DEWESoft®

VTS - VEHICLE TEST SUITE

VEHICLE TESTING SIMPLIFIED. AUTOMATED TESTING SUITE FOR COMPLEX MANEUVERS.

ULTIMATE ALL-IN-ONE TOOL FOR ANY CHALLENGE

EASY TO USE AND VERSATILE
Get your measurements in 30 seconds.

DEEP IN FUNCTIONALITY
With an amazing set of features, Dewesoft instruments are used in most advanced research labs around the world; all functions are available at the same time in one software.

DUAL CORE HIGH DYNAMIC
Dewesoft Sirius increases signal dynamic to 160 dB by using two ADC converter per channel with different gains. Both - time domain and frequency domain data have an amazing dynamic signal performance.

SUPERCOUNTER
Patented Supercounter technology provides perfect angle and angular speed information which is a base to align data from time to angle domain.

FULLY SYNCHRONISED
Data from various sources are perfectly aligned: Analog, Digital, Counter, Vehicle buses, Video, ...

PERFECT VEHICLE CONNECTIVITY
Connection to any vehicle by using either CAN, CAN FD, J1939, OBDII, XCP, CCP, LIN, FlexRay.

ALL-IN-ONE

Dewesoft hardware can perform a wide variety of measurement tasks. Every function is available in a single Dewesoft X3 software package.

NO HIDDEN COSTS

Software license is included in every system. Free lifetime software upgrades included.
No yearly maintenance or upgrade fees, free online training courses.

MODULAR AND EXPANDABLE

Can you imagine FFT analyzer with thousands of channels? We can... Systems can be gradually expanded from one to unlimited number of channels.

PRECISE POSITIONING

Dewesoft VGPS-HS can provide 2cm accuracy with 100Hz GPS output rate.

TOTAL SOLUTION

Combine your NVH measurements with data recording, electrical power, combustion, vehicle dynamic and other powerful Dewesoft tools.

PLUG AND PLAY

Any device, sensor or signal. Smart sensors with TEDS are recognized automatically.

KEY FEATURES

AUTOMATED RESULTS AND STATISTICS

VTS can show a summary table with statistics and can overlay results from a batch of test runs.

REAL-TIME RESULTS

VTS and Dewesoft X software show all validation and visualize results in real-time during the test itself. Additional math or visualizing can be added later in post-processing if needed.

STANDARDIZED BY ISO AND ECE

All the available test maneuvres are configured and performed according to ISO and ECE standards.

AUTOMATED WORKFLOW

VTS offers pre-defined testing maneuvers for the test operator and easy-on screen controls for the operator to configure and run the tests.

DOWN TO 2 CM POSITION ACCURACY

We offer high-accuracy GPS or IMU (Inertial Measurement Unit) hardware with optional RTK support which offers the highest possible velocity and positioning accuracy.

SEVERAL MANEUVERS

VTS offers several standard maneuvers like Steady state cornering, Step steer input, Step steer non-linear, On center sinus steer, Pseudo Random Steer, Pulse Input Method, Slowly increasing steer, Sine with dwell and more test maneuvers under the development.

HIGHLIGHTS

GENERAL

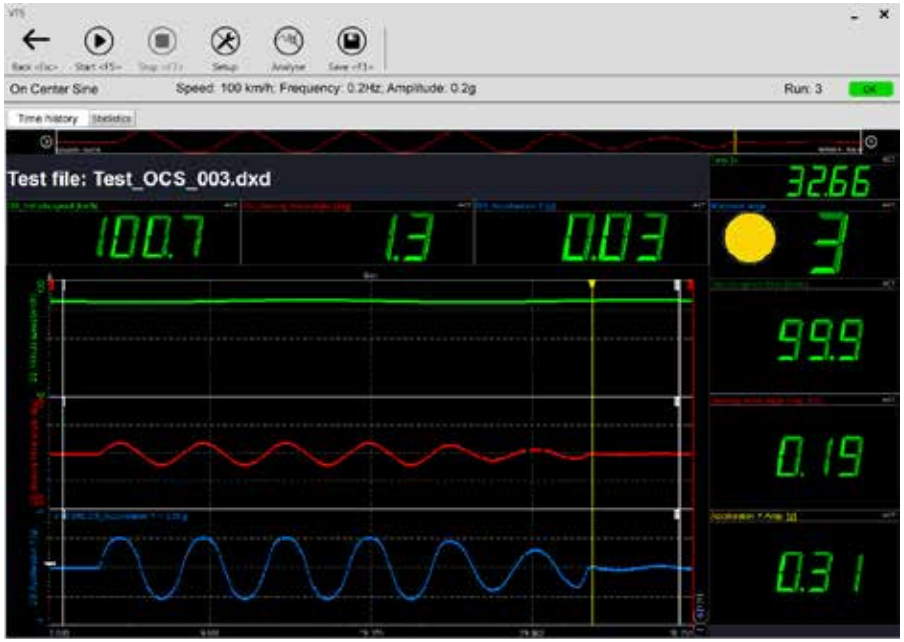
In spite of the increasing adoption of virtual analysis tools in the vehicle development process the amount of testing activity is all but decreasing, due to several reasons:

- Detailed simulation models require reliable experimental data for validation.
- The refinement of some vehicle attributes still need the "human touch", delivered by subjective and objective test and development on physical prototypes.
- The development and validation of advanced driving functions (ADAS, autonomous driving) still require extensive real-world testing.

In this context, in an extremely competitive global market, the testing process must be extremely efficient, considering:

Overall quality of the measurement
- Compliance and reproducibility of the test execution
- Data accuracy: sensors and acquisition system

Cost efficiency
- Preparation time: easy vehicle sensor setup and DAQ system configuration
- Actual test time: optimize the use of the time spent on the test track or on a test rig



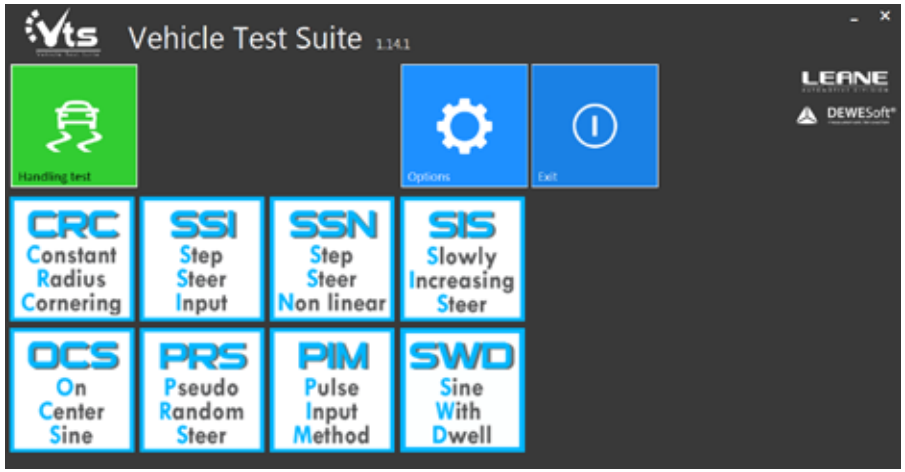
VEHICLE TEST SUITE APPLICATION

VTS is an easy to use test automation tool and test driver interface on top of Dewesoft. It is designed in order to achieve the highest productivity on the test track with DS Vehicle Dynamics plugin. Main features:

- Support for DEWESoft Vehicle Dynamics plugin.
- Management of vehicle data and sensor coordinates data.
- International standards or custom test procedures.
- Dewesoft integrated into the VTS measurement panel.
- Quick look display of the main parameters and execution check.
- Automatic test file naming and storing in a custom folder structure.
- Data overlay and statistics from multiple test runs
- Modular architecture for easy extension and further customization.

The VTS application manages the configuration parameters of each type of test:

- Info: basic information about the test.
- Measurement settings: sample rate, Dewesoft screen ID, subfolder for data storage.
- Trigger conditions.
- Execution conditions: the allowed values of the nominal execution parameters, such as vehicle speed, path radius, steer frequency, etc.
- Validation condition: the admissible threshold values used in the validation check.
- The user can edit and store the default configuration of each type of test, based e.g. on the type of vehicle (passenger car or truck).

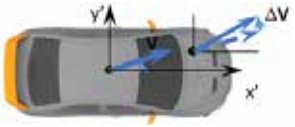


HIGHLIGHTS

DATA PROCESSING

Dewesoft Vehicle Dynamics plugin is designed to carry on the pre-processing of the raw signals in accordance with the requirements of ISO standards for vehicle dynamics objective data analysis. All the settings can be managed in the Dewesoft setup. The main features include:

- Data processing
- Catalog of standard test maneuvers
- Management of the coordinate system
- Filters
- Compensation of the sensor position effect
- Compensation of the g-force effect

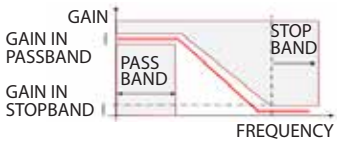


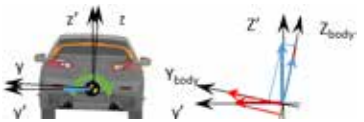
COORDINATE SYSTEM

Given the details of the input channels, the output channels are calculated in the desired coordinate system.

FILTER AND SYNCHRONIZATION

The input channels are filtered according to ISO 15037-1 / -2 or ECE 13H standards. Known sensor delays are compensated.





COMPENSATION OF THE SENSOR POSITION EFFECT

Given the sensor location, the Dewesoft X Vehicle Dynamics plugin calculates speed and acceleration at the desired reference point.

COMPENSATION OF THE GRAVITY EFFECT

The Dewesoft X Vehicle Dynamics plugin calculates the roll and pitch angle and compensates the effect of g-force, if the input acceleration is not in the horizontal plane.

STANDARD TEST MANEUVERS

Dewesoft Vehicle Test Suite provides easy-to-use automated testing for the following standard test maneuvers:

ISO 4138	Steady state cornering
ISO 7401	Step steer input
Based on ISO 7401	Step steer non linear
ISO 13674-1	On center sinus steer
ISO 7401 / ISO TR-8726	Pseudo Random Steer
ISO 17288-2	Pulse Input Method
ECE 13H	Slowly increasing steer
ECE 13H	Sine with dwell

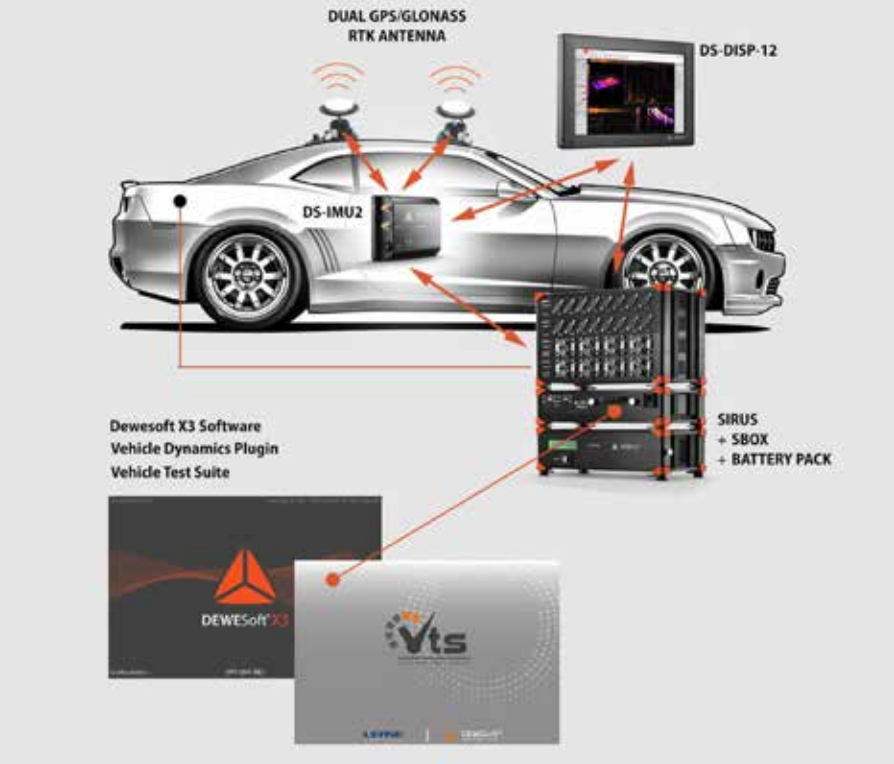
More test maneuvers in development.
For every type of test, validation criteria and other objective parameters are calculated and made available as calculated channels in the measurement files.

EASY CONTROL FOR THE TEST DRIVER

Everything that the test driver needs to control is available with a single touch on the bright and in-car mounted display. The test driver just selects the test session and the test maneuver to perform and set the parameters:

- Nominal conditions
- Start / stop storing controls
- Test setup
- Test analysis
- Save/cancel the test file
- Right after stop storing, the test results are available, the driver can save or discard the data file and continue with the next test.

RELATED PRODUCTS



SYSTEM OVERVIEW

The image shows the Vehicle Testing Suite data acquisition system which consists of:

SIRIUS DAQ

system for the acquisition of analog signals and vehicle CAN bus.

SBOX

data logger and data processing computer highly reliable SSD data logger and high-performance data processing computer.

DS-BP2

battery pack a battery pack that provides backup power next to car power supply.

DS-IMU2

inertial measurement unit for highly accurate GPS/GLONASS positioning and orientation.

DS-DISP-12

display in-car mountable high-brightness and high-resolution touch-screen LED monitor.

DEWESOFT X

software with Vehicle Dynamics plugin and Vehicle Testing Suite package.

POLYGON PLUGIN

Visual control that offers 3D visualization of moving and static objects and real-time car to car distance and time to collision calculations.

ADAS TESTING

Advanced driver assistance systems are automated systems, which increase safety and improve the driving experience. Dewesoft offers easy to use ADAS system with the latest GPS and IMU technologies with 2 cm accuracy.

ROAD LOAD DATA

Road load data system is used for durability measurements during real test drives or on testbeds, either for entire vehicle or certain component. Various smart technologies ensure to avoid re-runs and shorten the time of testing dramatically.

BRAKE TEST

Brake test system from Dewesoft is very flexible and covers all kind of brake tests, braking comfort and testing vehicles with regenerative braking. High-accuracy GPS/IMU hardware is available to achieve the highest possible velocity and distance accuracy.

PASS BY NOISE

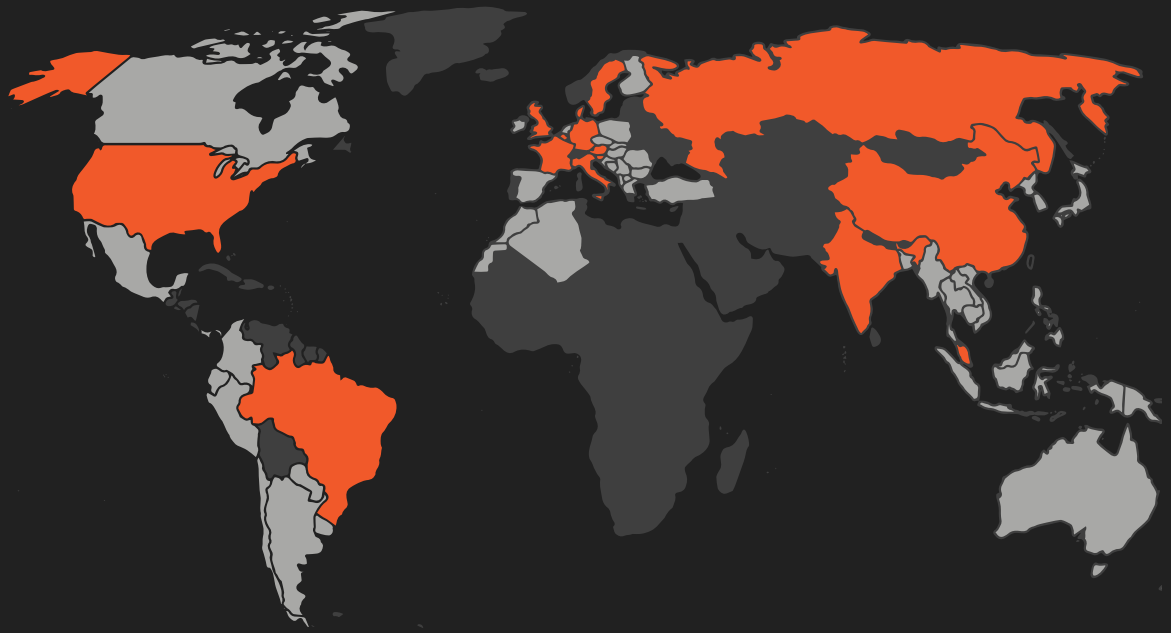
Easy to use and flexible Pass-by noise test system with hi-end DAQ hardware and powerful software capabilities for online visualization, validation, and analysis.

E-MOBILITY

Advanced and easy to use solutions for complete electric and hybrid vehicle development, validation and production. The electric motor and inverter testing, battery and battery charge testing, combustion analysis, hydrogen testing and more.

COMBUSTION ANALYSIS

High-accuracy combustion analyzer system for engine research, development and optimization and testing of ignition systems, exhaust systems, and valve control gear.



DEWESOFT® WORLDWIDE: SLOVENIA, Austria, Brazil, Belgium, China, Denmark, France, Germany, Hong Kong, Italy, India, Russia, Singapore, Sweden, UK, USA and PARTNERS IN MORE THAN 50 COUNTRIES

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