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***Via Regulations.gov***
Administrator Cliff
Document Management Facility, M-30
U.S. Dept. of Transportation
West Building, Ground Floor, Room W12-140
1200 New Jersey Avenue, SE
Washington, D.C. 20590

**Re: Comment from Evenflo Company, Inc. on Notice of Proposed Rulemaking (NPRM) Docket No. NHTSA-2020-0093; 85 FR 69388-69459**

Dear Administrator Cliff and NHTSA Leadership:

Evenflo Company, Inc. ("Evenflo") is pleased to provide comment on the NPRM regarding updates to Federal Motor Vehicle Safety Standard ("FMVSS") 213. As a leading manufacturer of child restraints and booster seats, Evenflo appreciates: (1) the National Highway Traffic Safety Administration ("NHTSA" or the "Agency")'s commitment to continued improvement of the already rigorous FMVSS 213, and (2) the opportunity to weigh in on important regulatory requirements that impact not only our business, but more importantly, child-occupant safety in motor vehicles.

Evenflo structures its comments below on the proposed rule to track the sections as outlined in the NPRM. Additionally, Evenflo incorporates by reference herein the comments provided by the Juvenile Products Manufacturers Association (the "JPMA") in response to the NPRM. To the extent specific feedback is not provided on a particular section in the following, Evenflo relies upon the comments provided by the JPMA as representative of its views.

## III(b). Updating the Representative Seat Assembly

**Evenflo's comment is focused on use of the proposed bench in both frontal and side impact testing:**

Recognizing that "[t]he Agency's goal is to ensure the continued effectiveness of CRSs in current and future vehicles, thereby reducing the unreasonable risk of injury to children in motor vehicle crashes," consistency across testing protocols is essential. https://www.federalregister.gov/d/2020-21477. Evenflo agrees with NHTSA that the FMVSS 213 seat bench test fixture should represent the interior vehicle environment for testing purposes regardless of crash scenario—side or frontal. It only makes sense, therefore, to utilize the same seat bench for both test methods to reduce the variables present in assessing a car seat's overall crashworthiness. Accordingly, one bench for both protocols is preferred in principle.

Of course, Evenflo would request that once final bench designs are released, the Agency would allow manufacturers a reasonable period of time to evaluate the fixture under the proposed side impact protocol to ensure such use is appropriate.

## V. Denial of Petition Regarding a Floor

**Evenflo respectfully requests that the Agency reconsider the creation of a standard, or at least a specification, for a test bench floor to accommodate a support leg feature.**

In 2011, Volvo requested certain amendments to FMVSS 213; while two of the three requests are addressed in this NPRM, the third—a request to add a floor to the seat fixture used in FMVSS 213 dynamic testing—was denied. Evenflo respectfully requests that NHTSA reconsider the denial and issue another NPRM including a support leg reaction surface—a bench floor—for testing car seats with support/load leg features.

NHTSA states in the subject NPRM, "The test parameters are also chosen and designed to reflect how child restraints are actually *used* in the real world." https://www.federalregister.gov/d/2020-21477/page-69403 (emphasis supplied). If that is true, then the Agency should reconsider its unwillingness to include a standard for load-leg seats. Evenflo believes now is the proper time to address the performance of support legs. After all, there already are multiple manufacturers selling car seats with this safety feature and consumer demand for the technology is growing. Moreover, some consumer protection organizations that test car seats are already using the support leg in crash testing. This practice is generating test results that are misleading to consumers because their studies compare apples to oranges by including seats with and without load legs in the same crash testing. Moreover, a standard that does not acknowledge this growing trend will soon be outdated.

We understand that the Agency believes car seats should be compliant to FMVSS 213 standards without the use of a support leg, and we agree. Instead, Evenflo asks that

the Agency create a separate compliance standard for testing those car seats that feature a support leg. Alternatively, Evenflo requests that the Agency provide, at a minimum, a specification for a bench floor, so that manufacturers like Evenflo, which already design and sell car seats with load legs, will have consistent, recognized bench hardware from which to design their proprietary tests for assessing load leg performance. Under the alternative approach, the support leg would not be tested for FMVSS 213 compliance, yet the industry (and ultimately consumers) will still benefit from standardization of testing equipment.[1] A common floor specification for testing car seats equipped with a support leg allows manufacturers to design to a common baseline, thereby optimizing performance, and ultimately protecting the child-occupant.[2]

**VII(b). Fleet Testing of CRSs on the New Seat Assembly Designs-Proposed Standard Seat Assembly Design ("Version 2" or "V2")**

**Evenflo submits that more testing should be done of the HIII-6C ATD on the proposed bench without a tether, and until such testing confirms the HIII-6C is appropriate for the seats that are currently on the market, manufacturers should be permitted to opt for compliance testing with H2-6C.**

NHTSA requested: "comments on whether using the HIII–6YO and the updated seat assembly would examine more closely the ability of CRSs to manage the kinematics of a restrained child in modern vehicles than a test with the H2–6YO." In connection with the HIII-6YO in an untethered configuration, Evenflo suggests that the test data as presented does not yet suggest the HIII-6YO is superior to the H2-6YO. Specifically, in Table 17, Results of Paired Sled Tests with Standard Seat Assemblies V1 and V2, testing performed with the HIII-6C in the untethered configuration involved only three seats, which is surprisingly minimal considering that this configuration is a focal point for the Agency and studies show that untethered use is still prevalent:

> Studies from NHTSA's National Child Restraint Use Special Study (NCRUSS), Safe Kids, and the Insurance Institute for Highway Safety (IIHS) have shown that tether use is still low in the field. NCRUSS found that the overall tether use was 42 percent. Safe Kids found that overall tether usage in forward-facing CRSs with internal harnesses was only 29 percent. Tether use was 45 percent when the CRS was attached with lower anchorages and 15 percent when the CRS was attached with seat belts. IIHS researchers analyzed data from 479 vehicle observations and found that the top tether was used only 56 percent of the time. With prevalent tether nonuse in the field, NHTSA requires forward facing CRSs to meet minimum

1 In connection with this additional rulemaking, Evenflo believes that NHTSA should establish a minimum vehicle floor strength for all passenger vehicles. This would contribute to, among other things, the effectiveness of a support leg feature.

2 Given the number of manufacturers currently making seats with load legs, Agency guidance on how unused load legs should be adjusted or positioned during compliance testing would also serve to increase consistency.

performance requirements while untethered in an FMVSS No. 213 compliance test

https://www.federalregister.gov/d/2020-21477/page-69403 (internal citations omitted). Furthermore, one of the models included in this comparative testing using the HIII-6C is no longer in the market. This leaves only two seats in the NPRM data.

Accordingly, Evenflo suggests that more testing is needed to ensure that car seats which have been in the market for years, particularly larger, taller or all-in-one convertibles, will not be adversely impacted by use of the V2 bench/HIII-6C combination. If no additional research on the vulnerabilities of the HIII-6C is forthcoming, however, Evenflo recommends that NHTSA permit manufacturers the latitude to specify whether the HIII-6C or H2-6C should be used in compliance testing of the manufacturer's car seats—at least until more testing is completed to allow a conclusion to be made on the efficacy of the HIII-6C.

## IX. Streamlining NHTSA's Use of ATDs in Compliance Tests to Reflect CRS Use Today

### (e). Positioning the Legs of the HIII-3YO Dummy in Rear-Facing CRSs

The use of the HIII-3YO in rear-facing dynamic testing necessarily requires that NHTSA define a consistent approach regarding what to do with the dummy's legs. While placing the legs up the test bench seat back and removing the knee stop bolt of the HIII-3YO is an option, Evenflo recommends against that approach. Unnatural bending of the legs and removal of parts, i.e., knee joints, does not comport with actual child positioning in a car seat. A test method based on such artifice cannot provide a reliable assessment of a car seat due to a lack of biofidelity in the ATD set-up. Instead, Evenflo advocates for a test method in TP-213 that integrates more natural leg positioning and limits interaction between the lower legs and parts of the car seat.

Furthermore, this issue highlights the needs for North American regulatory harmonization, as some of the methods used by Transport Canada currently, removal of ATD leg parts and unnatural positioning, suffer from a similar lack of biofidelic integrity. If a single test method is employed by both NHTSA and Transport Canada, it would benefit manufacturers and North American consumers. Consistency of testing would allow for expanded weight ranges for rear-facing child restraint designs and could potentially lower costs to manufacturer and consumer, in that two different designs of the same seat will no longer be necessary to meet two different requirements.[3]

[3] The United States and Canada have historically recognized the benefit of regulatory collaboration in connection with motor vehicle safety. In 2011, the Regulatory Cooperation Council was established to promote regulatory harmony. Report 4—Oversight of Passenger Vehicle Safety—Transport Canada (oag-bvg.gc.ca). Further the RCC Work Plan specifically included within the RCC's purview the reform and harmonization of child restraint regulations. RCC Motor Vehicles Working Group: Existing and New Motor Vehicle Safety Standards Work Plans (canada.ca).

**Evenflo seeks clarification regarding the method for testing rear-facing child restraints with a 6-year-old ATD.**

The NPRM lacks guidance regarding the testing of rear-facing car seats with a 6-year-old ATD. Evenflo requests that the Agency clarify whether a 40-50 lb. rear-facing car seat will be tested with the HIII-6C. In addition, given the challenges already facing use of a HIII-3YO in rear-facing mode as articulated above, specification of a test method with the larger ATD with longer legs will be essential, so that manufacturers approach this testing consistently as well.

**(f) Table summarizing proposed amendments**

Importantly, the proposed 12 kg (26.5 lb.) minimum weight for forward-facing mode cannot be reconciled with the CRABI-12MO testing requirements. Evenflo asks that the Agency update how the CRABI-12MO will be used in compliance testing. Manufacturers must continue to incorporate the CRABI-12MO into forward-facing CRS design and testing due to prescribed weight ranges, which is counterproductive to NHTSA's intended goal of increasing rear-facing use of car seats with older, larger children. https://www.federalregister.gov/d/2020-21477.[4]

## Additional Comments

1. **Evenflo requests that NHTSA permit the use of belt-tensioning systems when installing car seats for compliance testing and update the test procedure accordingly.**

The Evenflo LiteMax rear-facing infant seat and many other seats in the market use a belt-tensioning system to increase ease of consumer installation. Many belt-tensioning systems amplify the user-applied force to the vehicle seat belt or lower connector strap, which results in higher belt installation tensions than can be achieved without them. The result is a more secure installation.

The current installation procedures used in NHTSA's annual compliance testing fail to utilize the benefits of the belt-tensioning feature. Historically, the establishment of a uniform, pre-test installation force, as measured in the vehicle seat belt or lower connector strap webbing, was sufficient because belt-tensioning systems were not prevalent.[5] The car seat offering in the marketplace has changed, however, and now these belt-tensioning systems are much more common. With the propagation of various belt-tensioning technologies allowing for higher installation tensions, the test procedure should be updated. Continued use of an installation force requirement alone can materially and

[4] Until this inconsistency is resolved, the $540,000 cost savings listed in the NPRM likely will not be realized.

[5] It is likely the goal of the force range is consistent, consumer-achievable tension levels.

negatively impact the performance of a car seat due to insufficient belt tension. Belt-tensioning systems can address that insufficiency.

Furthermore, because annual compliance testing is intended to assess the performance of each car seat pursuant to the requirements of FMVSS 213, and it is not intended to compare one car seat to another, allowing the use of belt tensioners in compliance tests would not create unfair advantage. Rather, if NHTSA sets an installation method for the use of belt-tensioners, then testing will be uniform and lab results will consequently be more consistent to in-vehicle performance.

**2. Tables A and B to S5.3.2 and the accompanying new regulatory test need clarification.**

The new Tables A and B for S5.3.2 and the new regulatory text suggest that car seats must be capable of installation with a Type I belt until 3 years after the date of publication (see Table A); immediately following, car seats are subject to the requirements in Table B, which does not have Type I as a requirement. Evenflo asks that the Agency clarify:

(a) Whether manufacturers will have the option to comply with Table B prior to the end of the 3-year date following publication, or if they must continue to make accommodations for Type I belt installation (including labels, instructions, diagrams, etc.) until the end of the 3-year timeframe.
(b) Whether, after the conclusion of the 3-year period following publication, a manufacturer may still allow Type I installation on a particular seat, even though Type I belts are not included in Table B.
(c) Whether the label changes that must be implemented in one year and the testing changes that must be implemented in 3 years will require two labeling updates, which seems inefficient and potentially confusing to the consumer.

**3. Clarification is needed about the method by which testing labs are transferring back angle.**

Evenflo has observed that methods for transferring the back angle from the seat back to the outer surface of the car seat varies among testing labs. Variances include the placement of the transfer device, the size of the transfer device, and the way the device should be placed when interacting with a bumpy or irregular surface. Evenflo therefore requests that a method of transfer be identified in the final rule.

**4. Evenflo suggests that the guidance provided by NHTSA in several letters of interpretation should be integrated into the final rule.**

**(a) Change of position**

NHTSA has issued numerous letters of interpretation to various manufacturers related to "change-of-position." The language at issue dates back to December 13, 1979, with the

adoption of FMVSS 213. Specifically, under S5.1.1(b)(1) of the original FMVSS 213: "If adjustable to different positions, [a child restraint or booster seat] must remain in the same adjustment position during the testing as it was immediately before the testing." 44 Fed. Reg. 72131 (1979). NHTSA included such language in FMVSS 213 to prevent "injuries to children's hands or fingers caught between the structural elements of the seat as it changes position." 44 Fed. Reg. 72131 (1979) (emphasis added). Responses from the Agency, starting with a letter to C. Scott Talbot, Esq., dated September 4, 1996, confirm this interpretation:

> In the final rule adopting the requirement (44 FR 72131, December 13, 1979), the National Highway Traffic Safety Administration indicated that its intent is to prevent a child's fingers or limbs from being caught between the "shifting parts" of the restraint, and prevent a child's submarining during a crash (where the child's body slides too far forward and downward, legs first). 44 FR at 72132. The agency also stated in the rule that the requirement would prevent injuries to children's hands or fingers 'caught between the structural elements of the restraint as it changes position.' 44 FR at 72133.

Since these initial interpretations and comments, NHTSA has consistently opined that a change-of-position does not violate FMVSS 213, as long as it does not create a hazard that could cause submarining by the child-occupant or injuries to the child's hands or fingers during a crash. Given the consistent position the Agency has taken on this issue over the last several decades, Evenflo requests that a qualification on this requirement be included in the final rule.

**(b) Label permanence and legibility**

In two letters to Evenflo in the early 2000s, NHTSA provided guidance on how a manufacturer can properly certify to the labeling permanence and legibility requirements of FMVSS 213:

- In 2003, Evenflo received an interpretation from NHTSA regarding a question about label permanence. Evenflo had advocated that the permanency definitions provided by the American Society for Testing Materials ("ASTM"), along with previous interpretations provided by the Agency, should apply to car seats:

  > The ASTM standard for CRSs provides that a label, excluding a label attached by a seam, is permanent if, during an attempt to remove it: (1) the label cannot be removed without the aid of tools or solvents; (2) if it is a paper label, it tears into pieces; or (3) such action damages the surface to which it is attached. Your letter also cited language from the Notice of Proposed Rulemaking for 49 CFR Part 541, Motor

> Vehicle Theft Prevention Standards, in which the agency stated that the removal of a label must 'create a 'footprint' (i.e., physical evidence that an affixation was originally present or required to be present) on that part.' For a label to be permanent, it must remain affixed and legible under normal conditions for the life of the restraint to which it is attached. If a label used by your company were to meet the ASTM and [A]gency criteria you outlined in your letter and listed above, and remain legible for the life of the restraint, we would deem it permanently attached.
>
> Letter from Jacqueline Glassman to Randy Kiser, December 11, 2003.

- In May 2004, Evenflo asked if using a procedure suggested by Transport Canada, involving the application of three different cleaning solutions in sequence to a label with a piece of cheesecloth was sufficient to certify label legibility. NHTSA opined: "In our opinion, using the procedure you describe would be an exercise of reasonable care in making your certification. We assume that the procedure would expose the labeling to cleaning solutions representative of those used in the U.S." Letter from Jacqueline Glassman, Chief Counsel to Randy Kiser, Evenflo, May 11, 2004.

Evenflo requests that the guidance provided in these two letters regarding label permanence and legibility, including incorporation by reference to ASTM standards, be included in the final regulation.

**(c) Rear-facing excursion planes**

The explanation provided in NHTSA's letter of interpretation to Ms. Kathleen Weber, dated August 25, 1998, regarding rear-facing excursion planes, has been misconstrued. Clarification of Section S5.1.3.2 should be memorialized in the final rule.

FMVSS 213 at Section S5.1.3.2 states:

> In the case of each rear-facing child restraint system, all portions of the test dummy's torso shall be retained within the system and neither of the target points on either side of the dummy's head and on the transverse axis passing through the center of mass of the dummy's head and perpendicular to the head's midsagittal plane, shall pass through the transverse orthogonal planes whose intersection contains the forward-most and top-most points on the child restraint system surfaces.

(emphasis added). Further inquiries on this topic suggest that the 1998 response from the Agency was not altogether clear. Accordingly, Evenflo suggests language in the final rule to make clear that the head cannot exceed either of the planes to be

compliant with FMVSS 213.

**(d) Measuring minimum seat back height**

Evenflo requests that NHTSA take this opportunity to clarify the procedure for measuring seat back height.

In a letter to Ms. Amy Sanford, dated November 20, 2008, an interpretation of the measurement method of the minimum seat back height was provided. It specifies that the adjustable back rest (and, by extension, presumably, the headrest) must be in the lowest position when the measurement is taken to meet S5.2.1, which mandates a seat back height of at least 500 mm. See Letter from Anthony M. Cooke to Amy Sanford, dated November 20, 2008.

Evenflo advocates that the Agency allow the headrest to be set at a higher position, as the goal is to provide a support surface for larger children, not smaller children, and these larger children likely would require a headrest setting higher than the lowest position. Moreover, misuse is unlikely to occur with a larger child using the seat at the lowest setting, as the child's shoulders would collide with the side wings of the headrest.

A final interpretation of this issue should be included in the new TP-213 or the regulation itself, along with any other relevant adjustments that may affect this measurement or any other physical measurements of the seat.

**5. Tensioning methods for the various belt systems should be addressed in the FMVSS 213 test procedures and/or the regulation itself.**

**(a) LATCH, Type I, and Type II belts**

Section 12.D.6.3 of TP-213-10 specifies to use a belt-tension gauge to set belt tension, and then to use a load cell to take the final measurement. Evenflo is aware that the test labs do not use a load cell. Moreover, the belt tension gauge often cannot be used on LATCH belts due to insubstantial space. Accordingly, Evenflo recommends that a load cell be incorporated into the LATCH anchors at a minimum. For the other installations, a typical belt load cell is acceptable, but NHTSA should specify the model of load cell to be used to ensure consistency among the testing labs.

In addition, the test procedure does not currently provide sufficient direction regarding the order of operations for attaching and tensioning the tether strap, lower LATCH anchors and the vehicle belts. Such ambiguity introduces inconsistency into the test procedures employed by individual labs. Accordingly, it is very possible to have different outcomes simply because the lab is, for example, completely tensioning the

tether before the auto belts or vice versa. Evenflo asks that NHTSA address this ordering of operation in the final rule.

**(b) Internal harness**

In section 12.D.6.3 of TP-213-10, it is recommended to use a webbing tension pull device placed under each shoulder of the ATD and a waist strap to apply a 9 N force to create a 7 mm gap. This is a challenging, nearly impossible, procedure to execute correctly due to the presence of shoulder harness covers or waist harness covers, blockage created by the headrest, and/or the curvature of the ATD's shoulders, causing the device to bend.

Because the tensioning procedure outlined in TP-213 is so difficult when applied to current car seats, testing labs use instead a variety of alternative approaches, including the 2-finger method, the pinch test, or a belt-tensioning gauge inserted on each shoulder strap between the chest clip and crotch buckle, the last of which Evenflo recommends be added to TP-213. This method is preferred because it is measurable and can be used consistently on any car seat and with any ATD. At least one lab targets 4 lbs. on the gauge. Evenflo recommends this as well.

## 6. Side Back Width Measurement

Figure 6 on page 34 of the current TP-213-10 has been informally acknowledged by NHTSA as inaccurate. The side wing depth dimension should be measured from the foremost point of the side wing to the level of the seat back, not the head CG plane.

49 C.F.R. 571.213, S5.2.1.1(b) states:

> *except that a child restraint system with side supports extending at least 4 inches forward from the padded surface of the portion of the restraint system provided for support of the child's head.*

Accordingly, Evenflo recommends that this figure be corrected as follows:

SEAT BACK WIDTH MEASUREMENT

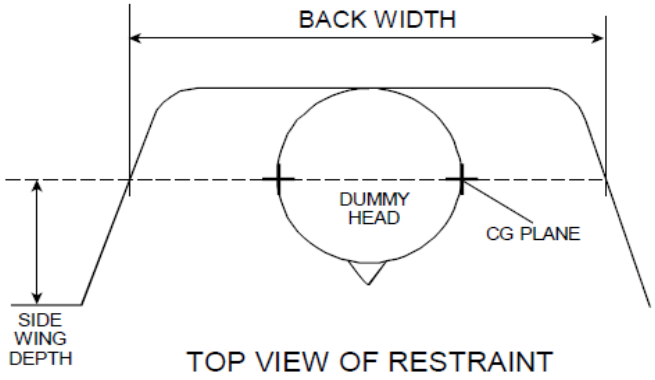


FIGURE 6

**7. Should infant carriers' height and weight recommendations better match up to better accommodate the children for whom the CRS is recommended?**

NHTSA asked for feedback on this question.

Individual manufacturers have historically determined whether their products can accommodate children recommended for their seats who fall within the height and weight limits. Furthermore, the research referenced in the NPRM confirms there are no uniform practices for child sizes that are being used by manufacturers for determining proper heights and weights for infant car seats. The UN child restraint regulation (UN R129) deals with this issue directly by specifying the child size data which must be used to classify child restraints. Adopting an approach similar to this would be a way to establish height and weight ranges for car seats which can be applied consistently from manufacturer to manufacturer.

**8. Availability of Computer Models to Assist Fit**

NHTSA asked for feedback on this issue as well.

In the development of car seats, Evenflo references the child models that UMTRI developed in the NHTSA-sponsored virtual ATD project. Due to limitations in positioning the virtual toddler mannequins, however, their utility is limited. If the mannequins could be adjusted at major joints, designers and engineers would be able to derive more use from them. Specifically, virtual fit checks of the mannequins in car seats would be possible.

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Evenflo understands that the Agency will be receiving feedback on the NPRM from a variety of sources, each with its own motivation for doing so. Evenflo is no exception. Evenflo's objective is to provide meaningful feedback from our engineers and other safety

and technical experts, such that the final standard (1) creates as much consistency as possible, (2) clarifies ambiguities that have developed since the last major review of FMVSS 213, and (3) maximizes applicability of the standard to child restraints and booster seats in the marketplace currently, as well as those emerging as the future of child-passenger safety. Additionally, we know it will be some time before such a holistic review of the standard occurs again. Our top priority remains the safety of children during motor vehicle travel, and we appreciate this chance to have a voice in this important rulemaking.

Respectfully submitted,

Amy E. Blankenship