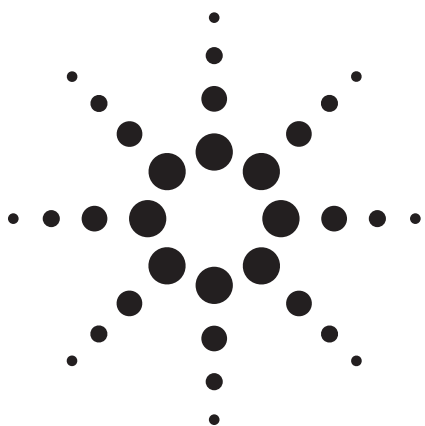




Designing W-CDMA/3GPP Communication System Using ADS

Course Overview

Course Numbers:

Agilent Training Center: N3233A

Onsite Training Center: N3233B

Learn through a combination of lecture and hands-on exercises

Course Overview

This 3-day, system level class is designed for engineers working in the digital communications industry. Topics covered include DS-SS technology and its application to CDMA systems, an overview of W-CDMA for 3G systems, applying Advanced Design System to the design of user equipment and base stations, and verification of these designs. The course extends over 3 days and assumes previous hands-on experience in using Advanced Design System for analog, digital and system designs, and familiarity with system design issues.

What you will learn

- Direct Sequence Spread Spectrum technology and its applications in Code Division Multiple Access systems
- Fundamentals of wide band CDMA for third generation communication systems
- Generating the base station and user equipment communication signals
 - WCDMA/3G signal sources in Advanced Design System
- Advanced Design System designs for WCDMA/3G transmitters/receivers for base stations and user equipment
- Testing the designs against standard specifications
- Using Advanced Design System test and verification projects

Specifications

Course type

User/Application Training

Audience

Technical staff who work in a communication systems design environment and want a comprehensive introduction in the application of Advanced Design System to W-CDMA/3GPP systems design.

Prerequisites

Advanced Design Fundamentals (N3211A/B) and Communication Systems Designer (N3202A/B) or a minimum of six months' experience using ADS in communication systems design.

Course Length

3 days

Course Format

The course combines lecture presentations with instructor guided, hands-on sessions

Delivery Method

Scheduled (at Agilent locations) or Dedicated (at a customer site)

To save you time and travel, many Agilent EEsof EDA courses can be delivered at your site. Agilent can provide the required equipment.

Detailed Course Agenda

Day 1

Direct Sequence Spread Spectrum

PN Codes; Scrambling; Data scrambling; De-scrambling; Scrambling applications; Interleaving; Data interleaving; De-interleaving; Interleaving data processing; Interleaving applications; Spreading; Data Spreading; RF Spectrum of the spread signal; Despreading; Despreading with the correct code; Code generation synchronization; Despreading with an incorrect Code; Using Walsh codes in spread spectrum applications; Walsh code generator; Using orthogonal codes; Non-orthogonal Walsh codes; Noise; RF connection using a DS-SS signal; Multiple access using DS-SS.

Base Station Signal Source

Logical channels (DPCH, SCH, CPICH, OCNS and combined channels); RF power calibration; CCDF measurements; Using the WCDMA3G_CCDF component, the effect of non-linear circuits on the spectrum and CCDF.

User Equipment Signal Source

Logical channels (DPDCH, DPCCCH, and combined channels); RF power calibration, CCDF measurements).



Agilent Technologies

Day 2

User Equipment Transmitter

UE transmitter test and verification project; Maximum output power (standard specification for maximum output power, WCDMA3G_PowerMeasure component, maximum output power measurement); CCDF; Occupied bandwidth (standard specification for OBW, OBW measurement, non-linear effects on OBW); Spectrum emission mask (standard specification for spectrum emission mask, SE mask definition, spectrum emission mask measurement); Adjacent channel leakage power ratio (standard specification for ACLR, ACLR measurement in the presence of switching transients, non-linear effects on ACLR); Error vector magnitude (standard specification for EVM, EVM measurement); Code-domain power spectrum; Peak code-domain error (standard specification for peak code-domain error, error-vector measurement, peak code-domain error measurement).

User Equipment Receiver

Signal intensity definitions and measurement setup; UE receiver test and verification project; Base station source calibration; CCDF measurements; Reference sensitivity level (standard specification for reference sensitivity level, reference sensitivity level measurement, reference sensitivity level measurement for PhyCH); Maximum input level (standard requirements for maximum input level, source calibration for maximum input level measurement, maximum input level measurement); Adjacent channel selectivity (standard specification for the ACS, ACS measurement); Blocking characteristics (standard specification for blocking, source calibration for blocking characteristics measurement, blocking characteristics measurement); Intermodulation characteristics (standard specifications for intermodulation characteristics).

Day 3

Base Station Transmitter

BS transmitter test and verification project; Maximum output power (standard specifications for maximum output power, maximum output power measurement); Occupied bandwidth (standard specifications for OBW, OBW measurement); Spectrum emission mask (standard specification for SE mask, SE mask definition, SE mask measurement); Adjacent channel leakage power ratio (standard specification for ACLR, ACLR measurement under steady state conditions, ACLR measurement in the presence of switching transients); Error vector magnitude (standard requirements for EVM, EVM measurement); Code-domain power spectrum; Peak-code domain error (standard requirements for PCDE, Error-vector measurement, peak code-domain error measurement).

Base Station Receiver

BS receiver test and verification project; User equipment source calibration; CCDF measurements; Reference sensitivity level (standard requirements for reference sensitivity level, reference sensitivity level measurement); Dynamic range (standard requirements for dynamic range, source calibration for dynamic range measurements dynamic range measurement); Adjacent channel selectivity (standard specification for ACS, ACS measurement); Blocking characteristics (standard specification for blocking characteristics, signal source calibration for blocking measurements, blocking characteristics measurement); Intermodulation characteristics (standard requirements for intermodulation characteristics, intermodulation characteristics measurement).

For the latest information on class schedules and locations, visit our website at:

www.agilent.com/find/education

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office. The complete list is available at:

www.agilent.com/find/contactus

Americas

Canada	(877) 894-4414
Latin America	305 269 7500
United States	(800) 829-4444

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Thailand	1 800 226 008

Europe & Middle East

Austria	01 36027 71571
Belgium	32 (0) 2 404 93 40
Denmark	45 70 13 15 15
Finland	358 (0) 10 855 2100
France	0825 010 700*
	*0.125 €/minute
Germany	07031 464 6333
Ireland	1890 924 204
Israel	972-3-9288-504/544
Italy	39 02 92 60 8484
Netherlands	31 (0) 20 547 2111
Spain	34 (91) 631 3300
Sweden	0200-88 22 55
Switzerland	0800 80 53 53
United Kingdom	44 (0) 118 9276201

Other European Countries:

www.agilent.com/find/contactus

Revised: October 6, 2008



Agilent Email Updates

www.agilent.com/find/emailupdates
Get the latest information on the products and applications you select.

Product specifications and descriptions in this document subject to change without notice.

© Agilent Technologies, Inc. 2009
Printed in USA, February 16, 2009
5988-2373EN



Agilent Technologies