European Transport Safety Council

CRASH

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COSTS AND EFFECTIVENESS OF SAFER CAR FRONTS AND NEW TECHNOLOGIES FOR VULNERABLE ROAD USERS

SUMMARY

At its May meeting, the Transport Committee of the European Parliament will discuss the new proposed legislation on safer car fronts for vulnerable road users. The new proposal subjects the EEVC crash tests to a feasibility assessment, which makes their implementation uncertain.

- A further technical feasibility assessment of EEVC is unnecessary. The feasibility of EEVC has already been proven in the 22 years EU-supported research and development programme.
- There is also no need for a further economic feasibility assessment of the EEVC proposals. The European Commission already concluded in 2000 that making safer car fronts was one of its top six cost-effective actions.
- EEVC test methods do represent the "state-of-the-art" in the field of pedestrian crash protection.
- Equivalent measures currently do not exist.
- Active safety measures could not replace EEVC test methods but could be proposed in addition to improve other aspects of the protection of vulnerable road users.
- New technologies for road safety discussed at the e-Safety Forum are neither mature, nor yet cost-efficient.
- EuroNCAP was described recently by the European Commission as a motivator for passive safety

NEW PROPOSAL ON SAFER CAR FRONTS

The European Commission adopted on 19 February 2003 the long-awaited legislative proposal on safer car fronts for vulnerable road users. As far as the safety content is concerned, the new proposal is almost identical to the criticised voluntary agreement (CRASH, 2002 and ETSC, March 2003).

Phase 1:

2 JRC/ACEA tests or 4 EEVC tests or equivalent measures to be met by 2005 by all new types and by 2012 for new cars.

The phase 1 tests mandate the crash tests recently assembled by the Joint Research Center (JRC) of the European Commission, on the advice of the European car industry (ACEA).

The JRC/ACEA tests have used the EEVC test methods and tools but deleted two tests of the integrated package of 4 tests and lowered the level of the requirements. Overall, the JRC/ACEA tests offer up to 70% less protection against fatal injury than the EEVC tests (TRL, 2002).

Phase 2:

EEVC tests or equivalent measures to be met by 2010 by all new types and by 2015 by all new cars.

However, the European Commission, in its draft proposal, foresees a feasibility assessment on EEVC and other equivalent measures before 1 July 2004.

Conclusion:

ETSC does not understand the reasons behind a ten month feasibility assessment of EEVC. This proposal needs to be amended, as outlined in the following sections.

1. Is there a need for a technical feasibility assessment?

No, because the technical feasibility has been proven in the 22 research and development programme. These tests were validated in 1994, updated in 1998, and are used by the European New Car Assessment Programme (EuroNCAP).

The feasibility of meeting the EEVC requirements is also indicated by the Honda Civic, a car on EU roads today which meets around 80% of the EEVC requirements, without using new technology.

The car industry argues that the Honda Civic is an exception because it is a small model and other models are incapable of passing EEVC requirements. However, the latest EuroNCAP results in November 2002 have shown that another car, the MG TF, a roadster, gained three stars over four in pedestrian protection (www.euroncap.org).

2. Are the EEVC tests "too old a technology"?

The assessment of the EEVC is claimed to be necessary to allow for adaptation to technical progress because EEVC test methods would be "too old a technology".

The EEVC crash tests were originally proposed by the EEVC WG 10 in 1991 with an updated report to the Commission in 1994 (EEVC, 1994). Then, the WG 17 was set up to review the EEVC WG 10 pedestrian protection test methods from 1994 and to propose possible adjustments taking into account new and existing data in the field of accident statistics, biomechanics and test results. The final report was published in December 1998.

The development of the test methods has been based on in-depth analysis of real life accidents between cars and pedestrians. The EEVC WG 17 is still active and will recommend adaptations, when necessary, on a scientific basis. A 10 months feasibility assessment is certainly not the adequate way to make any adaptations to the EEVC test methods.

The EU legislation already provides arrangements for adaptation to technological progress for all the EU technical Directives. It takes place within the framework of the Committee for Adaptation to Technical Progress (CATP).

3. Is there a need for an economic feasibility assessment?

No, the European Commission already conducted a cost-benefit analysis of safer car fronts for vulnerable road users and concluded in its 2000 Communication on "Priorities in EU road safety-Progress report and ranking of actions" that making car fronts safer was one of its top six cost-effective actions.

In addition, the UK Transport Research Laboratory (TRL) has estimated recently that the additional costs to the Honda Civic which meets over 80% of the EEVC tests was around 10 euros and estimated that the additional costs for the Honda Civic to fully meet 100% of EEVC would be 50 euros.

Even if the costs could be higher for bigger models, car manufacturers will have time to incorporate the requirements at the concept stage and options to choose the less costly ways to meet the requirements (See question 4). If implemented, EEVC could save up to 2,000 lives annually and prevent up to 17, 000 injuries at EU level.

During the last ten years, the estimates for the cost-benefit ratio of a safer car front meeting EEVC requirements have differed greatly, depending on assumptions made. Some estimates are calculated for the cost to new types of car, or new models of car while others estimate the cost for modifying existing designs.

Generally, the conclusion as to whether the benefits exceed the costs depends on the assumptions and whether the studies are carried out by independent research institutes or not. Any new attempt to calculate the costs would be again subject to discussions.

4. Does EEVC have a "monopoly" of test methods?

It is frequently argued that EEVC tests have a monopoly, like market-position, not allowing for the implementation of other test methods. However, the use of the term "monopoly" is here totally inappropriate.

Independent safety experts would like to see the implementation of the best available crash protection test methods. Because 22 years of research and development and around 10 million euro of public investment have been put into the development of the EEVC test methods, they do represent indeed the "state-of-the-art" in the field of pedestrian crash protection.

EEVC comprise test methods, tools and requirements. There are many possible ways to meet the EEVC requirements such as the use of energy absorbing materials, the creation of crush depth under the bonnet and the bumper or engineering solutions like the deployment of pop-up bonnets or external airbags.

5. Do equivalent measures to EEVC exist?

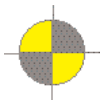
No, there are currently no test methods delivering an equivalent level of protection to EEVC. The opportunity to introduce other equivalent measures is another loophole of the legislative proposal as these would themselves be subject to a similar debate as the EEVC tests themselves.

There are no agreed ways of defining how equivalence could be assessed. The concept of "other equivalent measures" is too broad and could comprise any measure, not necessarily a pedestrian crash protection measure.

6. Could active safety measures be equivalent to EEVC test methods?

No, passive (injury prevention) and active safety measures (collision prevention) are not equivalent. Rather, they are complementary. It would be unreasonable and contradictory to common sense to regard these measures as alternatives.

Although many active safety devices could be evaluated and their performance assessed, it has been problematic to quantify life saving benefits in real world traffic accidents so far.



E-SAFETY FORUM: A CONFIRMATION THAT NEW TECHNOLOGIES ARE NEITHER MATURE, NOR YET COST-EFFICIENT

DG Enterprise and industry representatives, with other stakeholders, were brought together on 22 April in Brussels to discuss the obstacles to the implementation of new technologies for road safety.

Non-industry experts believe that the single most effective way of reducing crash injury risk in the short to medium term by vehicle design is by improving crash protection. This was confirmed by the final report of the e-Safety working group on road safety which pointed out that "the penetration of new technologies to all vehicles will also take a long time, and even in the best of cases will be incomplete by 2010". The report gave among others the example of the new technologies for pedestrian protection, like Protector or Save-U, which were not yet mature.

Improvements in the passive safety of vehicles implemented at EU level have shown large benefits, at least for car occupants, over the last decade and there are many further improvements that are highlighted in the ETSC report Priorities for EU Motor Vehicle Safety Design (ETSC, 2001).

Mr. Louis Schweitzer, ACEA President and Chairman, pointed out the main obstacles for implementation of new technologies for road safety. He underlined that these new technologies were too costly and consumers were not prepared to pay for them. In relation to that, he stressed the need to develop low-cost devices which do not yet exist. He also pointed out that the effectiveness in real life conditions of many new technologies was still to be tested. To illustrate, he gave the example of the effectiveness of ABS systems, which in fact delivered much less than expected.

ETSC would like to stress the importance that public investments go to cost-effective measures. The development of new technologies should be led by casualty reduction potential rather than commercial issues.

New effective technologies would help to deliver a possible 2020 target but in the meantime we have well-researched existing vehicle technologies which are ready to go now, have good casualty reduction potential and could help to deliver the existing 2010 target of halving road deaths.

Euro-NCAP: a "MOTIVATOR" FOR PASSIVE SAFETY

Addressing a Passive Safety Network Conference in Brussels in October 2002, the DG Energy and Transport official John Berry described EuroNCAP as being "an important, if not the most important motivator for the provision of best available" passive safety technology. He stressed that "EuroNCAP is a success and has been the catalyst for dramatic improvements in the crashworthiness performance of modern cars".

For the future, he said that the plan was to include within EuroNCAP's testing protocols:

- Primary safety
- Active secondary safety
- Internal head protection testing
- Whiplash assessment
- Compatibility in the longer term

The latest EuroNCAP launches in November 2002 and April 2003 have shown improvements in occupant protection. Five cars gained 5 stars in occupant protection and, for the first time, met the new EuroNCAP's specification for audible seat belt reminders.

ETSC welcomed the increasing use of audible seat belt reminder. They could make a very cost-effective contribution in the short term to encouraging safer behaviour. ETSC experts believe that harmonisation at EU level of effective seat belt reminder systems in cars could save at least 3,000 lives annually.

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