**Step by step to professional NVH analyses with imc WAVE**

*In search of noise and vibration*



Testing vehicles and machinery as complete units is being carried out more frequently and has greater importance - thus, imc Meßsysteme GmbH has extended their line-up of measurement solutions to include yet another component: the new imc WAVE sound and vibration analysis software. Customers can not only perform noise measurements, structural analyses and vibration examinations, but also simultaneously detect other measurement variables. These include, for example, temperature, force and pressure. In addition, field bus information, via CAN bus, for example, can be synced allowing a holistic view of machinery and vehicles.

“A simpler method to confirm sound and vibration analysis Standards - this was a wish put forth by our customers and therefore became a development goal for imc WAVE. We have taken this into consideration with the concept of task-oriented analyzers. They guide the user step by step through the settings: from device configuration to microphone balance, up to starting the measurement. At the end, the customer will receive a professional evaluation according to the Standards, without having to be an expert”, says Ralf Winkelmann, Head of Development at imc.

**Sound and vibration testing according to Standards**

In order to curb noise and vibration load on humans and machinery alike, it is necessary to reduce contributing factors that cause irritating or harmful frequencies. The imc WAVE spectrum analyzer provides professional tools for frequency analysis like third-octave, octave and FFT spectra, as well as sound level valuations according to EN 61672.

**Structure analysis on machinery and components**

Using modal analysis with the imc WAVE structure analyzer, resonance in mechanical structures can be examined. For this purpose, a defined force signal is introduced into the structure and the dynamic response is measured with accelerometers. The synchronous evaluation of all signals allows for the determination of the transfer function, which fully describes the vibration behavior of the structure. For further processing, the imc FAMOS signal analysis software has additional interfaces for modal analysis programs available, such as ME' Scope™.

**Measurements on rotating machinery and components**

On rotating machinery and drives, RPM-dependent vibrations or resonances can occur and be extremely dangerous to both human and machine. With imc WAVE order tracking analysis, these frequency-dependent phenomena can be systematically correlated and examined. The FFT and order tracking spectra, as a function of RPM and angular rotation, can be analyzed to assess, for example, bending or torsional vibration.

**Beyond “NVH”**

More and more often, vehicles and machinery are being tested as complete units. Besides the actual NVH inspection, it pays to cover a number of other aspects during testing.

If imc WAVE is operated as a plug-in in the imc STUDIO measurement software, then the user has a universal testing environment at the ready. In addition to the NVH analysis, a variety of other measurement values can be acquired, such as temperature, strain or GPS. Furthermore, bus systems such as CAN, LIN or FlexRay can easily be connected. For productivity gains, imc WAVE provides real-time analysis: this allows all recorded signals to be expressed as meaningful results and evaluated according to a specific Standard.

More information: <http://www.imc-berlin.com/products/measurement-software/imc-wave-nvh-analysis/overview/>

**imc Meßsysteme GmbH, Berlin, Germany**

For over 25 years, imc Meßsysteme GmbH has been developing, manufacturing and selling hardware and software solutions worldwide in the field of physical measurement technology. Whether in a vehicle, on a test bench or monitoring plants and machinery – data acquisition with imc systems is considered productive, user-friendly and profitable. So whether needed in research, development, testing or commissioning, imc offers complete turnkey solutions, as well as standardized measurement devices and software products.

imc measurement systems work in mechanical and mechatronic applications offering up to 100 kHz sampling rate per channel with most popular sensors for measuring physical quantities, such as pressure, force, speed, vibration, noise, temperature, voltage or current. The spectrum of imc measurement products and services ranges from simple data recording via integrated real-time calculations, to the integration of models and complete automation of test benches.

Founded in 1988 and headquartered in Berlin, imc Meßsysteme GmbH employs around 160 employees who are continuously working hard to further develop the product portfolio. Internationally, imc products are distributed and sold through our 25 partner companies.