

Real Pass By.

simple. fast. efficient.

One platform, multiple options. Discover a new level of effortlessness and capability. Be ready to measure immediately!

PASS BY

SYSTEMS

STANDALONE DRIVER SYSTEM(S)

STANDALONE TRACK SYSTEM

INTEGRATED CONTROL STATION

CONDUCT EXTERIOR NOISE MEASUREMENTS SIMPLY, QUICKLY AND EFFICIENTLY

Due to the introduction of stricter regulations, exterior noise has become an even more important consideration when developing and certifying vehicles, tires and components. To maximize test efficiency and optimize measurement track operation, innovative tools and processes are necessary. With the application of the new Pass By standard, the effort required per vehicle has increased as more measurement cycles must be executed.

THE SOLUTION.

ALLOW US TO INTRODUCE SOMETHING FUNDAMENTALLY NEW WHICH WILL HELP YOU REACH YOUR TARGETS EARLIER.

EASY TO USE

through a high degree of process automation

FLEXIBLE

in the number of vehicles and variety of standards in one test cycle

INTERACTIVE

guidance through dialog windows

OPEN

system for the implementation of new standards or the adaption of existing standards

REDUCES TIME SIGNIFICANTLY

through a decentralized vehicle setup and immediate signal control by the PAK MKII frontend and iPad

IDENTIFIES RESULT TRENDS EARLY

after execution of all necessary driving statuses

OPTIMIZES DRIVER ASSISTANCE

through an intuitive driver display

TRACK SYSTEM



DRIVER SYSTEM(S)



CONTROL STATION

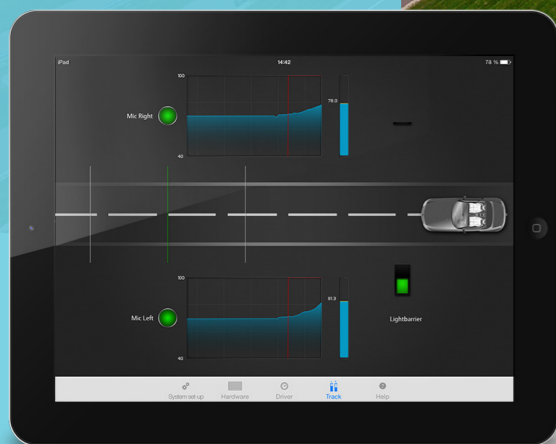


WEATHER STATION



REAL PASS BY

SIMPLE. FAST. EFFICIENT.



Rely on a robust system setup.

The PAK Pass By application is a lean system that can be applied to both permanent setups or temporary mobile use cases. All measurement and analysis demands for development, homologation and quality assurance are met online in real-time. The systems' minimal setup time ensures efficient measurement operation.

The solution is extremely flexible as it is based on systems that can be set up to measure independently. The default configuration consists of the mobile driver system and stationary track system including microphones and light barriers. These standalone systems are dynamically connected by the integrated Control Station in the control room.

The driver and track system can be initialized independently using an iPad before automatically connecting to the Control Station. All relevant data is continuously transmitted by the frontend's integrated WLAN.

Measures continuously.

The PAK Pass By system is able to address further measurements, besides exterior noise measurements, if required. Due to the GPS information provided by the frontend in the vehicle, the relevant vehicle always triggers the measurement. Vehicles are automatically allocated to the respective measurement task. Those not registered at the Control Station will not trigger the measurement. In this way no other vehicles on the test track can disturb the exterior noise measurement.

Saves time through multiple sessions.

The testing of a vehicle according to a certain standard is executed in a test sequence. This is known as a session.

The Control Station is used to manage the measurement rows of each session. In the user interface the dedicated information for the respective measurement sessions can be clearly seen and processed. Several test sessions for different standards can be accommodated with several test candidates simultaneously. Multiple vehicles on the test track at the same time are supported. Data synchronicity and automated vehicle assignment are assured through GPS.

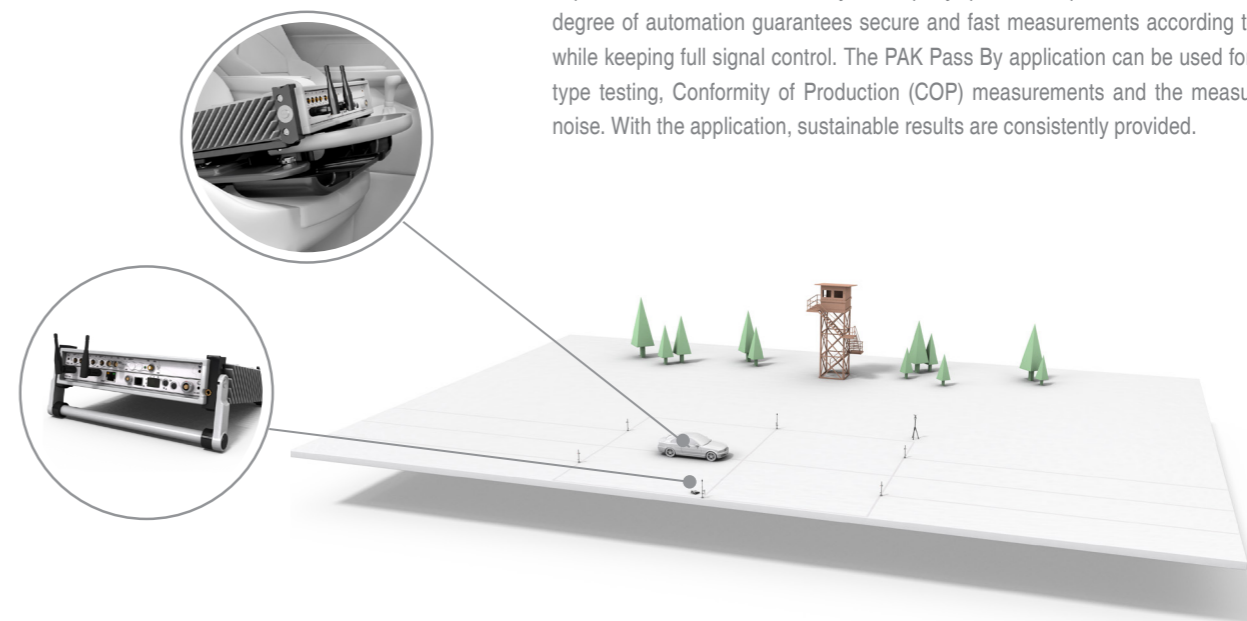
The integrated approach of smart devices, live communication and standalone data acquisition ensures the highest user convenience and maximizes test track operation when executing standards such as UN ECE 51.02, UN ECE R 51.03 and ASEP (Additional Sound Emission Provisions).

Maximizes driver assistance.

With the new PAK Pass By application, all relevant data is instantly accessible through its 'always on' concept. By displaying the information on a smart device, users are empowered to make the right decision - regardless of whether the user is in the vehicle, on the test track or in the control room. Each driver receives via the driver display on the iPad the values required for evaluating the quality of the measurement sequence.

Easily adapts to multiple measurement standards.

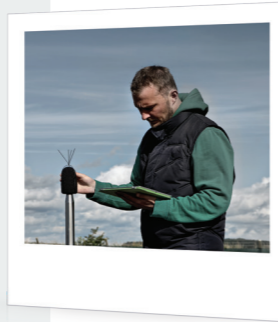
The new PAK Pass By application addresses extensions of the standard as well as new or changing customer requirements. Its intelligent architecture contributes to its effortless implementation of various country or company specific interpretations of the standard. The high degree of automation guarantees secure and fast measurements according to the standard while keeping full signal control. The PAK Pass By application can be used for development, type testing, Conformity of Production (COP) measurements and the measurement of idle noise. With the application, sustainable results are consistently provided.



THE HIGHLIGHTS

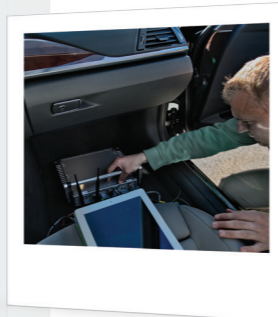
SIMPLE

The PAK Pass By application is a future-orientated implementation based on modern technology. This simplifies the complex measurement processes for determining exterior noise significantly and directs execution through a task-oriented, resource-saving workflow. This is achieved by a robust system configuration, standalone frontends, wireless communication and GPS data synchronization. Operation over an iPad is extremely simple and fast.



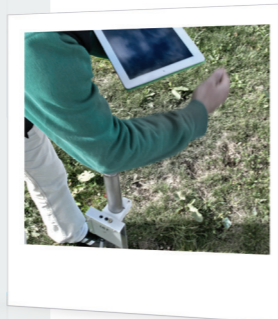
INTUITIVE

Measurement settings are configured intuitively. Users graphically assign the respective measurement frontend's channels to standardized measurement positions. Once the measurement frontends are active, the data stream is automatically displayed. The system overview provides an ongoing status report of all connected systems by checking the corresponding autonomous frontends and their data channels.



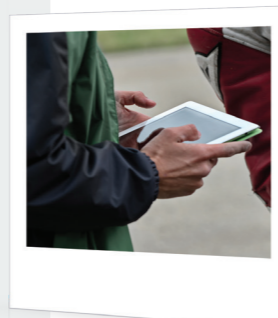
FAST

The clearly structured user interface supports quick changes between the measurement sessions of different vehicles. The results of each vehicle's test run in each gear are represented graphically as an online fingerprint.



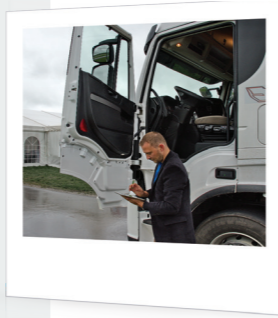
COMFORTABLE

Ease of use is emphasized by the ability to drag and drop functions, automatic averaging and automatic gear detection. Existing standards, future variations and further developments can be selected as test scenarios.



ONLINE

The real-time display on an iPad is especially useful to the driver. Control instruments, digital displays, target ranges as well as a red-green light, all contribute to making the execution of a standard-compliant test run as easy as possible. This practical feedback system guarantees the validity of Pass By runs.



**AUTONOMOUS SYSTEMS, MULTIPLE SESSIONS,
REAL-TIME DRIVER DISPLAY, ONE-MAN-OPERATION,
MULTIPLE VARIATIONS, LIVE COMMUNICATION,
STANDALONE DATA ACQUISITION**

YOUR BENEFIT

The PAK Pass By application has been designed to accommodate multiple sessions. This allows the simultaneous testing of various vehicles according to different standards on the same test track. In this way the test track is used more efficiently with more vehicles on the track in the same time. The norm-oriented workflow guides the driver intuitively through the measurement. Users may choose to measure as a one- or two-man-operation.

The system automatically determines the gear to be measured by continually monitoring the gear transmission ratio between vehicle speed and engine rpm. Even in the very early stages results are instantly displayed based on all currently available test runs. In this way the number of test runs is reduced to a minimum.

At any time, users can access all data and view all runs or preliminary results online. Preliminary results are averaged out and documented in the result measurement. If necessary, a measurement series can be interrupted, resumed or the results of an already executed measurement loaded in its place.

Examination of all relevant
NORM CRITERIA

**AUTOMATED SIGNAL
CONTROL**

between the PAK MKII frontend
and iPad

**AUTOMATED
PARAMETER CHECKS**

Test procedure includes
CALIBRATION
of measurement channels and
isolation of background noise

Demonstrates
COMPLIANCE

FOR CONSISTENT RESULTS:

users benefit from automated control routines.

More measurement channels can be added when required to acquire additional values for comfort, structure, etc. This allows specific engineering problems to be analyzed further.

The PAK family offers a comprehensive analysis package for exterior noise measurements during development, acceptance testing and quality assurance. With just a click, users receive a report of their measurement results which can be customized according to your needs.

The new PAK PassBy application is filled with possibilities and tailor-made for current and prospective measurement tasks, e.g. tire labeling, ASEP and country-specific standards.

SYSTEM COMPONENTS

PAK PASSBY APP:
For vehicle setup, overview window and real-time driver display:



STANDALONE DRIVER SYSTEM(S):
Acquisition of vehicle data:

- Measurement frontend with integrated WLAN and inputs for rpm, driving speed, throttle sensor and GPS (one frontend required per vehicle to be tested)



STANDALONE TRACK SYSTEM:
Acquisition of light barrier and microphone signals:

- Measurement frontend with inputs for microphones, light barriers and GPS



INTEGRATED CONTROL STATION:
for track control and result display:

- PAK Pass By application on the PC



INFRASTRUCTURE AND SENSORS:

- GPS based speed detection
- WLAN access point for data transfer or telemetry
- Weather station to acquire the environmental parameters
- Light barriers to trigger the measurement
- Microphones to acquire the emitted sound level
- Throttle sensor



THE RESULTS

The extremely fast system setup supports immediate measurement readiness. A systematic investigation of the final result is executed as the user is guided through the entire measurement process.

In the Control Station, users receive a fingerprint of the vehicle and an automatic averaged out result immediately after each measurement run. Once the test sequence for the respective standard is completed, a standard-compliant test report is created. This can be used when applying for applicable vehicle road use legislation.

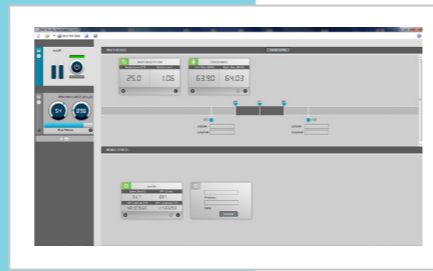
Besides post-processing data with the PAK system, data can also be stored in an ASAM ODS compliant data base and viewed or evaluated further through a web-based data portal - edp. In this way indices or more detailed information, e.g. level curves, used components or single values, are available. Data base queries provide a direct correlation between indices and influencing factors e.g. (construction stage, set of tires). It is possible to examine development cycles and benchmark comparisons across series, vehicle types or manufacturers.

Data management is simplified with edp. Through user profiles data is condensed and results processed according to specific user demands. Due to the thin-client concept, data browsing, searching and visualization is extremely fast as only relevant data packages are used.

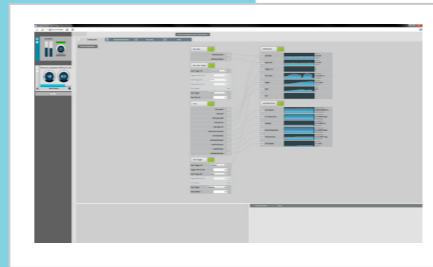
When performing Pass-by measurements for manufacturers and suppliers, customers can retrieve the measurement results and view them worldwide via edp.

WHAT DOES THIS MEAN FOR YOU AS A USER? ACQUIRE THE EMITTED SOUND PRESSURE AND ADDITIONAL QUANTITIES SIMPLY, QUICKLY AND INTUITIVELY - ALL THE WHILE BENEFITTING FROM THE PROMPT PROCESSING OF RESULTS.

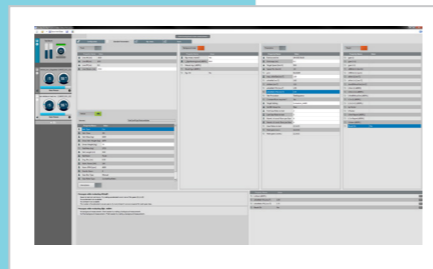
SYSTEM CONFIGURATION
DATA VIEWING
BENCHMARKS



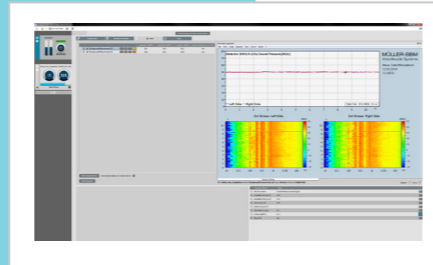
SYSTEM CONFIGURATION:
Overview of active systems with measurement positions and values as well as GPS coordinates of AA and BB line



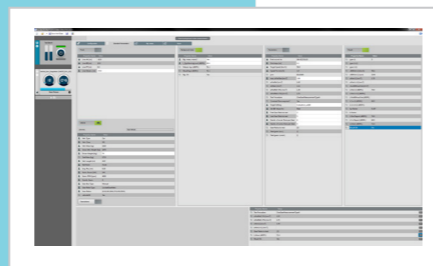
SYSTEM STATUS:
Mapping of channels and measurement positions with a continuous signal stream



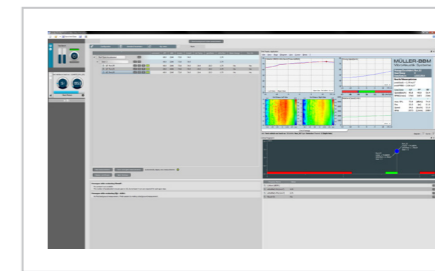
NORM PARAMETERS:
Description of vehicle, standard and result parameters



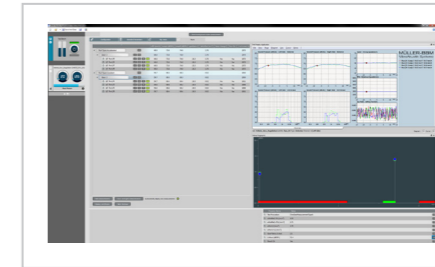
MEASUREMENT:
Displays the result with an online fingerprint



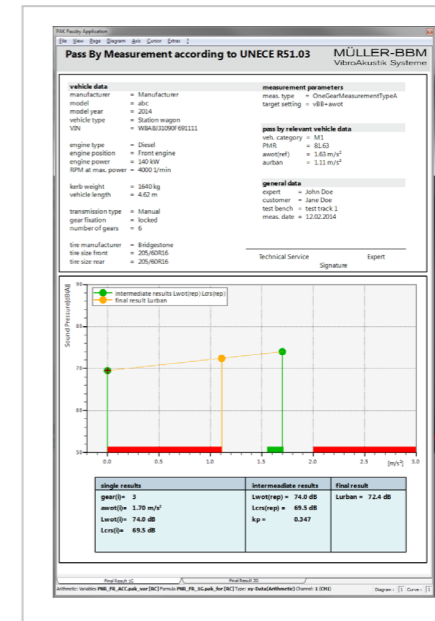
NORM PARAMETERS WITH RESULTS:
Vehicles' measurement results as single values



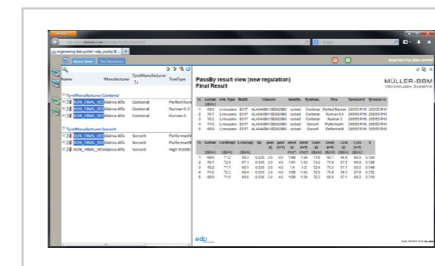
DATA VIEWING:
Results of the test runs, online fingerprint and graphics for level, speed and rpm over distance



DATA VIEWING:
Comparison of measurement runs in one gear



CERTIFICATE:
Resulting certificate for legislation application



DATA BROWSING:
Result comparison of different vehicles in edp

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