
| 824 - 848          | 1986          | 25             | .248                                | .549                        | Pass   |
| 1850 - 1909        | 885           | 25             | .099                                | 1.0                         | Pass   |

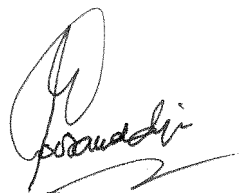
**E2K512ANHMW 802.11**

| 802.11 Frequency MHz | TX Power (mW) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Result |
|----------------------|---------------|-------------------------------------|-----------------------------|--------|
| 2412 - 2462          | 72            | 0.0286                              | 1.0                         | Pass   |
| 5180 - 5320          | 45            | 0.0179                              | 1.0                         | Pass   |
| 5500 - 5700          | 71            | 0.0282                              | 1.0                         | Pass   |
| 5745 - 5825          | 62            | 0.0246                              | 1.0                         | Pass   |

**NBZNRUMUNDP-D1 CDMA Collocated with E2K512ANHMW 802.11**

| CDMA Frequency MHz | 802.11 Frequency MHz | CDMA Power Density (mW/cm <sup>2</sup> ) | 802.11 Power Density (mW/cm <sup>2</sup> ) | Total Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Result |
|--------------------|----------------------|------------------------------------------|--------------------------------------------|-------------------------------------------|-----------------------------|--------|
| 824 - 848          | 2412 - 2462          | .248                                     | 0.0286                                     | 0.2766                                    | 0.549                       | Pass   |
| 824 - 848          | 5180 - 5320          | .248                                     | 0.0179                                     | 0.2659                                    | 0.549                       | Pass   |
| 824 - 848          | 5500 - 5700          | .248                                     | 0.0282                                     | 0.2762                                    | 0.549                       | Pass   |
| 824 - 848          | 5745 - 5825          | .248                                     | 0.0246                                     | 0.2726                                    | 0.549                       | Pass   |
| 1851 - 1908        | 2412 - 2462          | .099                                     | 0.0286                                     | 0.1276                                    | 1.0                         | Pass   |
| 1851 - 1908        | 5180 - 5320          | .099                                     | 0.0179                                     | 0.1169                                    | 1.0                         | Pass   |
| 1851 - 1908        | 5500 - 5700          | .099                                     | 0.0282                                     | 0.1272                                    | 1.0                         | Pass   |
| 1851 - 1908        | 5745 - 5825          | .099                                     | 0.0246                                     | 0.1236                                    | 1.0                         | Pass   |

Supervised By:



Hoosamuddin S. Bandukwala, Lab Director