

FIMCAR Workshop

Summary

FIMCAR Accident Analysis

- Analysis of recent cars (at least ECE R94 compliance)
 - Overlap:
 - large overlap results in high risk for acceleration type loading
 - small overlap (corners and middle) results in intrusion type injuries
 - Main frontal impact issues observed
 - structural interaction
 - low overlap
 - under/override
 - compartment strength
 - no evidence that issue is larger for smaller cars
 - main problem for car-to-HGV and car-to-object accidents



FIMCAR Global Strategies

Priorities

Assessment requirements

	Structural Interaction		Front End Force / Deformation (Consisting of)		Compartment integrity		Restraint system	
	Alignment	Load Spreading (Load paths / connections)	Deformation forces of frontal structures	Energy Absorption Management	Sufficient for single vehicle accident	Enhanced for light vehicles in vehicle to vehicle accident	(Assess over range of pulses)	Test Restraint Capacity
Priorities For FIMCAR	1	1	2	1	1	2	1	1

FIMCAR Global Strategies

Assessment criteria for test procedures

- Do the metrics address identified frontal impact issues?
- Do the assessment results reflect real world performance?
- Is the test severity appropriate?

External Advice / Requirements

- New car design/concepts need to be taken into account
 - Carbon footprint
- Assessment procedures should avoid too stiff cars
- Self protection shall not be reduced
- Improvement structural interaction recommended
- Improvement of management of energy absorption capabilities recommended
- Restraint system test should involve improved dummy

Full Width Test Procedure

- Different pulse
 - restraint system test
 - accident sensing
- Assess load path for geometrical compatibility requirements
- Rigid or deformable barrier?
 - harmonisation
 - possibilities to assess secondary load path
 - sensitivity w.r.t. engine dump
- Assessment of secondary load structures
 - not to be restricted

Off-set Test Procedure

- Assessment of load spreading
 - e.g. addressing small overlap
- Assessment of compartment strength
- Selection of PDB
 - ECE R94 ODB unable to assess load spreading
- Compatibility criteria
 - longitudinal deformation of the barrier
 - homogeneous criteria
 - priority for middle area
- External advice
 - harmonisation with IIHS might be useful
 - is compatibility assessment in FW test necessary in addition to PDB?
 - sensitivity of assessment w.r.t. vehicle height
 - investigate influence of mass on metrics

MDB Test Procedure

- Aims
 - Assessing self and partner protection
 - Representing car-to-car impacts
 - Analysis of vehicle mass and front stiffness
- PDB barrier face
- Metrics according to PDB test

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