

Evaluation of Cooling Cars Technology

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Vehicle Fuel Efficiency Standards (LDV)

	Test procedures	Legal status
United States (Car)	CAFE	Mandatory
(Light truck)	CAFE	Mandatory
Canada	CAFE	Voluntary
European Union	NEDC	Voluntary
Japan	10-15 mode	Mandatory
China	NEDC	Mandatory
Korea	Part of CAFE	Mandatory

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To What Extent is Cooling Covered

- No test procedure for vehicle fuel efficiency covers the effect of cooling
- However, many evaluation methods are being developed and/or discussed

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Cooling Evaluation Methods

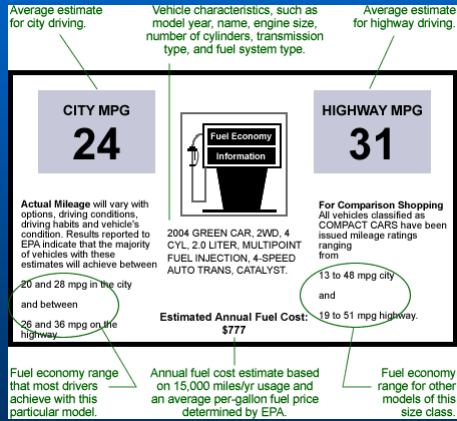
1. **ISO14505**
 - Content; Evaluation of thermal environments in vehicles
2. **SAE/JAMA**
 - Content; Evaluation of the Life Cycle Climate Performance
3. **Others?**

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EPA Fuel Economy Ratings



Source: USEPA

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Proposed Revision (January 10, 2006)

- CITY MPG:

$$f(\text{City}) \rightarrow f(\text{City}, \text{SC03}, \dots)$$

- HIWAY MPG:

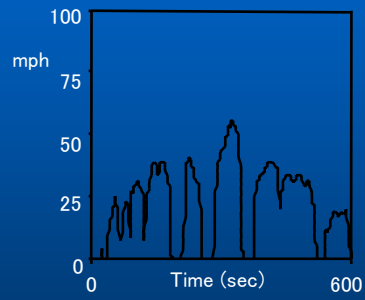
$$f(\text{HWY}) \rightarrow f(\text{HWY}, \text{SC03}, \dots)$$

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SC03 mode



Ambient Conditions:
 35 ± 2.8 °C

Solar Heat Load Intensity:
850 W/m²

A/C ON

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