SURFACE VEHICLE RECOMMENDED PRACTICE

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Class "A" Vehicle Glazing Shade Bands

RATIONALE

Revisions to this document were editorial only, for clarification and to eliminate ambiguity.

1. SCOPE

This SAE Recommended Practice establishes boundaries for shade bands on glazed surfaces in class "A" vehicles. These boundaries are located so that the shade band can provide occupant comfort and driver vision protection from glare, with respect to solar radiation, under some lighting and driving conditions. Since shade bands transmit less visible light than adjacent glazed surfaces, the shade band boundaries establish boundaries for the driver's field of view.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J941 Motor Vehicle Driver's Eye Locations

ANSI/SAE Z26.1 American National Standard for Safety Glazing Materials for Glazing Motor Vehicle Equipment Operating on Land Highways - Safety Standard

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J1100 Motor Vehicle Dimensions

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https://www.sae.org/standards/content/J100_202203/

3. DEFINITIONS

3.1 EYELLIPSE

A statistical representation of the driver's eye positions in a vehicle, as defined in SAE J941.

3.2 GLAZED SURFACES

Exposed transparent safety glazing materials mounted within exterior body openings of the passenger compartment.

3.3 GLAZING SHADE BAND

An area immediately adjacent to and below the top edge of the vehicle glazing, which does not meet the 70% minimum light transmission requirement of Test 2, Luminous Transmittance in ANSI Z26.1.

Examples of shade bands follow. These examples are representative, and do not suggest limitations to either shade band construction or application technology on any type of safety glazing.

a. Laminated Safety Glazing - A color band in the laminated product formed by the application of a dye or pigment to the interlayer material prior to lamination.

b. Any Safety Glazing - A pattern comprised of lines and spaces or dots and voids, printed onto the glazed surface from a durable opaque or translucent material.

3.4 HORIZONTAL PLANE

A plane parallel to ground line of the vehicle when there are a driver and one passenger seated in the front outboard seating positions.

3.5 SURFACE OF INTEREST

The surface of the vehicle glazing on which the shade band is placed. For a monolithic safety glazing, this can be the inner or outer surface. For a laminated safety glazing, this can be the inner or outer surface, or the interlayer.

4. SHADE BAND BOUNDARY REQUIREMENTS

The shade bands are to be located with their lower edges at or above the described boundaries (see Figure 1).

4.1 Forward Glazing

The boundary of the shade band is established by connecting points a1, b1, c, b2, and a2 on the windshield glazing surface of interest. The apparent drop in the boundary from points b1 and b2 to points a1 and a2, respectively, allows design flexibility to achieve desired shade band contours with a variety of windshield shapes, installation angles, and vehicle body designs.

4.1.1 Points a1 and a2 are the intersections of the horizontal plane A and the outline of the exposed glazed surface of interest at the left and right A-pillars, respectively. Plane A is a horizontal plane tangent to the upper edge of the 95th eyellipse.

4.1.2 Point b1 is the intersection of the vertical plane B, the inclined plane C, and the windshield surface of interest. Point b2 is on the right side of the windshield surface of interest, symmetrically opposite to point b1. Plane B is seen in plan view as a line tangent to the left edge of the 95th eyellipse at an angle of 10 degrees to the left of the longitudinal axis of the vehicle. Plane C is seen in side view as a line tangent to the upper edge of the 95th eyellipse, and inclined 5 degrees up from the horizontal.

4.1.3 Point c is the intersection of the inclined plane C, the vertical plane F, and the windshield surface of interest. Plane F is seen in plan view as a line superimposed on the longitudinal axis of the vehicle.

4.2 Fixed Side Glazing

The boundary of the shade band is the intersection of plane D with the fixed side glazing surface of interest. Plane D is a horizontal plane located 25.4 mm (1 inch) above the top edge of the 95th eyellipse.

4.3 Rear Glazing

The boundary of the shade band is the intersection of the rear glazing surface of interest with either of the two following planes.

a. Plane D or,

b. Plane E, a horizontal plane located at the upper boundary of the field of view through the inside rear view mirror at design position.

4.4 Movable Glazing

Such a glazing can be repositioned by an occupant. If the motion is vertical, as in rolling down a side window, the repositioning can place the top edge of the glazing below the shade band boundaries within the exterior body openings. No shade bands shall be used on a vertically movable glazing. If the motion is horizontal, the shade band boundary requirement is the same as for a fixed glazing in the same body opening.

5. NOTES

5.1 Revision Indicator

A change bar (l) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.