The new Real-time Spectrum and Signal Analyzer TDEMI® S from GAUSS INSTRUMENTS® is the new benchmark for real-time, communication and EMC testing. It is thoroughly flexible in its configurability and extensibility. In its basic configuration the TDEMI® S is a high-performance spectrum analyzer and is available in frequency ranges up to 1, 6, 9, 18, 26, 40, 44 and 50 GHz.

It can be extended by external mixers even up to the Terahertz frequency range. Due to its compact design and a 12V output it is a great tool for field testing or on-board testing applications. The TDEMI® S spectrum analyzers and receivers have been optimized for low power consumption while maintaining ultrahigh performance. The flexible configurability allows use of the instrument as a real-time spectrum analyzer. The new HyperOverlapping technology makes it possible to record and analyze signals in completely new ways. Oversampling factors in the range of 1000 result in improved signal-to-noise ratio and faster updates in real-time mode, compared to current existing real-time measurement technology.

Fig 1.: **TDEMI® S**

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Furthermore, the TDEMI® S can be configured as a CISPR/ANSI/MIL-compliant EMI receiver with Option EMI-UG. The novel HyperOverlapping feature is available in the FFT based mode, providing the capability to record and display signals with a much higher resolution than similar instruments. High resolution ADCs, which use a patented technology to compensate for nonlinear effects, achieve the highest measurement accuracy.

For fully automated measurements, the EMI64k Automation Software Suite supports all operation modes of the TDEMI® S. Thereby the TDEMI® S can be used for EMC measurements in the typical mode as well as in the real-time spectrogram mode.

Due to its flexible configuration the TDEMI® S can be configured for a variety of applications including communication and EMC testing (full- or pre-compliance). It also can be upgraded at a later stage and therefore extended for new applications. In addition, its advanced technology, including HyperOverlapping, provide excellent spurious suppression and dynamic, noise floor, making the TDEMI® S convenient for applications where today's measurement instruments reach the limits of their possibilities. The extension with external mixers into the THz range allows the TDEMI® S to be used for certification measurements for 5G and beyond.

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