



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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MECHANICAL

Valid to: February 28, 2021

Certificate Number: 3696.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on Automotive, Industrial, Commercial, Medical and Military products:

Test Technology/Description:

Test Method ^{1,2}:

Mechanical

General Procedures for Testing Switches

Switch Displacement

Force to Actuate

GMW3431

Section 4.1.6

Section 4.1.7.5.1

Electronic Finish Panel General Spec

Push Button Ideal Feel

Rotary Knob Ideal Feel

Ford ET-BT4T-18A802-AA

Sections 5.1 to 5.3

Sections 5.4 and 5.5

Procedure for Testing Switches

Fluid Compatibility

GIS-33A

Section 018

General Rules of Dust Test for Automobile Parts

Floating Dust

JIS D207

Section 3F

Procedure for Testing Switches

Chemical Resistance

Dust Test

Connector and Lead Strength

Controls Durability

Ford CETP: 00.00-E-412

Section 5.16

Section 5.10.1

Section 5.14

Section 5.18

Connector Test and Validation Specification

Connector-to-Connector Engagement Force

Locked Connector Disengagement Force

Unlocked Connector Disengagement Force

Terminal Push-Out Force

GMW3191

Section 4.2.8

Section 4.2.18

Section 4.2.19

Section 4.5.2

Test Technology/Description:**Test Method ^{1,2}:*****Mechanical (cont'd)***

General Specification for Electrical/Electronic
Components – Environmental/Durability

GMW3172

Visual Inspection and Dissection – DRBTR

Section 6.5

Dimensional Check

Section 6.7

Crush for Housing – Elbow Load

Section 9.3.5

Crush for Housing – Foot Load

Section 9.3.6

GMW3191 Connector Tests

Section 9.3.7

Connector Installation Abuse – Side Force

Section 9.3.8

Connector Installation Abuse – Foot Load

Section 9.3.9

Free Fall

Section 9.3.10

Salt Spray Test

Section 9.4.7

Dust Test

Section 9.5.1

Water Test (Drip)

Section 9.5.2

Standard Practice for Operating Salt Spray
(Fog) Apparatus

ASTM B117

Road Vehicles – Environmental Conditions and
Testing for Electrical and Electronic Equipment –
Climatic Loads

ISO 16750-4

Salt Spray

Section 5.5

Submersion Test

Section 5.4.3

Environmental Testing – Part 2: Tests – Test Kb:
Salt Mist, Cyclic (sodium chloride solution)

IEC 60068-2-52

Protection of Electrical Equipment Against Foreign
Objects, Water and Access
IPX1, 2, 5, 6 & 6K

ISO 20653
Section 6

Degree of Protection Provided by Enclosures
IPX1, 2, 5 & 6

IEC 60529
Section 6

Road Vehicles – Environmental Conditions and
Testing for Electrical and Electronic Equipment –
Mechanical Loads

ISO 16750-3

Free Fall

Section 4.3

Thermal

Road Vehicles – Environmental Conditions and
Testing for Electrical and Electronic Equipment –
Climatic Loads

ISO 16750-4

Low Temperature Tests (-70 °C Max)

Section 5.1.1

High Temperature Tests (150 °C Max)

Section 5.1.2

Temperature Steps (-75 to 150) °C

Section 5.2

Humid Heat, Cyclic (150 °C Max),
(20 to 90) %RH

Section 5.6

Test Technology/Description:**Test Method ^{1,2}:*****Thermal (cont'd)***

General Specification for Electrical/Electronic
Components –Environmental/Durability

GMW3172

Thermal Profile Cycle Development

Section 6.9

Temperature Measurement

Section 8.4.1

Low Temperature Wakeup

Section 8.4.2

High Temperature Degradation

Section 9.4.1

Thermal Shock Test (-75 to 200) °C

Section 9.4.2

Power Temperature Cycling (-75 to 200) °C

Section 9.4.3

Humid Heat

Cyclic (150 °C Max), (20 to 90) %RH

Section 9.4.5

Constant (150 °C Max), (20 to 90) %RH

Section 9.4.6

Procedure for Testing Switches

CETP: 00.00-E-412

Low Temperature Operation (-70 °C)

Section 5.1

High Temp Operation (150 °C)

Section 5.4

Powered Thermal Cycle (-75 to 200) °C

Section 5.5

Thermal Shock Resistance (-75 to 200) °C,
10 second transition rate

Section 5.6

Thermal Shock Endurance Resistance

Section 5.7

(-75 to 200) °C, 10 second transition rate

Humidity/Temp Cycle

Section 5.8

(150 °C Max), (20 to 90) %RH

High Temperature Endurance (150 °C)

Section 5.17

Acoustics and Vibration

Road Vehicles – Environmental Conditions and
Testing for Electrical and Electronic Equipment –
Mechanical Loads

ISO 16750-3

Vibration (5 to 2,000) Hz with Combined
Environmental

Section 4.1

(-70 to 177) °C, (20 to 95) %RH

Humidity (10 to 95) %RH

Sine 6,000 force-lbs

Random 6,000 force-lbs

Mechanical Shock: Up to 100 G's, 11 ms

Section 4.2

General Specification for Electrical/Electronic
Components Environmental/Durability

GMW3172

Vibration Transmissibility Demonstration

Section 6.8

Sine 6,000 force-lbs

Random 6,000 force-lbs

Vibration with Thermal Cycling (5 to 2,000) Hz
with Combined Environmental

Section 9.3.1

(-70 to 177) °C, (20 to 95) %RH

Humidity (10 to 95) %RH

Sine 6,000 force-lbs

Random 6,000 force-lbs

Test Technology/Description:**Test Method ^{1,2}:*****Acoustics and Vibration (cont'd)***

Mechanical Shock Pothole: Up to 100 G's, 11ms	Section 9.3.2
Mechanical Shock Collision: Up to 100 G's, 11ms	Section 9.3.3
Shipping Vibration Sine 6,000 force-lbs Random 6,000 force-lbs	Section 10.3.1

Environmental Engineering Considerations and Laboratory Tests	MIL-STD-810
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Vibration: (5 to 2,000) Hz with Combined Environmental (-70 to 177) °C, (20 to 95) %RH Humidity (10 to 95) %RH Sine 6,000 force-lbs Random 6,000 force-lbs	Section 514
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Test Method Standard, Electronics and Electrical Component Parts	MIL-STD-202
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Vibration: (5 to 2,000) Hz with Combined Environmental (-70 to 177) °C, (20 to 95) %RH Humidity (10 to 95) %RH Sine 6,000 force-lbs Random 6,000 force-lbs	Method 201
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Procedure for Testing Switches Powered Vibration Endurance: (5 to 2,000) Hz with Combined Environmental (-70 to 177) °C, (20 to 95) %RH Humidity (10 to 95) %RH Sine 6,000 force-lbs Random 6,000 force-lbs	CETP: 00.00-E-412 Section 5.11
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Low Mechanical Shock: Up to 100 G's, 11ms	Section 5.13.4
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Procedure for Testing Switches Audible Sound	GMW3431 Section 4.1.10
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Performance Spec for Automotive Electrical Connector Systems Connector-to-Connector Audible Click	USCAR-2 Rev 6 Sec 5.4.7
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Procedure for Testing Switches Audible Sound	CETP: 00.00-E-412 Section 6.4.6.2
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Procedure for Testing Switches Squeak and Rattle	CETP: 12.00-L-403
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Test Technology/Description:**Test Method ^{1,2}:*****Acoustics and Vibrations (cont'd)***

Generic Switches Engineering Specification (GSES)
Engineering Performance Requirements Switch SDS
Version 19

ES-DG9T-14B522-AC

Audible Noise, Squeak, Rattle, and Movement

Section 5.4

Generic Switches Engineering Specification (GSES)
Engineering Performance Requirements Switch SDS
Version 15

ES-DG9T-14B522-AB

Audible Noise, Squeak, Rattle, and Movement

Section 5.5

Microsectioning - Manual and Semi or Automatic
Method

IPC TM 650 Section 2.1.1

General Specification for Electrical/Electronic
Components – Environmental/Durability

GMW3172

Cross Section and Inspection

Section 6.6

¹ Also using customer specific test methods utilizing any combination of test methods, equipment, and parameters above, the laboratory is capable of issuing accredited test reports to these customer specific methods.

² Also using similar methods to all of the methods listed above based on the parameters listed in those sections, the laboratory is capable of issuing accredited test reports to these similar methods.



Accredited Laboratory

A2LA has accredited

METHODE ELECTRONICS, INC.

Carthage, IL

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 3rd day of May 2019.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3696.01
Valid to February 28, 2021

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