

Vehicle-Acoustic-VMS

Application Note



Along with the power and fuel consumption, the acoustic signature of an automobile is a major issue in R&D. Thus, both innovative mechanical systems, and even more importantly, complex electronic components make today's cars more powerful, safer and cleaner than any other time in history. More quiet internal combustion engines and ever more electronic and electromechanical components contribute to increased riding comfort. The development of the sound perceived by the passengers is changing from increasingly quiet engines to a more complex acoustic experience in the interior.

New challenges for modern acoustic measurement

As engines become quieter, certain vehicle components are becoming perceivable which were previously drowned out by engine noise. For this reason, acoustic measurement now faces new challenges. Due to the large number of components in a vehicle, a comprehensive noise analysis system for the interior is required. For this purpose, the Volkswagen company has integrated a special measurement instrument into its own proprietary analysis software, "Akustik". The measurement device is based on the imc CRONOS-PL, imc's proven measurement system. The imc CRONOS-PL VMS (Vibration Measurement System) communicates via WLAN with Volkswagen's "Akustik" software.

The imc CRONOS-PL VMS measurement system is easy to use. The measured acoustic signals from the microphones in the interior, from the exhaust system, etc. are combined with data such as speed, RPM and control unit information in the imc CRONOS-PL system. Thanks to its integrated online measurement data processing capability, the user can view the results online. The user can immediately identify and correct faulty measurements, caused for example by noise from window or other ambient conditions, or by shaking microphones, thanks to the direct display of the results. In this way, time is saved and the entire measurement procedure is optimized.

The necessary information is captured by the imc CRONOS-PL VMS measurement system. For this purpose, the system has not only analog signal inputs but also inputs for counter pulses, digital data from incremental counters, for example, as well as a CAN-Bus interface

(KWP2000/ECU). The imc CRONOS-PL VMS is connected with VW's acoustics software via the imc COM interface. By means of imc COM, functions from imc Devices and imc FAMOS can be integrated into other programs. The user never notices anything different – never having to become familiar with new software, and can use familiar tools. The notebook's WLAN with the imc CRONOS-PL VMS enables the VW's engineers and technicians to position the device and notebook in the vehicle as desired. This makes it possible to set the notebook up for optimal viewing and operation and also to mount the measurement device in an optimal way.



Volkswagen's acoustic analysis system is used throughout the world and in conjunction with imc CRONOS-PL VMS direct, time-saving, economical analysis of the acoustic impact on a car interior.

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imc Test & Measurement GmbH is a manufacturer and solution provider of productive test and measurement systems. imc implements metrological solutions for research, development, service and production. imc has particular expertise in the design and production of turnkey electric motor test benches. Precisely outfitted sensor and telemetry systems complement our customer applications.

Our customers from the fields of automotive engineering, mechanical engineering, railway, aerospace and energy use imc measurement devices, software solutions and test stands to validate prototypes, optimize products, monitor processes and gain insights from measurement data. As a solution

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