



Independent Transport Research, Consultancy & Testing

Creating the future of transport





Update on the European Commission study

Presented by Jolyon Carroll
Senior Researcher – 11 September 2013



Context for group and EC study

- Subject of EC study:
 - To investigate whether the 60 degree plane definition could be adjusted in a sensible and cost-effective way to define the corners of the bumper as being close to the side of the vehicle

- Previously given a summary of project tasks
 - TF-BTA-3-06-Rev1e.pdf

- Now have further updates regarding progress...

Agenda

EC study to support Task Force

- 1 Reprise of last presentation
- 2 Update
- 3 Accident analyses
- 4 Phase 1 test results – EEVC leg
- 5 Other items – Phase 2 testing?

Summary of last presentation (TF-BTA-3-06-Rev1e.pdf)

- Provided initial progress with the EC study
 - Task to document:
 - Understanding of current definition
 - Previous research
 - Vehicle geometry

- Still to complete
 - Testing (~end of September)
 - Benefit estimate (~end of October)

Summary of last presentation

- Why did EEVC WG10 change bumper corner definition to 60° plane?
 - No definitive statement in the available historical documents
 - Comment that
 - “Geneva reg. 42 uses 60 degrees to C/L to define the corners of the bumper.”

- Use of 60 degrees in other regulations
 - UN Regulation 42 defines the vehicle corner using a plane at 60°
 - Reg. 127 uses the corner as the limit of the tested area, with impact centres at least a legform radius inside the corner
 - Reg. 42 uses the corner to define the centre of the impact for the corner test. The tested area will extend significantly beyond the defined corner.

Summary of last presentation

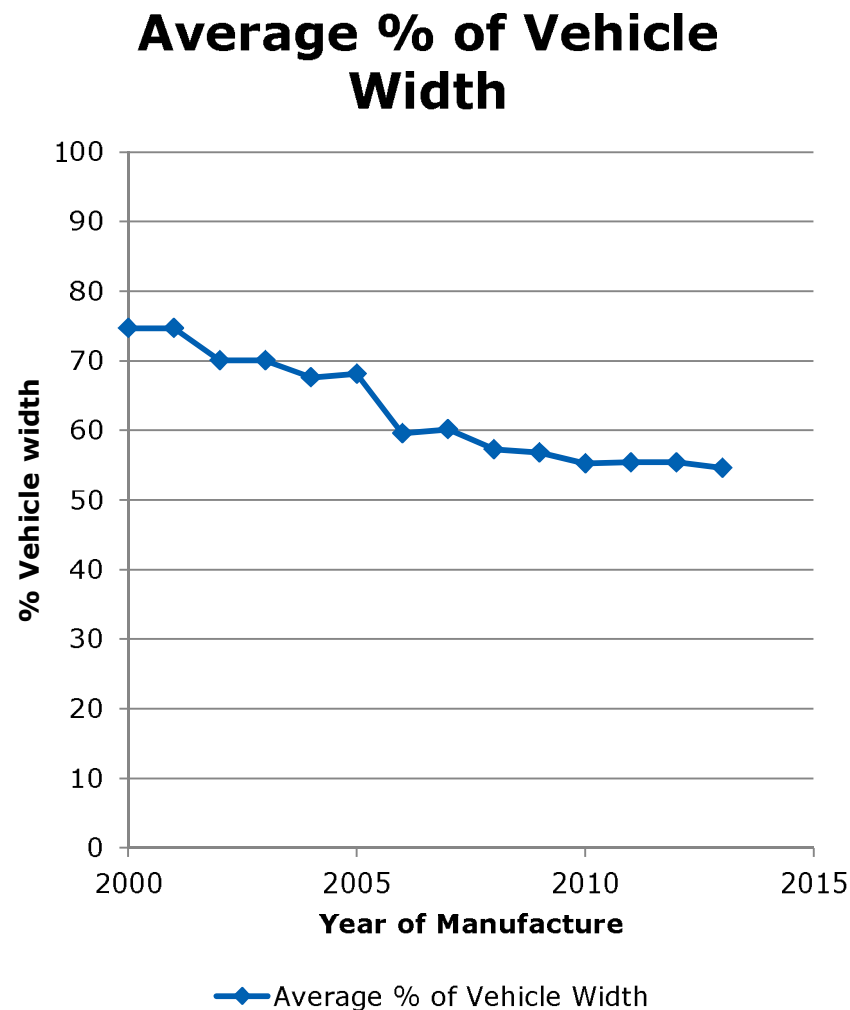
Experiences from Euro NCAP, etc.



Testing extended to end of bumper beam

- Some vehicles show hard points in that region
- Already noting issues with rotation/sliding of the legform from the oblique surface at contact point
- Limit of bumper bar set to capture hard points whilst limiting experimental discrepancies due to impact angle

Summary of last presentation



Testable area of bumper

- Testable area decreasing with newer vehicles
 - Graph based on few (14) vehicles
 - Anomaly around 2005/2006
 - General trend seems clear

- Total vehicle width from published value – typically within 20-40 mm of measured front wheel track

Progress

Completed since last meeting

Accident analyses

- Separate presentation
 - Information from GIDAS and OTS used
 - Analysis to check contact point distribution across vehicle front
 - Also, injury risk across vehicle front

Testing – Phase 1

- Another separate presentation
 - Completed initial programme of tests with EEVC legform
 - Influence of rotation on measurements
 - Empirical derivation of protection level around bumper corners

Future tasks

Still to complete

Testing – Phase 2

- Flex-PLI testing scheduled at end of September
- Investigate consistency of results with EEVC leg
 - Sensitivity to rotation
- Consideration of proposed solutions?

Benefit analysis

- Based on:
 - Accident data
 - Geometry of vehicles
 - Testing results
 - Proposed changes?

Summary

- Brief update of initial progress with the EC study
 - Task to document:
 - Understanding of current definition
 - Previous research
 - Vehicle geometry
 - Testing
 - Benefit estimate

- Opportunity to comment
 - Project complements activity within Task Force
 - Contribution to Task Force will be greatest with input from all stakeholders
 - Suggestions are still welcomed for alternative corner definitions!



Do You Have Any Questions?

Thank you

Task Force – Bumper Test Area: EC study update

Presented by Jolyon Carroll
Senior Researcher – 11 September 2013
Tel: +44 1344 770564
Email: jcarroll@trl.co.uk