

Use of FTSS'ES2

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Summary

- Introducing of Trust Indicators
- Focus on side impact
- Focus of Altair's ES2
- Perspective with the FTSS's ES2



Introducing of trust indicators

- PSA has developed indicators which measure the quality of the simulations
- During the development of a project, there are some simulations and some tests. For each test, the simulation is compared with test :
 - To measure the quality of simulations
 - For several solicitations (frontal impact, side impact...)
 - There are some generic criteria which are defined for each solicitations
- This procedure was born 2 years ago
 - Nowadays, we have a good database and a good idea on our repository.

Introducing of trust indicators

■ Example : Indicator for structural frontal impact

- Criteria and weight are built by experts
- The file must be easy to be filled in
- There are objective and subjective criteria (deformation of the side member)
- The scale is the following :
 - Under 60 % : Insufficient
 - Between 60 % and 80 % : simulation can be used in relative
 - More than 80 % : simulation is predictive (we estimate the dispersion of a sled at 20%)

CHOC FRONTAL				
Projet	AJ			
Phase	JOVS			
Note Globale	01	100		
Déclaration	00			
PPH1	100			
PPH2	100			
PPH3	95			
PPH4	01			
		Calcul	Essai	Comp.
Déclatration	Courbes de déclatration	Principaux phénomènes (5 ms) présents et amplitudes proches (10%)		
	Enfoncement max (mm)	1400	1430	
	Courbe de pseudo énergie (J)	1100	1267	
	Max décal Z (µ)	100	100	
Zone PPH1	Ecrasement Absorbeur haut	déversement	déversement	
	Ecrasement Absorbeur bas	Boîtiage	Boîtiage	
Zone PPH2	Vue haute	Comportement brancard	Double rotule	Double rotule
		Compressibilité Y avant supp GMP	comparable (moins de 20 mm)	
	Compressibilité X derrière supp GMP	comparable (moins de 20 mm)		
	Déversement Y	comparable (moins de 20 mm)		
	Déversement Z	comparable (moins de 20 mm)		
	Vue basse	Comportement poutre	Simple rotule	Simple rotule
		Comportement tige	partie de la liaison brancard	partie de la liaison brancard
Zone PPH3	Tenue décrois	Tenue	Tenue	
	Contact roue longeron (ms)	60	60	
	Comportement triangle	Flambement	Flambement	
	Contact bancs/rouleur (ms)	65	65	
	Delta V max GMP côté choc	40	43	
	Rupture support moteur (ms)	75	71	
Zone PPH4	Intrusion platine max (mm)	92	76	
	Intrusion platine min (mm)	77	62	
	Intrusion LL (mm)	65	54	
	Récal pied avant (mm)	32	19	
	Comportement pote	Bonne tenue	Bonne tenue	
	Tenue roulement	Bonne tenue	Bonne tenue	
	Pied avant	Bonne tenue	Bonne tenue	
	Déboîtement PDE	non	non	
	Montant de base	95	75	



Introducing of trust indicators

■ State of Art : confidential data !!

	2007	2008	2009
Structural frontal impact	☹️	😊	😊
Structural side Impact	-	☹️	😊
Biomechanics frontal Impact	-	☹️	☹️
Biomechanics side Impact	-	☹️	☹️
Reparability	-	☹️	☹️
Pedestrian	-	☹️	☹️

■ Way of progress is also determined thanks to these indicators



Introducing of trust indicators

- State of Art : The same indicators are constructed for dummies and barriers
- We choose criteria and sled with rigid impactors (true value)

ODB CEVE	82%
PSA'S PROGRESS BARRIER	92 %
Altair's H3	Not quoted
Altair's ES2	50 %



Focus on side impact

■ State of Art : confidential data !!

	2007	2008	2009
Structural frontal impact	☹️	😊	😊
Structural side Impact	-	☹️	😊
Biomechanics fronta	-	☹️	☹️
Biomechanics side Impact	-	☹️	☹️
Reparability	-	☹️	☹️
Pedestrian	-	☹️	☹️

Bad Results

■ Way of progress is also determinate thanks these indicators



Introducing of trust indicators

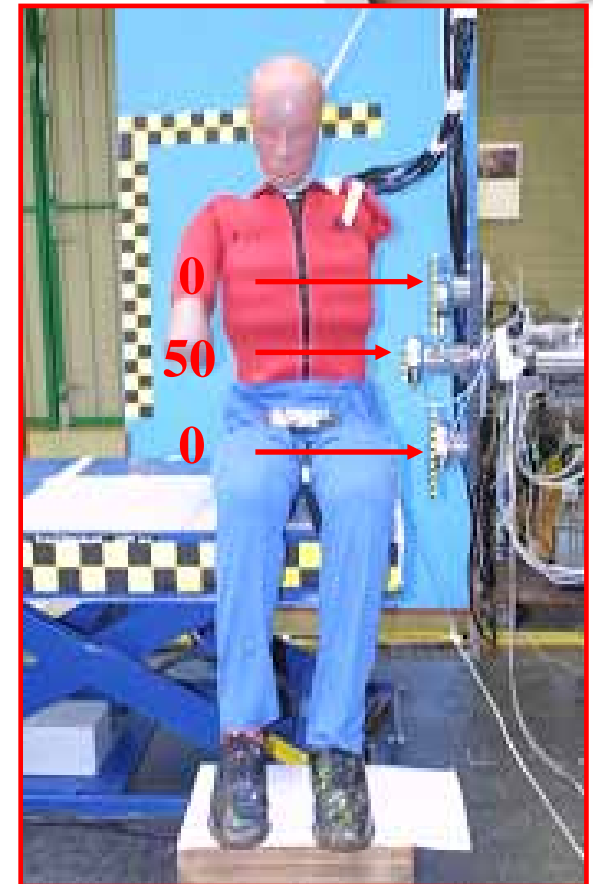
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To be improved

Indicators for ES2

- PSA has almost 10 sleds with rigid impactors
- The velocity and the position of the impactors are not the same
- Segments which are taken into account are :
 - T1
 - Chest
 - Abdomen
 - Pelvis
- For each sled, we choose the main segments which must be measured
 - For example, on the test on the right, we will look particularly at the abdomen
- For each criteria, we calculate the WIFAC (between the sled curve and the simulation curve)



Indicators for ES2



T1	36 %
CHEST	41 %
ABDOMEN	73 %
PELVIS	51 %
TOTAL (MEAN)	50 %



Perspective for the FTSS's ES2

- PSA will test the new ES2 which have been developed by FTSS
- PSA is waiting for a better quotation : more than 60 %.
- First results are very positive and the quotation is in progress
- If results are good, PSA will test this dummy in vehicle simulation

- The same work is made on Hybrid 3.

Special thanks

- Laurence Saillard of PSA
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**Thank you for
your
attention**