SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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MECHANICAL

Valid To: June 30, 2022 Certificate Number: 1633.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following environmental simulation tests and tests fitting the parameters listed:

Test:	Test Method(s)[1]:
Altitude *Altitude -1,312 ft to +150,000 ft*	ASTM D4169 Schedule I; ASTM D6653/D6653M-13; DEF STAN 00-35 Section 3 Test CL11, CL12; IEC 60601-1-11, Paragraph 4.2.2; GR-63-CORE, Issue 4, Paragraph 4.1.3 and 5.1.3; GR-3108-CORE, Issue 3, Paragraph 4.7 Altitude; MIL-B-49430C (ER), Paragraph 4.8.7; MIL-B-49458C (ER), Paragraph 4.7.7; MIL-PRF-49471B (CR), Paragraph 4.7.7; MIL-STD-202 Method 105; MIL-STD-202F/G Method 105C, Test Conditions A, B, C, F; MIL-STD-810 Method 500; MIL-STD-810C/E/F Method 500, Procedure I & II; MIL-STD-810G Method 500.5, Procedures I, II, III; MIL-STD-883 Method 1001; MIL-STD-883E/F/G Method 1001, Test Conditions A, B, C, D; RTCA DO-160 Section 4; RTCA DO-160D/E/F/G Section 4, Paragraph 4.6.1, Category Ax, Bx, Cx, Dx, Ex, Fx; UN Transport of Dangerous Goods, Test T.1

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Test:	Test Method(s)[1]:
Temperature/ Altitude *Altitude -1,312 ft to +150,000 ft and temperature of -60°C and +85°C*	MIL-STD-810 Method 504; MIL-STD-810C Method 504.1, Procedure I, Category 1,2,3,4,5,6; MIL-STD-810D/E/F/G/Method 520, Procedure I; ISO 9022-21, Combined Low Pressure and Ambient Temperature or Dry Heat
Bench Handling	MIL-STD-810 Method 516; MIL-STD-810C Method 516.2, Procedure V; MIL-STD-810D/E/F/G Method 516, Procedure VI; ISO 9022-3 Mechanical Stress
Bounce *Synchronized 1" displacement Up to 300 r.p.m*	ASTM D999; D999-96, Method A2; ASTM D4169 Schedule F; DEF STAN 00-35 Section 2-11 Test M11; IEC 68-2-55; IEC 60068-2-55: Test Ee; ISTA 1; ISTA 2; ISTA 3; MIL-STD-810 Method 514; MIL-STD-810C Method 514.2, Procedures IX Part 2, & X & XI; MIL-STD-810D Method 514.3, Category 3, Procedure II; MIL-STD-810E Method 514.4, Category 3, Procedure III; MIL-STD-810F/G Method 514, Category 5, Procedure II
Drop & Topple	DEF STAN 00-35 Section 2-04 Test M4; IEC 68-2-31; IEC 60068-2-31: Test Ec; IEC 68-2-31; IEC 60068-2-31 amm-1982: Test Ec; ISO 9022-3 Mechanical Stress; QM-333, Paragraph 13.0, Category A, B, C, D
Drop Test	DEF STAN 00-35 Section 2-04 Test M4; ASTM D1083; ASTM 1083-91, Paragraph 10 & 11 & 12 & 13; ASTM D4169 Schedule A; ASTM D5276; ASTM D5276-98; ASTM D6179; ASTM D5276-14; EN 50130, Section 21 Free Fall (Operational); GR-63-CORE, Issue 4, Paragraph 5.3; GR-3108-CORE, Issue 3, Paragraph 6.3.1.2 Drop; GR-3108-CORE, Issue 3, Paragraph 6.3.1.4 Drop; GR-950-CORE, Issue 2, Paragraph 5.4.5 Vertical Drop; IEC 68-2-31; IEC 60068-2-31: Test Ec, Drop & Topple; IEC 68-2-32; IEC 60068-2-32: Test Ed, Free Fall; IEC 60601-1-11 Paragraph 10.1.3 d;

Test:	Test Method(s)[1]:
Drop Test (cont.)	IEC 60945 Paragraph 8.6, Drop; ISO 16750-3:2003 Paragraph 4.3.2; ISTA 1; ISTA 2; ISTA 3; MIL-B-49430C (ER), Paragraph 4.8.3; MIL-PRF-49471B (CR), Paragraph 3.10; MIL-STD-810 and rev C/D/E/F/G Method 516-516.2/3/4/5/6/7; MIL-STD-1344 and rev. 1344A Method 2015; ISO 9022-3 Mechanical Stress
Compression	ASTM D4169 Schedule B Warehouse Stacking; ASTM D4169 Schedule C Vehicle Stacking; ISTA 1; ISTA 2; ISTA 3
Fire Resistance	GR-63-CORE, Issue 1, Issue 4, Paragraph 5.2; GR-3108-CORE, Issue 3, Paragraph 6.5; GR-950-CORE, Issue 2, Paragraph 6.6.4 Flammability Rating; UL 94; UL 1694
Foreign Objects	ISO 20653 Degrees of Protection (IP-Code), IP1x, IP2x, IP3x, IP4x; IEC 529 Degrees of Protection Provided by Enclosure (IP Code); IEC 60529-2001 COR 1 2003, Against Ingress of Solid Foreign Objects (IP-Code), IP1x, IP2x, IP3x, IP4x
Impact	ASTM D880; ASTM D4169 Schedule J; ASTM D6344; DEF STAN 00-35 Section 2-05 Test M5; EN 50130:1999 Section 20, Impact (Operational); IEC 60601-1 Paragraph 15.3.3; IEC 62262; ISTA 1; ISTA 2; ISTA 3; UN Transport of Dangerous Goods 38.3.4, Test T.6, Impact
Immersion	DEF STAN 00-35 Section 3 Test CL29; IEC 60529 and rev. 2001,2003, Temporary Immersion IPx7, IPx8; IEC 60945 Paragraph 8.9, Immersion; ISO 16750-4:2006(E) Paragraph 5.4.3; ISO 20653 and rev. 2006 Degrees of Protection (IP-Code), IPx7, IPx8; MIL-STD-810 and rev. C/D/E/F/G Method 512

Test:	Test Method(s)[1]:
Mechanical Push Pull and Twist	GR-950-CORE, Issue 2, Paragraph 6.4.3 Cable Flexing; GR-950-CORE, Issue 2, Paragraph 6.4.4 Cable Torsion
Mechanical Shock	DEF STAN 00-35 Section 2-03 Test M3, Section 2-06 Test M6, Section 2-07 Test M7, Section 2-12 test M12; EN 50125 (2003), Paragraph 4.13.2, Shock; EN 50130 and rev. 1999 Section 19,20; EN 50155 (2017), Paragraph 13.4.11.3, Mechanical Shock; GR-3108-CORE, Issue 3, Paragraph 6.3.1.3 Rail Mechanical Shock; GR-487-CORE, Issue 2, Paragraph 3.35.1 Transportation Shock; GR-487-CORE, Issue 2, Paragraph 3.35.4 Installation Shock; IEC 68-2-27; IEC 60068-2-27: Test Ea; IEC 68-2-29; IEC 60068-2-29: Test Eb; IEC 60601-1-11 Paragraph 10.1.2 a, 10.1.3 a, 10.1.3 b; IEC 61373, Clause 10, Mechanical Shock; ISO 16750-3:2003 Paragraph 4.2, Mechanical Shock MIL-B-49430, Paragraph 4.8.5; MIL-B-49458C (ER), Paragraph 4.7.5; MIL-PRF-49471B (CR), Paragraph 3.9; MIL-STD-202 Method 213; MIL-STD-202F/G Method 213B, Test Condition A, B, C, D, E, F, G, H, J, K; MIL-STD-810 Method 516; MIL-STD-810C Method 516.2, Procedure I, III, IV, VI; MIL-STD-810D/E Method 516, Procedure I, II, V, VIII; MIL-STD-810F/G Method 516, Procedure I, II, III, V, VIII; MIL-STD-883 Method 2002; MIL-STD-883E/F Method 2002, Test Condition A; ISO 16750-3:2003; MIL-STD-1344 Method 2004; MIL-STD-1344A Method 2004.1, Test Condition A, B, C, E, F, G, H, I; RTCA DO-160 Section 7; RTCA DO-160D/E/F/G Section 7, Paragraph 7.2.1, 7.2.2, Operational; RTCA DO-160D Section 7, Paragraph 7.3.1, 7.3.1.1, Crash Safety; RTCA DO-160E/F/G Section 7, Paragraph 7.3.1, 7.3.2, Crash Safety; UL-1642 Paragraph 14; UL-1642 4ED Rev Aug 2006, Paragraph 14A; ISO 9022-3 Mechanical Stress UN Transport of Dangerous Goods 38.3.4, Test T.4, Shock

Test:	Test Method(s)[1]:
Needle Flame	GR-63-CORE Issue 4, Paragraph 5.2.4.1 & 5.2.4.2; IEC 695-2-2; IEC 60695-11-5
Pressure Cooker	IPC-TM-650; IPC-TM-650, Test Number 2.6.16.1
Rain (Water Test)	EN 50125 (2003), Paragraph 4.6, Rain; EN 50130 Section 16 Ingress of Water (Operational); EN 50130:1999 Section 16 Ingress of Water (Operational); IEC 68-2-18; IEC 60068-2-18, Test Rb2; IEC 60601-1-11 Paragraph 8.3.1 Falling Water (IPx1); IEC 60529-2001 COR 1 2003, Drip Box IPx1, Paragraph 14.2.1; IEC 60529-2001 COR 1 2003, Drip Box IPx2, Paragraph 14.2.2; IEC 60529-2001 COR 1 2003, Oscillating Tubes IPx3, Paragraph 14.2.3a; IEC 60529-2001 COR 1 2003, Spray Nozzle IPx3, Paragraph 14.2.3b; IEC 60529-2001 COR 1 2003, Oscillating Tubes IPx4, Paragraph 14.2.4a; IEC 60529-2001 COR 1 2003, Spray Nozzle IPx4, Paragraph 14.2.4b; IEC 60529-2001 COR 1 2003, Water Jet IPx5, Paragraph 14.2.5 & 14.2.6; IEC 60945 Paragraph 8.8, Rain & Spray; ISO 20653 Degrees of Protection (IP-Code); ISO 20653: 2006 Degrees of Protection (IP-Code), IPx1, IPx2, IPx3, IPx4, IPx4K, IPx5, IPx6, IPx6K, IPx9K; MIL-STD-108, Splashproof; MIL-STD-108E, Splashproof, Paragraph 4.9
Salt Fog (Spray) *Physical Size W78xD68xH110 cm*	ASTM B117; DEF STAN 00-35 Section 4 Test CN2; EN 50130 Section 18, Salt Mix Cycling (Endurance); EN 50130:1999 Section 18, Salt Mix Cycling (Endurance); EN 50155 (2007), Paragraph 12.2.10, Salt Mist; EN 50155 (2017), Paragraph 13.4.10, Salt Mist; DNV 2.4 (2006) Paragraph 3.10, Salt Mist; IEC 68-2-11, Test Ka, Salt Fog, Corrigendum 1999; IEC 68-2-52, IEC 60068-2-52, Test Kb, Salt Fog, Cyclic; IEC 60945 Paragraph 8.12, Corrosion (Salt Mist); ISO 16750-4:2006(E) Paragraph 5.5.1, 5.5.2; GMW 14872 Cyclic Corrosion Laboratory Test – November 2006; GR-3108-CORE, Issue 3, Paragraph 6.2 Salt Fog Exposure; GR-487-CORE, Issue 2, Paragraph 3.34.1 Salt Fog;

Test:	Test Method(s)[1]:
Salt Fog (Spray) (cont.)	GR-950-CORE, Issue 2, Paragraph 6.5.7 Test B, Salt Fog; MIL-STD-202 Method 101; MIL-STD-202F/G Method 101, Test Condition A & B; MIL-STD-810 Method 509; MIL-STD-810C/D/E/F/G Method 509, Procedure I; MIL-STD-883 Method 1009; MIL-STD-883E/F Method 1009, Test Condition A, B, C, F; MIL-STD-1344 Method 1001; MIL-STD-1344A Method 1001.1, Test Condition A, B, C, D; RTCA DO-160 Section 14; RTCA DO-160D Section 14; RTCA DO-160E/F/G Section 14; ISO 9022-4 Salt Mist
Temperature *Temp. range -60°C to +125°C* *Chamber volume up to 11 m³*	DEF STAN 00-35 Section 3 Test CL1, CL4, CL5; DNV 2.4 (2006) Paragraph 3.7, Dry Heat; DNV 2.4 (2006) Paragraph 3.9, Cold; EN 50130-5 Section 8 Dry Heat (Operational); EN 50130-5:1999 Section 8 Dry Heat (Operational); EN 50130-5:1999 Section 9 Dry Heat (Endurance); EN 50125 (2003), Paragraph 4.3, Temperature ; EN 50130-5:1999 Section 10 Cold (Operational); EN 50130-5:1999 Section 11 Temperature Change (Operational); EN 50155 (2007), Paragraph 12.2.3, Cooling Test; EN 50155 (2007), Paragraph 12.2.14, Low Temperature Storage; EN 50155 (2007), Paragraph 12.2.4, Dry heat; EN 50155 (2017), Paragraph 13.4.4, Low Temperature Start-up; EN 50155 (2017), Paragraph 13.4.5, Dry heat, Cycle A, B, C; EN 50155 (2017), Paragraph 13.4.6, Low Temperature Storage; EN 50155 (2017), Paragraph 13.4.14, Rapid Temperature Variation; GR-63-CORE, Issue 4, Paragraph 5.1 Temperature; GR-1221-CORE, Paragraph 6.2.4, High Temperature; GR-1221-CORE, Paragraph 6.2.6, Low Temperature; GR-3108-CORE, Issue 3, Paragraph 4.2.2 Surface Temperatures; GR-3108-CORE, Issue 3, Paragraph 4.4 (R4-15) Low Temperature; GR-3108-CORE, Issue 3, Paragraph 4.4 (R4-16) High Temperature; GR-3108-CORE, Issue 3, Paragraph 4.5 Cold & Hot Start; GR-950-CORE, Issue 2, Paragraph 6.5.1 Accelerated Thermal Aging; TIA/EIA 455-4C, High Temperature; IEC 68-2-1; IEC 60068-2-1, Test Aa, Ab, Ac, Ad, Low Temperature; IEC 68-2-2; IEC 60068-2-2, Test Ba, Bb, Bc, Bd, High Temperature; IEC 68-2-14; IEC 60068-2-14, Test Na, Nb, Nc, Temperature Cycling; IEC 60601-1-11 Paragraph 4.2.1 b Low Temperature; IEC 60601-1-11 Paragraph 4.2.2 e Low Temperature;

Test:	Test Method(s)[1]:
Temperature (cont.)	IEC 60945 Paragraph 8.2, Dry Heat; IEC 60945 Paragraph 8.4, Low Temperature; ISO 16750-4 :2006(E) Paragraph 5.1, 5.2, 5.3; ISO 16750-4:2006(E) Paragraph 5.6.2.2, 5.6.2.3, 5.7; ISTA 3; MIL-STD-202F Method 108A, High Temperature; MIL-STD-202G Method 108A, High Temperature; MIL-STD-810 Method 501 High Temperature; MIL-STD-810C/D/E/F/G Method 501, Procedure I, II, High Temperature; MIL-STD-810C/D/E/F/G Method 502, Procedure I, II, III, Low Temperature; MIL-STD-1344 Method 1003; MIL-STD-1344A Method 1003.1, Test Condition A, A-1, A-2, A-3; MIL-STD-1344A Method 1005, Test Condition 1, 2, 3, 4, 5; MIL-STD-1344A Method 1015, Test Condition A, B (Group I, II); QM-333, Paragraph 6.0, Category A, B, C, D, Low Temperature; QM-333, Paragraph 7.0, Category A, B, C, D, High Temperature; RTCA DO-160, Section 4 Low & High Temperature; RTCA DO-160D/E/F/G, Section 4, Paragraph 4.5.1, Category Ax, Bx, Cx, Dx, Ex, Fx, Temperature; RTCA DO-160D/E/F/G, Section 4, Paragraph 4.5.2, Category Ax, Bx, Cx, Dx, Ex, Fx, High Temperature; RTCA DO-160D/E/F/G, Section 4, Paragraph 4.5.3, Category Ax, Bx, Cx, Dx, Ex, Fx, Low Temperature; RTCA DO-160D/E/F/G, Section 4, Paragraph 4.5.4, Category Ax, Bx, Cx, Dx, Ex, Fx, High Temperature; RTCA DO-160, Section 5, Temperature Cycling; RTCA DO-160D, Section 5, Paragraph 5.3, Category A, B, C, Temperature Cycling; RTCA DO-160E/F/G, Section 5, Paragraph 5.3, Category A, B, C, S1, S2, Temperature Cycling
Temperature & Humidity *Humidity range 15% up to 95% RH* *Chamber volume up to 11 m³*	ASTM D4332 DEF STAN 00-35 Section 3 Test CL2, CL7; DNV 2.4 (2006) Paragraph 3.8, Damp Heat; EN 50125 (2003), Paragraph 4.4, Humidity; EN 50130-5, Section 12 Damp Heat, Steady State (Operational); EN 50130-5:1999, Section 13 Damp Heat (Endurance); EN 50130-5:1999, Section 14 Damp Heat Cycling (Operational); EN 50130-5:1999, Section 15 Damp Heat Cycling (Endurance); EN 50155 (2007), Paragraph 12.2.5, Damp Heat Cyclic; EN 50155 (2017), Paragraph 13.4.7, Damp Heat Cyclic;

Test:	Test Method(s)[1]:
Temperature & Humidity (cont.)	TIA/EIA 455-5C, Method A, Condition A, B, C, D, E, Humidity; TIA/EIA 455-5C, Method B/C Humidity; GR-63-CORE, Issue 1 & 2 & 3 & 4, Humidity; GR-1221-CORE, Paragraph 6.2.5, Humidity; GR-1221-CORE, Paragraph 6.2.8, Humidity; GR-3108-CORE, Issue 3, Paragraph 4.4 (R4-17) High Humidity; GR-3108-CORE, Issue 3, Paragraph 4.6 Humidity Cycling; GR-487-CORE, Issue 2, Paragraph 3.34.2 High Humidity Cycling; GR-950-CORE, Issue 2, Paragraph 6.5.3, Humidity; IEC 68-2-3, Test Ca, Humidity Replaced by IEC 60068-2-78; IEC 68-2-30, IEC 60068-2-30 Test Db, Humidity; IEC 68-2-38, Test Z/AD, Humidity; IEC 68-2-56, Test Cb, Humidity Superseded by IEC 60068-2-78:2001; IEC 60601-1-11, Paragraph 4.2.1 c & 4.2.2 h, Humidity; IEC 60945 Paragraph 8.3, Damp Heat; ISTA 1; ISTA 2; ISTA 3; MIL-STD-202F/G Method 103B, Test Condition A, B, C, D, Humidity; MIL-STD-202F/G Method 106, Humidity; MIL-STD-810 Method 507 Humidity; MIL-STD-810C Method 507.1, Procedure I, II, III, IV, V, Humidity; MIL-STD-810D/E/F/G Method 507, Procedure I, II, III, Humidity; MIL-STD-883E/F Method 1004.7, Humidity; MIL-STD-1344 Method 1002; MIL-STD-1344A Method 1002.2, Type I, Condition A, B, C, D; MIL-STD-1344A Method 1002.2, Type II & III; QM-333 “Specification for Environmental Testing of Switching and Transmission Equipment at India”, Paragraph 8.0 & 10.0, Category A, B, C, D, Humidity; RTCA DO-160D/E/F/G, Section 6, Category A, B, C, Humidity; ISO 9022-2, Cold, Heat, and Humidity

Test:	Test Method(s)[1]:
Thermal Shock *Temp. range: -60°C to +120°C* *Three Zone Chamber* *Cart size: 60x60x60 cm*	DEF STAN 00-35 Section 3 Test CL14; GR-1221-CORE, Paragraph 6.2.7, Thermal Shock; IEC 60601-1-11 Paragraph 4.2.3 Thermal Shock; GR-487-CORE, Issue 2, Paragraph 3.27, Thermal Shock; IEC 60945 Paragraph 8.5, Thermal Shock; ISO 16750-4:2006(E) Paragraph 5.3.2; MIL-STD-202 Method 107 Thermal Shock; MIL-STD-202F/G Method 107, Test Condition A, A-1, A-2, A-3, Thermal Shock; MIL-STD-202F/G Method 107, Test Condition B, B-1, B-2, B-3, Thermal Shock; MIL-STD-202F/G Method 107, Test Condition F, F-1, F-2, F-3, Thermal Shock; MIL-STD-202 Method 107 Thermal Shock; MIL-STD-810C/D/E/F Method 503, Procedure I, Thermal Shock; MIL-STD-810F Method 503.4, Procedure II, Thermal Shock; MIL-STD-810G Method 503.5, Procedure I-A, I-B, I-C, Thermal Shock; MIL-STD-883 Method 1010, Thermal Shock; MIL-STD-883E Method 1010.7, Test Condition A, B, C, F, Thermal Shock; MIL-STD-883F Method 1010.7, Test Condition A, B, C, Thermal Shock; QM-333, Paragraph 9.0, Category A, B, C, D, Thermal Shock UN Transport of Dangerous Goods 38.3.4, Test T.2, Thermal Test
Vibration *Sine, Random, Sine on Random, Random on Random.* *Freq. range: 3- 2,300 Hz* *Displacement: up to 2”* *Force rating of 6,400 kg*	ASTM D999, Method A1, B, C, Sine Vibration; ASTM D999, ASTM D999-96, D999-2001 Method A1, B, C, Sine Vibration; ASTM D4169 Schedule D/E; ASTM D4728, Random Vibration; ASTM D4728, ASTM D4728-95, D4728-2006 Random Vibration; DEF STAN 00-35 Section 2-01 Test M1; DNV 2.4 (2006) Paragraph 3.6, Sine & Random Vibration EN 50125 (2003), Paragraph 4.13.1, Vibration; EN 50155 (2007), Paragraph 12.2.11, Random Vibration; EN 50155 (2017), Paragraph 13.4.11.2, Random Vibration Long Life; EN 50155 (2017), Paragraph 13.4.11.4, Random Vibration Functional; EN 50155 (2017), Paragraph 13.4.13, ESS; EN 50130, Section 22, 23 Vibration, Sinusoidal; GR-63-CORE, Issue 4, Paragraph 5.4.2, Sine & Random Vibration; GR-63-CORE, Paragraph 5.4.3, Random Vibration; GR-3108-CORE, Issue 3, Paragraph 6.3.1.5 Random Vibration; GR-3108-CORE, Issue 3, Paragraph 6.3.3 Sine Vibration & Random Vibration; GR-487-CORE, Issue 2, Paragraph 3.35.3 Transportation Random Vibration; GR-487-CORE, Issue 2, Paragraph 3.35.5 Induced Vibration;

Test:	Test Method(s)[1]:
Vibration (cont.)	GR-1221-CORE, Paragraph 6.2.2, Sine Vibration; IEC 68-2-6, IEC 60068-2-6, Test Fc, Sine Vibration; IEC 68-2-34 Test Fd, Random Vibration; IEC 68-2-36, Test Fdb, Random Vibration Superseded by IEC 60068-2-64; IEC 68-2-64 Test Fh, Random Vibration; IEC 60601-1-11, Paragraph 10.1.2 b & 10.1.3 c; IEC 60945 Paragraph 8.7, Vibration; IEC 61373, Clause 8, Functional Random Vibration; IEC 61373, Clause 9, Long Life Random Vibration; ISO 16750-3:2003; ISTA 1; ISTA 2; ISTA 3; MIL-B-49430, Paragraph 4.8.6, Sine Vibration; MIL-B-49458C (ER), Paragraph 4.8.6, Sine Vibration; MIL-PRF-49471B (CR), Paragraph 4.7.6; MIL-STD-202F/G Method 201A, Sine Vibration; MIL-STD-202 Method, Sine Vibration; MIL-STD-202F/G Method 204D, Test Conditions A, B, C, D, E, G, H, Sine Vibration; MIL-STD-202 Method 214, Random Vibration; MIL-STD-202F/G Method 214, Condition I & II, Test Conditions A, B, C, D, E, F, G, H, J, K, Random Vibration; MIL-STD-810 and rev. C/D/E/F/G Method 514-514.2/3/4/5/6/7 & method 519.3; MIL-STD-1344 Method 1015, Condition B (Group III) Sine Vibration; MIL-STD-1344A Method 1015, Condition B (Group III) Sine Vibration; MIL-STD-1344 Method 2005; MIL-STD-1344A Method 2005.1, Condition I, II, III, IV, V (A, B, C, D, E, F, G, H, J, K), VI (A, B, C, D, E, F, G, H, J, K); RTCA DO-160 Section 8; RTCA DO-160D Section 8, Category S, S2, H, H2, R, R2, T, T2, U, Vibration; RTCA DO-160E/F/G Section 8, Category S, H, Z, R, U, U2, Vibration; TIA/EIA 455-11B, TIA/EIA 455-11B, Condition I, II, III, IV, VI Sine & Random Vibration; TIA/EIA 455-11B, TIA/EIA 455-11B, Condition VII, Random Vibration; TIA/EIA 455-11C, TIA/EIA 455-11C, Condition I, II, III, IV, VI, VII, Sine & Random Vibration; QM-333 Paragraph 12.0, Category A, B, C, D, Sine Vibration; UL-1642, Paragraph 15, Sine Vibration;

Test:	Test Method(s)[1]:
Vibration (cont.)	UN Transport of Dangerous Goods 38.3.4, Test T.3, Sine Vibration;
	ISO 9022-3 Mechanical Stress
Dust	EN 50130, Section 26 Dust (Endurance); EN 50130:1999, Section 26 Dust (Endurance);
	IEC 60068-2-68, Test L, Dust & Sand; IEC 60068-2-68 1ed 94, Test L, Dust & Sand; IEC 60529-2001, COR 1 2003, Degrees of Protection Provided by Enclosures (IP Code); IEC 60601-1-11, Paragraph 8.3.1, Ingress Protection (IP2x);
	ISO 20653 Degrees of Protection (IP-Code), IP5Kx, IP6Kx; ISO 20653: 2006 Degrees of Protection (IP-Code), IP5Kx, IP6Kx
	RTCA DO-160, Section 24
Icing	RTCA DO-160D/E, Section 24, Category A, C;
	ISO 16750-4:2006(E) Paragraph 5.4.2

GMW 3172 General Specification Electrical/Electronic

Vibration Paragraphs
Temperature Paragraph
Vibration & Temperature Paragraphs
Mechanical Shock Paragraph
Crush Paragraph
Drop Paragraph
Low Pressure Paragraphs
Thermal Shock Paragraphs
Humidity Paragraphs
Icing Paragraphs
Salt Fog Paragraph
Dust Paragraph
Water Paragraph
Sugar Water Paragraph

Highly Accelerated Life Test (HALT)

Cold Temperature Steps
Hot Temperature Steps
Cold Start Test
Temperature Cycling
Random Vibration – 3 Axis
Temperature & Vibration Combined Cycling
Temperature Measurements
Vibration Measurements

Using the following methods:

Accelerated Reliability Engineering: HALT and HASS (pp. 31-75). Gregg K. Hobbs, Ph.D., P.E.; J. Wiley & Sons, 2000.
Accelerated Stress Testing Handbook (pp. 10-90, 137-154). H. Anthony Chan and Paul J. Englert, Editors; Lucent Technologies, Inc, 2001.
HALT and HASS (Section 3). Gregg K. Hobbs, Ph.D., P.E.; Hobbs Engineering; 1992.
HALT, HASS, & HASA Explained: Accelerated Reliability Techniques (pp. 2-25). Harry W. McLean; ASQ Quarterly Press, 2000.
QualiTech HALT Procedure No. QT-20-20-28 (Hebrew)
QualiTech HALT Procedure No. QT-22-20-28 (English)

Highly Accelerated Stress Simulation (HASS)

Stress Profile Definition
Analyzing POS Stage
Mounting Jig Assembly
Running Multi-Tester Jig
Set-Up for Mass Production
Temperature & Vibration Combined Cycling

Using the following methods:

Accelerated Reliability Engineering: HALT and HASS (pp. 77-102). Gregg K. Hobbs, Ph.D., P.E.; J. Wiley & Sons, 2000.
Accelerated Stress Testing Handbook (pp. 10-90, 137-154). H. Anthony Chan and Paul J. Englert, Editors; Lucent Technologies, Inc, 2001.
HALT and HASS (Section 6). Gregg K. Hobbs, Ph.D., P.E.; Hobbs Engineering; 1992.
HALT, HASS, & HASA Explained: Accelerated Reliability Techniques (pp. 33-52). Harry W. McLean; ASQ Quarterly Press, 2000.
QualiTech HASS Procedure No. QT-20-50-80 (Hebrew)
QualiTech HASS Procedure No. QT-22-50-80 (English)

[1] When the date, edition, version, etc. is not identified in the scope of accreditation, laboratories may use the version that immediately precedes the current version for a period of one year from the date of publication of the standard measurement method, per part C., Section 1 of A2LA R101 - General Requirements- Accreditation of ISO-IEC 17025 Laboratories.

Accredited Laboratory

A2LA has accredited

QUALITECH

Petah-Tikva, Israel

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 22nd day of December 2020.

Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1633.02
Valid to June 30, 2022

For the types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.