

Dell Latitude Ultrabook

Dell Latitude 6430u

Summary of Environmental Testing

October 2012



MIL-STD 810G Third-Party and Internal Testing Summary

Test Category	Test Method	Test Parameters	Test Result
Altitude Storage/Air Transport	Method 500.5 Procedure I ²	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 ¹
Altitude Operation/Air Carriage	Method 500.5 Procedure II ²	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 ¹
High Temperature Storage and Transition	Method 501.5 Procedure I ²	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 ¹
High Temperature Operational	Method 501.5 Procedure II ²	Duration: 5 day exposure (5 X 24 hr. cycles) Temperature: 60°C cycling temperature exposure Unit is operational during test.	Pass ^{1,3}
Low Temperature (Exaggerated)	Method 502.5 Procedure I ²	Duration: 24 hour exposure Temperature: -51°C Unit is non-operational during test.	Pass ¹
Low Temperature	Method 502.5 Procedure II ²	Duration: 24 hour exposure Temperature: -29°C Unit is operational during test.	Pass ¹
Humidity Aggravated Cycle	Method 507.5 Procedure II ²	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 ¹
Sand and Dust Blowing Dust	Method 510.5 Procedure I ²	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 ¹
Shock Material to be Packaged	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 ¹
Shock Crash Hazard	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 ¹
Shock Transit Drop	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 ¹
Shock Functional Shock	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 ¹
Shock Bench Handling	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 ¹
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 ¹

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IEC Ingress Protection

Test Category	Test Method	Test Parameters	Test Result
IP5x Dust Ingress Protection	IEC60529 ²	Test Duration: 8 hours Exposure 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 ¹

Additional Testing Dell Internal Testing

Test Category	Test Parameters	Test Result
Keyboard Spill Test	While unit is operating, 2oz of water is dispersed on three evenly spaced spots on the keyboard. The unit is drained after 3 seconds by placing it on its left side for 45 seconds. The unit is returned to its normal position and tested for functionality after 2 minutes. These steps are then repeated for draining on right, back and front sides. Test is then performed using diet coke on highest risk location, front.	Pass ¹

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)
- SDD, LCD, keyboard, battery are represented in the tests unless otherwise noted.

Important Information

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