


## Easy dynamics analysis

RIGHT: TYPICAL OBJECTIVE TEST EQUIPMENT SETUP: STEERING ROBOTS AND POSITION-MEASUREMENT INSTRUMENTATION ARE FITTED AS STANDARD

BELOW RIGHT: VEHICLE FULLY INSTRUMENTED FOR OBJECTIVE TESTING. MOUNTED IS IDIADA'S WHEEL-MEASUREMENT SENSOR DYNAWHEEL, TOGETHER WITH COMPREHENSIVE TEST EQUIPMENT



 IDIADA recently launched the latest evolution of its vehicle dynamics analysis software, DynAsoft, bringing together the latest developments in objective test and data analysis.

IDIADA's vehicle dynamics objective test team keeps ahead of

increasingly complex test protocols by continually improving test procedures and execution. The latest requirements from testing ADAS systems, for example, require precision control of target and chase vehicles. This can be achieved only through using a combination of the latest test equipment solutions such as steering, brake, and accelerator robots together with sophisticated positioning measurement systems and instrumentation.

The real difference, though, is made in the analysis of the test data results. In some cases, further analysis is required in addition to the complex post-processing, and to make this as efficient as possible, IDIADA has developed its own software dedicated to the task.

DynAsoft has an easy-to-use interface, logically designed to match the typical workflow, from project definition to result generation. Engineers using DynAsoft simply



define the vehicle characteristics and pre-select the instrumentation used during testing. All required compensations are automatically taken into account and results relocated to the predetermined vehicle reference point. For the first time, it is now possible to import test data from several runs of the same maneuver and the software will automatically flag up those runs that fail to meet the control conditions specified by the test procedure such as triggers and rates. In fact, a quick overview of the validity of test execution can be conducted while still on-track,

BELOW: VEHICLE CHARACTERISTICS, INSTRUMENTATION, AND REFERENCE POINTS ARE DEFINED IN THE DYNASOFT SETUP SCREEN



# product profile

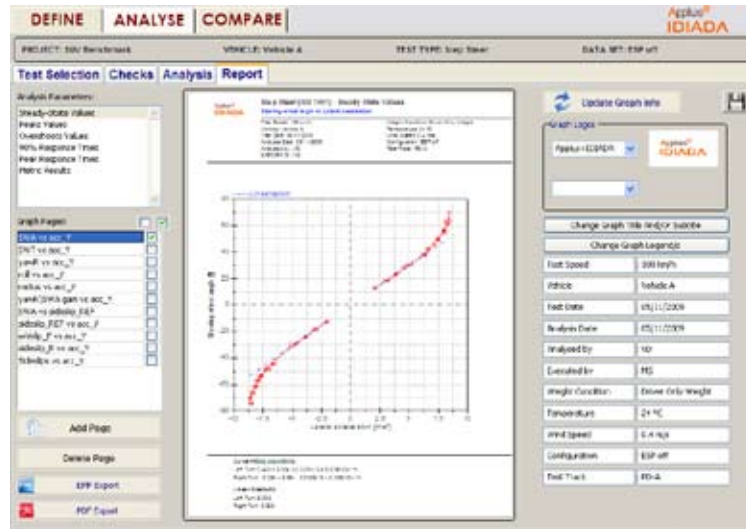
confirming further still that only quality data is analyzed and anomaly data sets do not enter into the analysis process.

DynAsoft has automatic scripts for analyzing over 20 vehicle dynamics maneuvers. This ensures that tests are always interpreted in the same way and test parameters are calculated correctly. As DynAsoft is still based on the Diadem platform as the original IDIADA software (DIAdem@Handling), it makes full use of post-processing features such as calculations of gradients and metrics, all of which are presented in very intuitive graphical display.

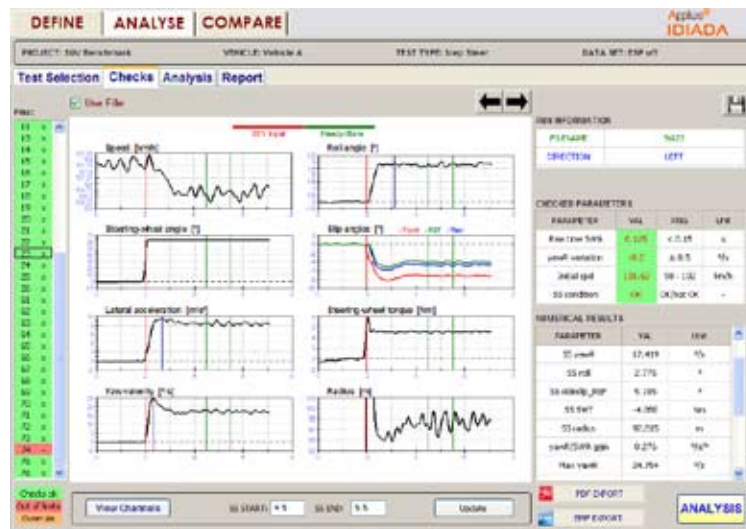
Finally, DynAsoft enables engineers to batch-process results, which could be used for comparison with other benchmark vehicles, for example, and automatically generate reports based on user definitions.

DynAsoft is used throughout IDIADA's chassis development process, starting at the benchmarking phase. A large amount of testing is still undertaken by manufacturers to understand the competition and set targets for their next product. IDIADA leads this activity by selecting benchmark vehicles and fingerprinting them down to the last detail. Proving-ground tests are complemented by characterization of the suspension and steering systems using IDIADA's MTS K&C rig through to component characterizations. This enables a true fingerprinting exercise to be undertaken and target cascading from vehicle through to component level.

DynAsoft also enables IDIADA to create the important link between objective testing and subjective evaluation. Recent activities have successfully developed metrics for ride, handling, and steering that link objective results to proving ground trials. This has been the result of even greater control over test protocol, ensuring repeatability during even difficult test maneuvers. DynAsoft automatically extracts the metrics from these tests and generates a 'vehicle image', providing the ability to appreciate a vehicle's behavior from the driver's perspective.



SCREEN SHOT FROM DYNASOFT. DYNASOFT PROVIDES USER-DEFINED REPORT GENERATION; ANALYSIS RESULTS ARE AUTOMATICALLY CONVERTED TO EMF FILES OR PDF FILES FOR DIRECT INTEGRATION INTO THE ENGINEER'S TEST REPORT



DYNASOFT AUTOMATICALLY CHECKS THAT TEST RUNS COMPLY WITH PROCEDURE LIMITS. ENGINEERS CAN THEN OVERRULE THESE CHECKS, IF DATA IS TO BE KEPT OR DISCARDED

DynAsoft is available to all members of IDIADA's chassis development team, and is the only tool used for analysis of simulation results. IDIADA believes simulation results should be as scrupulously subjected to quality checks as test track data, and for this reason the simulation data is analyzed in the same environment. The added advantage is that the results can then be interpreted exactly the same way. This enables the development team to assess vehicle stability and handling performance at the design stage, identifying early on where improvements can be made. The use of the driver metrics enables

this to be taken one stage further, by allowing a glimpse forward to subjective feel.

Although IDIADA's proving ground outside Barcelona in Spain has always attracted chassis development teams for testing and tuning work, many now take advantage of IDIADA's engineering resources. Recognition for the scope of the projects being undertaken with global customers comes in IDIADA being a finalist for Vehicle Dynamics Supplier of the Year 2009.



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