

Müller-BBM VibroAkustik Systeme GmbH & AUDI AG

Featured Standard: **ASAM ODS**

Further Simplifying Pass-By Measurements

SUMMARY

Challenge

The complexity of exterior noise measurements (later called pass-by testing) and the amount of acquired data required for development, homologation and conformity, are continuously increasing because of stricter regional regulations. To overcome this challenge, highly automated procedures are implemented for the measurement and reporting tasks. In addition, a link to the existing IT infrastructures is established based on an open data format.

Solution

Fulfilling the complex task of pass-by measurements requires a close correlation between fully autonomous components and the integration of data analysis and reporting into existing IT environments. This is why state-of-the-art components, all designed to perfectly perform the required individual tasks, are integrated into the openMDM-based MeDaMAk system at AUDI AG.

Key Benefits

The open ASAM ODS ATF/XML format ensures a consistent data flow from the central assignment system via the acquisition, and later, either the interpretation or the integration of the data in simulations with minimal resource allocation. Information relevant to pass-by is incorporated into the ASAM ODS model. As the solution can be seamlessly expanded for diversified standards, long-term data accessibility and interpretability are inherent in the solution.

SITUATION

The increasing complexity of pass-by testing followed by time/cost pressure has made smart workflow systems the preferred approach to achieving the targets required. Over the past three years, AUDI AG has established a powerful pass-by measurement and analysis solution by combining PAK family components. These components have been embedded into the openMDM-based MeDaMAk solution. The PAK family members, PAK software and PAK edp, ensure easy, rugged and secure data acquisition and further interpretation. One may ask how this solution can be made even more efficient in the workflow? The answer is by combining the existing tools and defining interfaces as well as workflows.

CHALLENGES

The PAK family is a standardized solution for easily and efficiently determining a variety of exterior noise regulations and test scenarios. The PAK system has been connected to the company-wide openMDM platform in close cooperation with the AUDI AG Processes and Methods R&D Department.

All level values and additional quantities for comfort and driving dynamics acquired with PAK are stored in the central data management system, using the ASAM ODS ATF/XML standard. The acquired data can subsequently be viewed worldwide on the Intranet with PAK edp. Various data views are offered, ranging from the Lurban single-number values of homologation required by those responsible for production, to the level curve of the single runs or intermediate results, which provide the level of detail required for the development process.

This makes it easy to compare NVH-based levels, especially in the pass-by environment. Hence, PAK edp features the AUDI AG as an ideal benchmarking tool across the development of series, facilitating a powerful comparability of the development stages in the series. The context-based evaluations are configured from the customer's workflow, e.g., even different combinations of tires and exhaust systems can be easily compared.

SUCCESS STRATEGY

In order to master the increasing complexity in the existing environment, Müller-BBM VibroAkustik Systeme has developed intelligent, networked components.

Equipped with such task-dedicated systems and supported by well-defined and standardized customer processes, users can simply focus on driving to perform perfect pass-by runs. As soon as the system is switched on, the PAK MKII data acquisition unit immediately provides all the available sensor signals live. Its stand-alone ability enables even a single operator to have all the necessary information always available online. Measurement results are safeguarded through improved data quality as well as by process automation in setups and driving. Due to the open ASAM ODS ATF/XML format, after a measurement has been finalized, users benefit from the barrier-free data exchange within their existing IT landscape. The results can also be compared with simulated pass-by or COP measurements based on the ASAM ODS standard.

Tino Teske

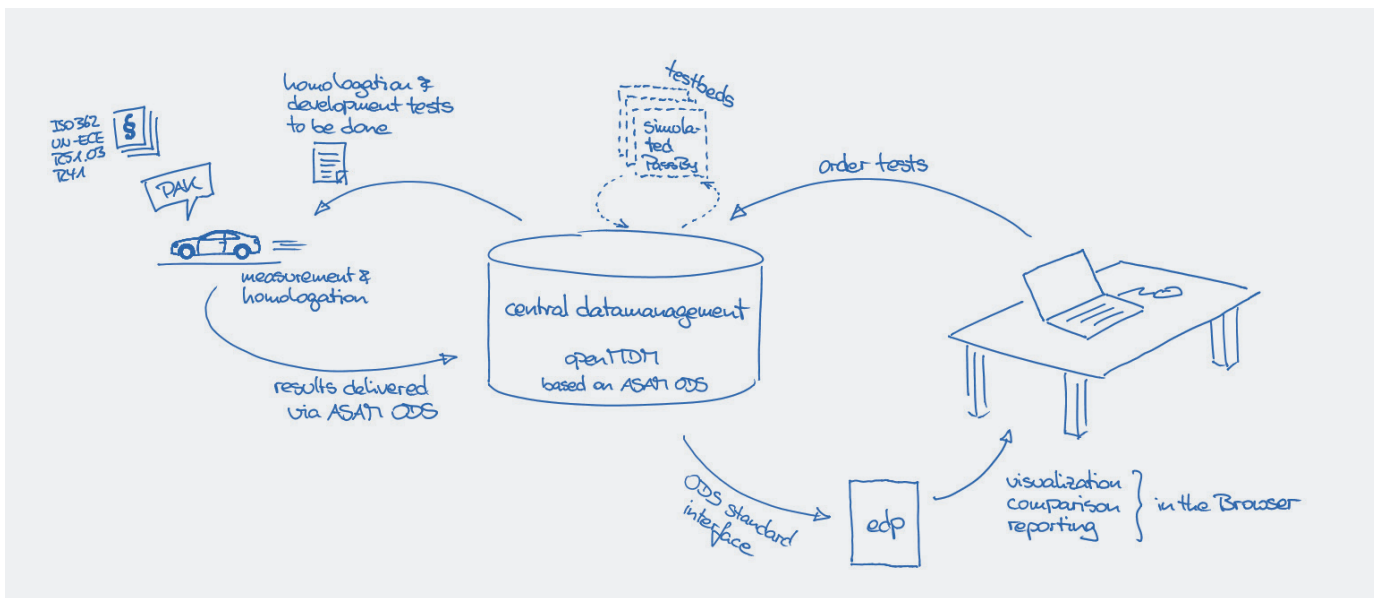
AUDI AG, Acoustics,
Type Approval and Exterior Noise

“The ASAM ODS based storage helps me to manage all my test data from pass-by-noise, testbed and driving measurements in one single system. Everyone of my colleagues now has the possibility to choose their tool for reporting and post processing, no matter the source data format.”

Christian Rechner

AUDI AG,
CAT Processes and Methods R&D

“The standardization of process and data management was established years ago and is continuously being further developed, based on ASAM ODS.”



Pass-By measurement workflow

Despite the component-based approach, the integrity of information is always assured. The consistency of all the components defines the high degree of freedom in the workflow. Users benefit from sustainable information. The ASAM ODS standard enables data to be viewed independent of a manufacturer and/or device.

CHALLENGES DURING THE PROJECT

Exterior noise measurements are challenging tasks that require both solid data transparency and easy data management from the assignment to the measurement up to the report. What is exceptional for the pass-by measurements is that the parent process is split into several independent tasks, for example for the driver, the central system or reporting. This allows the task to be broken down into all participating labor shares and software building blocks. No matter what components are chosen, all information has to be consistently merged again at the end.

BUSINESS BENEFITS

The PAK family solution offers an easy workflow for the complex exterior noise procedures in the environment of the increasing portfolio of series and variations within series. This pass-by solution is consistent over the different stages of test specification, the test procedure, and up to the test report. Coupled with high temporal and cost efficiency, the process safety remains constant over versatile user characteristics. Moreover, it is extremely robust against external failures.

Applying best practices, standalone components have benefits such as single-user operation or the simultaneous measurement of multiple vehicles on the test track; thus the cost of the measurement can be reduced as measurement campaigns can take less time and the capacity of the test track can be completely utilized. All data is fully integrated into the existing as well as the newer IT infrastructures owing to ASAM ODS.