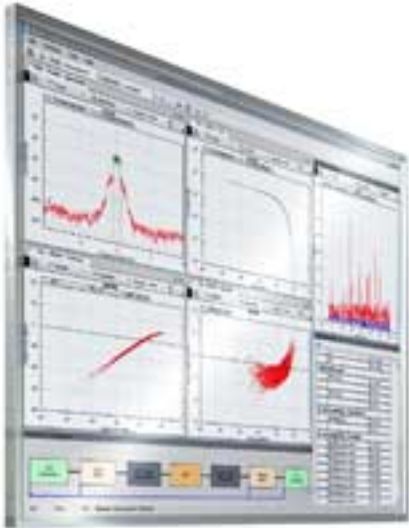


Linearization of Active RF Components is Easier and Faster with Powerful Analysis Software



Rohde & Schwarz has introduced the R&S FS K130 distortion analysis software for optimizing active RF components such as power amplifiers and mixers. This software allows users to characterize and linearize amplifiers quickly and easily. The R&S FS-K130 even compensates for memory effects exhibited by many of today's amplifiers. The test setup consists of a spectrum analyzer, a signal generator, and a PC. The setup measures the amplifier's characteristics and calculates the correction required to attain a linear output signal.

The R&S FS-K130 distortion analysis software is ideal for analyzing active components such as RF amplifiers, mixers, and converters used in telecommunications equipment, civil and military communications systems, and mobile phones.

The application, which runs on Windows XP, was designed for a test setup based on the R&S FSV or R&S FSQ spectrum analyzers as well as the R&S SMBV or R&S SMU200A signal generators from Rohde & Schwarz. The software has two functions. It controls the instruments and it characterizes the amplifier using the same signal waveform that will be driving the amplifier. The spectrum analyzer captures and records the amplifier's output signal. The software uses this information to calculate a model that describes the signal's characteristics, including amplifier distortion.

Based on the calculated amplifier model, the software determines a corresponding model that is used to predistort the input signal. Predistortion improves both the error vector magnitude (EVM) and the adjacent channel leakage ratio (ACLR). The improvement can be measured using a calculated, predistorted input signal prepared by the software.

The R&S FS-K130 distortion analysis software offers various mathematical

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simulation models, such as the Volterra series and a simpler polynomial expression to model amplifier behavior. The Volterra series is also suitable for systems that exhibit a memory effect, i.e. systems whose behavior is affected by previous events such as power peaks. The Volterra series precisely replicates even phase-shifted signals with memory effect, allowing signals to be linearized with hardly any programming effort.

The R&S FS-K130 has an easy-to-use, block-diagram based user interface. The analysis solution delivers AM/AM and AM/FM conversion curves showing amplitude compression and phase change vs. input power. Reference and test signals can be displayed versus time, or as a spectrum, a probability distribution function (PDF), or a complementary cumulative distribution function (CCDF). The amplifier and predistortion models can be exported in Matlab format (MAT). Measured values are saved in common graphic file formats and as CSV files.

The R&S FS-K130 distortion analysis software is now available from Rohde & Schwarz. For details, see <http://www.rohde-schwarz.com/product/FS-K130PC>.

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