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## **IZT brings virtualization to signal generators for radio test applications**

- Revolutionary device combines 31 virtual signal generators in a platform for testing radio receivers, including DAB and HD radio receivers, and for creating complex mixed signal RF scenarios.

**Erlangen, Germany – August 2, 2010** – IZT, a technology leader in innovative high-performance products for capturing, modifying and generating radio signals, today introduced the IZT S1000, a signal generator platform which combines the functions of multiple conventional RF generators into one compact, flexible RF test source with support of most radio broadcast standards – FM-RDS, DVB-T, HD radio, DAB, DAB+, DMB-Audio, Sirius and XM.

Modern radio systems have multiple receivers and multiple sources of noise and interference. These signals can be from more than one antenna, with independent carriers and different modulation formats. Furthermore, receivers can interfere with each other. To test this, engineers need a signal generator that can generate multiple signals in a controlled and coherent manner.

The IZT S1000 can combine any or all of its 31 'virtual' signal generators to match receiver test requirements - without the need for a costly batch of standard RF generators. This way, test engineers can simultaneously create multiple signals to test complex radio systems, whether it is at the semiconductor level or at the system level, for instance in a vehicle. For each virtual signal generator, the engineer can define signal-content, real-time modulation I/Q data streams, and many other parameters. Real-world simulation is enhanced with support for multiple forms of signal impairment.

"With its virtualized architecture and IZT's patented signal processing algorithms, the IZT S1000 combines into one instrument all the tools needed to generate test scenarios for today's demanding testing requirements," explains Rainer Perthold, CEO of IZT. "Modern radio systems must be tested for the correct operation of all broadcast radio standards under real-world conditions. This can include conventional AM and FM radio, DVB-T, DAB, HD Radio, and satellite radio such as Sirius/XM. In addition, most vehicles have GPS receivers and Remote Keyless Entry (RKE) wireless systems."

The IZT S1000 uses patented time-domain and frequency-domain techniques to process and combine a large number of signals. The cumulative bandwidth of these signals can support up to 320 MSamples/second. Once created, the signals are sent to either of two RF synthesizers, tunable over a range 9 KHz to 3 GHz, for up-conversion, and distributed to the RF outputs.

Each RF output has a noise source that sets the carrier to noise ratio to a user-defined level. The individual power of the signals and the noise are controlled and combined digitally, so the carrier-to-noise-ratio is extremely accurate. The IZT S1000 allows the user to shape the noise floor, which is important for wideband multi-standard signal generation to simulate frequency-dependent background noise, antenna, and LNA performance. The fading channel simulation of the IZT S1000 offers a pool of up to 64 fading paths.

The IZT S1000 provides accurate frequency and time synchronization allowing for absolute launch timings and phase-locked frequencies. Receivers with multiple antennas can be fed with a combination of signals from multiple RF outputs with controlled delay, frequency and phase



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relationship, and with identical or different content. This makes the IZT S1000 the ultimate signal source for over-the-air and MIMO testing.

The system has four gigabytes of fast RAM (expandable to eight) for waveform data with up to 320 Samples/second total bandwidth. It can be loaded from the internal hard drive or from a server via two GBit Ethernet ports. Each port can handle up to 24 MSamples/sec. at 16-bit resolution.

The IZT S1000 comes in a compact 2U form factor chassis with high-resolution display and front panel keyboard. The chassis contains all digital processing hardware, synthesizers and RF sections. The front panel and graphical user interface have been designed for rapid user-friendly control of multiple signals. The IZT S1000 can be controlled remotely with SCPI commands received via RS-232, LAN or GPIB.

The IZT S1000 is available now.

## **About IZT**

Combining world-class RF frontends with advanced signal processing, IZT develops, manufactures and markets innovative high performance products for capturing, modifying and generating radio signals. The company's product portfolio includes equipment for signal generation, receivers for signal monitoring and recording, transmitters for digital broadcast (DAB), digital radio systems, and channel simulators. IZT offers powerful platforms and customized solutions for high signal bandwidth and real-time signal processing applications.

IZT was founded in 1997 as a spin-off from the Fraunhofer Gesellschaft, one of Europe's biggest and most renowned organizations for applied research. Headquartered in Erlangen, Germany, a team of 50 employees manages the company's product and project business. IZT distributes its products worldwide in cooperation with international strategic partners, sales representatives and distributors. For more information, please see [www.izt-labs.de](http://www.izt-labs.de).

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## **Contact for editors:**

embedded PR

Anja Hastenrath

Email: [ah@embedded-pr.de](mailto:ah@embedded-pr.de)

Phone: +49 89 69 76 06 10

## **Contact for readers:**

Innovationszentrum fuer Telekommunikationstechnik GmbH IZT

Maxie Clemens

Am Weichselgarten 5

91058 Erlangen, Germany

Email: [sales2010@izt-labs.de](mailto:sales2010@izt-labs.de)