

JPMA and Graco believed that a wider test corridor will necessarily lead to more lab-to-lab variability during certification and compliance testing, which, the commenters stated, increases the compliance burden on manufacturers. JPMA stated that the agency did not provide data on the effect of the different crash pulse with the new bench seat, and believed that the agency must assess the effect of a wider sled pulse corridor on child restraint compliance.

The agency responds by concurring that the revision to the pulse could affect the manufacture of child restraints. Widening the test corridor from 80 ms to approximately 90 ms in duration does enable NHTSA to test child restraints closer to 30 mph than the present. To the extent that the 30 mph tests are more stringent than tests conducted in the past at slightly lower speeds, that result is a desired outcome of the amendment. Widening the corridor improves the effectiveness of the test. Child restraint manufacturers will have to certify that their child restraints meet the requirements of FMVSS No. 213 when tested using the test pulse, possibly at a higher velocity. They may have to conduct some testing to ensure that the restraints can be certified to the requirements when

tested in the more effective manner using this pulse. The agency acknowledged in the NPRM the likely need for manufacturers to retest their restraints because of the new seat assembly and, by implication, due to the changes to the crash pulse (67 FR at 21829). However, the agency believed then and continues to do so now that it is unlikely that child restraints must be redesigned because of the change in the assembly and pulse.¹⁰ Restraints are generally manufactured with enough of a compliance margin that will allow them to meet the requirements of the standard when tested at a slightly higher velocity.

To illustrate, NHTSA examined some of the work that was performed in support of the development of the child restraint ratings program required under Section 14(g) of the TREAD Act. As part of this effort, the agency examined the margin by which existing child restraints meet the injury limits currently specified in FMVSS No. 213. In model year 2000, the agency tested 50 upright, forward-facing child restraints in accordance under the agency's

¹⁰ Note that the agency is not specifying a "new" crash pulse. Rather, the final rule puts a corridor specification around the existing pulse which allows the agency to conduct compliance tests at velocities closer to 30 mph.

FMVSS No. 213 compliance test program. Twenty-four (24) seats were tested without a top tether, and 26 seats were tested with a top tether. We secured all seats with only a lap belt (no lower anchorages or shoulder belts). Currently, to pass the FMVSS No. 213 compliance test, a child restraint must achieve dummy injury numbers of a HIC less than 1,000 and a resultant chest acceleration of less than 60 G's. As shown below in Figure 1, regardless of whether we equipped the child restraints with a top tether, all child restraints achieved dummy injury readings below the maximum allowable values. Figures 2 and 3 illustrate the margin of compliance for HIC and chest acceleration, respectively. The margin of compliance is one minus the measured injury reading divided by the injury assessment reference value (IARV) times 100. Higher percentages are better, having less probability of injury. Regarding the HIC, all model year 2000 child restraints tested easily fall within the limits specified by the FMVSS No. 213 compliance tests. Most had a compliance margin of more than 50%. Although the margin is not as large for chest acceleration, all tested child restraints passed this compliance requirement as well.

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