

A Consideration on the Offset Frontal Impact Modeling Using Spring-Mass Model

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Abstract : To construct the lumped spring-mass model considering the occupants for the offset frontal crash, the SISAME software and the NHTSA test data were used. The data on 56 kph 40% offset frontal vehicle to deformable barrier crash test of a MY2007 Mazda 6 4-door sedan were obtained from NHTSA test database. The overall behaviors of B-pillar and engine of simulation models agreed very well with the test data. The trends of accelerations at the driver and passenger head were similar but big differences in peak values. The differences of peak values caused the large errors of the HIC36 and 3 ms chest g's. To predict well the behaviors of dummies, the spring-mass model for the offset frontal crash needs to be improved.

Keywords : chest g's, HIC36, lumped spring-mass model, offset frontal impact, SISAME

Conference Title : ICVS 2015 : International Conference on Vehicle Safety

Conference Location : Amsterdam, Netherlands

Conference Dates : August 06-07, 2015