

competitive adoptions. Animals not selected by the public through a competitive adoption, would be available at the base fee \$125.00. BLM is not changing the qualification requirements for adoption of a wild horse or burro. Adopters must meet the requirements of 43 CFR 4750 before they are allowed to participate in an adoption event.

An increased adoption fee would also shift some of the cost of the adoption from the general taxpayer to the individuals who benefit directly from this program. Future adoption fees would reflect market value of the animals and strike a balance between supply and demand.

Prior to each adoption event BLM will provide information on how the adoption will be conducted and the method to be used for establishing adoption fees.

## II. Procedural Matters

### *National Environmental Policy Act*

The BLM has determined that this rule is categorically excluded from further environmental review pursuant to 516 Departmental Manual (DM), Chapter 2, Appendix 1, Item 1.10, and that the proposal would not meet any of the 10 criteria for exceptions to categorical exclusion listed in 516 DM 2, Appendix 2. Pursuant to the Council on Environmental Quality regulations (40 CFR 1508.4) and environmental policies and procedures of the Department of the Interior, the term "categorical exclusions" means a category of actions that do not individually or cumulatively have a significant effect on the human environment and that have been found to have no such effect in procedures adopted by a Federal agency and for which neither an environmental assessment nor an environmental impact statement is required.

### *Executive Order 12866 and Regulatory Flexibility Act*

This rule was not subject to review by the Office of Management and Budget under Executive Order 12866. The cost of complying with the requirements of the rule is indistinguishable from the requirements imposed by the existing adoption fee regulations. Further, for the same reasons, the Department has determined under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) that the rule will not have a significant economic impact on a substantial number of small entities. The rule does not distinguish between entities based on size.

### *Federal Paperwork Reduction Act*

The provisions for collection of information contained at 43 CFR Part 4710 have previously been approved by the Office of Management and Budget and assigned clearance numbers 1004-0042.

This rule does not contain additional information collection requirements that require approval by the Office of Management and Budget under 44 U.S.C. 3501 *et seq.*

### *Executive Order 12630*

The Department certifies that this proposed rule does not represent a governmental action capable of interference with constitutionally protected property rights. Therefore, as required by Executive Order 12630, the Department of the Interior has determined that the rule would not cause a taking of private property.

### *Unfunded Mandates Reform Act*

The BLM has determined that this regulation is not significant under the Unfunded Mandates Reform Act of 1995, because it will not result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more in any one year. Further, this rule will not significantly or uniquely affect small governments.

### *Executive Order 12988*

The Department has determined that these final regulations *et the applicable standards provided in Sections 3(a) and 3(b)(2) of Executive Order 12988.*

Authors: The principal authors of this proposed rule are Lili Thomas of the Wild Horse and Burro National Program Office and Bob Barbour of the Regulatory Management Team, BLM, assisted by Kim Fondren of the Office of the Solicitor, Department of the Interior.

### List of Subjects 43 CFR Part 4700

Animal Welfare, Horses, Penalties, Public Lands, Range Management, Reporting and recordkeeping requirements, Wildlife.

Accordingly, BLM proposes to amend Subpart 4750 as follows:

#### **PART 4700—[AMENDED]**

1. The authority citation for Part 4700 continues to read as follows:

Authority: 16 U.S.C. 1331-1340; 18 U.S.C. 47; 43 U.S.C. 315 and 1740.

2. Section 4750.4-2 is revised to read as follows:

#### **§ 4750.4-2 Adoption Fee**

(a) Does BLM charge an adoption fee for wild horses and burros?

You must pay a base adoption fee of \$125 for each wild horse or burro you adopt. You will not be charged an adoption fee for orphan foals.

(b) Can the adoption fee be increased?

Yes, BLM may choose to hold a competitive adoption for particular wild horses or burros. At competitive adoptions, qualified adopters under 43 CFR part 4750 set adoption fees through competitive bidding. Horses or burros remaining at the end of a competitive adoption will be available for adoption at the base fee.

(c) Can the adoption fee be reduced or waived?

(1) The BLM Director may reduce or waive the fee when wild horses or burros are un-adoptable at the base adoption fee.

(2) A reduction or waiver of the adoption fee is available only if you are willing to comply with all regulations relating to wild horses and burros.

Dated: June 24, 1996.

Bob Armstrong,

*Assistant Secretary, Land and Minerals Management.*

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## DEPARTMENT OF TRANSPORTATION

### National Highway Traffic Safety Administration

#### 49 CFR Part 571

[Docket No. 95-28; Notice 8]

RIN 2127-AF73

### Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices and Associated Equipment

**AGENCY:** National Highway Traffic Safety Administration (NHTSA), DOT.

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** This document proposes to amend Standard No. 108, the Federal motor vehicle safety standard on lighting, to afford an option to existing headlamp aiming specifications which is intended to improve the objectivity and accuracy of motor vehicle headlamp aim when headlamps are aimed visually and/or optically. The proposal reflects the consensus of NHTSA's Advisory Committee on Regulatory Negotiation concerning the improvement of headlamp aimability performance and visual/optical headlamp aiming. The Committee was composed of representatives of government, industry, and consumer interest groups.

**DATES:** Comments are due October 8, 1996.

**ADDRESSES:** Comments should refer to Docket No. 95-28; Notice 8 and must be submitted to: Docket Section, Room 5109, 400 Seventh Street, SW, Washington, DC 20590. (Docket hours are from 9:30 a.m. to 4:00 p.m.). Do not send originals of comments to any person named below.

**FOR FURTHER INFORMATION CONTACT:** (NHTSA Advisory Committee representative) Steve Kratzke, Office of Safety Performance Standards, NHTSA (Phone: 202-366-5203; FAX: 202-366-4329); (technical information) Rich Van Iderstine, Office of Safety Performance Standards, NHTSA (Phone: 202-366-5275; FAX: 202-366-4329); (legal information) Taylor Vinson, Office of Chief Counsel, NHTSA (Phone: 202-366-5263; FAX: 202-366-3820).

**SUPPLEMENTARY INFORMATION:**

**Background**

On June 9, 1995, at 60 FR 30506, the National Highway Traffic Safety Administration (NHTSA) published a notice of intent to establish an advisory committee ("the Committee") for regulatory negotiation to develop recommended specifications for altering the lower beam patterns of Federal Motor Vehicle Safety Standard No. 108 *Lamps, Reflective Devices and Associated Equipment* to be more sharply defined. Such a pattern would facilitate visual aimability of headlamps. The notice requested comment on membership, the interests affected by the rulemaking, the issues the Committee should address, and the procedures it should follow. The notice also announced that NHTSA had procured the services of the Federal Mediation and Conciliation Service to facilitate the negotiations. The reader is referred to the notice of June 9, 1995, for further information on these issues.

On the basis of comments received to the notice, NHTSA determined that establishing an advisory committee on this subject would be advantageous and in the public interest. In accordance with Section 9(c) of the Federal Advisory Committee Act, 5 U.S.C. App. I sec. 9(c), NHTSA prepared a Charter for the establishment of a Negotiated Rulemaking Advisory Committee. On April 17, 1995, the Office of Management and Budget approved the Department's Advisory Committee Plan for FY 1995 which included this advisory committee, and on July 6, 1995, the Secretary approved the Charter, authorizing the Committee to begin negotiating the recommended changes.

**Membership**

In addition to a representative from NHTSA, the Committee consisted of representatives from the following organizations: Advocates for Highway and Auto Safety, American Association of Motor Vehicle Administrators, American Association of State Highway and Transportation Officials, American Automobile Manufacturers Association, Association of International Automobile Manufacturers, Inc., Automotive Service Association, Groupe de Travail "Bruxelles 1952", Hopkins Manufacturing Corporation, Japanese Automobile Standards Internationalization Center, Liaison Committee for the Manufacturers of Automobile Equipment and Spare Parts, National Automobile Dealers Association, National Committee on Uniform Traffic Control Devices, Society of Automotive Engineers, Road Illumination Devices Standards Committee, Traffic Control Materials Division, 3M Corporation, Wagner Lighting Division of Cooper Industries.

In accordance with the directives for negotiated rulemaking, these participants represent all "interests" identified by NHTSA as affected by a final rule on headlamp aimability: the consumer; Federal and State governments; American, European, and Asian manufacturers of motor vehicles and headlamps; the automobile service industry; and manufacturers of headlamp aiming equipment and traffic control devices.

**Meetings**

Utilizing the services of the Federal Mediation and Conciliation Service (FMCS) as facilitators/mediators, NHTSA convened the first Committee on July 25, 1995. The Committee held an additional series of meetings in September, October, and November 1995, and in January, March, April, and May 1996. Under the direction of the FMCS mediators the Committee received training in the interest-based negotiation process. The Committee used the interest-based negotiation process to fulfill its charter. At its final meeting prior to publication, on May 29, 1996, the Committee reached a consensus on the rationale and proposed regulatory text for this NPRM. The Committee meetings were open to the public, and NHTSA placed the minutes into a public docket (Docket No. 95-28).

**NHTSA's Perspective of Headlamp Aimability**

At its simplest expression, proper aim is required to ensure that headlamps installed on motor vehicles fulfill the functions intended by their designers. There are three principal methods of aiming headlamps. The first is visual: project the beam upon a vertical surface and adjust the headlamp as determined by an observer; the second is optical: project the beam into a device that is placed in front of the headlamp and adjust the headlamp until the beam conforms to the parameters of the device; the third is mechanical: without activation of the headlamp, determine proper aim through the use of equipment external to the headlamp. Mechanical aim was introduced in 1955 by the automotive industry in response to aiming concerns expressed by the states. These concerns were related to visual and optical and involved ease of use, repeatability, and accuracy of aim.

A constant requirement of Standard No. 108 from its effective date on January 1, 1968, has been the ability of motor vehicle headlamps to be mechanically aimed. Mechanical aiming was necessary because visual/optical aim of the lower beam pattern in use in the United States was difficult. Sealed beam headlamps, the only type of headlamps permitted until 1983, are required to have one of four aiming-pad patterns on the lens. These patterns consist of three raised aiming pads arranged as a triangle at specified points on the lens which provide a precise interface between the headlamp and a mechanical aiming device attached to the headlamp during the aiming verification process. The mechanical aiming device provides information so that the aiming planes of the headlamps, defined by the three aiming pads, can be adjusted to be parallel with each other and perpendicular to the road surface. Because a headlamp's beam pattern is designed to be correctly aimed when the aiming plane is oriented as stated, the beam pattern can be aimed without the need for illuminating the headlamp.

With the advent of replaceable bulb headlamps in 1983, restrictions on the size and shape of headlamps were no longer required, and two additional configurations of mechanical aiming pads were permitted. This necessitated new adapters and also adjustable adapters for mechanical aiming devices used with replaceable bulb headlamps. Initially, NHTSA required that vehicles with replaceable bulb headlamps also be equipped with aim adapters until the adapters could be supplied to the service industry. However, this design

freedom resulted in a proliferation of headlamp aimer adapters, adding complexity and error to the previously simple and accurate process of mechanical headlamp aim. In addition, headlamps became smaller, and it became increasingly difficult for the traditional type of mechanical aiming device to measure aim.

In response to this problem, since June 8, 1989, NHTSA has allowed a method of mechanical aim that is no longer dependent upon an external applied mechanical aiming device but one which is accomplished by mechanical aiming equipment on the vehicle itself. NHTSA terms this a "vehicle headlamp aiming device" or "VHAD". A VHAD is equipment installed on the vehicle which is used for determining headlamp aim mechanically. In its most common form, these are bubble vials on the headlamp housing which have a closely specified geometric (mechanical) relationship to a beam's vertical location. When the bubble is within a specific area indicated on the housing, the headlamp's vertical aim is correct. A similar mechanical reference marking system is used for correct horizontal aim. One attractive feature of VHADs is that they provide a simple way for anyone to determine proper aim and to correct misaim. But, in the event of damage involving the headlamp, VHADs may have to be replaced, with recalibration by a person other than the vehicle manufacturer who initially installed them. NHTSA believes, and the Committee concurred, that distributors, dealers, and service facilities do not have the ability to recalibrate replacement equipment to the same accuracy as the manufacturer. VHADs add to vehicle costs, and not all vehicles are equipped with them; therefore visual aim and optical aim remain important.

As NHTSA understands it, state inspection stations and private repair shops are less likely today to use mechanical aiming devices and, for the most part, choose to aim headlamps either visually or with optical aimers. Given the lack of sharply defined visual cues in the lower beam pattern in headlamps that are designed to conform to Standard No. 108, aiming visually or with an optical aiming device yields variable results. As a consequence, there are increasing numbers of misaimed headlamps in the nation's vehicle fleet, with a higher risk of glare and inadequate illumination of the roadway including traffic control devices.

When NHTSA published a general notice asking for candidates for regulatory negotiation, the American

Automobile Manufacturers Association (AAMA) identified headlamp aimability as its first choice. NHTSA agreed with this recommendation. The NPRM that is published today is the result of negotiated rulemaking. The anticipated result is a final rule that specifies an option to mechanical aiming for easy, accurate headlamp aiming.

#### The Process Followed by the Committee and Its Recommendations

As part of the interest-based negotiation process, the Committee first defined issues for the regulatory negotiation. The Committee then identified its interests and finally reached consensus on criteria for the regulatory standards.

The Committee used the interest-based process to identify the basic issue as "what standard will permit the visual/optical aiming of lower beam headlamps". Subsequently the visual/optical aimability of the upper beam was added.

The Committee-defined interests were divided into three main themes: "Safety", "Service Sector and Manufacturer Needs", and "Visual/Optical". A summary of each issue is as follows:

A. Safety: Any method of ensuring visual and or optical aim of low beam headlamps that involves the proposed adoption of a new Federal standard for lower beam headlamp photometry must not degrade, and desirably will enhance, the safety performance of the existing traffic control nighttime driving environment. A visually/optically aimable headlamp beam pattern shall ensure adequate driver control and avoidance of hazardous features (pedestrians, roadside objects, etc.), in the nighttime driving environment, without creating disabling glare.

B. Service Sector and Manufacturing Needs: Implementation of a visual aim standard must consider the following service sector (dealers, repair garages, service stations, state inspection stations, body shops) and manufacturing (vehicles, headlamps, and aiming equipment) needs: simplicity, user friendliness, repeatability, reliability, cost effectiveness, equipment, compatible aiming methods.

C. Visual/Optical: The development of the aiming standard should consider other established aiming standards.

The Committee then developed six criteria as critical for the development of a consensus standard for visual/optical aim. These criteria are:

1. Accuracy: proper placement of beam pattern.
2. Repeatability: repeatable aimability.

3. Simplicity: performable by operators of varying skill levels.

4. Reasonable cost: no unreasonable costs for manufacturers, the service and inspection industry, or consumers.

5. Critical beam characteristics: preservation of beam characteristics for driver control, avoidance of road hazards and pedestrians, detection and legibility of traffic control devices, and restriction of disabling glare.

6. Ambient light conditions: achievement of acceptable aim within a range of ambient light conditions at manufacturer and service facilities.

The Committee then determined that the new visual/optical aim standard should be an option to current mechanical and VHAD aim specifications in Standard No. 108, and usable with all headlamps: sealed beam, integral beam, replaceable bulb, and combination-type headlamps. Therefore, the Committee developed an outline to be used by NHTSA for the NPRM.

To achieve its goals, the Committee decided that:

A. the lower beam pattern must have a wider illumination,

B. a horizontal visual cue must be added to either the left or right side of the lower beam,

C. the basic characteristics of the lower beam pattern must not be changed,

D. all lenses for visually/optically aimable headlamps must be marked to ensure that persons aiming the headlamps know that the headlamp can be correctly aimed using a visual or optical aiming procedure, and

E. existing requirements for VHADs must be amended to add a specification currently missing which results in aim error.

#### Proposed Requirements and Their Rationales

The Committee recommends and NHTSA proposes that the visually/optically aimable lower beam of a headlamp meet the following criteria:

A. *Vertical Aim of Lower Beam.* A visual cue (cutoff) is required in the lower beam pattern to permit accurate aiming. The cutoff marks a transition between the areas of higher and lower luminous intensities. The cutoff in the lower beam pattern is a horizontal line composed of maximum vertical logarithmic gradients of the illumination of the aiming screen.

Vertical aim requires both a laboratory specification for headlamps before installation and a field specification for headlamps after installation. This notice proposes that the laboratory specifications be incorporated into Standard No. 108. The field

specifications represent the Committee's recommendations to all persons who perform visual/optical headlamp aiming in the field.#

1. *Laboratory Specification for the Vertical Visual Aim of the Lower Beam.* The Committee, in establishing and recommending to NHTSA a laboratory specification for visual aim of the lower beam, agreed that several factors must be considered to ensure accurate and repeatable results that would also relate to the requirements for field aimability. Accuracy for laboratory aim was specified to be within  $\pm 0.1$  degree. This was based on the test equipment positioning capability of  $\pm 0.01$  degree along with the associated lamp-to-lamp and laboratory-to-laboratory variances. The Committee agreed that the specification for the gradient in the proposal be based on a required  $\pm 0.1$  degree laboratory aim accuracy and a 0.25 degree field aim accuracy with confidence limits of  $\pm 2$  sigma (95% of all aims will be in the range).

A University of Michigan Transportation Research Institute (UMTRI) study titled "Visual Aiming of European and U.S. Low-Beam Headlamps" (Report No. UMTRI-91-34, by Sivak, Flannagan, Chandra, and Gellatly) provided information which led to the establishment of the necessary gradient level. In the study by UMTRI, a wide range of lamps were tested, some of which were not designed for visual aiming. A subsequent study of visually aimable headlamps conducted at GE by the Society of Automotive Engineers' (SAE) Beam Pattern Task Force (in developing SAE J1735 "Harmonized Vehicle Headlamp Performance Requirements") found the standard deviation of vertical aim to be smaller than the standard deviation in the UMTRI study. Based on that study, SAE J1735 specifies a design value of 80% contrast based on 0.2 degree spacing of test points which corresponds to a value of 0.13 in log units with a 0.1 degree spacing of test points. The Committee

concluded that a gradient of 0.13 would satisfy its goal for field aim accuracy.

Measurement of the specific gradients may be carried out using traditional photometric measurement equipment; however, photometric distance may vary between companies. It was decided that a procedure which has been developed by the Groupe de Travail "Bruxelles 1952" (GTB) Short-term Scientific Studies Working Group (SSST WG) would provide a baseline system for this test. This may be found in "Draft Minutes of the Meeting held at Budapest 1995 October 3" on file in the docket as attachment 3-9 to the Committee's minutes of Meeting No. 3.

The cutoff can be on either the right or left side of the lower beam pattern. When so located, it provides the necessary reference for placing the beam in the appropriate vertical location for correct aim. In order to achieve a cutoff in a beam, there must be a distinct difference in illumination levels above and below the cutoff. This may be achieved by numerous methods in the design of a headlamp. For the purposes defined by the Committee, a horizontally-oriented cutoff is necessary. Based on work done by the SAE Beam Pattern Task Force, UMTRI, Commission Internationale de l'Eclairage Working Group on Vehicle Lighting (CIE TC4.10) ("Definition of the Vertical Cutoff of Vehicle Headlights" draft 1993-3-15), and the GTB SSST WG, and reviewed by the Committee, the method for describing the cutoff is as follows.

Scientific studies by Blackwell, Olson, Forbes, Sivak, Flannigan, et al., have shown that the human eye responds to the logarithm (to base 10) of the gradient of screen luminance. This mathematical expression simulates in the laboratory where human vision perceives the cutoff on a screen during field aiming. A vertical scan of the lower beam pattern at a specified number of degrees to the right or left of the headlamp beam pattern's vertical axis, where the cutoff is located, is taken to gather data on the intensity values. This data are then analyzed using the

mathematical expression to determine where the greatest rate of change of illumination occurs; the vertical location of the cutoff is thus defined. For example, a person could use a goniophotometer to record data in small vertical increments at the locations at 2.5 degrees left or 2.0 degrees right in order to determine the cutoff location.

For effective field aiming, the cutoff needs to be finitely long so that the person looking at the cutoff has a sufficient cue to find it. This range should extend at least one degree on each side of the specified measurement point of the cutoff and should be approximately straight and horizontal.

The cutoff on the left side of the beam pattern can be achieved by putting more light below the horizontal on the left rather than reducing the intensity of light above the cutoff. This added light provides more illumination to detect objects on the left side of the beam pattern and more uniformity of the total light output from the vehicle. The light above the horizontal would not be decreased. The right side of the beam needs no such enhancement to achieve an adequate gradient for the cutoff. In addition to the above, these changes cause small effects in other areas of the beam that will be addressed below.

The Committee recommends and NHTSA proposes the following changes to the existing photometric figures in Standard No. 108 for all headlamps designed for visual/optical aiming:

- (a) elimination of the 0.5 deg. D-1.5 deg. L to L test points,
- (b) elimination of the 1.0 deg. D-6.0 deg. L test point,
- (c) addition of an 0.86 deg. D-3.5 deg. L test point with intensity requirements of 1800 cd. minimum, and 12000 cd. maximum, and
- (d) addition of an 0.86 deg D-V test point with intensity requirements of 4500 cd minimum,
- (e) addition of an 0.6 deg D-1.3 deg R test point replacing the current test point at 0.5 deg D-1.5 deg R with intensity requirements shown below:

Proposed test point: 0.6 deg. D-1.3 deg. R (cd minimum)	Proposed Source of requirement (Std. No. 108)	Replaced Test Point: 0.5 deg. D-1.5 deg. R		Source of requirement (Std. No. 108)
		cd minimum	cd maximum	
10000 .....	new Fig. 15va & 17va.	10000 .....	20000 .....	Fig. 15A & 17A.
10000 .....	new Fig. 27va & 28va.	8000 .....	20000 .....	Fig. 27 & 28.

(f) and modification of the 4 degree D-V test point in the Figure 15va lower

beam maximum candela column from 7000 cd to 10000 cd.

In Figures 27 and 28 of Standard No. 108 the maximum value at 0.5 degree D-1.5 degrees L is 2500 cd. In Figures

15A and 17A, the maximum value at 0.5 degree D–1.5 degrees L is 3000 cd. The value of the 1.0 degree D–6.0 degrees L test point is 750 cd minimum, and it becomes superfluous because of the additional illumination provided by the new test point specified at 0.86 degree D–3.5 degrees L.

The three test points: 0.86 degree D–3.5 degrees L; 0.86 degree D–V; and 0.6 degree D–1.3 degree R; have all been the subject of lower beam headlamp harmonization activities with GTB, GRE, JASIC, and SAE. A research study, UMTRI Report 94–27 “Evaluation of the SAE J1735 Draft Proposal for a Harmonized Low-Beam Headlighting Pattern” reports that these three test points contribute to better performance of the lower beam headlamp.

In the past there has been one “seeing light” test point at 0.5 degree D–1.5 degree R. This is being replaced by three new “seeing light” test points: 0.6 degree D–1.3 degrees R; 0.86 degree D–V; and 0.86 degree D–3.5 degree L. The new 0.86 degree D–V test point with the 4500 cd minimum will increase uniformity of the beam pattern below the horizontal line between the high intensity zones on the left and right. The new 0.6 degree D–1.3 degree R test point represents a relocation of a current test point by 0.1 degree D (from 0.5 degree D to 0.6 degree D) and 0.2 degree L (from 1.5 degree R to 1.3 degree R). These changes represent a significant improvement in providing more light to the left side of the beam pattern.

There is a maximum (20000 cd) requirement at the 0.5 degree D–1.5 degree R test point. Because of significantly greater control of minimum and maximum illumination above the horizontal axis, there is no continuing need for a maximum at this location.

The recommendation to modify the test point value at 4D–V in Fig. 15va from 7000 cd maximum to 10000 cd maximum is based on the substantial increase of light resulting from the test point modifications discussed above which extend the high intensity zone on the right side of the beam pattern to the left side of the beam. The previous test point value at 0.5 degree D–1.5 degrees L to L limited not only the light to the left region of the roadway, but also to the foreground area. Directing more light to the left will increase foreground light levels. Studies performed by UMTRI have shown that very high levels of foreground light can depreciate the driver's seeing-distance performance. A modest increase in the maximum candela level at this test point from 7000 to 10000 will allow the additional left-lane light yet not create undue foreground illumination.

The Committee believes that the compromise between “seeing light” and glare protection requires an asymmetric beam pattern. The beam pattern should be lower on the left to protect oncoming drivers from glare. This is consistent with both the current U.S. and European beam pattern design. Therefore the Committee recommends and NHTSA proposes that the cutoff location be positioned at 0.4 degree below the H–H line for headlamps designed to be aimed using the left side of the beam pattern and at the H–H line for headlamps designed to be aimed using the right side of the beam pattern. The 0.4 degree down aim on the left side would cause the top edge of the main part of the beam pattern on the left to intersect the road surface at approximately 90 m. (300 feet) from the vehicle with headlamps mounted at 635 mm. (25 inches) above the road surface. This distance is increased from present headlamps that are limited by the 0.5 degree D–1.5 degrees L to L test point that exists today. The H–H line was selected for the right side location of the cutoff so that the high intensity zone of the beam is properly placed for adequate seeing distance and because glare is less of a concern on the right side.

The specific mathematical expression for identifying the cutoff is:  $G = \log E(\alpha) - \log E(\alpha+0.1)$ , where “G” is the gradient, “E” is illumination and “ $\alpha$ ” is the vertical angular position. The maximum value of the gradient “G” determines the angular location of the cutoff.

**2. Field Specification for Visual Aim of Lower Beam.** As noted above, the field specification will not be incorporated into Standard No. 108 but represents the Committee's recommendation that should be used by persons in the field who will be aiming visually/optically aimable headlamps. The goal of this specification is to assure that a procedure for accurately aiming visually/optically aimable headlamps is available for use by people who need to aim headlamps. The intent of the Committee for this specification is to make it as similar to existing practices as possible. To this end, the practice in SAE J599 “Lighting Inspection Code” and the AAMVA “Vehicle Inspection Handbook”, as well as studies done by NHTSA, UMTRI and JASIC, were used to develop the specification. The Committee made decisions about the field specification that are incorporated below.

**a. Distance.**

(i) Visual aim shall be performed at not less than 7.5 m. (this value is a rounded down conversion from the 25-

foot distance typical of field aim using a screen). The 7.5 m. distance is measured from the front of the headlamp lens to the viewing screen.

(ii) Optical aim shall be performed at the distance specified by the manufacturer of the optical aiming device.

b. *Accuracy.* The field aiming procedure shall be capable of placing the cutoff within  $\pm 0.25$  degree.

c. *Ambient Light.* The ambient light level during the aiming process affects the accuracy of aiming headlamps installed on motor vehicles. The ambient light level should be not more than 110 lux (10 foot-candle) measured vertically at the screen surface around the H–V point for each lamp.

d. *Floor.* The surface upon which the vehicle rests is flat and approximately level.

e. *Screen.* The screen upon which headlamp beams are projected is perpendicular to the floor and the vehicle's longitudinal axis, flat, uniformly light in color, unobstructed, and wide and high enough to accommodate the vehicle beam patterns to be aimed. The screen should be wide enough to provide at least 1 m. of space outboard of the vehicle's headlamp spacing.

(i) Placement of the horizontal reference line on the screen for lower beam headlamps marked “VOL” (the symbol is explained later in this notice): 52 mm. with a screen at 7.5 m. (2.1 inches at 24.6 feet) below the height of the optical axis of the headlamp (this represents approximately 0.4 degree down coincident with the laboratory specification).

(ii) Placement of the horizontal reference line on the screen for lower beam headlamps marked “VOR”: at the height of the optical axis of the headlamp (coincident with the laboratory specification).

(iii) Placement of each of the two vertical reference lines on the screen for lower beam headlamps marked either “VOL” or “VOR”: at the vertical centerline of each lower beam headlamp.

f. *Aim Procedure.* Aim the cutoff vertically so that it is centered on the horizontal reference line. This is correct aim. Aim inspection limits are  $\pm 100$  mm. (4 in.). Note: only headlamps with a VHAD will be horizontally adjustable. (When horizontal aim is non-adjustable, horizontal aim will not be compromised because most state laws require that headlamps be correctly aimed at the time of the first sale of the vehicle. Further, proper repair of collision-damaged vehicles will assure correct

placement of headlamps and thus maintain proper horizontal aim.)

*g. Reduction in Vertical Aim*

**Inspection Limits.** The Committee believes that an improved beam cutoff allows some reduction in the vertical inspection limits. For instance, many state aim inspection requirements prescribe tolerances for mechanically aimed headlamps which allow the beam to vary  $\pm 4$  inches at 25 feet measuring distance ( $\pm 0.76$  degree) as stated in f. above. The Committee believes that a reduction of this tolerance range is feasible for lower beam headlamps marked "VOR" and "VOL" and urges the SAE and the states to investigate and implement a uniformly reduced vertical aim inspection limit for these types of headlamps.

**B. Horizontal Aim of Lower Beam.**

**1. Eliminating Horizontal Aim**

**Adjustability.** Horizontal aimability is mandatory for mechanically-aimed headlamps under Standard No. 108. Because the lower beam of a headlamp designed to conform to Standard No. 108 does not have any visual cues for achieving correct horizontal aim when aimed visually or optically, and because it is not possible to add such visual features without damaging the beam pattern, horizontal aim should be either fixed and non-adjustable, or have a horizontal VHAD.

When horizontal aim is non-adjustable, horizontal aim will not be compromised because most state laws require that headlamps be correctly aimed at the time of the first sale of the vehicle. Generally, the vehicle's manufacturer accepts the responsibility for assuring correct aim of headlamps on new motor vehicles. Further, proper realignment of front-end components of collision-damaged vehicles will assure correct placement of headlamps and thus maintain proper horizontal aim. Thus, no further specifications are necessary for field use, except to note that horizontal aim may not be adjustable on some lamps marked "VOR" or "VOL" on the lens.

Standard No. 108 specifies for the lower beam, test points at 15 and 9 degrees left and right, with minimum candela of 850 and 1000 (test points 15 and 9 degrees, Figures 15A and 17A) and 700 and 750 (test points 15 and 9 degrees, Figures 27 and 28). NHTSA proposes new Figures 15va, 17va, 27va, and 28va in which these values are increased. New test points to be added at 20 degrees left and right further widen the beam. In addition to the substitution of the above mentioned 0.86D-3.5L test point for the 0.5D-1.5L to L, to facilitate the cutoff, these changes make the new beam pattern less

sensitive to horizontal positioning. The proposed modifications and additions are:

9 deg L&R-2 deg D	1250 cd. min.
15 deg L&R-2 deg D	1000 cd. min.
20 deg L&R-4 deg D	300 cd. min.

These locations and values were taken from SAE J1735 which achieves a wider beam pattern as a result of these test points.

**2. Horizontal Aim of Lower Beam for Laboratory Photometry tests.** The headlamp shall be mounted onto a fixture which simulates its actual design orientation on any vehicle for which the headlamp is intended. The fixture, with the headlamp installed, shall be attached to the goniometer table in such a way that the fixture alignment axes are coincident with the goniometer axes. Shimming or adjustment of the headlamp's attachment to the test fixture to comply with the photometric requirements is not allowed. If there is a VHAD, the aim of the headlamp shall be adjusted, using the headlamp's horizontal aiming adjusters so that the VHAD reads zero. When the headlamp has been aimed vertically, the lamp is ready to be tested for photometric compliance.

**C. Vertical Aim of Upper Beam.** As with vertical aim of the lower beam, vertical aim of the upper beam requires both a laboratory specification for headlamps before installation and a field specification for headlamps after installation; however, the aim of the upper beam is not nearly as critical as it is for the lower beam. The notice proposes that the laboratory specification be incorporated into Standard No. 108 for visually/optically aimable headlamps. For a headlamp that incorporates both a lower beam and an upper beam, the laboratory procedure and the field procedure for upper beam are not applicable, because the headlamp must be aimed using the lower beam, and, by design, both beams are photometered in that position.

For a headlamp that has only an upper beam, the following apply:

**1. Laboratory Specification for Vertical Visual Aim of Upper Beam.** The vertical aim of the upper beam shall be adjusted so that the maximum beam intensity is located on the H-H axis.

**2. Laboratory Specification for Horizontal Visual Aim of Upper Beam.** The horizontal aim of the upper beam shall be adjusted so that the maximum beam intensity is located on the V-V axis unless the headlamp has fixed horizontal aim or a VHAD. In these cases, it shall be mounted onto a fixture which simulates its actual design orientation on any vehicle for which the

headlamp is intended. The fixture, with the headlamp installed, shall be attached to the goniometer table in such a way that the fixture alignment axes are coincident with the goniometer axes. Shimming or adjustment of the headlamp's attachment to the test fixture to comply with the photometric requirements is not allowed. If there is a VHAD, the aim of the headlamp shall be adjusted, using the headlamp's horizontal aiming adjusters so that the VHAD reads zero. When the headlamp has been aimed vertically, the lamp is ready to be tested for photometric compliance.

**3. Field Specification for Visual Aim of Upper Beam.** As noted above, the field specification will not be incorporated into Standard No. 108 but represents the Committee's recommendation that should be used by persons in the field who will be aiming visually/optically aimable headlamps. The goal of this specification is to assure that a procedure for accurately aiming visually/optically aimable headlamps is available for use by people who need to aim headlamps. The intent of the Committee for this specification is to make it as similar to existing practices as possible. To this end, the practice in SAE J599 "Lighting Inspection Code" and the AAMVA "Vehicle Inspection Handbook", were used to develop the specification. The Committee made decisions about the field specification that are incorporated below.

**a. Distance.**

(i) Visual aim shall be performed at not less than 7.5 m. (this value is a rounded down conversion from the 25-foot distance typical of field aim using a screen). The 7.5 m. distance is measured from the front of the headlamp lens to the viewing screen.

(ii) Optical aim shall be performed at the distance specified by the manufacturer of the optical aiming device.

**b. Accuracy.** The field aiming procedure shall be capable of placing the high intensity zone of the upper beam within  $\pm 0.3$  degree vertically and  $\pm 0.6$  degree horizontally.

**c. Ambient Light.** The ambient light level during the aiming process affects the accuracy of aiming headlamps installed on motor vehicles. The ambient light level adequate for visually/optically aiming the lower beam is amply low enough for accurate aiming of the upper beam.

**d. Floor.** The surface upon which the vehicle rests is flat and approximately level.

**e. Screen.** The screen upon which headlamp beams are projected is perpendicular to the floor and the

vehicle's longitudinal axis, flat, uniformly light in color, unobstructed, and wide and high enough to accommodate the vehicle beam patterns to be aimed. The screen should be wide enough to provide at least 1 m. of space outboard of the vehicle's headlamp spacing.

(i) Placement of the horizontal reference lines on the screen for upper beam headlamps marked "VO": at the height of the optical axis of the headlamp.

(ii) Placement of the vertical reference lines on the screen for upper beam headlamps marked "VO": each reference line separated horizontally from the point of projection of the vehicle's longitudinal axis on the screen, by one half the distance separating the optical axes of the upper beam headlamps on the vehicle.

f. *Aim Procedure.* Adjust the aiming screws so that the high intensity zone is centered at the intersection of the horizontal and vertical reference lines on the screen and within the allowable tolerances of  $\pm 100$ mm (4 in.). Note: only headlamps with a VHAD will be horizontally adjustable. (When horizontal aim is non-adjustable, horizontal aim will not be compromised because most state laws require that headlamps be correctly aimed at the time of the first sale of the vehicle. Further, proper repair of collision damaged vehicles will assure correct placement of headlamps and thus maintain proper horizontal aim.)

D. *Movable Reflector Headlamps.* Movable reflector headlamps have a lens and headlamp housing that does not move with respect to the surrounding car structure when headlamps are aimed. Therefore the range of headlamp aim limits does not need to be as large to cover repairs from vehicle collisions. Requirements for the aiming of movable reflector headlamps have been clarified and expanded to cover headlamps which are visually/optically aimable. The vertical aim range limits will now cover only the full range of pitch on the vehicle on which the headlamp system is installed. (Full range of pitch on the vehicle is defined in S7.8.3 of Standard No. 108.) When horizontal aim is incorporated in a headlamp the horizontal aim range limits will remain 2.5 degrees. Photometry will then be done over the applicable aim limits used for the headlamp system.

#### E. *Marking Requirements*

1. *Headlamp Optical Axis Mark.* The accuracy and reliability of headlamp aim depends upon the correct placement of aiming equipment in front of the vehicle and its headlamps. To

assure that this placement is correct and precise, it is necessary for the headlamps to have an indication of the optical axis to act as a geometric reference for measuring distances to the floor and between the headlamps and the vehicle's longitudinal axis. This may be done by a mark on the interior or exterior of the lens, or by a mark or central structure on the interior or exterior of the headlamp. Thus, Standard No. 108 should be changed to require that a headlamp have this mark.

While this is necessary for visual/optical aim headlamps, it is also desirable for all headlamps because people who aim headlamps use visual/optical aim even though today's headlamps are not designed to be aimed by this method. In the interest of promoting correct aim, this optical axis mark is recommended for all future headlamp designs. This proposal may require changes in headlamps for existing production vehicles, however it is not intended to be a retroactive requirement. Adequate leadtime is required for this proposal. Commenters are invited to discuss leadtime concerns.

2. *Visual/Optical Aimability Identification mark.* Marking of headlamps would indicate that the lamp is visually/optically aimable according to the means specified in the final rule. Thus, Standard No. 108 would require that the visible part of the lens of each original and replacement equipment headlamp and headlamp lens, and of each original equipment and replacement equipment beam contributor, designed to be visually/optically aimable, manufactured on or after the effective date of the final rule, be marked with the symbols "VOL", "VOR", or "VO" either horizontally or vertically. The Committee determined that "VOR" and "VO" respectively should be the only marking used for all lower beam and upper beam sealed beam and integral beam headlamp types existing before the effective date of the final rule resulting from this NPRM if these types are ever redesigned to be visually/optically aimable. This will ensure that replacement headlamps are identically marked.

NHTSA proposes that manufacturers which introduce new visually/optically aimed headlamp types after the effective date be required to determine the aim method and apply the required marking. This aim method and marking must be followed by all subsequent manufacturers of this headlamp type.

A lower beam headlamp would be marked "VOL" if the manufacturer designs it to be visually/optically aimed using the left side of the lower beam

pattern, and "VOR" if using the right side. If a sealed beam or an integral beam headlamp system is in production before the publication of the final rule, the lens of any lamp in such system that is manufactured on or after the effective date of the final rule would be marked "VOR", and would have the gradient on the right side, if the system is ever redesigned so that its lamps are visually/optically aimable. A headlamp would be marked "VO" if it is solely an upper beam headlamp and intended to be visually/optically aimed.

In accordance with other marking requirements of Standard No. 108, the letters would be not less than 3 mm high.

#### Allowing Existing Headlamps to Use the New Photometrics

The Committee also decided that the improved photometrics represented by Figures 15va, 17va, 27va or 28va should be available to manufacturers of headlamps that are not visually/optically aimable within the meaning of this rulemaking action, but which presently are designed to meet the photometrics of Figures 15A, 17A, 27 or 28. This raises no safety issues regarding glare or compatibility of replacement equipment, and NHTSA is proposing amendments to the text and Figure 26 appropriate to implement the Committee's decision.

#### Other Issues

Independent of the recommendations of the Committee to NHTSA, the agency would like to have comment regarding the costs, benefits and other impacts associated with the following issues.

(1) For the express purpose of simplifying the requirements of the Standard No. 108 to reduce the burden on regulated persons, please comment on the possibility and timing of an eventual mandatory requirement for having only visually/optically aimable headlamps. Such an action would eliminate at least four Figures (15A, 17A, 27 and 28) and significant text associated with mechanical and VHAD aiming.

(2) For additional significant gains toward simplification and burden reduction that could be achieved, please comment on the possibility and timing of using only Figures 15va and 17va as the only allowed photometric performance at sometime in the future. This can eliminate another three Figures (26, 27va and 28va) and many pages of text associated with explanations of how to select the correct photometric performance.

### Proposed Effective Dates

The amendments that allow headlamps to be visually/optically aimable as an alternative to existing aimability requirements would be effective 60 days after publication of the final rule in the Federal Register.

The amendments to S7.8.1 amending the fiducial marking to require an optical axis mark for headlamps that are not visually/optically aimable would become effective September 1 of the year following one year after publication of the final rule. For example, if the final rule is published after September 1, 1996 and before September 1, 1997, the effective date of the rule would be September 1, 1998. There would be no retroactive effect on existing headlamps or their replacements. The amendments to S7.8.5.2(c) amending the calibration requirements for the VHAD also would become effective September 1 of the year following one year after publication of the final rule. There would be no retroactive effect on existing headlamps or their replacements.

### Rulemaking Analyses and Notices

#### *Executive Order 12866 and DOT Regulatory Policies and Procedures*

This rulemaking action was not reviewed under Executive Order 12866. Further, it has been determined that the rulemaking action is not significant under Department of Transportation regulatory policies and procedures. The purpose of the rulemaking action is to provide an alternative and more objective means of determining the accuracy of headlamp aim. As an alternative, the provisions would not be mandatory unless a manufacturer chose to install visually/optically aimable headlamps on a motor vehicle that it intends to sell. Because of offsetting benefits to vehicle manufacturers when choosing this option, it is likely that greater benefits than costs will occur. The costs of the final rule would be so minimal as not to warrant preparation of a full regulatory evaluation.

#### *National Environmental Policy Act*

NHTSA has analyzed this rulemaking action for the purposes of the National Environmental Policy Act. It is not anticipated that a final rule based on this proposal would have a significant effect upon the environment. The composition of headlamps would not change from those presently in production.

#### *Regulatory Flexibility Act*

The agency has also considered the impacts of this rulemaking action in relation to the Regulatory Flexibility

Act. For the reasons stated above and below, I certify that this rulemaking action would not have a significant economic impact upon a substantial number of small entities. Accordingly, no regulatory flexibility analysis has been prepared. Manufacturers of motor vehicles and motor vehicle equipment, those affected by the rulemaking action, are generally not small businesses within the meaning of the Regulatory Flexibility Act.

#### *Executive Order 12612 (Federalism)*

This rulemaking action has also been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and NHTSA has determined that this rulemaking action does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

#### *Civil Justice*

A final rule based on this proposal would not have any retroactive effect. Under 49 U.S.C. 30103, whenever a Federal motor vehicle safety standard is in effect, a state may not adopt or maintain a safety standard applicable to the same aspect of performance which is not identical to the Federal standard. 49 U.S.C. 30161 sets forth a procedure for judicial review of final rules establishing, amending or revoking Federal motor vehicle safety standards. That section does not require submission of a petition for reconsideration or other administrative proceedings before parties may file suit in court.

#### *Request for Comments*

Interested persons are invited to submit comments on the proposal. It is requested that 10 copies be submitted.

All comments must not exceed 15 pages in length. (49 CFR 553.21). Necessary attachments may be appended to these submissions without regard to the 15-page limit. This limitation is intended to encourage commenters to detail their primary arguments in a concise fashion.

If a commenter wishes to submit certain information under a claim of confidentiality, three copies of the complete submission, including purportedly confidential business information, should be submitted to the Chief Counsel, NHTSA, at the street address given above, and seven copies from which the purportedly confidential information has been deleted should be submitted to the Docket Section. A request for confidentiality should be accompanied by a cover letter setting forth the information specified in the agency's confidential business

information regulation. (49 CFR Part 512).

All comments received before the close of business on the comment closing date indicated above for the proposal will be considered, and will be available for examination in the docket at the above address both before and after that date. To the extent possible, comments filed after the closing date will also be considered. Comments received too late for consideration in regard to the final rule will be considered as suggestions for further rulemaking action. Comments on the proposal will be available for inspection in the docket. The NHTSA will continue to file relevant information as it becomes available in the docket after the closing date, and it is recommended that interested persons continue to examine the docket for new material.

Those persons desiring to be notified upon receipt of their comments in the rules docket should enclose a self-addressed, stamped postcard in the envelope with their comments. Upon receiving the comments, the docket supervisor will return the postcard by mail.

#### List of Subjects in 49 CFR Part 571

Imports, Motor vehicle safety, Motor vehicles, Tires.

### **PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS**

In consideration of the foregoing, 49 CFR Part 571 would be amended as follows:

1. The authority citation for Part 571 would continue to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.50.

2. Section 571.108 would be amended by:

a. amending Section S4 to add new definitions: "Cutoff" and "Visually/optically aimable headlamp" in alphabetical order to read as set forth below;

b. revising the definition in S4 of "Vehicle headlamp aiming device", to read as set forth below;

c. revising S7.3.2(a)(3); 7.3.3(a); S7.3.4; S7.3.5(a); S7.3.6(a); the first sentence of S7.3.7(b); S7.3.7(d); S7.3.7(h)(1); the last sentence of S7.3.8(b); S7.4(a)(1)(i); S7.4(a)(1)(ii); S7.4(a)(1)(iii); S7.4(a)(2)(i); S7.4(a)(2)(ii); the first sentence of S7.4(a)(3); S7.5(d)(2)(i)(A)(1); S7.5(d)(2)(i)(A)(2); S7.5(d)(2)(ii)(A)(1); S7.5(d)(2)(ii)(A)(2); S7.5(d)(3)(i)(A); S7.5(d)(3)(i)(B); S7.5(d)(3)(ii)(A); S7.5(d)(3)(ii)(B); S7.5(e)(2)(i)(A); S7.5(e)(2)(i)(B); S7.5(e)(2)(ii)(A); S7.5(e)(2)(ii)(B); the



first sentences of S7.5(e)(3)(i) and S7.5(e)(3)(ii); S7.6.2; S7.6.3; and S7.8.1; S7.8.2; S7.8.2.2; and S7.8.5, to read as set forth below;

d. redesignating paragraph S7.8.5.2(c) as S7.8.5.2(d);

e. adding new S7.8.5.2(c) and S7.8.5.3 to read as set forth below;

f. revising the fourth sentence of S10 (a) and the third sentence of S10(b) to read as set forth below;

g. adding new Figures 15B, 17B, 27A, and 28A, to read as set forth below; and

h. revising Figure 26 to read as set forth below:

**§ 571.108 Standard No. 108; Lamps, reflective devices, and associated equipment.**

\* \* \* \* \*

**S4 Definitions.**

\* \* \* \* \*

*Cutoff* means a generally horizontal, visual/optical aiming cue in the lower beam that marks a separation between areas of higher and lower luminance.

\* \* \* \* \*

*Vehicle headlamp aiming device or VHAD* means motor vehicle equipment, installed either on a vehicle or headlamp, which is used for determining the horizontal or vertical aim, or both the vertical and horizontal aim of the headlamp.

*Visually/optically aimable headlamp* means a headlamp which is designed to be visually/optically aimable in accordance with the requirements of S7.8.5.3 of this standard.

**S7.3.2 Type A headlighting system.**

(a) \* \* \*

(3) In S4.5.2 and S5.1.6, the words "Figure 28 or 28A of Motor Vehicle Safety Standard No. 108 are substituted for "Table 3."

\* \* \* \* \*

**S7.3.3 Type B headlighting system.**

(a) The requirements of S7.3.2(a) through (c), except that Figure 27 or Figure 27A is substituted for Table 3 in S7.3.2(a)(3).

\* \* \* \* \*

**S7.3.4 Type C headlighting system.**

A Type C headlighting system consists of two Type 1C1 and two Type 2C1 headlamps and associated hardware, which are designed to conform to the requirements of S7.3.2(a) through (d), except that Figure 28 or 28A is substituted for Table 3 in S7.3.2(a)(3).

**S7.3.5 Type D headlighting system.**

(a) A Type D headlighting system consists of two Type 2D1 headlamps and associated hardware, which are designed to conform to the requirements of S7.3.2(a) through (c), except that

Figure 27 or 27A is substituted for Table 3 in S7.3.2(a)(3).

\* \* \* \* \*

**S7.3.6 Type E headlighting system.**

(a) A Type E headlighting system consists of two Type 2E1 headlamps and associated hardware, which are designed to conform to the requirements of S7.3.2(a) through (c), except that Figure 27 or 27A is substituted for Table 3 in S7.3.2(a)(3).

\* \* \* \* \*

**S7.3.7 Type F headlighting system.**

\* \* \* \* \*

(b) The photometric requirements of Figure 15A or 15B of this standard.

\* \* \* \* \*

\* \* \* \* \*

(d) When tested in accordance with paragraph (c) of this section, the mounted assembly (either Type UF or Type LF headlamps, respective mounting ring, aiming ring, and aim adjustment mechanism) shall be designed to conform to the requirements of Figure 15A or 15B for upper or lower beams respectively without reaim when any conforming Type UF or LF headlamp is tested and replaced by another conforming headlamp of the same Type.

\* \* \* \* \*

(h) \* \* \*

(1) The assembly (consisting of the Type UF and LF headlamps, mounting rings, the aiming/seating rings, and aim adjustment mechanism) shall be designed to conform to the test points of Figure 15A or 15B.

\* \* \* \* \*

**S7.3.8 Type G headlighting system.**

\* \* \* \* \*

(b) \* \* \* In S4.5.2, the words "either Figure 28 or 28A" are substituted for the words "Table 3".

\* \* \* \* \*

**S7.4 Integral beam headlighting systems.**

(a) \* \* \*

(1) \* \* \*

(i) Figure 15A or 15B; or

(ii) Figure 15A or 15B, except that the upper beam test value at 2.5D-V and 2.5D-12R and 12L, shall apply to the lower beam headlamp and not to the upper beam headlamp, and the upper beam test point value at 1.5D-9R and 9L shall be 1000; or

(iii) Figure 28 or 28A.

(2) \* \* \*

(i) Figure 17 or 17B; or

(ii) Figure 27 or 27A.

(3) In a system in which there is more than one beam contributor providing a lower beam, and/or more than one beam

contributor providing an upper beam, each beam contributor in the system shall be designed to meet only the photometric performance requirements of Figure 15A or 15B based upon the following mathematical expression: conforming test point value = 2 (Figure 15A or 15B test point value)/total number of lower or upper beam contributors for the vehicle, as appropriate.

\* \* \* \* \*

**S7.5 Replaceable bulb headlighting systems.**

\* \* \* \* \*

(d) \* \* \*

(2) \* \* \*

(i) \* \* \*

(A) \* \* \*

(1) The lower beam requirements of Figure 27 or 27A or Figure 17A or 17B if the light sources in the headlamp system are any combination of dual filament replaceable light sources other than Type HB2; or

(2) The lower beam requirements of Figure 17A or 17B if the light sources are Type HB2, or any dual filament replaceable light sources that include Type HB2; or

(B) \* \* \*

(ii) \* \* \*

(A) \* \* \*

(1) The upper beam requirements of Figure 27 or 27A, or Figure 17A or 17B if the light sources in the headlamp system are any combination of dual filament replaceable light sources that include Type HB2, or

(2) The upper beam requirements of Figure 17A or 17B if the light sources are Type HB2, or any combination of replaceable light sources that include Type HB2; or

\* \* \* \* \*

(3) \* \* \*

(i) \* \* \*

(A) The lower beam requirements of Figure 27 or 27A, or Figure 15A or 15B if the light sources in the headlamp system are any combination of dual filament light sources other than Type HB2; or

(B) The lower beam requirements of Figure 15A or 15B if the light sources are Type HB2, or dual filament light sources other than Type HB1 and Type HB5.

(ii) \* \* \*

(A) The upper beam requirements of Figure 27 or 27A or Figure 15A or 15B if the light sources in the headlamp system are any combination of dual filament light sources other than Type HB2; or

(B) The upper beam requirements of Figure 15A or 15B if the light sources are Type HB2, or dual filament light

sources other than Type HB1 and Type HB5. \* \* \*

- (e) \* \* \*
- \* \* \* \* \*
- (2) \* \* \*
- (i) \* \* \*

(A) By the outboard light source (or the uppermost if arranged vertically) designed to conform to the lower beam requirements of Figure 17A or 17B; or  
 (B) By both light sources, designed to conform to the lower beam requirements of Figure 17A or 17B.

(i) \* \* \*  
 (A) By the inboard light source (or the lower one if arranged vertically) designed to conform to the upper beam requirements of Figure 17A or 17B; or  
 (B) By both light sources, designed to conform to the upper beam requirements of Figure 17A or 17B.

(3) \* \* \*  
 (i) The lower beam shall be produced by the outboard lamp (or upper one if arranged vertically), designed to conform to the lower beam requirements of Figure 15A or 15 B. \* \* \*

(ii) The upper beam shall be produced by the inboard lamp (or lower one if arranged vertically), designed to conform to the upper beam requirements of Figure 15A or 15B. \* \* \*

\* \* \* \* \*  
**S7.6.2** In a combination headlighting system consisting of two headlamps, each headlamp shall be designed to conform to Figure 17A or 17B and shall be a combination of two different headlamps chosen from the following types: a Type F headlamp, an integral beam headlamp, and a replaceable bulb headlamp.

\* \* \* \* \*  
**S7.6.3** In a combination headlighting system consisting of four headlamps, each headlamp shall be designed to conform to Figure 15A or 15B, or if an integral beam headlamp in which there is more than one beam contributor, designed to conform to Figure 15A or 15B in the manner required by S7.4(a)(3) of this standard.

\* \* \* \* \*  
**S7.8.1** (a) Each headlamp or beam contributor that is not visually/optically aimable in accordance with S7.8.5.3 of this standard shall be equipped with fiducial marks, aiming pads, or similar references of sufficient detail and accuracy, for determination of an appropriate vehicle plane to be used with the photometric procedures of SAE J1383 APR85 for correct alignment with the photometer axis when being tested for photometric compliance, and to serve for the aiming reference when the headlamp or beam contributor is

installed on a motor vehicle. The fiducial marks, aiming pads, or similar references are protrusions, bubble vials, holes, indentations, ridges, scribed lines, or other readily identifiable marks established and described by the vehicle or headlamp manufacturer.

(b) Each motor vehicle manufactured on and after September 1 [of the year following one year after publication of the final rule] shall be equipped with headlamps or beam contributors which have a mark or markings that are visible from the front of the headlamp to identify the optical axis of the headlamp to assure proper horizontal and vertical alignment of the aiming screen or optical aiming equipment. The manufacturer is free to choose the design of the mark or markings. The mark or markings may be on the interior or exterior of the lens or indicated by a mark or central structure on the interior or exterior of the headlamp.

(c) Each headlamp that is visually/optically aimable in accordance with S7.8.5.3 of this standard shall be marked in accordance with S7.8.5.3(f).

**S7.8.2** Except as provided in this section, each headlamp shall be installed on a motor vehicle with a mounting and aiming mechanism that allows aim inspection and adjustment of both vertical and horizontal aim, and is accessible for those purposes without removal of any vehicle parts, except for protective covers removable without the use of tools. A visually/optically aimable headlamp that has a lower beam shall not have a horizontal adjustment mechanism unless such mechanism meets the requirements of S7.8.5.2 of this standard.

\* \* \* \* \*  
**S7.8.2.2** If the headlamp is aimed by moving the reflector relative to the lens and headlamp housing, or vice versa, it shall:

- (a) Allow movement of the headlamp system, when tested in the laboratory, to be not less than the full range of pitch on the vehicle on which the headlamp system is installed and for the horizontal aim range limits of S7.8.4,
- (b) Conform with the photometrics applicable to it with the lens at any position relative to the reflector within the range limits as specified in paragraph (a) of this section,
- (c) Be exempted from the aim range limits for testing in a laboratory as specified in S7.8.3, and
- (d) Be exempted from S7.8.4 if it is visually/optically aimable and has fixed horizontal aim.

\* \* \* \* \*  
**S7.8.5** When activated in a steady-burning state, headlamps shall not have

any styling ornament or other feature, such as a translucent cover or grill, in front of the lens. Headlamp wipers may be used in front of the lens provided that the headlamp system is designed to conform with all applicable photometric requirements with the wiper stopped in any position in front of the lens. When a headlamp system is installed on a motor vehicle, it shall be aimable with at least one of the following:

- (a) An externally applied aiming device, as specified in S7.8.5.1;
- (b) An on-vehicle headlamp aiming device installed by the vehicle or lamp manufacturer, as specified in S7.8.5.2; or
- (c) By visual/optical means, as specified in S7.8.5.3.

\* \* \* \* \*  
**S7.8.5.2(c)** Each headlamp equipped with a VHAD that is manufactured for use on motor vehicles manufactured on or after September 1 [of the year following one year after publication of the final rule] shall be manufactured with its calibration permanently fixed by its manufacturer. Calibration in this case means the process of accurately aligning the geometry of the VHAD devices with the beam pattern for the purposes of compliance with the standard.

\* \* \* \* \*  
**S7.8.5.3 Visual/optical aiming.** Each visually/optically aimable headlamp shall be designed to conform to the following requirements:

- (a) *Vertical aim, lower beam.* Each lower beam headlamp shall have a cutoff in the beam pattern. It may be either on the left side or the right side of the optical axis, but once chosen for a particular headlamp system's design, the side chosen for the cutoff shall not be changed for any headlamps intended to be used as replacements for those system's headlamps.
  - (1) *Vertical position of cutoff.* The headlamp shall be aimed vertically so that the cutoff is on the left side, at 0.4 degree down from the H-H line, or on the right side, at the H-H line.
  - (2) *Vertical gradient.* The gradient of the cutoff measured at either 2.5 degrees L or 2.0 degrees R shall be not less than 0.13 based on the procedure of paragraph (a)(5) of this section.
  - (3) *Horizontal position of the cutoff.* The width shall be not less than two degrees, with not less than two degrees of its actual width centered at either 2.5 degrees L, or 2.0 degrees R.
  - (4) *Maximum inclination of cutoff.* The vertical location of the highest gradient at the ends of the minimum width shall be within ±0.2 degree of the vertical location of the maximum

gradient measured at the appropriate vertical line (at either 2.5 degrees L for a left side cutoff, or 2.0 degrees R for a right side cutoff.)

(5) *Measuring the cutoff parameters.*

(i) The headlamp shall be mounted on a fixture which simulates its actual design location on any vehicle for which the headlamp is intended. The fixture, with the headlamp installed shall be attached to the goniometer table in such a way that the fixture alignment axes are coincident with the goniometer axes. The headlamp shall be energized at the specified test voltage.

(ii) The headlamp beam pattern shall be aimed with the cutoff at the H-H axis. There shall be no adjustment, shimming, or modification of the horizontal axis of the headlamp or test fixture, unless the headlamp is equipped with a VHAD. In this case the VHAD shall be adjusted to zero.

(iii) A vertical scan of the beam pattern shall be conducted for a headlamp with a left side gradient by aligning the goniometer on a vertical line at 2.5 degrees L and scanning from 1.5 degrees U to 1.5 degrees D. For a headlamp with a right side gradient, a vertical scan of the beam pattern shall be conducted by aligning the goniometer on a vertical line at 2.0 degrees R and scanning from 1.5 degrees U to 1.5 degrees D.

(iv) Determine the maximum gradient within the range of the scan by using the formula:  $G = \log E(\alpha) - \log E(\alpha + 0.1)$ , where "G" is the gradient, "E" is illumination and "α" is vertical angular position. The maximum value of the gradient "G" determines the vertical angular location of the cutoff. Perform vertical scans at 1.0 degree L&R of the measurement point of the maximum gradient to determine the inclination.

(b) *Horizontal aim, lower beam.* There shall be no adjustment of horizontal aim unless the headlamp is equipped with a horizontal VHAD. If the headlamp has a VHAD, it shall be set at zero.

(c) *Vertical aim, upper beam.* (1) If the upper beam is combined in a headlamp with a lower beam, the vertical aim of the upper beam shall not be changed from the aim set using the procedures of S7.8.5.3 (a) and (b) used for the lower beam.

(2) If the upper beam is not combined in a headlamp with a lower beam, the vertical aim of the upper beam shall be adjusted so that the maximum beam intensity is located on the H-H axis.

(d) *Horizontal aim, upper beam.* (1) If the upper beam is combined in a headlamp with a lower beam, the horizontal aim of the upper beam shall not be changed from the aim set using

the procedures of S7.8.5.3 (a) and (b) used for the lower beam.

(2) If the upper beam is not combined in a headlamp with the lower beam and has fixed horizontal aim or has a horizontal VHAD, then the headlamp shall be mounted on a fixture which simulates its actual design location on any vehicle for which the headlamp is intended. The fixture, with the headlamp installed shall be attached to the goniometer table in such a way that the fixture alignment axes are coincident with the goniometer axes. The headlamp shall be energized at  $12.8 \pm 0.20$  mV. There shall be no adjustment, shimming, or modification of the horizontal axis of the headlamp or test fixture, unless the headlamp is equipped with a VHAD. In this case the VHAD shall be adjusted to zero.

(3) If the upper beam is not combined in a headlamp with a lower beam, and it does not have a VHAD, the horizontal aim of the upper beam shall be adjusted so that the maximum beam intensity is located on the V-V axis.

(e) *Photometric requirements and measurements.* (1) Instead of being designed to conform to the photometric requirements of Figures 15A, 17A, 27 or 28, a visually/optically aimable headlamp shall be designed to conform to the requirements of Figures 15B, 17B, 27A or 28A when tested in accordance with paragraph (e)(2) of this section and SAE J575 DEC88, with the distance from the photometer to the headlamp no less than 18.3 m.

(2) If the lower beam has a left side cutoff, reaim the headlamp vertically to place the maximum gradient found in S7.8.5.3 at 0.4 degree below the H-H line. For a headlamp with a lower beam right side cutoff, place the maximum gradient found in S7.8.5.3 at the H-H line. For an upper beam, the headlamp would already be aimed at the end of the procedure found in S7.8.5.3. A 0.25 degree reaim is permitted in any direction at any test point.

(f) *Marking.* (1) *Headlamp optical axis mark.* There shall be a mark or markings identifying the optical axis of the headlamp visible from the front of the headlamp, to assure proper horizontal and vertical alignment of the aiming screen or optical aiming equipment with the headlamp being aimed. The manufacturer is free to choose the design of the mark or markings. The mark or markings may be on the interior or exterior of the lens or indicated by a mark or central structure on the interior or exterior of the headlamp.

(2) *Visual/optical aimability identification marks.* (i) The lens of a lower beam headlamp shall be marked "VOL" if the headlamp is intended to be

visually/optically aimed using the left side of the lower beam pattern.

(ii) The lens of a lower beam headlamp shall be marked "VOR" if the headlamp is intended to be visually/optically aimed using the right side of the lower beam pattern.

(iii) The lens of each sealed beam or integral beam headlamp shall be marked "VOR" if the headlamp is of a type that was manufactured before [the effective date of the final rule] and if such headlamp type has been redesigned since then to be visually/optically aimable.

(iv) The lens of a headlamp that is solely an upper beam headlamp and intended to be visually/optically aimed using the upper beam shall be marked "VO".

(v) Each letter used in marking according to this paragraph shall be not less than 3 mm. high.

\* \* \* \* \*

S10. *Simultaneous aim photometry tests.*

(a) *Type F headlamp systems.* \* \* \* Photometry measurements of the UF photometry unit shall be completed using the aiming plane so established, and the procedures of section 4.1 and 4.1.4 Standard J1383 APR85, and Figure 15A or 15Ba. \* \* \*

(b) *Integral beam headlamp systems.* \* \* \* Photometric compliance of the lower beam shall be determined with all lower beam contributors illuminated and in accordance with sections 4.1 and 4.1.6 of SAE Standard J1383 APR85, and Figure 15A or 15B. \* \* \*

\* \* \* \* \*

FIGURE 15B.—PHOTOMETRIC TEST POINT VALUES

Test points (degrees)	Candela maximum	Candela minimum
<b>Upper Beam</b>		
2U-V .....	—	1,500
1U-3L and 3R ...	—	5,000
H-V .....	70,000	40,000
H-3L and 3R .....	—	15,000
H-6L and 6R .....	—	5,000
H-9L and 9R .....	—	3,000
H-12L and 12R .....	—	1,500
1.5D-V .....	—	5,000
1.5D-9L and 9R .....	—	2,000
2.5D-V .....	—	2,500
2.5D-12L and 12R .....	—	1,000
4D-V .....	5,000	—
<b>Lower Beam</b>		
10U-90U .....	125	—
4U-8L and 8R ...	—	64
2U-4L .....	—	135
1.5U-1R to 3R .....	—	200

FIGURE 15B.—PHOTOMETRIC TEST POINT VALUES—Continued			FIGURE 17B.—PHOTOMETRIC TEST POINT VALUES			FIGURE 17B.—PHOTOMETRIC TEST POINT VALUES—Continued		
Test points (degrees)	Candela maximum	Candela minimum	Test Points (degrees)	Candela maximum	Candela minimum	Test Points (degrees)	Candela maximum	Candela minimum
1.5U-1R to R ....	1,400	—	<b>Upper Beam</b>			4U-8L and 8R ...	—	64
1U-1.5L to L ....	700	—	2U-V .....	—	1,500	2U-4L .....	—	135
0.5U-1.5L to L .....	1,000	—	1U-3L and 3R ...	—	5,000	1.5U-1R to 3R .....	—	200
0.5U-1R to 3R .....	2,700	500	H-V .....	75,000	40,000	1.5U-1R to R ....	1,400	—
H-V .....	5,000	—	H-3L and 3R .....	—	15,000	1U-1.5L to L .....	700	—
H-4L .....	—	135	H-6L and 6R .....	—	5,000	0.5U-1.5L to L .....	1,000	—
H-8L .....	—	64	H-9L and 9R .....	—	3,000	0.5U-1R to 3R .....	2,700	500
0.6D-1.3R .....	—	10,000	H-12L and 12R .....	—	1,500	H-4L .....	—	135
0.86D-V .....	—	4,500	1.5D-V .....	—	5,000	H-8L .....	—	64
0.86D-3.5L .....	12,000	1,800	1.5D-9L and 9R .....	—	2,000	0.6D-1.3R .....	—	10,000
1.5D-2R .....	—	15,000	2.5D-V .....	—	2,500	0.86D-V .....	—	4,500
2D-9L and 9R ...	—	1,250	2.5D-12L and 12R .....	—	1,000	0.86D-3.5L .....	12,000	1,800
2D-15L and 15R .....	—	1,000	4D-V .....	12,000	—	1.5D-2R .....	—	15,000
4D-V .....	10,000	—	<b>Lower Beam</b>			2D-9L and 9R ...	—	1,250
4D-4R .....	12,500	—	10U-90U .....	125	—	2D-15L and 15R .....	—	1,000
4D-20L and 20R .....	—	300				4D-4R .....	12,500	—
						4D-20L and 20R .....	—	300

FIGURE 26.—TABLE FOR DETERMINING THE PHOTOMETRIC REQUIREMENTS OF REPLACEABLE BULB HEADLAMP SYSTEMS

	Any dual filament type other than HB2 used alone or with another dual filament type other than HB2, filed in Docket No. 93-11	HB2 or any single filament type used alone or with any other single or dual filament type, filed in Docket No. 93-11
Four-Headlamp Systems .....	Fig. 27 or 27A, Fig. 15 or 15B.	Fig. 15 or 15B.
Two-Headlamp Systems .....	Fig. 27 or 27A, Fig. 17 or 17B.	Fig. 17 or 17B.

FIGURE 27A.—PHOTOMETRIC TEST POINT VALUES			FIGURE 27A.—PHOTOMETRIC TEST POINT VALUES—Continued			FIGURE 27A.—PHOTOMETRIC TEST POINT VALUES—Continued		
Test points (degrees)	Candela maximum	Candela minimum	Test points (degrees)	Candela maximum	Candela minimum	Test points (degrees)	Candela maximum	Candela minimum
<b>Upper Beam</b>			2.5D-12L and 12R .....	—	750	0.5U-1.5L to L .....	1,000	—
2U-V .....	—	1,000	4D-V .....	5,000	—	0.5U-1R to 3R .....	2,700	500
1U-3L and 3R ...	—	2,000	<b>Lower Beam</b>			H-4L .....	—	135
H-V .....	75,000	20,000	10U-90U .....	125	—	H-8L .....	—	64
H-3L and 3R .....	—	10,000	4U-8L and 8R ...	—	64	0.6D-1.3R .....	—	10,000
H-6L and 6R .....	—	3,250	2U-4L .....	—	135	0.86D-V .....	—	4,500
H-9L and 9R .....	—	1,500	1.5U-1R to 3R .....	—	200	0.86D-3.5L .....	12,000	1,800
H-12L and 12R .....	—	750	1.5U-1R to R ....	1,400	—	1.5D-2R .....	—	15,000
1.5D-V .....	—	5,000	1U-1.5L to L .....	700	—	2D-9L and 9R ...	—	1,250
1.5D-9L and 9R .....	—	1,500				2D-15L and 15R .....	—	1,000
2.5D-V .....	—	2,500				4D-4R .....	12,500	—
						4D-20L and 20R .....	—	300

FIGURE 28A.—PHOTOMETRIC TEST POINT VALUES

Headlamp type	1A1, 1C1, and 1G1		2A1, 2C1, and 2G1	
Test points (degrees)	Candela maximum	Candela minimum	Candela maximum	Candela minimum
<b>Upper Beam</b>				
2U-V .....	.....	750	.....	750
1U-3L and 3R .....	.....	3,000	.....	2,000
H-V .....	60,000	18,000	15,000	7,000
H-3L and 3R .....	.....	12,000	.....	3,000
H-6L and 6R .....	.....	3,000	.....	2,000

FIGURE 28A.—PHOTOMETRIC TEST POINT VALUES—Continued

Headlamp type Test points (degrees)	1A1, 1C1, and 1G1		2A1, 2C1, and 2G1	
	Candela maximum	Candela minimum	Candela maximum	Candela minimum
H-9L and 9R		2,000		1,000
H-12L and 12R		750		750
1.5D-V		3,000		2,000
1.5D-9L and 9R		1,250		750
2.5D-V		1,500		1,000
2.5D-12L and 12R		600		400
4D-V	5,000		2,500	

  

Headlamp type Test points (degrees)	2A1, 2C1, and 2G1	
	Candela maximum	Candela minimum
<b>Lower Beam</b>		
10U-90U	125	
4U-8L and 8R		64
2U-4L		135
1.5U-1R to 3R		200
1.5U-1R to R	1,400	
1U-1.5L to L	700	
0.5U-1.5L to L	1,000	
0.5U-1R to 3R	2,700	500
H-4L		135
H-8L		64
0.6D-1.3R		10,000
0.86D-V		4,500
0.86D-3.5L	12,000	1,800
1.5D-2R		15,000
2D-9L and 9R		1,250
2D-15L and 15R		1,000
4D-4R	12,500	
4D-20L and 20R		300

Issued on July 2, 1996.  
 Barry Felrice,  
 Associate Administrator for Safety  
 Performance Standards.  
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**DEPARTMENT OF INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**Endangered and Threatened Wildlife and Plants; Notice of Rescheduled Public Hearing on Proposed Threatened and Endangered Status for Five Plants and a Lizard From Monterey County, California**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule, notice of rescheduled public hearing.

**SUMMARY:** The Fish and Wildlife Service (Service), pursuant to the Endangered Species Act of 1973, as amended (Act), provides notice of rescheduling of a

public hearing on the proposed endangered status for coastal dunes milkvetch (*Astragalus tener* var. *titi*), Yadon's piperia (*Piperia yadonii*), Hickman's potentilla (*Potentilla hickmanii*), Monterey clover (*Trifolium trichocalyx*) and the black legless lizard (*Anniella pulchra nigra*); and threatened status for Gowen cypress (*Cupressus goveniana* ssp. *goveniana*). All parties are invited to submit comments on this proposal.

**DATES:** A public hearing was originally scheduled for Wednesday, July 17, 1996, in Monterey, California. The hearing has been rescheduled to be held on Tuesday, August 20, 1996, from 6:00 p.m. to 8:00 p.m. in Monterey, California. Any comments received by August 30, 1996, will be considered in the final decision on this proposal.

**ADDRESSES:** The public hearing will be held at the Hyatt Regency Hotel, One Golf Course Road, Monterey, California. Written comments and materials concerning this proposal may be submitted at the hearing or sent directly to the Field Supervisor, Ventura Field Office, 2493 Portola Road, Suite B,

Ventura, California 93003. Comments and materials will be available for public inspection, by appointment, during normal business hours at the above address.

**FOR FURTHER INFORMATION CONTACT:** Connie Rutherford (see ADDRESSES section) or at 805/644-1766.

**SUPPLEMENTARY INFORMATION:**

**Background**

Most of the habitat for the plants and lizard is found in coastal habitats in northern Monterey County. Coastal dunes milk-vetch and Monterey clover are restricted to private lands on the Monterey Peninsula. Hickman's potentilla is restricted to two populations: one on the Monterey Peninsula, and one recently discovered near Devil's Slide in San Mateo County. Gowen cypress stands occur on the Monterey Peninsula, and at Point Lobos State Reserve five miles to the south. Yadon's piperia occurs primarily on private lands on the Monterey Peninsula, with other populations extending as far south as Palo Colorado Canyon, and as far north as Blohm