

of curvature of 0.2 mm \pm 0.05 mm (0.0008 in. \pm 0.002 in.), is used. To pass the test, the largest fractured particle must weigh 4.3g (0.15 oz.) or less.

In the NPRM, NHTSA stated "we believe that the phrase "most difficult part or pattern" was intended to mean the part of the glazing that provides for 'worst-case' testing." After consideration of the comments, NHTSA now agrees that this interpretation of the phrase was not the intent of the authors of ANSI/SAE Z26.1-1996. In the context of ANSI/SAE Z26.1-1996, as clarified by SAE in its comment to the NPRM, the "most difficult part or pattern" refers to the most difficult application or component with respect to the fracture performance for a given glazing model number. In other words, ANSI/SAE Z26.1 calls for fracture testing on the "worst-case" use, rather than on the worst case target area. It does not refer to the fracture location on a given piece of glazing, nor does it refer to the part of the glazing that provides for "worst-case" testing.

For the purposes of FMVSS No. 205, the phrase "the most difficult part or pattern" means the worst-case component with respect to fracture performance, not the worst-case test location on that component. The worst-case component could be picked from the grouping of such articles that are described by a common manufacturer's model number. For instance, using the example cited by SAE in its comments to the NPRM,¹¹ if a manufacturer produces side and rear windows with the same model number and the rear window performs worse in the fracture performance test, then the rear window must pass the fracture performance test. The difficulty referred to is in regard to meeting the particle weight requirement of the fracture test.

Sekurit suggested requiring multiple fracture points and other manufacturers have objected to conducting fracture testing on production parts with a single

fracture origin or breakpoint 25 mm (1 in.) inboard at the edge of the midpoint of the longest edge of the specimen. They stated that the fracture test could be interpreted to have many fracture points. These manufacturers, however, have not demonstrated a safety need to deviate from the testing specified in ANSI/SAE Z26.1-1996. For this reason, NHTSA believes that the test procedures need not be revised at this time. However, as suggested by Sekurit, NHTSA will continue to explore the desirability of extending the test procedures to multiple break points in the future, through participation in the UN/ECE Working Party 29's Working Party on General Safety Provisions (GRSG).

In retaining the "most difficult part or pattern" requirement, NHTSA agrees with the SAE and has decided to clarify that *any* piece of glazing subject to the fracture test may be tested, and that the test procedure will be a single fracture origin or break point 25 mm (1 in.) inboard at the edge of the midpoint of the longest edge of the specimen as specified in ANSI/SAE Z26.1-1996.

C. Xenon Light Source for the Weathering Test

As noted above, Ford and SAE concurred with the agency's tentative conclusion that a xenon arc produces a spectral power distribution closer to that of sunlight than carbon arc lamps and that it is an improved light source for the weathering tests. As in the NPRM, we also note that most of the testing industry is currently using xenon arc lamp test devices to simulate weathering. For these reasons, the agency has decided to adopt the use of the xenon arc lamp test device for the weathering tests as specified in ANSI/SAE Z26.1-1996.

D. Limiting the Width of the Shade Band

In response to comments by DaimlerChrysler, Toyota, and FGMAJ,

NHTSA commissioned a study at General Test Laboratories (GTL) of current industry practices (SAE J100 and ECE R43) concerning shade band areas.¹²

As a preliminary matter, NHTSA collected data for a series of five windshields from current production vehicles to evaluate the lower boundary of actual windshield shade bands in comparison to the SAE J100 recommendations. The vehicle manufacturers supplied full size templates for each windshield. On these templates, NHTSA engineers measured the difference between the AS-1 line and the boundary of the shade band zone defined in Section 4.1 of SAE J100 for forward glazing (J100 line). The boundary value for the upper limit of level of visibility in SAE J100 is defined as the intersection of the windshield's centerline with an inclined plane tangent to the upper edge of the 95th eyellipse. The AS-1 line marked on the upper edge of the windshield equipped with a shade band shows the current shade band practice by the manufacturer.¹³ NHTSA's limited survey of vehicles found that the manufacturer-provided shade bands did not extend as far downward as permitted by SAE J100, and the distance between the lower boundary of the shade bands and the boundary limit recommended in SAE J100 ranged from 45 mm (1.8 in.) for the Chevrolet Camaro to about 191 mm (7.5 in.) for the Pontiac Grand Am (Table 1). Based on these measurements, all vehicles tested exceeded the recommendations set forth in SAE J100.

Next, NHTSA determined the extent to which the ECE R43 requirement (ECE R43 line) was exceeded. It then compared the extent to which the ECE R43 line was exceeded with the extent to which the J100 line was exceeded. These comparisons are shown in Table 1.

TABLE 1.—COMPARISON OF ESTIMATED SHADE BAND COMPLIANCE WITH SAE J100 AND ECE-R43

Manufacturer	Model	(a) AS-1 line, SAE exceedance*, inches	Pass SAE J100?	(b) AS-1 line, ECE-R43 exceedance*, inches	Pass ECE 43?
General Motors	Chevrolet Camaro	1.8	Yes	-0.8	No
General Motors	Saturn LS2	4	Yes	2.4	Yes
General Motors	Pontiac Grand Am	7.5	Yes	5	Yes
Mitsubishi	Galant	N/A**	N/A**	N/A**	N/A**

¹¹ Docket No. NHTSA-99-6024-10.

¹² GTL is a test facility used by NHTSA to evaluate vehicle equipment for compliance with the FMVSSs.

¹³ FMVSS No. 205 requires that manufacturers mark the windshields to show the limits of the area

having a luminous transmittance of less than 70%. For example, if a manufacturer chooses to install a shade band at the upper edge of the windshield, the windshield must be permanently marked with a line indicating the line of demarcation. An arrow and "AS-1" must also be marked on the glazing

which points to the area compliant with the visibility requirements [minimum level of light transmittance required for a windshield in the area indicated by the direction of the arrow] of FMVSS No. 205.