



**GRSP Informal Group  
on CRS  
13<sup>th</sup> meeting**

*EEVC WG12 Q DUMMIES IARV REVIEW*

CCFA, Paris October 13<sup>rd</sup> 2009

*Luis Martínez*

## IARV'S DISCUSSION (I)

### Head injury criteria (HIC and Head Resultant Acceleration 3ms):

- Use both criteria only in case of hard contact during in-vehicle testing (body in white).
- HIC is considered more efficient criteria to prevent head injuries that Head Resultant Acceleration during 3 ms.
- For the seat bench tests, maintain the **head excursion criteria** and do not use HIC or Head Resultant Acceleration 3 ms.
- With respect to the limits, use one of the proposal, 20% or 50% of AIS3+ LR, but the same level of injury risk for all the Q dummies sizes and for the same body part. Do not mix different injury risk probabilities among the dummies sizes or injury criteria for the same body segment.
- Could be necessary to define a clear procedure to define where a head “hard contact” is produced.

## IARV'S DISCUSSION (II)

### Neck injury criteria (Level of maturity for 1 and 1,5 YO):

- Neck criteria proposed have into account the age effect in the ligament strength, nor the neck vertebra level of maturity.
- The rearward facing configuration have showed lower neck efforts that the forward facing configuration. It is recommended to use the CRS in the rearward facing configuration for children as older as possible.
- Proposed limits are suitable for forward facing CRS configuration.



## IARV'S DISCUSSION (III)

### Neck injury criteria (Tension and My in flexion):

- In frontal impact with no head contact, neck tension and flexion are the main efforts that appear in the occipital condyle in a forward facing occupant.
- Compression and extension are more likely to appear during the rebound phase or when a head contact appears.
- WG12&WG18 proposed neck criteria are related to the test bench configuration.
- As the test bench does not incorporate: a head restraint or a certification for the seat back stiffness, the rebound phase was not considered during the study and the neck compression and extension criteria were not developed.

## IARV'S DISCUSSION (IV)

### About Nij criteria:

- There is not Nij criteria for the Q dummies.
- Nij intercept values are not available for the Q series.
- Group do not know a scientific evidence that Nij is good criteria for the Q series.
- If there would be good evidence for Nij on Q series it may be evaluated by WG12.