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CDMA2000 DesignGuide

Advanced Design System 2008

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Contents

- CDMA2000-Compliant Signal Source DesignGuide Reference
 - Using DesignGuides
 - - Accessing the Documentation
 - Basic Procedure
 - - Signal Source Template Features
 - - More Signal Source Template Features
 - Available Signal Sources
 - - Forward Link Sources
 - - Reverse Link Sources

CDMA2000-Compliant Signal Source DesignGuide Reference

The CDMA-2000-Compliant Signal Source DesignGuide provides a selection of pre-formatted signal sources for the CDMA2000-compliant Design Library for Advanced Design System. These signal sources provide various combinations of link direction, spreading rate, radio configuration and number of users. Note that these are partially coded sources, suitable for use in CDMA2000 system simulations such as transmitter power amplifier evaluation and link propagation studies.

The available configurations are similar to the Agilent ESG-D RF Signal Generator with Option 101. However, although they do include higher levels of coding, they are not fully-coded signals. In addition, the CDMA2000-compliant Design Library filters are based upon the IS-2000 specification, while the ESG-D filters default to a modified and equalized filter optimized for ACPR performance. Therefore, some differences in the resulting signal statistics are to be expected when compared to the ESG-D performance.

 **Note**
This document is written describing and showing access through the cascading menu preference. If you are running the program through the selection dialog box method, the appearance and interface will be slightly different.

Using DesignGuides

All DesignGuides can be accessed in the Schematic window through either cascading menus or dialog boxes. You can configure your preferred method in the Advanced Design System Main window. Select the DesignGuide menu. The commands in this menu are as follows:

DesignGuide Studio Documentation > Developer Studio Documentation is only available on this menu if you have installed the DesignGuide Developer Studio. It brings up the DesignGuide Developer Studio documentation. Another way to access the Developer Studio documentation is by selecting Help > Topics and Index > DesignGuides > DesignGuide Developer Studio (from any ADS program window).

Advanced Design System 2008

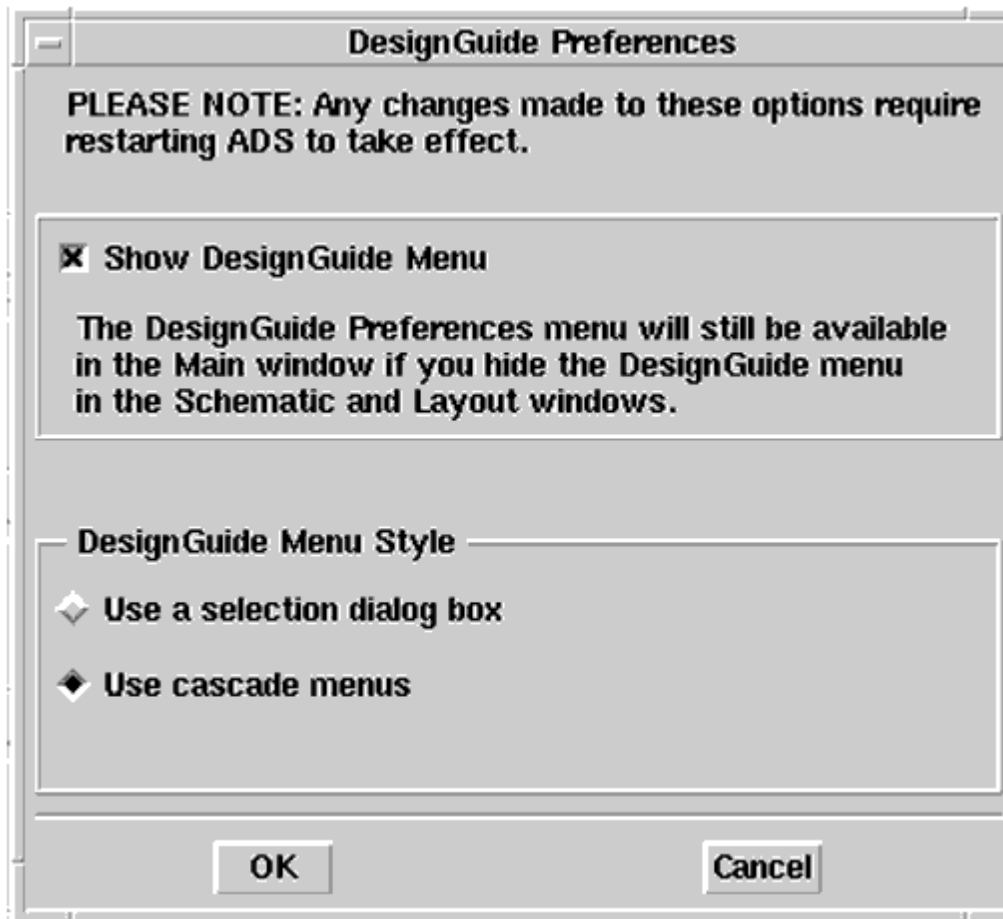
DesignGuide Developer Studio > Start DesignGuide Studio is only available on this menu if you have installed the DesignGuide Developer Studio. It launches the initial Developer Studio dialog box.

Add DesignGuide brings up a directory browser in which you can add a DesignGuide to your installation. This is primarily intended for use with DesignGuides that are custom-built through the Developer Studio.


List/Remove DesignGuide brings up a list of your installed DesignGuides. Select any that you would like to uninstall and choose the Remove button.

Preferences brings up a dialog box that allows you to:

- Disable the DesignGuide menu commands (all except Preferences) in the Main window by unchecking this box. In the Schematic and Layout windows, the complete DesignGuide menu and all of its commands will be removed if this box is unchecked.
- Select your preferred interface method (cascading menus vs. dialog boxes).



Close and restart the program for your preference changes to take effect.

 Note

On PC systems, Windows resource issues might limit the use of cascading menus. When multiple windows are open, your system could become destabilized. Thus the dialog box menu style might be best for these situations.

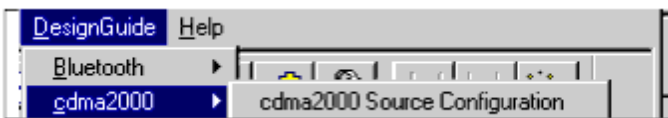
Accessing the Documentation

To access the documentation for the DesignGuide, select either of the following:

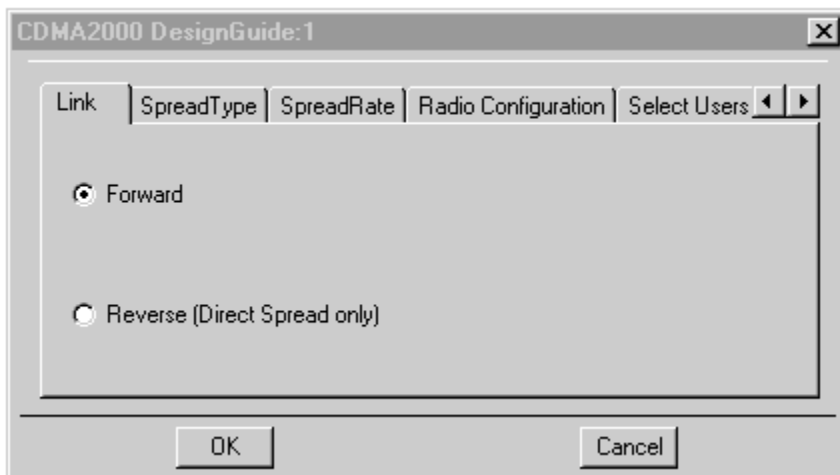
- DesignGuide > cdma2000 > cdma2000 DesignGuide Documentation (from ADS Schematic window)
- Help > Topics and Index > DesignGuides > cdma2000 (from any ADS program window)

Basic Procedure

From the DesignGuide menu on a Schematic window (which should be in DSP mode), select CDMA2000 DesignGuide > cdma2000 Source Configuration



A Tab dialog box appears.



From this dialog box, you can select the desired signal source configuration from the options provided. Parameters include:

- Link: Forward, Reverse
- SpreadType: Direct, Multi-Carrier
- SpreadRate: SR1 (1.2288 Mcps), SR3 (3.6864 Mcps)
- Radio Configuration: RC3, RC5, RC6
- Select Users: (Various Options)

Advanced Design System 2008

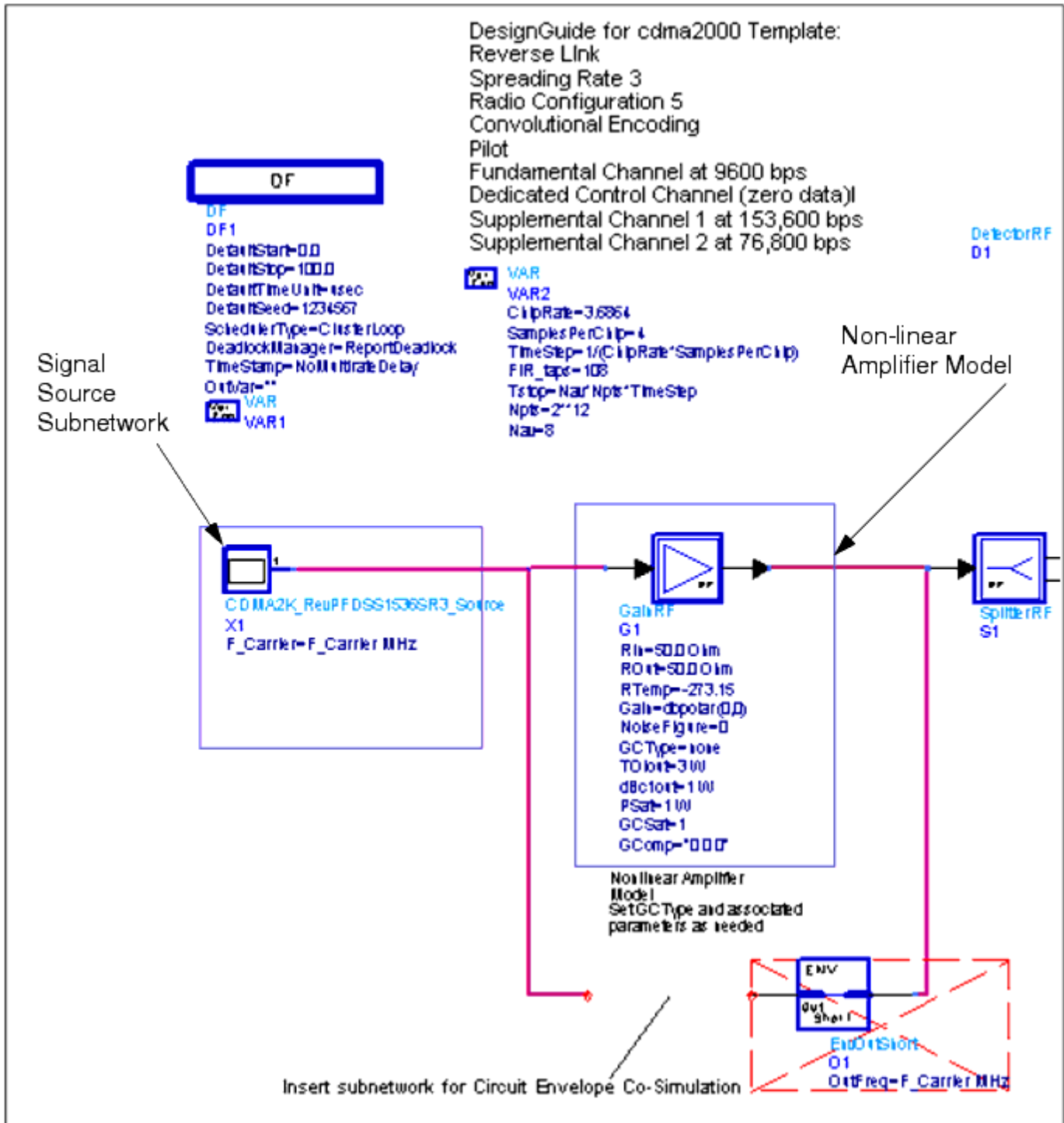
After you have selected the desired option for each tab, select the next tab and repeat the process until all tabs have been defined.



Note

On UNIX systems, the tab titles might appear differently from the preceding figure.

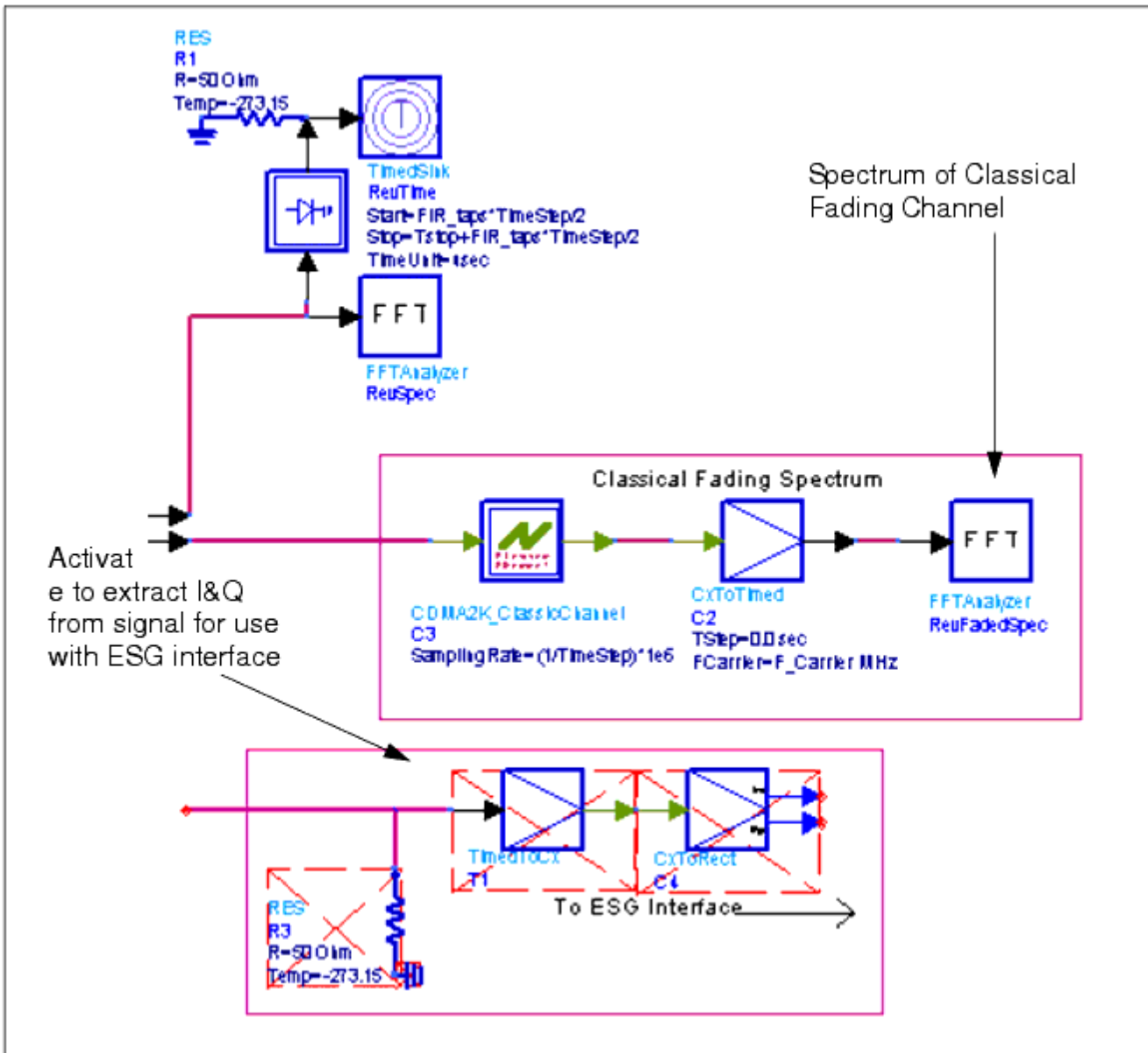
When you have finished selecting the source configuration, click OK to complete the process. A schematic will appear, and after a slight delay, a data display window will appear, showing the characteristics of the selected signal source.



Signal Source Template Features

The Non-linear Amplifier Model is set by default for linear operation. Modify the GCType and associated parameters (double click on the GainRF symbol to enter Edit mode, then click Help for detailed information on this model) to

describe non-linear behavior, then choose Simulate. To co-simulate an Analog/RF model using the Circuit Envelope simulator, de-activate the GainRF component, place the Analog/RF subcircuit in the indicated location and activate the EnvOutSelect component.



More Signal Source Template Features

Available Signal Sources

Forward Link Sources

Advanced Design System 2008

Signal Source Name	Description
DG_Fwd_RC3_PilotOnlySR1	Forward Pilot channel at SR1, Direct Spread
DG_Fwd_PilotOnlySR3	Forward Pilot channel at SR3, Direct Spread
DG_Fwd_RC3_PilotOnlySR3MC	Forward Pilot channel at SR3, Multi-Carrier
DG_Fwd_9ChannelDSSR1	Forward 9-channel at SR1, Direct Spread. Channels include: Pilot at 9.6 kbps, paging at 9.6 kbps, sync at 1.2 kbps, two fundamental (traffic) channels at 9.6 kbps, four supplemental channels at 19.2 kbps. Radio Configuration 3.
DG_Fwd_9ChannelDSSR3	Forward 9-channel at SR3, Direct Spread. Channels include: Pilot at 9.6 kbps, sync at 1.2 kbps, three fundamental (traffic) channels at 9.6 kbps, four supplemental channels at 38.4 kbps. Radio Configuration 6.
DG_Fwd_9ChannelMCSR3	Forward 9-channel at SR3, Multi-Carrier. Channels include: Pilot at 9.6 kbps, sync at 1.2 kbps, sync at 1.2 kbps, two fundamental (traffic) channels at 9.6 kbps, four supplemental channels at 19.2 kbps. Radio Configuration 6.

Reverse Link Sources

Signal Source Name	Description
DG_Rev_RC3_PilotOnly	Reverse Pilot Channel at SR1
DG_Rev_RC3_PFDSS1536	Reverse 4-channel signal at SR1. Channels include: Pilot, dedicated control channel, fundamental (traffic) channel, one supplemental channel at 153.6 kbps. Radio Configuration 5
DG_Rev_RC3_PFDSS1536	Reverse 5-channel signal at SR1. Channels include: Pilot, dedicated control channel, fundamental (traffic) channel at 9.6 kbps, two supplemental channels at 153.6 and 9.6 kbps. Radio Configuration 5
DG_Rev_RC5_PFDSS1536	Reverse 5-channel signal at SR3. Channels include: Pilot, dedicated control channel, fundamental (traffic) channel at 9.6 kbps, two supplemental channels at 153.6 kbps and 76.8 kbps. Radio Configuration 5
DG_Rev_RC5_PFDSS1536	Reverse 5-channel signal at SR3. Channels include: Pilot, dedicated control channel, fundamental (traffic) channel at 9.6 kbps, two supplemental channels at 153.6 kbps and 76.8 kbps. Radio Configuration 5