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Acting NHTSA Administrator Shulman
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 CYBEX on Federal Motor Vehicle Safety Standard (FMVSS) No. 213 Test Procedure (TP-213-11) Docket No. NHTSA-2023-0067

Dear Acting Administrator Shulman and OVSC Leadership:

Columbus Trading-Partners USA, Inc., the US distributor for Cybex (“Cybex”) products, appreciates the National Highway Traffic Safety Administration (“NHTSA”) dedication and its development of rules and test procedures for side impact testing of child restraints to continuously improve child passenger safety. Cybex values the opportunity to assist NHTSA in the further development of these and submits the following comments, questions, and proposed clarifications regarding the side impact sections of *Federal Motor Vehicle Safety Standard (FMVSS) No. 213 Test Procedure (TP-213-11)*.

CYBEX agrees with NHTSA’s intent to ensure that a child restraint system demonstrates not only compliance with the regulation, but also provides a level of safety beyond the regulation. In doing so, CYBEX seeks clarification regarding the means of attaching or securing the child restraint to the side impact seat assembly as well as, regarding the determination of misuse modes mentioned in *TP-213-11, 12.E*.

In Section 12.E SIDE IMPACT DYNAMIC TEST CONDITIONS AND PROCEDURES (213, S6), the test procedure states:

Test a new specimen of the CRS according to the procedures below in each possible combination of installation mode, adjustment position, and proper use/“misuse” mode.

Section 12.A.4 SIDE IMPACT DYNAMIC TESTS, (1) TEST, offers some context for defining installation modes and adjustment positions:

One (1) CRS is required for EACH TEST. One or more tests are possible depending on the number of installation modes (forward-facing/rear-facing), adjustment positions (upright/recline), and height and weight recommendations of the manufacturer

This statement combined with the instructions to “[f]ollow the manufacturer’s instructions provided with the CRS to properly level and install the CRS ...” (taken from *S12.E.6.1 (1), (2), and (3)*) directs lab personnel on some aspects of installation and adjustment (related to leveling the CRS only). Adjustments of the CRS related to harnessing the occupant are assumed to be made in accordance with the manufacturer’s instructions (*S12.E.6.2 DUMMY INSTALLATION*), even though they are not explicitly discussed. Other adjustments, however, are not mentioned (e.g., rotating the CRS into proper use orientation). Furthermore, no section of the side impact test procedure (*S12.E*) provides guidance on the definition of misuse, whereas Section 12.A.3 from the frontal crash test procedure (shown below), offers

some direction on misuse modes for specific features.

12.A.3 FRONTAL IMPACT DYNAMIC TESTS

...

(2) FRONTAL IMPACT DYNAMIC TEST CONFIGURATION II

One (1) CRS is required for EACH TEST according to frontal impact dynamic test Configuration II. One or more tests are possible for each forward-facing system, other than a child harness, that is equipped with an anchorage belt or a fixed or movable surface directly forward of the dummy, in EACH ADJUSTMENT POSITION (i.e., upright or reclined), recommended by the manufacturer for actual use. CRSs having both of the above features shall be tested with each feature "misused," i.e., with the tether or restraint belts not attached, both separately and simultaneously. For each child restraint model, one or more tests are possible depending on the number of installation modes (forward facing/infant mode), adjustment positions (upright/recline), and height and weight recommendations of the manufacturer.

Since CRS instructions cover proper adjustment and use of a product, a manufacturer would consider any adjustment other than those prescribed in the instructions, any lack of adjustment, or other use as product misuse. CYBEX is seeking clarity on the Agency's method(s) for determining which combinations of installation mode, adjustment mode, and use/misuse mode are considered within the scope of the regulation and test procedure.

CYBEX requests that prior to finalizing the side impact test procedures, NHTSA further investigate sources of variation in the test equipment and setup procedures and their effects on the HIC15 and chest deflection measured with the Q3s.

Some JPMA member companies have conducted a designed experiment of side impact crash tests using various child restraints at several testing facilities strictly following the procedures outlined in TP-213-11.⁽¹⁾ While the scope of the experiments was not to identify all sources of variation, the experimental results revealed that within a test lab, for a specific child restraint, test to test variations in HIC15 (150) and chest deflection (7mm) were significantly greater than the data shown in the background to the side impact regulation.⁽²⁾ Further, the experimental results revealed that lab to lab variation, for a specific child restraint, can be as high as 240 for HIC15 and 12mm for chest deflection, both of these variations exceeded the data shown in the background to the side impact regulation. Combined these experimental findings indicate that following the test procedures was not sufficient to reduce variations to a level which would allow any manufacturer from distinguishing acceptable crash performance results, as measured by HIC15 and chest deflection, from unacceptable ones. CYBEX believes that additional work must be done by the Agency and child restraint manufacturers to understand variations and their sources.

Respectfully submitted,

Gregory E. Mansker

Greg Mansker, CEO and General Counsel

(1) JPMA presentation to Transport Canada, April 23, 2024 and JPMA CRS-SIG Discussion, May 3, 2024.
(2) Docket No. NHTSA-2022-0051, RIN 2127-AK95, Federal Motor Vehicle Safety Standards; Child Restraint Systems, Child Restraint Systems--Side Impact Protection