



ADAS, AV and Vehicle Dynamics Testing Services

Comprehensive testing and
consulting services focused on
the development of safe mobility.





40+

Years delivering research, testing services and solutions to the global automotive industry.

100+

New vehicle models tested using our ADAS targets.

200+

Human factors research projects successfully completed.

Your trusted testing service provider

For more than 40 years DRI (Dynamic Research Inc.) has been at the forefront of the automotive industry, driving the development of safer and better performing vehicles.

As the industry moves towards autonomy, we are committed to helping you shape the future of mobility. Through our expertise in vehicle dynamics, ADAS and suspension system testing, and human factors research we empower you to

create vehicles that are smarter, safer, and more sustainable.

As part of the AB Dynamics Group of companies, we offer a wide range of vehicle autonomy, simulation, and testing solutions. As a group, we enable customers to develop and test vehicles in laboratory and virtual environments and validate on the track before finally evaluating vehicles in the real world on public roads.

At the forefront of ADAS and AV Testing

DRI is a pioneer in active safety system testing, having led the development of innovative solutions to verify and validate their performance.

Our expertise in testing emerging ADAS technologies led us to create the GST system, revolutionizing the testing and development of ADAS systems by greatly advancing the ability to challenge them with realistic vehicle-to-vehicle test scenarios. We have since used the same philosophy to advance vulnerable road user safety with the Soft Motorcycle 360™, Soft Pedestrian 360™, and the Soft Bicycle 360™ surrogate targets. By working with us, your testing program can benefit from the knowledge and experience that has enabled us to become leaders in ADAS and AV testing.

GST™ and Soft Car 360®

As ADAS systems developed beyond car-to-car rear collision avoidance and mitigation systems, the industry required a three-dimensional vehicle target that could be impacted from multiple approach angles and move realistically in scenarios such as car-to-car front turn across path.

We drew upon our extensive track testing experience to develop an enduring solution in consultation with major industry partners including sensor manufacturers, OEMs, Euro NCAP, NHTSA, and IIHS. The result was the GST system, which consists of two main parts – an impactable dummy vehicle target called the Soft Car 360®, and the GST platform – an overrunable, self-propelled platform that carries the Soft Car 360 at up to 120 km/h.



Comprehensive range of ADAS testing services

We offer a comprehensive range of ADAS testing services to help you bring your models to market faster. Our team is equipped with the latest technology and testing methodologies to thoroughly assess and validate the performance of ADAS and autonomous systems. From automated emergency braking to SAE Level 3 eyes-off systems, we develop and implement testing programs that ensure your systems work as intended in the real world, providing your customers with safety and peace of mind.



ADAS test types

We have extensive experience conducting a wide range of standard IIHS, NHTSA/US NCAP and Euro NCAP tests. We are also the current contractor for US NCAP ADAS testing. Additionally, we conduct non-standard tests for adaptive cruise control, rear cross traffic alert, on-coming vehicle scenarios and other specialized tests. We also perform complex development test scenarios, including multiple vehicle swarm tests used to develop Level 3+ technologies like highway assist automated driving systems.

US NCAP (incl. draft tests)

- | | |
|---------------------------------------|--|
| • Forward Collision Warning (FCW)* | • Blind Spot Intervention (BSI)* |
| • Collision Imminent Braking (CIB)* | • Rear Auto Braking (RAB) |
| • Dynamic Brake Support (DBS)* | • Motorcycle FCW (MC-FCW) |
| • Lane Departure Warning (LDW)* | • CIB w/ GST as target vehicle (CIB-GST) |
| • Pedestrian AEB (PAEB)* | • Intersection Safety Assist (ISA) |
| • Lane Keeping Support Systems (LKS)* | • Traffic Jam Assist (TJA) |
| • Blind Spot Detection (BSD)* | |

FMVSS

- FMVSS 127 Light vehicle AEB

Euro NCAP

- | | |
|--------------------------------|------------------------------|
| • Car-to-Car AEB and FCW (C2C) | • Lane Support Systems (LSS) |
| • Vulnerable Road Users (VRU) | |

IIHS

- | | |
|---|------------------|
| • Pedestrian AEB, including manufacturer verification testing | • Car-to-Car AEB |
|---|------------------|

Custom Tests

- | | |
|-----------------------------------|---|
| • Adaptive Cruise Control (ACC) | • Client specified development and verification tests |
| • Rear Cross Traffic Alert (RCTA) | |

* DRI is the NHTSA NCAP contractor

Bundled test packages

We offer bundled test packages that include verification testing for all current Euro NCAP, NHTSA and IIHS ADAS scenarios. Bundling helps minimize test vehicle logistics time and cost, as well as reducing test setup time.

Supporting your vehicle dynamics testing programs

Our highly experienced engineers and technicians can develop and execute a testing program to assess a vehicle's ride quality, handling, lateral performance, and braking. We perform a wide range of standard automotive validation tests, certification procedures, and benchmark performance evaluations. Additionally, our team can customize tests to meet unique project needs and specifications.

DRI's vehicle dynamics expertise enables the assessment of vehicle behavior in diverse scenarios, enabling you to optimize performance, handling, and safety. In addition, we develop, optimize, and validate simulation models virtually and on the track to support handling performance, suspension design and rollover avoidance/stability control. These capabilities are now complemented with an on-site kinematics & compliance testing facility using the SPMM from AB Dynamics.

Through each phase of the testing lifecycle, from initial planning and setup, to data collection and analysis, our team is available to offer advice and assistance.



Vehicle dynamics test types

Our team has extensive experience conducting various types of safety-related vehicle dynamics tests including the US NCAP fishhook manoeuvre and the FMVSS 126 electronic stability control test. We also specialize in carrying out trailer towing evaluations, including sway damping assessments and combination vehicle understeer tests according to SAE J2807, SAE J2664, and SAE J266. Beyond our expertise in rollover stability and trailer dynamics testing, we have the capability to perform customized vehicle dynamics assessments as well. Some examples of the tests we undertake to evaluate vehicle responses in various dynamic situations include:

- Braking in a turn
- Throttle application in a turn
- J-turns
- Slalom maneuvers
- ISO double lane change protocol

Whether you need a specific test conducted or are looking for assistance resolving a dynamic performance issue, we will do our best to develop a tailored testing solution to meet your unique needs.

A close-up, artistic photograph of a car's headlight, heavily tinted with a vibrant blue color. The light is on, creating a bright, glowing effect within the lens. The surrounding car body is also visible in the same blue hue, with reflections and highlights that suggest a polished, metallic surface. The overall composition is clean and modern, emphasizing the technology of the lighting system.

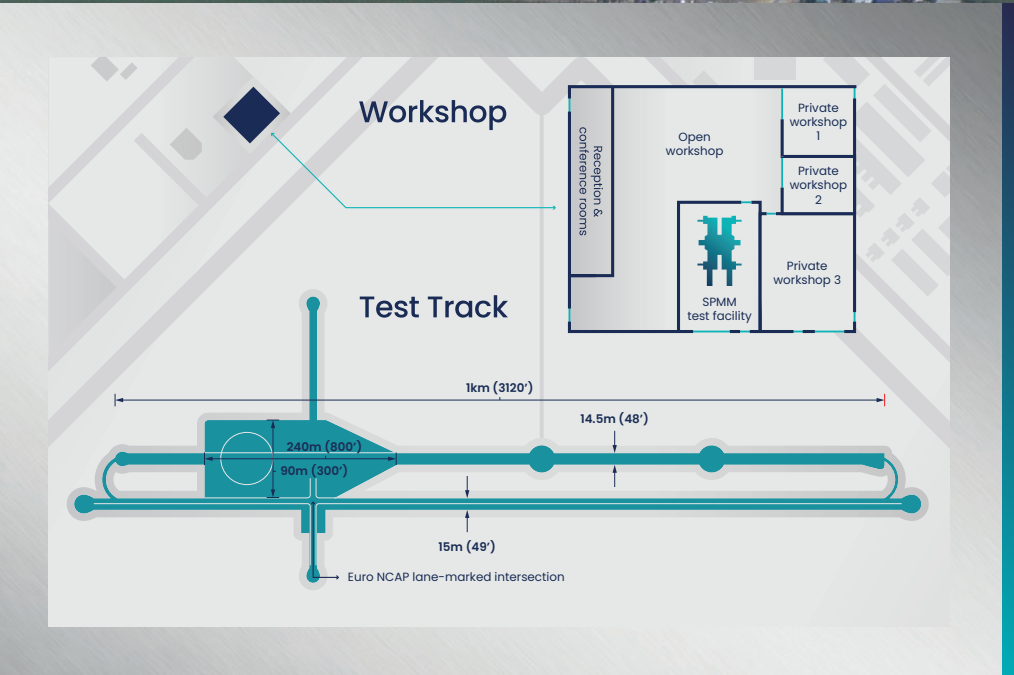
Adaptive driving beam **headlight** testing

Adaptive Driving Beam (ADB) technology is becoming increasingly popular now that NHTSA's FMVSS 108 headlight regulation has been modified to allow their use in the US.

We have bespoke equipment for testing ADB systems according to SAE J3069 and the latest modifications to FMVSS 108. This includes sensors, fixtures, and software that evaluate the optical performance and recognition capabilities of ADB systems. In addition, our California proving ground's smooth paved surface and minimal extraneous ambient light are ideal for effective ADB testing.

Low beam visibility and semi-automatic beam switching

In addition to ADB testing we evaluate semi-automatic beam switching systems and low beam visibility according to NHTSA draft procedures.



Our California proving ground

Real-world testing on a safe closed-course test track

Our proving ground is located close to Silicon Valley, near Bakersfield, California. A privately owned, year-round facility, it includes a vehicle dynamics area, two marked four-lane roads 1km in length and an NCAP intersection.

Track area

Our test track features a dual four-lane 1km track designed and constructed to meet rigorous specifications. Each lane conforms to requirements of less than 0.5% slope and greater than 0.9 coefficient of friction. These marked lanes and designated intersection provide an ideal controlled environment for evaluating active safety systems.

ADAS and AV technologies can be accurately tested, including lane departure warning

assessments adhering to US NCAP protocols and lane support evaluations aligned with Euro NCAP standards. The test track also features a Vehicle Dynamics Area (VDA) with a 400m by 9m wide entry lane, which allows vehicles to safely accelerate up to test speeds before merging onto the main 240m by 90m maneuvering surface.

The configuration of our VDA enables a wide variety of tests, including handling, braking, NCAP fishhook rollover and FMVSS 126 electronic stability control testing. The area is also well-suited for trailer towing evaluations, pass-by noise measurements and studies of driver behavior.

Facilities and test equipment

Close to the test area are fully equipped workshop areas with vehicle lifts, tire changing stations,

and wheel alignment equipment. They provide private and secure areas for vehicle preparation, modification and storage. Office space and conferencing facilities are also available.

We utilize best-in-class test equipment to facilitate accurate, precise, and repeatable testing, including:

- AB Dynamics driving robots
- DRI Soft Car 360, Soft Motorcycle 360, Soft Pedestrian 360 and Soft Bicycle 360
- AB Dynamics GST and LaunchPad™ ADAS platforms
- ScanR test object LiDAR and radar scanner
- GPS/IMU motion packs
- NHTSA Strikeable Surrogate Vehicle

Service packages

We offer three tiers of test support packages to give you the flexibility to achieve your testing objectives in a way that suits you - from track rental to a full testing service. And if you want even more flexibility, talk to us and we'll develop a custom solution for you.

Essential

Our Essential package gives you access to our facilities and test equipment. Bring your product and software, set up and execute tests independently, and have full propriety control and protection. This low-cost, high-autonomy option is perfect if you prefer hands-on testing.

Comprehensive

Our Comprehensive package is a step up from Essential, offering designated support personnel for test setup, execution, and post-processing. We'll run your tests and provide you with the data. This is ideal for leveraging our expertise to expand your capabilities and enhance your development process.

Premium

Our Premium package provides an expert team dedicated to your project. Supply your test vehicle, let us know your objectives and we'll design and execute a test program and report your results. The Premium package allows you to tap into our knowledge of test design as well as our NHTSA, IIHS Euro NCAP test expertise, ensuring you the best success rate.

Find us here:

DRI's California proving ground and kinematics and compliance test facility is located at Minter Field, 15 miles north of Bakersfield, California.

5001 Stearman Ave, Shafter, CA 93263, USA





www.dynres.com
info@dynres.com

© 2024 Dynamic Research, Inc. All rights reserved. AB Dynamics®, DRI™, GST, LaunchPad™, Soft Bicycle 360™, Soft Car 360®, Soft Motorcycle 360™ and Soft Pedestrian 360™ are trademarks and the property of AB Dynamics plc or its subsidiaries in the United Kingdom and elsewhere. Systems, components, methodologies and software supplied may be the subject of patent and design rights. Whilst this information is provided in good faith, no warranty or representation is given concerning such information, which must not be taken as establishing any contractual or other commitment binding upon AB Dynamics plc or any of its subsidiaries.

SB-TT-07/24-USA

