

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

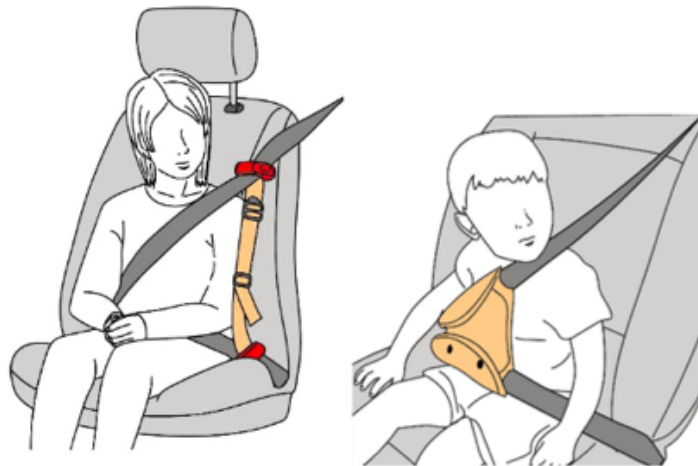


I. Proposal

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.

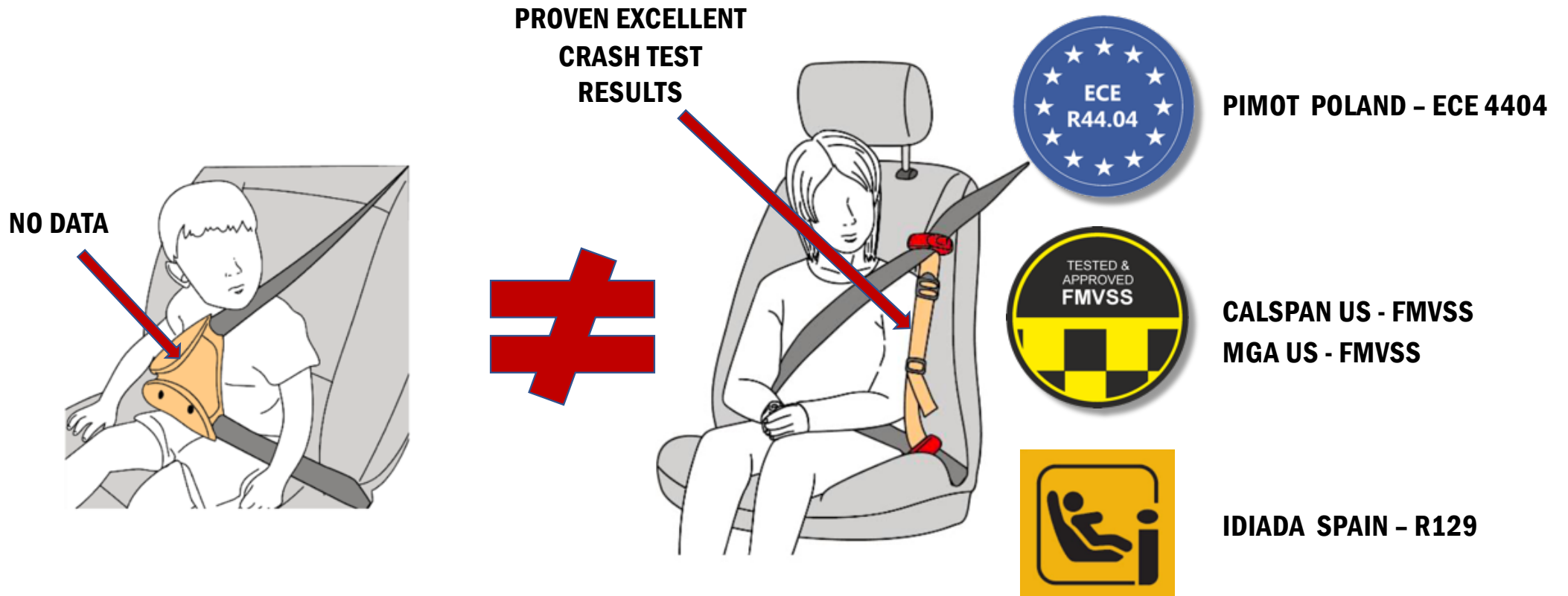


?

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 4 18 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 (Depositary 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**

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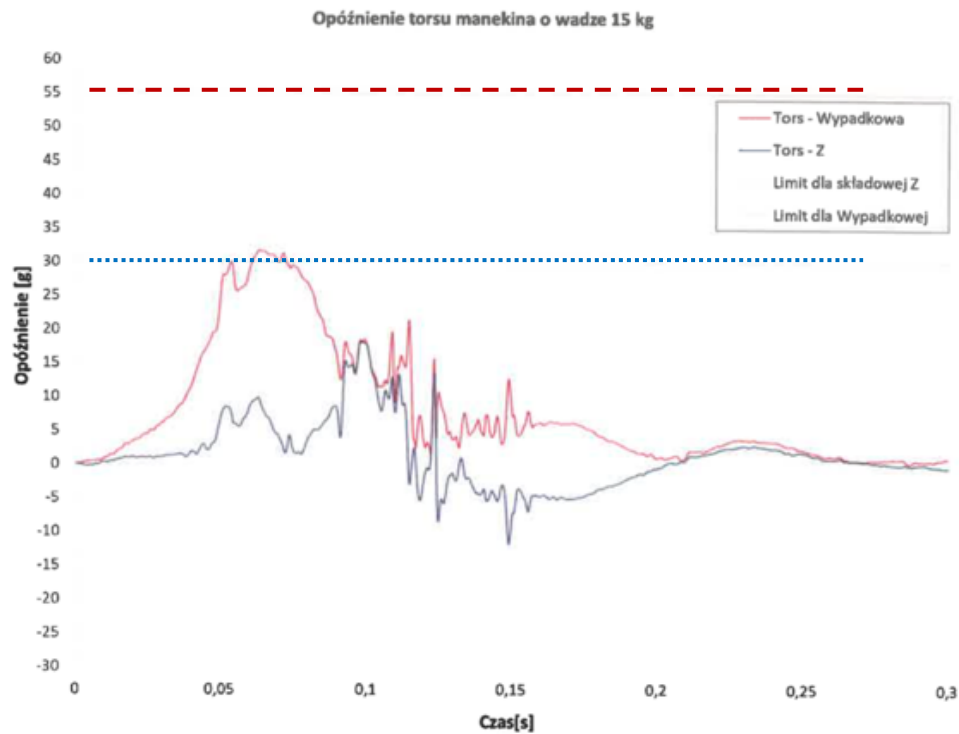
Informal Document GRSP-66-19

**SMART KID BELT
TESTS IN ACCORDANCE
TO UN ECE R44.04**



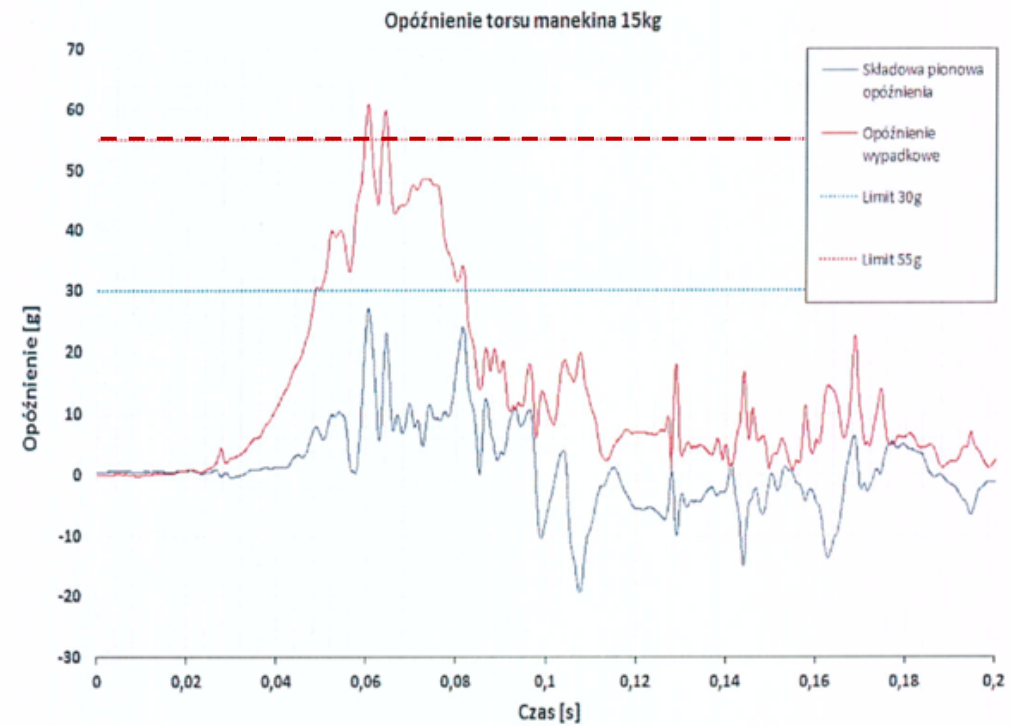
Graph 2. Decelerations of the chest for 15 kg dummy during dynamic test

BLB.097.19B



Graph 1. Decelerations in the dummy 15 kg chest during dynamic test

BLB.050.16H



SMART KID BELT – 15 kg dummy

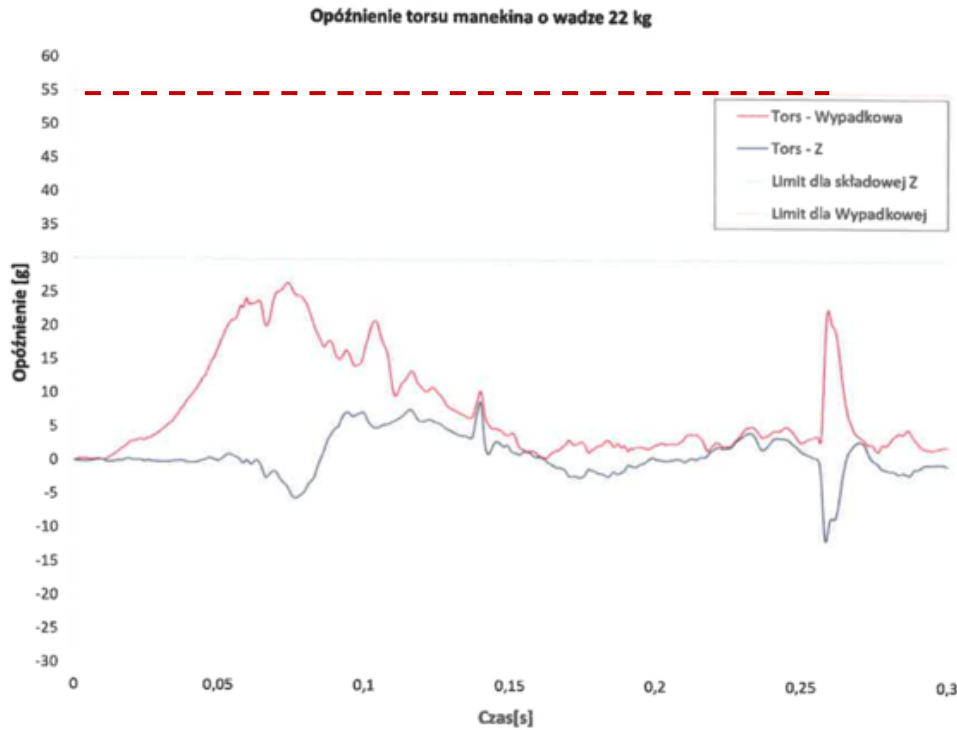
Chest Resultant Deceleration – **31,67G**

CHILD CAR SEAT – 15 kg dummy

Chest Resultant Deceleration – **60,94 G** / during 2,6 ms

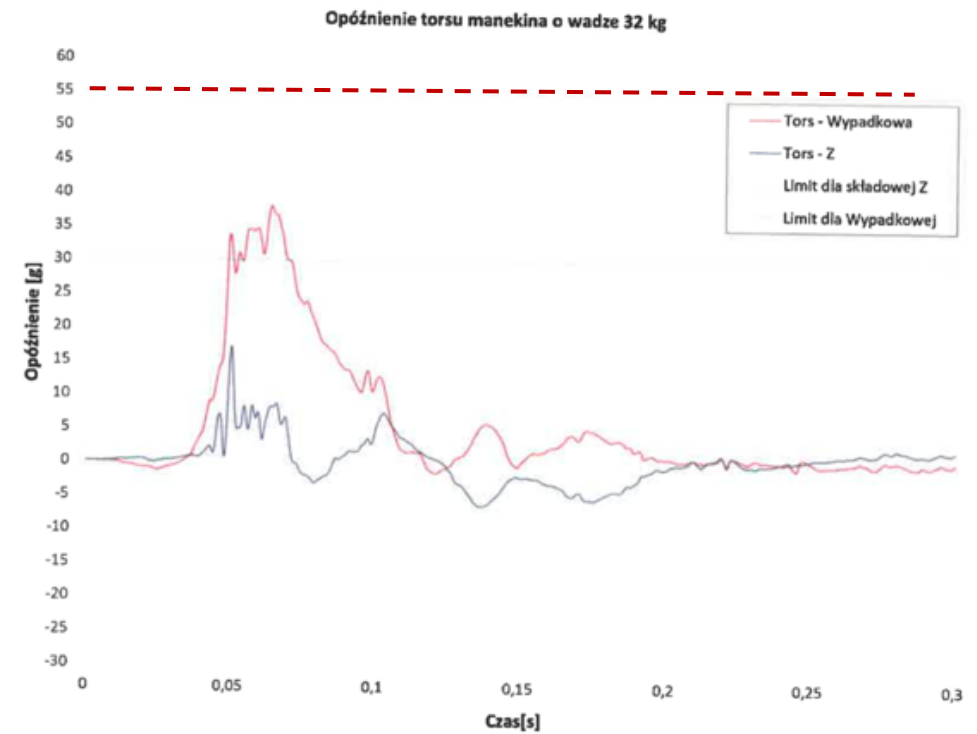
Graph 3. Decelerations of the chest for 22 kg dummy during dynamic test

BLB.098.19B



Graph 3. Decelerations of the chest for 32 kg dummy during dynamic test

BLB.128.18B



SMART KID BELT - 22kg dummy

Chest Resultant Deceleration - **26,47G**

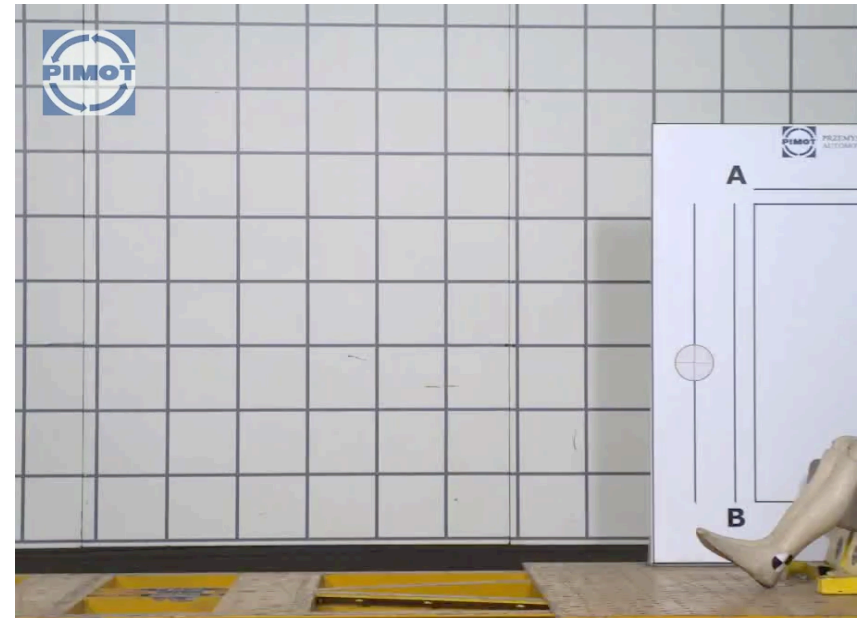
SMART KID BELT - 32 kg dummy

Chest Resultant Deceleration - **38,03 G**

CRS



SMART KID BELT



* CRASH SMART KID BELT VS REGULAR CHILD CAR HIGHBACK SEAT (DUMMY 32 KG)

BOOSTER SEAT



SMART KID BELT




* CRASH TEST SMART KID BELT VS BOOSTER (DUMMY 22 KG)


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ZAWIADOMIENIE
COMMUNICATION

wydane przez: DYREKTORA TRANSPORTOWEGO
DOZORU TECHNICZNEGO
issued by: DIRECTOR OF TRANSPORTATION
TECHNICAL SUPERVISION
ul. Chalubińskiego 8
00-613 WARSZAWA

 **UDZIELENIA HOMOLOGACJI**
APPROVAL GRANTED
ROZSZERZENIA HOMOLOGACJI
APPROVAL EXTENDED
ODMOWY HOMOLOGACJI
APPROVAL REFUSED
CORNIECIA HOMOLOGACJI
APPROVAL WITHDRAWN
OSTATECZNEGO ZANIECHANIA PRODUKCJI
PRODUCTION DEFINITELY DISCONTINUED



urządzeń przytrzymujących dla dzieci przebywających w pojazdach z napędem silnikowym,
zgodnie z Regulaminem nr 44.
of restraining devices for child occupants of power-driven vehicles, pursuant to Regulation No. 44

Numer homologacji: **E20 44R-04 4013** Numer rozszerzenia: ---
Approval number: Extension number:

1.1. Urządzenie przytrzymujące dziecko skierowane
przodem/tyłem do kierunku jazdy / kołyska
Forward-facing child restrain / rearward-facing child restrain / carry-cot

1.2. **Integralne / nieintegralne / częściowe / podstawka podwyższająca**
Integral / non-integral / partial / booster-cushion

1.3. Typ pasa: (dla dorosłych) pas trzypunktowy / (adult) three-point belt
Belt type: (dla dorosłych) pas biodrowy / (adult) lap belt
pas specjalnego typu / zwijacz / special-type belt / retractor

1.4. Inne cechy: **zespół fotelika / osłona zabezpieczająca**
Other features: chair-assembly / impact-shield

2. Nazwa handlowa lub znak towarowy: **Marka Braxx, typ Smart Kid Belt**
Trade name or mark: Mark Braxx, type Smart Kid Belt

- trade mark Smart Kid Belt;
- trade mark Belt adjuster;
- trade mark Adjuster;
- trade mark Adaptor samochodowy;
- trade mark Safe adaptor;
- trade mark Safe Kid adjuster;
- trade mark First;
- trade mark Optimum safe;
- trade mark Mega;
- trade mark Super safe;
- trade mark Mega safety;
- trade mark Safe Adjuster

E20 44R-04 4013 1/3

SMART KID BELT

COPY OF

UN ECE R44-04

APPROVAL



**SMART KID BELT –
TESTS RESULTS IN
ACCORDANCE TO
FMVSS**



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Braxx BX07-17-003
Bench B

Test Date:
7/18/2017

Critical Injury Values

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

Customer: Braxx Report No: 1067-17-02 Test Date: 07/18/2017
SLED TEST RUN: BX07-17-003

Braxx - FRONTAL IMPACT SLED TEST - DATA SUMMARY

Sled Test # Date	FMVSS / CMVSS Veh. Seat Position	Child Restraint	Normal Position	Crotch Position	Recline Position	Seat Direction / Mode	Restraint System	Tether (N/A)	ATD	Head Clip		Head vs. Knee vs. Chest		Vertical Head CG Exceeded (Y/N)	CMVSS Rebound Limit Exceeded (Y/N)	Test G's	Velocity (mph)	
										Time (ms)	Value (g's)	Time (ms)	Value (g's)					Pre ss Angle (deg)
BX07-17-003B 07/18/2017	C PS	Smart Kid Belt	-	-	-	FF	Type 2	N	6-YO HYB III SN 141	51.4	466.2	57.3	463	539.5	-	-	24	48.2

Comments: - No post-test issues.

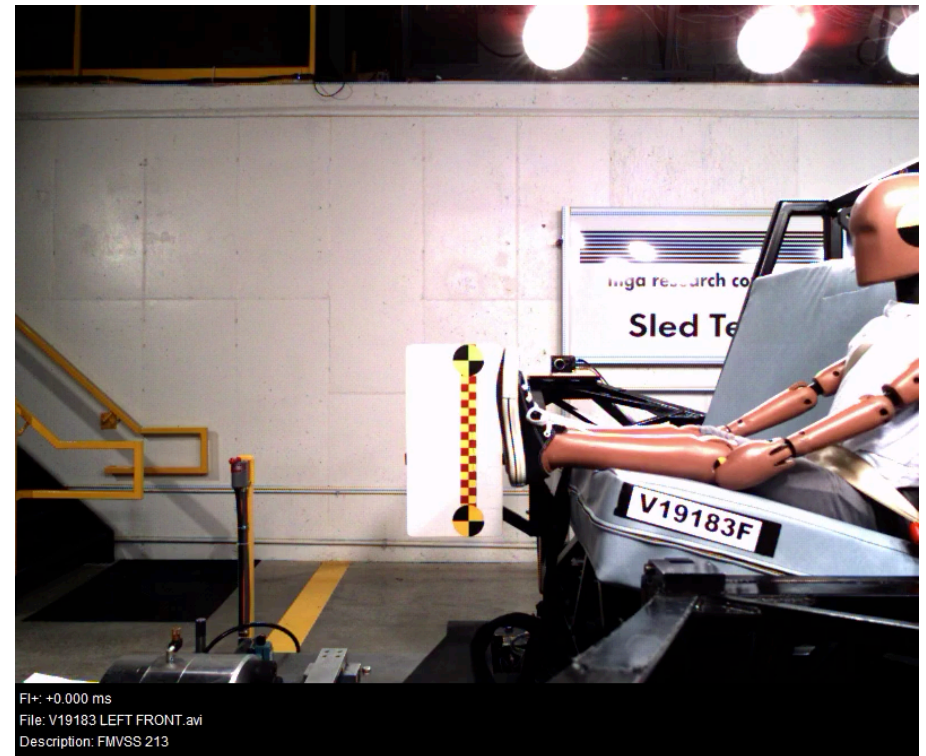
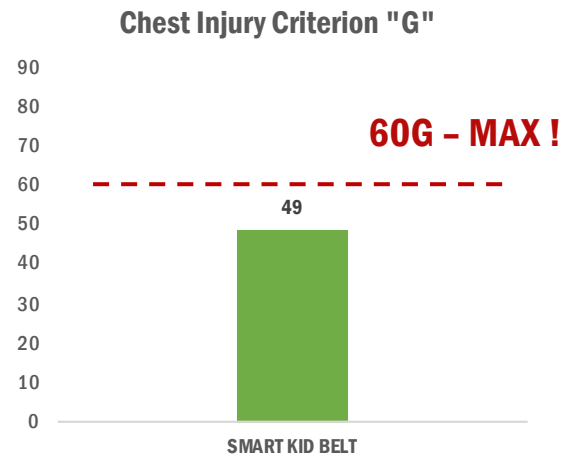
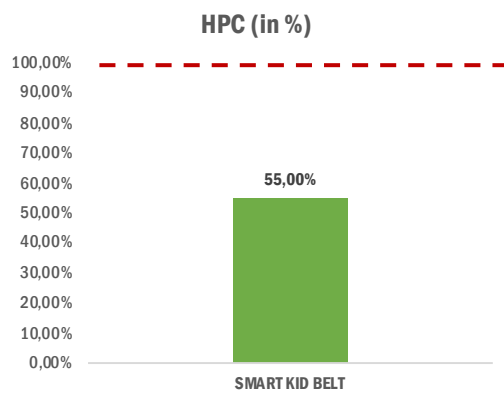
Test	Compliance Requirement	Test Result	Pass/Fail
Structural Integrity:	[215-1(a), 315-1(a), 407(a) of SOR 2010-90) No Complete Separation	No Structure	NA
	[215-1(a, i), 315-1(a, i), 407(a, i) of SOR 2010-90) No Partial Separation with Exposed Edge Radius < 6.4mm (1/4")	No Structure	NA
	[215-1(a, ii), 315-1(a, ii), 407(a, ii) of SOR 2010-90) No Partial Separation with Protrusion > 9.5mm (3/8")	No Structure	NA
Adjustment Positioning During Impact:	[215-1(b), 315-1(b), 407(b) of SOR 2010-90) No Change	No Change	Pass
Head Excursion:	[217(a), 315(e) of SOR 2010-90) Head CG not beyond the forward-most edge of the restraint system	NA	NA
	[217(a) 315(e) of SOR 2010-90) Head CG not beyond point "X" on the standard seat back (Canadian Rebound)	NA	NA
Max. Back Support	[217(b), 315(f) of SOR 2010-90) Equal to, or less than 70 degrees	NA	NA
Thorax Acceleration:	[215-1(c), 315-1(c), 407(c) of SOR 2010-90) Upper Thorax Resultant Acceleration to be < 60 G's or > 60 G's for a Total Accumulated Time of not More Than 3 ms (not applicable for tests using weighted 6-year-old dummy)	57.3 g	Pass
Head Acceleration	[215-1(d), 315-1(d), 407(d) of SOR 2010-90) Head resultant acceleration to be < 80 G's or > 80 G's for a total accumulated time of not more than 3 ms (not applicable for tests using 10YO & weighted 6-year-old dummy)	51.4 g	Pass
Forward Head Excursion	[216-1(a), 407(a) of SOR 2010-90) Allow any portion of the head to go more than 813mm (32") past Z-point - unless tethered, then 720mm (28.3") past Z-point.	463	Pass
Forward Knee Excursion	[216-1(b), 407(f) of SOR 2010-90) Allow knee pivot point to go more than 915mm (36") past Z-point.	539.5	Pass



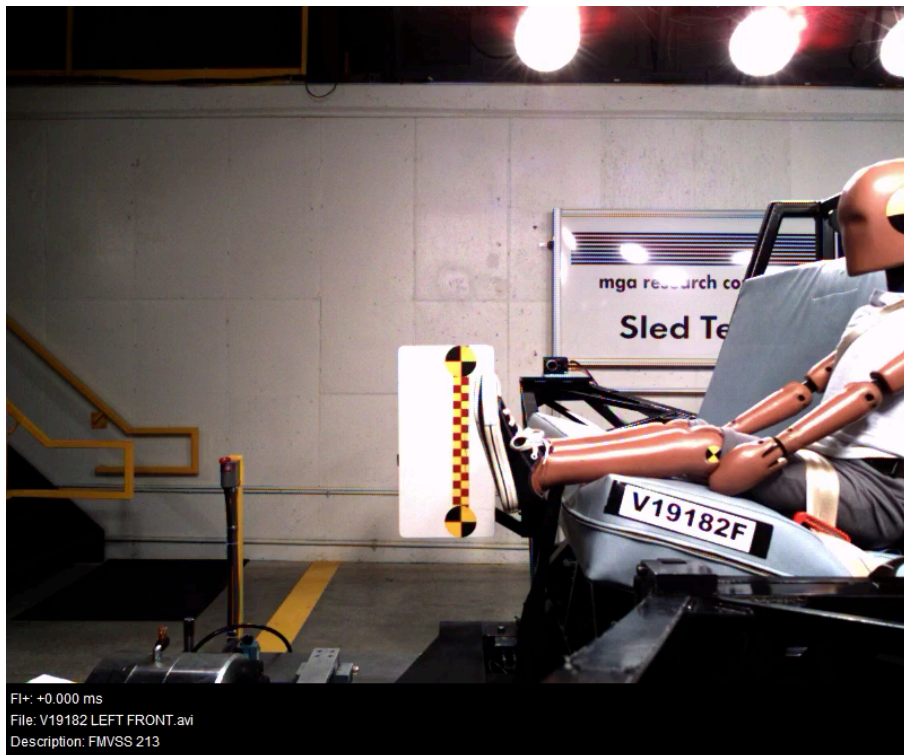


SMART KID BELT

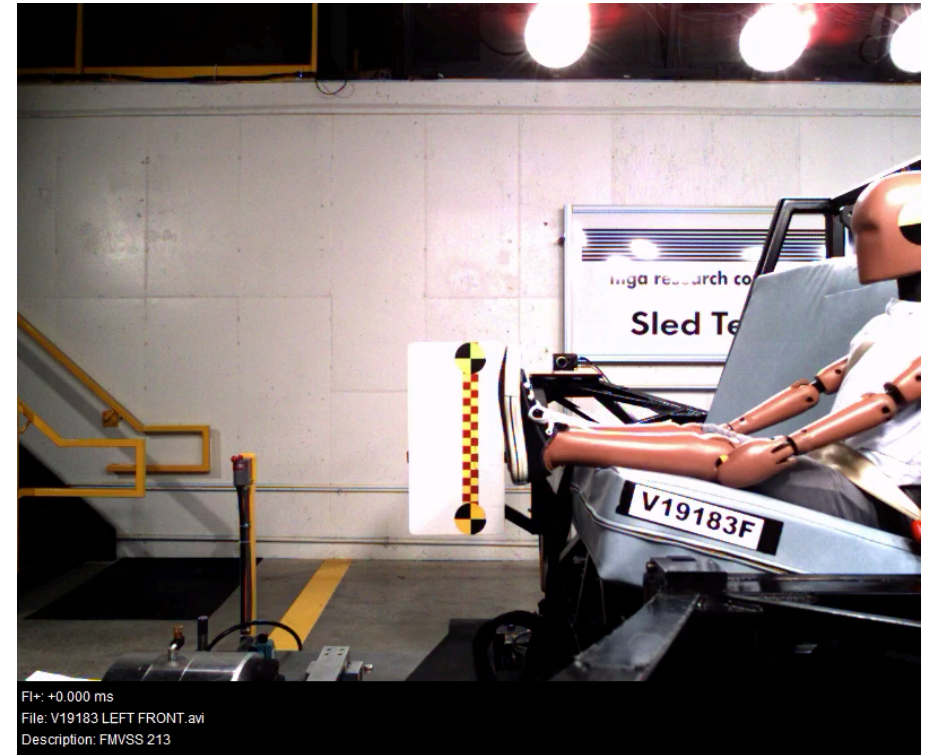
Injury Criteria FMVSS 213: S5.1.2		
Criteria	Compliance Requirement	Test Result
Head Injury Criterion	$HIC\ 36 \leq 1000$	550
Chest Injury Criterion	3 ms Chest Clip $\leq 60\ g$	49 g



FOLDABLE BOOSTER SEAT



SMART KID BELT

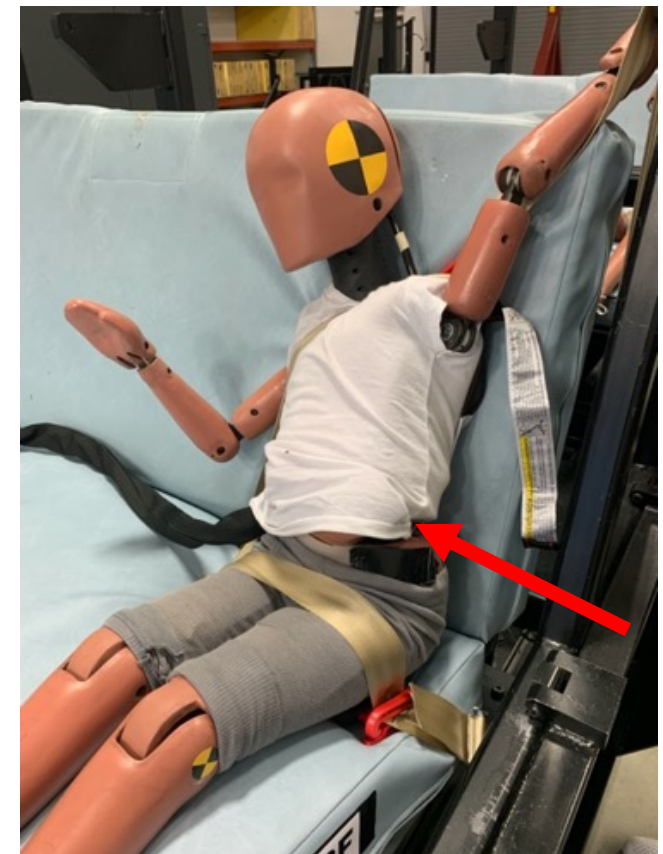
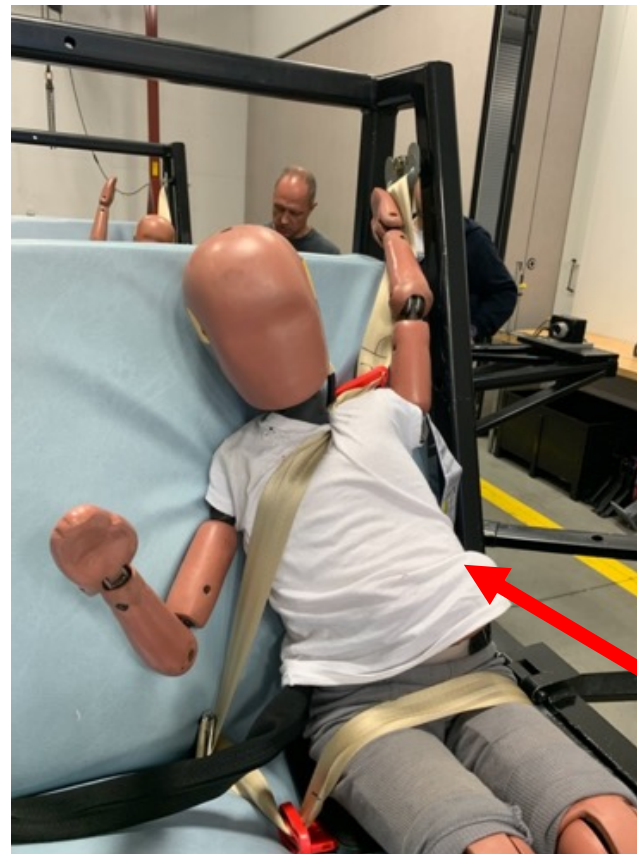


* CRASH TEST SMART KID BELT VS MIFOLD (DUMMY 22 KG)

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FOLDABLE BOOSTER SEAT – POST CRASH TEST PHOTOS



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SMART KID BELT – POST CRASH TEST PHOTOS

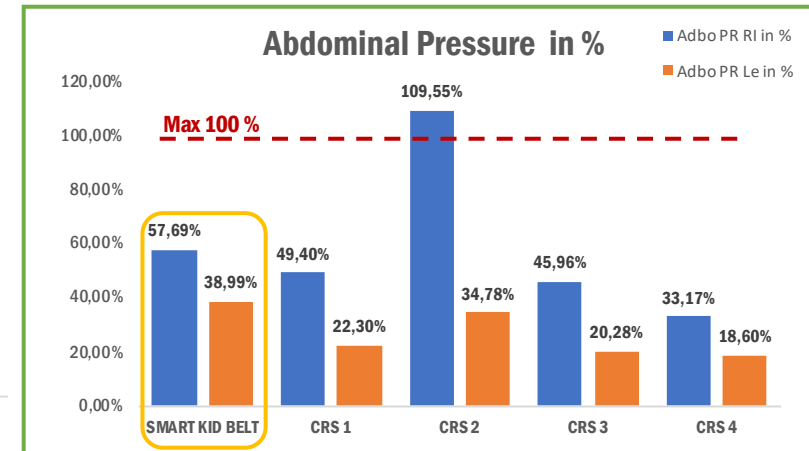
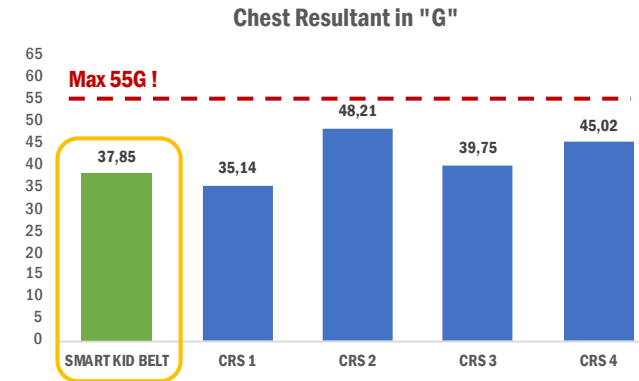
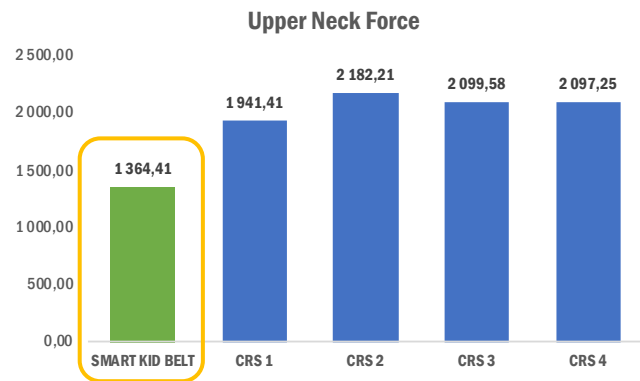
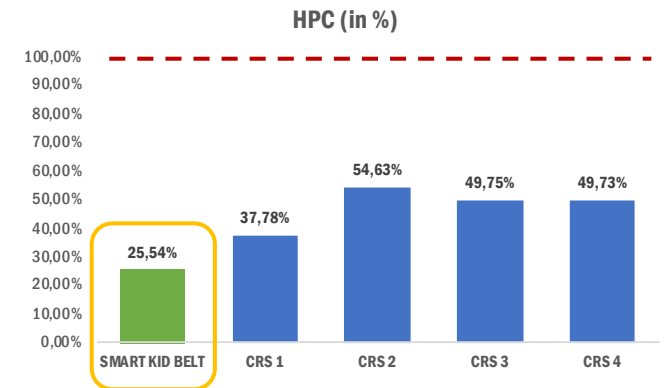
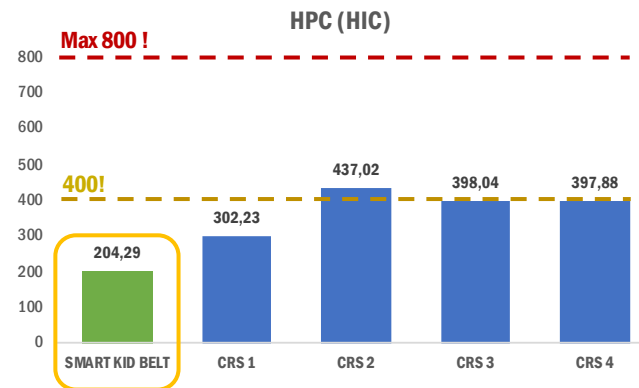
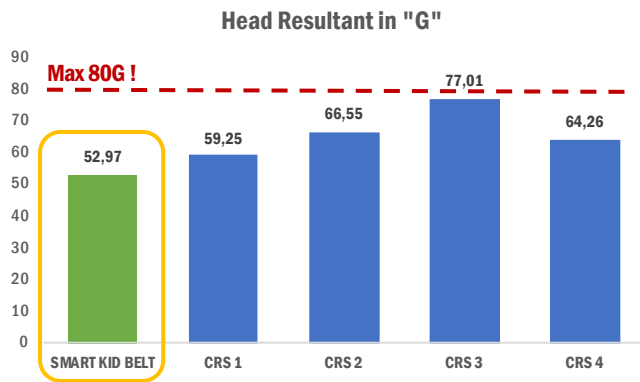


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**SMART KID BELT
TESTS IN ACCORDANCE
TO NEW R129 REGULATIONS**







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CRASH TEST COMPARISON N 129 UN / ECE	Head Resultant				Upper Neck Force	Chest Resultant		Abdominal Pressure	
	in "G"	HPC (HIC)	HPC in %	ACC in %	in "N"	in G	ACC in %	Adbo PR Ri in %	Adbo PR Le in %
SMART KID BELT	52,97	204,29	25,54%	61,03	1 364,41	37,85	68,52	57,69%	38,99%
CRS 1	59,25	302,23	37,78%	71,54	1 941,41	35,14	62,42	49,40%	22,30%
CRS 2	66,55	437,02	54,63%	79,96	2 182,21	48,21	82,62	109,55%	34,78%
CRS 3	77,01	398,04	49,75%	85,30	2 099,58	39,75	69,73	45,96%	20,28%
CRS 4	64,26	397,88	49,73%	77,93	2 097,25	45,02	80,67	33,17%	18,60%

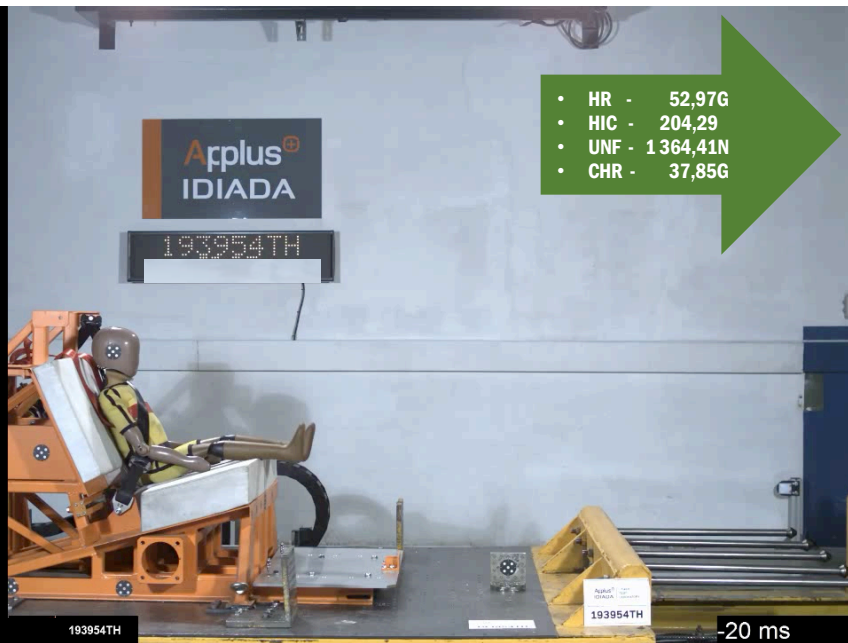
 BEST RESULT IN TEST
 OVER PERMISSIBLE LIMIT



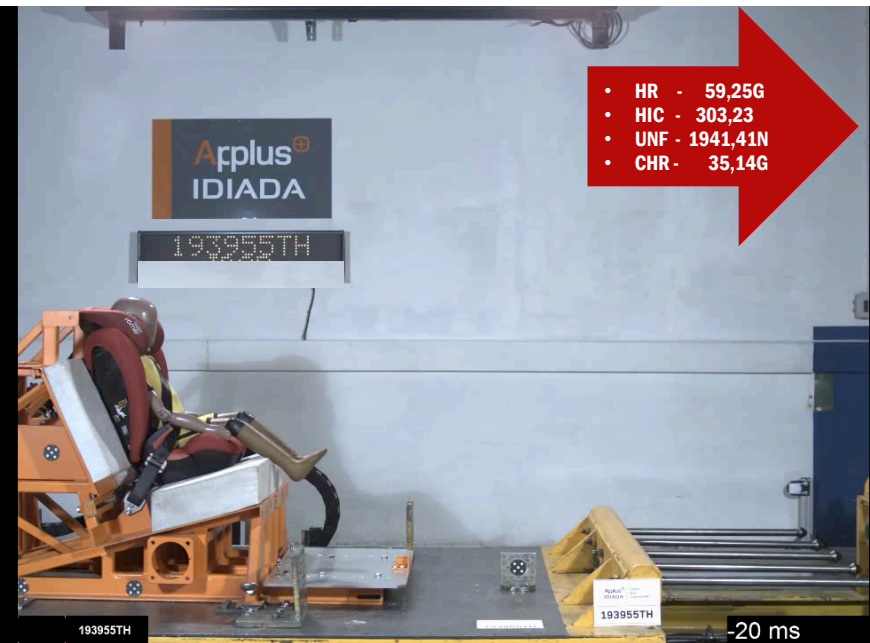
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SMART KID BELT



CRS 1

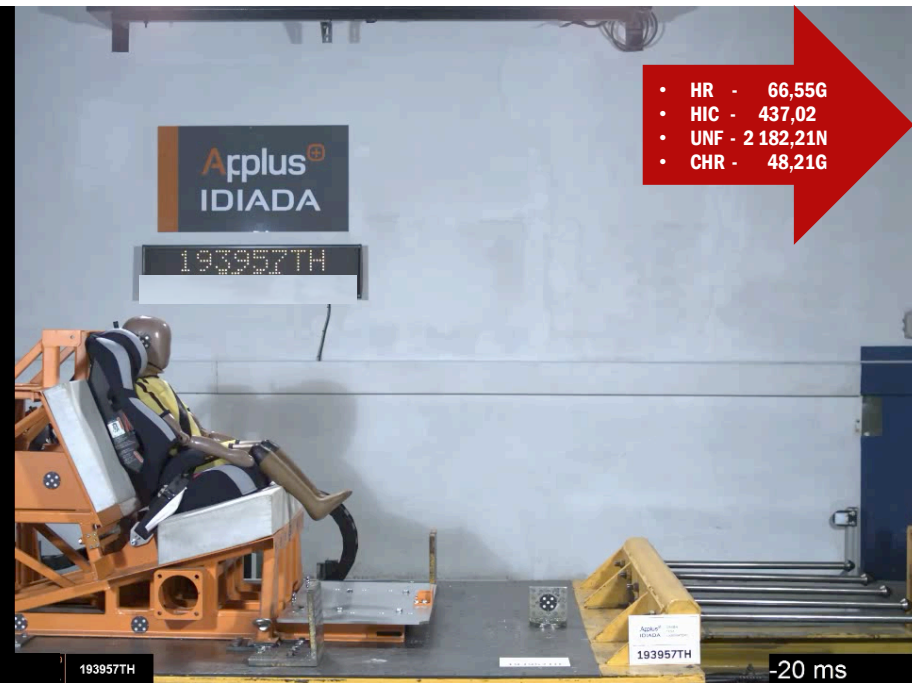
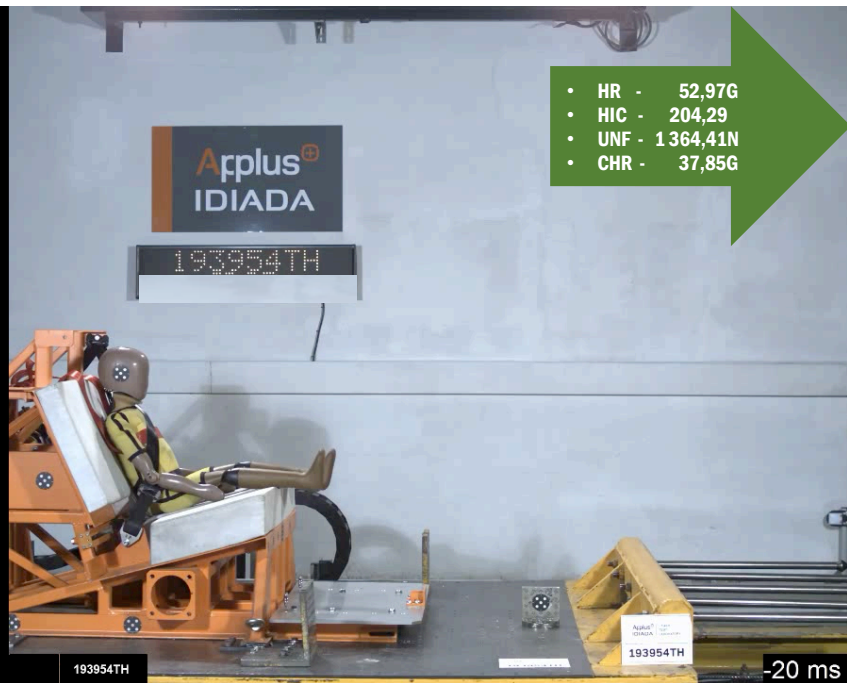


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SMART KID BELT

CRS 2

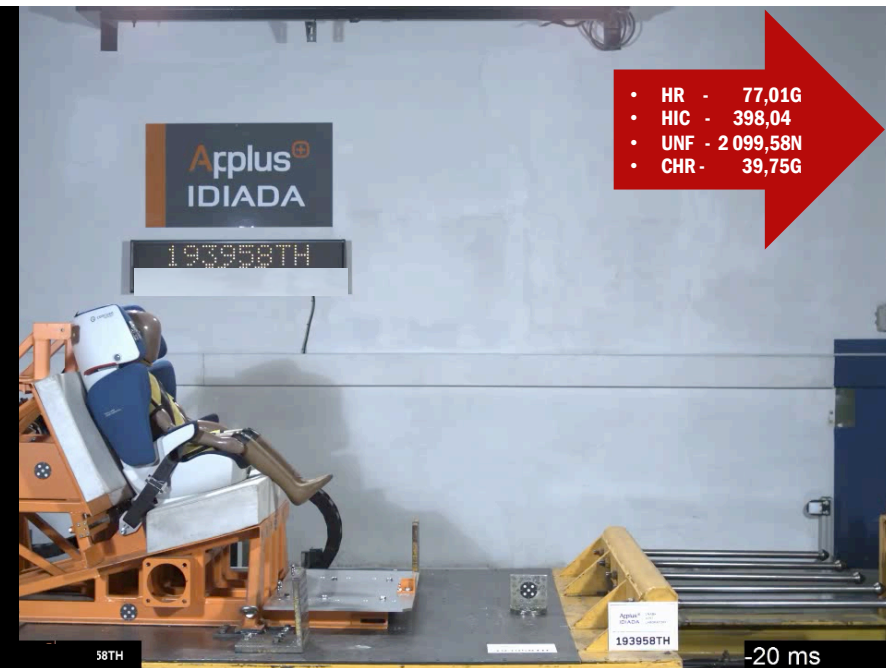
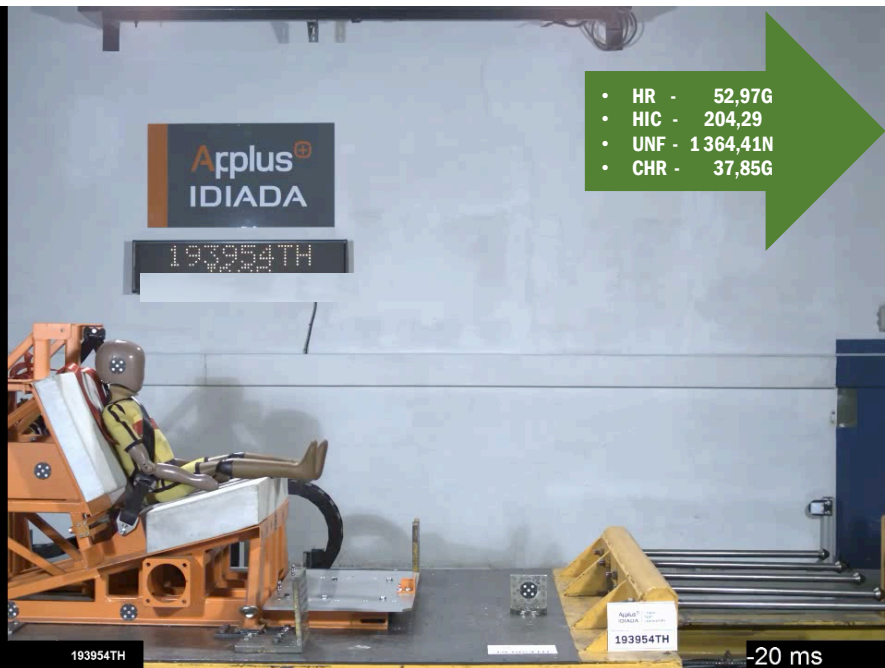


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SMART KID BELT

CRS 3



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SUBMERGING

**With reference to document GRSP-50-09e &
GRSP-50-25e**

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

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.

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

GRSP 50-25e

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 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 – Submerging has already taken place– The lap belt has intruded into the abdomen.



Figure 1a: Time 0 ms - Initial Q6 dummy position



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

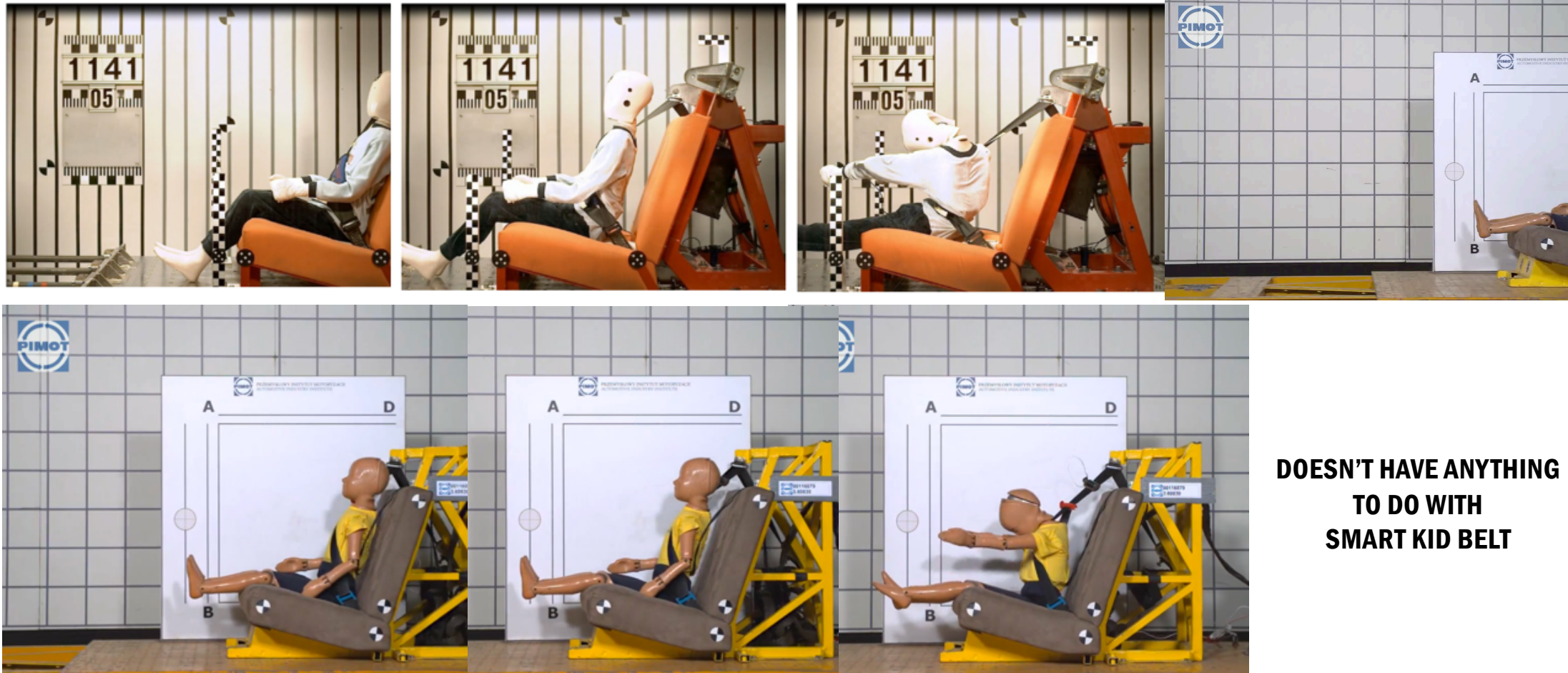


Figure 1c: Time +100 ms –normal belt geometry during max loading
No submerging observed

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With reference to document GRSP-50-09e & GRSP-50-25e - **SUBMERGING**



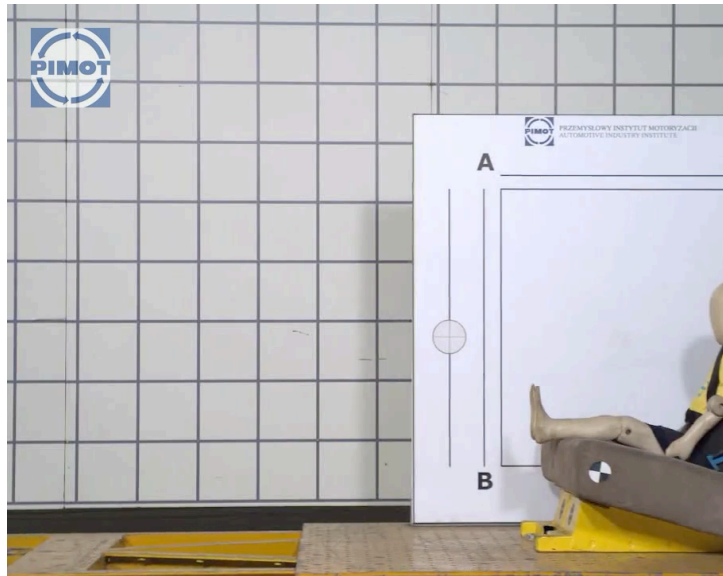
**DOESN'T HAVE ANYTHING
TO DO WITH
SMART KID BELT**

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With reference to document GRSP-50-09e & GRSP-50-25e – **SUBMERGING**

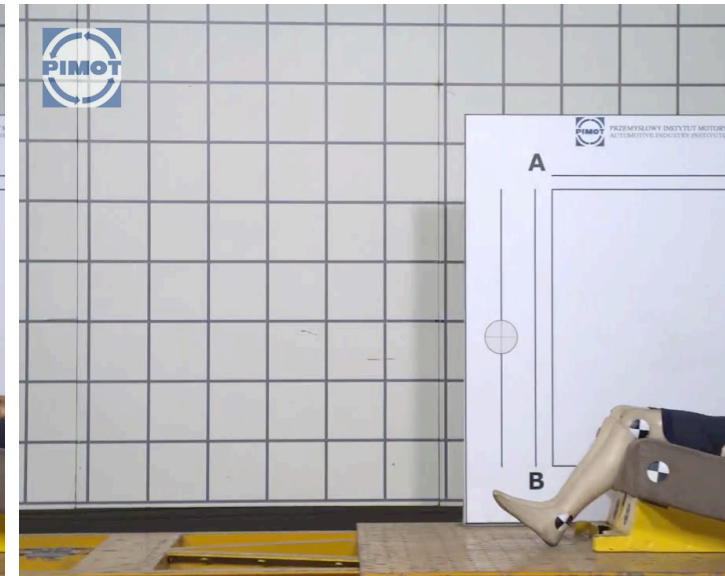
**DOESN'T HAVE ANYTHING
TO DO WITH
SMART KID BELT**



15 KG dummy



22 KG dummy

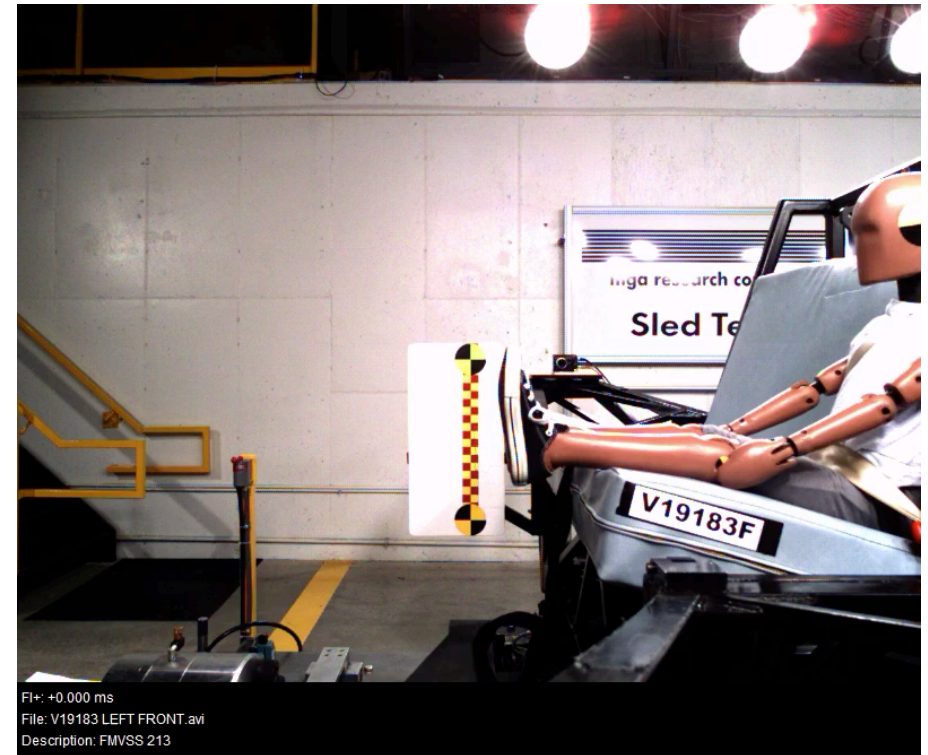


32 KG dummy

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With reference to document GRSP-50-09e & GRSP-50-25e – **SUBMERGING**



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VERTICAL COMPONENT

**With reference to document GRSP
6520e**

With reference to document GRSP 6520e - VERTICAL COMPONENT

BLB.098.19B

SMART KID BELT
Test Results

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BLB.088.19B

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Załącznik 1 – Wyniki badań
Annex 1 – Test results

1	2	3	4
Lp	Rodzaj badań Test type	Wymagania Requirements	Wyniki badań – ocena Test results – assessment
2.	Próby dynamiczne pkt 7.1.4 Dynamic tests point 7.1.4		manekin 22 kg 22 kg dummy
		- prędkość 48 ± 50 km/h velocity 48 ± 50 km/h	49,420 km/h
		- droga hamowania 650 ± 50 mm stopping distance 650 ± 50 mm	685 mm
		- przemieszczenie 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)	< 550 mm < 800 mm P
		- wypadkowe opóźnienie torsu manekina ⁽¹⁾ resultant chest deceleration ⁽¹⁾ ≤ 55 g lub > 55 g dla sumy okresów czasu ≤ 3 ms ≤ 55 g or > 55 g for the sum of periods of time ≤ 3 ms	max 26,69 g < 55 g P (wykres 3/graph 3)
		- pionowa składowa w kierunku od brzucha do głowy ⁽¹⁾ vertical component of the deceleration from the abdomen towards the head ⁽¹⁾ ≤ 30 g lub > 30 g dla sumy okresów czasu ≤ 3 ms ≤ 30 g or > 30 g for the sum of periods of time ≤ 3 ms	max 13,21 g < 30 g P (wykres 3/graph 3)

2	3	4
Rodzaj badań Test type	Wymagania Requirements	Wyniki badań – ocena Test results – assessment
Próby dynamiczne pkt 7.1.4 Dynamic tests point 7.1.4		manekin 15 kg 15 kg dummy
		49,500 km/h
		685 mm
		< 550 mm < 800 mm P
		max 32,68 g < 55 g P (wykres 2/graph 2)
		max 16,67 g < 30 g P (wykres 2/graph 2)

With reference to document GRSP 6520e - VERTICAL COMPONENT

BLB.050.16H

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FOR COMPARISON
CHILD CAR SEAT
Test Results

6/14

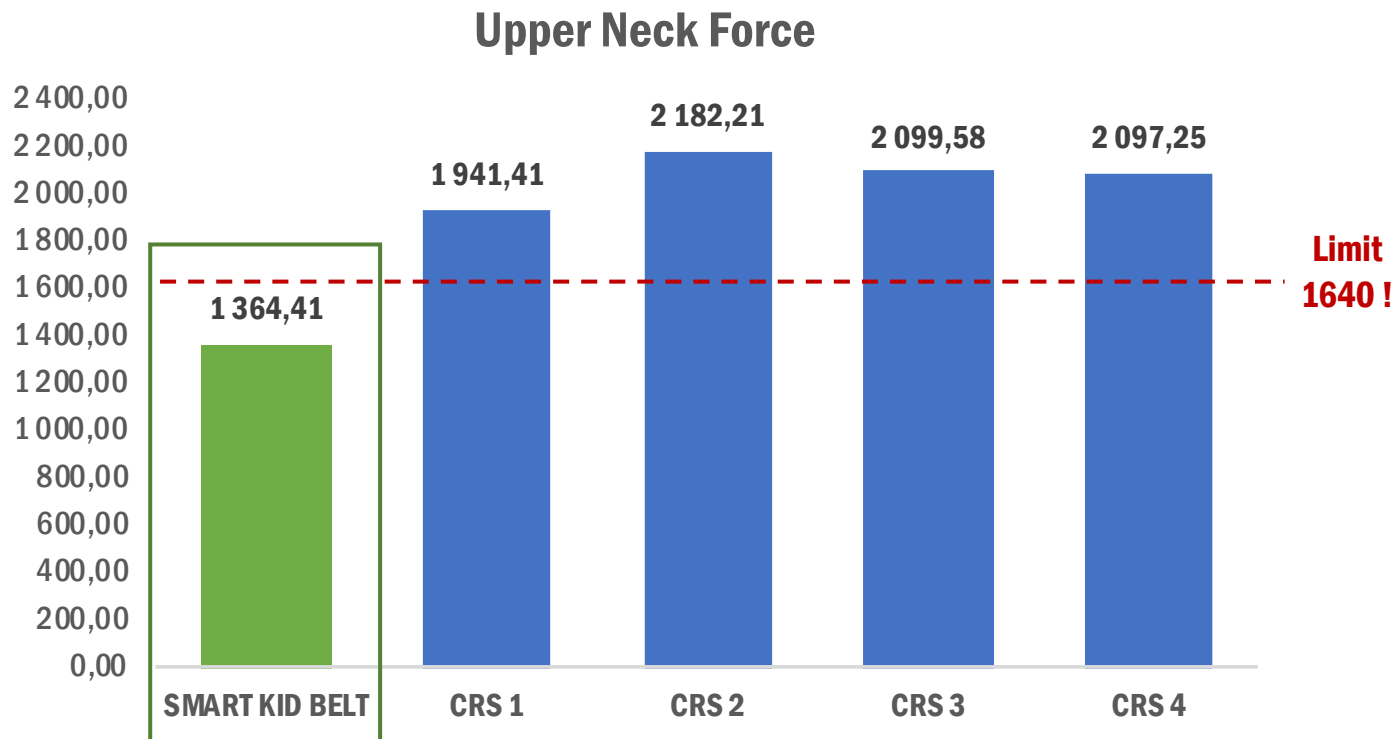
Próby dynamiczne pkt 7.1.4 Dynamic tests point 7.1.4		Manekin 22 kg (gr. II) Dummy 22 kg (gr. II)
- prędkość 48 ÷ 50 km/h velocity 48 ÷ 50 km/h	48,95 km/h	
- droga hamowania 650 ± 50 mm stopping distance 650 ± 50 mm	654 mm	
- przemieszczenie głowy manekina: displacement of the dummy's head: w poziomie ≤ 550 (od punktu Cr) horizontal ≤ 550 (from Cr point) w pionie ≤ 800 (od punktu Cr) vertical ≤ 800 (from Cr point)	< 550 mm < 800 mm	Fot. 3 / Pic. 3
- wypadkowe opóźnienie torsu manekina resultant chest deceleration ≤ 55 g lub > 55 g w przedziale czasu ≤ 3 ms ≤ 55 g or > 55 g in time period ≤ 3 ms	43,51 g	wykres nr 2 graph no. 2 P
- pionowa składowa w kierunku od brzucha do głowy vertical component of the deceleration from the abdomen towards the head ≤ 30 g lub > 30 g w przedziale czasu ≤ 3 ms ≤ 30 g or > 30 g in time period ≤ 3 ms	13,75 g	wykres nr 2 graph no 2 P

BLB.050.16H

Materials point 6.1.6	in accordance with requirements of relevant paragraphs of the ECE Consolidated Resolution on the Construction of Vehicles (R.E.3) - dopuszczalne oświadczenie producenta o zgodności z wyżej wymienionymi wymaganiami acceptable manufacturer's declaration on conformity with above mentioned requirements	P
Odporność na korozję pkt. 7.1.1 Resistance to corrosion point 7.1.1	- brak oznak korozji mogącej pogarszać prawidłowe działanie urządzenia przytrzymującego no signs of deterioration likely to impair the proper functioning of the child restraint	- nie stwierdzono oznak korozji not found corrosion P
Pochłanianie energii pkt 7.1.2 Energy absorption point 7.1.2	- opóźnienie max 60g deceleration max 60g	- < 60g P
Próby dynamiczne pkt 7.1.4 Dynamic tests point 7.1.4		Manekin 15 kg (gr. II) Dummy 15 kg (gr. II)
- prędkość 48 ÷ 50 km/h velocity 48 ÷ 50 km/h	48,95 km/h	
- droga hamowania 650 ± 50 mm stopping distance 650 ± 50 mm	649 mm	
- przemieszczenie 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)	< 550 mm < 800 mm	Fot. 1 / Pic. 1
- wypadkowe opóźnienie torsu manekina resultant chest deceleration ≤ 55 g lub > 55 g w przedziale czasu ≤ 3 ms ≤ 55 g or > 55 g in time period ≤ 3 ms	60,94 g, > 55 g w czasie / during 2,6 ms	wykres nr 1 graph no 1 P
- pionowa składowa w kierunku od brzucha do głowy vertical component of the deceleration from the abdomen towards the head ≤ 30 g lub > 30 g w przedziale czasu ≤ 3 ms ≤ 30 g or > 30 g in time period ≤ 3 ms	27,11 g	wykres nr 1 graph no 1 P

TEST +

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



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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

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?**

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THANK YOU !