purpose of preparing its estimate of affected entities, that licensing in each geographic area will be exclusively based on either a broadcast or non-broadcast structure. Under the conventional broadcast structure, each geographic area would include six spectrum blocks, each occupying six megahertz. That assumed emphasis on broadcast services generates the following burden estimate. Assuming 176 licensed areas, and 6 licensees per area, broadcast licensing burdens would be extended to approximately 1056 licensees. For a nonbroadcast structure, again using the EA figure of 176 licensed areas but assuming 18 licensees per area, based on each licensee implementing a paired wireless service using 1 MHz in each direction, the expected number of licensees affected would be about 3,168.

List of Subjects

47 CFR Part 27

Communications common carriers, Communications equipment, Reporting and recordkeeping requirements.

47 CFR Part 73

Communications equipment, Equal employment opportunity, Reporting and recordkeeping requirements, Television.

Federal Communications Commission.

Magalie Roman Salas,

Secretary.

[FR Doc. 99–17143 Filed 7–6–99; 8:45 am]

BILLING CODE 6712–01–U

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. 99–5891]

RIN 2127–AH14

Federal Motor Vehicle Safety Standards; Child Restraint Systems

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Request for comments.

SUMMARY: The agency is issuing this document to obtain information that will help NHTSA determine whether Safety Standard No. 213, ''Child Restraint Systems,'' should be amended in response to a petition for rulemaking from Kathleen Weber of Ann Arbor, Michigan. The petition concerns the availability of child booster seats for older children (ages about 4 and older) that can be used in older cars whose rear seats are equipped with only lap belts instead of both lap and shoulder belts. To make it easier for child restraint manufacturers to produce child restraints for these children, the petition asks that Standard 213 be amended such that compliance tests of booster seats may be conducted with a top tether attached.

In the past, many drivers did not attach tethers when they used tether-equipped child restraints in vehicles that lack user-ready tether anchorages. Given that the vehicles in question lack user-ready tether anchorages, the agency seeks comments on the extent to which vehicle drivers would attach the booster seat's top tether. The agency also seeks comments on the extent to which currently available vests, harnesses, and other restraint systems (e.g., shoulder belt retrofits) address the problem raised by the petitioner. Comments are requested on the feasibility of redesigning boosters such that the restraints can meet Standard 213's requirements when attached to the vehicle with only a lap belt, and without the use of a tether.

DATES: You should submit your comments early enough to ensure that Docket Management receives them not later than September 7, 1999.

ADDRESSES: You should mention the docket number of this document in your comments and submit your comments in writing to: Docket Management, Room PL–401, 400 Seventh Street, SW, Washington, DC, 20590.

You may call Docket Management at 202–366–9324. You may visit the Docket from 10 a.m. to 5 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT: For non-legal issues, you may call Mike Huntley of the NHTSA Office of Crashworthiness Standards, at 202–366–0029.

For legal issues, you may call Deirdre Fujita of the NHTSA Office of Chief Counsel at 202–366–2992.

You may send mail to both of these officials at National Highway Traffic Safety Administration, 400 Seventh St., SW., Washington, DC., 20590.

SUPPLEMENTARY INFORMATION:

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I. Background

On December 4, 1997, Ms. Kathleen Weber of the University of Michigan Child Passenger Protection Research Program, submitted a petition for rulemaking to amend Federal Motor Vehicle Safety Standard No. 213, ''Child Restraint Systems'' (49 CFR 571.213). The petition, which NHTSA granted on January 30, 1998, concerns the manufacture of booster seats that can be used by families using pre-1989 model year vehicles. These vehicles have only lap belts in rear seating positions.

a. *The Booster Seats in Question Became Unavailable After Upgrade to Standard 213*

Booster seats are designed for children who have outgrown a convertible or toddler child restraint system. They are generally designed for children who are about 4 to 8 years old. There are two main types of booster seats currently produced. One type is called a ''shield booster'' due to use of a shield-like barrier to restrain the upper torso of a child in a crash. Shield boosters attach to the vehicle by the vehicle's lap belt (Type I belt) or lap belt portion of a lap and shoulder belt (Type II belt). The other type of booster is called a ''belt-positioning seat,'' which is a booster designed to use both portions of a vehicle's Type II belt to restrain the child. A belt-positioning seat is not directly attached to the vehicle seat, but is held in place by the child's mass and the vehicle's Type II belt, which is strapped over the child's lap and torso, just as the Type II belt is used to restrain an adult occupant. A belt-positioning seat must not be used with a vehicle's lap belt alone, since the seat lacks structure or an internal belt to restrain the child's upper torso.

Shield booster seats, which are capable of being used with only a vehicle's lap belt, were available in the past, but became unavailable for children weighing over 18 kilograms (kg) (approximately 40 pounds, lb) subsequent to an upgrade that NHTSA made to the standard pursuant to the Intermodal Surface Transportation Efficiency Act (''ISTEA'') of 1991 (Pub. L. 102–240). That Act directed NHTSA to initiate rulemaking on a number of safety matters, including child booster seat safety (section 250). The legislative

history for the directive indicated that its impetus was a study [1] that found that shield booster seats then manufactured could not adequately restrain test dummies representative of the children for whom manufacturers typically recommended for the seats. In the study, the boosters could not adequately restrain a 22 kg (48 lb) test dummy (representing a 6-year-old) when dynamically tested under Standard 213. The boosters were ineffective at limiting head excursions to within the requirements of Standard 213, and two of the boosters failed structurally. The boosters also failed to prevent the ejection of a 9 kg (20 lb) test dummy (representing a 9-month-old child) in the dynamic test. These phenomena were observed notwithstanding the recommendation of some booster seat manufacturers that their seats were suitable for children weighing from 9 up to 32 kg (20 up to 70 lb).[2]

In response to this study and to the ISTEA directive, NHTSA amended Standard 213 to permit the manufacture of belt-positioning seats, which were considered to be a new, superior type of booster seat (59 FR 37167, July 21, 1994). Belt-positioning boosters were believed to be better able than shield boosters at accommodating a wider range of child sizes. These boosters have since replaced shield boosters in the marketplace, as many commenters to the rulemaking, including the petitioner for this document, Kathleen Weber, had hoped they would. NHTSA also incorporated the 6-year-old and 9-month-old dummies into the standard's compliance test protocols, to ensure a more thorough evaluation of the ability of a child restraint to adequately restrain children recommended for the restraint, as compared to testing done with only the 3-year-old dummy. Beginning in September 1996, any child restraint recommended for children weighing over 18 kg (40 lb) must be able to comply with the standard when tested with the 6-year-old child dummy (60 FR 35126, July 6, 1995; 60 FR 63651, December 12, 1995).

Comments from manufacturers and others on the proposal to use the 6-year-old dummy in compliance tests did not indicate that shield boosters manufactured at the time of the rulemaking could not comply. To the extent there were any shield boosters that could not pass the standard's requirements with the 6-year-old dummy, NHTSA anticipated that manufacturers might (1) design their seats to achieve compliance (such as by raising the height of the shield relative to the child's torso), (2) relabel shield boosters as being suitable for children weighing less than 18 kg (and thus avoid testing with the 6-year-old dummy), or (3) replace production of shield boosters with belt-positioning boosters. While the latter two responses to the final rule have occurred, manufacturers have not redesigned shield boosters to pass Standard 213 with the 6-year-old dummy. Thus, the shield boosters manufactured today are not recommended for use by children over 18 kg (40 lb).

b. Petitioner Seeks To Make Boosters Available by Allowing Them To Be Tethered in Compliance Test

Petitioner does not want to see the renewed sale of shield booster seats, because she does not believe the restraints provide adequate upper torso restraint. Instead, the petitioner suggests that Standard 213 be amended to allow—

> ''hybrid'' toddler/booster restraints (forward facing with internal harness/high-back belt-positioning booster) to be used by a (20 kg) 45 lb child in the toddler mode with its internal harness and installed with a lap belt and top tether strap.

The petitioner is referring to child restraints that can be used with a Type I (lap) belt and with a Type II (lap/shoulder) belt. An example of such a seat is Century's Breverra booster car seat, which is recommended for children 14 to 27 kg (30 to 60 lb). The Breverra has a removable 5-point harness system. When used with children weighing up to 18 kg (40 lb), the Breverra is used with the 5-point harness, and the restraint is secured to the vehicle seat by either a Type I or Type II belt. (In vehicles equipped with Type II belt systems, a locking clip may be required for proper installation of the restraint.) This configuration (using the restraint system with children weighing up to 18 kg (40 lb), and restraining them with the internal 5-point harness) is what the petitioner refers to as the ''toddler mode.'' The Breverra is also designed for use as a belt-positioning seat with children 14 to 27 kg (30 to 60 lb). Parents are instructed to remove the 5-point harness from the booster seat, and to use the car's Type II belt to restrain the child. Because seats such as the Breverra are designed for use both as a ''toddler seat'' and as a ''belt-positioning booster seat,'' petitioner refers to them as ''hybrid'' restraints.

Petitioner seeks to permit hybrid restraints to be certified as meeting the standard when recommended for children up to 20 kg (45 lb) in the toddler mode (using the 5-point harness, attached to the vehicle by lap belt). Currently, restraints recommended for children up to 20 kg are tested with the 6-year-old dummy. Hybrid restraints cannot meet the head excursion limit, untethered, when tested with the 6-year-old dummy in the toddler mode (using the 5-point harness). Presumably, they can meet it tethered.

A number of parties have written to NHTSA in support of the petition, including Safe Ride News and SafetyBeltSafe (both reiterated the views of the petitioner). The American Academy of Pediatrics (AAP) said that a high-back booster would help in physically restraining young toddlers who can easily escape from Type II belts. The National Transportation Safety Board (NTSB) expressed concern that the lack of child restraints for older children complicates efforts to encourage states to enact legislation to require children to ride in the back seat. However, NTSB did not support measures that required use of a tether or retrofitting a vehicle with a rear seat shoulder belt (these approaches, and others, are discussed further below). NTSB hoped that NHTSA will ''work with the child restraint manufacturers to expedite efforts to provide child restraint systems for children who have outgrown their convertible restraint systems to be used with lap-only belts.''

c. The Safety Concern Is That Tethers Often Were Not Used in Vehicles Lacking a User-Ready Tether Anchorage, Even by Parents Who Were Aware of the Importance of Attaching the Tether

Tether use in vehicles not originally equipped with tether anchorages has been very low in this country. Because of the low use rate for tethers, NHTSA amended Standard 213 in 1986 to require tethered child restraints to pass the 48 kph (30 mph) test without attaching a tether (51 FR 5335). NHTSA amended the standard because surveys that had been conducted for the agency consistently showed that tethered restraints were used in those vehicles without the tether strap attached more than 80 percent of the time. Seventy-eight (78) percent of persons not using the tether strap knew that its use was necessary for their child's protection, but still did not attach the tether. Given the low level of tether strap use in vehicles lacking a user-ready tether anchorage and the high level of awareness that the strap must be used,

[1] Calspan Corporation (DOT HS 807 297, May 1988). A detailed discussion of this study can be found in Appendix A to today's document.

[2] Because at that time only a 3-year-old dummy was used in Standard 213's compliance test, the boosters could meet the standard when tested with that dummy and were thus certified as complying with the standard.

the agency did not believe that a tether strap could continue to be permitted as a device necessary for the adequate protection of children.

Child restraint harnesses and vests were not affected by the rulemaking. This is because the potential for misuse of harnesses and vests seemed to be significantly less than for tethered child seats. With child harnesses and vests, it would be obvious to parents that if the tether were not attached, the child would be completely unrestrained in a crash. NHTSA also noted that its data on the non-use and misuse of tethers did not study the extent to which the tethers are improperly used on harnesses and vests. To date, harnesses and vests are tested with the tether strap secured.

d. The Recent Regulation Requiring User-Ready Tether Anchorages to Improve Tether Use Will Not Apply to Vehicles Manufactured Before September 1999

To promote higher tether use, NHTSA has recently issued a final rule that requires vehicle manufacturers to install factory-installed, user-ready tether anchorages (with hardware) in new vehicles, beginning September 1, 1999.[3] We believe, as do Canada and Australia, that tether use improves when factory installed tether anchorages are provided on vehicles as standard equipment. However, the requirement for user-ready tether anchorages applies to vehicles manufactured on or after September 1, 1999, and will not apply to the vehicles that are the subject of the petition (older vehicles with only lap belts in rear seating positions).

II. Issues

The agency seeks comments that will help it to assess whether NHTSA should amend Standard 213 to permit booster seats, and possibly other child restraint systems, to be tethered in determining compliance with the head excursion requirements, and possibly with other requirements as well.

NHTSA notes that the circumstances that gave rise to the petition are diminishing. Vehicles manufactured in 1989 and after are required to have Type II (lap and shoulder) belts installed in rear outboard seating positions, enabling the use of belt-positioning booster seats, with the Type II belts, for children weighing more than 18 kg. Pre-1989 vehicles are at the root of the issue, because they typically have no Type II (lap and shoulder) belts in the rear seats. However, these vehicles are steadily declining in number and eventually will be replaced by vehicles with rear seat Type II belts.

This document sets forth below a number of requests for comments and data. For easy reference, the requests are numbered consecutively. In providing a comment on a particular matter or in responding to a particular question, commenters should provide any relevant factual information to support their conclusions, including but not limited to cost and statistical data, and the source of such information.

Question 1. How Likely Are Tethers To Be Used in Vehicles That Lack User-Ready Tether Anchorages?

Tether use in vehicles not originally equipped with tether anchorages has been very low in this country. Are there data that show that tether use in vehicles not originally equipped with a tether anchorage will be greater than it has been in the past?

The petitioner's approach would delete the head excursion requirement when the seat is tested untethered with the 6-year-old dummy, i.e., in the manner that data show the seat is likely to be used in a vehicle that did not have an originally-installed tether anchorage. NHTSA conducted testing at our Vehicle Research and Test Center (VRTC) in March 1998, to evaluate the performance of various types of child restraints in limiting the amount of head excursion of the 6-year-old dummy. The test program is discussed in Appendix B, and a test report has been placed in the general reference docket for Standard 213, NHTSA–99–5426. Our testing showed that untethered seats were unable to meet the head excursion requirement. The seats generally allowed between 795 and 851 mm (31.29 and 33.52 inches) of head excursion. Nonuse of the tether will affect the possible advantages of petitioner's suggested change.

Question 2: Is a Child Better Off in an Untethered Booster or Seated Directly on the Vehicle Seat and Restrained by a Lap Belt? Are There Alternative Approaches?

NHTSA's March 1998 testing program showed head excursions of the 6-year-old dummy of up to 851 mm (33.52 inches) for untethered restraints. Data are unavailable for head excursions for dummies restrained only by a lap belt.

A preliminary study conducted by NHTSA, based on data from the Fatality Analysis Reporting System (FARS) from 1988 through the first 6 months of 1997, compared the experience of unrestrained rear seat occupants to some children using a lap belt only and to other children using both lap and shoulder belts. The study found that for children ages 5–14, use of a lap belt only while seated in a back outboard seat of a car is 38 percent effective in reducing fatalities and use of a back seat lap/shoulder belt is 52 percent effective in reducing fatalities. The study shows that these children appear to derive the greatest incremental benefit from using back seat lap/shoulder belts rather than just a lap belt when compared to the other age and sex groups evaluated in the study. In comparison, NHTSA estimates that child restraints are potentially 71 percent effective in reducing the likelihood of death.[4]

The same study also showed that, based on FARS and Multiple Cause of Death (MCOD) data from 1988–1994, children ages 5–14 do not have an increased risk of abdominal injuries compared to occupants in other age groups. Lap belted and lap/shoulder belted children have abdominal injury rates slightly higher than unrestrained children in frontal crashes (12 and 15 per 100, respectively as compared to 9 per 100 for unrestrained). These rates are at or below the injury rate of lap belted and lap/shoulder belted occupants of all ages in frontal crashes. However, the same data indicate that the head injury rate for children ages 5–14 in the back seat in frontal crashes restrained by a lap belt only is double that (50 versus 25 per 100) of those children restrained with a lap and shoulder belt (and thus provided with upper torso protection similar to what could be expected through the use of child restraint systems).

Head excursions beyond that limited by Standard 213 reduce the level of performance now required by 213. However, some believe that using a lap belt without an upper torso restraint could result in ''seat belt syndrome,'' which refers to bruising across the abdomen, internal injuries and lower spine fractures which, allegedly, are caused mainly by a lap belt that is used incorrectly or that moves off the child's pelvis during a crash. Are children restrained only by a lap belt experiencing seat belt syndrome? Should we reduce the protection required in the standard against head

[3] The rule also amended Standard 213 to add a 720 millimeter (mm) (28 inch) head excursion limit for forward-facing child restraints, which manufacturers may meet by attaching a tether. The existing 813 mm (32 inch) head excursion requirement will also have to be met, with the tether unattached, to maximize head protection even when the tether is not attached by a consumer.

[4] Kahane, Charles J. (1986), *An Evaluation of the Effectiveness and Benefits of Safety Seats*, U.S. Department of Transportation, National Highway Traffic Safety Administration, DOT HS 806 889, p. 305. The agency believes that this figure remains valid.

impacts to broaden the protection against seat belt syndrome?

If there were no head excursion limit when a booster seat is tested untethered with the 6-year-old dummy, this would seem to require no more of booster seats than what is expected when the dummy is seated directly on the vehicle seat and restrained by just a lap belt. An alternative approach could be to increase Standard 213's head excursion limit from 813 mm (32 inches) to 838 mm (34 inches) when testing a booster seat untethered with the 6-year-old dummy. Under that approach, there would be a limit to head excursion, even in the untethered condition. Comments are requested on this approach.

Question 3: Should the Test That Evaluates Child Restraint Performance Without Attaching the Tether Be Deleted for All Restraints, Not Just Hybrid Toddler/Booster Restraints? Should the Test Be Deleted When Testing With Dummies Other Than the 6-Year-Old?

If a tether were permitted to be attached when testing with the 6-year-old dummy, should tethers be attached with testing with the 3-year-old as well, such as when testing convertible child restraints (which are usually recommended for children from birth to 18 kg (40 lb))? The agency believes that deleting the test for these other restraints and in tests with other dummies is inadvisable at this time, in the absence of data indicating whether tethers would be properly used. However, what reasons would justify distinguishing between tether use rates among hybrid boosters and other types of child seats or otherwise justify why a tether could be attached for some restraints and not for others?

Question 4: Why Are Shield Boosters No Longer Manufactured for Children Weighing over 18 kg (40 lb)?

In the March 1998 test program at VRTC, the agency tested four currently available types of shield booster seats with the 6-year-old dummy. Two units of one of these shield boosters were tested, and in each instance, they appeared to meet all performance criteria of Standard 213, including the head injury criterion (HIC), chest acceleration limits, and the head and knee excursion limits. Yet, the booster was recommended for use by children only up to 18 kg (40 lb). NHTSA later tested 3 other available shield-type booster seats using the 6-year-old dummy and found that each exceeded the 813 mm (32 inch) head excursion limit of Standard 213.

NHTSA requests information, particularly from child restraint manufacturers, concerning the reasons why shield boosters are no longer marketed for children weighing more than 18 kg (40 lb), especially with respect to those boosters that appear to meet all performance criteria of Standard 213. Were some manufacturers unable to certify that the seats would meet Standard 213's requirements when tested with the 6-year-old dummy? If they did so conclude, was it solely the head excursion requirement, or other requirements as well? Were there test failures, and if so, what were the margins of failure? Can shield boosters be redesigned to achieve compliance with the standard? Why have manufacturers not redesigned these boosters to achieve compliance?

Question 5: What Is the Feasibility of Redesigning Hybrid/Toddler Booster Restraints Such That the Restraint Can Be Certified for Use With Older Children, Without the Use of a Tether?

NTSB hoped that NHTSA will ''work with the child restraint manufacturers to expedite efforts to provide child restraint systems for children who have outgrown their convertible restraint systems to be used with lap-only belts.'' NHTSA requests comments on the feasibility of designing a hybrid booster seat such that the booster can meet the current requirements of Standard 213 in the ''toddler mode'' when tested with the 6-year-old dummy, and when attached to the standard seat assembly with just a lap belt and without a tether.

Question 6: Is the Suggested Amendment Warranted When There Are Products Now Available for Older Children That May Perform Better Than a Tethered Seat at Limiting Head Excursion?

E–Z–On Products, Inc., manufactures vest and harness restraint systems for use with a lap belt and tether. Vests and harnesses are ''child restraint systems'' under Standard 213 and are certified as meeting all requirements of the standard.

The vest and harness systems employ a top tether to meet Standard 213's requirements. As explained above, Standard 213 permits a tether on a vest or harness system (both are referred to as ''harnesses'' in the standard) to be attached in the 48 km/h (30 mph) test, but does not allow a tether to be attached on a conventional child restraint system (such as a convertible child restraint or a high-back booster, such as the Breverra). The reason for the different treatment is because it is more obvious that a tether needs to be attached with vests and harnesses than it is with conventional child seats. If a tether were not used for a vest or harness, it would be clear to the parent that the child's upper torso would have no restraint.

The E–Z–On Vest is designed to slip over the child, with a back zipper closure. The vest is custom-made, using the child's waist measurement. E–Z–On's Universal Harness is in the shape of an upside down ''Y.'' There are two straps at the bottom of the upside down ''Y'' with loops at each end, that the lap belt is threaded through. The upper part of the upside down ''Y'' has a tether hook which attaches to the vehicle's tether anchor. E–Z–On has informed NHTSA that its vest and harness systems are readily available through its distributors. A vest or harness can be shipped to the consumer within 2 weeks. The price of the vest is approximately $73 to $95, a cost comparable to that of convertible seats. The harness costs approximately $45.

NHTSA's March 1998 test program at VRTC evaluated the performance of various types of child restraints, including vests and harnesses, hybrid boosters and convertible restraints, in limiting the amount of head excursion of the 6-year-old dummy (see Appendix B). In brief, the tethered vest and harness performed much better than the tethered hybrid booster or tethered convertible restraint at limiting head excursion. Test data for the tethered restraints were as follows:

TABLE 1.—Summary of Sled Test Results for Tethered Restraints

Restraint configuration	HIC	3 ms chest clip (G)	Head excursion (mm)	Knee excursion (mm)	Test No.
FMVSS No. 213 limit	1000	60	813	914	
Century Breverra Contour/5-pt. Harness Lap Belt w/Top Tether	332	38.9	760.22	904.49	UMP03
Century Breverra Contour/5-pt. Harness Lap Belt w/Top Tether	307	40.5	718.82	880.62	UMP05
E–Z ON 86–Y Harness Lap Belt w/Top Tether	463	52.5	495.30	540.26	UMP07

TABLE 1.—Summary of Sled Test Results for Tethered Restraints—Continued

Restraint configuration	HIC	3 ms chest clip (G)	Head excursion (mm)	Knee excursion (mm)	Test No.
E–Z ON 103Z Vest Lap Belt w/Top Tether	702	59.3	558.29	635.76	UMP08
E–Z ON 86–Y Harness Lap Belt w/Top Tether	461	52.9	473.71	539.75	UMP09
Britax Roundabout Lap Belt w/Top Tether	270	42.3	622.55	798.83	UMP11
Britax Roundabout Lap Belt w/Top Tether	303	43.4	574.04	736.09	UMP13
Britax Elite Lap Belt w/Top Tether	554	51.2	640.08	782.32	UMP15
Britax Elite Lap Belt w/Top Tether	614	58.9	580.39	719.84	UMP17

Based on this test program, NHTSA believes that vests and harnesses could address petitioner's concerns and those of the other parties. The E–Z–On Vest, with a back zipper closure, could address AAP's desire for a product that can restrain young toddlers who have reached 18 kg (40 lb), but who are too immature behaviorally to use Type II belts. There may be perceived drawbacks to vests and harnesses. A vest may not be as convenient as a hybrid booster. The vest wraps around the child's torso and has to be unclipped from the tether mounting strap to be placed on a child. Also, vests and harnesses do not ''look like'' traditional child restraint systems so they might not be as readily accepted by some consumers as a tethered hybrid seat might be. Yet, owners of older vehicles who are seeking any product to fix a perceived problem concerning their youngsters may be more motivated to accept a harness than consumers generally.

NTSB did not support measures that required use of a tether, given the high non-use rates of tethers in this country. Yet, the likelihood that parents will attach the tether on a harness could be higher than that for conventional child seats, given that it would be more obvious to a parent that the tether has to be attached on a vest or harnesses than on a restraint such as a hybrid booster, which would be designed to be used both with and without a tether, depending on the size of the child occupant.

While the hybrid booster might be preferred by some consumers over a vest or harness because of the expectations of consumers as to what a child restraint system ought to look like, an untethered hybrid booster does not restrict head excursion as well as a tethered vest or harness.

Question 7: Would Adoption of the Suggested Amendment Inappropriately Encourage Some Parents To Position Restraints in the Center Rear Seating Position?

Petitioner only addressed the need of consumers with pre-1989 cars, but adoption of the suggested amendment could also affect the preference of parents who wish to install a booster seat in the center rear position. The center rear position typically has only a Type I (lap) belt, not a Type II (lap and shoulder) belt system. Some of these parents may welcome having booster seats that can be used in the center rear seat with only a Type I belt. However, optimal performance of the restraint is dependent on attachment of the tether. An untethered seat in the center rear seat is not likely to perform as effectively as an untethered belt-positioning booster used at the outboard seating position with a Type II belt system. Would the suggested amendment encourage consumers to move belt-positioning seats from outboard seating positions to the center rear seat? How likely will consumers attach a tether[5] when using the seat with children weighing more than 18 kg (40 lb)?

Question 8: What Is the Feasibility of Retrofitting a Rear Seat Shoulder Belt in Pre-1989 Vehicles?

Retrofitting vehicles with a rear seat shoulder belt is another option. While this approach is more expensive than installing a tether anchorage (assuming there are structural elements for the tether anchorage already in the vehicle), a shoulder belt can benefit children who have completely outgrown a child restraint, and can also benefit adults, seated in the rear. Many vehicle manufacturers offer shoulder belt kits for rear seating positions, although availability and cost of these kits vary widely. Because of the long term benefits associated with this option as described above, we have suggested this approach to many consumers who have contacted the agency in search of alternatives. The majority of these consumers were unaware that vehicle manufacturers offered such retrofit kits, and were generally very receptive to having the retrofit kits installed in their vehicles. A minority expressed reservations given the disproportionate cost of the retrofit kit parts and installation when compared to the limited value of their older vehicle.

[5] Our March 1999 final rule excludes belt-positioning seats from the head excursion limit that requires a tether on the child restraint. Thus, a belt-positioning seat that is not also a hybrid toddler seat might not even have a tether.

III. Comments

How Do I Prepare and Submit Comments?

Your comments must be written and in English. To ensure that your comments are correctly filed in the Docket, please include the docket number of this document in your comments.

Your comments must not be more than 15 pages long. (49 CFR 553.21). We established this limit to encourage you to write your primary comments in a concise fashion. However, you may attach necessary additional documents to your comments. There is no limit on the length of the attachments.

Please submit two copies of your comments, including the attachments, to Docket Management at the address given above under **ADDRESSES**.

How Can I Be Sure That My Comments Were Received?

If you wish Docket Management to notify you upon its receipt of your comments, enclose a self-addressed, stamped postcard in the envelope containing your comments. Upon receiving your comments, Docket Management will return the postcard by mail.

How Do I Submit Confidential Business Information?

If you wish to submit any information under a claim of confidentiality, you should submit three copies of your complete submission, including the information you claim to be confidential

business information, to the Chief Counsel, NHTSA, at the address given above under **FOR FURTHER INFORMATION CONTACT**. In addition, you should submit two copies, from which you have deleted the claimed confidential business information, to Docket Management at the address given above under **ADDRESSES**. When you send a comment containing information claimed to be confidential business information, you should include a cover letter setting forth the information specified in our confidential business information regulation. (49 CFR part 512.)

Will the Agency Consider Late Comments?

We will consider all comments that Docket Management receives before the close of business on the comment closing date indicated above under DATES. To the extent possible, we will also consider comments that Docket Management receives after that date.

How Can I Read the Comments Submitted by Other People?

You may read the comments received by Docket Management at the address given above under **ADDRESSES**. The hours of the Docket are indicated above in the same location.

You may also see the comments on the Internet. To read the comments on the Internet, take the following steps:

(2) Go to the Docket Management System (DMS) Web page of the Department of Transportation (http://dms.dot.gov/).

(3) On that page, click on ''search.''

(4) On the next page (http://dms.dot.gov/search/), type in the four-digit docket number shown at the beginning of this document. Example: If the docket number were ''NHTSA–1999–1234,'' you would type ''1234.'' After typing the docket number, click on ''search.''

(5) On the next page, which contains docket summary information for the docket you selected, click on the desired comments.

You may download the comments. However, since the comments are imaged documents, instead of word processing documents, the downloaded comments are not word searchable.

Please note that even after the comment closing date, we will continue to file relevant information in the Docket as it becomes available. Further, some people may submit late comments. Accordingly, we recommend that you periodically check the Docket for new material.

Appendix A—Calspan Study

Both of the rules that amended Standard 213 to permit the manufacture of belt-positioning booster seats and to adopt new test dummies into the standard for compliance tests responded to sections 2500–2509 of the Intermodal Surface Transportation Efficiency Act of 1991 (Pub. L. 102–240), which directed NHTSA to initiate rulemaking on a number of safety matters, including child booster seat safety (§ 2503). The legislative history for the directive indicated that the directive evolved in large part from the findings of a study entitled, ''Evaluation of the Performance of Child Restraint Systems,'' performed for NHTSA by the Calspan Corporation (DOT HS 807 297, May 1988). Congress believed that the study showed that some booster seats ''may not restrain adequately a child in a crash . . . .'' Senate Committee on Commerce, Science, and Transportation, S. Rep. No. 83, 102d Cong., 1st Sess. 6, 18 (1991). Concerns about shield boosters had arisen from the recommendations by child restraint manufacturers about which children could appropriately use a particular booster. Particular designs or models of boosters were typically recommended for a broad range of children, often for children weighing from 9 to 32 kg (20 to 70 lb). At the time of the study, such a child restraint was tested for compliance with Standard 213 with just the 3-year-old (15 kg) (33 pound) dummy. So tested, these restraints met Standard 213. However, there were questions whether the boosters could provide adequate protection for children at the extremes of the weight ranges that had been recommended by the manufacturer as being suitable for the restraint, i.e., those ranging from nine-month-old infants (average weight 9 kg) to 6-year-old (22 kg) and older children.

In the Calspan program, the nine-month-old infant and the 6-year-old child dummies were used in addition to the 3-year-old dummy. The Calspan research program tested all 11 models of booster seats that were on the market during the summer of 1987. In tests with the 6-year-old dummy, Standard 213's 813 mm (32 inch) head excursion limit was exceeded by 10 out of 11 booster seat models, with measurements in the range from 813 to 899 mm (32.0 to 35.4 inches). One model ejected the dummy.

Following the Calspan study, NHTSA conducted additional research on boosters. Nine booster seats were tested with the three dummies used in the Calspan study. The seats met the performance measures of Standard 213 when tested with the 3-year-old dummy. However, 7 of 9 allowed excessive head excursions with the 6-year-old dummy, and two of the seats also had structural failures with the dummy. ''Evaluation of Booster Seat Suitability for Children of Different Ages and Comparison of Standard and Modified SA103C and SA106C Child Dummies,'' VRTC–89–0074, February 1990.

Appendix B—NHTSA Test Program

NHTSA developed and conducted a test program at VRTC from March 16–20, 1998, to evaluate the performance of various types of child restraints in restricting the amount of head excursion of the 6-year-old dummy. In developing this test program, NHTSA asked child restraint manufacturers and the NTSB for suggestions as to which approaches and products should be evaluated. One objective of this test program was to obtain baseline information on the dynamic performance of a ''typical'' shield-type booster seat, tested with the 6-year-old dummy while secured to the vehicle seat by a lap belt only. It is the presumed inability of this type of seat to meet the 813 mm (32 inch) head excursion requirement of Standard 213 that has apparently resulted in child restraint manufacturers limiting these restraints to use for children weighing no more than 18 kg (40 lb). Pre-test discussions with restraint manufacturers confirmed that Standard 213's head injury criterion (HIC), chest acceleration, and knee excursion parameters did not pose concerns when testing this type of restraint with the 6-year-old dummy. Rather, because of the increase in height and weight of the 6-year-old dummy as compared to the 3-year-old dummy—1168 versus 965 mm standing height (46 versus 38 inches), and 22 versus 15 kg in weight (48 versus 33 lb)—the shield portion of the restraint apparently does not provide adequate upper torso restraint to limit the head excursion within acceptable limits when subjected to Standard 213's dynamic test. NHTSA chose the Cosco Grand Explorer as a representative shield-type booster for this baseline test.

The test program also evaluated a representative high-back belt-positioning booster seat, utilizing its internal 5-point harness, secured to the vehicle seat by a lap belt and a top tether. This represents the specific configuration recommended in the Weber petition. NHTSA chose the Century Breverra, which comes with an optional top tether, as a representative seat for the test program.

NHTSA also tested a few convertible seats. Pre-test conversations with restraint manufacturers indicated that there may be some convertible restraints that are equipped with tethers that may also perform adequately when attached to the vehicle seat with a lap belt only, when restraining the 6-year-old dummy. Not all convertibles are equipped with a top tether strap, and not all convertible seats will be able to accommodate the 6-year-old dummy. Britax Child Safety, Inc. indicated that they currently manufacture two convertible restraints, the ''Roundabout'' which comes with a standard top tether, and the ''Elite'' which comes with an optional top tether attachment, which they felt would perform satisfactorily in a crash test with the 6-year-old dummy with the restraint secured to the vehicle seat by a lap belt and top tether. Accordingly, NHTSA included each of these

convertible restraints in the subject test program.

Currently, the only commercially available products that are marketed specifically for children weighing over 18 kg (40 lb) and secured with a lap belt only are the Y-harness and vest systems produced by E–Z On Products. Both of these systems require the use of a top tether. The Y-harness system consists of two shoulder straps which extend from the top tether anchorage, with looped ends to allow the vehicle lap belt to be routed through and fastened over the pelvic area. Similarly, the tether strap is attached to the vest system by attaching the two snap hooks on end of the tether strap to rings located on the shoulders of the vest, and the vehicle lap belt is threaded through the web loops on the bottom of each side of the vest. Both the Y-harness and the vest systems were included in the test program for evaluation.

The dynamic sled tests were conducted at NHTSA's Vehicle Research and Test Center, (VRTC), and were based on the test conditions and procedures prescribed in S6 of Standard No. 213. However, it must be emphasized that this test program was intended for research only and did not precisely replicate compliance testing. The VRTC tests evaluated the ability of the restraints at limiting head excursion, HIC, chest acceleration, and knee excursion. The test conditions were fixed throughout the sled test series, with the only variable being the particular restraint being tested and its attachment method (i.e. tethered or untethered). With the exception of the baseline test utilizing the Cosco Grand Explorer shield booster seat, each restraint was tested in each attachment configuration on two separate sled runs to enhance the repeatability of the test results. Two Cosco Grand Explorer restraints were tested, but on the same sled run versus separate sled runs as with the other restraints.

All tests were conducted using the 6-year-old dummy, and each of the restraints—whether tethered or untethered—was attached to the vehicle test seat using a lap belt only. Standard 213's limits are as follows: HIC—1000; chest acceleration—60g; head excursion—813 mm (32 inches); and knee excursion—914 mm (36 inches). The full test results are provided in Table 2. It is important to note that in each of the tests conducted, values for both the HIC and chest acceleration parameters were typically significantly below the established limits prescribed in Standard 213 and that none exceeded the maximum allowable limits.

TABLE 2.—SUMMARY OF SLED TEST RESULTS FOR ALL RESTRAINTS

Restraint configuration	HIC	3 ms chest clip (G)	Head excursion (mm)	Knee excursion (mm)	Test No.
FMVSS No. 213 limit	1000	60	813	914	
Cosco Grand Explorer Lap Belt w/Sm. Shield	424	32.9	697.74	614.17	UMP01
Cosco Grand Explorer Lap Belt w/Sm. Shield	417	32.2	748.79	660.15	UMP02
Century Breverra Contour/5-pt. Harness Lap Belt w/ Top Tether	332	38.9	760.02	904.49	UMP03
Century Breverra Contour/5-pt. Harness Lap Belt; No Top Tether	273	30.8	851.41	925.83	UMP04
Century Breverra Contour/5-pt. Harness Lap Belt w/ Top Tether	307	40.5	718.82	880.62	UMP05
Century Breverra Contour/5-pt. Harness Lap Belt; No Top Tether*	243	50.2	NA	NA	UMP06
E–Z ON 86–Y Harness Lap Belt w/Top Tether	463	52.5	495.30	540.26	UMP07
E–Z ON 103Z Vest Lap Belt w/Top Tether	702	59.3	558.29	635.76	UMP08
E–Z ON 86–Y Harness Lap Belt w/Top Tether	461	52.9	473.71	539.75	UMP09
E–Z ON 103Z Vest Lap Belt w/Adj. CAM-Wrap	315	35.9	713.23	597.92	UMP10
Britax Roundabout Lap Belt w/Top Tether	270	42.3	622.55	798.83	UMP11
Britax Roundabout Lap Belt; No Top Tether	477	39.3	810.26	895.60	UMP12
Britax Roundabout Lap Belt w/Top Tether	303	43.4	574.0	736.09	UMP13
Britax Roundabout Lap Belt; No Top Tether	425	36.1	794.77	864.36	UMP14
Britax Elite Lap Belt w/Top Tether	554	51.2	640.08	782.32	UMP15
Britax Elite Lap Belt; No Top Tether	377	39.2	820.17	867.66	UMP16
Britax Elite Lap Belt w/Top Tether	614	58.9	580.39	719.84	UMP17
Britax Elite Lap Belt; No Top Tether	377	43.1	821.69	878.08	UMP18
Century Breverra Contour/5-pt. Harness Lap Belt; No Top Tether (Repeat of UMP06).	299	31.2	843.79	917.96	UMP19 (Repeat of UMP06)

*HIC based on head contact w/CRS as dummy slipped out of failed 5-pt. harness.

While NHTSA anticipated that shield-type boosters could not meet the 32-inch head excursion limit of the standard when tested with the 6-year-old dummy, test results showed that when tested in this configuration, the Cosco Grand Explorer shield booster seats used for the baseline testing satisfactorily limited head excursion to under 762 mm (30 inches) in both instances. In addition, knee excursion was measured to be 254 to 279 mm (10–11 inches) below the 914 mm (36 inch) limit. These test results are in direct contrast with the Calspan and VRTC studies (see Appendix A, *supra*) conducted in support of NHTSA's ISTEA rulemakings on booster seats.

Following conduct of the baseline test with the shield-type booster seat, the agency tested the hybrid boosters and the convertible seats both with and without the top tether strap. In the tethered configuration, head excursion was measured to be below 762 mm (30 inches), and knee excursion was measured to be below the 914 mm (36 inch) limit (although only marginally so in one instance (904.49 mm) (35.61 inches)). However, in each of the test runs conducted using the untethered configuration, head and knee excursions beyond the respective 813 and 914 mm (32 and 36 inch) limits were measured, with marginal reductions in both the HIC and chest acceleration parameters. It should be noted that a total of three test runs was conducted using the untethered configuration, as the test dummy slipped out of the child restraint during the second test run due to a failure of the 5-point harness, voiding the measurement of head and knee excursion. Interestingly, a comparison between the untethered shield-type booster used in the baseline testing and the tethered hybrid booster (forward facing with internal harness/high-back belt-positioning booster) indicates that the untethered shield booster performs marginally better (on average) with respect to limiting head excursion and significantly better with respect to limiting knee excursion than the hybrid booster.

Two convertible restraints were evaluated in the same manner, first with a top tether strap attached and then without. In the tethered configuration, the Britax Roundabout limited head excursion to 622.3 and 574.04 mm (24.5 and 22.6 inches) in the two tests performed, well below the 813 mm (32 inch) limit prescribed in the standard and also well below the results observed in the baseline test with the shield-type booster. Knee excursion measurements were also well below the established limit. However, whereas the untethered hybrid toddler/booster restraint configuration resulted in unacceptable head and knee excursions, the untethered Roundabout configuration limited both head and knee excursion within acceptable limits (although only marginally

with respect to head excursion in the first test at 810.26 mm (31.90 inches)). Additionally, while the untethered hybrid toddler/booster restraint tests resulted in reduced HIC and chest acceleration measurements, the untethered Roundabout tests resulted in reduced chest acceleration measurements but increased HIC values.

The second convertible restraint, the Britax Elite, demonstrated similar results. In the tethered configuration, head excursion was limited to 640.08 and 580.39 mm (25.2 and 22.85 inches) in the two tests performed, again well below the 813 mm limit prescribed in the standard and also well below the results observed in the baseline test with the shield-type booster. Knee excursion measurements were also well below the established limit. However, each of the tests conducted in the untethered configuration resulted in head excursion measurements that marginally (820.02 and 821.69 mm) (32.29 and 32.35 inches) exceed the 813 mm limit, while knee excursion measurements remained within acceptable limits.

The two different E–Z On products, the Y-harness and the vest, are the only products currently marketed for children over 18 kg (40 lb) that do not require the use of a shoulder harness to attach to the vehicle. Both of these systems require the use of a tether. Test results show that the Y-harness system dramatically limited head excursion to 495.3 and 473.71 mm (19.5 and 18.65 inches) on the two tests, or approximately 33 percent below the 813 mm limit prescribed in the standard, and significantly below the other tethered systems. Knee excursion was also limited to values well below established limits.

E–Z On markets two different styles of the vest system. The first is an adjustable vest, which can be adjusted for fit as the child grows via three different zipper locations on the back of the vest. This was not used in this test program, as the vest, when configured in its smallest size, was still too large to properly fit the 6-year-old test dummy. E–Z On also manufactures sized vests, provided to the consumer based on anatomical measurements of the child as provided to E–Z On. NHTSA utilized a fitted vest in this testing program, although it should be noted that the vest provided by the manufacturer for this testing was very tight on the 6-year-old dummy, and the next larger size would likely have provided a better fit. The E–Z On vest system was tested utilizing a top tether strap. The head and knee excursion values were both well below established limits. The chest acceleration was 59.3 g, marginally below the limit of 60 g. This high value for chest acceleration may be partially attributable to the very snug fit of the vest on the test dummy.

Given the excessive head excursion measured in 17 of the 20 tests performed in the Calspan and VRTC studies, combined with the assumption that child restraint manufacturers are not currently marketing shield-type booster seats for children over 18 kg due to an inability to meet the head excursion requirement when testing with the 6-year-old dummy, NHTSA chose to include only one representative shield-type booster seat (the Cosco Grand Explorer) to serve as a baseline test for the current test program. However, given the favorable results with respect to both head and knee excursion parameters seen with this seat as noted above, NHTSA conducted a second set of testing to evaluate three other currently available shield-type booster seats (the Gerry Double Guard, Evenflo Sidekick, and Fisher Price T-Shield). As before, each seat was tested twice, on separate test runs, to enhance the repeatability of the test results. In each instance, the measured head excursion significantly exceeded the 813 mm (32 inch) limit of Standard 213, ranging from 876.3 to 1016 mm (34.5 to 40.0 inches). Full test results are provided in Table 3. These results more closely parallel those recorded in the earlier tests conducted by Calspan and VRTC. Physical examination of each of the four shield-type booster seats tested in this test program revealed no obvious, discernable variations in construction, i.e., height of the shield, etc., that would explain the difference in performance of the Cosco Grand Explorer versus the others with respect to head excursion.

TABLE 3.—ADDITIONAL SHIELD BOOSTER TESTS

Restraint configuration	HIC	3 ms chest clip (G)	Head excursion (mm)	Knee excursion (mm)	Test No.
FMVSS No. 213 limit	1000	60	813	914	
Gerry Double Guard Lap Belt w/sm. Shield	748	35.8	979.9	825.5	UMP21
Evenflo Sidekick Lap Belt w/sm. Shield	721	37.8	873.8	762.0	UMP22
Fisher Price T-Shield Lap Belt w/sm. Shield	349	26.1	927.1	767.1	UMP23
Evenflo Sidekick Lap Belt w/sm. Shield	820	35.9	876.3	749.3	UMP24
Gerry Double Guard Lap Belt w/sm. Shield	780	34.6	1016	838.2	UMP25
Fisher Price T-Shield Lap Belt w/sm. Shield	525	31.5	955.0	784.9	UMP26

Issued on June 29, 1999.

L. Robert Shelton,

Associate Administrator for Safety Performance Standards.

[FR Doc. 99–17235 Filed 7–6–99; 8:45 am]

BILLING CODE 4910–59–P