

THE AMERICAN ASSOCIATION FOR  
LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

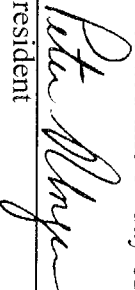
## **TOUCHSTONE SYSTEMS & SERVICES Wyoming, MI**

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 1<sup>st</sup> day of June 2009.

  
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President

For the Accreditation Council  
Certificate Number 0560.01  
Valid to May 31, 2011



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

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

TOUCHSTONE SYSTEMS & SERVICES

1817 Porter Street SW

Wyoming, MI 49509

Terry S. Heath Phone: 616 532 0060

MECHANICAL

Valid To: May 31, 2011

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
<u>ENVIRONMENTAL SIMULATION</u>	
High / Low Temperature	RTCA-DO-160 C/D/E/F; MIL-STD-202 F; MIL-STD-810 C/D/E/F/G; SAE J1211; IEC 68-2-2; BELLCORE:GR-49,GR-63, GR-282, GR-468, GR-487, GR-489, GR-1221
Temperature / Humidity	RTCA-DO-160 C/D/E/F; MIL-STD-202 F; MIL-STD-810 C/D/E/F/G; SAE J1211; BELLCORE: GR-49, GR-63, GR-468, GR-487, GR-1209, GR-2882
IR Surface Temperature / Solar	MITSUBISHI ESX60210 4.3; NISSAN NES MO131; BELLCORE GR-487;EN60068-2-5 ; EN60068-2-9 ; MIL-STD-810 C/D/E/F/G
Thermal Shock	MIL-STD-202 F; MIL-STD-810 C/D/E/F/G; BELLCORE: GR-63, GR-487, GR-1221,NISSAN NESM000
Temperature / Humidity Cycling	GM9505P except cycle J; BELLCORE: GR-49,GR-1221;Nissan NESMOOO
Humidity, Fogging	GM4465P; ASTM D2247; HES D2016-99A; HES D6501-03; HES D2021; ASTM D1735; GM4350M
Condensing Humidity ( QUV Cabinet)	ASTM D4585;CMT 0033
Salt Spray/Acetic Acid	ASTM B117; GM4298P; GM9540P; RTCA-DO-160 C/D/E/F; MIL-STD-202 F; MIL-STD-810 C/D/E/F/G; SAE J1211;
Salt/Combined Thermal	BELLCORE GR-282; PARKHAN P21- CPE-023 Rev.00; CHRYSLER LP-463-PB-10-01CHG. C; MS-PB-45-2 CHG. V; FORD

Cont....	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; NES M 0007 (2006-N); TSH 6524G; ASTM G85; GM4476P; ASTM B537, ASTM D610,ASTM D714; PACCAR CMT0033;Toyota TSH1552G;CEMS GT-7D;DIN 50021;Volvo STD.1027.14; GM4350M except Chip Resistance
Cass  Cass and Combined Thermal	ASTM B368; GM4476M; JIS H 8502-99; TSH6500G; HES D600 1-71; TS430-1-4; GES 43226; HES D 2003-03 B Rev.; HES 2016-99A; HES D6501-03; WSB-MIP83-B1,B2,B3,B4; DVM-0008RG Ver3; FRTLINER 49-00039 Rev A; GM4372M;Ford WSS-M1P83-C1/C2
Altitude	RTCA-DO-160 C/D/E/F; MIL-STD-202 F; MIL-STD-810 C/D/E/F/G; SAEJ1211; BELLCORE GR-63
Decompression / Overpressure	RTCA-DO-160 C/D/E/F
Explosion	RTCA-DO-160 C/D/E/F; MIL-STD-202 F; MIL-STD-810 C/D/E/F/G
Sand and Dust	GM9110P; MIL-STD-202 F; RTCA-DO-160 C/D/E/F; MIL-STD-810 C/D/E/F/G;GMW3431 4.4.9;IEC60529; BELLCORE GR-487; SAE J1211
Immersion	ASTM-D870, ASTM D2248, IEC 60529 BELLCORE:GR-49, GR-1209; FLTM BI 104-01; GM4431M; HES D2016-99A; HES D6501-03; Toyota TSH 1505G
Moisture / Rain/Icing	RTCA-DO-160 C/D/E/F; MIL-STD-202 F; MIL-STD-810 C/D/E/F/G;IEC60529
Weathering	ASTM G23; EN60068-2-5;EN60068-2-9
<u>MATERIAL TESTS</u>	
Tensile / Compression	PUSH – PULL TO 1,000 FORCE lbs
Hardness; Pencil Hardness	GM9502P; ASTM D3359; HES D2016-99A; HES D6501-03 C Rev.2; NES M 0007 (2006-N); ASTM D3363 ; GM 4350M
Dime Scrape	GM 9506P
Tape Adhesion X-Scribe & Adhesion	GM 9071P; ASTM D3359; ASTM D1654; NES M 0007 (2006-N); LP-463PB-15-01 Chg A;FLTM BI 104-01; 106-01; HES D2016-99A; HES D 6501-03 C Rev. 2; PACCAR CMT0033 Daimler DBL 7399; GM 4350M
Taber Abrasion	MIL-M-13231 (MARKINGS); ASTM D4060; PACCAR CMT0033; GM 4350M
Chemical Resistance	RTCA-DO-160 C/D/E/F; MIL-STD-810 C/D/E/F/G; BELLCORE GR-49; HES D6501.03 C Rev.2;FREIGHTLINER 49-00023;ASTM

Cont.....	D1939;GM9500;GM9501;GM4350M;HES D2016;NES M0007;PACCAR CMT0033;ASTM D1308;ASTM D5402
Heat Aging	BELLCORE GR-49
Torque	BELLCORE GR-49
Colorfastness	GM9033P; HES D2016-99A; NES M 0007 (2006-N); FLTM BI 10-1
Drop Tests / Impact	BELLCORE: GR-49; GR-63; GR-1209 ;JIS K 5400; ASTM D2794, ASTM D5276, ASTM D880, ASTM D4003, ASTM D6179
Film Thickness	ASTM D7091,ASTM D4138;HES D6501;ASTM D1005
Creep	DAIMLER VOA621-402;PACCAR CMT0033;ASTM D1654;CEM GT-7D
Gloss	ASTM D523
Flexibility	ASTM D522;ASTM D1737
Cure	GM 9509P
<u>VIBRATION / SHOCK</u>	
Sine 6500 lbs Random 4000 lbs Frequency 1-3000 Hz Acceleration 100g Displacement ± 1” Temperature (-77 to +177)°C Humidity 20 - 95%	RTCA-DO-160 C/D/E/F; MIL-STD-202 F, MIL-STD-810 C/D/E/F/G; SAE J1211; GM9110P; 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
<u>ISTA (International Safe Transit Association)</u>	
Packaging Testing	1A; 1B; 1C; 1D; 1E; 1G; 1H; 2A; 2B; 2C; 2D; 2E; 3C; 3D; 3E; 3F; 3H; 5B;7A; 7B; 7C; 7D;
<u>FLAMMABILITY</u>	
Furniture Seating Flammability Test Walls / Tops Mattress Automotive Aircraft	CALIFORNIA TB-133 (CAL 133); TB106; TB116; TB117; TB121; TB129; TB603; CPAI-83; CFR1632 FMVSS 302; GM9070P; SAE J369; FED TEST METHOD 5903.1; FED STD 191A(VERT); FED STD 191(HORIZ); FED TEST METHOD 5906; 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; EN1021-2; BS5852; CFR1633;ISO 3795;JIS D1201;NFPA 260;NFPA 261;UFAC TEST SERIES;ASTM E1537;ASTM D1353;RTCA DO160F-204

<u>RELIABILITY</u>  Mixed Environments	GM9123P; GMW3172; PF9688; FORD 00.00EA-D11-1; DC-10611 BELLCORE: GR-49; GR-282
<u>DURABILITY SIMULATION</u>  Pneumatic/Servo PLC Driven Aircraft Boot/Seal/Duct Lifecycle,in Combination with Extreme Temperature Internal and External with Pressure Cycling	Using Customer QTP's Engineering Design Requirements etc.
<u>ENVIRONMENTAL STRESS</u>  Screening (ESS); Vibration Profiles With or without Temperature	Using Customer QTP's Engineering Design Requirements or a Program Tailored For the Client, etc.

\* ALSO USING CUSTOMER SPECIFICATIONS DIRECTLY RELATED TO THE ABOVE TESTING