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REQUEST TO LIST IN THE COMPENDIUM OF CANDIDATES
THE UNITED STATES OF AMERICA FEDERAL MOTOR VEHICLE SAFETY
STANDARDS

FMVSS 213 CHILD RESTRAINT SYSTEMS AND
FMVSS No. 225 CHILD RESTRAINT ANCHORAGE SYSTEM

Transmitted by the representative of the United States of America

Note: The document reproduced below is submitted by the United States of America to the Executive Committee (AC.3) for consideration. It contains a request to include in the Compendium of Candidates FMVSS No. 213 Child restraint systems and FMVSS No. 225 Child restraint anchorage systems.

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<http://www.unece.org/trans/main/welcwp29.htm>

REQUEST TO LIST IN THE COMPENDIUM OF CANDIDATES
THE UNITED STATES OF AMERICA FEDERAL MOTOR VEHICLE SAFETY
STANDARDS FMVSS No. 213 CHILD RESTRAINT SYSTEMS AND
FMVSS No. 225 CHILD RESTRAINT ANCHORAGE SYSTEMS

The United States of America requests that the Federal Motor Vehicle Safety Standards (FMVSS) No. 213 Child restraint systems and FMVSS No. 225 Child restraint anchorage systems be listed in the Compendium of Candidates.

Background

Child restraint systems are the most effective way to protect young children involved in motor vehicle crashes. The National Highway Traffic Safety Administration (NHTSA), in the United States of America, estimates that these systems, when properly used, reduce the chance of death in a motor vehicle crash by 71 per cent. However, in order for these benefits to be achieved, child restraints must be installed and used properly. A study sponsored by NHTSA found that nearly 80 percent of child restraints were improperly installed or used. Every year, in the United States of America, an average of 230 children aged 0-6 are killed, and nearly 66,000 are injured in motor vehicle crashes while sitting in child restraints. An estimated 68 deaths and 874 non-fatal injuries could have been prevented if misuse of child restraints were eliminated.

Description of Regulation

To address this problem, NHTSA established a uniform child restraint attachment system. Vehicles are equipped with independent child restraint anchorage systems consisting of three anchorage points: two lower anchorages and one upper anchorage. Each lower anchorage consists of a 6 mm bar located at the intersection of the vehicle seat cushion and seat back, in a location where it will not be felt by passengers. The upper anchorage is a top tether anchorage. These anchorage systems are required at two rear seating positions. In addition, if a vehicle has three designated seating positions in the rear seat or second or third row of seats, another seating position, other than an outboard position must be equipped with a user-ready tether anchorage. Child restraints are required to be equipped with a means of attaching to these anchorage systems.

NHTSA considered several different types of uniform attachment systems. NHTSA selected the vehicle rigid anchorage system because it allows for more flexibility in child restraint designs. The child restraint attachments could be designed to be rigid or non rigid (i.e., flexible). Both systems provide comparable safety benefits.

A table describing these regulations and comparing them to the Canadian and UNECE Regulations is provided in document TRANS/WP.29/GRSP/2004/14.

Safety Benefits

The uniform systems will increase safety both by decreasing misuse, and by providing better protection than current systems do even when used properly. Of the estimated 68 lives lost annually due to misuse, this regulation is expected to prevent 30 to 33 fatalities. In the event of a crash, the tether will prevent head excursion and reduce the chance of serious head injury. An estimated 6 to 17 additional lives will be saved by tether anchorages. The safety benefits of both rigid and non-rigid connectors are summarized in Table S-1. It is estimated that these systems will prevent from 36 to 50 fatalities, and from 1,231 to 2,929 non-fatal injuries annually.

Table S-1
Benefits

CRS /Vehicle	Fatality Benefits	Injury Benefits
Rigid/Rigid	36 to 47	1,231 to 2,893
Non rigid /Rigid	36 to 50	1,235 to 2,929

Estimated Average Costs

Table S-2 presents an estimate of what the agency believes will be the most likely total cost of the regulation. NHTSA believes that sales of child restraints with rigid connectors (shown in Table S-3 to cost from US\$33.87 to US\$43.87) and the non rigid connector system that uses a single strap through the opening on the back of the seat (shown in Table S-3 to cost as low as US\$9.62) may be limited because few manufacturers indicated they would produce these types of systems. The estimate of most likely costs (US\$17.19) is thus based on an average of non rigid connector systems with dual straps. The average vehicle costs (US\$5.67) are weighted by the number of seating positions required to be equipped with rigid anchorages.

Table S-2
Estimated Average Costs(US\$1996)

Restraint Type	Per Child Restraint	Per Vehicle	Total Annual Cost	Cost Per Equivalent Fatality (Millions)
CRS Non rigid/ Vehicle Rigid	US\$17.19	US\$5.67	US\$152 Million	US\$2.1 to US\$3.7

Range Of Costs

The range of costs for providing anchorages and tethers, and modifying child safety seat designs are summarized in Table S-3. Anchorages and tethers are expected to increase vehicle costs by from US\$2.82 to US\$6.62. Child restraint costs will increase by US\$9.62 to US\$43.87.

Cost Effectiveness

For the estimated average total annual cost of US\$152 million, the cost per equivalent life saved is estimated to be US\$2.1 to US\$3.7 million (see Table S-2).

Table S-3
Consumer Cost of Various Types of Systems
(US\$1996)

System	Per Child Restraint	Per Vehicle ^{1/}
CRS Rigid	US\$33.87 - US\$43.87	
CRS Non rigid	US\$9.62 - US\$21.09	
Vehicle Rigid		US\$2.82 to US\$6.62

Amendments To Final Rule

Since the original regulation was published in March 1999, there have been three amendments. The first amendment, published in August 1999, clarifies the test procedures used to test tether anchorages and the lower child restraint anchorage systems; excludes shuttle buses from the standard; and makes technical amendments to correct some of the figures and other portions of the March 1999 final rule. The second amendment, published in July 2000, addresses certain issues that need to be resolved or clarified concerning the installation of child restraint anchorage systems in vehicles and how those systems are to be tested in the compliance tests. The third amendment, published in June 2003, pertains to: The strength requirement for the tether anchorage and for the lower anchorages of child restraint anchorage systems; how the test for the strength requirement is conducted; how the lower anchorage bars must be configured and marked; where the bars must be located relative to the vehicle seat bight; where tether anchorages must be located relative to seating positions within a vehicle; the installation of child restraint anchorage systems in vehicles with advanced air bags; and whether to require backless booster seats to be equipped with attachments for connecting to the lower anchors of a child restraint anchorage system.

Technical documentation

Technical documentation supporting these regulations, including documentation concerning best available technology, relative benefits, and cost effectiveness can be found in the following documents:

Technical Justification for US Regulation:

- Final Rule: Federal Motor Vehicle Safety Standards; Child Restraint Systems; Child Restraint Anchorage Systems, Docket Number 3390
- 1st Amendment dated 31 August 1999, Docket Number 6160
- 2nd Amendment dated 31 July 2000, Docket Number 7648
- 3rd Amendment dated 27 June 2003, Docket Number 15438
- Chart Comparing the US and Canadian Child Restraint Standards to the ECE Child Restraint Standards as they pertain to ISOFIX (TRANS/WP.29/GRSP/2004/14)
- Final Economic Assessment: FMVSS No. 213, FMVSS No. 225; Child Restraint Systems, Child Restraint Anchorage Systems
- Additional supporting documentation can be found at <http://dms.dot.gov/> in Docket Numbers 3390, 6160, 7648, 15438.

^{1/} The range represents vehicles with no rear seat (meaning anchorage required for one front seat) to vehicles with three rear seating positions (meaning two seating positions with lower anchorages and tether plus one seating position with just a tether).