



MPE Report
For
NovAtel Inc
SMART-MR10

FCC ID: UTU01018518
IC: 129A-01018518

Project Code CG-1418
(Report CG-1418-RA-2-1)
Revision: 1

May 25, 2010

Prepared for: NovAtel Inc
Author: Deniz Demirci
Senior Wireless / EMC Technologist

Approved by: Nick Kobrosly
Director of Canadian operations

Confidentiality Statement: This report and the information contained herein represent the results of testing articles/products identified and selected by the client. The tests were performed to specifications and/or procedures approved by the client. National Technical Systems ("NTS") makes no representations expressed or implied that such testing fully demonstrates efficiency, performance, reliability, or any other characteristic of the articles being tested, or similar products. This report should not be relied upon as an endorsement or certification by NTS of the equipment tested, nor does it represent any statement whatsoever as to its merchantability or fitness of the test article or similar products for a particular purpose. This document shall not be reproduced except in full without written approval from National Technical Systems ("NTS") and the customer.

Test Facility:	National Technical Systems, Canada Product Integrity Laboratory 5151-47 th Street, N.E. Calgary Alberta T3J 3R2
Accreditation Numbers:	0214.22 Electrical 0214.23 Mechanical Accredited by A2LA The American Association for Laboratory Accreditation CLIENTS SERVED: All interested parties FIELDS OF TESTING: Electrical/Electronic, Mechanical/Physical ACCREDITATION DATE:: May 14, 2009 VALID TO: December 31, 2011
Applicant:	NovAtel Inc 1120 - 68th Avenue N.E Calgary, AB T2E 8S5 Canada Phone: (403) 730-4640
Customer Representative:	Name: Jerry Davis Title: Compliance Specialist Phone #: (403) 295-4521 Email Address: jerry.davis@novatel.com

The test results contained in this report refer exclusively to the product(s) presented for testing. The test results do not cover models or products not referred herein. This test report should not be published or duplicated in whole or part without permission from the testing body and the customer.

NTS Product Integrity Laboratory, 5151-47th Street N.E. Tel: 403-568-6605, Fax: 403-568-6970

Register of revisions

Revision	Date	Description of Revisions
1	May 25, 2010	Initial release

The test results contained in this report refer exclusively to the product(s) presented for testing. The test results do not cover models or products not referred herein. This test report should not be published or duplicated in whole or part without permission from the testing body and the customer.

NTS Product Integrity Laboratory, 5151-47th Street N.E. Tel: 403-568-6605, Fax: 403-568-6970

1.0 INTRODUCTION

1.1 PURPOSE

This Maximum Permissible Exposure report demonstrates compliance with FCC CFR 47 1.1310, 2.1091 and RSS-102 Issue 4, RF Exposure evaluation for Model SMART-MR10 which is categorized as mobile.

1.2 ANTENNA SPECIFICATIONS

The Model SMART-MR10 has the following antenna gain specification
Bluetooth 3 dBi Surface Mount Integral Antenna (D-PUCK -SMT 2.45 & 5.51 GHz part# MAF94192)

2.0 RF EXPOSURE LIMITS AND EQUATIONS

In compliance with FCC CFR 47 1.1310, the criteria listed in the table below shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1303 (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)	Average Time (minutes)
(A) Limits for Occupational/Control Exposures (f=frequency)				
30-300	61.4	0.2	1.0	6.0
300-1500	-	-	f/300	6.0
1500-100,000	-	-	5.0	6.0
(B) Limits for General Population/Uncontrolled Exposure (f=frequency)				
30-300	27.5	0.1	0.2	30.0
300-1500	-	-	f/1500	30.0
1500-100,000	-	-	1.0	30.0

Friis Transmission Formula:

$$P_d = (P_{out} * G) / (4\pi R^2)$$

Where,

P_d = power density (mW/cm²)

P_{out} = output power to antenna (mW)

G = gain of antenna in linear scale

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

The resulted power density at a distance of 20cm can be calculated as follows:

$$\text{Power Density} = (\text{EIRP} * \text{Duty cycle}) / (4\pi R^2)$$

The test results contained in this report refer exclusively to the product(s) presented for testing. The test results do not cover models or products not referred herein. This test report should not be published or duplicated in whole or part without permission from the testing body and the customer.

3.0 MPE FIGURE

For the purposes of this report worst case MPE value is provided for highest conducted power output and antenna peak gain.

3.1 OPERATING MODE: 2.4 GHz

Maximum EIRP = Conducted power + Antenna gain = 0.01 + 3.0 = 3.01 dBm or 2 mW

Result

Compliant.

4.0 RSS-102 ISSUE 4, RF EXPOSURE EVALUATION

2.5.1 Exemption from Routine Evaluation Limits – SAR Evaluation

SAR evaluation is required if the separation distance between the user and the radiating element of the device is less than or equal to 20 cm, except when the device operates as follows:

- above 2.2 GHz and up to 3 GHz inclusively, and with output power (i.e. the higher of the conducted or radiated (e.i.r.p.) source-based, time-averaged output power) that is less than or equal to 20 mW for general public use and 100 mW for controlled use;

The unit is exempt from routine evaluation

Maximum EIRP = Conducted power + Antenna gain = 0.01 + 3.0 = 3.01 dBm or 2 mW which is smaller than 20 mW

2.5.2 Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and the device's radiating element is greater than 20 cm, except when the device operates as follows:

At or above 1.5 GHz and the maximum e.i.r.p. of the device is equal to or less than 5 W.

The peak power output of the device is 0.01 dBm at 2480 MHz

The maximum antenna gain is 3 dBi

The calculated maximum radiated e.i.r.p. is 3.01 dBm (0.002 W) which is less than 5 W

Therefore the unit is exempt from RSS-102 Issue 4, routine evaluation limits

END OF DOCUMENT

The test results contained in this report refer exclusively to the product(s) presented for testing. The test results do not cover models or products not referred herein. This test report should not be published or duplicated in whole or part without permission from the testing body and the customer.

NTS Product Integrity Laboratory, 5151-47th Street N.E. Tel: 403-568-6605, Fax: 403-568-6970