

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

Manufacturer	Model	(a) AS-1 line, SAE exceedance*, inches	Pass SAE J100?	(b) AS-1 line, ECE-R43 exceedance*, inches	Pass ECE 43?
Ford	Focus	6.1	Yes	4.3	Yes

* Linear distance measured on the windshield surface between the location of the AS-1 line indicated on the windshield and the lowest allowable AS-1 line in accordance with SAE J100 or ECE R43. A positive value indicates that the AS-1 line lies above the lowest allowable AS-1 line. A negative value indicates noncompliance with the requirement, *i.e.*, it represents a hypothetical test failure.

** Not applicable. There was no AS-1 line on the windshield because it had no shade band.

As demonstrated in Table 1, not all tested vehicles comply with ECE R43, and differing results occur for the SAE J100 procedure and the ECE R43 procedure. The SAE procedure uses an “up angle” of 5 degrees to determine the lower limit of the shade band area and the ECE R43 procedure uses an “up angle” of 7 degrees to determine the upper limit of the area for driving visibility. Other minor factors distinguish the SAE method from the ECE method, but these differences are due only to the method by which the point of origin for the 5 degree and 7 degree lines is established.¹⁴

As stated in the NPRM, NHTSA believes that establishing a lower boundary for windshield shade bands is a necessary component of the amended glazing standard. Further, no negative comments were received on the proposal to institute a requirement for the lower boundary for a shade band on a windshield.

The net safety benefit from the slight differences in allowable shade band design between SAE J100 and ECE R43 is negligible. While the SAE procedure offers slightly greater glare protection, the ECE R43 procedure allows a greater daylight opening for visibility at luminous transmittance values of 70% or greater. NHTSA believes that the approaches set forth in both ECE R43 and SAE J100 represent reasonable approaches to determining the limits of a windshield shade band.

However, each procedure is dependent upon the location of a seating design point defined by the vehicle manufacturer. The ECE method relies upon the location of the European “R-point” whereas the SAE method relies upon the SAE seating reference point (SgRP). Due to the existence of

only slight technical differences between the two methods and the use of SgRP in other FMVSS, NHTSA has decided to adopt the SAE J100 recommended practice. This adoption includes, however, a substitution of the ECE R43 procedure “up angle” of 7 degrees, instead of the SAE procedure “up angle” of 5 degrees, to determine the upper limit of the area for driving visibility.

Using the 7 degree “up angle” method for determining the location of the AS-1 line increases the total windshield visibility. Additionally, manufacturers that presently manufacture their shade bands in accordance with SAE J100 can continue using the same testing conditions and procedures defined in SAE J100, except for the “up angle.” However, due to the substantial similarity between the provisions of SAE J100 and ECE R43, except for the degree of the “up angle,” the agency anticipates the shade band boundary line under the new rule would more closely approximate the ECE R43 line due to the 7 degree “up angle” for most vehicles. Therefore, we believe manufacturers would be able to market vehicles with the same AS-1 line in both Europe and the United States.

Agency testing indicates that most manufacturers do not use all of the potential available windshield shade band area available under ECE R43 for shade band coverage. However, as demonstrated above in Table 1, not all tested vehicles complied with ECE R43 (one out of four did not comply). Therefore, a small percentage of current production vehicles may not comply with the new shade band requirement. However, as with the 2000 Chevrolet Camaro, the anticipated extent of failure for this small percentage of vehicles is slight. The agency believes that modifying the shade band location by 25 mm (1 inch) or less on most vehicles represents a reasonable undertaking that should not be costly for manufacturers and that can be accomplished within a short lead time. Based on the results of the agency’s testing, manufacturers should have no difficulty adjusting

shade bands to meet the new requirement.

With regard to shade band requirements for glazing areas other than the upper edge of the windshield, SAE J100 does not address driver visibility for the bottom edge of the windshield or for the side of the windshield. SAE J100 does include shade band requirements for fixed side and rear windows. While SAE J100 includes this requirement for side and rear windows, the majority of side and rear windows are tempered glass. Shade bands can only be applied to laminated glazing (by tinting the inner layer). Laminated glazing is required only for windshield applications. Therefore, shade bands rarely exist on fixed side and rear windows. Further, ECE R43 does not contain shade band requirements for side or rear windows. Because of the limited number of fixed side and rear windows containing shade bands and because of harmonization concerns, as commented by FGMAJ, the agency has decided to apply the provisions of SAE J100 exclusively to windshield applications. However, the light transmittance requirements for side and rear windows contained in FMVSS No. 205 and ANSI/SAE Z26.1–1996 will continue to apply to side and rear windows.

E. Certification and Verification of DOT Numbers

Comments concerning the certification and verification of DOT numbers suggest that NHTSA’s DOT registry process should require additional certification and verification activities such as the re-certification of numbers every 5 years and the maintenance of active and non-active manufacturer lists. Commenters did not, however, provide evidence that the additional certification and verification activities would yield safety benefits. Further, the agency believes that additional certification and verification activities would require additional resources and manpower which would, in turn, adversely impact the agency’s use of its resources to upgrade its safety

¹⁴ The test zones used by each standard are generated using different methods. The European test zone uses the ISO “V” points (coordinates related to seat back angle) while the U.S. zones are based on the SAE J941 eyellipse. However, the ISO “V” points are a derivative of the SAE eyellipse, and generate substantially similar zones. While the zones are not identical, the differences in practice account for only slight variations in calculated outcomes.