

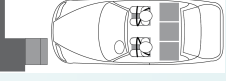
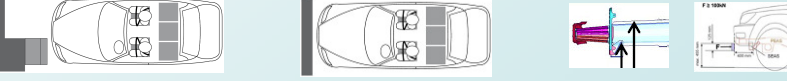
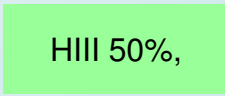


# **Development of Regulation 94 Frontal Impact OICA**

**GRSP Informal Group on Frontal Impact – 11 October 2012**



# OICA position on the evolution of R94

	Today:	Phase I: WP.29 in November 2014	Phase II: ~ 2020 (GTR?)
Scope	Self Protection Fuel Integrity	Self Protection Fuel Integrity + Restraint Test + Compatibility Assessment ?	Tbd.
Configuration	ODB 56 km/h, 40% 	ODB 56 km/h, 40% + FWRB 50 km/h + In Phase II or Geometric Assessment PEAS / SEAS 	
Dummy	HIII 50%	HIII 50%, 	[THOR %]



## Phase I Restraint test – Choice of Dummy

OICA proposes the use of the 50% HIII dummy for driver and passenger front seats for the following reasons:

- 50% HIII represents the majority of the population
  - The dummy has an average size
  - The dummy covers larger and smaller occupants
- Quick implementation into Regulation is possible (currently planned in 2014)
  - The 50% HIII Dummy is regulatory ready (R&R, seating procedure, calibration)
  - No problem with the jacket (problem with jacket at 5% dummy)



## Restraint test – Set Up and Criteria

OICA proposes to combine the ODB test and FWRB test for the following reasons:

- A combination of a FWRB test and an ODB test will cover the worst case for the deceleration pulse and the worst case for the restraint sensing.
- The FWRB test provides an assessment of the restraint system performance (worst case for the restraint loading).
- The ODB test provides an assessment of the vehicle deformation:
  - Is the worst case for the structural integrity
  - Is the worst case for the lower leg criteria
  - The injury criteria and thresholds for the dummy loading shall be similar for ODB and FWRB test (exempting the lower leg in FWRB)



## Restraint test - Compatibility

OICA proposes to define the compatibility assessment in phase II for following reasons:

- According to the FIMCAR findings, the consideration of improving the restraint systems is most important as it will provide the greatest benefits.
- The force measurement during crash is not ready for regulation by End of 2014:
  - [According to FIMCAR, the Matrix for FWRB + LCW is not working for a compatibility assessment (FIMCAR meeting in Helmond 11/11)]
  - FWDB + LCW is not repeatable
  - Further research is needed (--> possible by 2014?)
- It is questionable, if all contacting parties can agree to a geometric assessment (US MoU F2F; Option 1 and 2)



# Restraint test - Criteria

					Configuration				According to US-Self-Commitment Front-to-Front Vehicle Compatibility, Option 1* or 2**		
					Structural Integrity Fuel leakage/ HV		Restraint Test				
					40% Offset, ODB, 56km/h		FWRB, 50km/h				
					Driver 50% HIII	Passenger 50% HIII	Driver 50% HIII	Passenger 50% HIII			
Criteria	A	Occupant	1	HPC	X	X	X	X			
			2	aHead 3ms	X	X	X	X			
			3	NIC	X	X	X	X			
			4	Neck Moment- ext.	X	X	X	X			
			5	ThCC	X	X	X	X			
			6	V*C	X	X	X	X			
			7	FCC	X	X	X	X			
			8	TCFC	X	X					
			9	Kneeslider	X	X					
			10	TI	X	X					
	B	Structural Integrity	11	Steerig wheel displacement	X		-				
			12	Door locking/ opening							
			13	Dummy removal							
			14	Fuel leakage							
			15	EVS requirements							
C	Compatibility	21	Geometry alignment	-				(x)			

\* Option1:  
The Primary energy-absorbing structure shall overlap at least 50 % of Part 581 zone  
AND  
at least 50% of the primary energy-absorbing structure shall overlap Part 581 zone

\*\* Option 2:  
A secondary-energy-absorbing structure (SEAS) must be connected to the primary structure, whose lower edge shall not be higher than the bottom of Part 571 bumper-zone (406 mm).  
The SEAS must withstand a force of 100 kN before travelling 400 mm (measured from forward most point of significant structure), when loaded with a Loading device of 125 mm in height, 25 mm in thickness. Top edge of loading device shall be no higher than 18 in (455 mm). First contact only with the SEAS.