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SARAC II

Quality criteria for the safety assessment of cars based on real-world crashes - phase 2

Project details	
Domain	Vehicle Technology: Passive Safety
Duration	from 1/01/2003 until 1/04/2006
Website	http://www.sarac2.de/
Other sources	 Introduction (336 kB)  Project Summary report (1,20 MB)  Sub-Task 1.1 Use of Vehicle Identification Number for Safety research (507 kB)  Sub-Task 1.2-1 Updated and Extended Description of Existing Car Safety Rating Methods Based on Real-World Crash Data (493 kB)  Sub-Task 1.2-2 Design and Analysis of Matched Studies in Empirical Car Safety Research (625 kB)  Sub-Task 1.3/4.3 Scaling Measures and Improvement of Data Collection (759 kB)  Sub-Task 2.1/2.2 Study of the relationship between injury outcomes in police reported crash data and crash barrier test results in Europe and Australia (1,16 MB)  Sub-Task 2.1 Study of the relationship between injury outcomes in Police reported crash data and crash barrier test results: an extended analysis of German data (400 kB)  Sub-Task 2.3 Use of in-Depth Data in Comparing EuroNCAP and Real-World Crash Results (394 kB)  Sub-Task 2.4 Alternative weighting of NCAP series to improve the relationship to real-world crashes (271 kB)  Sub-Task 3.1 Exposure Data and Primary Safety (0,99 MB)  Sub-Task 3.2 A framework for assessing the relative performance of various vehicle crashworthiness estimators through data simulation (816 kB)  Sub-Task 3.3 Car Occupant and Fleet Effects (531 kB)  Sub-Task 3.4 Analysis of Pedestrian Crash Data from Great Britain, Germany and France (309 kB)  Sub-Task 4.1 How important is 'vehicle safety' in the new vehicle purchase process? (738 kB)  Sub-Task 4.2 Conflict Ratings and Enhanced Consumer Information (1,13 MB)

The SARAC II Project aimed to develop advanced methods of Safety Ratings and to apply these methods to extended accident databases. In addition, the relationship between EuroNCAP results and Real World Crashes has been investigated and ways in which consumers valued and used safety ratings when purchasing new vehicles were also explored. A worldwide review of all existing Car Safety Rating methods was initially conducted, with a detailed description of each method.

Theoretical and empirical investigations to improve and assess the relative performance of the various vehicle crashworthiness estimators have been made. These investigations on a large-scale empirical material and on simulated data material, have led to improved decision criteria regarding which Safety Rating methods are best suited to analyse crashworthiness and aggressivity, respectively.

The application of safety ratings in the SARAC II Project has been substantially improved and extended by use of large-scale national statistics from Great Britain 1993 – 2001, France 1993 – 2001 and, for the first time in international research, German statistics 1998 – 2002. Comprehensive calculations show the crashworthiness rating and the injury severity risk of new car models tested by EuroNCAP. The analysis has been extended to Australia/New Zealand results and also Japanese experiences have been integrated in the SARAC II Research Reports.

New comprehensive studies of the consumer behaviour were also conducted in Sweden and Spain. They showed that car safety is a high priority even given the national differences in the different countries, but the impact of safety on purchasing behaviour still needs to be improved. This is true both for private consumers as well as for car fleet managers.

Feasibility studies were also conducted in SARAC II in the areas of primary safety and pedestrian accidents with cars. A review of features of primary safety has been made and real world results of effectiveness of these systems have been reviewed. ESP has been proven in international studies to be able to reduce the frequency of accidents with loss of control by 40%. Brake assistance systems (BAS) were also shown to be highly effective in accident studies. Theoretical considerations regarding how to improve the assessment of primary safety devices in real world crashes are part of this Research Report.

For the first time in international research, large-scale comparisons of EuroNCAP pedestrian safety ratings and real world experiences in car to pedestrian accidents have been made. This comparison of safety tests and real world injury experience showed no evidence of their correlation. Reasons for this may be in the basic problem of the need to specify single test conditions, selecting only one major crash situation from the unlimited real world crash situations, limitations with the databases used in these analyses, or the limited number of NCAP tested cars with upgraded pedestrian protection in the time frame of this report.

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