

that we believe “the most difficult part or pattern” was intended to mean the part of the glazing that provides for “worst case” testing, not the type of difficulty contemplated or how we select the most difficult part or pattern in our compliance testing. Therefore, all portions of the glazing surface must be able to pass the test requirements. NHTSA proposed that this interpretation would be made explicit in the regulatory text of FMVSS No. 205.

Fourth, NHTSA tentatively concluded that a xenon arc light source produces a spectral power distribution closer to that of sunlight than the carbon arc lamp currently utilized in the weathering test procedures of ANSI Z26.1 and requested comment on this issue.⁴ We said that carbon arc technology, which was developed in 1919 for textile and printing industries, is no longer the best light source for simulating sunlight because the spectral power distribution of carbon arc is unlike that of natural sunlight.⁵ Further, we noted that most of the testing industry is currently using xenon-arc lamp test devices to simulate weathering.

Fifth, NHTSA proposed to modify FMVSS No. 205 to incorporate the June 1995 version of the Society of Automotive Engineers, Inc. (SAE), Recommended Practice J100, “Class ‘A’ Vehicle Glazing Shade Bands” (SAE J100) and requested comments on the appropriateness of that shade band standard or any alternative shade band standard that should be considered. NHTSA said that a visibility requirement needs to be set to establish boundaries for shade bands on glazed surfaces since we need to be able, for the purposes of compliance testing, to differentiate between those areas of a window that are intended to meet the 70 percent transmittance requirements and those areas that are not so intended.⁶

Z26.1–1996 states, “[t]he number of specimens selected from each model number of glazing shall be six (6) and shall all be of the most difficult part or pattern designation within the model number.”

⁴ Laboratory-accelerated weathering tests are used to test the durability of glazing materials by simulating the damaging effects of sunlight over an extended period of time. The weathering tests are used to identify materials that are more susceptible to sun damage, such as rigid plastics, flexible plastics and glass-plastics (annealed and tempered). Currently, the weathering test procedures of ANSI Z26.1 simulate sunlight using a carbon arc lamp.

⁵ Narrow spikes of energy in the ultraviolet range of the electromagnetic spectrum (wavelengths of 400 nm and below) can affect how some materials will degrade.

⁶ ANSI Z26.1 requires most passenger car windows to pass a light transmittance test that assures that they transmit 70 percent of the incident light. While all windows in passenger cars are considered requisite for driving visibility, certain areas of the glazing that are not at levels requisite

Currently, neither FMVSS No. 205 nor the updated ANSI/SAE Z26.1–1996 set boundaries for the area of glazing that does not have to meet the 70 percent light transmittance requirement. SAE J100 sets limits for the shade band on the windshield, rear window and fixed side windows based upon the eyellipse of the 95th percentile male driver’s eye positions in a vehicle.⁷

Sixth, NHTSA proposed modifying S5(b)(8) of FMVSS No. 500, “Low-speed vehicles” (49 CFR 571.500), to eliminate the incorporation by reference of ANSI Z26.1 and any reference to the permitted types of glazing.⁸ Instead, S5(b)(8) would simply state that low speed vehicles must have windshield glazing that meets the requirements of FMVSS No. 205.

NHTSA also proposed to revise the applicability paragraph of FMVSS No. 205 to add low speed vehicles to the list of vehicles to which the standard applies. This would assure that manufacturers of glazing materials in low speed vehicles certify compliance with FMVSS No. 205. In addition, we proposed adding a paragraph to the requirements specifying the use of AS–1 or AS–4 glazing in the windshields of low speed vehicles. This section is necessary because the descriptions of the locations of glazing specified by the ANSI standard would not otherwise allow AS–5 glazing.

Also, NHTSA proposed to correct a technical error in FMVSS No. 500. We replaced AS–5 glazing with AS–4 glazing as a permitted glazing type in low speed vehicles. AS–4 is equivalent glazing to AS–5 but contains a light transmittance requirement so that it can be used in windshields, since the windshield is a location considered requisite for driving visibility.

Finally, NHTSA requested comments on the need to verify DOT numbers based on the concern of SAE’s Glazing Materials Standards Committee regarding the accuracy of our Glazing

for driving visibility may be tinted. The most familiar location for the tinted areas is the upper region of the windshield. This area is typically called a “shade band.”

⁷ As defined in SAE’s Recommended Practices, an eyellipse is a statistical representation of driver eye locations in road vehicles. It is an eye movement/position survey designed to identify vision and field of view contours. The 95th percentile male eyellipse is specified in SAE J100 because it is the highest eyellipse, and therefore is the eyellipse most likely to be blocked by the shade band.

⁸ On June 17, 1998, we published (63 FR 33194) a new standard for “low-speed vehicles” (49 CFR 571.500). The rule defines low-speed vehicles as a separate vehicle type, and S5(b)(8) of the rule specifies the use of either AS–1 or AS–5 glazing for the windshield of these vehicles. The rule also separately incorporates by reference the 1977/1980 version of ANSI Z26.1, rather than cross-referencing FMVSS No. 205.

Manufacturer list.⁹ SAE has contended that only 25 percent of the manufacturers listed with DOT numbers are currently active; some of the manufacturers have gone out of business without notifying us, and many other manufacturers have moved or merged.

III. Summary of Public Comments to the NPRM

NHTSA received eight comments on the August 1999 NPRM. Three glazing manufacturers, three vehicle manufacturers, one glazing manufacturers association, and one automotive standards organization submitted the eight comments. The comments are summarized below.

A. Meaning of the “Most Difficult Part or Pattern” for the Fracture Test

Several manufacturers stated that NHTSA had misinterpreted the meaning of “most difficult part or pattern” and that the fracture test could be interpreted to have many fracture points, instead of a single point 25 mm (1 in.) in-bound along the center of the longest edge.

Sekurit Saint-Gobain (Sekurit), a glazing manufacturer, suggested that NHTSA adopt ISO 3537. ISO 3537 has several fracture points [(point 1, 30 mm (1.2 in.) from the edge in one corner; point 2, 30 mm (1.2 in.) from the nearest edge; point 3 at the geometric center, and for curved materials, point 4 on the longest median at a point of maximum curvature)] and allows for fracture of the windshield.

SAE encouraged NHTSA to revise S5.1.2 to read as follows: “NHTSA may conduct the Fracture Test as specified in ANSI/SAE Z26.1–1996 Section 5.7 on any piece of glazing material that is required to comply with Section 5.7.”

B. Xenon Light Source for Weathering Test

Ford Motor Company (Ford) and SAE both commented that a xenon arc light source more closely simulates sunlight than does a carbon arc and that the xenon arc is a much-improved light source for the weathering tests. Ford also said that a xenon arc lamp would meet the requirement of ECE R43 stating that any source of radiation which produces the same effect as a mercury

⁹ Paragraph S6.2 of FMVSS No. 205 requires that the prime glazing manufacturer mark the glazing with, among other things, a manufacturer’s mark. We assign the mark upon written request of the manufacturer. We maintain a list of glazing manufacturers and the marks assigned to them. One use of these code marks (often referred to as a “DOT number”) is during an enforcement action to identify the manufacturer that produced a particular piece of glazing.