



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

TOUCHSTONE SYSTEMS & SERVICES
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MECHANICAL

Valid To: May 31, 2017

Certificate Number: 0560.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on aircraft components; automotive components; coatings; paint finishes; furniture; textiles; gaskets; seals & packings; pipes, hoses, valves and fittings; wood & wood products; military replacement parts; fuel system components; manufacture component qualification programs; telecommunication, Bellcore, medical components and products:

Test	Test Method(s)
<u>ENVIRONMENTAL SIMULATION¹</u> High / Low Temperature	RTCA-DO-160 Section 1-5 C/D/E/F/G; MIL-STD-202 F, MIL-STD-810 Method 501, Method 502 C/D/E/F/G; SAE J1211; IEC 68-2-2, IEC 60068-2-2, IEC 61215; BELLCORE: GR-49, GR-63, GR-282, GR-468, GR-487, GR-489, GR-1221; ASNI-UL 1703; GM9132P; GMW 3172; GM2210M; FORD 00.00EA-D11-1; FORD WSS-M15P34-D; DC-10611; PF9688
Temperature / Humidity	RTCA-DO-160 Section 6 C/D/E/F/G; MIL-STD-202 F, MIL-STD-810 Method 507 C/D/E/F/G; SAE J1211; BELLCORE: GR-49, GR-63, GR-468, GR-487, GR-1209, GR-2882; ASTM E1171; IEC 60068-2-38, IEC 61646; ASNI-UL 1703; GM9132P; GMW 3172; GM2210M; FORD 00.00EA-D11-1; DC-10611; FORD WSS-M15P34-D; PF9688
IR Surface Temperature / Solar	MITSUBISHI ESX60210 4.3; NISSAN NES MO 131; BELLCORE GR-487; EN60068-2-5, EN60068-2-9; MIL-STD-810 Method 505 Pro 1 C/D/E/F/G
Thermal Shock	MIL-STD-202 F, MIL-STD-810 Method 503 C/D/E/F/G; BELLCORE: GR-63, GR-487, GR-1221; NISSAN NES M 000; GM9132P; GMW 3172; FORD 00.00EA-D11-1; DC-10611; PF9688;

Test	Test Method(s)
ENVIRONMENTAL SIMULATION¹ (cont) Temperature / Humidity Cycling	GM9505P except cycle J; GMW 14124 except cycle J; BELLCORE: GR-49, GR-1221; NISSAN NES M 000; FORD WSS-M15P34-D
Humidity, Fogging ¹	GM4465P, GM4350M; ASTM D1735, D2247; HES D2016-99A, HES D6501-03, HES D2021; FORD WSS-M15P34-D
Condensing Humidity	ASTM D4585; CMT 0033
Fluorescent Weathering	ASTM D4587; ASTM G154; FLTM BI 104; ISO 4892-3
Salt Spray / Acetic Acid ¹ Salt / Combined Thermal ¹	ASTM B117, B537, D610, D714, G85; GM4298P, GM4476P, GM9540P, GM4350M except Chip Resistance; RTCA-DO-160 C/D/E/F/G; MIL-STD-202 F, MIL-STD-810 Method 509 C/D/E/F/G; SAE J1211; BELLCORE GR-282; PARKHAN P21- CPE-023 Rev.00; CHRYSLER LP-463-PB-10-01CHG.C; MS-PB-45-2 CHG.V; FORD FLTM BI 103-01; FRTLINER 49-00005 Rev.6; HES D2003-03 B Rev.4, HES D2016-99A, HES D6501-03, HES D2021-99 C Rev.1, HES D6001-71; NISSAN 54400 NDS00; NISSAN NES M 0007 (2006-N); TSH6524G; PACCAR CMT0033; Toyota TSH1552G; CEMS GT-7D; DIN 50021; Volvo STD 1027.14
CASS and Combined Thermal ¹	ASTM B368; GM4372M, GM4476M; JIS H 8502-99; TSH6500G; HES D600-1-71, HES D2003-05 B Rev.6, HES 2016-99A, HES D6501-03; TS430-1-4; GES 43226; WSB-MIP83-B1, B2, B3, B4; DVM-0008RG Ver3; FRTLINER 49-00039 Rev A; FORD WSS-M1P83-C1/C2
Altitude	RTCA-DO-160 Section 4 C/D/E/F/G; MIL-STD-202 F, MIL-STD-810 Method 500 C/D/E/F/G; SAE J1211; BELLCORE GR-63
Decompression / Overpressure	RTCA-DO-160 C/D/E/F
Explosion	RTCA-DO-160 Section 9 C/D/E/F/G; MIL-STD-202 F, MIL-STD-810 Method 511 C/D/E/F/G

Test	Test Method(s)
<u>ENVIRONMENTAL SIMULATION</u> (cont) Sand and Dust ¹	GM9110P; MIL-STD-202 F, MIL-STD-810 Method 510 Pro 1 C/D/E/F/G; RTCA-DO-160 Section 12 C/D/E/F/G; GMW 3431 Section 4.4.9; IEC 60529; BELLCORE GR-487; SAE J1211, SAE J575
Immersion ¹	ASTM D870, D2248; IEC 60529; BELLCORE: GR-49, GR-1209; FLTM BI 104-01; GM4431M; HES D2016-99A, HES D6501-03; Toyota TSH1505G
Moisture / Rain / Icing	RTCA-DO-160 Section 10 & 24 C/D/E/F/G; MIL-STD-202 F, MIL-STD-810 Method 506 Method 521 C/D/E/F/G; IEC 60529
<u>MATERIAL TESTS</u> Tensile / Compression ² Push – Pull to 5,000 lbs ²	ASTM D642; STRYKER ES-0668; STRYKER ES-0703
Hardness; Pencil Hardness ¹	GM9502P, GM9150P, GM 4350M; ASTM D3359, D3363; HES D2016-99A, HES D6501-03 C Rev.2; NISSAN NES M 0007 (2006-N)
Dime Scrape ¹	GM9506P
Tape Adhesion ¹ X-Scribe & Adhesion ¹	GM9071P, GM4350M; ASTM D3359, D1654; NES M 0007 (2006-N); LP 63PB 15 01 CHG A; FLTM BI 104-01, 106-01; HES D2016-99, HES D 6501-03 C Rev. 2; PACCAR CMT0033; DAIMLER DBL 7399
Taber Abrasion / Scuffing / Marring ¹	MIL-M-13231 (Markings); ASTM D4060; PACCAR CMT0033; GM4350M; SAE J365, SAE J948
Chemical Resistance ¹	RTCA-DO-160 Section 11 C/D/E/F/G; MIL-STD-810 Method 504 C/D/E/F/G; BELLCORE GR-49; HES D6501-03 C Rev.2, HES D2016; FREIGHTLINER 49-00023; ASTM D1939, D1308, D5402; GM4350M, GM9500, GM9501, GM9517P, GM9900P; GMN 10033; GMW 14334; NES M0007; PACCAR CMT0033; SAE J1351; FLTM BN 112: FLTM BI 113

Test	Test Method(s)
<u>MATERIAL TESTS (cont)</u> Heat Aging	BELLCORE GR-49
Torque	BELLCORE GR-49
Colorfastness ¹	GM9033P; HES D2016-99A; NISSAN NES M 0007 (2006-N); FLTM BN 107-1
Drop Tests / Impact	BELLCORE GR-49, GR-63, GR-1209; JIS K 5400; ASTM D2794, D5276, D880, D4003, D6179
Film Thickness	ASTM D7091, D4138, D1005; HES D6501
Creep	DAIMLER VOA621-402; PACCAR CMT0033; ASTM D1654; CEM GT-7D
Gloss	ASTM D523
Flexibility	ASTM D522, D1737
Cure ¹	GM9509P
Odor	FLM BO 131; SAE J1351
Circuit Board Inspection	Acceptability of Electronic Assemblies IPC-A-610F; GMW3172-DRBTR
<u>VIBRATION / SHOCK¹</u> Sine 6500 lbs ² Random 4000 lbs ² Frequency (1 to 3000) Hz ² Acceleration 75g ² Displacement ± 1” ² Temperature (-77 to +177) °C ² Humidity (20 to 98) % ²	RTCA-DO-160 Section 7 & 8 C/D/E/F/G; MIL-STD-202 F; MIL-STD-810 Method 514, Method 516 C/D/E/F/G; SAE J1211; GM9110P, GM9123P; GMW 3172; PF9688; FORD 00.00EA-D11-1; DC-10611; BELLCORE GR-49, GR-63, GR-468, GR-1221, GR-2882; IEC 68-2-27 Part 2, IEC 68-2-29 Part 2; ASTM D5487

Test	Test Method(s)
<u>PACKAGING TESTING</u>	<u>ISTA (International Safe Transit Association):</u> 1A, 1B, 1C, 1D, 1E, 1G, 1H, 2A, 2B, 2C, 2D, 2E, 3A, 3C, 3D, 3E, 3F, 3H, 5B, 6A, 6B, 7A, 7B, 7C, 7D; ASTM F88, D642, D828, D880, D999, F1140, F1929, F2096, D3078, D4003, D4169, D4332, D4577, D4728, D5265, D5276, D5639, D6055, D6344, D6179, D7386; ISO 11607
<u>FLAMMABILITY¹</u> Furniture Seating Walls / Tops Mattress Foams Films PCB's Fabrics Composites	CALIFORNIA TB-133 (CAL 133), TB106, TB116, TB117, TB121, TB129, TB603; CPAI-83; 16 CFR 1632, 16 CFR 1633 FMVSS 302; GM9070P; SAE J369; FED TEST METHOD 5903.1, FED TEST METHOD 5906; FED STD 191A(VERT); FED STD 191(HORIZ); FAA 25.853 APPENDIX F, PART 1(b); FAA 25.853 APPENDIX F, PART 1(b)(5); BELLCORE GR-1209, GR-2882; POWER PLANT No. 3: AC 20-135; ISO 2685, 3795; JIS D1201; NFPA 260; NFPA 261; NFPA 101 Sect 10.3; NFPA 701 UFAC TEST SERIES; ASTM E1537, E1353; RTCA-DO160F/ G- Section 26 RTCA/DO-204-204; EN1021- 2; BS5852; UL 94
<u>DURABILITY SIMULATION</u> Pneumatic / Servo PLC Driven Aircraft Boot / Seal/Duct Lifecycle, in Combination with Extreme Temperature Internal and External with Pressure Cycling Screening (ESS), Vibration Profiles With Or Without Temperature and RH Using Customer QTP's Engineering Design Requirements	BAC 5331; Boeing D6-81926 except section 5.6.9 (Odor and Fungus); Airbus L00716172

¹ This laboratory's scope contains withdrawn or superseded methods. As a clarifier, this indicates that the applicable method itself has been withdrawn or is now considered "historical" and not that the laboratory's accreditation for the method has been withdrawn.

² Including Customer Specifications directly related to the test technologies and within the parameters listed.



Accredited Laboratory

A2LA has accredited

TOUCHSTONE SYSTEMS & SERVICES

Wyoming, MI

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 8 January 2009).



Presented this 2nd day of July 2015.

A handwritten signature in black ink, reading "Peter Abney".

President & CEO
For the Accreditation Council
Certificate Number 0560.01
Valid to May 31, 2017

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