Sections in 42 CFR that contain collections of information	Current OMB control numbers
484.1, 484.2, 484.10, 484.12, 484.16–484.34, 484.48, 484.52	0938–0365
489.20	0938–0564
491.9, 491.10	0938–0334
493.35–493.63	0938–0612
493.801–493.1285	0938–0612
493.1425	0938–0612
493.1701–493.1721	0938–0612
493.1775–493.1780	0938–0612
493.2001	0938–0612

PART 401—GENERAL ADMINISTRATIVE REQUIREMENTS

Subpart F—Claims Collection and Compromise

B. Part 401, subpart F, is amended as follows:

1. The authority citation for part 401, subpart F continues to read as follows:

Authority: Secs. 1102 and 1871 of the Social Security Act (42 U.S.C. 1302 and 1395hh) and 31 U.S.C. 3711.

2. In § 401.601, paragraphs (b) and (c) are revised to read as follows:

§ 401.601 Basis and scope.

* * * * *

(b) *Scope.* Except as provided in paragraphs (c) through (f) of this section, the regulations in this subpart describe HCFA's procedures and standards for the collection of claims in any amount, and the compromise of, or the suspension or termination of collection action on, all claims for money or property that do not exceed $100,000 or such higher amount as the Attorney General may from time to time prescribe, exclusive of interest, arising under any functions delegated to HCFA by the Secretary.

(c) *Amount of claim.* HCFA refers all claims that exceed $100,000 or such higher amount as the Attorney General may from time to time prescribe, exclusive of interest, to the Department of Justice or the General Accounting Office for the compromise of claims, or the suspension or termination of collection action.

* * * * *

PART 405—FEDERAL HEALTH INSURANCE FOR THE AGED AND DISABLED

Subpart C—Recovery of Overpayments, and Suspension of Payment

C. Part 405, subpart C is amended as follows:

1. The authority citation for part 405, subpart C continues to read as follows:

Authority: Secs. 1102, 1815, 1833, 1842, 1866, 1870, 1871, and 1879 of the Social Security Act; 42 U.S.C. 1302, 1395g, 1395l 1395u, 1395cc, 1395gg, 1395hh, and 1395pp, and 31 U.S.C. 3711.

2. In § 405.374, paragraph (c) is revised to read as follows:

§ 405.374 Collection and compromise of claims for overpayments.

* * * * *

(c) *Basic conditions.* A claim for recovery of Medicare overpayments against a debtor may be compromised, or collection action on it may be suspended or terminated, by the Health Care Financing Administration (HCFA) if:

(1) The claim does not exceed $100,000, or such higher amount as the Attorney General may from time to time prescribe, exclusive of interest; and

(2) There is no indication of fraud, the filing of a false claim, or misrepresentation on the part of the debtor or any director, partner, manager, or other party having an interest in the claim.

* * * * *

(Catalog of Federal Domestic Assistance Program No. 93.773, Medicare Hospital Insurance and No. 93.774, Supplementary Medical Insurance.)

Dated: September 8, 1992.

William Toby, Jr.

Acting Deputy Administrator, Health Care Financing Administration.

Approved: November 2, 1992.

Louis W. Sullivan,

Secretary.

[FR Doc. 92–29098 Filed 12–1–92; 8:45 am]

BILLING CODE 4120–01–M

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 69

[CC Docket No. 86–10; FCC 92–521]

Provision of Access for 800 Service

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: The Commission adopted an Order that delayed until May 1, 1993 the March 1993 deadline for mandatory 800 data base access, and ordered the local exchange carriers to defer until January 1993 further switch conversions that would route 800 traffic to the data base for a six-digit NXX screening. The Commission found that such action would be prudent in light of the strict schedule required to meet the March 1993 deadline, and parties' concerns about possible disruption of 800 service during the fourth quarter of 1992.

EFFECTIVE DATE: Decisions in this Order were effective November 23, 1992.

FOR FURTHER INFORMATION CONTACT: Gary Phillips, (202) 632–4048, or Suzanne Tetreault, (202) 632–6374.

SUPPLEMENTARY INFORMATION:

This is a summary of the Commission's Order, FCC 92–521, adopted and released November 20, 1992. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Reference Center (room 239), 1919 M Street, NW., Washington, DC 20554. The complete text of this decision may also be purchased from the Commission's copy contractors, Downtown Copy Center, 1990 M Street, NW., suite 640, Washington, DC 20036, (202) 452–1422.

Summary of the Order

1. 800 service is an interexchange service in which subscribers agree in advance to pay for all calls made to them using a predesignated 800 number. Local exchange carriers (LECs) must handle originating 800 access differently from originating access for ordinary interexchange calls because they must route 800 calls to the interchange carrier (IXC) selected by the 800 service subscriber (the called party), rather than the IXC presubscribed to the originating line or chosen by the calling party. LECs currently provide originating 800 access service through the "NXX" screening methodology, which identifies the IXC by reading the three digits (the NXX digits) that immediately follow the 800 prefix. Because the NXX system identifies the 800 carrier by the NXX digits, this system requires that each NXX be assigned to a particular carrier, and subscribers cannot change carriers without changing their 800 number. LECs are currently implementing a new "data base" system of 800 access. This data base system will allow the LECs to use the entire 800 number, rather than just the NXX digits, to identify the 800 carrier. This system, therefore, provides for "number portability," allowing an 800 subscriber to use any carrier with any 800 number.

2. In August 1991, the Commission established revised access time standards for the implementation of the 800 data base system, and required the Bell Operating Companies and GTE to meet those standards by March 4, 1993.[1]

[1] See Provision of Access for 800 Service, Memorandum Opinion and Order on

In preparation for implementation of mandatory data base access, the LECs plan to test their data base systems by using them for six-digit NXX screening of 800 traffic.[2]

3. On September 2, 1992, the Ad Hoc Telecommunications Users Committee filed a Petition for Expedited Declaratory Ruling, requesting that the Commission rule that LECs may not use the 800 data base for six-digit NXX screening in order to route 800 traffic to IXCs during the transition to mandatory data base access if access times would exceed the standards set forth in the Reconsideration Order. Ad Hoc also argued that the public would be best served if the use of 800 data base technology to route traffic did not begin until the first quarter of 1993

4. On September 24, 1992, the Financial Services Providers, representing the California Bankers Clearing House Association, New York Clearing House Association, VISA U.S.A., Inc. and MasterCard International, Incorporated, filed a Petition for Expedited Action requesting a three-month delay in the March 4, 1993, deadline for implementation of mandatory data base access.

5. The Commission noted that in the fourteen months since the Reconsideration Order was released, substantial progress had been made toward implementing the 800 data base access system, but that SS7 interconnection activity in a few LEC regions was somewhat behind schedule. The Commission found that those LECs would have to proceed under extremely tight deadlines, with little or no tolerance for error or delay, in order to effect a seamless transition to 800 data base service by March 1993. The Commission concluded that under the circumstances, a brief extension of the deadline for mandatory data base access, from March 4, 1993, to May 1, 1993, was prudent. The Commission also ordered the local exchange carriers to defer further conversions to six-digit data base screening until January 1993.

6. The Commission also denied the request of Ad Hoc, endorsed by the Financial Services Providers, that the LECs be prohibited from undertaking any 800 data base routing during the implementation period if the access time standards established in the Access Time Waiver Orders would be exceeded.

Ordering Clauses

7. Accordingly, pursuant to the authority contained in 47 U.S C. 151, 154 (i) and (j), 201–205, and 218, *it is ordered* that the Petition for Expedited Declaratory Ruling filed September 1, 1992 by the Ad Hoc Telecommunications Committee and the Petition for Expedited Action filed September 24, 1992, by the Financial Service Providers *are hereby granted* to the extent described in this order and are otherwise *denied*

8. *It is further ordered* that the provisions in this Order will be effective November 23, 1992.[3]

List of Subjects in 47 CFR Part 69

Communications common carriers; Telephone.

Federal Communications Commission.

William F. Canton,

Acting Secretary.

[FR Doc. 92–29159 Filed 12–1–92, 8:45 am]

BILLING CODE 6712–01–M

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47 CFR Part 73

[MM Docket No. 89–172; RM–6894]

Radio Broadcasting Services; Castle Rock, Colorado Springs, Frisco, and Salida, Colorado, and Raton, NM

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document grants a counterproposal filed in response to the Notice of Proposed Rule Making in this proceeding to upgrade FM channels at Castle Rock and Salida, CO, and Raton, NM, and to modify existing facilities as set forth *infra* (see **SUPPLEMENTARY INFORMATION**). See 54 FR 28077, July 5, 1989. With this action, this proceeding is terminated.

EFFECTIVE DATE: January 8, 1993.

FOR FURTHER INFORMATION CONTACT: Andrew J. Rhodes, Mass Media Bureau, (202) 632–5414.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Report and Order, MM Docket No. 89–172, adopted October 30, 1992, and released November 25, 1992. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, Downtown Copy Center, (202) 452–1422, 1990 M Street, NW., suite 640, Washington, DC 20036.

The Commission, at the request of Century Broadcasting Corporation, licensee of Station KYBG–FM, Castle Rock, CO, substitutes Channel 221C2 for Channel 221A at Castle Rock and modifies the license for Station KYBG–FM accordingly. To accommodate this upgrade, the Commission substituted Channel 230A for Channel 221A at Frisco, CO; Channel 222C3 for Channel 221A at Salida, CO; Channel 232C for Channel 230C at Colorado Springs, CO; and Channel 229C2 for Channel 232A at Raton, NM. The licenses for Station KYSL(FM), Frisco, Station KVRH–FM, Salida, Station KILO–FM, Colorado Springs, and Station KRTN–FM, Raton, were modified to specify operation on the substituted channels. The Commission also denied the objections of Stations KYSL(FM) and KILO–FM and required that they change channels. The coordinates for Channel 221C2 at Castle Rock are 39–24–57 and 105–10–02. The coordinates for Channel 222C3 at Salida are 38–30–26 and 106–01–22. The coordinates for Channel 229C2 at Raton are 36–41–01 and 104–24–49. The coordinates for Channel 230A at Frisco are 39–33–22 and 106–06–53. The coordinates for Channel 232C at Colorado Springs are 38–44–44 and 104–51–43.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

PART 73—[AMENDED]

1. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303

§73.202 [Amended]

2. Section 73.202(b), the Table of FM Allotments under Colorado, is amended

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Reconsideration and Second Supplemental Notice of Proposed Rulemaking, 6 FCC Rcd 5421 (1991) 56 FR 51666 October 1991 (Reconsideration Order) "Access time" as defined in the Reconsideration Order is the time that begins when the caller completes dialing an 800 call and ends when the call is delivered by the originating local exchange carrier (LEC) to an interexchange carrier (IXC).

Subsequently, the Common Carrier Bureau granted limited waivers of the March 1993 access time standard to each BOC and GTE. Those waivers, however, did not affect the March 1993 deadline. See Provision of Access for 800 Service, CC Docket No. 86–10, 7 FCC Rcd 4969 (Ameritech); 7 FCC Rcd 4973 (Bell Atlantic); 7 FCC Rcd 5014 (NYNEX); 7 FCC Rcd 5019 (Southwestern Bell); 7 FCC Rcd 5035 (BellSouth); 7 FCC Rcd 5039 (GTE); 7 FCC Rcd 5042 (Pacific); 7 FCC Rcd 5046 (United); 7 FCC Rcd 5050 (US West) (1992) (the "Access Time Waiver Orders").

[2] Such six-digit NXX screening would not allow for number portability, which will be possible only after the conversion to data base access is completed. Rather, it will simply conduct NXX screening at the data base instead of at the LEC switches.

[3] The effective date of a rule may be made less than 30 days from publication in the **Federal Register** where good cause exists. See 5 U.S.C. 553(d)(3). In order to implement expeditiously our requirement that the LECs defer until 1993 any further switch conversions that would route 800 traffic to the data base for six-digit NXX screening, we find good cause to make this order effective three days after its release.

by removing Channel 221A and adding Channel 221C2 at Castle Rock, by removing Channel 230C and adding Channel 232C at Colorado Springs, by removing Channel 221A and adding Channel 230A at Frisco, and by removing Channel 221A and adding Channel 222C3 at Salida.

3. Section 73.202(b), the Table of FM Allotments under New Mexico, is amended by removing Channel 232A and adding Channel 229C2 at Raton.

Federal Communications Commission.

Michael C. Ruger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 92-29157 Filed 12-1-92; 8:45 am]

BILLING CODE 6712-01-M

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47 CFR Part 80

[PR Docket No. 91-293; FCC 92-355]

Use of Facsimile and Data Emissions on Marine Public Correspondence Channels in the 156-162 MHz Band

AGENCY: Federal Communications Commission.

ACTION: Final rule; correction.

SUMMARY: This document amends the **Federal Register** summary of the Report and Order, 57 FR 43406 (September 21, 1992) to include a statement concerning compliance with the Regulatory Flexibility Act of 1980.

EFFECTIVE DATE: October 21, 1992.

FOR FURTHER INFORMATION CONTACT: George Dillon, Aviation and Marine Branch, Private Radio Bureau, Federal Communications Commission, 2025 M St., NW., 1700C2, Washington, DC 20554; or telephone (202) 632-7175.

SUPPLEMENTARY INFORMATION: As published, the summary of the Report and Order did not contain a statement concerning compliance with the Regulatory Flexibility Act of 1980. It may have, therefore, been unclear what effect the actions taken in the proceeding have on small businesses. Accordingly, in FR Doc. 92-22745, 57 FR 43406 (September 21, 1992), as part of the **SUPPLEMENTARY INFORMATION** the document is amended to include a statement regarding compliance with the Regulatory Flexibility Act of 1980 to read as follows:

Regulatory Flexibility Analysis

A Regulatory Flexibility Analysis was prepared for the Notice of Proposed Rule Making in this proceeding, FR Docket 91-293, 56 FR 56955 (November 7, 1991), but was not included in the document's **Federal Register** Summary. In summary, the Analysis certified that the Regulatory Flexibility Act of 1980 does not apply to this rule making proceeding because the promulgation of the proposed rules would not have a significant economic impact on a substantial number of small business entities, as defined by section 601(3) of the Regulatory Flexibility Act. Although these proposed rules would allow the maritime community greater flexibility in the provision of additional forms of communications, e.g. facsimile and data, and may result in increased expenditures for equipment, such additional expenditures would be optional and would not constitute a significant economic impact on a substantial number of small business entities. None of the final rules adopted in this Report and Order modify the effect this proceeding has on small businesses and it is, therefore, unnecessary for us to modify our Regulatory Flexibility Analysis. The complete text of the Notice of Proposed Rule Making, including the Regulatory Flexibility Analysis, is available for inspection and copying during normal business hours in the FAA Dockets Branch (room 230), 1919 M Street NW., Washington, DC. The full text also may be purchased from the Commission's copy contractor: Downtown Copy Center, (202) 452-1422, 1990 M Street, NW., suite 640, Washington, DC 20036. DCC's FAX number is (202) 296-3780.

Federal Communications Commission.

William F. Caton,

Acting Secretary.

[FR Doc. 92-29160 Filed 12-1-92; 8:45 am]

BILLING CODE 6712-01-M

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. 89-26; Notice 3]

RIN 2127-AD24

Federal Motor Vehicle Safety Standards; Convex Cross View Mirrors on School Buses

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

ACTION: Final rule.

SUMMARY: This notice amends Federal motor vehicle safety standard No. 111, Rearview Mirrors, with respect to the field-of-view around school buses. The notice amends the standard to require a bus driver to be able to see, either directly or through mirrors, certain specified areas in front of and along both sides of school buses; to specify certain criteria for convex cross view mirrors; and to establish test conditions designed to ensure that the image of an object is sufficiently clear. The amendments will improve the view around stopped school buses, thus reducing the risk of school buses striking student pedestrians.

DATES: *Effective Date:* The amendments become effective December 2, 1993.

Petitions for reconsideration: Any petitions for reconsideration of this rule must be received by NHTSA no later than January 4, 1993

ADDRESS: Any petition for reconsideration should refer to the docket and notice number set forth in the heading of this notice and be submitted to: Administrator, NHTSA, 400 Seventh Street SW., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Ms. Patricia Breslin, NRM-10, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street SW., Washington, DC 20590, (202) 366-0842.

SUPPLEMENTARY INFORMATION:

Outline

I. Background
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D. National Environmental Policy Act

I. Background

School buses provide an extremely safe form of transportation. On a vehicle-mile basis, school buses are about four times safer than passenger cars. Despite this outstanding safety record, injuries and fatalities do occur, with most of them occurring to pedestrians outside the school bus. According to the May 1989 report by the National Academy of Sciences (NAS), "Improving School Bus Safety," an average of 38 pedestrians are killed each year in school bus-related incidents. Of these 38 pedestrian fatalities, an average of 26 result from students being struck by their own school bus and 12 result from being struck by another vehicle. The NAS report also estimated that 283 children suffer mostly minor injuries, when they are struck by their own bus. The NAS report concluded that since children are at greater risk of being killed in school bus loading zones (i.e., boarding and leaving the bus) than on board school buses, "a larger share of the school bus safety effort should be directed to [improving the safety of] bus stops and loading zones."

NAS accordingly made two specific recommendations to NHTSA. First, to reduce the number of students who are struck by vehicles illegally passing a stopped school bus, NAS recommended the establishment of a Federal motor vehicle safety standard requiring the installation of stop signal arms on all new school buses. (The agency has published Federal motor vehicle safety standard 131, "School Bus Pedestrian Safety Devices," which becomes effective for all new school buses produced on or after September 1, 1992. 56 FR 20363, May 3, 1991). Second, to reduce the number of children who are struck by their own school bus, NAS recommended that NHTSA "reexamine its standards for cross view mirrors to determine whether current specifications can be modified to give the driver a better view of the areas in front of and immediately beside the bus."

Federal motor vehicle safety standard No. 111, Rearview Mirrors, (49 CFR 571.111) currently requires each school bus that is not a forward control vehicle, i.e., a transit style bus, to have an outside cross view mirror of a specified size and shape (S9.2), "mounted so as to provide the driver a view of the front bumper and the area in front of the bus" (S9.2(b)). The standard also requires each school bus to have an outside rearview mirror of unit magnification (i.e., flat mirror) on each side of the bus, to provide the driver with a view to the rear along both sides of the bus (S9.1). In addition to meeting the requirements in Standard No. 111, school buses are required by nearly every State to be equipped with additional mirrors, particularly cross view mirrors.

As noted earlier, an average of 26 students are killed each year and 283 are injured each year after being struck by their own school bus. These incidents are rare. Nevertheless, the potential for such tragedies is actually quite large because every time a student gets on or off a school bus, there is a chance that the driver may not see that student in the proximity of the bus. According to the 1989 NAS report, of the 26 students killed as pedestrians each year "two-thirds are struck by the front of the bus and one-third by the rear of the bus, usually the rear wheels." A review of specific incidents reveals that the fatalities occurred because the driver did not see the child in front of or to the side of the bus. In many cases in which the child was struck by the bus's rear wheels, the bus had already left the bus stop. In these cases, the children were typically running after the moving bus and fell under the rear wheels. Such incidents cannot be totally avoided through changes to the mirror requirements, since driver error may be a significant cause of many such incidents. In addition, once the school bus is moving, the driver must focus on other driving actions in addition to looking into the mirror systems to check for students around the outside of the bus. However, to reduce the likelihood of students being struck by their own bus in the school bus loading zone, the agency has conducted this rulemaking to improve the means available for the school bus driver to detect their presence around the stopped bus.

The Kansas Department of Transportation conducts an annual nationwide "School Bus Loading and Unloading Survey" which reviews every school bus pedestrian fatality. This study confirms that a significant, although decreasing, number of pedestrians are killed by school buses. The Kansas data indicate that the number of pupils killed nationwide in school bus loading zones was 45 in 1985, 42 in 1986, 32 in 1987, 16 in 1988, 17 in 1989, and 18 in 1990. The agency believes that the decrease in the number of school bus loading zone fatalities is due to a combination of factors, including the use of more and better mirrors, the increased use of stop signal arms, and improved school bus driver and student training. Despite this trend, this type of incident remains the most common way students are killed in school bus-related incidents. Therefore, the agency has conducted this rulemaking to upgrade Standard No. 111's mirror requirements to reduce further the potential for fatalities and injuries to students by school buses.

II. Previous Agency Action

A. Advance Notice of Proposed Rulemaking

On December 17, 1989, NHTSA published an Advance Notice of Proposed Rulemaking (ANPRM) announcing the agency's interest in measures designed to prevent children from being struck by school buses during and after loading and unloading operations. 54 FR 53127. The ANPRM asked questions about pedestrian safety around school buses to assist the agency in deciding whether to pursue rulemaking on cross view mirror systems and other devices designed to protect pedestrians from being struck by the school bus (e.g., crossing control arms, sensors, or video monitors). Among the issues presented were: (1) The safety need for amending the mirror requirements or for requiring additional equipment such as crossing control arms; (2) the need to develop performance requirements to ensure that a driver sees or is otherwise aware of pedestrians in school bus loading zones; (3) the costs of requiring different types of or additional mirror systems and of requiring other types of equipment; and (4) the potential impact of new requirements on school bus users currently in compliance with FMVSS No. 111 and on current State laws that would differ from the Federal requirements that might be proposed.

The agency received comments from State and local governmental organizations, school bus manufacturers, mirror and other equipment manufacturers, associations, and individuals. The commenters generally agreed that measures should be taken to reduce the number of children struck by school buses and to improve the view of school bus drivers around the school bus while it is in the school bus loading zone. Commenters also addressed other issues raised in the ANPRM, including the need for devices other than mirror systems for increasing school bus drivers' awareness of

children outside of school buses, the benefits from training programs, and the costs of the equipment addressed in the ANPRM.

B. Notice of Proposed Rulemaking

Based on the comments received to the ANPRM and the results of NHTSA research conducted by the Vehicle Research and Test Center (VRTC) on school bus mirror performance ("Ergonomic Research on School Bus Cross View Mirror Systems" DOT–HS–807–676, August 1990), the agency published a Notice of Proposed Rulemaking (NPRM) in the **Federal Register**. 56 FR 20171, May 2, 1991. The agency had two primary objectives in publishing the NPRM: (1) To improve the capability of school bus drivers to see specified critical areas in front of and alongside of school buses in school bus loading zones, and (2) to propose a performance-oriented standard that would replace the existing requirements that prevented certain new convex cross view mirror designs. The NPRM proposed specific performance requirements to Standard No. 111 to ensure that a seated school bus driver could see, either directly or through mirrors, certain specified areas in front of and alongside of a school bus. The proposal specified certain criteria for convex cross view mirrors and proposed establishing test conditions to ensure that the image of an object in a mirror had sufficient clarity. The NPRM also announced the agency's decision not to proceed further with rulemaking to require school buses to be equipped with other devices such as crossing control arms, sensors, or video monitors.

The agency received comments in response to the NPRM from State and local organizations, school bus manufacturers, equipment manufacturers and suppliers, associations, and other organizations. The commenters generally supported the proposal but provided suggested modifications to various portions of it. The agency has considered all the comments in developing the final rule. The commenters' significant points are addressed below, along with the agency's response.

III. Agency Decision

A. General Considerations

Based on the docket comments and other available information, NHTSA has decided to amend Standard No. 111 with respect to the field-of-view around school buses. This final rule amends the standard to require a bus driver to be able to see, either directly or through mirrors, certain specified areas in front of and along both sides of school buses; to specify certain criteria for convex cross view mirrors; and to establish test conditions designed to ensure that the image of an object is sufficiently clear. Standard No. 111 is also amended to include detailed test procedures to ensure that a school bus provides adequate field-of-view around a stopped school bus, thus reducing the risk of school buses striking student pedestrians.

Among the issues addressed in this notice are the field-of-view performance requirements; the placement and characteristics of cylinders representing the field-of-view requirements; school bus mirror systems including both flat driving mirrors and convex cross view mirrors; specific concerns about convex cross view mirrors including accommodation distance, discontinuities in the surface's slope, adjustment, image quality, and labeling information about their proper use; testing procedures; and the rulemaking's anticipated costs and effective date.

While the final rule essentially adopts the provisions proposed in the NPRM, the final rule does contain several changes as compared to the proposal. Among the more important changes are that the field-of-view requirements include the area near the rear left side of the bus, that the test procedure specifies the stop signal arm be in the retracted position and the front entry door be closed during the testing, that determining the minimum radius of curvature of a mirror be based solely on the distance from the driver's eye location to the mirror surface, that the message about the convex mirror be placed inside the vehicle and be expanded to be more informative, and that testing is allowed at any point within a specified area forward of the 25th percentile adult female driver's eye location, instead of four specific points relative to the eye location.

B. Field-of-view requirements

As explained above, Standard No. 111 currently specifies that each school bus must have an outside rearview mirror of unit magnification (i.e., a flat mirror) on both sides of the bus that "provides the driver a view to the rear along both sides of the vehicle * * *" In addition, each school bus, except for forward control vehicles, must have one convex cross view mirror that complies with detailed specifications and "provide(s) the driver a view of the front bumper and the area in front of the bus."

The NPRM proposed requiring that a school bus driver be able to see, directly or through mirrors, test cylinders representing students in critical areas around the school bus. To effectuate this goal, each school bus would be required to have mirror systems on both the left and right sides of the school bus—a set of driving mirrors to view the sides of the bus and areas to the rear of the bus, and a set of convex cross view mirrors to see specified areas at the left front corner of the bus, in front of the bus, and along the right side of the bus. Areas viewable along the bus's right side via the two mirror systems would be required to overlap, as would the areas visible along the bus's left side. Along each side, the driver would be provided with a view of the ground from the front bumper forward, along the sides of the bus, and extending at least 200 feet rearward from the mirror. The NPRM proposed that the driver must be able to see the entire top surface of the cylinders placed at critical locations around the bus. Compared to the current requirements for school bus mirrors, the proposed field-of-view requirements would extend the areas which must be visible, provide field-of-view requirements applicable to any school bus configuration, and provide greater objectivity. The NPRM asked whether the proposed field-of-view requirements, as expressed through the placement of cylinders, would reasonably represent the locations at which school bus pedestrians need to be seen by the driver during school bus loading and unloading.

With respect to the field-of-view approach, the commenters, including the National School Transportation Association (NSTA), Transport Canada, Mirror Lite, Arizona DOT (Arizona), and the Washington State Superintendent of Public Instruction (Washington State) believed that this approach was appropriate. No commenter opposed the proposed approach. Washington State commented that the proposal would provide a realistic performance standard for mirrors. Transport Canada believed that there was a need to improve the field-of-view for school bus drivers and to provide an objective measurement method for all mirrors on school buses.

After reviewing the comments, NHTSA concludes that establishing performance-based field-of-view requirements for school bus mirror systems is reasonable and appropriate. Such an approach will reduce the risk of injury to student pedestrians, while affording mirror and school bus manufacturers and users greater flexibility

C. Test Cylinders

1. Cylinder Placement

As for the placement of test cylinders used to represent student pedestrians, the NPRM proposed that they be located at specified locations near the bus's front wheels, front bumper, locations forward of the bus, near the front right and left wheels, and near the rear right wheel. These proposed locations were based on narratives in the NAS report and docket comments, the VRTC report, the State of Ohio's regulation, and the Eleventh National Conference of School Transportation. Nevertheless, unlike Ohio's regulation and the Eleventh National Conference's specification, NHTSA proposed specific locations and test procedures for showing compliance with the requirements. In requesting comments about whether the proposal reasonably represented locations where student pedestrians are struck by school buses, the agency expressly asked whether the area near the left rear wheels poses a safety problem.

While commenters generally supported the proposed locations for the test cylinders, some commenters addressed whether cylinders should be placed at certain additional locations around the school bus.

Several commenters, including the National PTA, Blue Bird, Mirror Lite, the West Virginia Department of Education (West Virginia), NSTA, Washington State, and Arizona, stated that a view down the left side of the bus was important. No commenter stated that a view of the left side of the bus was unnecessary. Mirror Lite cited fatalities in Michigan and Texas to support the view that incidents along the bus's left side, although uncommon, do occur. In recommending that the field-of-view be the same for both sides of the bus, Mirror Lite commented that the cost of such a requirement would be the same and that drivers prefer mirrors to be matching on the right and left, rather than having two different fields-of-view.

After reviewing the comments, NHTSA has concluded that the field-of-view on the left side of the bus should be extended back to the ground near the left rear wheel. While the agency acknowledges that children are infrequently struck near the left side of the bus, the agency notes that such incidents do occur. Accordingly, by requiring test cylinders to be placed by the left rear tire, the amendments will increase the likelihood that the new school bus mirror requirements can prevent these incidents as well.

The agency conducted mirror evaluations on both conventional and transit-style school buses indicating that left side mirror systems designed to meet the proposed field-of-view requirements for the left front corner and the front of the school bus would also be able to provide a view of test cylinders located at least six feet to the left of the left rear wheel without any adjustments to the mirrors. Additionally, based on the agency's review of current mirror systems, the agency anticipates that the mirrors on the left and right side of the bus will be symmetrical (i.e., a mirror designed to view the right side of the bus will also be able to view the left side of the bus when mounted on the left front of the bus). Based on the above, the agency has modified the final requirements to include additional test cylinders located one foot and six feet to the left of the left rear axle.

Although a cylinder located twelve feet to the right of the rear axle on the bus' right side is required to be visible, NHTSA believes that is not necessary to require that a test cylinder located twelve feet to the left of the rear axle be visible. For a school bus on the side of the road in a loading zone, a cylinder located twelve feet to the left of the left side of the bus would represent a student standing a full traffic lane from the bus. The agency believes that it is unlikely that a student would be in such a position when the school bus starts to depart from the loading zone. In localities where school buses stop in a traffic lane, a cylinder located twelve feet from the left side would represent a child on the other side of the street on a two lane street.

During the course of its mirror evaluations, the agency observed that, in some cases, the cylinders at the left rear axle of the school bus were either partially or fully blocked from view by the extended stop signal arm. Visibility depended on the bus body type and the location of the stop signal and the left side cross view mirror. In contrast, the test cylinders were visible when the stop arm was retracted. The agency also noted that the test cylinders at the right rear axle were either partially or fully blocked by the door when an outward-opening front entry door was open. Based on these observations, NHTSA has decided that the test procedure will specify that the stop signal arm be in the retracted position and the front entry door be closed. This procedure recognizes that school bus drivers must close the door, which retracts the stop signal arm, and then view the mirrors to ensure that no students are in danger around the bus before the school bus leaves the loading zone. If the driver attempted to view the areas around the bus before closing the door and retracting the stop signal arm, the stop signal arm would also block the driver's view of the road, thus impairing many driving decisions.

Blue Bird commented that placing test cylinders J, K, and L on a plane one foot away from the bus would be more appropriate than the proposed two foot distance because the two foot location of cylinder L would provide only limited visibility adjacent to the rear wheel. (The agency notes that cylinder L in the NPRM is cylinder N in the final rule.) Blue Bird commented further that a one foot distance from the most outboard edge of the front bumper for cylinders J and K would help ensure adequate visibility near the front wheels. The agency agrees with this comment and has revised the location requirements accordingly.

Blue Bird commented that there were no proposed requirements for the visibility of cylinder M, which is located six feet from the right side of the bus at the rear wheel. (The agency notes that cylinder M in the NPRM is cylinder O in the final rule.) That was an oversight in the NPRM, and a provision about cylinder M is included in the final rule's requirements for mirror System B.

NSTA suggested that a test cylinder be added to the area directly to the rear of the service door. After conducting mirror evaluations, the agency has concluded that locating a test cylinder to the rear of the service entry door would not be necessary since mirror systems that provide a view of cylinders K and L would also provide a view of the rear side of the service entry door.

Transport Canada believed that because it is theoretically possible for blind spots to exist in some areas between cylinders in front of the bus, NHTSA should specify areas whose perimeters would be defined in terms of cylinder locations that must be seen, rather than simply the cylinders themselves. In the course of this rulemaking, agency staff have evaluated a variety of mirror systems on both conventional and transit-style school buses. In all cases where the test cylinders could be seen and identified in a mirror system, the full ground areas around and between the cylinders could be seen. The agency notes that while a blind spot could occur when looking at a single mirror, such blind spots were eliminated when viewing the entire mirror system. Although it might be theoretically possible for a blind spot to exist between test cylinders, the agency believes such situations would be extremely rare.

The New York State Senate Committee on Transportation (New York) believed that the requirements in

S9.2 for the System A driving mirrors on the right side of the bus should have a field-of-view that extends twelve feet out from the side of the bus, not just two feet out, to provide the driver with adequate warning time that a pedestrian contact is imminent. The agency notes that the requirements in S9.2 are primarily for the driving mirror system which must include at least one mirror of unit magnification. Such a mirror could not be adjusted to provide a view that included the side of the bus and a point twelve feet out from the rear axle line unless it were unusually large in size. Yet, such a large mirror would create its own large blind spot. The requirements for System B convex cross view mirrors, which are pedestrian detection mirrors, already provide the seated driver with information about individuals that may be as close as twelve feet from the side of the school bus. Accordingly, because the mirror that would be necessary to accommodate New York's request would have safety trade-offs and provide redundant performance, NHTSA has decided not to change the proposed requirements for S9.2 in this rule.

2. Cylinder Dimensions

The proposed provisions about the test cylinders used to represent student pedestrians specify that they be one foot high and one foot in diameter and require that their entire top surface be visible. The agency based this proposal on the VRTC report's recommendation that measurements be made near ground level and on accounts in the docket explaining that children struck by school buses were low to the ground. Additionally, narratives in the 1989 NAS report and the mirror requirements from Ohio support the concept of using some sort of three-dimensional representation of a small child. An exception to the one foot requirement would be that the cylinder placed twelve feet to the right of the rear right wheel, would be three feet high and one foot in diameter. The agency believed that this cylinder needed to have such dimensions to evaluate elongation.

Several commenters, including NSTA, Mirror Lite, and Thomas Built, supported the proposal to require the driver to view the cylinder's entire top. NSTA commented that this requirement would help ensure that the driver is provided with a complete enough image to enable the driver to identify student pedestrians in the mirror. After evaluating new generation mirrors and some older mirrors which they consider to be "marginal," Thomas Built determined that only the new mirrors could meet the cylinder viewing requirements. This led Thomas Built to conclude that viewing the top of the cylinders is a satisfactory requirement.

A few commenters were concerned that the proposed test cylinder was not adequate for ensuring that all of the critical areas of the ground would be visible. Washington State believed that by focusing on the cylinder's top, the proposed visibility test may be inadequate because it ignores contact at the ground level. Lo-Mar and Blue Bird believed that the view of the ground is not ensured through the use of one foot high cylinders. Accordingly, these commenters recommended that cylinders be replaced with one foot diameter flat discs.

After considering the comments about test object's dimensions, NHTSA has concluded that one foot tall cylinders better represent real-world situations than flat discs. In the majority of loading zone incidents, children struck and killed by school buses were either standing or bending over, according to the Kansas Department of Transportation's "1989 School Bus Loading & Unloading Survey." Therefore, the agency believes that most students who are struck by a school bus are at least one foot above the ground. Even children who have fallen are above ground level because their body thickness at their head or torso is at least six inches. If children have fallen, the agency expects that they will be attempting to get back up, which also adds height. The agency's mirror system evaluations further indicate that a three dimensional object such as the one foot tall test cylinder more accurately represents real-world situations than a flat disc. In addition, the cylinder facilitates testing by providing a more practicable means for demonstrating the ability of mirrors to view areas around the outside of the bus. The three dimensional cylinder also makes the relative image quality easier to ascertain.

Mirror Lite commented that the cylinders should be of a readily available design to facilitate testing and to avoid discouraging manufacturers from conducting the test. This view led Mirror Lite to recommend using bright orange 18" traffic cones. Washington State requested that along with establishing a requirement for the manufacture of new buses and equipment, the standard should also provide an ongoing performance standard for the end user (e.g., mechanics and bus drivers). Similarly, Ann Arundel County (Maryland) Public Schools explained that they were interested in incorporating the test cylinder grid into its training program.

As for Mirror Lite's comment about an 18" traffic cone, NHTSA believes that such a device is too tall to represent a child who may be bending over or has fallen down. The agency nevertheless agrees with Mirror Lite that having a readily available test object will assist States and local school districts in evaluating mirrors and training school bus drivers. The agency believes that the one foot cylinder is a reasonable size and shape that should be easy to obtain or fabricate. The agency also notes that the one foot test cylinder is only required for compliance test purposes, and that anyone desiring to build a test lane can substitute another test object when conducting evaluations or training.

While generally supporting the performance requirements for mirror System B, Blue Bird recommended an alternative requirement which defined the bounds of specific geometric areas on the ground outside the school bus which would have to be seen. Among Blue Bird's criticisms of the proposal were the use of a cylinder rather than a disc, the need to reduce the distance between the test cylinders and the bus to one foot, the need to include cylinder M in the performance requirements, and the need to include visibility requirements for the left side of the bus. Since all of these items have been addressed above and all but the use of a disc were adopted, the agency does not believe Blue Bird's recommended alternative is necessary.

3. Cylinder Color

The NPRM proposed that the test cylinders be a color which provides a high contrast with the surface on which the bus is parked. According to the VRTC report, such a contrast would facilitate compliance testing. While the proposal did not specify a particular color, the agency requested comments about what color would provide a high contrast with the ground and whether a given color should be specified.

Several commenters addressed the appropriate color and design of the test objects. NSTA suggested that rather than having a high contrast color, the cylinder should be a color that blends into the surroundings, believing that visibility becomes a problem when a child blends in with the surroundings (e.g., the bus itself, pavement). New York favored replacing the cylinders with two dimensional cutouts of children and adults with colors that are representative of clothes typically used by school children or adults.

Other commenters believed that the test cylinder should be a bright color. Mirror Lite recommended using bright orange traffic cones. Thomas Built explained that its mirror tests are conducted using bright colored cylinders, e.g., safety orange sides with lime green tops and black letters. R&R Research recommended that to make the test procedure less vague, the color of the test cylinders should "be specified either quantitatively (i.e., the percent contrast) or qualitatively by specifying the color of the cylinders."

After reviewing the comments and its own mirror evaluations, NHTSA has decided that the test cylinder must provide a high contrast with the surface on which the bus is parked. The agency believes that having such a high contrast will facilitate compliance testing. Nevertheless, the agency has determined that it would be inappropriate and unnecessary to specify a given color for the test cylinder. The agency has no information to suggest that one color would be more appropriate for a test cylinder than any other color. The agency believes that specifying a single color would complicate the standard without providing any significant corresponding benefits.

D. School Bus Mirror Systems

1. General

Standard No. 111 currently requires school buses to be equipped with two types of mirror systems: (1) An outside rearview mirror of unit magnification ("flat mirror") of not less than 50 square inches of reflective surface on each side of the bus; and (2) one convex cross view mirror. In practice, buses are equipped with a flat driving mirror on each side of the bus, two or more convex cross view mirrors, and typically at least one supplemental convex mirror mounted near each flat mirror and designed to serve as an additional driving mirror. Convex driving mirrors are typically about four inches in diameter and have a radius of curvature (ROC) greater than 35 inches. These larger radii of curvature mirrors have much greater image clarity than the convex cross view mirrors mounted on the front of the bus and therefore can safely be used as driving mirrors. All mirror systems are used by drivers to see students in the loading zone around buses, although the flat mirrors and the supplemental convex driving mirrors are primarily designed to serve as driving mirrors.

The NPRM proposed to modify the current requirements for both types of mirror systems so that each school bus would be equipped with two mirror systems on each side of the bus: (1) A system that includes flat driving mirrors of unit magnification and optional convex driving mirrors (designated as "System A") and (2) a system that consists of convex cross view mirrors for student detection during loading and unloading (designated as "System B"). The areas viewable along both sides of the bus via the two mirror systems would be required to overlap on each side, providing the driver with a view of the ground in front of and along both sides of the bus and extending at least 200 feet rearward from the driving mirror. Because the agency recognized that most current driving mirror systems on school buses consist of both a flat mirror and a convex mirror, the NPRM included language that "one or more mirrors" could be used to meet the requirements of S9.2 for System A mirrors.

2. Driving Mirrors—System A Mirrors

As for System A mirrors, the NPRM proposed making the current requirements for such mirror systems more objective and expanding the field-of-view to include a larger area. Specifically, the NPRM proposed amending section S9.2 to require that the driver have a view at least 200 feet to the rear and at least two feet to the right of the right side of the bus. The NPRM explained that the proposed requirements reflect the findings of the 11th National Conference on School Transportation and accounts in the NAS report and docket that a significant number of incidents occur by the right rear wheels of school buses.

In responding to the NPRM's proposal about System A mirror systems, several commenters, including Mirror Lite, Thomas Built, Transport Canada, and Blue Bird, appear to have misunderstood the proposed requirements of S9.2. Based on their comments, it appears that they believe the system's flat mirror portion by itself would have to comply with the requirement that the view of the "area of the ground which extends rearward from the mirror surface [must be] not less than 200 feet." The agency wishes to clarify that the flat mirror by itself need not comply with S9.2. The proposed requirements were for a "mirror *system*" (emphasis added) which could include both a flat mirror and a convex mirror. Accordingly, to comply with S9.2, it is permissible for the convex portion of the mirror system to provide some portions of the required field-of-view.

The agency believes that it is unnecessary to expressly require the installation of a convex mirror for the driving mirror system. Since the proposed revisions to Standard No. 111 are performance-oriented, not design-oriented, manufacturers can choose whatever mirror system they believe is best. Avoiding unnecessary restrictions facilitates the introduction of future technological improvements in mirror systems.

Blue Bird suggested modifying S9.2(c) by establishing specified zones along both sides of the bus which would have to be viewable to the seated driver. As explained in the section on test cylinders, the agency believes that establishing field-of-view requirements through test cylinders at specific locations around a school bus provides a more realistic simulation of real-world school bus operations than establishing geometric zones.

Blue Bird also commented that establishing minimum permissible radii for convex mirrors used in proposed mirror System A could be detrimental to the performance requirements being proposed. The agency notes that neither the NPRM nor the final rule included provisions about minimum radii of curvature for System A mirrors. The same is true for System B mirrors.

3. Convex cross view mirrors—System B Mirrors

a. *General.* S9.2(a) of Standard No. 111 currently contains detailed specifications about the characteristics of convex cross view mirrors, including minimum and maximum permissible radii of curvature, minimum surface areas, and restrictions for convex mirrors with non-uniform radii. The current standard only requires one convex cross view mirror.

The NPRM proposed that a cross view mirror system (System B) be provided on both sides of a school bus to ensure that seated drivers have a complete view of all critical areas in front of and along both sides of the bus that are not within their direct field-of-view. The NPRM also included a requirement that "[T]he view of the ground provided at the driver's eye location by system B shall overlap with the view of the ground provided by system A." The agency proposed to delete the current specifications for convex mirrors, believing that this action would permit States and local school districts to use a wider variety of mirrors.

The NPRM addressed several subissues about convex cross view mirror characteristics, including accommodation distance (i.e., the distance at which people can focus on images in mirrors), discontinuities in the mirror surface's slope, adjustment,

informational labeling, and image quality.

In addition to general questions about convex cross view mirrors, the agency specifically asked about whether a minimum permissible radius of curvature should be specified, whether convex cross view mirrors should be used for driving purposes, and whether the upper portion of convex mirrors should be cut off or blackened out to reduce the amount of glare reflected into the driver's eye.

All commenters supported using convex cross view mirrors to view areas outside of school buses. Commenters also addressed specific points about particular mirror systems. Mirror Lite believed that wide-angle cross view mirrors are better than multiple conventional mirrors because having multiple mirrors would result in confusion as to which mirror is showing what image.

Several commenters, including Thomas Built and Blue Bird, stated that in practice, convex cross view mirrors are used for driving purposes. Thomas Built and Blue Bird commented that certain convex cross view mirrors should not be used as driving mirrors. These comments are addressed later in this preamble in the section discussing an instructional message for the proper use of convex cross view mirrors.

Several commenters responded to the agency's question in the NPRM about cutting off or blackening out the cross view mirror's upper portion. The Arizona DOT opposed cutting off or blackening out any portion of the convex cross view mirror, believing that all portions of the mirror provide some benefit if properly adjusted and used. In contrast, Washington State, the Tennessee DOE, Florida, the Sloan Company, and Mirror Lite believed that the top portions of convex cross view mirrors serve no useful purpose and should be eliminated. Mirror Lite stated that the "market place has determined the upper portion of the mirror is of no value and may be a distraction to the driver."

Notwithstanding the comments favoring the elimination of the top portion of convex cross view mirrors, NHTSA believes that there is no conclusive information to support this approach. Additionally, there is no information available for determining what specific areas of mirrors should be cut off or blackened out. This type of requirement would also make the standard more design restrictive than the agency believes is desirable. In addition, Mirror Lite's claim that the "marketplace" has determined the need for blackening out such mirrors does not appear to be accurate, since several convex mirrors without blacked-out areas are apparently being successfully sold in the marketplace. However, if certain mirror areas are found to be inefficient, then the agency anticipates that the marketplace will make judgments on the efficacy of various mirror systems and that those judgments will be reflected in future mirror designs. Since no information was produced to suggest that the upper portions of cross view mirrors were dangerous to a driver's view of pedestrians, the agency has decided not to establish limitations on the field-of-view coverage provided by a cross view mirror. The agency believes that individual State and local school districts are capable of evaluating mirror systems that meet these standards and selecting those which best meet their needs, including, if they so chose, mirrors from which the top portions have been eliminated.

b. *Accommodation distances.* The NPRM proposed a new provision that would require that the distance from the center of each convex cross view mirror to the center point of the driver's eye location, plus one-half the smallest radius of curvature of the mirror surface be at least 39 inches. The agency based this proposal on the VRTC report's finding about accommodation distances, i.e., the finding that older people have greater difficulty focusing on nearby objects, especially in convex mirrors with small radii of curvature. According to the VRTC report, if the distance between the driver and the image in the mirror is less than 40 inches, drivers over 40 years old may see a blurred image.

Several commenters supported the 39 inch accommodation distance, believing that such a requirement is feasible. Thomas Built, R & R Research, and Mirror Lite stated that the 39 inch distance between the driver seat to the mirror is acceptable for most currently-produced buses. Nevertheless, R & R Research, along with NSTA, questioned whether transit type school buses could be equipped to comply with the 39 inch requirement. Neither NSTA nor R & R Research provided any specific information to support their concerns about transit buses.

Blue Bird disagreed with the 39 inch requirement, stating that it would be difficult to measure accurately and might hinder mirror performance and innovations. Blue Bird opposed having restrictions on the mirror's location, claiming that the agency does not restrict the locations of other bus components such as gauges, switches, and lights.

Based on the available information, including the agency's evaluations of the comments and various mirror systems, NHTSA has decided to adopt the proposed accommodation distance requirement with certain modifications. In evaluating various mirror systems on both conventional and transit-style school buses, NHTSA has found that these mirrors are always capable of complying with the proposed 39 inch requirement of S9.3(b)(2) when mounted at locations consistent with the mirror manufacturers' recommendation. The agency also notes that the concerns expressed by NHTSA and R&R Research about transit-style school buses not being able to meet such a requirement were not shared by the school bus and mirror manufacturers commenting on this issue, all of whom stated that the requirement could be met. Blue Bird did not claim that the proposed 39 inch requirement could not be met, only that it would be difficult to measure accurately. Also, Blue Bird appears to disagree with the proposed requirement on a philosophical basis, i.e., since NHTSA does not establish restrictions on the location of other components of the bus used during its operation.

In evaluating the proposal, NHTSA has measured the distances from the driver's eye location to the mirror surface on a number of school buses, including transit style buses, and has found it to be a straight-forward task that gets easier the more it is done. The aspect of the measurement that required the most effort was establishing the line of sight through a window and then measuring that line. The use of standard tape measures, one used to measure the distance from the mirror to the window and the other to measure the distance from the window to the eye location, worked well for establishing the line of sight and measuring it. The thickness of the window was then added to the measured distances. A more elaborate test setup could be established using a laser or high intensity light beam to establish the line of sight. Based on the agency's experience in measuring mirror distances, the degree of accuracy is not that critical since all of the mirror distances were well over 39 inches.

However, NHTSA agrees with the commenters that determining the minimum radius of curvature of a mirror may be a difficult and time consuming task. Accordingly, the agency has modified the final requirement so that the eye accommodation distance is based solely on the distance from the driver's eye location to the mirror surface.

The proposed requirements in S9.3(b)(2) have been modified to read as follows in this final rule: "Each mirror shall be located such that the distance from the center point of the eye location of a 25th percentile adult female to the center of the mirror surface shall be at least 37.5 inches." To repeat, the proposed requirement was for the distance from the center of each convex cross view mirror to the center point of the driver's eye, plus one-half the smallest radius of curvature of the mirror surface, to be at least 39 inches. While the proposal's provision about adding "one-half the smallest radius of curvature" to the distance from the driver's eye to the center of the mirror is no longer expressly part of the specified measurement, the agency derived the 37.5 inch distance in this final rule using the proposed combination of distance between the driver's eye and the mirror and one-half the radius of curvature of the mirror.

The 37.5 inch minimum was derived as follows. Of all the mirrors used in the VRTC report, the smallest radius of curvature (and thus the one with the poorest image quality) was 3.41 inches. Assuming that the design radius of curvature of future mirrors would not be less than 3 inches, then one-half of that radius of curvature would be 1.5 inches. Subtracting 1.5 inches from the 39 inch proposed requirement leaves 37.5 inches. The final rule accordingly accounts for accommodation distances in worst case situations, just as the proposal did, but simplifies the calculation.

NHTSA disagrees with Blue Bird's comment that mirror location should not be regulated because the location of other components (i.e., gauges, switches, and lights) in the bus are not regulated. The agency believes that to ensure the safety of student pedestrians, the images in school bus mirrors, particularly convex mirrors, cannot be blurred for any driver. That same level of concern is not necessary for clearly seeing a gauge or switch, since seeing such devices is not as critical for student safety as viewing a mirror system. Also the inherent nature of convex mirrors, which reduce the size and elongate the image of the reflected object, make mirror images more difficult to see and use. By contrast, the task of identifying gauges and switches is comparatively straightforward.

Arizona DOT commented that school buses should be equipped with forward mount driving mirrors on the left side, in lieu of the low mount driving mirrors currently being used by many districts. Arizona stated that this requirement "is needed in order for the mirror to be at least 39" from the driver's eye." NHTSA notes that Arizona appears to have misinterpreted the provision's applicability, because the minimum accommodation distance applies only to convex crossview (System B) mirrors, not to driving (System A) mirrors. Although the Arizona comment is related to driving mirrors, instead of the cross view mirrors, it illustrates that different cross view mirror mounting locations may be necessary on some types of school buses to meet the accommodation distance requirement.

c. *Discontinuities in a mirror surface's slope.* Standard No. 111 currently prohibits discontinuities in a mirror surface's slope. The NPRM proposed retaining this requirement, but redesignating it S9.3(b)(3). The proposal explained that prohibiting mirror discontinuities would prevent mirrors in which the slope or surface of the mirror was concave, thus protecting against poor image clarity.

All those commenting on this issue, i.e., NSTA, Mirror Lite, Thomas Built Buses, and New York State, agreed that retaining the current prohibition on mirror discontinuities is necessary. Accordingly, the final rule adopts this provision.

Mirror Lite suggested that the agency use the term "diminishing image" instead of "distortion" to describe the image quality provided by cross view mirrors. It stated that distortion is a flaw in the mirror surface that can be found in any type of mirror. After reviewing the comment, the agency agrees with Mirror Lite and has decided to use the phrase "image clarity" rather than "distortion" in the preamble. Nevertheless, the agency notes that this term is not in the regulatory test.

d. *Mirror supports and adjustment.* Standard No. 111 currently requires each flat mirror and each convex cross view mirror to be installed with a stable support. The NPRM proposed that each convex cross view mirror "be installed with a stable support designed to dampen vibration." This requirement is intended to ensure a clear and properly focused image by preventing mirrors from vibrating unreasonably and by reducing the likelihood that mirrors become misaligned. Comments to the ANPRM explained that such misalignment reduces a driver's ability to see children in potentially dangerous locations around a stopped school bus.

The NPRM asked the following questions about mirror stability:

(1) Could the requirements be made more precise?;

(2) Is is necessary to require adjustable mounting brackets for all types of cross view mirrors?; and

(3) Do non-adjustable brackets reduce the amount of vibration of the mirror while driving or idling?

Commenters disagreed about the need for requiring mirrors to have stable supports. NSTA and Thomas Built believed such requirements were not needed, with Thomas Built stating that most current mirror mounting systems provide a stable yet easily adjustable mirror system. In contrast, Washington State and Transport Canada supported the proposal to require stable supports. Transport Canada favored an objective test to evaluate the stability of mirror brackets for cross view mirrors but had no particular recommendations to increase the requirement's precision. Washington State supported the proposed regulatory language, agreeing that vibration can significantly harm image quality. Nevertheless, Washington State suggested that additional language be included stating that if a mirror adjustment mechanism is necessary, it should be designed so that vibrations would not misalign the mirror. Arizona explained that its draft State mirror requirements would specify that cross view mirrors "shall be easily adjustable but be rigidly braced to reduce vibration."

Commenters discussed the types of mirror adjustment mechanisms currently being used. Some mirror systems have both adjustable brackets and mirrors, some only have adjustable mirror portions, and others only have adjustable brackets. Mirror Lite, Flynn, and Sloan believed that mirrors should be adjustable. Tennessee, Arizona, and Blue Bird believed that mirrors should have adjustable brackets. Blue Bird commented that properly tightened adjustable brackets become rigid and thus perform the same function as non-adjustable brackets.

After considering the commenters' varying views, NHTSA has determined that Standard No. 111's existing requirements for mirror stability are appropriate, and they are adopted in this rule. The agency recognizes that different mirror manufacturers have developed various types of mounting brackets and mirror mountings that employ different degrees of adjustability or non-adjustability. There is no evidence in the comments to the docket, or in any of the mirror evaluations the agency has conducted, that the proposed requirements could be made any more precise. NHTSA notes that Standard No. 111 currently requires "stable support" for both inside and outside mirrors on all types of vehicles, not just school buses. The agency believes that these requirements should be retained for school buses. While a

more precise requirement is not possible, the agency believes it is important to retain a requirement for mirror stability in the standard as a means of highlighting the importance of mirror stability to mirror performance.

One change from the proposal is prompted by Transport Canada's comment that the stability requirements should also apply to the System A mirrors. As Transport Canada stated, Standard No. 111's existing requirements for school bus outside rearview mirrors include "stable supports." The agency agrees that the stability requirements should continue to apply to System A mirrors, and the final rule's requirements have been modified accordingly.

Additionally, NHTSA notes that on April 26, 1991, it revised Guideline #17 to state "that all school buses shall have a system of mirrors that conforms to the school bus requirements of FMVSS No. 111." (56 FR 19270) While this amendment means that the most current requirements in Standard No. 111 are applicable, the agency has decided to issue elsewhere in today's **Federal Register** a conforming amendment to clarify this situation. In particular, the conforming amendment deletes the outdated requirements referring to the 30 inch rod test in Guideline #17.

e. *Informational label on using cross view mirrors for driving purposes.* The NPRM discussed the agency's concern about using convex cross view mirrors as driving mirrors. These concerns were based on the agency's belief that the inherently poor image clarity and image size reduction characteristics of highly convex mirrors make such mirrors inappropriate for driving purposes. In addition, the reaction time is slower for drivers using several mirror systems each with significantly different radii of curvature. Such mirrors may not provide the driver with a consistent reference point with respect to the location of images in the various mirrors. Accordingly, the NPRM proposed that mirrors with an average radius of curvature less than 35 inches be marked with the following message:

"THIS MIRROR IS NOT DESIGNED FOR USE WHILE THE VEHICLE IS IN MOTION."

The NPRM identified three issues about these informational requirements: (1) The need for such a message; (2) the message's content; and (3) the message's location. As to location, the agency proposed that the message be placed directly on the mirror, but requested comments about other possible locations.

Regarding the need for an informational message on convex cross view mirrors, only NSTA and Thomas Built Buses believed that a message was unnecessary. NSTA stated that the message could impair the mirror's effectiveness and distract the driver. NSTA and Thomas Built said that the message was unnecessary because they believed that driver training would be more effective than a label whose benefits were questionable.

All other commenters supported having an informational label either expressly (Mirror Lite, R&R Research, Washington State, and Sloan Company) or implicitly (Transport Canada, Anne Arundel County Schools, New York State, Tennessee DOE, Arizona DOT, Lo-Mar, and Blue Bird) by not objecting to the label, while commenting on the location, size, or wording of the warning. R&R Research stated that an informational label was necessary because in practice drivers use cross view mirror systems to gain information on traffic conditions around the bus.

After considering the comments, NHTSA has determined that a message explaining the proper use of convex cross view mirrors is necessary since some drivers use these mirrors for driving purposes. The agency is aware that properly trained drivers will have been taught that these mirrors are for pedestrian detection purposes only. Accordingly, NHTSA believes that the label will serve more as a reminder message rather than as an "instructional" message for those drivers trained in the proper operation of school buses and use of mirror systems. The agency believes that the message will also benefit untrained drivers, by informing them about the mirror system's proper use.

As to the content of the message, R&R Research commented that the label should communicate two things: the correct action required of drivers, and the potential consequences of inappropriate behavior. NHTSA agrees with R&R's comment that a more positive, informative message would provide greater potential safety benefits than the proposed one. Specifically, the message adopted in the final rule explains what action should be taken (i.e., use the mirror to detect pedestrians), what action should not be taken (i.e., do not use the mirror to view traffic), and why the mirror should not be used inappropriately (i.e., the images do not accurately show another vehicle's location). Accordingly, the message required by the final rule has been changed to read as follows:

"USE CROSS VIEW MIRRORS TO VIEW PEDESTRIANS WHILE BUS IS STOPPED. DO NOT USE THESE MIRRORS TO VIEW TRAFFIC WHILE BUS IS MOVING. IMAGES IN SUCH MIRRORS DO NOT ACCURATELY SHOW ANOTHER VEHICLE'S LOCATION."

Many commenters addressed the proper location for an informational message about cross view mirrors. Only Anne Arundel County favored placing the message on the mirror itself, claiming that placing this message elsewhere inside or outside the bus would create problems since many buses already are required to contain several messages.

All other commenters, including R&R Research, New York State, Lo-Mar, Arizona DOT, Tennessee DOE, Transport Canada, Washington State, and Mirror Lite, recommended that the message be placed inside the school bus near the driver instead of on the cross view mirror itself. Commenters stated that a message placed directly on the mirror would be difficult to read and would obstruct some images, thus adversely affecting mirror performance. Tennessee DOE stated that the message should be placed on or near the instrument panel. New York State favored including the message on a sticker attached to the bus in the line of sight of the driver when observing the mirror. R&R Research favored placing the message inside the bus either on the instrument panel or near the interior rear view mirror.

After considering the above comments, NHTAS has decided that the message should be located inside the school bus near the bus driver instead of on the convex cross view mirror. The agency agrees with the comments that a message placed directly on the mirror would be difficult to see and would reduce mirror performance by obscuring some mirror images. As noted above, the agency's primary goal is for drivers to understand that these mirrors should not be used while the vehicle is in motion because information obtained in such situations is not accurate enough to make appropriate driving decisions.

The agency agrees with Anne Arundel County that the driver's area already contains a number of informational labels explaining proper school bus operations. Since the agency is unaware of any single "best" location for the mirror-use label, the final rule provides flexibility to bus manufacturers in placing the label at an appropriate location which is prominent and visible within the driver's area of the bus. The standard requires the label to be printed in type face and color that are clear and conspicuous. NHTSA notes that these locations, size, and color requirements are patterned after the warning label requirements for utility vehicles in 49 CFR 575.105.

f. *Performance requirements for image clarity.* The NPRM proposed performance requirements to ensure that the images in cross view mirrors were of sufficient minimum quality to provide the school bus driver with reliable information about the presence of children in front of and along both sides of the bus. In selecting these proposed requirements, the agency relied on the VRTC report's finding that only a limited level of image quality is necessary to ensure that a school bus driver is aware of a student in a dangerous zone, so as not to move the bus until the student has moved to a safe location.

The NPRM proposed two requirements to ensure adequate image quality. First, the separation between the edge of each cylinder's image and the edge of the effective mirror surface would have to be not less than 3.0 minutes of arc. This requirement stems from the agency's finding that the most difficult images to recognize are elongated ones near the mirror's curved reflective edge. Second, with respect to the image of the cylinder perpendicular to and twelve feet away from the rear right axle, the angular size of the longest dimension of that image would have to be not less than nine minutes of arc and the angular size of its shortest dimension would have to be not less than three minutes of arc. This requirement stems from the agency's finding that unreasonable elongation would make it difficult for the driver to identify a child's image in the mirror.

Several commenters addressed the issue of image quality. Mirror Lite believed that a test procedure was necessary to reduce distortion due to a flawed mirror surface and to increase image quality. NSTA stated that only a reasonable level of image quality is necessary, since a driver needs only to recognize that an object in the mirror is a child and does not need to know specific details about the image. Thomas Built commented that the specification for the minimum distance between the image and the mirror's effective edge could be eliminated, believing that the elongation requirements of S9.4(b) (1) and (2) should make the image "acceptable."

Commenters also provided general comments about the image quality requirements. Transport Canada stated that when a cylinder is visible in two mirrors, both images should have to meet the requirements for minimum size and distance from the mirror's edge, believing that this would ensure that a small child would not be overlooked. While Blue Bird agreed that the location of the image relative to the outer edge of the mirror surface should be limited, it believed that the proposed requirement of three minutes of arc would be difficult to measure given its dependence on the following variables: (1) The radius of effective mirror surface, (2) mirror adjustment by the driver, and (3) distance from the driver's eye location to the image in the mirror for different mirror combinations and bus types on which mirrors are mounted. Blue Bird was concerned that this proposal would result in ambiguities given potential problems in accurately measuring the allowed mirror distance between the image and edge of the mirror. Blue Bird recommended establishing a limit on the distance between images and the mirror edge which it characterized as being more easily measurable during compliance testing.

Several commenters provided specific suggestions about changing the requirements for image quality. Thomas Built recommended that each cylinder's top surface have a letter which would be used to evaluate image clarity. Thomas Built believed that the proposed three minutes of arc was "minute and undeterminate," stating that on a mirror with a 28 inch radius of curvature, three minutes of arc is only .024 inches. Accordingly, Thomas Built suggested the requirement be eliminated unless a fixed dimension such as ¼ inch is specified. Similarly, Blue Bird suggested establishing a fixed distance of 1/16 inch along the effective mirror surface's edge to be blocked out during compliance testing.

After reviewing the comments, NHTSA repeated several mirror evaluations and created charts representing a distance of three and nine minutes of arc for use in the proposed test procedure. (See Figure 4.) Based on that evaluation's results, the agency believes that three minutes of arc can be accurately measured and that this dimension provides adequate separation between the test cylinders and the effective edge of the mirror. Accordingly, the final rule adopts the proposed three minutes of arc requirement.

As for Thomas Built's suggestion to letter the tops of the cylinders, NHTSA notes that the VRTC report found that such precision is not necessary for the driver to recognize that a pedestrian is in danger. In addition, such a high level of precision might be impracticable for certain mirrors that nonetheless provide an adequate field-of-view. Similarly, the agency believes that adopting Transport Canada's recommendation for multiple images of the same cylinder to comply with the image clarity requirements would be unnecessary for safety and would be redundant. Moreover, such a requirement appears to be impracticable based on the agency's evaluation of various mirror systems.

As for the suggestions by Thomas Built and Blue Bird to establish a minimum fixed dimension of either 1/16 or ¼ inch between the test cylinder image and the mirror's effective edge, NHTSA believes such an approach would be neither practicable nor appropriate. NHTSA notes that the "effective edge" of a convex mirror varies depending on the adjustment of the mirror and the driver's eye location. Accordingly, it is not feasible to specify a measurement from a variable location since the effective edge of a convex cross view mirror is often towards the center of the mirror, instead of at the actual edge of the mirror.

g. *Image elongation.* As noted above, the NPRM proposed language controlling the minimum angular size of the image of the test cylinder located twelve feet perpendicular to the side of the bus at the right rear axle line. The purpose of this proposal was to ensure that the image would not appear unreasonably elongated, a phenomenon that might prevent drivers from being able to identify a child's image in the mirror. As noted in the VRTC report and in the agency's in-house evaluation, drivers have the most difficulty seeing images of objects along the axis perpendicular to the right rear wheel because some current designs of convex cross view mirrors unreasonably elongate the image.

Several commenters expressed their views about the elongation requirement. R&R Research stated that the proposed minimum image sizes of three minutes and nine minutes of arc would be adequate as a minimum standard for most situations. Nevertheless, it believed that occasionally a driver with poor vision in low contrast situations would not be able to detect objects in a mirror designed to comply with the proposed minimum image size requirements.

Blue Bird objected to the proposed elongation requirements, claiming not to understand the use of cylinder N to measure distortion. Blue Bird believed that the agency did not justify the specified angular dimensions for a distorted image viewed in any particular mirror, arguing that the proposed angular sizes may be too restrictive and may not correspond to real-world situations. In support of its argument, Blue Bird cited the VRTC report which stated that "It is better to have a 'distorted' object in the mirror than no object at all." Based on the above, Blue

Bird requested that the agency conduct additional research to determine practical real-world limits for allowable image distortion.

Commenters also offered specific recommendations about the performance requirements for elongation. R & R Research suggested that the final rule contain either a table of target dimensions that subtend the three and nine minute visual angles when viewed at a specified distance or contain the mathematical formulae to calculate them. Lo-Mar requested that "angular size" be better defined, claiming that the angular size of the cylinder's image in the mirror is confusing. Nevertheless, Lo-Mar offered no specific suggestions.

Transport Canada suggested that the image size requirements be extended to all cylinders in all mirrors, stating that cylinder N will not necessarily appear in the mirror at the mirror's smallest radius of curvature. Transport Canada also suggested that the minimum angular size for cylinders A through F be five minutes of arc, and the minimum angular size for cylinders G through K be ten minutes of arc.

After reviewing the comments and conducting additional mirror evaluations, NHTSA has decided to adopt the proposed requirements for minimum angular dimensions of test cylinder N in this final rule. The agency notes that the test cylinder identified as N in the NPRM is identified as cylinder P in this final rule. The agency believes that the elongation requirements are necessary to protect against poor image quality for objects toward the rear of the bus.

In response to the comments from Transport Canada, Lo-Mar, and Blue Bird, the agency notes that test cylinder P will most often be located further towards the edge of the effective mirror surface than the other test cylinders. Therefore, cylinder P's image will typically be a worst-case image that is subjected to more spherical aberration than other images that are further from the effective edge of the mirror. Because of this, the image of cylinder P will typically be the least clear. This fact, combined with test cylinder P being located the farthest away from the mirror and driver, indicates that controlling the image clarity of test cylinder P should effectively control the image clarity of all test cylinders.

NHTSA believes that the minimum angular sizes (three minutes and nine minutes) adopted here in the elongation requirements are consistent with the dimensions adopted in the image clarity requirements for the distance from test cylinders to the effective edge of the mirror (three minutes). Both sets of dimensions were based on NHTSA mirror evaluations and the capabilities of these existing mirrors to meet those dimensional limits. While real-world evidence to define conclusively the optimum image sizes is not available, and may be impossible to obtain because of the many factors influencing the clarity of an image in a cross view mirror, the agency believes the adopted image clarity and elongation requirements are reasonable and practicable. Aside from the objections by Blue Bird and Lo-Mar, no other comments were received on this subject. The agency assumes that the other commenters tacitly approved the image clarity and elongation requirements since the NPRM expressly asked about the reasonableness and practicability of these requirements, a subject about which the commenters are generally knowledgeable.

After reviewing R&R Research's comment about including a comparison chart and the mathematical formula, the agency has decided to modify the final rule to incorporate a size chart for three minutes and nine minutes of arc and the formulae for calculating them.

E. Testing procedures

1. General

Based on the VRTC report and other agency findings, the agency proposed in section S13 certain test procedures under which the proposed performance requirements would be evaluated. As explained below, the NPRM proposed detailed specifications about the characteristics of test cylinders and their placement at critical locations in front of and along both sides of the school bus. The NPRM also proposed a testing reference point and testing procedures, including the photographing of test cylinders.

2. Testing Reference Point 25th Percentile Female

The NPRM proposed that compliance testing be measured relative to the center point of the eye location of a 25th percentile adult female represented by a two dimensional manikin. The agency selected this sized driver because such a driver tends to have a poorer direct field-of-view of the area near the bus than a taller (e.g., 95th male percentile) driver.

The proposed regulatory text in S13.2 contained specific information on determining the eye location of a 25th percentile adult female seated in the driver's seat. These provisions concerned the seat's position and adjustment procedures.

Several commenters addressed the testing requirements related to the driver position. R & R Research believed that the standard need not refer to the 25th percentile female since precise dimensions from the seat are provided. Blue Bird disagreed with the use of a 25th percentile female for identifying the eye location, stating that for passenger cars, Standard No. 111 uses a driver's eye location corresponding to a 95th percentile male. Notwithstanding its criticisms, Blue Bird acknowledged that the proposed eye location procedures would allow precise determination of the driver's eye location in any bus. Transport Canada believed that multiple eye locations should be used in the test procedure, including a 5th percentile female and a 95th percentile male. It stated that the 95th percentile male provides the worst-case viewing in indirect field-of-view situations since that type of driver sits farthest from the mirrors.

After reviewing the comments, the agency continues to believe that the eye location of the 25th percentile adult female is appropriate for representing a "worst case" for visibility. Therefore, the proposed requirements are adopted in this final rule. The agency notes that because the adopted requirements consider the bus's entire field-of-view and not just the indirect view created by mirrors, the 25th percentile female provides a more stringent testing perspective than a 95th percentile male. This consideration outweighs the perceive benefits from having consistent reference points in Standard No. 111 for all the different types of vehicles.

The agency believes that Transport Canada's suggestion that eye locations be based on 95th percentile males and 5th percentile females would create excessive requirements. As discussed below in the section on "Camera Testing Points," the final rule allows for compliance within an area formed by the points of an arc located six inches to the left, forward, and right of the eye location of a 25th percentile adult female. Such a requirement recognizes that drivers typically move their heads while viewing mirrors, and that the range of these movements would encompass eye locations for various size drivers.

As R&R Research stated, the final rule provides dimensional information for locating the center point of the driver's eye location. Even though it may not be strictly necessary to do so, the agency believes that the rule should expressly state that the source of that dimensional information is the 25th percentile adult female.

3. Mirror Adjustment During Testing

The NPRM proposed that the mirrors be adjusted in accordance with the manufacturer's recommendations (see S13.3). Several commenters addressed the issue of mirror adjustment. R&R Researcher and Transport Canada stated that the agency should modify proposed S13.3 in the final rule to state that, once adjusted, the mirrors must remain fixed in one position throughout the measurement procedure. On the other hand, New York State commented that mirrors subject to Standard No. 111 should be remotely adjustable from the driver's seat to accommodate the eye locations of different size drivers.

After reviewing the comments, NHTSA has decided to modify the language in S13.3 to prohibit moving or adjusting mirrors during compliance testing. The agency's intention in the NPRM was to require mirrors that would, once properly adjusted, afford the driver a clear view of children present around stopped school buses. Mirrors that must be repeatedly adjusted to view the entire area around the stopped bus would not effectuate that intention. In addition, mirrors that must be repeatedly adjusted are not likely to be adjusted every time by the driver, which would mean there potentially could still be situations where the driver could not detect child pedestrians around the stopped school bus. To ensure that the mirrors required by this final rule will not need any further adjustments after the initial one, this rule modifies the proposed language in S13.3 to make such a requirement explicit.

This rule has not been modified in response to New York's comment about remotely adjustable mirrors. As explained above, the agency is seeking to require mirrors that will offer a clear view of the area around a stopped school bus without any further adjustments after the initial one. While remotely adjustable mirrors are now available, they will not be considered as complying with this rule if they must use their adjustability characteristics to provide the required view during testing.

4. Camera Testing Points

The NPRM proposed that observations would be made and photographs taken of the test cylinders from a point representing the center of the driver's eye location for a 25th percentile adult female, as well as at locations six inches forward, left, and right of the center of the driver's eye location. These multiple positions were intended to account for head movements. Under the proposed test procedures, cylinders that were directly viewable would be evaluated first, and then cylinders that were not directly viewable would be evaluated. In both situations, the evaluator would look through a camera's film plane to determine whether the entire top surface of a test cylinder could be directly seen. A comparison chart placed above each mirror would serve as a reference point in evaluating the image size and amount of distortion of cylinders visible in a mirror.

Many commenters addressed the requirements related to the camera locations. The Arizona DOT supported the proposed procedure. According to this commenter, it evaluated some existing mirror systems in accordance with the proposal and determined that the driver's eye location can be established and the camera location is correct.

Other commenters either criticized the proposed camera-related testing procedures or offered suggestions to improve the requirements. Mirror Lite was concerned that the camera location requirements would be interpreted differently by various bus manufacturers, but did not explain the basis for its concern. Thomas Built requested that mirror systems should only have to meet the test requirements from any one of the allowable camera locations instead of all locations, claiming that the time and cost of conducting photographic tests at multiple locations would be unreasonable. In support of its request, Thomas Built stated that the proposed requirement would require it to evaluate 140 bus/driver seat combinations for any given mirror system since certification testing would have to be conducted on each type of bus with each type of driver seat offered. Since Thomas Built estimated that evaluating one seat in one bus with one mirror system required about 80 man hours and $125 of photographic materials, it viewed the testing necessary to evaluate 140 combinations as being overly burdensome.

Blue Bird criticized using a camera to measure compliance, citing such concerns as the camera's monocular vision, the burden to customers of many photographs and their duplication for documentation purposes, the camera's inability to define correctly the direct field of view, and its inability to consider adjustments made by humans in mirror visibility.

Transport Canada requested that video cameras be allowed, claiming that their use would permit viewing of images superior to those seen by cameras. It also requested that the requirements provide more detail on the focal length of the camera lens.

After reviewing the comments, NHTSA agrees with Thomas Built that requiring testing at multiple points would be overly burdensome and would not yield significantly more worthwhile information. Upon reexamination, the agency now believes that a more appropriate procedure would be to allow testing to be done at any point within a specified area around the 25th percentile adult female driver's eye location. Such a procedure more accurately accounts for real-world situations in which drivers typically move their heads while they view mirror systems. Based on the above, the agency is changing S13.4 in this final rule to allow compliance with the standard at any one of the four points specified in Figure 3 (point "A," "B," "C," or "D") or at any single point within a semicircular area established by a 15.24 centimeter (6 inch) radius parallel to and forward of the center point. This viewing zone is illustrated in Figure 3. The agency anticipates that this modification will provide meaningful information about the driver's view of critical areas around the bus, while reducing the photographic time and cost factors mentioned by Thomas Built by 75 percent. The agency believes that if a vehicle manufacturer can establish compliance at one of the four testing points or any point in the semicircle, then that mirror system on that school bus should provide an adequate field-of view given the small size of the semicircle.

NHTSA believes that Blue Bird's concerns about a camera's monocular vision and its inability to define the direct field of view are philosophical in nature and relate to the inherent limitations of current technology. Given the available means to demonstrate objectively compliance with this standard, NHTSA is unaware of any other means that would be as effective, as practicable, and as easy to demonstrate as the use of a camera.

As for Mirror Lite's claim that the camera location specifications were ambiguous, the agency disagrees. NHTSA believes that difficulties in interpretation are unlikely, because the camera location specifications are well defined and easily achieved in actual testing situations.

As for Transport Canada's comment about video cameras, NHTSA has determined that this testing method is appropriate and should be permitted. Accordingly, the final rule at S13.4 has been modified. While video technology as a means for demonstrating

compliance with this standard may currently be less practicable than still photography, the agency believes that technological improvements may make video cameras a more viable option in the future. The agency therefore has decided not to preclude their use. To accommodate this modification, the term "film plane" has been changed to "image plane."

As for a lens focal length, the agency does not believe specifications about the focal length of lens are necessary. During the agency's mirror evaluations, lenses of various focal lengths were used to photograph the mirror images, including 50 mm to 250 mm lenses. While the ability to analyze the results was acceptable with all lenses, the agency noted that less enlargement was necessary when using a lens with a longer focal length. The agency believes it is reasonable to allow the entity conducting the test to select the type of camera and lens best suited to its purposes.

F. Miscellaneous Considerations

1. Certification

Thomas Built requested that the mirror manufacturer be responsible for certifying the image's quality and the bus manufacturer be responsible for certifying the field-of-view. It stated that this division of responsibility would simplify the testing and development process between mirror and bus manufacturer.

NHTSA notes that Thomas Built's suggested certification scheme would be inconsistent with the scheme set forth in Standard No. 111. That standard is a "vehicle" standard under which the vehicle manufacturer, and not the mirror manufacturer, is responsible for ensuring that a mirror complies with the standard. This ensures that vehicles equipped with noncomplying mirrors will be quickly remedied, without the need for a specific determination of whether the noncompliance arose because of an innate problem with the mirror or because of its installation on these particular vehicles. The agency does not believe there is any reason to change this scheme for school buses under Standard No. 111. Notwithstanding this conclusion, the agency notes that a vehicle manufacturer can establish in its purchase specifications whatever level of requirements it chooses for its suppliers and take appropriate actions if the supplier's products fail to conform to those specifications.

2. Retrofitting

Several commenters, including the National PTA and the National Education Association (NEA), advocated that NHTSA require existing school buses to be retrofitted to comply with the new requirements. The National PTA stated that the agency's decision not to retrofit existing school buses was "based more on a lack of regulatory courage than legal restrictions."

The agency's statutory authority under the National Traffic and Motor Vehicle Safety Act (the Safety Act; 15 U.S.C. 1381 *et seq.*) is to issue safety standards applicable to new motor vehicles and new items of motor vehicle equipment before their first consumer purchase. The Safety Act expressly provides that vehicles and items of equipment are not required to continue to comply with all applicable safety standards after their first purchase for purposes other than resale. See section 108(b)(1) of the Safety Act (15 U.S.C. 1397(b)(1)). Thus, NHTSA's safety standards regulate the manufacture and sale of new vehicles and items of motor vehicle equipment. Regardless of the agency's "regulatory courage," amendments to the safety standards do not and cannot require vehicles in service to comply with the requirements adopted in final rules.

However, the individual States do have the authority to regulate vehicles in service. Notwithstanding the lack of Federal authority to order school buses already in service to meet these amended requirements, the agency anticipates that many in-use school buses already comply with or will be retrofitted by State and local authorities to comply with these amended requirements.

3. Applying Requirements to Buses Other Than School Buses

New York State recommended the agency apply the new field-of-view requirements to all transit-type vehicles that transport the public.

NHTSA notes that New York's recommendation to apply the field-of-view requirements to non-school buses is beyond the scope of this rulemaking action, since the NPRM only proposed new requirements for school buses. The agency notes that the benefits of applying these requirements to transit buses appear questionable since most school bus-related incidents involve children under the age of seven. Notwithstanding the above discussion, the agency does not prohibit using "school bus" mirror systems on other types of buses.

4. Heated Mirrors

New York State and Moto Mirror requested that the agency require school buses to be equipped with heated mirrors, at least for those areas that experience cold weather.

NHTSA recognizes that some northern portions of the country experience weather conditions where mirror systems can become covered with ice and snow. While these conditions affect the potential effectiveness of the mirror systems, NHTSA believes that the responsibility for maintaining the mirror systems, and any part of the vehicle which affects the performance of the mirror systems, is best left with the State and local school districts. The agency further notes that since school buses are manufactured for use in all parts of the country, they must comply with all applicable standards. Therefore, it would be unreasonable to promulgate a national standard that would have little or no benefit for a significant part of the country.

5. Maximum Permissible Number of Mirrors

Several commenters addressed the number of mirrors with which a school bus should be equipped. R & R Research believed that the new standard should address the number of mirrors allowed on a school bus and the size of the mirrors. While the number of mirrors affect the time a driver needs to search visually the area around the bus, mirror size affects the blind spots created by the mirrors themselves. Transport Canada believed that the number of rear-view mirrors should be limited to one per side to avoid possible confusion produced by multiple images and reduce the total time drivers must divert their attention from the road ahead.

While NHTSA is aware of the situation mentioned by R & R Research and Transport Canada, no provision limiting the number of mirrors on school buses has been included in this final rule because the agency does not believe that there would be a safety benefit from such a limitation. The agency further notes that a major purpose for this rulemaking's field-of-view approach is to allow school bus users and manufacturers to determine the best mirror system for their particular operating environment.

6. Blind Spots

The NPRM requested comments about whether the mirrors would create dangerous blind spots in the driver's direct field-of-view, given the size and location of some convex cross view mirrors.

Several commenters believed that the agency should address the potential problems of blind spots created by mirrors. R & R Research believed that any new standard should address the mirror size, since this affects the blind spots created by the mirrors themselves. Transport Canada suggested that mirrors be located in areas that do not obstruct the driver's direct view of traffic and pedestrians. Thomas Built and a bus driver commented that while convex cross view mirrors do not create significant blind spots, side mounted driving mirrors may decrease visibility.

Other commenters believed that blind spots were not a significant safety problem Arizona DOT stated that the increased field-of-view provided by mirrors offsets the corresponding blind spots. Blue Bird stated that blind spots created by a cross view mirror on one side of the bus can be viewed in the cross view mirror system on the other side of the bus.

NHTSA agrees with Arizona DOT that blind spots in the direct field-of-view created by mirrors themselves are offset by the larger indirect field-of-view provided by the mirror system. Although NHTSA does not believe it is appropriate to establish requirements for mirror locations, the agency does believe that mirror and school bus manufacturers should strive to develop mirror locations which limit the amount of obstruction to the driver's direct field of view.

7. Glare from Mirrors

The NPRM asked whether glare from some cross view mirror designs, caused by turn signals and other school bus lights, would reflect light from flashing turn signals into the driver's eye.

Of those who commented on this issue (Thomas Built, Blue Bird, Arizona, Mirror Lite, Tennessee), no commenter believed that glare caused a significant safety problem. Based on the comments, the agency does not believe that reflected light or glare from convex mirrors presents an unreasonable safety risk to school bus drivers.

8. Non-Mirror Systems

The NPRM discussed the docket comments received about mechanical and electronic devices which could be used either to keep students away from critical areas around the school bus or to alert school bus drivers to the presence of someone in a critical area around the bus. The agency explained that mirrors offer the most effective means of providing the school bus driver with a complete view in front of and along both sides of the bus. The agency believed that requiring these additional non-mirror devices "would substantially increase compliance costs without significantly increasing safety benefits."

The Arizona DOT agreed that instead of requiring such devices, it would be more cost effective to evaluate their effectiveness through pilot programs. SCAN, the manufacturer of an electronic detection system, requested that the agency modify the field-of-view requirements to allow compliance through mirrors or sensing/detection devices. SCAN believed that the NPRM was unduly negative toward its type of product and requested that critical comments from Blue Bird and Thomas Built about non-mirror systems be stricken from the docket.

The agency continues to believe that, in terms of performance, reliability, and cost, mirrors offer the best means for school bus drivers to become aware of pedestrians in front of and along both sides of the bus. Accordingly, the agency does not agree with the SCAN's belief that sensing/detection devices should be allowed as a means of meeting the standard's field-of-view requirements. Notwithstanding this decision, sensing/detection devices may be used as supplementary devices on school buses.

G. Costs

In previous notices, NHTSA considered the rulemaking's expected cost. The ANPRM estimated that the unit cost for a System B convex cross view mirror with a bracket plus installation would range from $52 to $107. The NPRM explained that the costs of an additional convex cross view mirror would range from $58 for a four 8" (17" ROC) convex mirror system to $121 for an 8"×12" quadrispheric "Bus Boy" mirror system. The proposal noted that, since school bus manufacturers and users were free to choose what convex cross view mirror system they would use to comply with the performance requirements, those parties' choices would greatly affect the ultimate costs. However, the agency anticipated that the cost of complying with the proposed changes would be minimal because of the current State mirror specifications. For example, States that currently specify four 8" (17" ROC) convex mirrors on cross view tripods, at a cost of $58 00, could switch to a pair of elliptical mirrors which cost nearly the same—$58.10.

The NPRM requested comments about this proposal's cost to school bus users and information about current State requirements for school bus mirrors.

Several commenters, including States and school bus manufacturers, generally agreed with the NPRM's cost estimates. The Arizona DOT and Tennessee DOE commented that the NPRM's cost estimates were accurate. Mirror Lite commented that the parts cost (i.e , mirrors and mounting arms) of four currently used standard 8" mirrors on a conventional bus is $44; while, the cost of two Bus Boy mirrors and brackets would be $51, a $7 difference. While Mirror Lite did not provide a cost for installation, the agency believes that the installation cost for two Bus Boy mirrors would be approximately the same as four 8" convex mirrors, if two such mirrors are mounted on the same bracket.

A few commenters believed the rulemaking would result in significant additional costs. Moto Mirror, a mirror manufacturer, stated that the aftermarket cost of a dual set of motorized and heated mirrors would be $362.05. The agency notes that these mirrors include motorized and heated features that the standard does not require. Blue Bird commented that available mirror systems that will meet the proposals have an additional cost of approximately $115 00 per bus above the cost of the standard mirror system it currently uses. R&R Research believed that the cost of installation and adjustment may exceed the cost of the hardware for some mirror systems, but provided no details to support the statement.

After reviewing the available information, NHTSA believes that the NPRM's initial cost estimates are generally reasonable. With respect to System A costs, the agency notes that all buses are typically equipped with supplemental convex driving mirrors as part of their System A mirrors. Thus, no real change in these mirrors would be necessary for school bus users to meet System A requirements. As for R&R Research's concern about installation, the agency has discussed mirror installation with bus manufacturers and State and local school district officials at various school transportation trade shows and has not found any supporting information for R&R's claim.

As to Blue Bird's comment on the $115 difference in the cost for a compliant mirror system, they were referring to a quadrispheric mirror system. They also inadvertently included the cost of the right and left side flat, rearview mirrors as part of the cost increase; this was not appropriate. Blue Bird resubmitted a cost increase of $30 per bus, to the consumer, when equipped with a quadrispheric mirror system rather than the standard four 8" convex cross view mirror system. They further stated that as such mirror

systems gain popularity among the users, that cost will drop.

With regard to Thomas Built's estimate of 80 man hours needed to complete a compliance test of a single bus-seat-mirror combination, it has been the agency's experience, through VRTC, that about ten man hours are necessary to do this type of test. Included in the agency's time estimate are such tasks as locating the cylinders around the bus, adjusting the mirrors, mounting a camera tripod in the driver's seat area, taking slides, processing film, and analyzing slides. The agency's estimate does not include one-time tasks such as setting up a grid of one foot by one foot squares and the constructing the test cylinders. Although many bus-seat-mirror configurations will need to be tested, once a particular configuration has been certified to meet the standard, that configuration will not need to be retested in subsequent years. Therefore, such one-time test costs would be distributed over the years that such a configuration is in use. Also, the agency believes that a limited number of design changes in bus exteriors and/or drivers' seats occur from year to year and any differences in the location of the 25th percentile adult female's eye location that do occur would be small and should not greatly affect the driver's direct or indirect field of view. These eye location differences among seats would, however, establish a compliance "envelope" spanning the eye locations that allow compliance with the standard. Thus, further reductions in time and cost would occur by not having to test any new configurations that would have minute eye location differences between previously tested configurations. Finally, the agency expects that further time savings will occur as more and more tests are performed.

H Leadtime Requirements

The NPRM explained that many mirror systems are now available which would comply with the proposed field-of-view requirements, and thus would not create leadtime constraints from that perspective. Nevertheless, the agency believed that school bus manufacturers and users should be afforded time to investigate and select how they wish to comply with the new field-of-view requirements. Accordingly, the agency proposed an effective date of one year after publication of the final rule.

Several commenters addressed the leadtime necessary for this rulemaking. The NEA favored having the final rule become effective as soon as possible. The Arizona DOT stated that there currently are mirrors that could be used to comply with the one year leadtime requirements. NSTA requested a leadtime of 18 months after publication of the final rule for the effective date, claiming that additional time was necessary to allow school districts to budget for the additional costs associated with the rulemaking.

After reviewing the comments, the agency continues to believe that a one-year leadtime after the final rule's publication provides adequate time for school bus manufacturers and users to determine how to comply with the new field-of-view requirements. The agency notes that most school bus manufacturers are already familiar with all of the brands of mirrors. The extra six months requested by NSTA is not warranted on the basis of other comments.

This final rule does not have any retroactive effect. Under section 103(d) of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1392(d)), 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. Section 105 of the Act (15 U.S.C. 1394) 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.

Rulemaking Analyses and Notices

Executive Order 12291 (Federal Regulation) and DOT Regulatory Policies and Procedures

NHTSA has considered the costs and other impacts of this rulemaking, and a Final Regulatory Evaluation (FRE) has been prepared and placed in the docket. Based on this evaluation, the agency has determined that the rulemaking is not "major" within the meaning of Executive Order 12291. However, it is "significant" within the meaning of the Department of Transportation's regulatory policies and procedures.

As explained in the FRE, the additional cost of installing a pair of compliant convex cross view mirrors on a new school bus could range from no cost to as much as $30 per school bus, depending on the type of mirror system selected by the school district. About 38,000 new school buses are sold each year, and according to Blue Bird about 12 percent of all their buses are equipped with a compliant mirror system. Therefore, assuming Blue Bird's sales breakdown is representative of the overall bus manufacturing industry, about 33,440 buses (38,000 × 88 percent) will have to be equipped with a compliant system. Therefore, the aggregate annual cost to consumers would range from no cost to about $1,003,200. (33,400 × $30 per bus).

NHTSA anticipates that the actual costs will likely be nearer the lower end of the estimated cost range for the following reasons. Buyers will probably select lower cost mirrors since they are quite sensitive to cost. At the same time, economies of scale and competition will lower the costs of the more expensive mirrors. The agency further notes that since nearly all States now require school buses to have more mirrors than required by FMVSS No. 111, the costs of complying with this rulemaking could even result in a cost savings for those school buses being sold in jurisdictions where buses are currently equipped with more expensive mirrors than a mirror system that will now be allowed under the amendments.

As mentioned in this notice's "background" section, an average of 26 students are fatally injured and another 283 are injured when struck by their own school bus. While the effectiveness of upgrading the requirements for school bus mirrors cannot be conclusively established, accounts in the NAS report and docket comments indicate that some injuries and fatalities will be avoided.

Regulatory Flexibility Act

NHTSA has considered the effects of this action under the Regulatory Flexibility Act. I hereby certify that it will not have a significant economic impact on a substantial number of small entities. School bus manufacturers are generally not small businesses within the meaning of the Regulatory Flexibility Act. Small governmental units and small organizations are generally affected by amendments to the Federal motor vehicle safety standards as purchasers of new school buses. However, as discussed above, such entities that purchase school buses should see little change with regard to the price of new buses that are equipped with compliant mirrors. In addition, the agency notes that less than six mirror manufacturers provide nearly all of the school bus mirrors in use today. Although they are small companies, each has a full product line, including mirrors that can meet the amended standard. Thus, the likely impact should only be a shift in sales of particular mirror types. Accordingly, the agency has determined that preparation of a

regulatory flexibility analysis is unnecessary.

Executive Order 12612 (Federalism)

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

In its analysis, the agency considered the amendment's likely effect on the States and possible alternatives to the rulemaking. The agency has determined that virtually all States require school buses to be equipped with more mirrors than current Standard No. 111 requires. As this preamble explained earlier, the amendment provides general performance-oriented requirements that the States may exceed. Although the amendments will supersede the current school bus mirror requirements of a large number of States, any required State regulatory changes will only involve a relatively minor administrative or legislative action that should not require extensive discussion or debate, since the change will improve the level of driver visibility. In addition, because the amendment eliminates current specific requirements which serve to prohibit certain mirror designs, the rulemaking provides additional flexibility to the States. The agency further notes that the amended requirements are similar to the recommendation approved by 86 percent of the State representatives at the 11th National Conference on School Transportation. In addition, State commenters to the NPRM favored the field-of-view requirements. NHTSA accordingly does not expect any significant adverse effect on the States as a result of this rulemaking.

National Environmental Policy Act

NHTSA has also analyzed this rulemaking action for purposes of the National Environmental Policy Act. The agency has determined that implementation of this action will not have any significant impact on the quality of the human environment. Although there will likely be an increase in production of certain mirror types, this increase will not introduce any new or particularly harmful effects to the environment.

List of Subjects in 49 CFR Part 571

Imports, Motor vehicle safety, Motor vehicle.

PART 571—Federal Motor Vehicle Safety Standards

In consideration of the foregoing, 49 CFR part 571 is amended, as follows:

1. The authority citation for part 571 of title 49 continues to read as follows:

Authority: 15 U.S.C. 1392, 1401, 1403, 1407; delegation of authority at 49 CFR 1.50.

§ 571.111 [Amended]

2. In § 571.111, S4 is amended by adding the following definition in alphabetical order.

* * * * *

Effective mirror surface means the portions of a mirror that reflect images, excluding the mirror rim or mounting brackets.

* * * * *

3. In § 571.111, S9 through S9.2(b) is revised and a new S9.3 through S9.4(b)(2) is added, to read as follows:

S9. *Requirements for School Buses.* When a school bus is tested in accordance with the procedures of S13, it shall meet the requirements of S9.1 through S9.4.

S9.1 Outside Rearview Mirrors. Each school bus shall have two outside rearview mirror systems: System A and System B.

S9.2 System A shall be located with stable supports so that the portion of the system on the bus's left side, and the portion on its right side, each:

(a) Includes at least one mirror of unit magnification with not less than 322.60 square centimeters (50 square inches) of reflective surface; and

(b) Includes one or more mirrors which together provide, at the driver's eye location, a view of:

(1) For the mirror system on the right side of the bus, the entire top surface of cylinder N in Figure 2, and of that area of the ground which extends rearward from the mirror surface not less than 60.93 meters (200 feet).

(2) For the mirror system on the left side of the bus, the entire top surface of cylinder M in Figure 2, and of that area of the ground which extends rearward from the mirror surface not less than 60.93 meters (200 feet).

S9.3(a) For each of the cylinders A through P whose entire top surface is not directly visible from the driver's eye location, System B shall provide, at that location:

(1) A view of the entire top surface of that cylinder.

(2) A view of the ground that overlaps with the view of the ground provided by system A.

(b) Each mirror installed in compliance with S9.3(a) shall meet the following requirements:

(1) Each mirror shall have a projected area of at least 258.08 square centimeters (40 square inches), as measured on a plane at a right angle to the mirror's axis.

(2) Each mirror shall be located such that the distance from the center point of the eye location of a 25th percentile adult female seated in the driver's seat to the center of the mirror shall be at least 95.25 centimeters (37.5 inches).

(3) Each mirror shall have no discontinuities in the slope of the surface of the mirror.

(4) Each mirror system shall be installed with a stable support designed to dampen vibration.

(c) Each school bus which has a mirror installed in compliance with S9.3(a) that has an average radius of curvature of less than 88.90 centimeters (35 inches), as determined under S12, shall have a label visible to the seated driver. The label shall be printed in a type face and color that are clear and conspicuous. The label shall state the following:

"USE CROSS VIEW MIRRORS TO VIEW PEDESTRIANS WHILE BUS IS STOPPED. DO NOT USE THESE MIRRORS TO VIEW TRAFFIC WHILE BUS IS MOVING. IMAGES IN SUCH MIRRORS DO NOT ACCURATELY SHOW ANOTHER VEHICLE'S LOCATION."

S9.4(a) Each image required by S9.3(a)(1) to be visible at the driver's eye location shall be separated from the edge of the effective mirror surface of the mirror providing that image by a distance of not less than 3 minutes of arc.

(b) The image required by S9.3(a)(1) of cylinder P shall meet the following requirements:

(1) The angular size of the shortest dimension of that cylinder's image shall be not less than 3 minutes of arc; and

(2) The angular size of the longest dimension of that cylinder's image shall be not less than 9 minutes of arc.

4. Section 571.111 is amended by adding a new S13 through S13.6, to read as follows:

S13 *School bus mirror test procedures.* The requirements of S9.1 through S9.4 shall be met when the vehicle is tested in accordance with the following conditions.

S13.1 The cylinders shall be a color which provides a high contrast with the surface on which the bus is parked.

S13.2 The cylinders are 0.3048 meters (1 foot) high and 0.3048 meters (1 foot) in diameter, except for cylinder P which is 0.9114 meters (3 feet) high and 0.3048 meters (1 foot) in diameter.

S13.3 Place cylinders at locations as specified in S13.3(a) through S13.3(g) and illustrated in Figure 2. Measure the

distances shown in Figure 2 from a cylinder to another object from the center of the cylinder as viewed from above.

(a) Place cylinders G, H, and I so that they are tangent to a transverse vertical plane tangent to the forward-most surface of the bus's front bumper. Place cylinders D, E, F so that their centers are located in a transverse vertical plane that is 1.8288 meters (6 feet) forward of a transverse vertical plane passing through the centers of cylinders G, H, and I. Place cylinders A, B, and C so that their centers are located in a transverse vertical plane that is 3.6576 meters (12 feet) forward of the transverse vertical plane passing through the centers of cylinders G, H, and I.

(b) Place cylinders B, E, and H so that their centers are in a longitudinal vertical plane that passes through the bus's longitudinal centerline.

(c) Place cylinders A, D, and G so that their centers are in a longitudinal vertical plane that is tangent to the most outboard edge of the left side of the bus's front bumper.

(d) Place cylinders C, F, and I so that their centers are in a longitudinal vertical plane that is tangent to the most outboard edge of the right side of the bus's front bumper.

(e) Place cylinder J so that its center is in a longitudinal vertical plane 0.3048 meters (1 foot) to the left of the longitudinal vertical plane passing through the centers of cylinders A, D, and G, and is in the transverse vertical plane that passes through the centerline of the bus's front axle.

(f) Place cylinder K so that its center is in a longitudinal vertical plane 0.3048 meters (1 foot) to the right of the longitudinal vertical plane passing through the centers of cylinders C, F, and I, and is in the transverse vertical plane that passes through the centerline of the bus's front axle.

(g) Place cylinders L, M, N, O, and P so that their centers are in the transverse vertical plane that passes through the centerline of the bus's rear axle. Place cylinder L so that its center is in a longitudinal vertical plane that is 1.8288 meters (6 feet) to the left of the longitudinal vertical plane tangent to the bus's most outboard left surface (excluding the mirror system). Place cylinder M so that its center is in a longitudinal vertical plane that is 0.3048 meters (1 foot) to the left of the longitudinal vertical plane tangent to the left side of the bus. Place cylinder N so that its center is in a longitudinal vertical plane that is 0.3048 meters (1 foot) to the right of the longitudinal vertical plane tangent to the right side of the bus. Place cylinder O so that its center is in a longitudinal vertical plane that is 1.8288 meters (6 feet) to the right of the longitudinal vertical plane tangent to the right side of the bus. Place cylinder P so that its center is in a longitudinal vertical plane that is 3.6576 meters (12 feet) to the right of the longitudinal vertical plane tangent to the right side of the bus.

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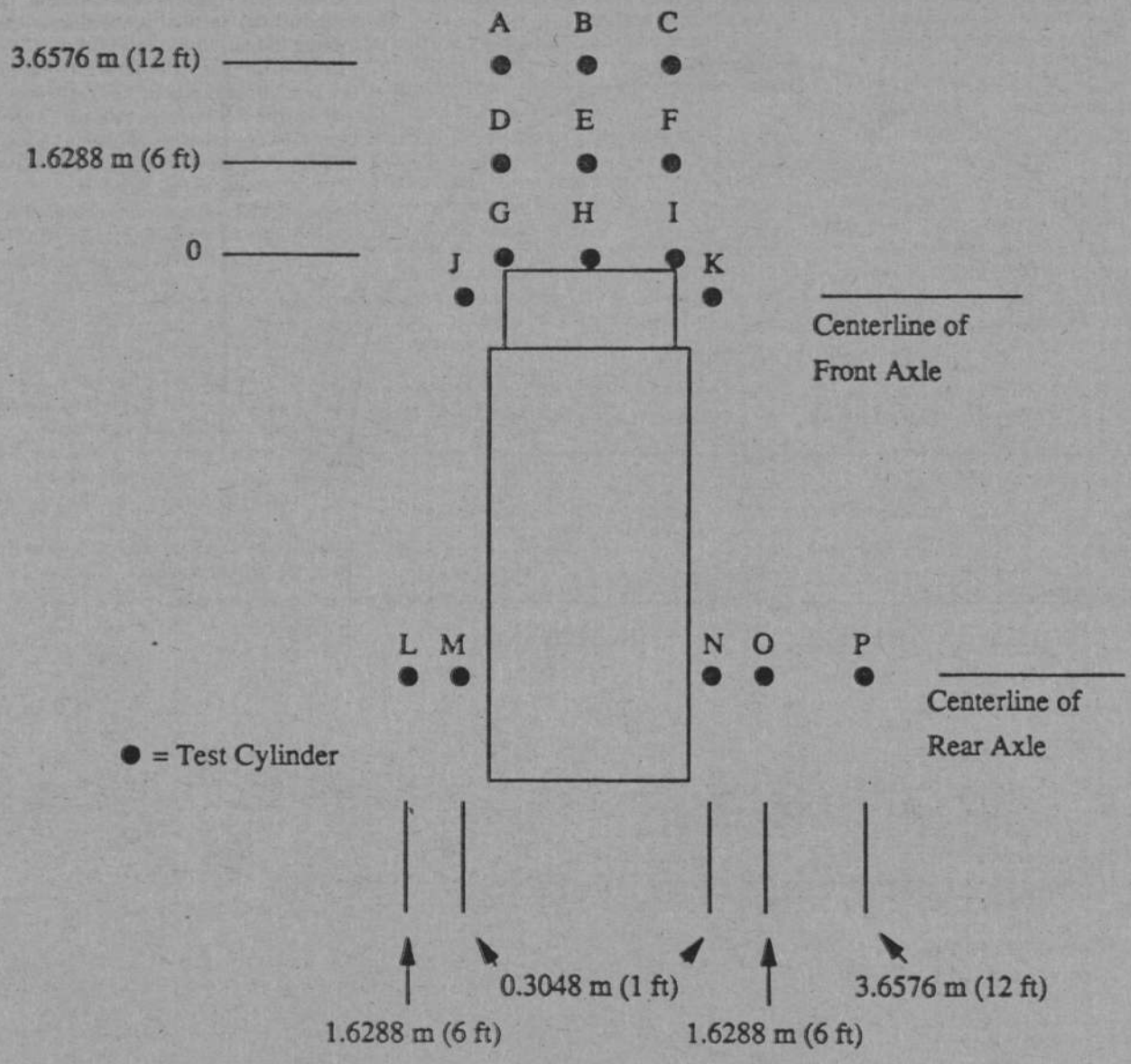


Figure 2.

Location of Test Cylinders for School Bus Field-of-View Test

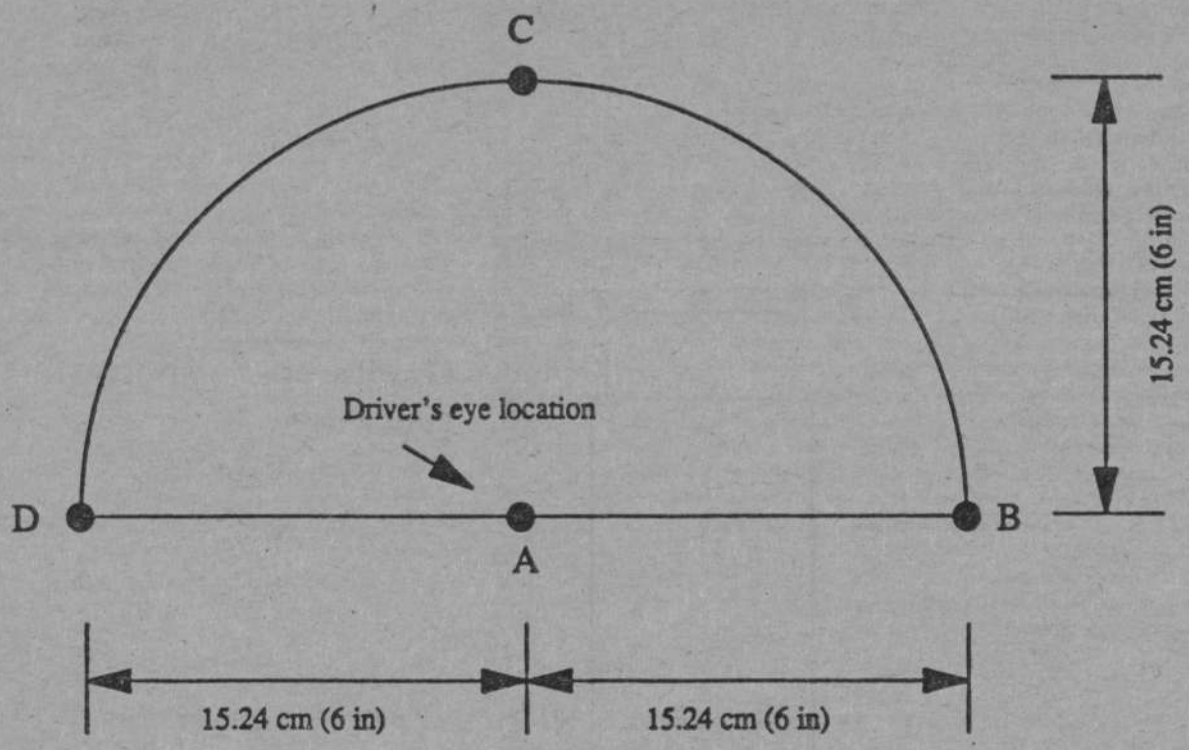


Figure 3.

Camera Locations for School Bus Field-of-View Test

BILLING CODE 4910-59-C

S13.2 The driver's eye location is the eye location of a 25th percentile adult female, when seated in the driver's seat as follows:

(a) The center point of the driver's eye location is the point located 68.58 centimeters (27 inches) vertically above the intersection of the seat cushion and the seat back at the longitudinal centerline of the seat.

(b) Adjust the driver's seat to the midway point between the forward-most and rear-most positions, and if separately adjustable in the vertical direction, adjust to the lowest position. If an adjustment position does not exist at the midway point, use the closest adjustment position to the rear of the midpoint. If a seat back is adjustable, adjust the seat back angle to the manufacturer's nominal design riding position in accordance with the manufacturer's recommendations.

S13.3 Adjustable mirrors are adjusted before the test in accordance with the manufacturer's recommendations. Such mirrors are not moved or readjusted at any time during the test.

13.4 Place a 35 mm or larger format camera, or video camera, so that its image plane is located at the center point of the driver's eye location or at any single point within a semicircular area established by a 15.24 centimeter (6 inch) radius parallel to and forward of the center point (see figure 3). With the camera at any single location on or within that semicircle look through the camera and the windows of the bus and determine whether the entire top surface of each cylinder is directly visible.

S13.5 For each cylinder whose entire top surface is determined under paragraph 13.4 of this section not to be directly visible at the driver's eye location,

(a) Place a comparison chart (see figure 4) above the mirror that provides the fullest view of the cylinder in situations where a cylinder is partially visible through more than one mirror.

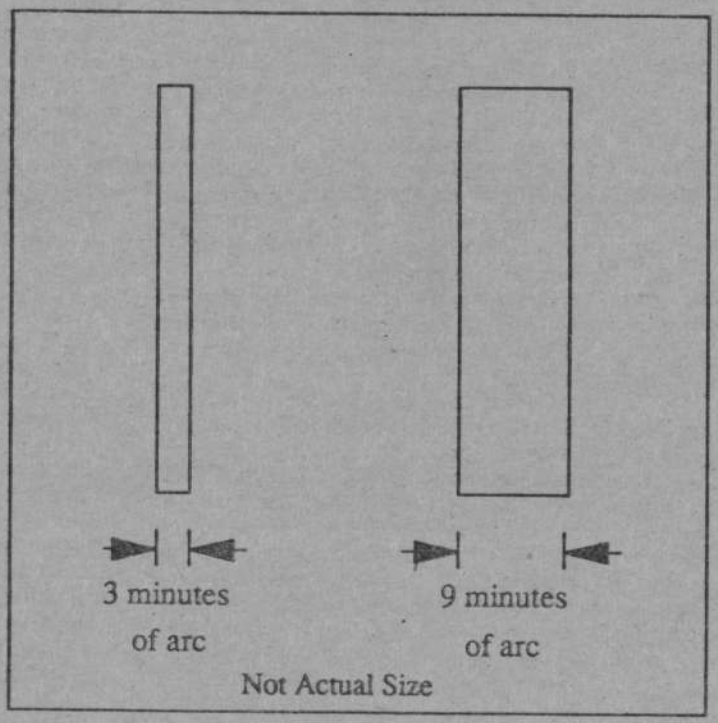


Figure 4.

Comparison Chart for Indirect Field-of-View Measurements

The width of the bars in Figure 4 indicating three minutes of arc and nine minutes of arc are derived from the following formula:

For 3 minutes of arc:

$X=D\times0.000873$,

Where:

X=the width of a line, in the unit of measurement D, representing 3 minutes of arc;

D=distance from center point of driver's eye location to the center of the mirror's surface; and

0.000873=tangent of 3 minutes of arc.

For 9 minutes of arc:

$X=D\times0.002618$.

Where:

X=the width of a line, in the unit of measurement D, representing 9 minutes of arc;

D=distance from center point of driver's eye location to the center of the mirror's surface; and

0.002618=tangent of 9 minutes of arc.

(b) Photograph each cylinder through the mirror(s) that provides a view of the cylinder. Photograph each cylinder with the camera located so that the view through its film or image plane is located at any single location within the semicircle established under 13.4, [POINT A,B,C, OR D] ensuring that the image of the mirror and comparison chart fill the camera's view finder to the extent possible.

13.6 Make all observations and take all photographs with the service/entry door in the closed position and the stop signal arm(s) in the fully retracted position.

Issued on: November 24, 1992.

Marion C. Blakey,

Administrator.

[FR Doc. 92-29053 Filed 12-1-92; 8:45 am]

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National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. 88-21; Notice No. 5]

Federal Motor Vehicle Safety Standards; Bus Emergency Exits and Window Retention and Release

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

ACTION: Final rule; technical amendment.

SUMMARY: This rule corrects an error made in a November 2, 1992, final rule amending Federal Motor Vehicle Safety Standard No. 217, Bus Emergency Exits and Window Retention and Release. The conversion to metric units of the formula for determining the amount of exit area which must be provided was incorrectly performed. In addition, a table and three figures referred to in the regulatory language of the final rule were omitted.

DATES: The amendment made by this rule is effective May 2, 1994.

FOR FURTHER INFORMATION CONTACT: Patricia Breslin, NRM-10, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590. Telephone (202) 366-0842.

SUPPLEMENTARY INFORMATION: On November 2, 1992, NHTSA issued a final rule amending Federal Motor Vehicle Safety Standard No. 217, Bus Emergency Exits and Window Retention and Release, to revise the minimum requirements for school bus emergency exits, to improve access to school bus emergency doors, and to improve the visibility of school bus emergency exits.

This notice corrects several errors in that final rule. First, pursuant to E.O. 12770, Metric Usage in Federal Government Programs (56 F.R. 35801; July 29, 1991), the agency is in the process of converting all safety standards to metric units. Therefore, metric equivalents, rounded to the nearest whole unit, were used in the regulatory text of the final rule. However, the formula for determining the amount of exit area which must be provided was incorrectly converted. The notice of proposed rulemaking preceding the recent final rule proposed to require that school buses provide minimum emergency exit spaces which together are equal, in square inches, to 67 times the number of seating positions. This formula was erroneously converted in the final rule to centimeters, not square centimeters. The final rule should have specified that school buses are required to provide minimum emergency exit spaces which together are equal in square centimeters, to 432 times the number of seating positions, not 170 times the number of seating positions. (Note: A notice of proposed rulemaking published the same day as the final rule also erroneously used the latter figure (57 FR 49444). If a final rule is issued based on that notice, the correct figure will be used.)

Second, as part of the final rule, S5.4.2.1(a)(2) was amended to specify a zone which must be kept clear to provide access to a side emergency door. The regulatory language refers to three figures, Figure 5A, Figure 5B, and Figure 5C, which illustrate these requirements. These figures were omitted from the copies of the final rule sent to the **Federal Register**. The final rule also amended S5.5.3(c) to require marking of emergency exists with retroreflective tape which meets intensity criteria specified in Table 1. Table 1 was also omitted from the final rule.

This correction imposes no duties or responsibilities on any party not already imposed by the final rule. Discussion in the preamble to the final rule makes it clear that the agency did not intend to change the formula and that the error was merely a conversion error. The figures and table clarify obligations imposed by the final rule. Accordingly, NHTSA finds for good cause that notice and opportunity for comment are necessary.

List of Subjects in 49 CFR Part 571

Imports, Motor vehicle safety, Motor vehicles.

In consideration of the foregoing, 49 CFR § 571.217 is amended as follows:

PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

1. The authority citation for part 571 continues to read as follows:

Authority: 15 U.S.C. 1392, 1401, 1403, 1407; delegation of authority at 49 CFR 1.50.

§ 571.217 [Amended]

2. Paragraph S5.2.3.1 of Standard No. 217 is revised to read as follows:

§ 5.2.3.1 Each bus shall be equipped with the exists specified in either § 5.2.3.1(a) or § 5.2.3.1(b), chosen at the option of the manufacturer. The area in square centimeters of the unobstructed openings for emergency exist shall collectively amount to at least 432 times the number of designated seating positions in the bus. The amount of emergency exit area credited to an emergency exit is based on the daylight opening of the exit opening.

(a)(1) One rear emergency door that opens outward and is hinged on the right side (either side in the case of a bus with a GVWR of 4,536 kilograms or less), and exits providing an additional emergency exit area (AEEA) calculated in accordance with the following formula:

AEER=[TA-FSDA-RDEA]

Where:

TA (total area)=432×number of designated seating positions;

FSDA (front service door area)=size of the available front service door opening; and

RDEA (rear door exit area)=size of the available rear emergency exit door opening.

(2) The exits installed to provide the AEEA shall be of the types specified in paragraphs (i) through (iii) of this section, selected in the sequence specified in those paragraphs—

(i) A left side emergency exit door that meets the requirements of § 5.2.3.2(a);

(ii) An emergency roof exit that meets the requirements of § 5.2.3.2(b);

(iii) Any of the following types of exits, if necessary to provide the AEEA: Side emergency exit doors that meet the requirements of § 5.2.3.2(a), emergency roof exits that meet the requirements of § 5.2.3.2(b), or emergency window exits that meet the requirements of § 5.2.3.2(c), at the option of the manufacturer.

(b)(1) One emergency door on the vehicle's left side that is hinged on its forward side and meets the requirements of § 5.2.3.2(a), and a push-out rear window that provides a minimum opening clearance 41 centimeters high and 122 centimeters wide and meets the requirements of § 5.2.3.2(c), and exits providing an additional emergency exit area (AEEA)