

# Dell Latitude E6430 ATG

## Dell Latitude ATG summary of Semi-Rugged Testing

June 2012



### MIL-STD 810G Testing Summary

Test Category	Test Method	Test Parameters	Test Result
<b>Altitude Storage/Air Transport</b>	Method 500.5 Procedure I <sup>2</sup>	Test Pressure: Equivalent to cabin altitude of 15,000ft Temperature: 21°C Altitude Change Rate: <10 m/s Duration: 1 hour Unit is non-operational during test.	Pass
<b>Altitude Operation/Air Carriage</b>	Method 500.5 Procedure II <sup>2</sup>	Test Pressure: Equivalent to cabin altitude of 15,000ft Temperature: 21°C Altitude Change Rate: <10 m/s Duration: 1 hour Unit is operational during test.	Pass
<b>High Temperature Storage and Transition</b>	Method 501.5 Procedure I <sup>2</sup>	Duration: 7 day exposure (7 X 24 hr. cycles) Temperature: 33 - 71°C Table 501.5 - III High temperature cycles, climate category A1 Hot Dry Unit is non-operational during test.	Pass
<b>High Temperature Operational</b>	Method 501.5 Procedure II <sup>2</sup>	Duration: 5 day exposure (5 X 24 hr. cycles) Temperature: 60°C cycling temperature exposure Unit is operational during test.	Pass <sup>3</sup>
<b>Low Temperature (Exaggerated)</b>	Method 502.5 Procedure I <sup>2</sup>	Duration: 24 hour exposure Temperature: -51°C Unit is non-operational during test.	Pass
<b>Low Temperature</b>	Method 502.5 Procedure II <sup>2</sup>	Duration: 24 hour exposure Temperature: -29°C Unit is operational during test.	Pass <sup>1</sup>
<b>Humidity Storage &amp; Transit</b>	Method 507.5 Procedure I <sup>2</sup>	Duration: 15 days. Table 507.5-I Hot-humid (Cycle B3) Nonhazardous test items Unit is non-operational during test.	Pass
<b>Humidity Aggravated Cycle</b>	Method 507.5 Procedure II <sup>2</sup>	Duration: 10 days Temperature: Cyclic per Figure 507.5-7 Humidity: 95% RH, constant, but may drop to 85% on descending temperature portion of cycle. Unit is non-operational during test.	Pass
<b>Sand and Dust Blowing Dust</b>	Method 510.5 Procedure I <sup>2</sup>	Duration: 12 hours Air velocity = 1.5 m/s (300 ft/min) to 8.9 m/s (1750 ft/min) Temperature: 60°C Relative Humidity: 30%	Pass <sup>1</sup>
<b>Shock Material to be Packaged</b>	Method 516.5 Procedure II	30G, 304ips Square Wave Shock 1 shocks/axis/direction for a total of 6 shocks. Unit is non-operational during test.	Pass <sup>1</sup>
<b>Shock Crash Hazard</b>	Method 516.5 Procedure V	185g, 2ms Half Sine 2 shocks/axis/direction for a total of 12 shocks. Unit is non-operational during test.	Pass <sup>1</sup>
<b>Shock Functional Shock</b>	Method 516.6 Procedure I	185g, 2ms Half Sine 1 shock/axis/direction for a total of 6 shocks. Unit is operational during test.	Pass <sup>1</sup>
<b>Shock Transit Drop</b>	Method 516.6 Procedure IV	Modified - 26 X 30" drops onto 2" of plywood over non-yielding surface. The 26-drop requirement (Table 516.6-VI) may be divided among up to five samples of the same test item in any combination. Test was completed with 4 systems. Unit is non-operational during test.	Pass <sup>1</sup>
<b>Shock Bench Handling</b>	Method 516.6 Procedure VI	Angle drops onto solid wooden bench thickness least 4.25cm (1.675 inch). Test height judgement as two conditions as rise test units at one edge 100mm (4 inch) or rise an angle of 45° about a solid wooden bench top, whichever is less. Unit is operational during test.	Pass

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Test Category	Test Method	Test Parameters	Test Result
Vibration Operational	Method 514.6 Procedure I Category 4	Operational Vibration, 10-500 Hz, 1.04 Grms, random 1 hour on Bottom, Left and Back side. Unit is operational during test.	Pass <sup>1</sup>
Vibration Non-operational	Method 514.6 Procedure I Category 24	Non operational vibration, 20-2000 Hz, 7.69 Grms, random 30 mins Unit is non-operational during test.	Pass <sup>1</sup>

### IEC Ingress Protection

Test Category	Test Method	Test Parameters	Test Result
IP5x Dust Ingress Protection	IEC60529 <sup>2</sup>	Test Duration: 8 hours Exposure to to fine-grained circulating talcum powder in a dust chamber. Unit is not operational. Dust must not penetrate into the item in such quantities, or in such a position, as to prevent satisfactory operation of the item or to present a safety risk. Operational test performed at end of cycle.	Pass

### Additional Testing

Test Category	Test Parameters	Test Result
Hinge Cycle Test	25,000 cycles performed	Pass
Keyboard Spill Test	While unit is operating, 2oz of water is dispered on three evenly spaced spots on the keyboard. The unit is drained after 3 seconds by placing it on it's left side for 45 seconds. The unit is returned to it's normal position and tested for functionaltiy after 2 minutes. These steps are then repeated for draining on right, back anf front sides. Test is then performed using diet coke on highest risk location, front.	Pass

### Pass Criteria and Test Scope Information

- A Pass indicates that a unit remained operational during the test for tests that were run with unit operating. A functional verification was performed immediately after the test exposure. After 24 hours, the unit again underwent functional verification.
- Due to battery runtime limitations, operational tests that exceed 2 hours in duration are excluded from being tested using battery power.
- Cosmetic damage does not constitute a failure unless there is a safety concern (crack greater than 1mm diameter)
- HDD, SDD, LCD (non-touch/touch), keyboard, battery, ODD are represented in the tests unless otherwise noted.

### Important Information

1. Tests were performed with SSD configuration
2. Tests completed by indepedant 3rd party ISO/IEC-17025 certified laboratories.
3. Up to 50% throttling allowed