

# Status Report of the Informal Working Group on Safer Transport of Children in Buses and Coaches (IWG-STCBC)

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68th GRSP Session  
7 – 11 DECEMBER 2020

CHAIR: MARTA ANGLÈS , SPAIN

SECRETARY: FARID BENDJELLAL, CLEPA

# Informal Working Group

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## ⊕ 1st IWG-STCBC meeting

Date: 9th July 2019

Location: Ministerio de Industria, Comercio y Turismo , Madrid, Spain

## ⊕ 2nd IWG-STCBC meeting

Date: 30th October 2019

Location: Applus IDIADA, Tarragona, Spain

## ⊕ 3rd IWG-STCBC meeting

Date: 16th-17th January 2020

Location: Clepa Offices, Brussels

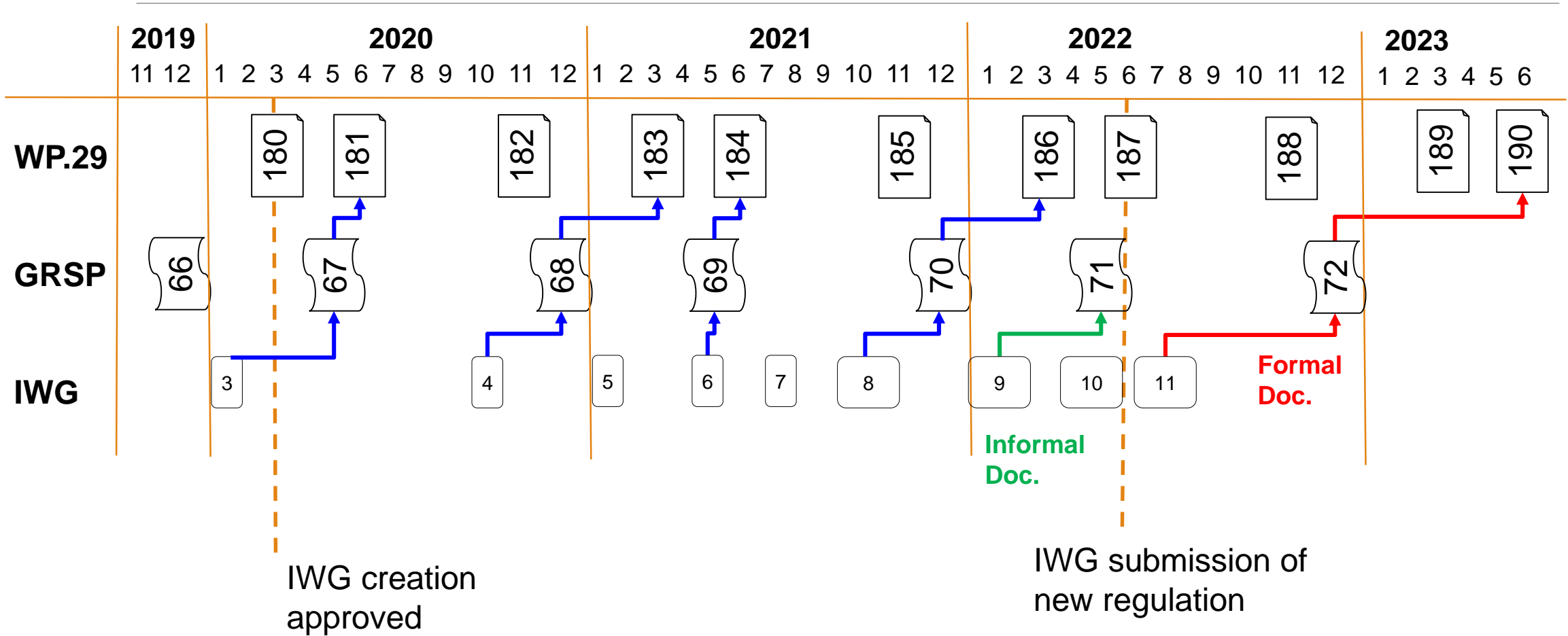
## ⊕ 4th IWG-STCBC meeting

Date: 29th Octubre 2020

Location: Online meeting

# Timeline

## Plan and Schedule



# Key elements

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- ⊕ Test configurations: Frontal impact and rollover
- ⊕ Retention system: 2-point belt and 3-point belts
- ⊕ Consideration of the CRS: R-129 approved CRS
- ⊕ Test method
- ⊕ Compatibility of R-16 fixtures



# On going tasks

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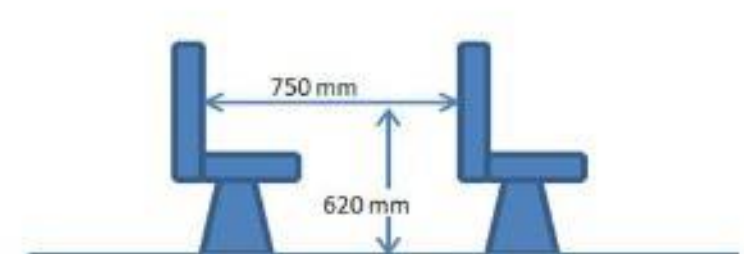
- ⊕ Seat belt specifications
- ⊕ Market overview of seat belt installation
- ⊕ Distance between bus/coach seats
- ⊕ Compatibility between CRS and seat volumes
- ⊕ Comparison of loads in R80 and using M2 pulse in R100
- ⊕ Testing phase



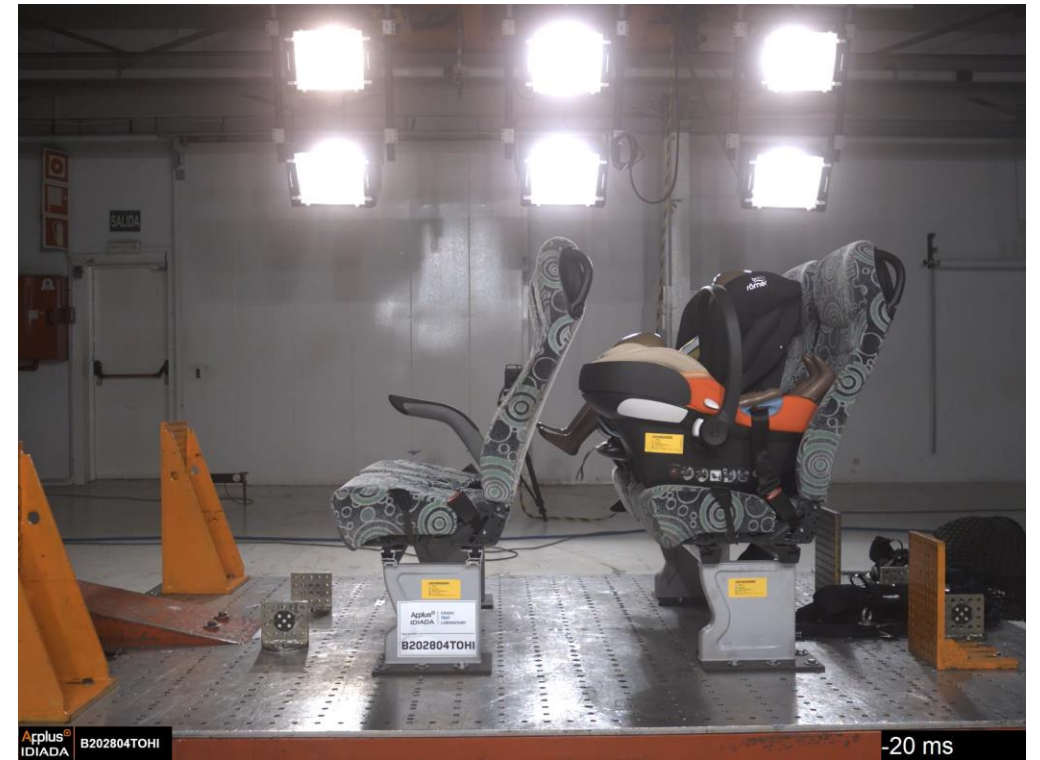
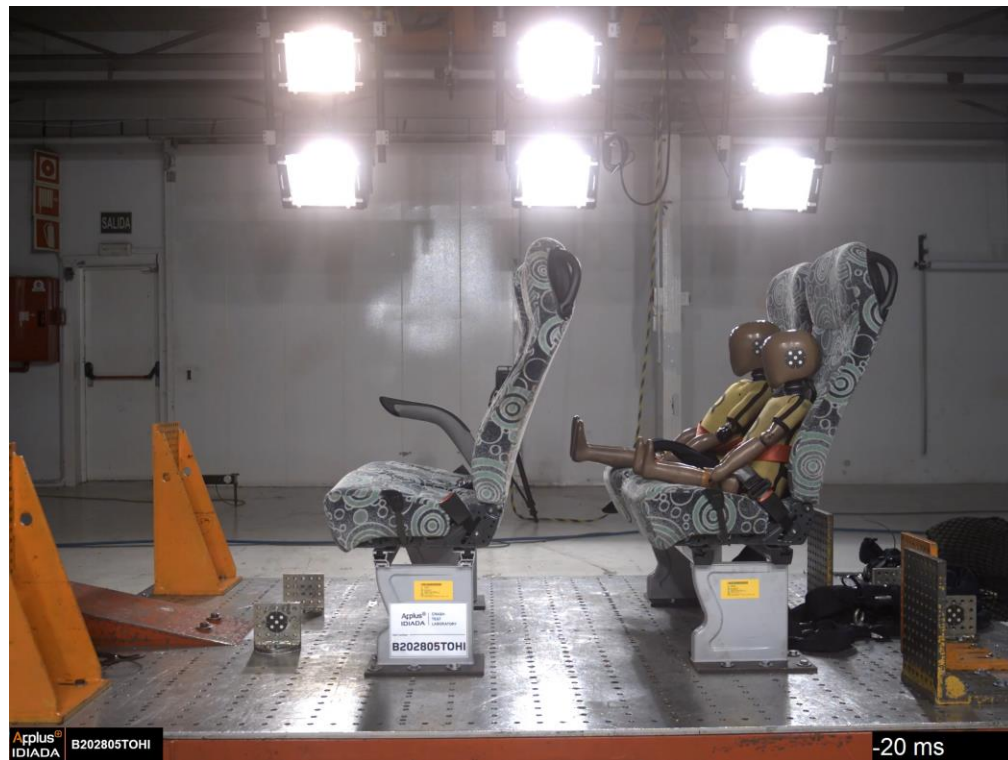
# Tests and tests results

Dummy		2 pts & CRS	2 pts
Q1,5	Infant carrier 129 belted	X	X
Q3	Toddler R44	X	X
Q6	Booster cushion R44	X	X
Q10	Booster cushion R44	X	X

- ⊕ CRSs: Infant carrier, toddler, booster cushion
- ⊕ Dummies: Q1.5, Q3, Q6 and Q10
- ⊕ Test configuration:
  - 2pts vs. 2pts + CRS,
  - 2 rows of seats
  - Distance between seat R80
- ⊕ R80 test pulse



# Q1.5 with and without CRS



# Q1.5 with and without CRS

Dummy	Criteria	With CRS	Without CRS	R-129 Criteria
Q1.5	HIC	145,31	70,47	600
	Head Acc Res. Max	48,8 g	29,98 g	---
	Head Acc Res. 3ms	46,33 g	29,79 g	75 g
	Neck Fz	110,73 N	633,33 N	Monitoring
	Neck My	10,47 Nm	17,88 Nm	Monitoring
	Chest Acc res. Max	31,71 g	27,24 g	---
	Chest Acc res. 3ms	31,42 g	17,48 g	55 g
	Chest deflec.	4,59 mm	1,55 mm	Monitoring
	Abd pressure R	0,05 bar	0,07 bar	1.2 bar
	Abd pressure L	0,04 bar	0,11 bar	1.2 bar



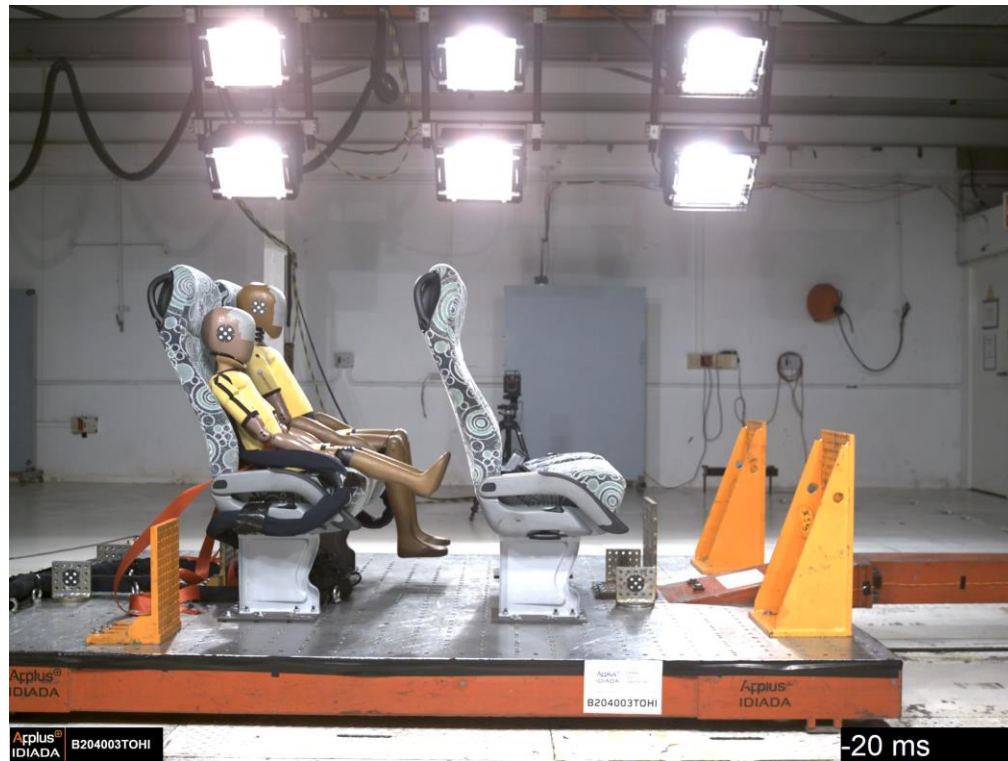
# Q3 with and without CRS



# Q3 with and without CRS

Dummy	Criteria	With CRS	Without CRS	R-129 Criteria
Q3	HIC	357,66	57,14	800
	Head Acc. Res. Max	66,17 g	32,14 g	---
	Head Acc. Res. 3ms	63,87 g	27,97 g	80 g
	Neck Fz	954,11 N	714,85 N	Monitoring
	Neck My	6,91 Nm	5,26 Nm	Monitoring
	Chest Acc. Res. Max	42,61 g	16,13 g	---
	Chest Acc. Res. 3ms	41,25 g	15,48 g	55 g
	Chest deflec.	23,76 mm	6,82 mm	Monitoring
	Abd pressure R	0,18 bar	0,4 bar	1.0 bar
	Abd pressure L	0,33 bar	0,44 bar	1.0 bar

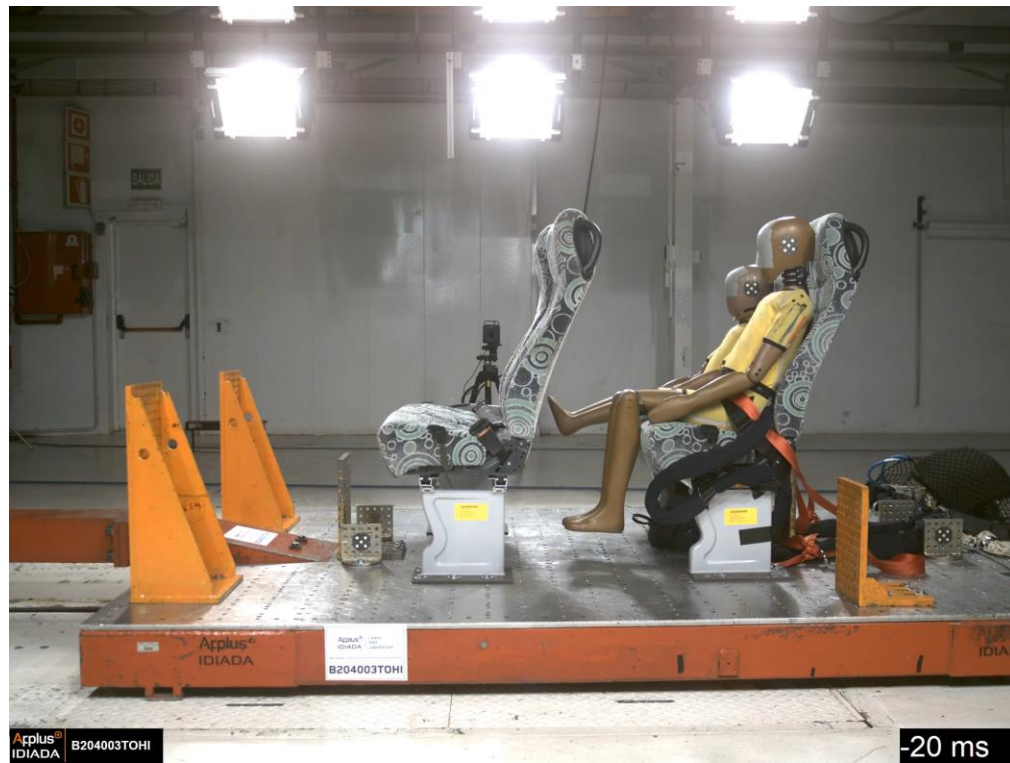
# Q6 with and without CRS



# Q6 with and without CRS

Dummy	Criteria	With CRS	Without CRS	R-129 Criteria
Q6	HIC	573.9	125.15	800
	Head Acc. Res. Max	104.93g	40.56 g	---
	Head Acc. Res. 3ms	94.16 g	40.05 g	80 g
	Neck Fz	813.47N	1163.86 N	Monitoring
	Neck My	25.79 Nm	21.69 Nm	Monitoring
	Chest Acc. Res. Max	25.98g	16.88 g	---
	Chest Acc. Res. 3ms	25.08 g	16.04 g	55 g
	Chest deflec.	1.01 mm	4.49 mm	Monitoring
	Abd pressure R	0,09 bar	0,35 bar	1.0 bar
	Abd pressure L	0,09 bar	0,34 bar	1.0 bar

# Q10 with and without CRS

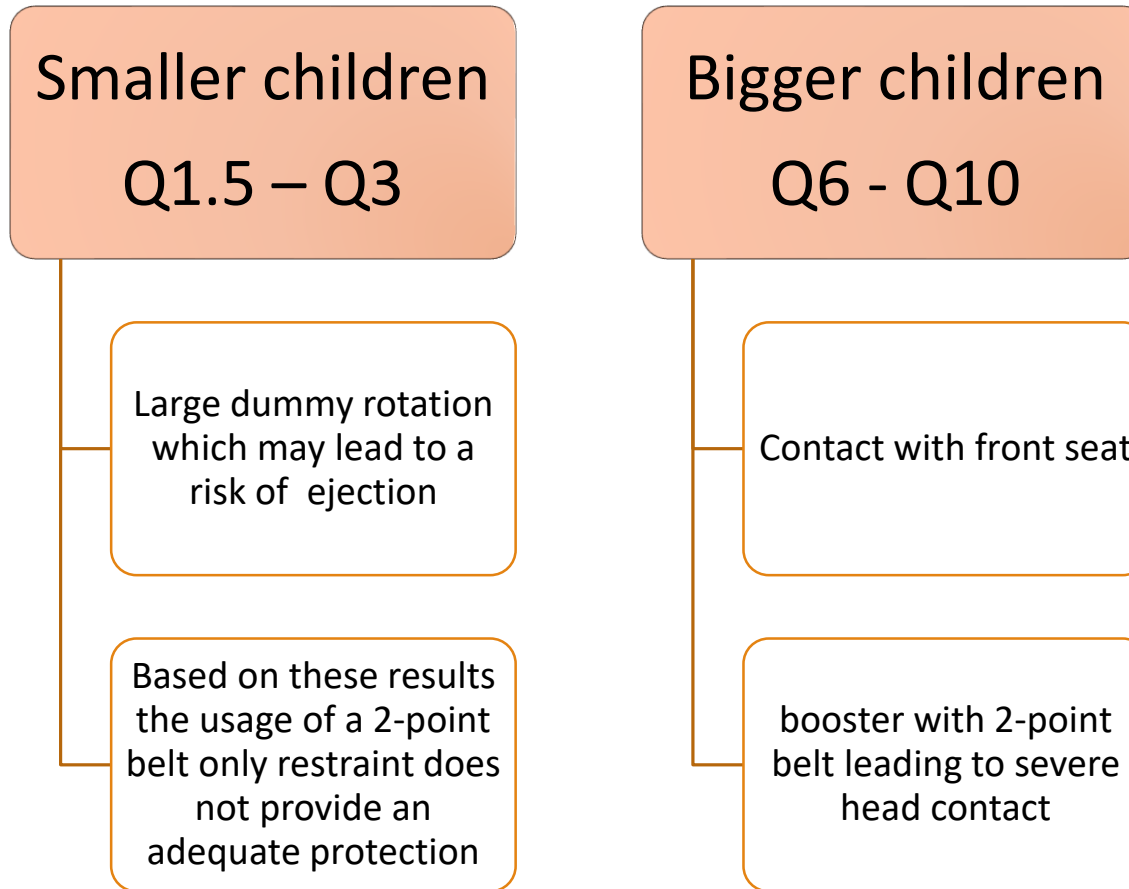


# Q10 with and without CRS

Dummy	Criteria	With CRS	Without CRS	R-129 Criteria
Q10	HIC	483.73	427.83	800
	Head Acc. Res. Max	97.95 g	104.98 g	---
	Head Acc. Res. 3ms	87.35 g	84.5g	80 g
	Neck Fz	613.47 N	1302.47 N	Monitoring
	Neck My	17.03 Nm	19.19 Nm	Monitoring
	Chest Acc. Res. Max	21.29 g	29.73 g	---
	Chest Acc. Res. 3ms	20.62 g	28.74 g	55 g
	Chest deflec.	1.5 mm	1.36 mm	Monitoring
	Abd Pressure R	0,30 bar	0,19 bar	1.2 bar
	Abd Pressure L	0,32 bar	0,23 bar	1.2 bar

# Discussion

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# Next IWG Meeting

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## ⊕ 5th IWG-STCBC meeting

Date: 28th January 2021

Location: Online



# Next Steps

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- ⊕ ISO envelope compatibility
- ⊕ Physical trial in bus/coach environment
- ⊕ Further tests

Thank you for your attention!

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