



# **Scope of GTR- Pole Side Impact**

**Exemption of Commercial Vehicles**

**Informal Group on Pole Side Impact**

**22 March 2012**




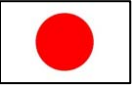
**London**

# Scope: Discussion during Seoul Meeting



## Vehicles of category 1-2 and 2 involved in Pole Side Impact

a) Differences in the global vehicle fleet between US, Australia, EU and Japan:

				
Typical Design of cat 2 vehicles	Pick-Up	UTE	Van	Mini Truck
Use of category 2 vehicle for private transport	Common	Common	Not common	Not common
Severe injuries in cat 2 vehicles caused by PSI	In statistic	?	No	No

b) Result of German Accident Analysis:







→ **No significant number of severe or fatal injuries in Light CV caused by PSI**

[More details](#)

# Scope: Discussion during Seoul Meeting



## OICA proposal for the Scope of the GTR-PSI

Van/Small Bus (cat 1-2)	Mini Truck	UTE	Pick-up
			
<p> → To be excluded from the scope</p> <p><b>Justification:</b></p> <ul style="list-style-type: none"><li>• Only very limited cases in accident statistics</li><li>• Very limited use for private transport</li></ul>		<p> → To be included in the scope</p> <p><b>Justification:</b></p> <ul style="list-style-type: none"><li>• larger number of cases in accident statistics in some regions</li><li>• Common also for private transport in some regions</li></ul>	

# Scope: OICA Proposal



## Definition of criteria to describe vehicle types

Using two criteria which can be used alternatively :

1)The distance between R-point and Front Axis (*→ gtr 9*)

2)The Interior Volume Index (*→ US Federal Regulations, Title 40 Protection of Environment, Section 600.315-82 and SAE J1100 (Nov 2009)*)

[More details](#)

## Kei-Cars

Very small vehicles - typical for some regions- should be:

1)Totally exempted from provisions (*exemption of vehicles with a width of less than 1500 mm*)

or

2) Tested with a reduced impact speed (*26 km/h instead of 32 km/h*)

→ Further discussion on the Kei-car-exemption is needed

# Scope: OICA Proposal



## Scope

This regulation shall apply to vehicles of:

- category 1-1 with a gross vehicle mass exceeding 500 kg [and a width exceeding 1500 mm]  
*and*
- category 1-2 with a gross vehicle mass not exceeding 4500 kg [and a width exceeding 1500 mm]  
*and*
- category 2 with a gross vehicle mass exceeding 500 kg but not exceeding 4500 kg [and a width exceeding 1500 mm].

However, power driven vehicles of category 1-2 and category 2 shall be exempted from the requirements of this regulation,

- where the distance, measured longitudinally on a horizontal plane, between the transverse centre line of the front axle and the R-point of the driver's seat is less than 1100 mm, *or*
- where the Interior Volume Index (IVI) as defined in SAE J1100-Nov2009 exceeds [5.0 ] m<sup>3</sup>.

A contracting party may further restrict application of the requirements in its domestic legislation if it decides that such restriction is appropriate.

# Scope: OICA Proposal



## Justification

OICA proposes to use both the R-point criteria and the IVI, because...

- The „R-point criteria alone will not exclude most of the delivery vans, if the 1100 mm value from gtr 9 will be maintained
- An extension of this 1100 mm value would lead to an exclusion of some UTE
- The Interior Volume Index alone would not exclude the Mini Trucks.

Version	Distance R-point to front axis (only X-direction) [mm]	IVI [m3]
<b>Commercial Vehicle (category 2)</b>		
Van (~2,8t)	< 1265	> 5,0
Van (~3,5t)	< 1200	> 7,0
UTE	1300 - 1450	2,7
Pick Up	1500 - 1600	~ 3,5
Mini truck	~ 200	~ 1,5
<b>Passenger Cars (category 1-1)</b>		
Mini cars		1,7 to 2,8
Station Wagon		3,8 to 4,3
MPV		4,4 to 4,6
large SUV		4,0 to 4,4
Sport Car		1,6 to 2,9

*Typical data for R-point distance and IVI*



Further Questions?



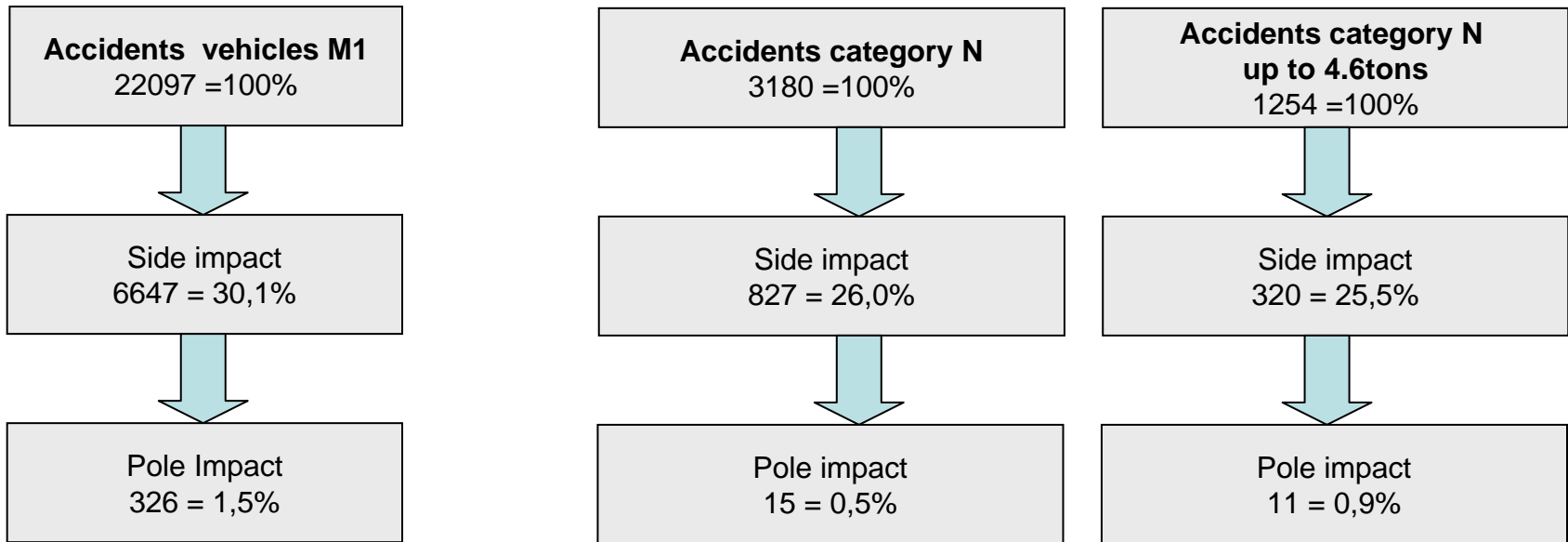
# Annex



# Result of Accident Analysis in Germany



**Example: GIDAS data; number of pole side impact accidents**



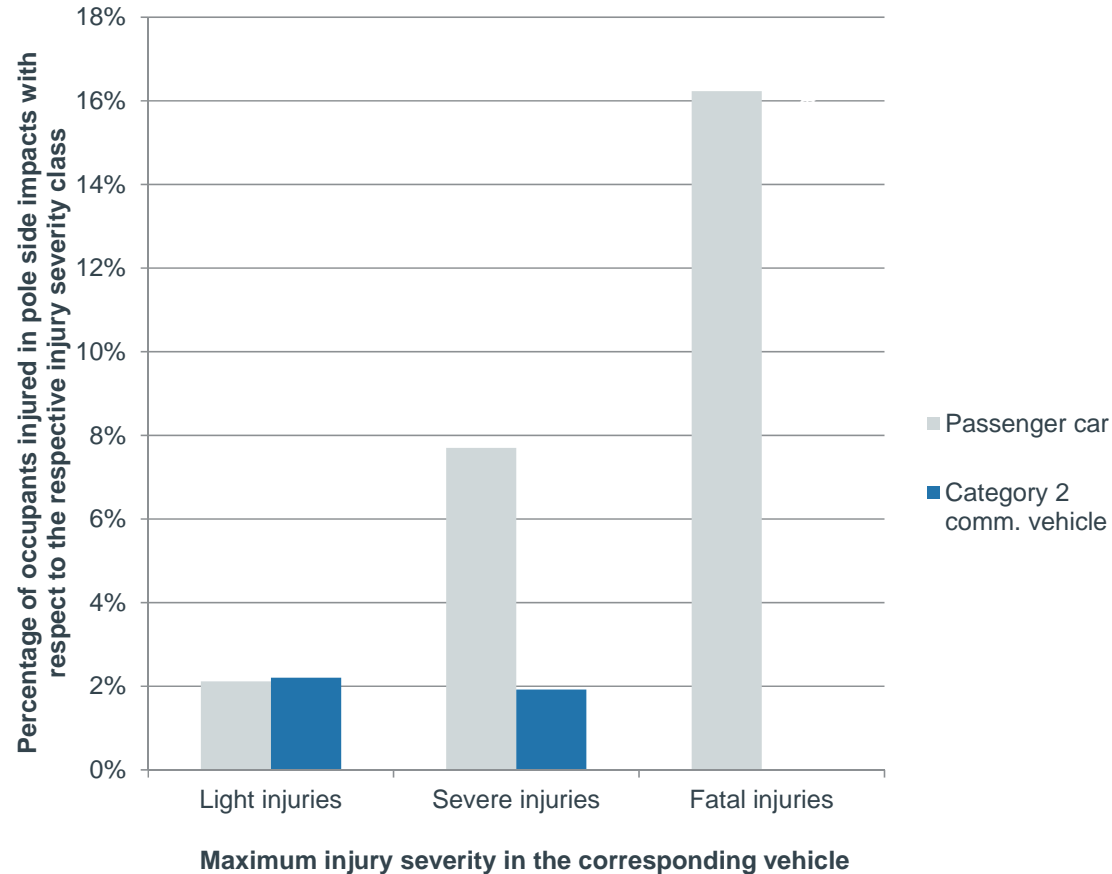
→ M1 vehicles involved in pole impacts about twice as much vehicles of category N

# Result of Accident Analysis in Germany



## Example: GIDAS data; number of severe injuries and fatalities

- Percentage of occupants in pole side impacts with respect to the corresponding injury severity class
- In the GIDAS sample (10667 occupants of passenger cars or light utility vehicles) there is no fatally injured occupant of a light utility vehicle in a pole side impact, and only one severely injured occupant





# IVI - Description

## Current application

- Used by US EPA to classify vehicles for exhaust emission classes

## Method

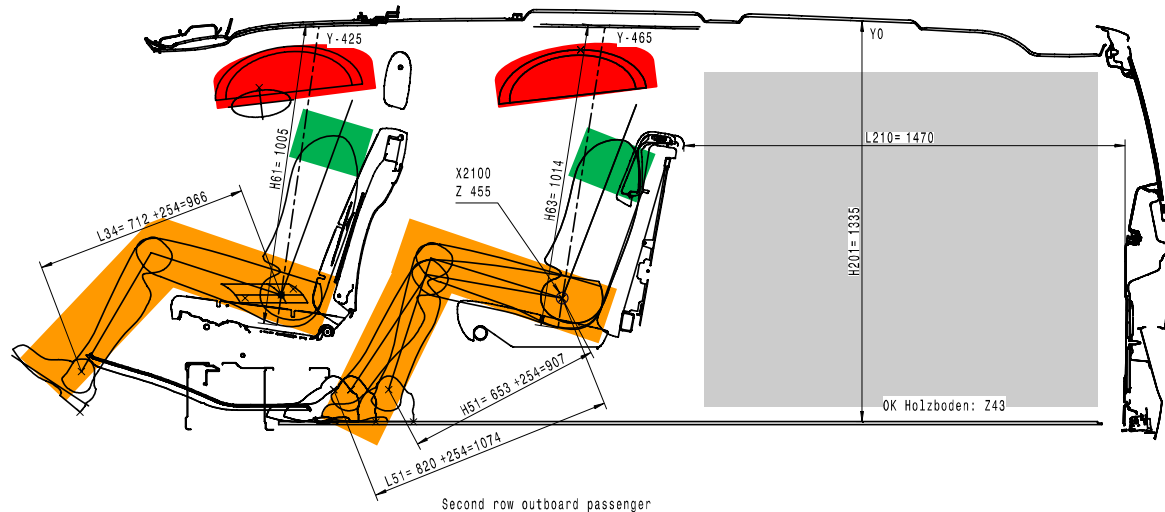
- The intention of IVI according SAE J 1100 is to provide reasonable estimations of the passenger compartment volume potential of a standard seating configuration, plus the cargo volume potential of the remaining space.
- The IVI does not represent the physical volume of the passenger compartment and the cargo volume. It is a theoretical value for a volume of a vehicle class.

# IVI - Calculation



Each IVI is calculated about the following values in each seat row:

- Effective head room
- Effective shoulder room
- Effective leg room
- The cargo volume will be determined over a standard luggage<sup>1</sup>



$$\text{Vehicle IVI} = \text{IVI of first seat row} + \text{IVI of second seat row} + \text{IVI of cargo volume}^1$$

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<sup>1</sup> The open air cargo volume index is not included at pickups.