

Rollover Testing of Sport Utility Vehicles (SUVs) on an Actual Highway

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ABSTRACT

A follow-up study on rollover testing was conducted along a section of a remote rural highway using six full-size sport utility vehicles (SUVs) of differing makes and models. The vehicles were instrumented and towed to highway speeds before being released, at which point an automated steering controller steered the vehicles through a series of maneuvers intended to result in rollover. A total of eight tests were conducted and documented, six rollovers and two non-rollover events. The six rollover events provide trip and tumbling conditions for each vehicle. The two non-rollover attempts produced cornering tire marks and allowed for the documentation of near roll conditions for the two out-of-control vehicles. All eight tests presented are instrumented real-world type tests that were later correlated based upon the data obtained. The data collected for each test includes high and low-speed on-board instrumentation, high speed video from two perspectives, survey measurements, and still photographs. The test data presented is categorized with the various phases of vehicle rollovers: loss-of-control, tripping, and rolling phases. The Appendix contains a more complete presentation of the test-by-test data obtained from this series of tests.