



Full frontal crash



SAE J2422 cab integrity

How the Service Works

Project Definition

The customer is introduced to a CAPE project manager who guides the entire testing process. The test plan is developed jointly, with schedules set according to the customer's project request, component availability and the travel schedules of people involved.

For barrier tests, the customer is responsible for providing a full vehicle. For sled, roll and mechanical testing, the customer is responsible for providing vehicle components or systems.

Testing

CAPE offers observation rooms for customers to watch the testing, as well as office space and internet connections for customers to communicate with their home offices. Test events are recorded by still cameras and high-speed digital imagers placed in selected locations to provide multiple views of crash events.

Results

Preliminary video footage and test data are provided within an hour of test completion. Final test results, including photography, data files, data summary and a full report, are delivered via electronic files or FTP within days of the test. File conversion and video editing services are available. Tests performed at CAPE are handled with the utmost confidentiality, and test result data becomes the exclusive property of the customer. Disposal or return of the vehicle and/or components is handled per customer request.



A Modern Crash-Test Facility

in central Indiana





Offset Barrier Crash

What is CAPE?

IMMI is the home of a modern crash-test facility, the Center for Advanced Product Evaluation (CAPE), which brings together advanced technology and specialized engineering expertise to provide customers with analytical information to support their most complex decisions.

Facilities and equipment are sized to handle an extremely broad range of test specimens from a single child restraint system to a full-size tractor/trailer vehicle.

High-speed digital imagers, sophisticated test dummies and specialized data acquisition systems are used to quantify product performance with accurate, timely results and powerful images. CAPE personnel use motion analysis and computer simulation models to provide valuable information for customers to meet their test objectives.



Rollover Impact



Frontal Barrier Crash



Dynamic Deceleration Sled



Rolling Lab



Quasi-Static Load



Mechanical



Applied Mechanics

Testing Services

Barrier Crash

Barrier crash tests can be set up to test full frontal, oblique, offset, side impact and vehicle-to-vehicle impacts. A barrier block enables the largest vehicles, weighing up to 80,000 pounds, to undergo the highest energy tests.

Dynamic Deceleration Sleds

Three dynamic deceleration sleds are available to simulate the forces of a crash in repeatable testing. Sled testing is typically more efficient and less resource-intensive than barrier testing.

Rollover Impact

The unique, 90-degree dynamic rollover impact machine accommodates large vehicle cabs and can be adjusted to various roll conditions. Onboard digital imagers capture occupant restraint performance.

Rolling Lab

CAPE engineers can travel to customer sites with portable systems enabling them to reconstruct accidents, study restraint performance and assist in the development of safety equipment.

Quasi-Static Load

Quasi-static load testing enables engineers to analyze the integrity of vehicle anchorages, seating systems and restraint systems, as well as document compliance standards.

Mechanical

Strength, durability and environmental resistance can be analyzed with the help of pendulum testing, vibration analysis and tensile strength testing. Specialized instrumentation, high-speed video and CAPE expertise facilitate the evaluation of inflatable restraint systems and pyrotechnic products. CAPE conducts restraint system tests to FMVSS and ECE standards.

Applied Mechanics Support

Vehicle crash analysis and component stress analysis can be performed using modeling as well as dynamic testing. Engineers can work with customers to define material properties and test design performances on-site, with an immediate feedback loop that enables swift product development.