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Mechanical and Materials Engineering Division
January 30, 2007

SUMMARY OF ENVIRONMENTAL TESTS PERFORMED

Project Number: 18.04481.09.101

Company: Panasonic Computer Solutions Company
50 Meadowlands Pkwy
Secaucus, NJ 07094
Attn: Alfred Tolentino

Equipment Tested: Panasonic CF-19

Test Dates: Nov 2006 – Jan 2007

Notes: *Each test item was able to boot into the Microsoft Windows® operating system following the tests described within this summary report. A listing of summarized tests appear in the accompanying table.*

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Summary⁺ of Environmental Tests Performed on the Panasonic CF-19

Test Description	Test Parameters	MIL-STD-810F Reference	Pass/Fail*
Drop	36" drop height onto 2" of plywood, 26 drops total on a single test item Tested in Laptop Mode (26 drops) and in Tablet Mode (26 drops)	Method 516.5, Procedure IV (Transit Drop Test)	Pass
Vibration	Non-Operational (from Figure 514.5C-17 of MIL-STD-810F): 0.04 g ² /Hz at 20-1000 Hz, -6 dB/Octave at 1000-2000 Hz, 1 hour/axis duration Operational (tailored to in service conditions as allowed in MIL-STD-810F)	Method 514.5, Procedure I, Category 24 (Minimum Integrity Test) for the non-operational condition and in-service environment for operational condition	Pass
Shock	40g, 11ms, EUT operational, 3 shocks/axis/direction 18 total shocks	Method 516.5, Procedure I (Functional)	Pass
Water Resistance	15 minutes of exposure to dripping water	Method 506.4, Procedure III (Drip)	Pass
Dust Resistance	Operating temperature of 140°F and silica flour with particle sizes as defined by MIL-STD-810F	Method 510.4, Procedure I (Dust)	Pass
Altitude	15,000 feet (the highest equivalent altitude given within MIL-STD-810F for cargo pressures of military aircraft) and two hours duration for both operation and storage conditions	Method 500.4, Procedures I (Storage) and II (Operation)	Pass
High Temperature	Storage temperature = 160°F Cyclic temperature exposures (Basic Hot Induced Conditions) were used for High Temperature Storage Test. Operation temperature = 140°F Constant temperature exposures were used for High Temperature Operation Test	Method 501.4, Procedures I (Storage) and II (Operation)	Pass
Low Temperature	Operation temperature = -10°F, Storage temperature = -60°F	Method 502.4, Procedures I (Storage) and II (Operation)	Pass
Temperature Shock	High non-operating temperature = 200°F, Low non-operating temperature = -60°F, Three cycles (high to low = one cycle)	Method 503.4, Procedure I (Steady State)	Pass
Humidity	The temperature cycled between 68°F and 140°F with the relative humidity maintained at 95%. Each cycle is 48 hours and the entire test consisted of 5 cycles. The computers were non-operational during the test. A functional check was performed every 24 hours.	Method 507.4 (Aggravated)	Pass

* "Pass" indicates that the computer successfully booted Microsoft Windows[®] following each test

+ Full details will be provided in SwRI Report Number 18.04481.09.FR2