REVIEW OF CRS FEATURES HIGHLIGHTED IN GRSP-61-28

CLEPA RESPONSE TO GRSP CHAIR REQUEST FOR INPUT ON THE PROS AND CONS
**WHAT ARE THE BENEFITS OF R129?**

R129 INTRODUCES **MORE STRINGENT USABILITY AND CRASH TESTING CONDITIONS. THESE INCLUDE:**

<table>
<thead>
<tr>
<th>More realistic crash test dummies</th>
<th>CRS classified by stature with matching internal dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence-based injury criteria</td>
<td>Universal ISOFIX is promoted (i-Size)</td>
</tr>
<tr>
<td>More realistic test bench</td>
<td>Children are rear-facing for longer</td>
</tr>
<tr>
<td>Side impact testing of CRS</td>
<td>Clearer instructional labelling</td>
</tr>
</tbody>
</table>

All these improvements mean that R129 provides a better basis for assessing CRS. This will **improve the usability and performance of CRS.**
WHAT IS THE PERFORMANCE OF R44 CRS?

FROM A GIDAS SAMPLE OF 754 CHILDREN, 392 WERE INVOLVED IN A FRONT IMPACT, OF WHICH FOUR SUSTAINED MAIS3+ INJURIES.

Children in CRS are well-protected - high misuse of R44 CRS does not seem to translate into a significant injury problem. Why? The impact test in R44 is carried out at the upper end of the severity of real-world collisions – In 91% of GIDAS collisions, the dV was below 40 km/h.

Johannsen, 2017
CRS FEATURES ALREADY ALLOWED IN R129 (PHASES 1 & 2)
I-SIZE AND SPECIFIC VEHICLE

THE CRS IS TYPE-APPROVED AS I-SIZE AND AS SPECIFIC VEHICLE

**Pros**
- CRS can be used beyond stature constraints of i-Size (i.e. 135 cm)
- CRS can ‘grow’ beyond i-Size dimensions constraints to offer greater protection

**Cons**
- CRS must feature dual approval categories – user might be confused about when to refer to vehicle list

R44 example (no dimensions restrictions)
INTEGRAL AND NON-INTEGRAL COMBINATIONS

THE CRS CAN BE USED EITHER AS AN INTEGRAL OR NON-INTEGRAL CRS

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reduces the number of CRS parents must purchase; important for low-income families who might otherwise turn to Ebay</td>
<td>• Some parents don’t read manuals, so product labelling must indicate which mode must be used</td>
</tr>
<tr>
<td>• Provides flexibility for users who want to transport different children (e.g. grandparents)</td>
<td>• The transition between modes requires adjustment of the CRS</td>
</tr>
</tbody>
</table>

R44 examples – very basic labelling
## Rear- and Forward-facing Convertible

The CRS can be used either rear- or forward-facing.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improves take-up of extended rear-facing CRS, as some parents are reluctant to commit to rear-facing, without a fall-back option of forward-facing use</td>
<td>• Parent or child may prefer forward-facing installation and therefore not gain the perceived benefits of the rear-facing installation</td>
</tr>
</tbody>
</table>
ANTI-REBOUND BAR CAN BE REMOVED

THE ANTI-REBOUND BAR IS USED FOR REAR-FACING USE ONLY

Pros

- Seat shell can be located further rearward on base, therefore saving valuable head excursion space

Cons

- User must be reminded to fit anti-rebound bar for rear-facing use of CRS
- Identifying when something is missing is not intuitive
**Impact Shield Can Be Removed**

The Impact Shield is used for one CRS configuration only.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enables CRS to provide more than one usage configuration - important for low income families</td>
<td>User must be reminded to use shield when usage configuration requires it</td>
</tr>
<tr>
<td></td>
<td>Identifying when something is missing is not intuitive</td>
</tr>
</tbody>
</table>
Pros

• Inserts improve positioning of child and can tailor crash protection to smallest size
• Inserts can be removed and washed (or replaced)

Cons

• User must be reminded to use or remove insert when child size requires it
• Identifying when something is missing is not intuitive
CRS FEATURES RELEVANT FOR PHASE 3
ISOFIX OR SEATBELT INSTALLATION OPTION

THE ISOFIX ATTACHMENTS CAN BE STOWED FOR BELT INSTALLATION

Pros

- CRS can be installed in more seating positions - important for second / occasional use cars
- Belt installation option can extend usage of CRS beyond limits of ISOFIX

Cons

- The belt may be used even when ISOFIX is available in the car
- User needs to understand which option to use, especially if there are restrictions
ISOFIX AND SEATBELT INSTALLATION

BOTH ATTACHMENT MODES ARE USED TOGETHER AT THE SAME TIME

Pros

• Enables stable attachment for large, extended RF/FF harness CRS

Cons

• Attachment is not intuitive as users are likely to expect one or the other method to be used
MORE THAN ONE SEATBELT ROUTE

EXAMPLE: SEPARATE BELT ROUTE FOR INSTALLATION ORIENTATION

Pros

• Enables low-cost convertible CRS for low income parents (If a single belt path is mandatory, all convertible belt-attached CRS will require a separate base - €€)

Cons

• The need to accommodate two belt routes may increase complexity of one of the routes
• Might increase the risk of belt attachment mistakes (e.g. parts of forward-facing path being used for rear-facing installation)
# Additional Fixing Points

**Example: Lower Tethers for Large Rear-facing CRS**

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Facilitate extended rear-facing installation up to 3 years and above</td>
<td>• User must be reminded to use additional fixings when needed</td>
</tr>
</tbody>
</table>
ANTI-ROTATION OF BELT-ATTACHED CRS

BELT-ATTACHED CRS CAN BENEFIT FROM ANTI-ROTATION DEVICE

**Pros**
- Improves performance of belt-attached CRS - may be essential to meet R129 performance criteria with base and/or for large rear-facing (a base may be mandatory, due to single belt route)

**Cons**
- Universal car seating positions are not required to have a top tether anchorage or tested floor
• CRS features already allowed in R129 (Phases 1 and 2)
  – Continue to allow them at least until Phase 3 is completed
    • Any new requirements should be limited to simple improvements (e.g. labelling, etc.) until Phase 3 is completed
  – After Phase 3, the IG (or another forum) should work on these specific features – with clear aims and objectives
    • Some features may be prohibited, or may be subject to more detailed requirements

• CRS features relevant for Phase 3
  – All are open for discussion, provided there are no conflicts with Phase 1 and 2 agreements