Rohde & Schwarz – EDA Software Support

Electronic design automation (EDA) tools are essential for RF/microwave and communications system designs. Besides typical circuit design, more and more functionalities are covered to increase the design accuracy, to reduce the number of design cycles and hence to reduce time to market.

Various design and simulation tools are available on the market. The Rohde & Schwarz test and measurement (T&M) equipment can easily be integrated into such software tools to enable cross-domain simulation. Rohde & Schwarz not only brings standard-compliant simulation signals to the software environment but also enables a smooth data transfer as well as remote-control functionality of the instruments.

MATLAB® from The MathWorks™

MATLAB® is a high-level technical computing language and interactive environment for algorithm development, data visualization, data analysis and numeric computation. MATLAB® supports the entire data analysis process, from acquiring data from external devices and databases, through preprocessing, visualization and numerical analysis, to producing presentation-quality output.

Instrument Control Toolbox™ is an add-on product which makes it easy to communicate with Rohde & Schwarz test and measurement instruments directly from MATLAB®. With the toolbox, you can control instrument settings, generate data in MATLAB® and send this data out to a Rohde & Schwarz instrument, or you can read data into MATLAB® for analysis and visualization.

The toolbox supports industry standard drivers such as IVI and VXI*plug&play*. Support is also provided for GPIB, VISA, TCP/IP and UDP communication protocols. The toolbox also enables communication with LXI instruments.

With the Instrument Control Toolbox™, MATLAB® supports the majority of Rohde & Schwarz signal generators, power sensors, audio analyzers, spectrum and signal analyzers as well as network analyzers. For further information on MATLAB® and the toolbox, refer to www.mathworks.com/products/instrument/supportedio.html.

Download your IVI and VXI*plug&play* drivers from the Rohde & Schwarz website free-of-charge. Contact the Rohde & Schwarz support center in case the required instrument driver is not yet available for download. Practical examples and supportive routines for easy remote control of Rohde & Schwarz instruments with MATLAB® are provided in the application notes 1GP60, 1EF51 and 1EF46. How to use instrument drivers in MATLAB® is described in 1MA171.

Microwave Office® (MWO) and Visual System Simulator™ (VSS) from AWR

Microwave Office® (MWO) and Visual System Simulator™ (VSS) from AWR are complete and comprehensive software suites for designing RF and microwave ICs, printed boards (PCBs), modules and complex communications systems. AWR's TestWave™ solution provides the physical link between Rohde & Schwarz test and measurement equipment and the AWR software environment. Network analyzers, signal generators and signal analyzers from Rohde & Schwarz can be conveniently integrated into the software environment, for example, for cross-domain, also known as "hardware-in-the-loop", simulations. For cross-domain measurements, the processed simulation signal is transferred to your Rohde & Schwarz vector signal generator, applied in the real world to the device under test, and fed back to the simulation environment through the Rohde & Schwarz spectrum analyzer.

In addition, VSS integrates the R&S®WinIQSIM2 simulation software from Rohde & Schwarz to generate standard-compliant signals for all modern digital communication standards such as 3GPP LTE (FDD/TDD), 3GPP FDD/HSPA/HSPA+ and WiMAX™. The generated signals are used as stimuli for the simulation. In this case, the simulation environment utilizes the same signal as used for the measurement with the Rohde & Schwarz equipment. The combination of Rohde & Schwarz instruments and R&S®WinIQSIM2 with VSS from AWR provides you with the best support for designing and optimizing your communications system.

Download the R&S®WinIQSIM2 simulation software, supporting the latest digital cellular standard specifications, from the Rohde & Schwarz website free-of-charge. A practical example of using a Rohde & Schwarz vector network analyzer with MWO is described in application note 1MA163 and using Rohde & Schwarz signal generators and analyzers with VSS in 1MA174.

The TestWave™ software for integrating R&S®WinIQSIM2 and Rohde & Schwarz T&M instruments into VSS is available from AWR.

Advanced Design System (ADS) from Agilent

ADS is an RF design software tool that can be used for wireless communications design purposes. Integrate the Rohde & Schwarz test and measurement equipment to verify and optimize your design. You will also achieve a realistic comparison between your simulated and real-world test results, generated and measured with your Rohde & Schwarz signal generators, spectrum and signal analyzers, as well as network analyzers.

The Rohde & Schwarz software solution for integrating Rohde & Schwarz products easily into the ADS environment and hence into your design flow is available for download free-of-charge. See application note 1MA72 for details, and to download the installation software for integrating Rohde & Schwarz instruments into ADS.