



C L E P A

*European Association of
Automotive Suppliers*

Internal dimension – Proposed requirement changes

Informal working group
Sept 2nd, 2015 SMMT, London

CURRENT 'SQUEEZE' FOR CRS MANUFACTURERS:



Requirements made towards Child seat industry since the begin of the IG:

1. More safety by new Side impact test..... +
2. More car compatibility by less external place+
3. More child compatibility by more internal space .

Can all three requirements be met without biting each other?



All three are good improvements, it is clear that 'increasing' one aspect cannot be done without either sacrificing safety, car fitment, or child fitment.

In the 52nd meeting the discussions focussed on car compatibility (440mm).
CLEPA has already shown that 440mm does limit the possible max safety.
In our view this just leaves the internal space requirements to be sacrificed.

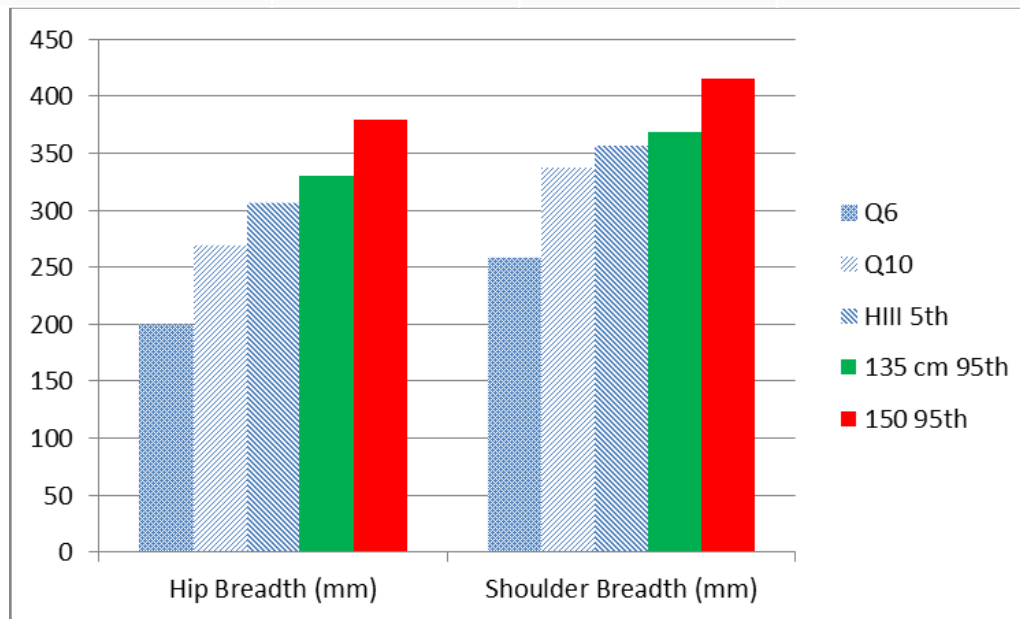
INTRODUCTION



In order to be sure that ECRS accept children of a certain stature, 95th centile dimensions are checked in the ECRS.

This requirement is very demanding for the higher stature :

	HIII 5th	Q6	Q10	135 95th	150 95th
Hip Breadth (mm)	307	200	270	330	379
Shoulder Breadth (mm)	358	259	338	369	415



--> The 150cm 95% child is much larger compared to the HIII 5th percentile female

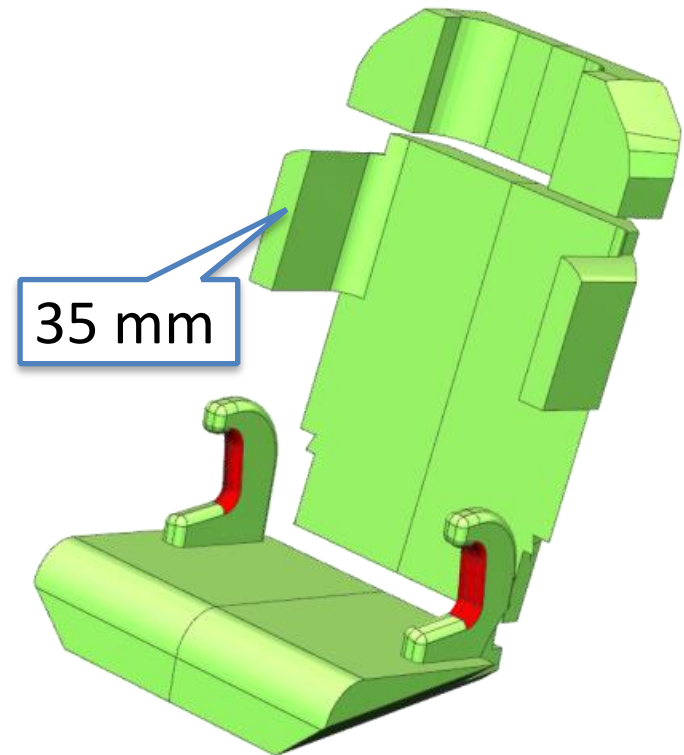
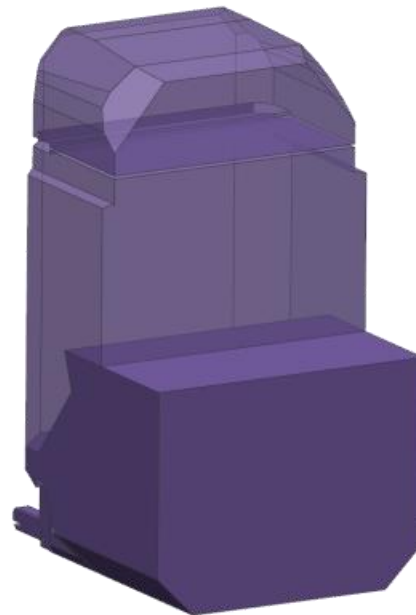
INTRODUCTION



Since design space is also limited by ISO envelope, available lateral space to offer side protection is very limited.



440 mm booster envelope



Available thickness in shoulder area for a child of 135 cm in the 440 mm envelope

PROPOSED CONCEPT



Starting point:

- Keep 95th centile requirements for the lower statures.

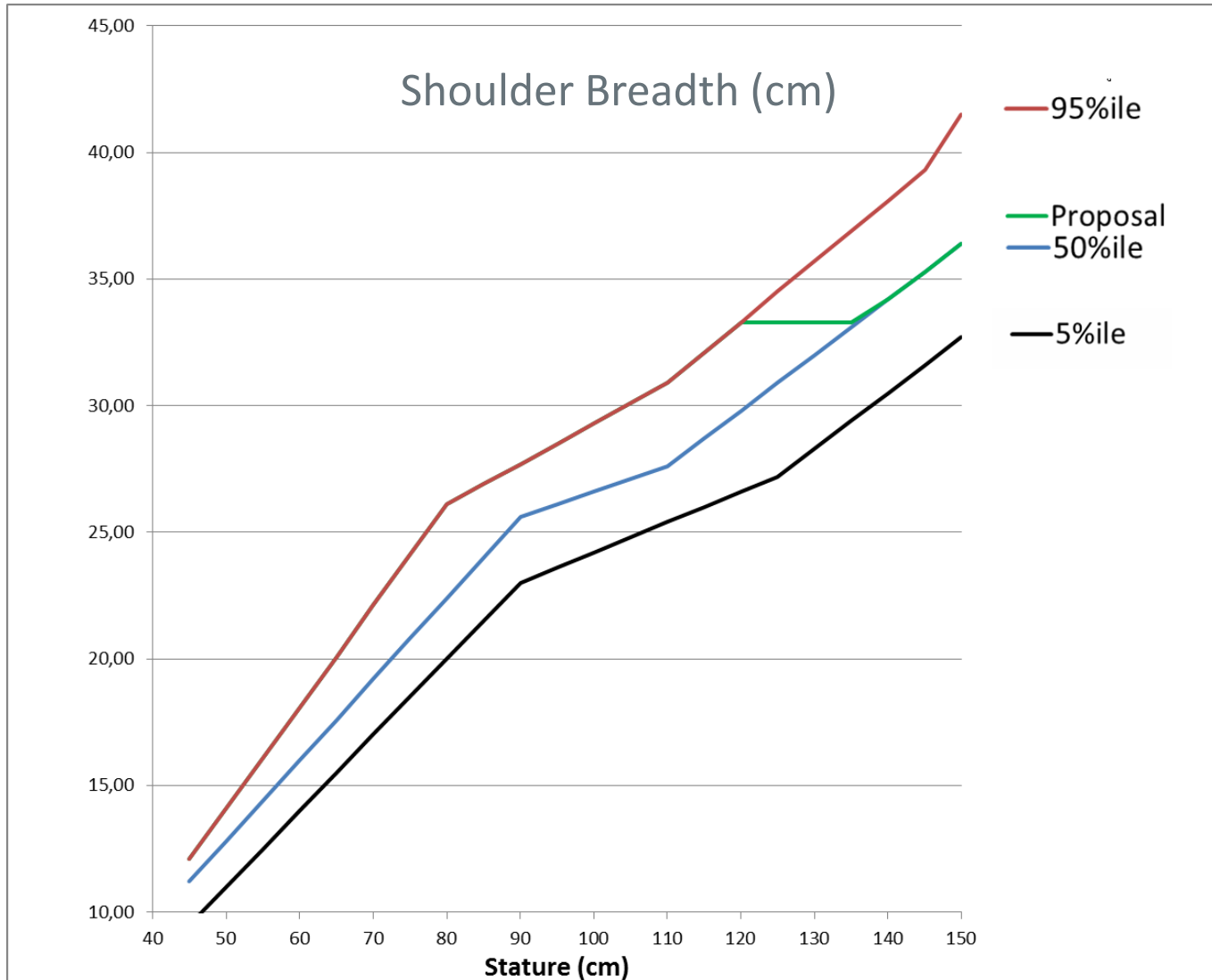
Propose adjustments for the higher statures :

- Keep 120 cm 95th centile requirement for 125, 130 and 135 cm
- Switch to 50th centile requirement above 135 cm

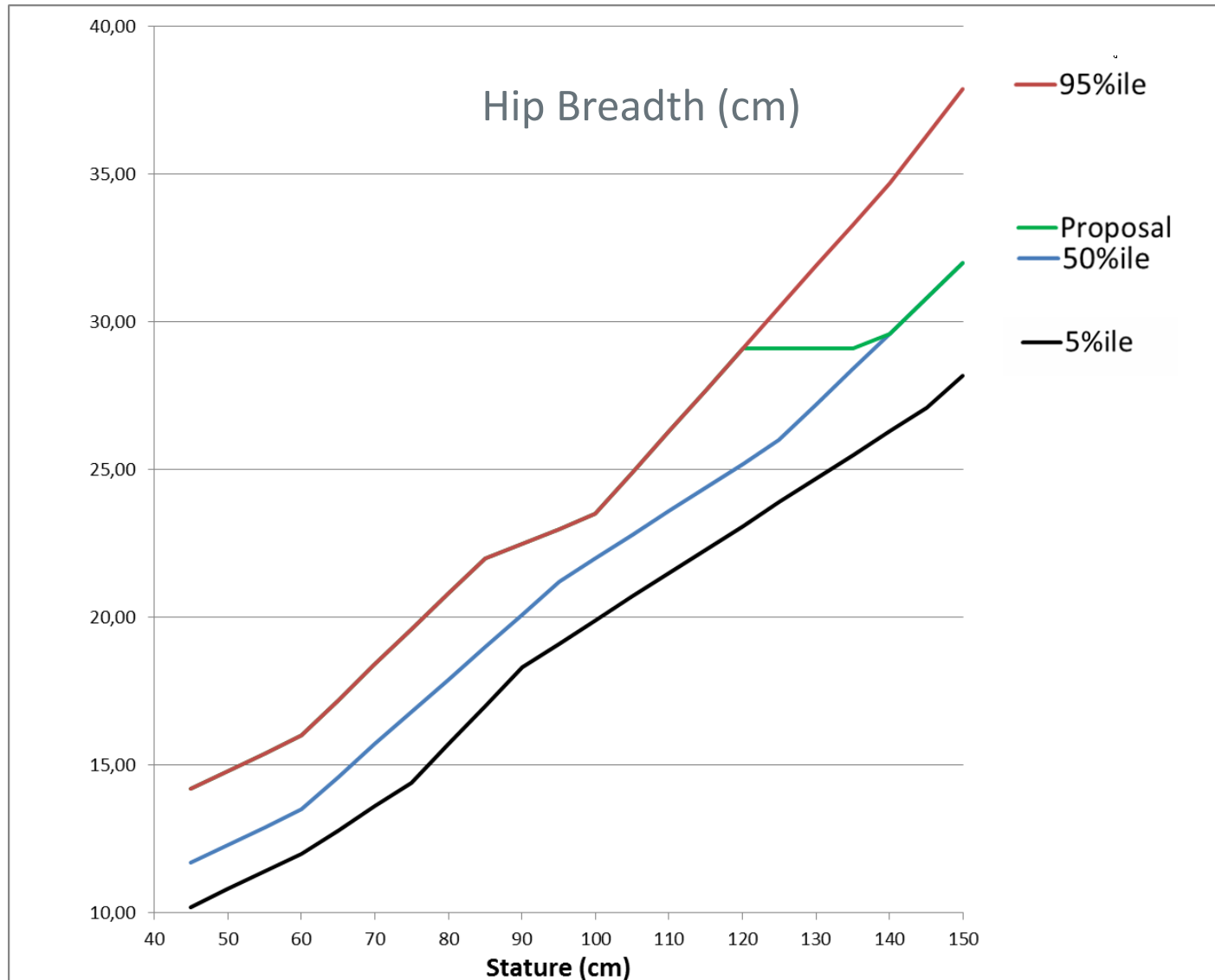
Proposal limited to shoulder breadth and hip breadth.

From 125 cm onwards, children can be protected by R44 booster cushions

PROPOSAL



PROPOSAL



PROPOSAL



Current Requirement

<i>Stature cm</i>	<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>
	<i>Sitting height cm</i>	<i>Shoulder breadth cm</i>	<i>Hip breadth cm</i>	<i>Shoulder height cm</i>	<i>Shoulder height cm</i>
A	B	C	D	E1	E2
	<i>95%ile</i>	<i>95%ile</i>	<i>95%ile</i>	<i>5%ile</i>	<i>95%ile</i>
40	NA	NA	NA	NA	NA
45	39,0	12,1	14,2	27,4	29,0
50	40,5	14,1	14,8	27,6	29,2
55	42,0	16,1	15,4	27,8	29,4
60	43,5	18,1	16,0	28,0	29,6
65	45,0	20,1	17,2	28,2	29,8
70	47,1	22,1	18,4	28,3	30,0
75	49,2	24,1	19,6	28,4	31,3
80	51,3	26,1	20,8	29,2	32,6
85	53,4	26,9	22,0	30,0	33,9
90	55,5	27,7	22,5	30,8	35,2
95	57,6	28,5	23,0	31,6	36,5
100	59,7	29,3	23,5	32,4	37,8
105	61,8	30,1	24,9	33,2	39,1
110	63,9	30,9	26,3	34,0	40,4
115	66,0	32,1	27,7	35,5	41,7
120	68,1	33,3	29,1	37,0	43,0
125	70,2	34,5	30,5	38,5	44,3
130	72,3	35,7	31,9	40,0	46,1
135	74,4	36,9	33,3	41,5	47,9
140	76,5	38,1	34,7	43,0	49,7
145	78,6	39,3	36,3	44,5	51,5
150	81,1	41,5	37,9	46,3	53,3

PROPOSAL



<i>Stature cm</i>	<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>
	<i>Sitting height cm</i>	<i>Shoulder breadth cm</i>	<i>Hip breadth cm</i>	<i>Shoulder height cm</i>	<i>Shoulder height cm</i>
A	B	C	D	E1	E2
	<i>95%ile</i>	<i>95%ile</i>	<i>95%ile</i>	<i>5%ile</i>	<i>95%ile</i>
40	NA	NA	NA	NA	NA
45	39,0	12,1	14,2	27,4	29,0
50	40,5	14,1	14,8	27,6	29,2
55	42,0	16,1	15,4	27,8	29,4
60	43,5	18,1	16,0	28,0	29,6
65	45,0	20,1	17,2	28,2	29,8
70	47,1	22,1	18,4	28,3	30,0
75	49,2	24,1	19,6	28,4	31,3
80	51,3	26,1	20,8	29,2	32,6
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120	68,1	33,3	29,1	37,0	43,0
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CURRENT R129, ANNEX 18

PROPOSAL

<i>Stature cm</i>	<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>
	<i>Sitting height cm</i>	<i>Shoulder breadth cm</i>	<i>Hip breadth cm</i>	<i>Shoulder height cm</i>
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E1</i>
105	61,8	30,1	24,9	33,2
110	63,9	30,9	26,3	34,0
115	66,0	32,1	27,7	35,5
120	68,1	33,3	29,1	37,0
125	70,2	34,5	30,5	38,5
130	72,3	35,7	31,9	40,0
135	74,4	36,9	33,3	41,5
140	76,5	38,1	34,7	43,0
145	78,6	39,3	36,3	44,5
150	81,1	41,5	37,9	46,3

<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>	<i>Minimum</i>
<i>Sitting height cm</i>	<i>Shoulder breadth cm</i>	<i>Hip breadth cm</i>	<i>Shoulder height cm</i>
<i>B</i>	<i>C</i>	<i>D</i>	<i>E1</i>
61,8	30,1	24,9	33,2
63,9	30,9	26,3	34,0
66,0	32,1	27,7	35,5
68,1	33,3	29,1	37,0
70,2	33,3	29,1	38,5
72,3	33,3	29,1	40,0
74,4	33,3	29,1	41,5
76,5	34,2	29,6	43,0
78,6	35,3	30,8	44,5
81,1	36,4	32,0	46,3

* Tables truncated for clarity

CONCLUSION



Modification of the inner dimension requirements for the higher stature allows to improve the max achievable side impact protection .

- Current proposal allows for 18 mm more space on each side of the CRS for additional side impact protection up to a stature of 135cm.