EVALUATION OF REAL SCIENTIFIC DATA ABOUT NEW CRS AVAILABLE ON THE MARKET SO CALLED “BELT GUIDE” VS OTHER APPROVED CRS’
I. Proposal

Insert a new paragraph 1.2., to read:

"1.2. This Regulation explicitly forbids child restraint systems in the form of belt guides and other sitting devices that are dangerous and can harm children in the event of a vehicle collision, irrespective of any test results obtained in accordance with paragraph 8.

In particular, it concerns belt guides and sitting devices meant for children of a mass from 15 kg to 36 kg that connect to or attach onto the lap belt portion as well as the torso belt portion of a 3-point adult safety belt system with the aim to alter the adult safety belt routing by for example pulling down the torso belt portion or squeezing together the torso belt portion and lap belt portion. Examples of such non-compliant devices are shown below.

![Image of children with non-compliant devices]

It also concerns sitting devices that are unusable by a child unless they are properly inflated or other compact sitting devices that attempt to guide the lap belt portion by keeping it down or forward, just above the seat cushion, rather than to significantly elevate the child in relation to the vehicle’s normal seating position and the corresponding adult safety belt effective lower anchorages."

Amend paragraph 17.15., to read:

"17.15. As from the official date of entry into force of Supplement 418 to the 04 series of Amendments of this Regulation, by way of derogation to the obligations of Contracting Parties applying this Regulation during the transitional period set out in paragraph 17.14 and based on the declaration made by the European Community at the time of its accession to the 1958 Agreement (Depository Notification C.N.60.1998 TREATIES-28), member states of the European Community may prohibit the placing on the market of non-compliant devices and child restraint systems which do not meet the requirements of Supplement 4 to the 04 series of Amendments of this Regulation."
Each single CRS should be evaluated individually.
SMART KID BELT evaluation with regards to:

- UN ECE 44.04 Compliance / GRSP-2019-28e
- Comparison to other approved CRS’
- Submerging / GRSP-50-09e & GRSP-50-25e
- Vertical Component / GRSP 6520e
- Test +
- Belt Positioning
SMART KID BELT
TESTS IN ACCORDANCE TO UN ECE R44.04
SMART KID BELT – 15 kg dummy
Chest Resultant Deceleration – 31.67G

CHILD CAR SEAT – 15 kg dummy
Chest Resultant Deceleration – 60.94 G / during 2.6 ms
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**SMART KID BELT – 22 kg dummy**
Chest Resultant Deceleration – **26.47 G**

**SMART KID BELT – 32 kg dummy**
Chest Resultant Deceleration – **38.03 G**
* CRASH SMART KID BELT VS REGULAR CHILD CAR HIGHBACK SEAT (DUMMY 32 KG)
* CRASH TEST SMART KID BELT VS BOOSTER (DUMMY 22 KG)
SMART KID BELT
COPY OF
UN ECE R44-04
APPROVAL
SMART KID BELT – TESTS RESULTS IN ACCORDANCE TO FMVSS
Geneva 10-13 December
Informal Document GRSP-66-19

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>Limit</th>
<th>Value</th>
<th>Time 1 msec</th>
<th>Time 2 msec</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Injury (15 ms)</td>
<td>-</td>
<td>219.9</td>
<td>42.3</td>
<td>57.3</td>
<td>15</td>
</tr>
<tr>
<td>Head Injury (36 ms)</td>
<td>1000</td>
<td>466.2</td>
<td>41.5</td>
<td>77.5</td>
<td>36</td>
</tr>
<tr>
<td>Head Clip (3 ms)</td>
<td>80</td>
<td>51.4</td>
<td>48.0</td>
<td>51.3</td>
<td>3.2</td>
</tr>
<tr>
<td>Head Max</td>
<td>80</td>
<td>55.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Resultant Chest Clip</td>
<td>60</td>
<td>57.3</td>
<td>41.1</td>
<td>44.1</td>
<td>3.0</td>
</tr>
</tbody>
</table>

---

Critical Injury Values

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Test Date: 7/18/2017

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Customer Notes: Report No: 1581-17-03 Test Date: 7/18/2017

SLED TEST RUN: BX07-17-003

---

Test Parameter Compliance Requirement Test Result Pass/ Fail

<table>
<thead>
<tr>
<th>Structural Integrity</th>
<th>215-1a, 315-1a, 407-1a of SOR 2010/95</th>
<th>No Complete Separation</th>
<th>No</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Exclusion</td>
<td>215-1b, 315-1b, 407-1b of SOR 2010/95</td>
<td>No Change</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Neck, Back Support</td>
<td>215-1c, 315-1c, 407-1c of SOR 2010/95</td>
<td>No</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Head/Injury</td>
<td>215-1d, 315-1d, 407-1d of SOR 2010/95</td>
<td>No</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Head/Knee</td>
<td>215-1e, 315-1e, 407-1e of SOR 2010/95</td>
<td>No</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Test Result</td>
<td>Pass/ Fail</td>
<td>Pass/ Fail</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Injury Criteria

**FMVSS 213: S5.1.2**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Compliance Requirement</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Injury Criterion</td>
<td>HIC 36 ≤ 1000</td>
<td>550</td>
</tr>
<tr>
<td>Chest Injury Criterion</td>
<td>3 ms Chest Clip ≤ 60 g</td>
<td>49 g</td>
</tr>
</tbody>
</table>

**Chest Injury Criterion "G"**

- HPC (in %)
  - 55.00%
  - 49

**SMART KID BELT**

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* CRASH TEST SMART KID BELT VS MIFOLD (DUMMY 22 KG)
FOLDABLE BOOSTER SEAT – POST CRASH TEST PHOTOS
SMART KID BELT – POST CRASH TEST PHOTOS
SMART KID BELT
TESTS IN ACCORDANCE
TO NEW R129 REGULATIONS
Geneva 10-13 December
Informal Document GRSP-66-19
### Crash Test Comparison

<table>
<thead>
<tr>
<th></th>
<th>Head Resultant</th>
<th></th>
<th>Upper Neck Force</th>
<th>Chest Resultant</th>
<th></th>
<th>Abdominal Pressure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in “G”</td>
<td>HPC (HIC)</td>
<td>HPC in %</td>
<td>ACC in %</td>
<td>in &quot;N&quot;</td>
<td>in G</td>
<td>ACC in %</td>
</tr>
<tr>
<td>SMART KID BELT</td>
<td>52.97</td>
<td>204.29</td>
<td>25.54%</td>
<td>61.03</td>
<td>1364.41</td>
<td>37.85</td>
<td>68.52</td>
</tr>
<tr>
<td>CRS 1</td>
<td>59.25</td>
<td>302.23</td>
<td>37.78%</td>
<td>71.54</td>
<td>1941.41</td>
<td>35.14</td>
<td>62.42</td>
</tr>
<tr>
<td>CRS 2</td>
<td>66.55</td>
<td>437.02</td>
<td>54.63%</td>
<td>79.96</td>
<td>2182.21</td>
<td>48.21</td>
<td>82.62</td>
</tr>
<tr>
<td>CRS 3</td>
<td>77.01</td>
<td>398.04</td>
<td>49.75%</td>
<td>85.30</td>
<td>2099.58</td>
<td>39.75</td>
<td>69.73</td>
</tr>
<tr>
<td>CRS 4</td>
<td>64.26</td>
<td>397.88</td>
<td>49.73%</td>
<td>77.93</td>
<td>2097.25</td>
<td>45.02</td>
<td>80.67</td>
</tr>
</tbody>
</table>

**BEST RESULT IN TEST**

|                  |  |  |  |  |  |  |  |  |
|------------------|  |  |  |  |  |  |  |  |

**OVER PERMISSIBLE LIMIT**

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Informal Document GRSP-66-19

SMART KID BELT

• HR - 52.97G
• HIC - 204.29
• UNF - 1364.41N
• CHR - 37.85G

CRS 1

• HR - 59.25G
• HIC - 303.23
• UNF - 1941.41N
• CHR - 35.14G
SMART KID BELT

- HR: 52.97G
- HIC: 204.29
- UNF: 1364.41N
- CHR: 37.85G

CRS 2

- HR: 66.55G
- HIC: 437.02
- UNF: 2182.21N
- CHR: 48.21G
SUBMERGING

With reference to document GRSP-50-09e & GRSP-50-25e
GUIDE STRAP

Figure 2a: Time 0 ms – Initial P10 dummy position

Figure 2b: Time 51 ms – P10 dummy and belt geometry during loading phase

Figure 2c: Time 91 ms – Submarining has already taken place – The lap belt has intruded into the abdomen.
Evaluation of a belt guide system

Group II/III
Frontal test with P10 dummy with R44 set-up

INFLATABLE SYSTEM

Figure 4a: Time 0 ms – Initial P10 dummy position

Figure 4b: Time 40 ms – P10 dummy and belt geometry during loading phase

Figure 4c: Time 80 ms – Start of the submarining – The lap belt has intruded into the abdomen.
Figure 1a: Time 0 ms – Initial P10 dummy position

Figure 1b: Time +50 ms – Q6 dummy and belt geometry during loading phase
No submerging observed

Figure 1c: Time +100 ms – Normal belt geometry during max loading
No submerging observed

Figure 2a: Time 0 ms – Initial P10 dummy position

Figure 2b: Time 51 ms – P10 dummy and belt geometry during loading phase

Figure 2c: Time 91 ms – Submarining has already taken place – The lap belt has intruded into the abdomen.
With reference to document GRSP-50-09e & GRSP-50-25e – **SUBMERGING**

**DOESN'T HAVE ANYTHING TO DO WITH SMART KID BELT**
With reference to document GRSP-50-09e & GRSP-50-25e – **SUBMERGING**

**DOESN’T HAVE ANYTHING TO DO WITH SMART KID BELT**

15 KG dummy  
22 KG dummy  
32 KG dummy
With reference to document GRSP-50-09e & GRSP-50-25e – SUBMERGING
VERTICAL COMPONENT
With reference to document GRSP 6520e
With reference to document GRSP 6520e - VERTICAL COMPONENT

**SMART KID BELT**

**Test Results**

<table>
<thead>
<tr>
<th>Lp</th>
<th>Rodzaj badań</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Test type</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wymagania - Requirements</th>
<th>Wyniki badań - ocean Test results - assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Próby dynamiczne pkt 7.1.4 Dynamic tests point 7.1.4</td>
<td>manekin 22 kg 22 kg dummy</td>
</tr>
<tr>
<td>- prędkość 48 - 50 km/h velocity 48 - 50 km/h</td>
<td>49,420 km/h</td>
</tr>
<tr>
<td>- droga hamowania 650 ± 50 mm stopping distance 650 ± 50 mm</td>
<td>685 mm</td>
</tr>
<tr>
<td>* przeniesienie głowy manekina: displacement of the dummy's head: w pozycji ≤ 550 (od punktu Cr) horizontal ≤ 350 (from Cr point) w picie ≤ 800 (od punktu Cr) vertical ≤ 800 (from Cr point)</td>
<td>( &lt; 550 \text{ mm} ) ( P )</td>
</tr>
<tr>
<td>* wypadekowe opadanie torsu manekina ( ^{11} ) resultant chest deceleration ( ^{11} ) ≤ 55 g lub ( &gt; 55 \text{ g dla sumy okresów czasu } \leq 3 \text{ ms} ) ( \geq 55 \text{ g or } ) ( &gt; 55 \text{ g for the sum of periods of time } \leq 3 \text{ ms} ) ( P ) (wykres 3/graph 3)</td>
<td>max 26,69 g ( &lt; 55 \text{ g} )</td>
</tr>
<tr>
<td>* pionowa składowa w kierunku od brzucha do głowy ( ^{10} ) vertical component of the deceleration from the abdomen towards the head ( ^{10} ) ≤ 30 g lub ( &gt; 30 \text{ g dla sumy okresów czasu } \leq 3 \text{ ms} ) ( &lt; 30 \text{ g or } ) ( &gt; 30 \text{ g for the sum of periods of time } \leq 3 \text{ ms} )</td>
<td>max 18,21 g ( &lt; 30 \text{ g} ) ( P ) (wykres 3/graph 3)</td>
</tr>
</tbody>
</table>

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With reference to document GRSP 6520e - VERTICAL COMPONENT

<table>
<thead>
<tr>
<th>Test Results</th>
<th>Manekin 22 kg (gr. II)</th>
<th>Dummy 22 kg (gr. II)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Prędkość 48 ± 50 km/h</td>
<td>48,95 km/h</td>
<td></td>
</tr>
<tr>
<td>- Droga hamowania 650 ± 50 mm</td>
<td>634 mm</td>
<td></td>
</tr>
<tr>
<td>- Przesunięcie głowy manekina: displacement of the dummy's head: w poziomie ≤ 550 (od punktu Cr) horizontal ≤ 550 (from Cr point) w pionie ≤ 800 (od punktu Cr) vertical ≤ 800 (from Cr point)</td>
<td>&lt; 550 mm</td>
<td></td>
</tr>
<tr>
<td>- Wypadkowa opóźnienie torsu manekina resultant chest deceleration ≤ 55 g lub &gt; 55 g w przedziale czasu ≤ 3 ms ≤ 55 g or &gt; 55 g in time period ≤ 3 ms</td>
<td>43,51 g</td>
<td></td>
</tr>
<tr>
<td>- Pionowa składowa w kierunku od brzucha do głowy vertical component of the deceleration from the abdomen towards the head ≤ 30 g lub &gt; 30 g w przedziale czasu ≤ 3 ms ≤ 30 g or &gt; 30 g in time period ≤ 3 ms</td>
<td>13,73 g</td>
<td></td>
</tr>
</tbody>
</table>

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Our Scandinavian colleagues were so delighted with the results of “TEST +” but in particular with one parameter “UPPER NECK FORCE” and for group II & III they set the limit at 1640 N.
BELT POSITIONING
BELT POSITIONING – COMPARISON

SMART KID BELT

CRS 1
BELT POSITIONING – COMPARISON

SMART KID BELT

CRS 2
BELT POSITIONING – COMPARISON

SMART KID BELT

CRS 3
BELT POSITIONING – COMPARISON

SMART KID BELT

CRS 4
BELT POSITIONING – COMPARISON

SMART KID BELT

CRS

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CONCLUSIONS:

✓ AS I’VE JUST UNDOUBTEDLY EVIDENCED EACH SINGLE DEVICE SHOULD BE EVALUATED SEPARATELY AS TEST RESULTS ARE DIFFERENT

✓ SMART KID BELT HAS BEEN TESTED IN ACCORDANCE WITH RESPECTIVE REGULATION BY SEVERAL ACCREDITED INSTITUTIONS:
  ✓ PIMOT POLAND – ECE
  ✓ IDIADA SPAIN – R129 (iSIZE)
  ✓ CALSPAN US – FMVSS
  ✓ MGA INSTITUTE US – FMVSS

AND ALL THOSE TEST RESULTS CLEARLY SHOW THAT SMART KID BELT

✓ SIGNIFICANTLY REDUCES THE VALUE OF DYNAMIC LOADS AFFECTING THE CHILD’S BODY DURING CAR ACCIDENTS
✓ ABSOLUTELY DO NOT LEAD TO A SUBMARINING SITUATION
✓ THAT MEANS THAT SMART KID BELT SYSTEM FULLY COMPLY WITH R44/04
WE REQUEST FACT-BASED DISCUSSION ON PROPOSED SUPPLEMENT 18 TO THE 04 SERIES OF AMENDMENTS TO UN REGULATION NO. 44 OR SIMPLY REJECTED IN FULL AS ONE OF THE DEVICE MENTIONED IN THE DOCUMENTS FULLY COMPLY WITH NO. 44 REGULATIONS AND IT IS “SUPER SAFE” IN COMPARISON TO OTHER APPROVED CRS’

WE WOULD LIKE TO BE INCORPORATED INTO THE “TASK FORCE” TO MAKE SURE THAT SIMILAR INITIATIVES ARE DISCUSSED TOGETHER WITH POLISH REPRESENTATIVES

WE ALSO WOULD LIKE TO UNDERSTAND BASE ON WHAT SCIENTIFIC DATA COMMITTEE AFFIRMED THAT THIS DEVICE WHICH HAS BEEN APPROVED IN ACCORDANCE WITH REGULATION NO. 44 BY POLISH ACCREDITED INSTITUTE IS CONSIDERED AS UNSAFE?
THANK YOU !