What is USCAR?

United States Council for Automotive Research LLC

- USCAR is a collaborative technology research company owned by the major Detroit Automobile Manufactures
- USCAR does not purchase or manufacture products
Why is collaboration encouraged?

• Provides shared capabilities and access to resources that no single organization would otherwise be able to access
• Accelerates technical development and innovation
• Improves quality and reduces cost for developing enabling technologies
• **Provides common voice to supply base**
• Increases value of research investments
What is the USCAR Mission?

- Expand the technical knowledge and know-how of the domestic auto industry
- Encourage and support cooperative research and development of automotive technologies
What are EWCAP’s Key Milestones?

- National Cooperative Research Act
- ACC
- USABC
- PNGV
- USAMP
- VAP
- Occupant Safety Research Partnership
- EWCAP

Key Milestones:
- 1984
- 1988
- 1991
- 1992
- 1993
- 1994

EWCAP - 20 Years!
What is the EWCAP/USCAR Structure?

USCAR Council

USCAR Leadership Group

Technical Leadership Councils

- Advanced Powertrain
- Energy Storage
- Hydrogen & Fuel Cells
- Vehicle Electrification
- Electrical/Electronics
- Materials
- Manufacturing
- Safety
- Environmental

Electrical Wiring Component Applications Partnership (EWCAP)
Who sets the Agenda for USCAR/EWCAP?

Matching Missions for Collaboration – Some Examples

**OEM Goals**
- Alternate Supply lines
- Design Transparency
- Common Parts

**Supplier Needs and Wants**
- Large sales base
- No re-testing
- Long-term visibility
- Common assembly equipment
What are the Categories of EWCAE Activity?

- Footprints
- Specifications
  - http://ewcap.uscarteams.org/ConnectorCatalog.htm#PARTSLIST
- Related Products
- Process Equipment
Why are there “USCAR” Connector Footprints?

- One design accepted for all N. American OEMs
- Known technically-sound designs
- USCAR provides technical support for interface
- Device interface specifications
- Cost avoidance of having to tool/test multiple interfaces
- Higher connector volumes and quality on harness side
- Footprints are categorized by family
What is a Footprint “Family?”

- Most Families contain multiple terminal configurations such as 2, 3, 4 way.
- The potential for additional rows of terminals for instance an 8 way may consist of 2 rows of 4 terminals each.
- Part Numbers are arranged by Families.

Families grouped by terminal size:
- 0.50
- 0.64
- 1.2
- 1.5
- 2.8
- 6.3
- 9.5

Sub-Families grouped by Sealed-Unsealed:
- U
- S
- S
- S
- U
- S
- S
- U
- S
- U
- S
- U
- S
How is the USCAR Connector Part Number System Structured?

150-S-003-1-Z01

- Size
- Sealed
- Unsealed
- Cavitation
- # of Rows
- Serial Number
How do I get the drawing once I have a USCAR Part Number?

Look the part number up on the EWCAP website

- Footprint drawings
- CAD models
- Downloads are Free!

http://uscar.org/guest/teams/10/Electrical-Wiring-Component-Applications-Partnership
Who uses “USCAR” Specifications & Why?

**WHO:**
- OEMs
- Connector and Terminal Suppliers
- Device and Module Suppliers

**Why:**
- Commonized for all OEMs
- Unified agreed upon set of performance and design specifications
- USCAR Compliance to Footprints, Performance and Design
What Specifications are Controlled by EWCAP?

- SAE/USCAR-2: Specification for Automotive Electrical Connector Systems
- SAE/USCAR-12: Design Guidelines for Automotive Electrical Connector Systems
- SAE/USCAR-17: Performance Specification for Automotive RF Connector Systems
- SAE/USCAR-18: FAKRA/SMB RF Connector Supplement
- SAE/USCAR-19: Coaxial Cable Connector Interface Square Outer Conductor
- SAE/USCAR-21: Performance Specification for Cable-To-Terminal Electrical Crimps
- SAE/USCAR-25: Electrical Connector Assembly Ergonomic Design Criteria
- SAE/USCAR-29: Automotive Grade Coaxial Cable performance Specification
- SAE/USCAR-30: Performance Specification for Automotive Universal Serial Bus (USB) Connection
- SAE/USCAR-37: High Voltage Connector Performance supplement to SAE/USCAR 2
- SAE/USCAR-38: Performance Specification for Ultrasonically welded-Wire Cable termination
How Do I acquire EWCAP / USCAR Specifications?

- EWCAP uses SAE to Publish specifications
- To purchase a specification go to http://store.sae.org/
- Nominal Purchase Price $70
What Manufacturing Processes does EWCA/USCAR Control?

Only one: Reeling direction