



SCOPE OF ACCREDITATION FOR ISO 17025-2005

BCS AUTOMOTIVE INTERFACE SOLUTIONS US LLC

5676 Industrial Park Road

Winona, MN 55987

Mark Tibor Phone: 507 494 2537

MECHANICAL

Valid to: February 29, 2020

Certificate Number: 4795.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on automobile components:

<b>Test</b>	<b>Test Standard(s)</b>
Temperature <sup>1</sup> (-40 to 125)°C	ISO 16750-4, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14 <i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522- AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA <i>Chrysler FCA</i> - CS 11982, PF 12876, PF 90193 <i>GM</i> - GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172
Humidity <sup>1</sup> (10 to 95)%RH	ISO 16750-4, IEC 60068-2-30, IEC 60068-2-38, IEC 60068-2-78 <i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522- AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA <i>Chrysler FCA</i> - CS 11982, PF 12876, PF 90193, PF-11587 <i>GM</i> - GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172
Thermal Shock <sup>1</sup> (-50 to 125) °C	ISO 16750-4, IEC 60068-2-14 <i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522- AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA <i>Chrysler FCA</i> - CS 11982, PF 12876, PF 90193 <i>GM</i> - GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172
Salt Fog	IEC 60068-2-11 <i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522- AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA <i>Chrysler FCA</i> - CS 11982, PF 12876, PF 90193 <i>GM</i> - GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172 <i>Other</i> - ASTM D1193, ASTM B117

<b>Test</b>	<b>Test Standard</b>
Dust	<p><i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA</p> <p><i>Chrysler FCA</i>- CS 11982, PF 12876, PF 90193</p> <p><i>GM</i>- GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172</p> <p><i>Other</i> - ISO 20653</p>
Vibration with Environmental Exposure <sup>1</sup> Classical, Shock, Random, Sine and Sine on Random Capacity: 770 lbs. Displacement: 1" peak to peak Frequency Range: Random 5-1000 Hz, Sine 5-250 Hz	<p>IEC 60068-2-6, IEC 60068-2-64</p> <p><i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA</p> <p><i>Chrysler FCA</i>- CS 11982, PF 12876, PF 90193</p> <p><i>GM</i>- GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172</p>
Mechanical Shock <sup>1</sup> Form Half Sine, Terminal Peak, Sawtooth, Square Wave Maximum G: 30,000g Maximum Weight: 200 lbs.	<p>IEC 60068-2-27</p> <p><i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA</p> <p><i>Chrysler FCA</i>- CS 11982, PF 12876, PF 90193</p> <p><i>GM</i>- GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172</p>
Water Ingress	<p><i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA</p> <p><i>Chrysler FCA</i>- CS 11982, PF 12876, PF 90193</p> <p><i>GM</i>- GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172</p> <p>ISO 60253</p>
Chemical Resistance	<p>ISO 16750-5</p> <p><i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA</p> <p><i>Chrysler FCA</i>- CS 11982, PF 12876, PF 90193</p> <p><i>GM</i>- GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172</p>
Drop Test	<p><i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA</p> <p><i>Chrysler FCA</i>- CS 11982, PF 12876, PF 90193</p> <p><i>GM</i>- GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172</p>
Impact Test	<p><i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA</p> <p><i>Chrysler FCA</i>- CS 11982, PF 12876, PF 90193</p> <p><i>GM</i>- GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172</p>

<b>Test</b>	<b>Test Standard(s)</b>
Sound Testing <sup>1</sup> 19 dBA background noise Measure down to 29 dBA with zero compensation 3rd octave FFT sound quality evaluation	<i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA <i>Chrysler FCA</i> - CS 11982, PF 12876, PF 90193 <i>GM</i> - GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172
Dielectric Withstand and High Potential <sup>1</sup> (0 to 6)KV DC (0 to 5)KV AC	<i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA <i>Chrysler FCA</i> - CS 11982, PF 12876, PF 90193 <i>GM</i> - GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172
Force Displacement (Tactile response, Retention/Insertion) <sup>1</sup> Torque: .01-60NM, 0 to 360 deg Linear: up to 200N, .01 to 300mm	<i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA <i>Chrysler FCA</i> - CS 11982, PF 12876, PF 90193 <i>GM</i> - GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172
Mechanical Durability Cycling Per customer requirement	<i>Ford</i> - ES-DG9T-3F884-AA, ES-DG9T-14B522-AB, ES-DG9T-14B522-AC, ES-6E5H-19980-AJ, ES-BT4T-14B522-AA <i>Chrysler FCA</i> - CS 11982, PF 12876, PF 90193 <i>GM</i> - GMW 14867 201006, GMW 3191, GMW 3431, GMW 3172

<sup>1</sup>This laboratory also uses customer defined specifications directly related to the types of tests and within the parameters listed above.



## Accredited Laboratory

A2LA has accredited

### BCS AUTOMOTIVE INTERFACE SOLUTIONS US LLC

Winona, MN

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 April 2017).



Presented this 23<sup>rd</sup> day of March 2018.

A handwritten signature in black ink, appearing to read "L. Sen", written over a horizontal line.

President and CEO  
For the Accreditation Council  
Certificate Number 4795.01  
Valid to February 29, 2020  
Revised May 7, 2018

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