



Visual System Simulator Success Story

TriQuint designs power amplifier 2X faster and more accurately using Visual System Simulator

Customer Background

TriQuint's Wireless Communications Operation provides products and technology to drive the growth of the cellular handset, portable WLAN device, and wireless basestation markets.

The Wireless Communication Operation designs and manufactures products focused on major wireless communications applications. The focus of the company's standard products is on cellular, PCS, KPCS, PHS, GSM, GPS, WLAN, ISM-Band (900 and 2400 MHz) wireless data links, and general RF applications.

Standard products encompass both single- and multi-function RFICs and modules. Functions include low noise amplifiers, power amplifiers, converters, driver amplifiers, switches, filters, passive components, and a complete menu of foundry services.

Customer:

TriQuint Semiconductor, Inc,
Wireless Communications Operation

Application:

EDGE/GSM power amplifier for a cellular handset

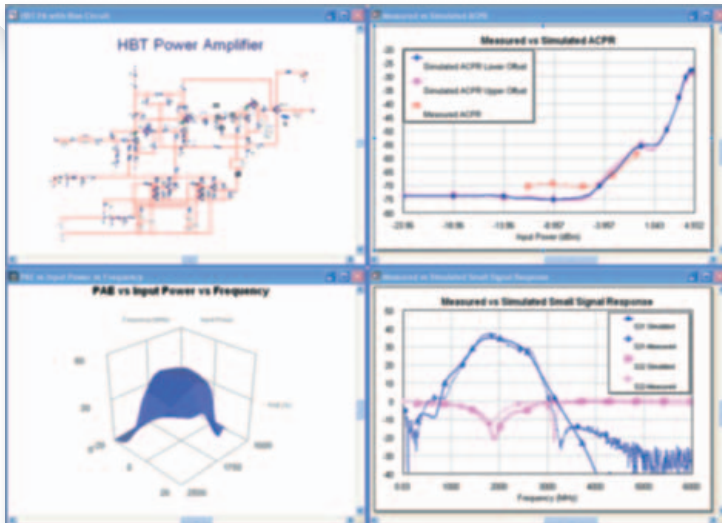
AWR Products:

Visual System Simulator™ (VSS) and
Microwave Office® Design Suite



The Design Challenge

The challenge was to design an EDGE/GSM power amplifier for a cellular handset. It was essential to accurately characterize the power amplifier's circuit performance at the system level and to accurately predict adjacent channel power ratio (ACPR) measurements using modulated signals as opposed to traditional two-tone analysis. AWR's Microwave Office and VSS software were used for the design.



TriQuint designed EDGE/GSM power amplifier using AWR's Microwave Office and VSS software

"The seamless integration of the Microwave Office and VSS software gave me more meaningful results because I was able to simulate my power amplifier circuit design's response to the EDGE/GSM modulated input signal with one design platform."

TriQuint Design Engineer

The Solution

What design problem did AWR's software help you to solve?

I was able to accurately characterize power amplifier circuit performance at the system level and accurately predict ACPR measurements using modulated signals as opposed to traditional two-tone analysis.

What were your reasons for choosing AWR software?

- ◀ Confidence in EDGE/GSM source
- ◀ The AWR unified design environment
- ◀ Straightforward ability to simulate ACPR as a function of an input power sweep
- ◀ Superior technical support

What were the key benefits of using AWR software?

The ACPR measurements simulated with VSS agreed with laboratory measurements, and the VSS simulation ran approximately two times faster than the alternative solution.

What, in your estimation, are the most positive features of AWR's software?

The user environment, interactivity of the VSS system tool with the Microwave Office circuit tool, and the superior technical support.

"I used Microwave Office and VSS from circuit concept all the way through to product completion. I was exceptionally happy with the technical quality of the ACPR and EVM simulation results."

TriQuint Design Engineer

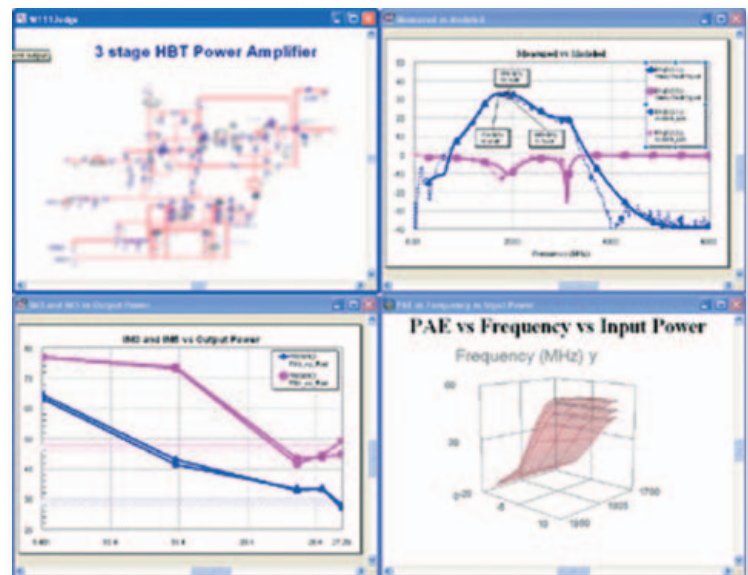
Product Overview

Visual System Simulator™, a comprehensive software suite for the design of complete, end-to-end communications systems, helps designers reduce time-to-market by eliminating iterations and rework, and cuts system costs by ensuring that components are not over-specified and thus unnecessarily expensive.

VSS 2006 offers, for the RFIC design community, RF models in the voltage domain. The popular VSS RF budget analysis feature now includes measurements to provide greater insight into defining the right component specifications. Core VSS functions have been expanded with new measurements, additional models, and improved existing models. In addition, VSS 2006 addresses the needs of the baseband system designer by enabling bit accurate simulations and providing new signal models for the most current communications standards.

VSS 2006 has been enhanced in many areas as part of AWR's ongoing commitment to provide engineers with the unique ability to design the right system architecture and formulate suitable specifications for each of the underlying components in today's complex communications designs.

The optional AWR TestWave™ module integrates VSS seamlessly with instruments from leading test equipment vendors, providing a means for virtual hardware prototyping.



VSS simulations agreed well with laboratory measurements



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