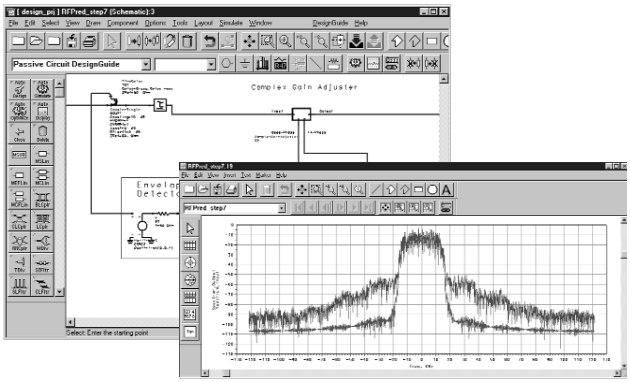
Agilent E5614A/AN
Agilent EEsof EDA
Linearizer Design Guide

Product Overview



Features at a Glance:

Complete linearization capability

- FeedForward eight-step design process
- FeedForward IS-95 CDMA and pi/4 DQPSK
- RF Predistortion six-step design process
- RF Predistortion IS-95 CDMA and pi/4 DQPSK
- LINC design five-step design process
- LINC design pi/4 DQPSK simula-tion
- Cartesian feedback two-step design process
- Cartesian feedback swept power response
- ACPR optimization technique
- Gradient optimization technique

Three templates for class A PA characterization
Four templates for class C PA characterization
Seven Agilent Ptolemy demos

Today's new digital modulation systems rely on efficient linearization of power amplifiers. The Linearizer DesignGuide, one of a family of DesignGuides from Agilent EEsof EDA, gives you the most complete tool kit available to interactively explore dynamic linearization systems.

The Linearizer DesignGuide examines the design process for four major techniques: feedforward, RF predistortion, Linear Amplification using Non-linear Components (LINC), and Cartesian feedback. It contains a large number of predefined circuits to be used in the Advanced Design System software environment. These circuits assist you in designing a linearizer that meets performance specifications.

Two DesignSeminars from Agilent EEsof EDA on linearization techniques offer additional technical training and insight. These DesignSeminars present the DesignGuide developer in a CD-ROM-based video and slide presentation.

The linearization DesignSeminars are:

- Adaptive Feedforward Linearization for Power Amplifiers (part number N3500A)
- Adaptive RF Predistortion of Power Amplifiers (part number N3501A)

System Requirements

- Advance Design System 1.3 or later version installed
- E8900 Design Environment
- E8901 Data Display
- E8881 Linear Simulator
- E8882 Harmonic Balance Simulator
- E8883 Circuit Envelope Simulator
- E8823 Ptolemy Simulator
- E8854 System Model Library

FeedForward

- Step 1–Single Loop Swept Coefficients
- Step 2–Single Loop Coefficient Optimization
- Step 3–Single Loop with Complex Correlator
- Step 4–Double Loop with Level Test
- Step 5–Double Loop Swept Coefficients
- Step 6–Double Loop Coefficient Optimization
- Step 7–Double Loop ACPR Minimization
- Step 8–Double Loop ACPR Minimization and Complex Correlation
- Double Loop Measurement with IS-95 CDMA Signal
- Double Loop Optimization with IS-95 CDMA Signal
- Double Loop Measurement with pi/4 DQPSK Signal
- Double Loop Optimization with pi/4 DQPSK Signal

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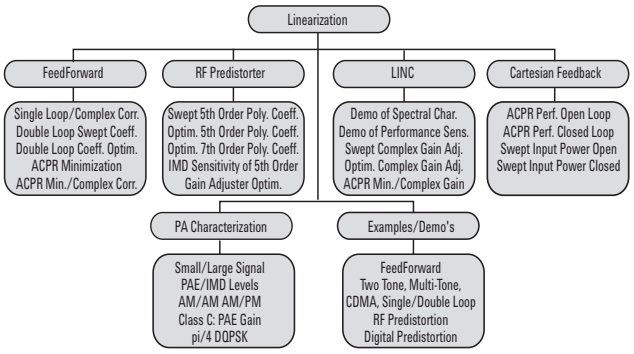

RF Predistorter
- Step 1–Swept 5th Order Polynomial Coefficients
- Step 2–Optimized 5th Order Polynomial Coefficients
- Step 3–Optimized 7th Order Polynomial Coefficients
- Step 4–IMD Sensitivity of 5th Order Polynomial Coefficients
- Step 5–Gain Adjuster Optimization with Complex Correlator
- Step 6–Optimized 5th Order Polynomial with Complex Correlator
- Measurement with pi/4 DQPSK Signal
- Optimization of ACPR with pi/4 DQPSK Signal
- Measurement with IS-95 CDMA Signal

LINC
- Step 1–Demonstration of Spectral Characteristics
- Step 2–Demonstration of Performance Sensitivity
- Step 3–Swept Complex Gain Adjuster Coefficients
- Step 4–Optimized Complex Gain Adjuster Coefficients
- Step 5–ACPR Minimization with Complex Gain Adjuster
- Measurement with pi/4 DQPSK Signal
- Optimization with pi/4 DQPSK Signal

Cartesian Feedback
- Step 1–ACPR Performance Open Loop
- Step 2–ACPR Performance Closed Loop
- Step 3–Swept Input Power Open Loop
- Step 4–Swept Input Power Closed Loop

Power Amplifier Characterization
- Class A: Small Signal Characterization
- Class A: Large Signal Characterization
- Class A: PAE and Intermodulation Levels
- Class C: AM/AM and AM/PM Characterization
- Class C: PAE and Gain Characterization
- Class C: Large Signal Characterization
- Class C: Measurement with pi/4 DQPSK Signal

Agilent Ptolemy (Demos/Templates)
- FeedForward Demo (Two Tone Input, Single Loop, ACPR Minimization)
- FeedForward Demo (Multi-Tone Input, Single Loop, Gradient Optimization)
- FeedForward Demo (Multi-Tone Input, Single Loop, ACPR Minimization)
- FeedForward Demo (IS-95 CDMA Input, Single Loop, ACPR Minimization)
- FeedForward Demo (Two Tone Input, Double Loop, Gradient Optimization)
- FeedForward Template (Two Tone Input, Single Loop, ACPR Minimization)
- FeedForward Template (IS-95 CDMA Input, Single Loop, ACPR Minimization)
- RF Predistortion Demo
- Digital Predistortion Demo

Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

"Our Promise" means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

"Your Advantage" means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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Printed in U.S.A. 7/00
5968-8433E

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