13048 Valley Blvd
Fontana, CA 92335
United States of America

VIA EMAIL 8/1/2022

The Honorable Dr. Steven Cliff
Administrator
National Highway Traffic Safety Administration,
1200 New Jersey Avenue SE
Washington, DC 20590.

Re: Petition for Determination of Inconsequential Noncompliance with FMVSS 213 – Certain MY Baby Trend Child Restraint Systems

Dear Dr. Cliff,

Pursuant to 49 U.S.C 30118(d) and 30120(h), and the provisions of 49 CFR 556, on behalf of Baby Trend Inc ["BT"], and U.S. corporation located at 13048 Valley Blvd, Fontana, California, United States of America 92335, I hereby submit three copies of the enclosed petition to the National Highway Traffic Safety Administration seeking an exemption from the notification and remedy requirements of 49 U.S.C. Chapter 301 on the basis that a noncompliance in certain BT child restraint systems is inconsequential as it relates to motor vehicle safety.

Please contact me should you have any questions about this petition.

Sincerely,

Bradley Mattarocci
Vice President

Petition for Exemption from Notification and Remedy Requirements Pursuant to 49 CFR Part 556

Inconsequential Noncompliance with FMVSS No. 213 In Certain Baby Trend Hybrid 3-in-1 Child Restraint Systems

Executive Summary

On June 6th, 2022, Baby Trend (BT) received an email from NHTSA regarding technical noncompliance of LATCH lower anchor webbing in a BT Hybrid 3-in-1 child restraint system. Specifically, the LATCH lower anchor webbing marginally failed the unabraded tension test. Upon receipt of the email, BT acted immediately to halt production and distribution of the Hybrid 3-in-1, hired an external expert, conducted testing at external labs, and examined internal processes to determine the root cause of the non-compliance. Baby Trend found that the wrong webbing was installed in a portion of the Hybrid 3-in-1 CRSs, but through analysis of existing and new test data, as well as an objective look at NHTSA findings on CRS structural integrity and regulatory requirements, BT has determined that this non-compliance is inconsequential to safety.

Summary of the Non-compliance

On June 6th, 2022, Baby Trend (BT) received an email from NHTSA regarding technical noncompliance of LATCH lower anchor webbing in a BT Hybrid 3-in-1 child restraint system. Specifically, the LATCH lower anchor webbing marginally failed the tension test of FMVSS 213 S5.4.1.2(a) which states that the tensile strength of LATCH lower anchor webbing must be 15,000 Newtons or more in its original (new) condition; the LATCH lower anchor webbing tensile strength of the Hybrid 3-in-1 tested by NHTSA was 13,926N, 13,940 N and 14,087 N in three separate tests.

Baby Trend's Actions Following Notification of Non-compliance

Upon receipt of the aforementioned June 6th email from NHTSA, BT immediately on the same day halted production and distribution of all Hybrid 3-in-1 CRSs. On June 7th, BT hired expert Matthew R. Maltese, PhD to assist in the investigation, including providing recommendations for an experimental testing plan to investigate safety risk as a result of the technical non-compliance. On June 9th, 2022 Calspan was hired for dynamic sled testing. On June 16th and 17th, 2022 dynamic sled testing was conducted at Calspan in accordance with expert Maltese's recommendations. Sled tests included frontal, frontal oblique and farside lateral up to 64 kph delta V and 32g peak acceleration. On June 23rd, 2022 BT conducted webbing testing at SGS. On June 28th, 2022, BT and Dr. Maltese traveled to NHTSA Headquarters in Washington, DC and met with officials from the Office of Vehicle Safety Compliance. On June 29th, 2022, BT requested an extension of time to respond; the extension request was granted to July 15, 2022.

On July 1st, BT and Dr. Maltese, upon complete review of the data, determined that this subject failure was an inconsequential, technical noncompliance not affecting crashworthiness safety.

Technical Root Cause of the Non-compliance

The BT Hybrid 3-in-1 CRS (model number FB49E14A-YA) is manufactured with LATCH LA webbing that has an ultimate strength of nominally 21,000 kilonewtons, which is above the minimum ultimate strength set forth in FMVSS 213, S5.4.1.2(a). We have examined our Manufacturing Processes at the facility where the FB49E14A-YA was manufactured and Quality Assurance Processes that oversee the manufacturing at that facility. From that examination, we have determined that some of the FB49E14A-YA products had their LATCH Lower Anchor (LATCH LA) belts manufactured with webbing that has a failure threshold that is marginally below FMVSS 213, S5.4.1.2(a). From our investigation, we now know that 101,361 FB49E14A-YA child restraint systems manufactured between XXXXX and YYYYY have been sold in the United States that are potentially equipped with the non-compliant LATCH lower anchor webbing. In addition, there are 50,522 FB49E14A-YA child restraint systems in our inventory, and we have halted the distribution of these seats; preparations are underway to replace the incorrect LATCH lower anchor assemblies in these seats with the correct LATCH lower anchor assemblies with webbing that is compliant with S5.4.1.2(a). We have also removed from our factories any LATCH lower anchor webbing that is not compliant with S5.4.1.2(a).

The Noncompliance is Inconsequential as it relates to Motor Vehicle Safety

Baby Trend believes that the noncompliance is inconsequential as it relates to Motor Vehicle Safety for the following reasons:

1. **The FMVSS 213 Dynamic Sled Test Ensures the Structural Integrity of the CRS**

In 2003, as part of a rulemaking action, NHTSA evaluated the severity of the crash pulse in FMVSS 213. In the 2020 FMVSS 213 NPRM (NHTSA 2020), NHTSA restated its position from 2003 as follows: *"the Agency determined [in 2003] that the FMVSS No. 213 sled acceleration pulse was severe, similar to rigid barrier crash test accelerations of SUVs and trucks. Its severity was appropriately high to ensure that CRSs would maintain their structural integrity in just about all crashes involving children . . ."* (underline added). Subsequently, after extensive examination of NASS CDS and individual cases, sled testing, and comparison with regulations of other countries, in the 2020 FMVSS 213 NPRM NHTSA re-evaluated its 2003 findings on the severity of FMVSS 213. NHTSA determined that no change to the severity of the FMVSS 213 crash pulse was warranted. Thus, it appears that NHTSA's current and well-justified position is that the FMVSS 213 sled test ensures structural integrity of the CRS system, including the LATCH lower anchor webbing in an unabraded condition.

If it is true that NHTSA believes the FMVSS 213 sled test ensures that CRSs maintain their structural integrity, one must question the utility of considering the webbing strength tests in isolation rather than the integrity of the LATCH system as required under FMVSS 213. To be clear, BT believes that the webbing tests specified in FMVSS 213 have utility in safety, but only in the context of maintaining strength of the webbing with wear and tear of the child restraint following years of use. That is, the webbing strength tests specified in FMVSS 213 are actually two sets of tests. First, the breaking strength of new out-of-the-box belts is determined by pulling the belt webbing slowly (1 to 2 inches per minute) until they rupture, and the force at the moment of rupture is recorded. Then, a new out-of-the-box belt is placed in an abrasion machine that ostensibly simulates the wear and tear of everyday use of a CRS, and the abrasion action of the machine breaks some of the fibers in the webbing. Then, the abraded webbing is subjected to the same strength test as the unabraded webbing, and FMVSS 213 requires that the breaking strength of the abraded webbing is 75% of the breaking strength of the unabraded webbing.

BT agrees with NHTSA's position that the FMVSS 213 sled test ensures structural integrity of the CRS system, and BT further asserts that the unabraded webbing strength test not necessary to ensure the structural integrity of a CRS[1]. With that said, BT supports the webbing abrasion testing of webbing as currently outlined in FMVSS 213, as it ensures that the CRS performance will not degrade during everyday (non-crash) use[2].

Based upon the above, NHTSA should grant our petition because NHTSA has stated that the FMVSS 213 dynamic sled test is sufficient to ensure structural integrity of the CRS including the LATCH lower anchor webbing. All of the electronic data, pictures and video from our FMVSS 213 dynamic sled testing has been supplied as part of our July 15, 2022 letter to NHTSA.

2. The Consumers Union Testing Conducted Voluntarily by BT on All Hybrid 3-in-1 CRS's Additionally Ensures the Structural Integrity of the CRS

In addition to conducting FMVSS 213 dynamic sled tests at 48 kph as required by law, BT voluntarily conducts Consumers Union (CU) dynamic sled testing on child restraints produced by each of our factories. Like FMVSS 213, the CU dynamic sled test simulates a frontal impact. However, there are important differences that are pertinent to the matter at hand. First, the CU test is conducted at 56 kph whereas the FMVSS 213 sled test is conducted at 48 kph. Thus, since NHTSA has concluded that the current 48 kph FMVSS 213 dynamic sled test is sufficient to ensure that CRSs would maintain their structural integrity in just about all crashes involving children, then NHTSA should also conclude that the CU test (at 56 kph) is similarly sufficient to ensure structural integrity of a CRS.

Second, the CU test is conducted on a different test bench than the FMVSS 213 bench. Further, the CU test bench is derived from a vehicle seat, and thus provides a boundary condition for LATCH attachment and seat cushion-to-CRS interaction that is different than the FMVSS 213 bench.

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[1] This statement should not be construed as a request to change any current FMVSS. BT recognizes that the proper legal instrument for regulatory change is a Petition for Rulemaking. That said, the underlying facts as stated in this paragraph are a basis for NHTSA to grant the present Petition for Determination of Inconsequential Non-compliance.

[2] We note that given that the latch system is generally fixed in the vehicle, as opposed to occupant restraint straps which are used daily, and the useful life of a RS is generally 6 years, degradation of webbing in latch system over time is highly unlikely.

Finally, the CU test protocol includes a structure to represent the seat in front of the CRS seat position. This so-called "blocker plate" provides a clear tell-tale of whether or not the LATCH lower anchor belt system failed in any way to adequately restrain the CRS and occupant.

Based upon the above, NHTSA should grant our petition because the CU dynamic sled test is more severe than the FMVSS 213 sled test, and NHTSA has stated that the FMVSS 213 dynamic sled test is sufficient to ensure structural integrity of the CRS including the LATCH lower anchor webbing. BT can make available to NHTSA all of the test data that supports these findings.

3. Extreme Severity Sled Testing Demonstrates Structural Integrity of Non-compliant Hybrid 3-in-1 and Shows Minimum LATCH Lower Anchor Webbing Strength Requirement of FMVSS 213 is Unrealistic

Following notice from NHTSA of the technical non-compliance, we conducted dynamic crash testing at and above the regulatory test speeds in FMVSS 213, using test apparatus and conditions that are either specified in FMVSS 213 and/or the current NPRM, or widely accepted as due care tests. Frontal, frontal oblique and farside lateral sled tests were conducted at up to 64 kph delta V and 32g peak (See Table Below). For reference, FMVSS 213 specifies 48 kph as the dynamic sled test speed, which is described by NHTSA as "*appropriately high to ensure that CRSs would maintain their structural integrity in just about all crashes involving children"* (NHTSA 2020). We note that 64 kph is indistinguishable from the 100th percentile of towaway crashes ranked by Delta V in the field (Nolan et al. 1998). Further, as part of the 2020 FMVSS 213 NPRM, NHTSA conducted an analysis of NASS-CDS crashes from 2008 to 2012 involving children 12 and younger, and found that only 0.73 % of crashes exceed 56 kph (NHTSA 2020). Our frontal testing was conducted at 64 kph, and thus we are confident that our testing encompasses all crashes including the most severe crashes. Further, to increase the severity of the loading of the LATCH lower anchors, we a) ran our tests without the tether attached to the anchor, and thus the entire restraining load was borne by the LATCH webbing, and b) we used the Hybrid III 6 year old ATD both unweighted and weighted to 65 lbs to maximize the loading on the LATCH lower anchor webbing. In addition to frontal tests, we also conducted farside and oblique tests, also untethered to maximize LATCH lower anchor system loads. We conducted one test with the Hybrid III 3 year old, which is lighter than the Hybrid III 6 year old but is shorter in seated stature and thus may lead to less tipping moment and more longitudinal force applied to the LATCH anchors. All testing was conducted on the test bench proposed by NHTSA in the 2020 FMVSS 213 NPRM. All of the Hybrid 3-in-1 CRSs we tested used the same incorrect webbing that tested below the minimum strength requirements as reported by NHTSA.

Test #	ATD	Direction	Accel	Delta V	LATCH LA webbing load
			g's	Kph	Newtons
001A	HIII6yo-weighted	Frontal	28.5	57.1	4985
002A	HIII6yo	Frontal	28.4	57.1	4694
002B	HIII6yo	Frontal	28.4	57.1	4514
003A	HIII6yo	Frontal	32.2	63.9	4771
003B	HIII3yo	Frontal	32.2	63.9	4840
004A	HIII6yo	Farside Lateral	17.1	33.8	3950
005A	HIII6yo	Frontal Oblique	17.5	21.0	2777

There were two main findings from this test series. First, at no time and in no test did the LATCH Lower Anchor webbing or belt system fail to perform its intended purpose of restraining the CRS. We captured high speed closeup footage of the LATCH lower anchor webbing, as well as monitored any slip through the webbing adjuster (there was no measurable slip in any test). We inspected the webbing and LATCH lower anchor belt system following the test, and observed absolutely no evidence of full or partial rupture of the belt. We note, as stated earlier, that this finding is at crash speeds well in excess of what NHTSA considers severe and sufficient to ensure structural integrity of the CRS.

Second, we note that at no time during any of these tests did the LATCH Lower Anchor webbing load exceed 5000 Newtons and, more importantly, come even close to the 15,000 Newton minimum threshold set forth in FMVSS 213 for unabraded LATCH lower anchor webbing.

Thus, it is appropriate for NHTSA to grant our petition on the basis that we have clearly demonstrated a) the structural integrity of the CRS with LATCH system as a whole in use, with due consideration that the LATCH Lower Anchor Belt webbing is but a simple component, and b) that the fact that there is no risk to occupant safety caused from such webbing rupture as demonstrated in these tests.

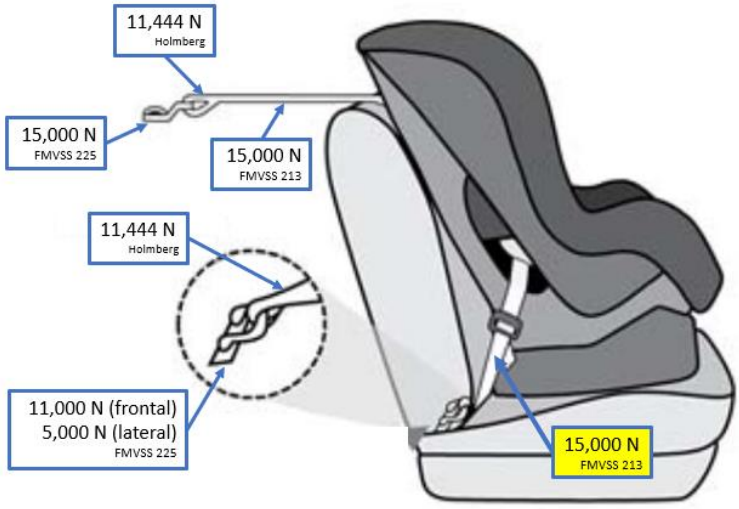
4. No Evidence of Webbing Failure in Any CRS in the Real World

BT has never received a complaint, nor does it have any knowledge of, a webbing failure on any of its products in the real world. BT is unaware of any webbing failure in any sled or crash test. Our review of prior petitions related to webbing failures in CRS reveals at no time did either NHTSA or any manufacturer state that they found webbing failure in the field. Further, in the 2020 FMVSS 213 NPRM, NHTSA conducted a case study of the most severe crashes and found a spectrum of roots causes associated with the injuries, and none of these were related to webbing or LATCH system failure.

5. The Webbing is Not the Weak Link in the LATCH Lower Anchor System

As we have stated above, NHTSA has already found that the FMVSS 213 test is sufficient to ensure structural integrity of the child restraint system, and since the LATCH Lower Anchor is part of that system, any deficiencies with the strength of the LATCH Lower Anchor webbing would have been revealed in the dynamic sled tests of FMVSS 213. With that said, examination of the regulations applied to components in the serially connected LATCH system (see Figure below) reveals that the weakest link in terms of minimum strength are the LATCH anchorages on the vehicle, and the LATCH webbing is the strongest. We note that the FMVSS 225 minimum strength of the lower anchorage is applied to both anchors simultaneously, and it could be argued that the actual minimum strength of a single lower anchorage is 5500 Newtons. In addition, we know that the J-hooks used in the BT Hybrid 3-in-1 are rated

to 11,444 Newtons. These findings are reinforced by the fact that only documented failure of a LATCH system from any manufacturer is in a series of frontal crash tests. In one example, a 56 kph frontal crash test of a 2007 Kia Forte with a Hybrid III 10 year old ATD and a 5 point harness CRS led to the failure of the inboard LATCH anchor on the Kia; in NHTSA's words at the time "The anchorage failure demonstrates a finite limit to the strength of the child restraint anchorages." No failure of any component of the CRS was noted. (NHTSA 2014) Thus, consistent with our argument in this section, in the rare instance of failures of the LATCH system, the failures occurred in the component with the lowest failure threshold – the LATCH lower anchor on the vehicle – and no component of the CRS failed.



Conclusions and Basis for Petition

We believe we have met our duty of persuasion that the non-compliance found by NHTSA (NHTSA letter to BT dated June 6, 2022) is inconsequential to the safety of the BT Hybrid 3-in-1 restraint. We have shown that

a) NHTSA rightfully determined in 2003 and re-affirmed in 2020, that the severity of the FMVSS 213 Dynamic Sled Test is "appropriately high to ensure that CRSs would maintain their structural integrity in just about all crashes involving children."
b) BT voluntarily testing all CRS it manufactures against the Consumer's Union 56 kph frontal dynamic sled test, and through this added additional assurance beyond the FMVSS 213 dynamic sled test that CRS structural integrity (including the LATCH lower anchor webbing) is maintained. Based upon the CU test's delta V, NHTSA should find that the CU test also ensures CRS structural integrity and is a compliment to FMVSS 213.
c) BT's testing at extreme severity (64 kph, un-tethered, 6 year old weighted ATD) showed that at no time and in no test did the LATCH Lower Anchor webbing or belt system fail to perform its intended purpose of restraining the CRS. We note, as stated earlier, that this finding is at crash speeds well in excess of what NHTSA considers severe and sufficient to ensure structural integrity of the CRS. In addition, we note that at no time during any of these tests did the LATCH Lower Anchor webbing load exceed 5000 Newtons and, more importantly, come even close to the 15,000 Newton minimum threshold set forth in S5.4.1(a).

d) There is no evidence of any CRS webbing failures in the real world.
e) In terms of minimum strength requirements, the webbing of the LATCH lower anchor is held to the highest minimum strength requirements of any component in the serially connected LATCH system. Further, data in the Federal Register indicates that in the rare instance of failures of the LATCH system, the failures occurred in the component with the lowest failure threshold – the LATCH lower anchor on the vehicle – and no component of the CRS failed.

Thus, given the demonstrated crashworthiness of the alternate LATCH webbing used from the systemic testing of the LATCH component system, we respectfully request that NHTSA grant our Petition for Determination of Inconsequential Non-compliance.

Part 573 Safety Recall Report 22C-006

Manufacturer Name : Baby Trend, Inc.
Submission Date : JUL 06, 2022
NHTSA Recall No. : 22C-006
Manufacturer Recall No. : NR

Manufacturer Information :

Manufacturer Name : Baby Trend, Inc.
Address : 13048 Valley Blvd
Fontana CA 92335
Company phone : 909-773-0018

Population :

Number of potentially involved : 101,361
Estimated percentage with defect : 45 %

Child Restraint Information :

Make 1 : Baby Trend, Inc.
Model : Hybrid 3-in-1 Combination Booster Seat
Seat Type : OTHER
Model No. : FB49E14A
Platform Name / No. : NR
Brand Name : NR
Descriptive Information : DOM
Production Dates : DEC 06, 2021 - JUN 06, 2022

Description of Noncompliance :

Description of the Noncompliance : This report involves a technical noncompliance; not a defect. The child restraint system failed by a small margin to meet a specification in S5.4.1.2(a). The strength of the webbing used to secure it to the vehicle's lower anchorages of a child restraint anchorage system in its original (new) condition measured below 15,000 N. The measured strength of the samples tested was 14,395 to 14,580 N. This was without accounting for any testing variability.

FMVSS 1 : 209 - Seat belt assemblies
FMVSS 2 : NR

Description of the Safety Risk : There is no safety risk. We conducted extensive dynamic crash testing at and above the regulatory test speeds. Frontal, frontal oblique and far side sled tests were conducted at up to 64 kph delta V and 32g peak (For reference, FMVSS 213 specifies 48 kph, and 64 kph is indistinguishable from the 100th percentile of crashes in the field) with ATDs weighted to 65lb and no tether to maximize the loads on the LATCH lower webbing. In these extreme crash conditions, the measured lower anchorage webbing never exceeded 4,771 N and no webbing failure was observed in any test. Further, we know that the

	webbing is the strongest link in the serially-connected, multi-link LATCH system. That is, the vehicle lower anchorage strength requirement (FMVSS 225) is 11,000 N (Frontal) and 5,000 N (Lateral). Further, we know that the lower anchorage "J-hook" connectors used by the industry fail at 11,444 N. Finally, our test data and additional data in the scientific literature indicates that increasing the loading rate from the static 1 to 2 inches/minute in FMVSS 213 to dynamic rates 10x faster leads to an increase (not a decrease) in the failure strength of the LATCH belt webbing at issue in this matter, to the point where the webbing rupture force would exceed FMVSS 213 requirements if the webbing failure test were conducted at increased loading rates comparable to what would be experienced in a crash. Thus, from data we collected and in light of scientific literature pertinent to this matter, our result is a determination of inconsequential, technical noncompliance not affecting safety in any way because a) the LATCH lower anchor webbing loads in the most extreme crash conditions are less than 1/3 of the belt loading test requirements in FMVSS 213 S5.4.1(a), and b) even if loads at the failure limit in S5.4.1(a) were achievable in a crash the other serially connected components in the LATCH lower anchor system (LATCH lower anchor and the J-Hooks) would fail before the webbing.
Description of the Cause :	Non specification webbing used with some production, without affecting crashworthiness.
Identification of Any Warning that can Occur :	NR

Involved Components :

Component Name :	Lower Anchorage Webbing
Component Description :	Webbing
Component Part Number :	N/A

Supplier Identification :

Component Manufacturer

Name :	NR
Address :	NR
	NR
Country :	NR

Chronology :

June 6th received email from NHTSA regarding apparent noncompliance of webbing. Same day production and distribution stopped. June 7th expert engaged to assist in investigation. June 9th Calspan engaged for dynamic sled testing. June 16-17th Sled testing; frontal, frontal oblique and far side up to 64 kph delta V and 32g peak. June 23rd webbing testing at SGS. June 28th meeting with NHTSA. June 29th extension of time to respond requested and granted to July 15, 2022. July 1st determination of inconsequential, technical noncompliance not affecting crashworthiness.

Description of Remedy :

Description of Remedy Program :	Increased MFG quality assurance processes.
How Remedy Component Differs from Recalled Component :	N/A
Identify How/When Recall Condition was Corrected in Production :	N/A

Recall Schedule :

Description of Recall Schedule :	N/A
Planned Dealer Notification Date :	NR - NR
Planned Owner Notification Date :	NR - NR

Purchaser Information :

The following manufacturers purchased this defective/noncompliant equipment for possible use or installation in new motor vehicles or new items of motor vehicle equipment:

Name :	NR
Address :	NR
	NR
Country :	NR
Company Phone :	NR

* NR - Not Reported