



June 22, 2009

VIA ELECTRONIC MAIL

Mary D. Nichols
Chairman
Air Resources Board
1001 I Street
Sacramento, California 95814

SUBJECT: Ford's Comments on the Cool Car Standard, Agenda Item 09-6-4

Dear Ms. Nichols:

Ford supports ARB's goal of achieving cooler interior cabin temperatures in vehicles parked in the sun. After reviewing the proposed Cool Car Standard, Ford recommends that the Board implement several changes that will meet the intent of the regulations, while providing the flexibility to be innovative in introducing cabin cooling technologies.

The changes recommended to the proposed standard are:

- 1) Adding a performance based compliance alternative to encourage innovation and promote cost efficiency, thus improving the resulting cost / benefit effect of the regulation.
- 2) Amending the phase-in for reflective windshields to allow for quality implementation of reflective glazings in deep bend windshields (avoid wrinkling and distortion issues).
- 3) Adding a semi-annual technology review because: (a) the 2014 MY 40% Tts requirement is technology forcing; (b) reflective glazings may impact the operability of electronic devices including safety devices; and (c) technologies under development with greater CO₂ savings may be precluded by the standard (e.g. polycarbonate glazings).
- 4) Adjusting the rooflite standard to allow for an improved cost / benefit tradeoff.

1) Performance Based Compliance Alternative

Ford does not support technology mandates or prescriptive standards. These prevent innovation, and create monopolies for certain suppliers, without creating any notable gain for industry or government. We request that an additional performance based compliance alternative be added to the regulation. Such an alternative would encourage innovation, competition, and cost efficiency without affecting the environmental impact.

Lessening the cost is important because Ford believes that staff's benefit determination is inflated because it fails to appropriately account for variable displacement A/C compressors and staff's cost determination is underestimated based on our present production cost of reflective windshields in Europe.

A performance standard for alternative cooling technologies could be determined by:

- Heating two vehicle configurations and recording the interior temperature
 - one with standard glazing
 - one with glazing as specified by the regulation
- Performing the same procedure on the same vehicle model with alternate cooling technologies.

- If the alternate technologies result in the same or lower interior temperature as the vehicle with compliant glazing, it would be submitted to the Executive Officer for approval.

The alternate cooling technologies must be independent of driver action (operate automatically).

New technologies are constantly being developed for cabin climate control. While we do not yet know what all these technologies may be, it is reasonable to assume that they could provide a similar or better benefit for interior temperatures than the proposed glazing standard. ARB Staff mentions two technologies that may be beneficial: sunshades and cabin ventilation. If Ford can show that these (or similar) technologies provide lower cabin temperatures than the advanced glazings in this regulation (and have higher value to consumers), then we think they should be allowed under the standard.

Additionally, Ford offers reflective windshields as an option in Europe. We know how much these windshields cost, and staff is under-estimating it. Additionally, we know that these windshields interfere with electronic devices, which we may or may not be able to overcome with further re-engineering. The potential addition of non-standard deletion windows, addition of repeaters, or modification of antenna systems are each costly solutions that we believe staff understated.

Moreover, staff assumes a 1.2% reduction in fuel usage per degree F reduction in interior cabin temperature. We believe the fuel usage reduction is closer to 0.2% per degree F. This is due to the adoption of variable displacement compressors which achieve most of the benefit assumed in staff's calculations. Due to the potential cost of implementing the technology prescribed in the regulation, we believe there is a high likelihood that alternative technologies could provide the same benefit at a lower cost.

Staff raises two concerns against a performance based alternative: (1) there is no agreed test procedure yet; and (2) a performance standard would increase staff workload associated with evaluating alternatives. First, Ford has already developed a potential procedure and shared it with staff and other Alliance of Automobile Manufacturer members. Moreover, staff has the discretion to set a test procedure, Ford's or another. This can be achieved in a short time. Second, regarding staff workload, we do not believe many different alternatives would be proposed, making this process less burdensome than it would otherwise be.

Finally, it is difficult to find many prescriptive standards from ARB, EPA, the NHTSA, or other government agencies that regulate motor vehicles. Generally, prescriptive standards are shunned except where unavoidable because they create technology roadblocks and often give monopolies to the few companies that can comply. In this case, only a few glazing suppliers believe they have technology to produce compliant glazing.

Indeed, the relative nature of the performance v. prescriptive standard dichotomy is also apparent in California Government Code Section 11346.2(b)(3)(A): "In the case of a regulation that would mandate the use of specific technologies or equipment or prescribe specific actions or procedures, the imposition of performance standards shall be considered as an alternative." Truly, the prescriptive standard is something to be avoided if there is an equivalent means of accomplishing the same thing.

2) Reflective Windshield Phase-In

We request different phase-in timing to help prevent the wrinkling and distortion issue associated with deep bend windshields. Roughly half of Ford's North American windshields will be deep bend in the 2012 MY. There are two known methods of achieving reflective windshields:

- 1) Film on PET: This method is more compatible with Ford's processes and has shorter lead time, but has feasibility issues with deep bend windshields (wrinkling and distortion).
- 2) Coating on glass: This method has a longer lead time and few North American suppliers have facilities to support in the immediate future, but it is preferable for deep bend windshields.

To better accommodate deep bend windshields as well as address issues with electronic device operability we request the following phase-in:

Windshield Requirement	Proposed Regulation	Ford Request
2012 MY	75% volume, Level 1	50% volume, Level 1
2013 MY	100% volume, Level 1	75% volume, Level 1
2014 MY	100% volume, Level 2	100% volume, Level 2

Allowing for this different phase-in would give us flexibility for more efficient use of resources within the context of our upcoming products and require fewer windshield changes because within the product cycle it is costly to redesign the windshields.

We have made this request of staff. They believe the present phase in is sufficient.

3) Addition of a Semi-Annual Technology Review

Based on evaluation of samples from suppliers, Ford believes the level 2 windshield requirement (< 40% Tts) is technology forcing. Presently, a few suppliers have provided Ford samples which meet the level 2 standard. To monitor the glass manufacturers' progress towards this goal, ARB should schedule technology reviews. A technology review would provide an avenue for additional time (if required) for the supply base to develop the technology to meet the more stringent requirements, to develop commercial relationships to purchase coated glass or film, and to introduce this technology without compromising product quality.

Additionally, these regulations may impact the operability of electronic devices in vehicles. Ford is particularly concerned about the performance of safety technology that uses radio frequency such as tire pressure monitoring systems (TPMS). Manufacturers expect to conduct testing, possibly relocate antennas or add repeaters, or develop deletion window specifications for glass manufacturers to implement in order to address this issue. A technology review could better provide an opportunity to implement what we learn from studying engineering work-around solutions for these systems.

Further, Ford is pursuing technology that will reduce the weight of our vehicles. One of the technologies that can substantially reduce the weight of a vehicle is polycarbonate glazings. However, polycarbonate technology is not compatible with laminated reflective coating technology. Polycarbonate would be able to meet slightly lower standards. Ford had modeled the fuel-economy trade-off using the staff ISOR calculations and found that implementation of polycarbonate (or other lightweight glazings) would provide more benefit to fuel economy than the more stringent Tts requirements using heavier glass.

4) Adjusting the Rooflite Standard

The proposed rooflite standard will add cost to the consumer, beyond that estimated by staff. This is because most rooflites in the U.S. use single-pane tempered privacy glass. The present rooflite standard will require the use of laminated construction and a reflective coating, both of which add substantial costs. Since most vehicles with rooflites offer closeable sunshades, which consumers leave closed a majority of the time, there is less heat energy coming through the rooflite than predicted by staff. We recommend the rooflite requirement be changed to 35% Tts to allow the continued use of tempered privacy glass.

In addition, roof glass is typically thicker than 4mm, and setting a 4mm reference thickness would drive manufacturers to redesign their roofs (since roof glass is a structural component) to use thinner glass, or it would necessitate visibly darker roof tinting than consumers prefer. Therefore, we recommend that glazings with a thickness of greater than 4mm must also meet our proposed 35% Tts requirement.

Legal Issues

Separate from the technical concerns that Ford believes can be resolved with ARB, Ford must point out the legal issues with the Cool Car Standard related to both emissions and safety.

Regarding emissions, we believe ARB must address the issue of receiving a federal waiver of preemption from the EPA in order to enforce these standards. Section 209(a) of the Clean Air Act, 42 U.S.C. § 7543, states that "No State or any political subdivision thereof shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part." There is little doubt that the intent and effect of the Cool Car Standard is to increase fuel economy and reduce greenhouse gas emissions caused by using energy to cool the vehicle interior, and therefore, is a "standard relating to the control of emissions." Exemption to preemption can only be achieved by a waiver issued by the EPA under Section 209(b). This change to regulate glazing, in a fashion never before regulated, cannot be within the scope of any previous waiver, including within the scope of any waiver to regulate greenhouse gases under A.B. 1493 regulations, found in Title 13 of the California Code of Regulations, §§ 1900 and 1961, and 1961.1.

Furthermore, regarding safety, the Cool Car Standards force motor vehicle manufacturers to implement laminated glazing in at least some windows. We believe that ARB must also address whether this is preempted by the National Traffic and Motor Vehicle Safety Act, as amended, 49 U.S.C. § 30103. Specifically, the NHTSA established Federal Motor Vehicle Safety Standard 205, 49 C.F.R. § 571.205, which provides manufacturers with several options for glazing, subject to performance standards, including laminated glass, tempered glass, plastics, and glass-plastic. The NHTSA provided several options so that manufacturers could balance the needs for visibility, occupant protection from broken glazing or impact with glazing, and occupant containment. Mandating a standard that can only be met with one particular type of glazing, in this case laminated glass for the windshield and rooflite, appears to stand as an obstacle to federal policy and foreclose the choice that NHTSA established.

Conclusion

In conclusion, we thank ARB for the opportunity to comment on the proposed Cool Car Standard. We share ARB's goal of achieving cooler interior cabin temperatures in vehicles parked in the sun; however, we request finite, reasonable, efficient, and cost-effective changes. These are (1) adding a performance standard alternative; (2) amending the phase-in; (3) establishing a technology review; and (4) making minor adjustments to the proposed rooflite standard.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Adsit". The signature is fluid and cursive, with the first name "Dan" and last name "Adsit" clearly distinguishable.

Dan Adsit
Vehicle Environmental Engineering
Ford Motor Company

cc: Michael Carter
Sharon Lemieux
Marijke Bekken