

## iAutoSat Environmental Test Summary

Test Name	Specification	Requirements	Criteria	Test Duration	Test Location	Test Results
<b>Assumptions:</b> Operational Environmental Specification to be used: ANSI/TIA/EIA 571 Outdoor						
<b>Product Classification:</b> Class II - Commercial						
<b>Operational Environment:</b> low temp = -40, high temp = 50, Solar Radiation = 1120, Altitude = 3000, RH = 5-95						
<b>Survival Environment:</b> low temp = -50, high temp = 80, Altitude = 10670, RH = 95						
Wind Resistance: Survival Stowed		capable of withstanding wind velocities up to 125 mph without sustaining permanent deformation, wind velocities between 125 & 150 may sustain damage but not break free and become wind-blown hazard	150 mph wind any incident angle (unit in stowed position)		Iowa State University	No issues at 150 MPH.
Wind Resistance: Survival Deployed		shall survive exposure to wind velocities up to 100 mph at any incident angle without re-pointing, 0.1 dB max deviation from baseline data taken at less than 5 mph wind velocity after being exposed to 100 mph for 2 minutes	100 mph wind any incident angle (elevation such that dish is perpendicular to wind source)		Texas A & M	No issues seen at 100 MPH
Wind Resistance: Operational .84M		0.5 dB max loss in transmit performance and 0.25 dB max loss in receive performance when subjected to wind velocities up to 50 mph at any incident angle	50 mph wind any incident angle (elevation such that dish is perpendicular to wind source)		Texas A & M	No issues seen at 50 MPH
Wind Resistance: Operational 1.2M		0.5 dB max loss in transmit performance and 0.25 dB max loss in receive performance when subjected to wind velocities up to 35 mph at any incident angle	35 mph wind any incident angle (elevation such that dish is perpendicular to wind source)		Maryland	No issues seen at 35 MPH
Temperature: Operational	Method Ad of IEC 60068-2-1, Method Bd of IEC 60068-2-2	Remain operational over Operation temp. range	temp = -40C, 50C	72 hours	DATASYST Engineering & Testing Services, Inc.	Passed
Temperature: Cold Start		equipment to start at -40 following continuous exposure for 48 hours, unit shall operate within specification after warmup period, 30 minutes if no warmup time specified	temp = -40	48.5 hours	DATASYST Engineering & Testing Services, Inc.	Passed
Temperature: Survival	Method Ad of IEC 60068-2-1, Method Bd of IEC 60068-2-2	survive exposure to Survival temp. range	temp = -50C, 80C	72 hours	DATASYST Engineering & Testing Services, Inc.	Passed
Humidity: Operational	IEC 60068-2-56	remain operational at 95% RH at 40 deg C		96 hours	DATASYST Engineering & Testing Services, Inc.	Passed
Weathertightness: Icing/Freezing Rain	Method 521.1 of MIL-STD-810E	equipment shall survive	13 mm of icing		DATASYST Engineering & Testing Services, Inc.	Passed
Weathertightness: Wind-Driven Rain Intrusion	Method 506.3, Procedure I of MIL-STD-810E	Rainfall rate shall be 5.8 in/hr, wind velocity shall be 70 mph, not required if passed immersion testing	no evidence of water penetration		Wyle Labs	Passed
Weathertightness: Sand/Dust Intrusion	Method Lc of IEC 60068-2-68	equipment shall survive exposure to sand and dust		4 hours	Wyle Labs	Passed
Weathertightness: Sand/Dust Intrusion	MIL STD 810F	equipment shall operate while exposure to sand and dust		48 hours	Wyle Labs	Passed
Mechanical: Shock Resistance - Operational	IEC 60068-2-27	equipment shall remain operational when subjected to shock	Shock Input Level = 4 g, Pulse Duration = 10 ms		DATASYST Engineering & Testing Services, Inc.	Passed
Mechanical: Shock Resistance - Nonoperational (Survival)	IEC 60068-2-27	equipment shall survive when subjected to shock	Shock Input Level = 16 g, Pulse Duration = 10 ms		DATASYST Engineering & Testing Services, Inc.	Passed
Mechanical: Random Vibration Resistance - Operational	IEC 60068-2-64	equipment shall remain operational when exposed to random vibration	Frequency = 2 to 5, 5 to 150, 150 to 500, Slope = 3,0,-6, PSD (g <sup>2</sup> /Hz) = .001 - .0025, .0025 - .00023		DATASYST Engineering & Testing Services, Inc.	Passed
Mechanical: Random Vibration Resistance - Survival	IEC 60068-2-64	equipment shall survive exposure to X, Y, & Z axis (10 min/axis) random vibration	Frequency = 5 to 150, 150 to 500, Slope = 0,-6, PSD (g <sup>2</sup> /Hz) = .015, .015 - .00135		DATASYST Engineering & Testing Services, Inc.	Passed
Mechanical: Random Vibration - System Level Requirements: Operational	IEC 60068-2-64	equipment shall remain operational when exposed to random vibration	Frequency = 2 to 5, 5 to 150, 150 to 500, Slope = 6,0,-6, PSD (g <sup>2</sup> /Hz) = .00016 - .001, .001 - .00009		DATASYST Engineering & Testing Services, Inc.	Passed
Mechanical: Handling & Transportation - Package Shock	Bellcore GR-63-CORE	equipment when packaged shall survive without cosmetic mechanical/physical damage/deterioration			DATASYST Engineering & Testing Services, Inc.	Passed
Mechanical: Handling & Transportation - Package Vibration	Bellcore GR-63-CORE	equipment when packaged shall survive without cosmetic mechanical/physical damage/deterioration			DATASYST Engineering & Testing Services, Inc.	Passed with old packaging
Corrosion Resistance: Salt Fog	ASTM B 117	equipment shall not exhibit evidence of performance degrading corrosion		48 hours	Wyle Labs	Passed
<b>FCC Class B Requirements</b>						
Lightning Surge Resistance:	CISPR-24	IEC 61000-4-5				Passed
ESD Testing	CISPR-24	IEC 61000-4-2				Passed
Electric Fast Transient	CISPR-24	IEC 61000-4-4				Passed
RF Conducted Susceptibility	CISPR-24	IEC 61000-4-6				Passed
Radiated RF Fields	CISPR-24	IEC 61000-4-3				Passed
Voltage Dip Interrupts	CISPR-24	IEC 61000-4-11				Passed
Voltage / Current Harmonics	CISPR-24	IEC 61000-3-2				Passed
Magnetic Fields	CISPR-24	IEC 61000-4-8				Passed
Radiated Emission	CISPR-22					Passed
Conducted Emissions	CISPR-22					Passed