

New Framework in Evaluating ASEAN NCAP Frontal and Side Impact Test Critical Location using Post-accident Secondary Data Analysis

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ABSTRACT – Frontal impact and side impact tests are two of the most common vehicle safety crash scenarios in ASEAN NCAP protocols. Current NCAP protocols, however, primarily rely on controlled crash tests. This paper proposes a framework to evaluate critical locations for both crash test scenarios, namely frontal offset and side impact R-point, based on post-accident ASEAN-specific secondary data. The aim of this novel approach is to systematically integrate post-accident secondary data to validate and refine these test parameters. The framework consists of step-by-step procedures to gain realistic critical locations, using accident claim data as the primary dataset and statistical tools. This framework is expected to contribute by establishing mechanisms for continual improvement of safety standards based on data-driven post-accident analysis, ensuring that existing ASEAN NCAP frontal and side impact test procedures are regularly updated and remain effective in vehicle safety, particularly within the dynamic context of the ASEAN region.