



Flom Test Labs  
EMI, EMC, RF Testing Experts Since 1963

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Date: July 23, 2007

Federal Communications Commission  
Via: Electronic Filing

Attention: Authorization & Evaluation Division

Applicant: Black Diamond Advanced Technology  
Equipment: SWBK102  
FCC ID: VHUSWBK102  
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.

Sincerely yours,

Hoosamuddin S. Bandukwala, Lab Director

enclosure(s)  
cc: Applicant  
HSB/je

Flom Test Labs  
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Chandler, Arizona 85225-7176  
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p0770001, d0770014



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## **Environmental Assessment**

for

**Mobiles**

for

**FCC ID:** FCC ID: VHUSWBK102

Model:SWBK102

to

**Federal Communications Commission**

**47 CFR 1.1310 (MPE)**

Radio Rrequency Radiation Exposure Limits

**Date Of Report:** July 23, 2007

**On the Behalf of the Applicant:** Black Diamond Advanced Technology

**At the Request of:** Black Diamond Advanced Technology  
7450 S. Priest Dr  
Tempe, AZ 85283

**Attention of:** Norman Lange  
(480) 247-8700  
[nlange@bdatech.com](mailto:nlange@bdatech.com)

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: Flom Test Labs  
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107  
(Canada: IC 2044) Chandler, AZ 85225

c) Report Number: d0770014

d) Client: Black Diamond Advanced Technology  
7450 S. Priest Dr  
Tempe, AZ 85283

e) Identification: SWBK102  
FCC ID: VHUSWBK102  
Description: Rugged PC

f) EUT Condition: Not required unless specified in individual tests.

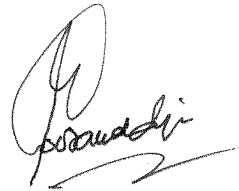
g) Report Date: July 23, 2007

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:

**Name and Address of Applicant:** Black Diamond Advanced Technology  
7450 S. Priest Dr  
Tempe, AZ 85283

**Manufacturer:** Black Diamond Advanced Technology  
7450 S. Priest Dr  
Tempe, AZ 85283

**FCC ID:** VHUSWBK102

**Model Number:** SWBK102

**Description:** Rugged PC

**Type of Emission:** DTS

**Frequency Range, MHz:** 2412-2462

**Power Rating, Watts:**  
☐ 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.

## **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



## **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.

**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

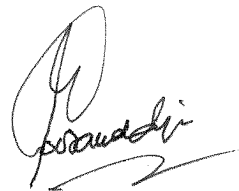
**FCC Rules:** 1.1307, 1.1310, 1.1311, 2.1091

**Description, EUT:** See page 2 of Test Report

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

Frequencies, MHz	2412
Power, Conducted, W	= 50 mW
Antenna Gain	= 2 dBi
Antenna Model	¼ Wave Whip

MPE Calculations	Power <sub>[W EIRP]</sub> = P <sub>[conducted]</sub> x G <sub>[antenna]</sub>	=	0.0792
	Limit <sub>[mW/cm<sup>2</sup>]</sub>	=	1.0
	Limit <sub>[W/m<sup>2</sup>]</sub> = 10 x Limit <sub>[mW/cm<sup>2</sup>]</sub>	=	10.0
	R <sub>[m]</sub> = [P <sub>[W EIRP]</sub> / (4π x Limit <sub>[W/m<sup>2</sup>]</sub> )] <sup>1/2</sup>	=	0.0251



Supervised By:

Hoosamuddin S. Bandukwala, Lab Director



**(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:** 0.0251m.

Antenna Gain: zero dBd 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 0.0251m.

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.

**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.

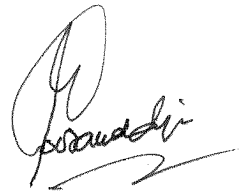
**Warning:** Maintain a separation distance from the antenna to a person(s) of at least 0.0251m.

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.



Certifying Engineer:

Hoosamuddin S. Bandukwala, Lab Director