Presentation to GRSP ISOFIX/LATCH

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Introduction

- Purpose:
  - **To raise awareness of non-rigid alternative to the rigid ISOFIX attachment.**

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  - To raise awareness of non-rigid alternative to the rigid ISOFIX attachment.
  - **To achieve the non-rigid CRS attachment system as an acceptable alternative to the rigid CRS attachment means under ECE R44.**

Topics of Discussion

- **Background Information**

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- **Alternative Design**

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- Alternative Design
- **Test Results**

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- **Benefits**

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- **Issues/Concerns**

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- Alternative Design
- Test Results
- Benefits
- Issues/Concerns
- **Action Request**

Background information

- Emerged from concerns for misuse and incompatibilities
- ISO Activity – Global Involvement
- Evolution of the concept to include non-rigid CRS attachments

Alternative Design

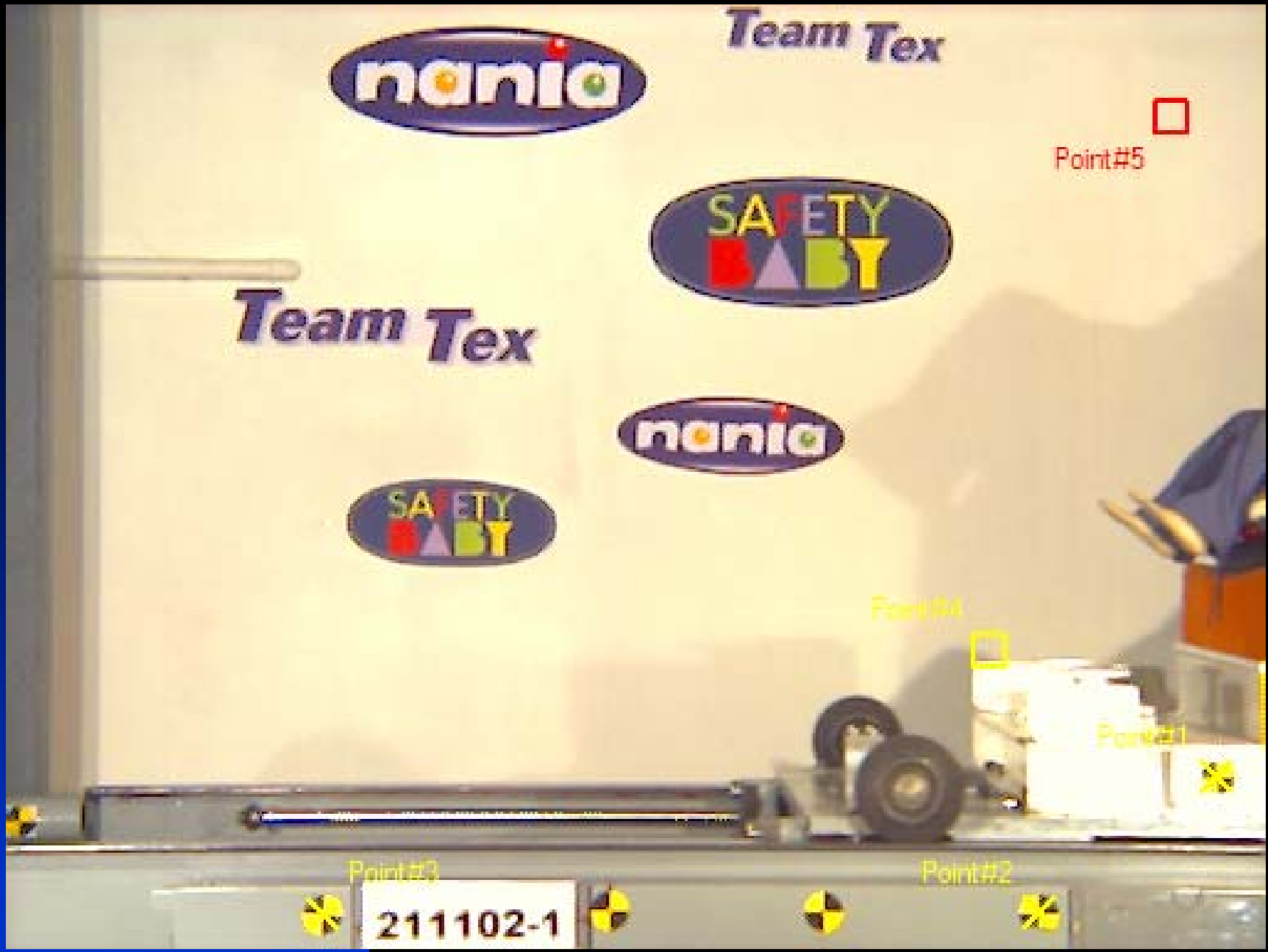
- Lower anchorage – adjustable belt/connectors
- Anti-rotation – top tether
- Design is intuitive, readily available, and simple.
- Can be used to extend the benefits to many child restraints currently in use.

Test Results

- First Test – CRS secured using lap and shoulder belt
- Second Test – CRS secured with non-rigid CRS attachment system
- Provide performance results to allow comparison of CRS attachment systems

Test Results for Non-Rigid CRS Attachments

Limit or Test Number and CRS Retention	Forward Excursion Limit (mm)	Upward Excursion Limit (mm)	Resultant Chest Acceleration (G's)	Vertical Chest Acceleration (G's)
ECE R44.03 Limit	550/500	800	55	30
201102-6 Lap/shoulder belt	495	709	22.1	23.0
211102-1 Non-rigid LATCH	437	692	22.8	22.2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Benefits

- Less complicated system
- More tolerance for fitting to vehicles
- Less weight
- Allows extension to current product is use.
- Lower cost alternative

Issues/Concerns

- Potential Misuse

Misuse Test Results

Limit or Test Number and Test Set-up	Forward Excursion Limit (mm)	Upward Excursion Limit (mm)	Resultant Chest Accel. (G's)	Vertical Chest Accel. (G's)
ECE R44.03 Limit	550/500	800	55	30
201102-6 Installed with Lap/shoulder belt	495	709	22.1	23.0
211102-1 Installed with Non-rigid Attachment	437	692	22.8	22.2
161002-4 Installed with Non-rigid Attachment (10 N)	447	751	25.0	9.0
221102-3 Installed with Lower attachment only, no top tether	535	720	22.5	20.5

Action Request

- GRSP proceed with the implementation of the ISOFIX requirements for vehicles and child restraints (rigid attachment).
- Pursue the non-rigid CRS attachment in subsequent rule making.

Thank You