



# CERTIFICATE OF ACCREDITATION

## ANSI National Accreditation Board

11617 Coldwater Road, Fort Wayne, IN 46845 USA

This is to certify that

**Wells Vehicle Electronics**  
**385 West Rolling Meadows Drive**  
**Fond du Lac, WI 54937**

has been assessed by ANAB and meets the requirements of international standard

**ISO/IEC 17025:2017**

while demonstrating technical competence in the field of

**TESTING**

Refer to the accompanying Scope of Accreditation for information regarding the types of activities to which this accreditation applies

L2414

Certificate Number

  
ANAB Approval

Certificate Valid Through: 03/19/2021  
Version No. 002 Issued: 03/06/2019



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. 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).



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

**Wells Vehicle Electronics**

385 West Rolling Meadows Drive  
Fond du Lac, WI 54937  
Jason Strange (Lab Manager)  
920 926 6620

**TESTING**

Valid to: **March 19, 2021**

Certificate Number: **L2414**

**Electrical – EMC/EMI Testing**

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Bulk Current Injection	ISO 11452-1, 4 SAE J1113-1, 4 GMW 3097, Section 3.4 EG812-22614-405 (Harley)	Automotive, marine and or small engine	<b>Custom Test Setup and Shielded Chamber.</b> <b>Test Equipment:</b> <ul style="list-style-type: none"><li>• Spectrum Analyzer (9 kHz – 3.6 GHz)</li><li>• RF Power Meter/Sensor (100 kHz – 4.2 GHz)</li><li>• Directional Coupler (10 kHz – 1 GHz)</li><li>• Signal Generator (100 kHz – 1 GHz)</li><li>• Bulk Current Injection Probe (10 kHz – 400 MHz, 100W)</li><li>• Bulk Current Injection Probe (1 MHz – 450 MHz, 50W)</li><li>• RF Monitoring Probe (10 kHz – 500 MHz)</li></ul> Oscilloscope (Up to 150Vrms, 1ns/div – 50 s/div, 50mHz - 500 MHz)



Electrical – EMC/EMI Testing

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Conducted Emissions	EG812-22614-402 (Harley) CISPR 25 - 6.2 Voltage Method 6.3 Current Probe Method	Automotive, marine and or small engine	<b>Custom Test Setup and Shielded Chamber.</b> <b>Test Equipment:</b> <ul style="list-style-type: none"> <li>• EMI Receiver (CISPR 16-1-1 compliant) (9 kHz – 3.6 GHz)</li> <li>• RF Current Probe (10kHz – 500MHz)</li> <li>• 5 uH LISN (2) (150 kHz – 1 GHz, 500 A) (100 kHz – 200 MHz, 200 A)</li> </ul>
Conducted Emissions Transients	ISO 7637-1, 7637-2 SAE J1113-11 GMW 3097, Section 3.5 EG812-22613-324 (Harley)	Automotive, marine and or small engine	<b>Custom Test Setup AR Generators, EM Test Software</b> <b>Test Equipment:</b> <ul style="list-style-type: none"> <li>• Oscilloscope (Up to 150Vrms, 1ns/div – 50 s/div, 50mHz – 500 MHz)</li> <li>• Oscilloscope Clamp Probe (0.1 – 100A)</li> </ul>
Conducted Immunity Transients	ISO 16750-2, 21848 ISO 7637-1, 7637-2 SAE J1113-11 GMW 3097, Section 3.5 Cummins 14269, Section 5.7, 5.8 EG812-22613-311, 313, 314, 315, 316, 317, 318 (Harley)	Automotive, marine and or small engine	<b>Custom Test Setup AR Generators, EM Test Software</b> <b>Test Equipment:</b> <ul style="list-style-type: none"> <li>• LD 200 (20V – 200V)</li> <li>• UCS 200N (20V – 600V, up to 60V, 100A)</li> <li>• VDS 200 (up to 60V, 15A)</li> <li>• Oscilloscope (Up to 150Vrms, 1ns/div – 50 s/div, 50mHz - 500 MHz)</li> <li>• Oscilloscope Clamp Probe (0.1 – 100A)</li> </ul>



# ANSI National Accreditation Board

## Electrical – EMC/EMI Testing

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Conducted Immunity Coupling - IO Lines	ISO7637-1, 7637-3 SAEJ1113-12 GMW3097: Paragraph 3.5.3, 3.5.4, 3.5.5 EG812-22613-322 (Harley)	Automotive, marine and or small engine	<b>Custom Test Setup AR Generators, EM Test Software</b> <b>Test Equipment:</b> <ul style="list-style-type: none"> <li>EFT 200 (25V – 1000V)</li> <li>UCS 200N (up to 60V, 100A)</li> <li>VDS 200 (up to 60V, 15A)</li> <li>Oscilloscope (Up to 150Vrms, 1ns/div – 50 s/div, 50mHz - 500 MHz)</li> <li>Oscilloscope Clamp Probe (0.1 – 100A)</li> </ul>
Electrostatic Discharge (ESD)	ISO 10605 SAE J1113-13 GMW 3097, Section 3.6 Cummins 14269, Section 5.6.2 EG812-22614-407 (Harley)		<b>Custom Test Setup</b> <b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Teseq NSG 437 ESD Simulator (2KV – 30KV)</li> <li>Mega ohm Meter (1KΩ - 1MΩ)</li> <li>Thermo Hygrometer (up to 50°C, 25%RH – 95%RH)</li> </ul>
Spark Noise	EG812-22613-319 (Harley)	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Multimeter (1 uA to 10 A)</li> <li>Oscilloscope (up to 100MHz)</li> <li>Waveform Generators (2) (1uHz – 30MHZ, 2mVpp – 20Vpp) (100uHz – 100MHZ, 50mVpp – 10Vpp)</li> <li>DC Power Supply (up to 100 VDC, 510A DC)</li> </ul>



Electrical – EMC/EMI Testing

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Insulation Resistance (Megger)	EG812-22613-325 (Harley) MIL-STD 202F, G Method 302		<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Megger meter (50V – 1000V, 0.01Ω - 1999MΩ)</li> <li>Thermo Hygrometer (up to 50°C, 25%RH – 95%RH)</li> </ul>
Dielectric Strength, AC	EG812-22613-326 (Harley) MIL-STD-202F, G Method 301		<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>High-Pot Tester (up to 100KV, 50mA)</li> <li>Oscilloscope (up to 300Vrms, 100MHz)</li> <li>Oscilloscope Current Probe (1mA – 450A)</li> </ul>
Measure DC Voltage	Wells SOS's EG812-22613-301, 302, 303, 304, 305, 306, 307, 308 (Harley) 8M0059436 Section 5.0 (Mercury)	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Multifunction Measure Unit (up to 300V)</li> <li>Oscilloscope (up to 300Vrms, 100MHz)</li> <li>Multi-meter (0.001V to 600V)</li> </ul>
Measure DC Current	Wells SOS's EG812-22613-301, 302, 303, 304, 305, 306, 307, 308 (Harley) 8M0059436 Section 5.0 (Mercury)	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Multimeter (1 uA to 10 A)</li> <li>Multifunction Measure Unit (100mA – 1A)</li> <li>Oscilloscope Current Probe (1mA – 450A)</li> <li>Oscilloscope Current Probe (1mA – 450A, 1mV/div - 5V/div) (up to 100MHz)</li> </ul>
Measure Resistance	Wells SOS's	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>LCR Meter</li> <li>Multifunction Measure Unit (1mΩ - 100MΩ)</li> <li>Oscilloscope (up to 300Vrms, 100MHz)</li> </ul>



Electrical – EMC/EMI Testing

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Measure Inductance	Wells SOS's	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>LCR Meter (10nH – 99KH)</li> </ul>
DC Voltage & Current Source	Wells SOS's	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>DC Power Supply (up to 100 VDC, 510A DC)</li> </ul>
Measure Voltage / Time	Wells SOS's EG812-22613-301, 302, 303, 304, 305, 306, 307, 308 (Harley) 8M0059436 Section 5.0 (Mercury)	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Oscilloscope (up to 100MHz, 300Vrms)</li> </ul>
Measure Time	Wells SOS's	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Oscilloscope (2ns/div - 100s/div) (up to 100MHz)</li> </ul>
Measure DC Current / Time	Wells SOS's EG812-22613-301, 302, 303, 304, 305, 306, 307, 308 (Harley) 8M0059436 Section 5.0 (Mercury)	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Oscilloscope Current Probe (1mA – 450A, 1mV/div – 5V/div) (up to 100MHz)</li> </ul>
Waveform Generation Source	Wells SOS's	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Waveform Generators (2) (1uHz – 30MHZ, 2mVpp – 20Vpp) (100uHz – 100MHZ, 50mVpp – 10Vpp)</li> </ul>
Measure Frequency	Wells SOS's EG812-22613-301, 302, 303, 304, 305, 306, 307, 308 (Harley) 8M0059436 Section 5.0 (Mercury)	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Oscilloscope (up to 100MHz)</li> </ul>



Electrical – EMC/EMI Testing

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Measure Time	EG812-22613-301, 302, 303, 304, 305, 306, 307, 308 (Harley) 8M0059436 Section 5.0 (Mercury)	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Oscilloscope Current Probe (2ns/div – 100s/div) (up to 100MHz)</li> </ul>

Environmental

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Thermal Cycle	EG812-22611-101, 102, 104, EG812-22613-324 (Harley) LT.G.17 (Mercury) Mil-Std-810F, Methods 501.4, 502.4	Automotive, marine and or small engine	<b>Contains test descriptions specific to the product to be tested.</b> <b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Thermal Cycle Chamber (-50°C - 150°C)</li> <li>20°C / minute heating (-40 to 125)</li> <li>15°C / minute cooling (125 to -40)</li> </ul>
Thermal Shock	EG812-22611-103, 104 (Harley) LT.G.17 (Mercury) Mil-Std-810F, Methods 502.4, 503.4	Automotive, marine and or small engine	<b>Contains test descriptions specific to the product to be tested.</b> <b>Test Equipment:</b> <ul style="list-style-type: none"> <li>Thermal Shock Chamber (-50°C - 150°C)</li> <li>transfer &lt; 5 seconds</li> </ul>





**Environmental**

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Humidity	EG812-22611-105, 106 (Harley) Mil-Std-810F Method 507.4	Automotive, marine and or small engine	<p><b>Contains test descriptions specific to the product to be tested.</b></p> <p><b>Test Equipment:</b></p> <ul style="list-style-type: none"> <li>Thermal Cycle Chamber (-50°C - 150°C)</li> <li>Up to 97% Relative Humidity</li> </ul>
Water Immersion	EG812-22611-112 (Harley) CT.P.24 (Mercury) MIL-STD-810F, Method 512.4	Automotive, marine and or small engine	<p><b>Contains test descriptions specific to the product to be tested.</b></p> <p><b>Test Equipment:</b></p> <ul style="list-style-type: none"> <li>Thermal Cycle Chamber (-50°C - 150°C)</li> </ul>
Salt Spray	EG812-22611-113 MIL-STD-810F IEC60068-2-27	Automotive, marine and or small engine	<p><b>Test Equipment:</b></p> <ul style="list-style-type: none"> <li>Salt Spray Chamber (25°C - 50°C)</li> </ul>

**Mechanical**

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Tension and Compression testing	EG812-22612-204 (Harley)	Automotive, marine and or small engine	<p><b>Contains test descriptions specific to the product to be tested.</b></p> <p><b>Test Equipment:</b></p> <ul style="list-style-type: none"> <li>ESM301L Programmable Motorized Test Stand (up to 300lbF (1.5KN), 0.6 – 13in/min, 18” max travel (457mm))</li> </ul>





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## Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Drop	EG812-22612-203 (Harley) ISO 16750-3 part 3 CT.P.27 (Mercury)	Automotive, marine and or small engine	<b>Test Equipment:</b> <ul style="list-style-type: none"><li>N/A</li></ul>
Mechanical Vibration (Sine and Random)	ISO16750-3 EG-812-226-12-201 GMW3172 MIL-STD-202G Method 214A IEC60068-2-64 IEC60068-2-6	Automotive, marine and or small engine	Frequency: 5-3000Hz Acceleration: 100g Force: 2248lbf Temperature: -40°C - 149°C
Mechanical Shock	GMW3172 MIL-STD-810G IEC60068-2-27	Automotive, marine and or small engine	Force: 2248lbf Max Displacement: 2in Temperature: -40°C - 149°C

Note:

1. This scope is formatted as part of a single document including Certificate of Accreditation No. L2414.



Vice President