

SAE – Interior Exhaust Gas Committee Update

SAE International



SAE Committee Updates

- **SAE Interior Exhaust Gas Committee (IEGC)**

- New SAE Committee under the Internal Combustion (IC) Powertrain Steering Committee, <https://www.sae.org/works/committeeHome.do?comtID=TEVIEG#>
- Committee members participate in the standard by collecting and sharing information about climate control systems: nomenclature, strategies and settings pertaining to test conditions.
- Give feedback to UN team to develop standard method for measuring exhaust gas in the vehicle interior. Testing at idle, acceleration and high steady speed.
- Potentially adopt the UN mutual resolution as a SAE Standard.
- Mark Polster is the chair of the SAE Interior Exhaust Gas Committee.

- **Key 2018 Dates**

- March 21 - SAE meeting to kicked off the discussion and get feedback
 - October 15 - First SAE Interior Exhaust Gas Committee meeting
 - November 1 – Second SAE Interior Exhaust Gas Committee meeting
 - November 7-9 - UN GRPE IWG meeting in Moscow
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SAE and US Climate Control Document Review

- **The Interior Climate Control Standards Committee is comprised of the following activities:**
 - Interior Climate Control Steering Committee
 - Interior Climate Control Service Committee
 - Interior Climate Control MAC Supplier Committee
 - Interior Climate Control Vehicle OEM Committee
 - Interior Climate Control Fluids Committee
- **Interior Climate Control Committee's Document Summary**
 - The first SAE Climate Control document was published in 1936.
 - The document list includes over 53 SAE Standards, Technical Reports and Recommended Practice
 - Documents are available from SAE International at the following Web site. <http://standards.sae.org/>
- SAE Technical Papers
 - SAE has published the works of many authors, 10 papers were reviewed for relevance.
- US Government Regulations
 - CFR-2013-title40-vol20-sec86-1868-12 - AC17
 - CFR-2013-title40-vol20-sec86-1869-12 - Off-Cycle

SAE Document Review – SAE Standards, Technical Reports and Recommended Practice

SAE Document Number	SAE Document Title	Type of Document
J381_200901	Windshield Defrosting Systems Test Procedure and Performance Requirements—Trucks, Buses, and Multipurpose Vehicles	Recommended Practice
J382_200009	Windshield Defrosting Systems Performance Requirements—Trucks, Buses, and Multipurpose Vehicles	Recommended Practice
J638_201105	Motor Vehicle Heater Test Procedure	Recommended Practice
J639_201112	Safety Standards for Motor Vehicle Refrigerant Vapor Compression Systems	Standard
J902_201108	Passenger Car Windshield Demisting and Defrosting Systems	Recommended Practice
J953_201105	Passenger Car Backlight Defogging System	Recommended Practice
J2219_201108	Mobile Air Conditioning Industry Criteria and Guidelines	Technical Report
J2683_201603	Refrigerant Purity and Container Requirements for Carbon Dioxide (CO ₂ R-744) Used in Mobile Air-Conditioning Systems	Standard
J2765_201707	Procedure for Measuring System COP [Coefficient of Performance] of a Mobile Air Conditioning System on a Test Bench	Standard
J2772_201102	Measurement of Passenger Compartment Refrigerant Concentrations Under System Refrigerant Leakage Conditions	Standard
J2773_201702	Standard for Refrigerant Risk Analysis for Mobile Air Conditioning Systems	Standard
J2777_201601	Recommended Best Practice for Climatic Wind Tunnel Correlation	Standard

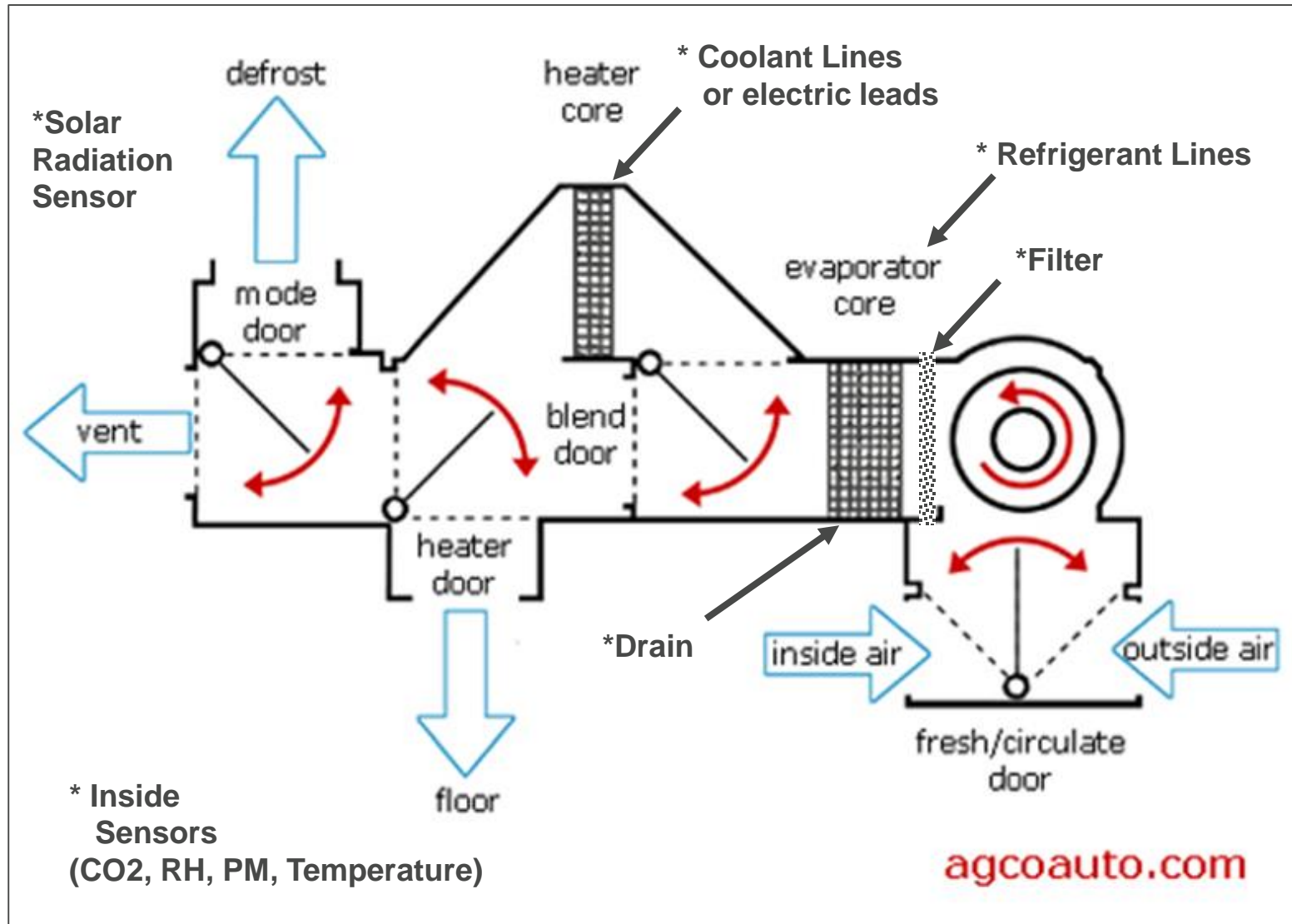
SAE Document Review – SAE Technical Papers

SAE Document Number	SAE Document Title	Type of Document
2007-01-1196	Design of Vehicle Air Conditioning Systems Using Heat Load Analysis	Technical Paper
2008-01-0829	Field Tests to Monitor Build-up of Carbon Dioxide in Vehicle Cabin with AC System Operating in Recirculation Mode for Improving Cabin IAQ and Safety	Technical Paper
2009-01-1148	Assessment of Various Environmental Thermal Loads on Passenger Compartment Soak and Cool-down Analyses	Technical Paper
2009-01-3080	Field Monitoring of Carbon Dioxide in Vehicle Cabin to Monitor Indoor Air Quality and Safety in Foot and Defrost Modes	Technical Paper
2015-01-1609	New MAC Technologies: Fuel Efficiency Effect in Real Driving of the Air Intake Flap Management	Technical Paper
2016-01-0221	Validation of a CFD Model to Predict R-1234yf Concentrations in a Vehicle Cabin Compartment	Technical Paper
2016-01-0254	Experimental Investigation to Determine Influence of Build-up of Cabin Carbon Dioxide Concentrations for Occupants Fatigue	Technical Paper
2017-01-0163	Development of a Model to Predict Build-Up of Cabin Carbon Dioxide Concentrations in Automobiles for Indoor Air Quality	Technical Paper
2017-01-0169	The Impact of Increased Air Recirculation on Interior Cabin Air Quality	Technical Paper
2017-01-1444	CO2 Concentration in the Cabin in the Event of a Leak: CFD Simulation and Testing	Technical Paper

Example Diagrams of Climate System – Could Redraw To Include In Mutual Resolution

- * Panel Vents
 - Right Side Vents
 - Left Side Vents
 - Middle Vents

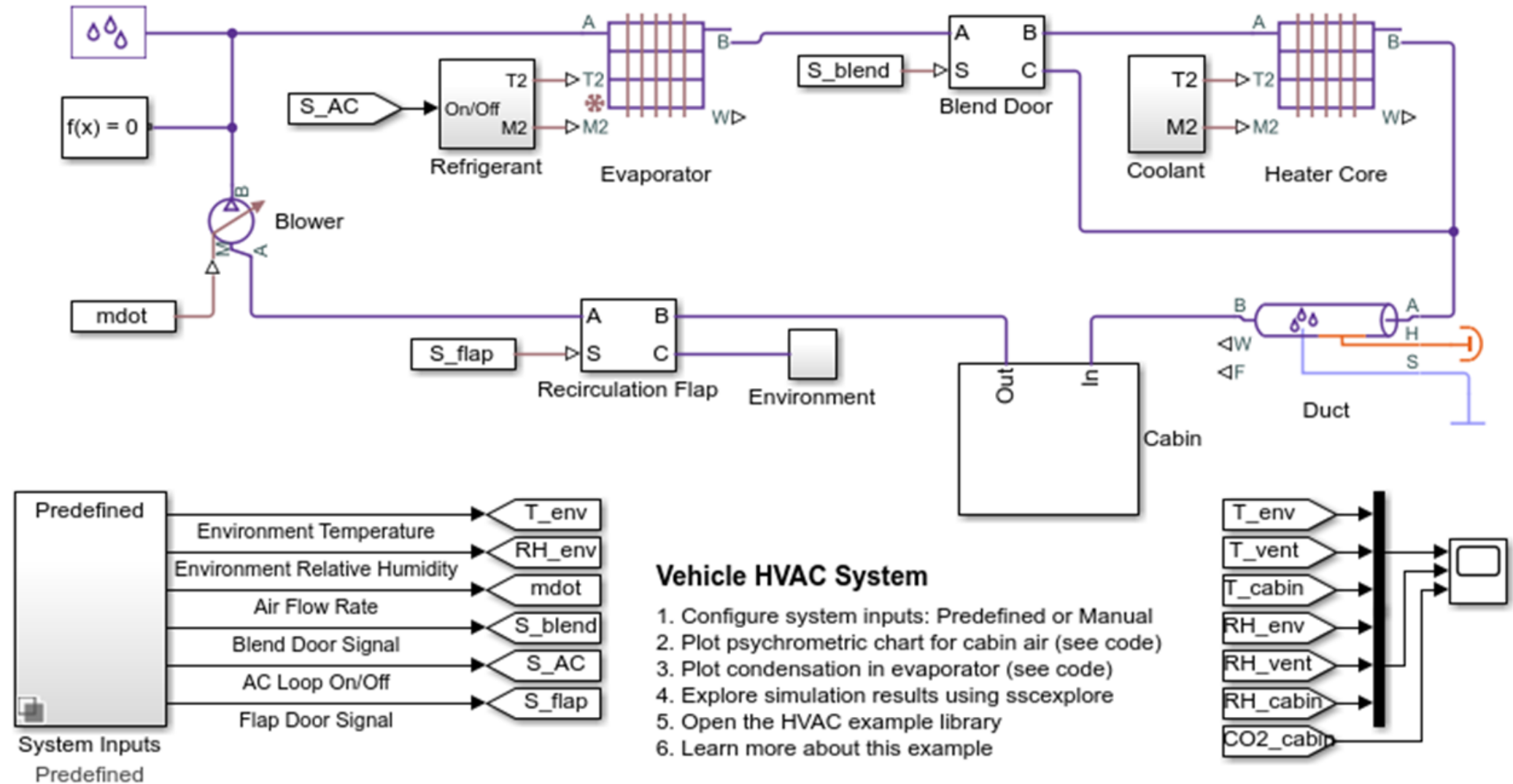
- * Zones
 - Single zone
 - Driver
 - Dual-zone



- * Outside Sensors (NOx, PM, Temp.)

* Additional Items

Example of Inputs and Model of Climate Control Software – For Discussion Only



SAE Proposal to UN VIAQ GRPE Working Group

- 2019 SAE World Congress (WCX) – April 9-11 - <https://www.sae.org/attend/wcx/>
- Proposal to host VIAQ meetings and VIAQ Symposium
 - Day 1 (OEM Meetings)
 - SAE VOC Committee
 - SAE Interior Exhaust Gas Committee
 - Day 2(Symposium)
 - VIAQ Tech Exchange Symposium
 - Interest from several sponsors
 - Technical presentations from OEMs, suppliers, equipment
 - Day 3(UN Meeting)
 - Potential to host 16th meeting at SAE Congress in the US
 - Full Day (or two) of UN VIAQ IWG Meetings

SAE WCX - Bringing You the Future of Mobility

- WCX World Congress Experience is the mobility industry's most-anticipated annual event for forward-thinking engineers, executives, OEMs, suppliers, decision-makers, disruptors and the entire spectrum of the mobility-engineering field.
 - Experience three days of expert-led technical education, peer-to-peer networking, a technology-driven exhibit floor and global mobility solutions that are shifting the marketplace.
 - From IoT, Big Data and connectivity to automated and unmanned vehicles, and from safety, blockchain and powertrain to sustainability and cybersecurity, WCX covers every corner of the industry—right in the beating heart of The Motor City. - <https://www.sae.org/attend/wcx/>
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