

# Crash test report

## Report of results and conclusions for crash test of various Sunshine Kids products

### Objective and Intent

To conduct crash testing using various auto and car seat accessory products and observe their performance during these tests with regard to their individual performance and durability, as well as any effects on the injury criteria measured.

### Methodology and Test Protocol

No federal regulations exist that govern the products that were tested. However, FMVSS 213 was utilized to determine their performance in their intended use circumstances. Three crash tests were designed to utilize the various accessory products in their installed positions.

The products tested were as follows:

- Snuggle-Soft headrest for use in an infant carrier
- Soft-Wrap strap covers for a CRS harness system
- Sit-Rite foam noodle to level an infant carrier
- Grip-It seat protector for use between a CRS and the vehicle seat
- Side-Rider side pouch attachment for a CRS
- Easy-View rear view mirror for attachment to the vehicle headrest
- Friendly-Forest playmat for attachment to the vehicle headrest
- Stuff 'n Scuff storage pouch for attachment to the vehicle headrest
- Captain's Seat for a child to sit on the vehicle seat with
- Super-Lock locking clip for seat belt webbing
- Hands-Off textured adhesive sticker attached to CRS buckle
- Super-Mat protector for use between a CRS and the vehicle seat

One test consisted of using the Captain's Seat with a 6-year old dummy restrained by a lap/shoulder belt system and using a locking clip on the webbing.

A second test utilized an infant carrier with the Super-Mat and Micro Button, with a 16 oz. water bottle in the Super-Mat pocket for weight simulation purposes.

A third test utilized an infant carrier with the other accessories installed on or with the carrier and to the headrest of the sled bench seat. Both the Stuff 'n Scuff and Side-Rider were weighted with a 16 oz. water bottle for weight simulation purposes.

All tests were conducted in accordance with the standard protocol specified in FMVSS 213. Measurements, photographs, and slow motion movies were recorded to validate the testing parameters, as well as to document results.

Two trials of the third test using the infant carrier and accessories were conducted to establish and confirm the consistency of crash test parameters and results.

In addition to the numerical measurements recorded and measured for these tests, visual observations were also conducted on all products to determine what effect, if any, their performance may have had on the seat belt webbing, the infant carrier, or the injury criteria for the dummies used in the tests.

### Overall Conclusions

Although the seat belt path was adjusted slightly to accommodate the Captain's Seat configuration, this adjustment did not affect the conduct of the test, the proper fitting of the seat belt or the measured results. None of the products interfered with the performance of the CRS, the vehicle seat belt system, other parts of the vehicle seat or the dummies used in these tests.

All products remained securely affixed and in position during the tests and did not produce any detrimental effects on the seat belt webbing or infant carrier used in the tests. The products exhibited no breakage, structural degradation or any loss of ability to perform their intended functions after the tests.

The measured results for the 6-year old dummy in the Captain's Seat complied with the injury criteria of FMVSS 213.