

ADS2003C Training Workbook

Using ADS Communication Systems Designer



Lab1. ADS Projects

Lab1. ADS Projects

- 1.1 Objectives
- 1.2 Start ADS
- 1.3 Opening a Project
- 1.4 Alternate Method to Open a Project
- 1.5 Check The Name of The Active Project

Lab2. Budget Analysis

Lab2. Budget Analysis

- 2.1 Objectives
- 2.2 Gain and Gain Compression Budget
 - 2.2.1 Schematic Capture and Simulation Setup
 - 2.2.2 Display Simulation Results
- 2.3 Noise Figure and Signal-to Noise Ratio Budget
 - 2.3.1 Schematic Capture and Simulation
 - 2.3.2 Display Simulation Results
- 2.4 Format the Budget Listing
 - 2.4.1 Interdependencies (the “what” function)
 - 2.4.2 Data Indexing (the “::” operator)
 - 2.4.3 Independent Variable Values (the “indep” function)
 - 2.4.4 Find Position in a Vector (the “find_index” Function)
 - 2.4.5 Putting it all together
- 2.5 Budget Analysis With an Additional Amplifier
- 2.6 Review of Lab2

Lab3. ACPR MEASUREMENTS USING CIRCUIT ENVELOPE

Lab3. ACPR MEASUREMENTS USING CIRCUIT ENVELOPE

3.1 Objectives

3.2 Schematic Capture and Simulation Setup

 3.2.1 Setting Up Variables - Digital Modulation parameters

 3.2.2 Simulation Control – Envelope Simulation

 3.2.3 Build the Modulator Front End for the ACPR Simulation

3.3 ACPR Measurements With Receiver Channel Filtering

 3.3.1 Separate the Channels at the Output

 3.3.2 Measurement Setup in Schematic Window

 3.3.3 ACPR Schematic and Simulation

 3.3.4 Display the Results – Spectrum, Power Levels and ACPR

3.4 ACPR Measurements Without Receiver Channel Filtering

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 3.4.2 Measurement Setup in Schematic Window

 3.4.3 The “channel_power_vr” Function

 3.4.4 The “acpr_vr” Function

 3.4.5 Display results

3.5 Review of Lab3

LAB 4: PERFORMANCE OPTIMIZATION

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- 4.2 Schematic Capture and Simulation / Optimization Setup
 - 4.2.1 Setup Parameters to be Varied During Optimization
 - 4.2.2 Setup Optimization Goals
 - 4.2.3 Setup the Optimization Controller
- 4.3 Display Results
 - 4.3.1 Checking Compliance with Optimization Goals
 - 4.3.2 Update the Optimization Values
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 - 4.4.4 Design Discussion
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Lab 5: STATISTICAL ANALYSIS

Lab 5: STATISTICAL ANALYSIS

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 5.2.2 Simulation Setup Update

5.3 Statistical Analysis – The Basics

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 5.3.2 Setup Statistical Analysis Specifications (Yield Spec)

 5.3.3 Setup Statistical Analysis (Yield Controller)

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5.4 Statistical Analysis – The Basics Multiple Variables , Multiple Specs

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 5.4.2 Add Yield Specifications

 5.4.3 Display the Results

 5.4.4 Statistical Analysis for a Larger Lot

5.5 REVIEW OF LAB5

Lab 6: Agilent Ptolemy- QPSK Simulation

LAB 6: AGILENT PTOLEMY - QPSK SIMULATION

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- 6.2 THE DATA SOURCE
 - 6.2.1 *Schematic Capture*
 - 6.2.2 *Dynamic Signal Monitoring (TkPlot and TkXYPlot)*
 - 6.2.3 *Simulation Setup (Data Flow Controller)*
 - 6.2.4 *Simulate and Observe the Results*
- 6.3 ADD BASEBAND FILTERS AND QAM MODULATOR
 - 6.3.1 *Add Baseband Filters*
 - 6.3.2 *Add QAM Modulator*
 - 6.3.3 *Add FFT Analyzer And TkPlots*
 - 6.3.4 *View the Constellation Diagram*
- 6.4 SAMPLED CONSTELLATION
 - 6.4.1 *Sampling Clock*
 - 6.4.2 *Sample and Hold Circuits*
 - 6.4.3 *View the Sampled Constellation*
 - 6.4.4 *View the Modulated Spectrum*
- 6.5 QPSK DEMODULATOR
 - 6.5.1 *Add the QPSK demodulator*
 - 6.5.2 *Connect Timed Sinks*
 - 6.5.3 *View Demodulated I and Q*
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 - 6.6.1 *Sample the Output I and Q*
 - 6.6.2 *View the Sampled Output Constellation*
 - 6.6.3 *View the Output Eye Diagram*
- 6.7 PHASE NOISE EFFECTS
- 6.8 LAB REVIEW

Lab 7: Agilent Ptolemy- PI4DQPSK Simulation

LAB 7: AGILENT PTOLEMY - PI4DQPSK SIMULATION

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Lab 8: Agilent Ptolemy- PI4DQPSK Numeric Modulator

LAB 8: HP PTOLEMY - PI4DQPSK NUMERIC MODULATOR

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 - 8.2.4 *View the Constellation Diagram*
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 - 8.3.2 *Tuning process*
 - 8.3.3 *Tuning of variables*
- 8.4 ERROR VECTOR MEASUREMENT
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LAB 10: AGILENT PTOLEMY: MEASURING THE BER

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