



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

AMERICAN TESTING AND MEASUREMENT LABORATORY (ATM)

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MECHANICAL

Valid To: August 31, 2024

Certificate Number: 2467.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following types of tests on automotive electrical, electronic, mechanical components, and assemblies:

| <u>Test</u>                         | <u>Test Method(s)</u> | <u>Section(s)</u>                    |
|-------------------------------------|-----------------------|--------------------------------------|
| Temperature Testing (-40 to 175) °C | USCAR-2               | 5.6.3                                |
|                                     | USCAR-15              | 6.3                                  |
|                                     | USCAR-20              |                                      |
|                                     | GMW3191               | 4.4.1, 4.4.5                         |
|                                     | PF 90012              | 5.2.3                                |
|                                     | CEPT 0000E412         | 6.4.5.1, 6.4.5.2, 6.4.5.3, 6.4.5.4   |
|                                     | CS 00056              | 5.3.1, 5.3.2, 5.3.3, 5.3.4           |
|                                     | GMW3172               | 6.1, 6.2, 8.4.1, 8.4.2, 9.4.3, 9.4.9 |
|                                     | PF.90051              | 5.3, 5.4, 5.5, 6.4.3                 |
|                                     | PF.90066              | 5.2                                  |
|                                     | PF.90303              | 5.1.1, 5.6, 7.2.1, 7.2.2             |
|                                     | KSA070                |                                      |
|                                     | KSA029                | 3.6, 3.9                             |
|                                     | TSC1224G              |                                      |
|                                     | TSC1229G              |                                      |

| <b><u>Test</u></b>                                                         | <b><u>Test Method(s)</u></b> | <b><u>Section(s)</u></b>  |
|----------------------------------------------------------------------------|------------------------------|---------------------------|
| Temperature Humidity Cycling<br>(-40 to 175) °C<br>(20 to 95) %RH          | USCAR-2                      | 5.6.2                     |
|                                                                            | USCAR-15                     | 6.8                       |
|                                                                            | USCAR-20                     |                           |
|                                                                            | USCAR-21                     | 4.5.2.4, 4.5.4            |
|                                                                            | GMW3191                      | 4.4.3, 4.4.4              |
|                                                                            | GMW3172                      | 8.4.3, 9.4.5, 9.4.6       |
|                                                                            | CEPT 0000E412                | 6.4.5.5, 6.4.5.8, 6.4.8.4 |
|                                                                            | CS.00056                     | 5.3.6, 5, 5.3.7           |
|                                                                            | PF.90051                     | 5.2                       |
|                                                                            | PF.90078                     | 5.3.1                     |
|                                                                            | PF.90066                     | 5.2                       |
|                                                                            | PF.90303                     | 5.1.2, 5.1.3, 7.2.3       |
|                                                                            | TSC1224G                     |                           |
|                                                                            | TSC1229G                     |                           |
|                                                                            | PF.90012                     | 5.2.2                     |
| Thermal Shock (-40 to 175) °C                                              | USCAR-2                      | 5.6.1                     |
|                                                                            | USCAR-15                     | 6.2                       |
|                                                                            | USCAR-20                     |                           |
|                                                                            | USCAR-21                     | 4.5.2.4, 4.5.5            |
|                                                                            | USCAR-38                     | 4.5                       |
|                                                                            | USCAR-45                     | 4.6                       |
|                                                                            | GMW3172                      | 9.4.2                     |
|                                                                            | GMW3191                      | 4.4.2                     |
|                                                                            | PF.90012                     | 5.2.1, 5.2.4              |
|                                                                            | PF.90066                     | 5.2                       |
|                                                                            | CS.00056                     | 5.3.5                     |
|                                                                            | KSA070                       |                           |
|                                                                            | TSC1229G                     |                           |
|                                                                            | CEPT 0000E412                | 6.4.5.6, 6.4.5.7          |
| Vibration / Mechanical Shock<br>10 Hz to 2 KHz<br>(1 to 15) mS up to 50G's | USCAR-2                      | 5.4.6                     |
|                                                                            | USCAR-15                     | 5.9, 5.10                 |
|                                                                            | USCAR-20                     |                           |
|                                                                            | GMW3172                      | 10.3.1                    |
|                                                                            | TSC1229G                     |                           |
|                                                                            | TSC1224G                     |                           |
|                                                                            | PF.90012                     | 6.4.2                     |
|                                                                            | PF.90051                     | 5.7                       |

| <u>Test</u>                                       | <u>Test Method(s)</u> | <u>Section(s)</u> |
|---------------------------------------------------|-----------------------|-------------------|
| Pressure Vacuum Leak (10 to 14) psi               | USCAR-2               | 5.6.6             |
|                                                   | USCAR-15              | 5.7               |
|                                                   | PF.90012              | 5.7.2             |
|                                                   | PF.90051              | 6.4.3             |
|                                                   | GMW 3191              | 4.4.10            |
|                                                   | GMW 3172              | 9.5.4             |
|                                                   | KSA070                |                   |
|                                                   | TRW-S-0000174         |                   |
| Submersion                                        | USCAR-2               | 5.6.5             |
|                                                   | GMW3191               | 4.4.9             |
|                                                   | GMW3172               | 9.5.3             |
|                                                   | PF.90012              | 5.2.6             |
|                                                   | PF.90303              | 5.6               |
|                                                   | CS.00056              | 5.5.4             |
|                                                   |                       |                   |
| Salt Fog                                          | ASTM B117             |                   |
|                                                   | USCAR-15              | 6.7               |
|                                                   | GMW3172               | 9.4.8             |
|                                                   | GMW 3191              | 4.4.7             |
|                                                   | CS.00056              | 5.5.5             |
|                                                   | KSA070                |                   |
| Fluid Resistance / Chemical Resistance / Exposure | USCAR-2               | 5.6.4             |
|                                                   | USCAR-15              | 6.4               |
|                                                   | PF.90012              | 5.5.2             |
|                                                   | GMW 3191              | 4.3.5             |
| Outgassing                                        | USCAR-15              | 6.5               |
| Dust Test<br>(0 to 140) psi<br>(1 to 25) seconds  | ISO 20653             | 8.31              |
|                                                   | GMW3172               | 9.5.1             |
|                                                   | Ford CETP 00.00-E-412 | 5.10.1            |
| Torque (0 to 20) Nm                               | USCAR-15              | 5.2               |
|                                                   | KSA070                |                   |
| Bulb Wobble                                       | USCAR-15              | 5.4               |

| <u>Test</u>                                       | <u>Test Method(s)</u> | <u>Section(s)</u> |
|---------------------------------------------------|-----------------------|-------------------|
| Voltage Drop (0 to 20) VDC                        | USCAR-2               | 5.3.2             |
|                                                   | USCAR-15              | 4.1               |
|                                                   | USCAR-20              |                   |
|                                                   | USCAR-21              | 4.5.6             |
|                                                   | USCAR-38              | 4.7               |
|                                                   | USCAR-45              | 4.7               |
|                                                   | GMW3191               | 4.3.3             |
|                                                   | GMW3172               | 6.1,6.2           |
|                                                   | PF.90012              | 6.3.6             |
|                                                   | PF.90051              | 6.4.1             |
|                                                   | KSA070                |                   |
|                                                   | KSA029                | 3.2               |
|                                                   | TSC1224G              |                   |
|                                                   | TSC1229G              |                   |
| Isolation Resistance (0 to 2000) MΩ,              | USCAR-2               | 5.5.1             |
|                                                   | USCAR-15              | 4.2               |
|                                                   | GMW3191               | 4.3.5             |
|                                                   | PF.90012              | 6.3.7             |
|                                                   | USCAR-20              |                   |
|                                                   | KSA070                |                   |
|                                                   | KSA029                |                   |
| Resistance Including Dry Circuit<br>(0 to 100) MΩ | USCAR-2               | 5.1.9, 5.3.1      |
|                                                   | USCAR-21              | 4.5.3             |
|                                                   | GMW3191               | 4.3.2             |
|                                                   | USCAR-20              |                   |
|                                                   | USCAR-45              | 4.7               |
|                                                   | USCAR-38              | 4.7               |
|                                                   | PF.90012              | 6.3.6             |
| Temperature Rise (0 to 150) °C                    | USCAR-15              | 4.3               |
|                                                   | KSA070                |                   |
| Current and Current Cycling<br>(1 to 30) A        | USCAR-2               | 5.3.3, 5.3.4      |
|                                                   | USCAR-15              | 4.4               |
|                                                   | USCAR-21              | 4.5.1             |
|                                                   | TSC12246              |                   |
|                                                   | TSC1229G              |                   |
|                                                   | GMW3191               | 4.3.1, 4.3.4      |
|                                                   | PF.90012              | 6.3.6             |

| <u>Test</u>                                   | <u>Test Method(s)</u> | <u>Section(s)</u>                                                                                                                                         |
|-----------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Crimp Cross Section                           | USCAR-15              | 5.8                                                                                                                                                       |
|                                               | USCAR-21              | 4.3                                                                                                                                                       |
|                                               | USCAR-38              | 4.3                                                                                                                                                       |
|                                               | USCAR-45              | 4.3                                                                                                                                                       |
| Mechanical Durability Tests<br>Force <= 20 Kn | USCAR-2               | 5.1.7, 5.2.2, 5.4.1, 5.4.2, 5.4.3,<br>5.4.4, 5.4.5, 5.4.7, 5.4.8, 5.4.9,<br>5.4.10, 5.4.11, 5.7.1                                                         |
|                                               | USCAR-15              | 5.1, 5.2, 5.3, 5.5, 5.6                                                                                                                                   |
|                                               | USCAR-21              | 4.4                                                                                                                                                       |
|                                               | USCAR-38              | 4.4.4, 4.4.5                                                                                                                                              |
|                                               | USCAR-45              | 4.4, 4.5                                                                                                                                                  |
|                                               | GMW3191               | 4.3.2, 4.2.4, 4.2.5, 4.2.6, 4.2.7,<br>4.2.8, 4.2.9, 4.2.10, 4.2.11,<br>4.2.12, 4.2.14, 4.2.15, 4.2.16<br>4.2.17, 4.2.18, 4.2.19, 4.2.20,<br>4.2.22, 4.5.2 |
|                                               | PF.90012              | 6.4.1, 6.4.2                                                                                                                                              |
|                                               | PF.90051              | 6.3.2, 6.3.3                                                                                                                                              |
|                                               | KSA070                |                                                                                                                                                           |
|                                               | KSA029                | 3.3, 3.4, 3.10                                                                                                                                            |
|                                               | PF.90303              | 7.3, 7.4                                                                                                                                                  |
|                                               | TSC1224G              | 7.3, 7.4                                                                                                                                                  |
|                                               | TSC1229G              |                                                                                                                                                           |
| Ozone                                         | USCAR 15              | 6.6                                                                                                                                                       |
| Free Fall (Drop Test)                         | USCAR-2               | 5.4.8                                                                                                                                                     |
|                                               | PF 90012              | 6.4.2                                                                                                                                                     |
| Water Spray                                   | USCAR-15              | 5.7                                                                                                                                                       |
|                                               | GMW3191               | 4.4.11                                                                                                                                                    |
|                                               | GMW3172               | 9.5.2, 9.5.6                                                                                                                                              |
|                                               | KSA070                |                                                                                                                                                           |
|                                               | PF 90303              | 5.6                                                                                                                                                       |
|                                               | PF 90012              | 5.2.8                                                                                                                                                     |

I. Dimensional Testing<sup>1</sup>

| Parameter                                                 | Range                                           | CMC <sup>2</sup> (±)             | Comments                                       |
|-----------------------------------------------------------|-------------------------------------------------|----------------------------------|------------------------------------------------|
| Length <sup>3</sup> – 1D                                  | (0 to 152.4) mm<br>(0 to 6) in                  | 0.0074 mm<br>0.00029 in          | PLA011 (5.4);<br>Mitutoyo 6" caliper           |
| Length <sup>3</sup> – 1D                                  | (0 to 25.4) mm<br>(0 to 1) in                   | 0.001 mm<br>0.00006 in           | PLA011 (5.4);<br>Mitutoyo micrometer           |
| Length <sup>3</sup> – 1D                                  | (0 to 12.7) mm<br>(0 to 0.5) in                 | 0.001 mm<br>0.00005 in           | USCAR-5 (Sec. 5.4);<br>Mitutoyo dial indicator |
| Dimensional <sup>3</sup> –<br>Fixed Points<br>X<br>Y<br>Z | (0 to 800) mm<br>(0 to 700) mm<br>(0 to 600) mm | 0.042 mm<br>0.040 mm<br>0.030 mm | PLA011 (5.4); Metris LK CMM                    |
| Dimensional <sup>3</sup> –<br>Fixed Points<br>X<br>Y      | (0 to 200) mm<br>(0 to 200) mm                  | 0.004 mm<br>0.005 mm             | PLA011 (5.4); Easson vision<br>system          |

<sup>1</sup>This lab offers commercial dimensional testing services.

<sup>2</sup>Calibration and Measurement Capability uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine tests of nearly ideal measurement standards or nearly ideal measuring equipment. CMC's represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of  $k = 2$ . The actual measurement uncertainty of a specific test performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific test.

<sup>3</sup>This test is not equivalent to that of a calibration.



# Accredited Laboratory

A2LA has accredited

## AMERICAN TESTING AND MEASUREMENT LABORATORY (ATM)

*San Pedro Sula, Honduras*

for technical competence in and compliance with the

### 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 30<sup>th</sup> day of January 2023.

Mr. Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 2467.01  
Valid to August 31, 2024

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