



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

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

Fulfills the requirements of

ISO/IEC 17025:2017

In the field of

TESTING

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

A handwritten signature in black ink, appearing to be 'J. Stine', is positioned above a horizontal line.

Jason Stine, Vice President

Expiry Date: 19 March 2027

Certificate Number: L2414



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
Jacob Meier
920 929 6365

TESTING

Valid to: **March 19, 2027**

Certificate Number: **L2414**

Electromagnetic Compatibility

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	Custom Test Setup and Shielded Chamber. Test Equipment: <ul style="list-style-type: none"> • Spectrum Analyzer (9 kHz – 3.6 GHz) • RF Power Meter/Sensor (100 kHz – 4.2 GHz) • Directional Coupler (10 kHz – 1 GHz) • Signal Generator (100 kHz – 1 GHz) • Bulk Current Injection Probe (10 kHz – 400 MHz, 100W) • Bulk Current Injection Probe (1 MHz – 450 MHz, 50W) • RF Monitoring Probe (10 kHz – 500 MHz) Oscilloscope (Up to 150Vrms, 1ns/div – 50 s/div, 50mHz - 500 MHz)



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Conducted Emissions	EG812-22614-402 (Harley) CISPR 25 6.2 Voltage Method 6.3 Current Probe Method	Automotive, marine and or small engine	Custom Test Setup and Shielded Chamber. Test Equipment: <ul style="list-style-type: none"> • EMI Receiver (CISPR 16-1-1 compliant) (9 kHz – 3.6 GHz) • RF Current Probe (10kHz – 500MHz) • 5 uH LISN (2) (150 kHz – 1 GHz, 500 A) (100 kHz – 200 MHz, 200 A)
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	Custom Test Setup AR Generators, EM Test Software Test Equipment: <ul style="list-style-type: none"> • Oscilloscope (Up to 150Vrms, 1ns/div – 50 s/div, 50mHz – 500 MHz) • Oscilloscope Clamp Probe (0.1 – 100A)
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	Custom Test Setup AR Generators, EM Test Software Test Equipment: <ul style="list-style-type: none"> • LD 200 (20V – 200V) • UCS 200N (20V – 600V, up to 60V, 100A) • VDS 200 (up to 60V, 15A) • Oscilloscope (Up to 150Vrms, 1ns/div – 50 s/div, 50mHz - 500 MHz) • Oscilloscope Clamp Probe (0.1 – 100A)



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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	Custom Test Setup AR Generators, EM Test Software Test Equipment: <ul style="list-style-type: none"> EFT 200 (25V – 1000V) UCS 200N (up to 60V, 100A) VDS 200 (up to 60V, 15A) Oscilloscope (Up to 150Vrms, 1ns/div – 50 s/div, 50mHz - 500 MHz) Oscilloscope Clamp Probe (0.1 – 100A)
Electrostatic Discharge (ESD)	ISO 10605 SAE J1113-13 GMW 3097, Section 3.6 Cummins 14269, Section 5.6.2 EG812-22614-407 (Harley)		Custom Test Setup Test Equipment: <ul style="list-style-type: none"> Teseq NSG 437 ESD Simulator (2KV – 30KV) Mega ohm Meter (1KΩ - 1MΩ) Thermo Hygrometer (up to 50°C, 25%RH – 95%RH)
Spark Noise	EG812-22613-319 (Harley)	Automotive, marine and or small engine	Test Equipment: <ul style="list-style-type: none"> Multimeter (1 uA to 10 A) Oscilloscope (up to 100MHz) Waveform Generators (2) (1uHz – 30MHZ, 2mVpp – 20Vpp) (100uHz – 100MHZ, 50mVpp – 10Vpp) DC Power Supply (up to 100 VDC, 510A DC)



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



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Measure DC Current / Time	EG812-22613-301, 302, 303, 304, 305, 306, 307, 308 (Harley) 8M0059436 Section 5.0 (Mercury)	Automotive, marine and or small engine	Test Equipment: <ul style="list-style-type: none"> Oscilloscope Current Probe (1mA – 450A, 1mV/div – 5V/div) (up to 100MHz)
Measure Frequency	EG812-22613-301, 302, 303, 304, 305, 306, 307, 308 (Harley) 8M0059436 Section 5.0 (Mercury)	Automotive, marine and or small engine	Test Equipment: <ul style="list-style-type: none"> Oscilloscope (up to 100MHz)
Measure Time	EG812-22613-301, 302, 303, 304, 305, 306, 307, 308 (Harley) 8M0059436 Section 5.0 (Mercury)	Automotive, marine and or small engine	Test Equipment: <ul style="list-style-type: none"> Oscilloscope Current Probe (2ns/div – 100s/div) (up to 100MHz)

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	Contains test descriptions specific to the product to be tested. Test Equipment: <ul style="list-style-type: none"> Thermal Cycle Chamber (-50°C - 150°C)



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Environmental

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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	<p>Contains test descriptions specific to the product to be tested.</p> <p>Test Equipment:</p> <ul style="list-style-type: none"> • Thermal Shock Chamber (-50°C - 150°C)
Humidity	EG812-22611-105, 106 (Harley) Mil-Std-810F Method 507.4	Automotive, marine and or small engine	<p>Contains test descriptions specific to the product to be tested.</p> <p>Test Equipment:</p> <ul style="list-style-type: none"> • Thermal Cycle Chamber (-50°C - 150°C) • <i>Up to 95% Relative Humidity</i>
Water Immersion	EG812-22611-112 (Harley) CT.P.24 (Mercury) MIL-STD-810F, Method 512.4	Automotive, marine and or small engine	<p>Contains test descriptions specific to the product to be tested.</p> <p>Test Equipment:</p> <ul style="list-style-type: none"> • Thermal Cycle Chamber (-50°C - 150°C)
Salt Spray	EG812-22611-113 MIL-STD-810F ASTM B117	Automotive, marine and or small engine	<p>Test Equipment:</p> <ul style="list-style-type: none"> • Salt Spray Chamber (25°C - 50°C)



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Mechanical

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Drop	EG812-22612-203 (Harley) ISO 16750-3 part 3 CT.P.27 (Mercury)	Automotive, marine and or small engine	Test Equipment: <ul style="list-style-type: none">N/A
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.

Jason Stine, Vice President

