


<b>Report</b>			
MCD Elektronik GmbH Hoheneichstr. 52 – 75217 Birkenfeld Tel. +49-7231 78405-0 – Fax: +49-7231 78405-10 Managing Director: Bruno Hörter	Release Date: 20.03.2018	Page 1 von 7	
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## Tracking the Clean Sound

### MCD's AudioAnalyzer Provides a Better Test Quality

Infotainment systems belong to the numerous electrical assistants in an automobile. By combining automobile radio, navigation system, hands-free speakerphone, drivers assistances system and other functions in a central operating panel these devices are much more than ordinary automobile radios. In addition to voice signals there are for the most digital UMTS signals which are substituted to the car. These systems are prevailing employed to automobiles from the luxury class. Therefore the requirements of voice quality are accordingly high.

The automotive manufacturers as well as their suppliers need measurement technology, which is able to proof high-frequency performance and the quality of audio transmission. A good choice for the development and assembly of test stands for electrical and electronical device components is MCD Elektronik from Birkenfeld, a specialist for measurement and test systems. By order of an international automobile supplier MCD delivered an UMTS module tester. This test stand in a compact 19" rack-version includes two MCD AudioAnalyzers of the last generation. So the audio transmission can be measured at two modules' digital and analog interfaces simultaneously. Measurement results can be aggregated parallel to the high-frequency test procedures because the device supports special measuring methods with very fast measurements. Multiple systems in parallel operation enable an in-step 100% production testing. Due to its compact dimensions, extensive equipment on interfaces along with the low price, increasingly more professionals are having the AudioAnalyzer integrated into test systems.

MCD Elektronik has sold more than 500 units of the "AudioAnalyzer" to customers all over the world and the specialist for measuring and testing systems still works for improvements of its successful measurement system. In its current version the AudioAnalyzer captivates with its practical

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housing, which can be easily implemented into space-saving 19" racks. Customers around the world use this device for the testing and calibration of analog and digital sound systems.

The device, in its basic configuration comes equipped with analog, digital and optical inputs and outputs. The applications range from the tuner calibration, testing of audio amplifiers and infotainment systems, to testing of switching power supplies up to the flashing relay or motor examination. MCD's CEO Bruno Hörter confirms his product strategy: "We designed the MCD AudioAnalyzer out of practical experience specifically for the use in manufacturing. The device is characterized by very rapid measurement methods and can easily be integrated into automated test systems. The AudioAnalyzer is therefore an affordable alternative to expensive, oversized and complicated to use lab analyzers."

MCD manufactures the nest of the DUT according to customers' demands. For flat modules mostly needle beds are used but „easy to handle“ adaptations are also produced for electro-mechanical assemblies. Additional test adapters can be reordered for the test of various products according to its pylon interface. MCD delivers the adapter via postal service and the system remains at the customers' site.

An important application of the AudioAnalyzer is the solid borne sound measurement. With the AudioAnalyzer it is possible to test engine or gearbox noises from electrical powered components for example. The focus of these test systems is set on finding failures in gearing, rotation or noise development. The evaluation of the signals in kind of envelopes is useful for documentation of production and for the improvement of product quality in development departments.


Another interesting option is the integrated Micro PC. Together with the MCD "TestManager" software and other components from the product range of

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MCD, it allows the realization of complete test systems. The Analyzer is fully remote controllable via an USB interface and operates its own programs autonomously. The "Data Manager" investigates statistical analyzes of the measurements and of the quality numbers.

These are acceptance criteria for the customers and all the testing contents could be expanded and changed autonomously by authorized employees. Combinations with test systems including the Boundary Scan and functional tests are easy to realize. The AudioAnalyzer software offers also the option of programming with a scripting language, with which complex measurements can be programmed very easily.

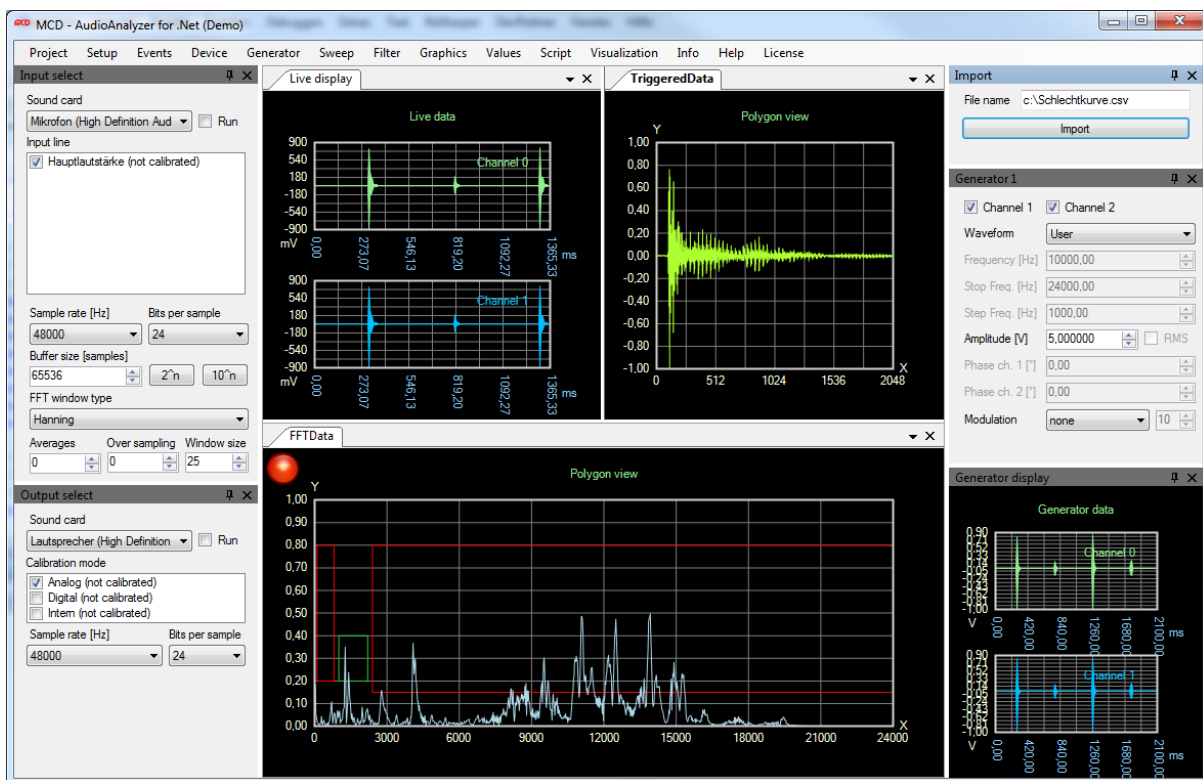
MCD develops complete measurement systems according to the customers requirements as offline or inline systems. Customer support goes from first approach across consulting services, offers, release procedures, FMEA to delivery and installation. MCD also takes care about calibration and the additional service. Trainings on site or at the MCD development center in Birkenfeld, Germany make the offer perfect.

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Pictures:



Picture 1: MCD AudioAnalyzer: Analog interfaces as well as an USB-interface are placed on the front of the compact 1U housing.




Picture 2: Screen of the click noise test of a flashing relay. The test is completely created with the script language and evaluates the result in form of a set value curve. The error pattern shows the lack of the second click.

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Picture 3: The MCD Universal Fixture for up to six DUTs is placed next to the test rack of the UMTS module tester and enables the testing of two DUTs simultaneously.

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Picture 4: An integrated web server displays the Data Managers' results directly on the iPad.


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### About MCD Elektronik GmbH:

MCD Elektronik GmbH was founded in 1983 and currently employs 80 people. The owner-managed company is headquartered in Birkenfeld, near Pforzheim, Germany. MCD Elektronik is active in Germany, Hungary, and China, and delivers to 48 countries around the world.

MCD Elektronik GmbH manufactures measurement and test systems for electronic production for their customers, who include OEMs and their suppliers in the automotive sector, companies in machine and systems design, medical technology, energy-electronics, quality technology, sensor

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manufacturing, and aerospace. The company relies on innovative customer-specific complete solutions - developed and realized by a team of highly qualified specialists.