Effect Evaluation on the Implemented Full-Width Frontal Impact Standard for Reduction of Fatalities as well as the Number of the Seriously-Injured in Japan

(2009 statistics by the Ministry of Land, Infrastructure, Transport and Tourism)

Effect of the Standardization (2009):
1,271 deaths prevented and 5905 cases reduced from serious to minor injury

Calculation Method:
The numbers of deaths as well as the seriously injured and those of the respective accidents are calculated for the cases where the full-width frontal impact standard is assumed not to have been implemented, and the worked-out result as difference between the calculated numbers for all those cases and ones from actual records is taken as the effect.

- The fatality rate is calculated for non-compliant vehicles involved in the target accidents.
  Fatality rate: fatalities / (fatalities + number of the seriously, slightly injured and not-injured)
  Serious injury rate: number of the seriously injured / (fatalities + number of the seriously, slightly injured and not-injured)
  Target accidents: vehicle-to-vehicle accidents with four-wheeled vehicles or single vehicle accidents, where the crash takes place at the frontal or oblique frontal area.
The number of deaths and the seriously injured is calculated for the case where all vehicles subject to the evaluation are assumed non-compliant.

Assumed number of deaths: fatality rate for non-compliant vehicles \( \times \) total number of occupants for all vehicles in the evaluation.

Assumed number of the seriously injured: serious injury rate for non-compliant vehicles \( \times \) total number of occupants for all vehicles in the evaluation.

The effect (the number of deaths prevented and cases with reduced serious injury) is calculated.

Number of deaths prevented: assumed number of deaths – actual number of deaths

Number of cases with reduced serious injury: assumed number of the seriously injured – actual number of the seriously injured