

ADC12J4000 IBIS-AMI Models

User's Guide

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1 Introduction

This document describes the organization, structure, and proper usage of the TI ADC12J4000 IBIS-AMI models (compiled and approved for external customer release), hereafter referred to as the “model” for short. The model is intended for use by the ADC12J4000 design team and by ADC12J4000 customers for system-level modeling and verification. This document assumes that you are familiar with the relevant IBIS-AMI modeling specifications.

1.1 Formatting Conventions

The help readability, various formatting conventions are used throughout this document:

- Hyperlinks to material within and outside this document are marked in [blue](#).
- Courier font is used for `file names, code, variables, structures, parameters, and terminal commands`.

1.2 Charter of the SerDes IBIS-AMI models

The models are designed in accordance with the [IBIS-AMI standard](#) and attempts to model the significant characteristics of most components in the ADC12J4000. The models are not intended to be an exact representation of ADC12J4000 components implemented. Rather, the models seek to provide as high a degree of accuracy as is feasible outside of Spice-based models and simulations.

1.3 Is / Is Not Table

The following table describes the features and purposes of the models, as well as the limitations of the models.

Table 1: Model Is / Is Not Table

Is	Is Not
Compiled for 32-bit AMI EDA tool that run in Windows platform	Compiled for any other platform (i.e. 32- or 64-bit Linux)
Compliant to IBIS-AMI 5.0	Compliant to a more recent BIRD revisions, if they exist
Model of ADC12J4000 functionality, non-idealities, and performance	Exact representation of implemented components

2 About This Release

2.1 IBIS-AMI Model Files

[Table 2](#) shows the key IBIS-AMI model files delivered with the model release as part of the compressed archive.

Table 2: IBIS-AMI files included with the model release

File Name	Type	Description
ADC12J4000_IBIS_AMI_users_guide.pdf	PDF	TI ADC12J4000 AMI model user's guide.
adc12j4000.ibs	IBIS	Top-level IBIS wrapper for the Tx and AMI model.
adc12j4000_TX.ami	AMI	Parameters file for the Tx model as required by the IBIS-AMI standard. This is a text file which is common for all OS/execution platforms.
adc12j4000_TX.dll	DLL	Windows 32-bit compiled shared library for the Tx model. This shared library includes the AMI_Init, AMI_GetWave, and AMI_Close functions defined in the IBIS-AMI standard.
tx_termination_<n>_RI.s4p	s4p	Transmitter termination n = 0:15
Demo projects for ADS		

The TI IBIS-AMI models contain information on products that is based on high-level specifications. These may not accurately represent the product design in all cases. Please verify the accuracy of the models with TI before using the results.

2.2 TX AMI model specific parameters

The following settings correspond to the following values for this model.

Table 3. Model Specific Parameters for Transmitter

pre	0 to 15
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3 Model Simulation

This section guides the user through the simulation of the IBIS-AMI model.

3.1 Agilent ADS User's Guide

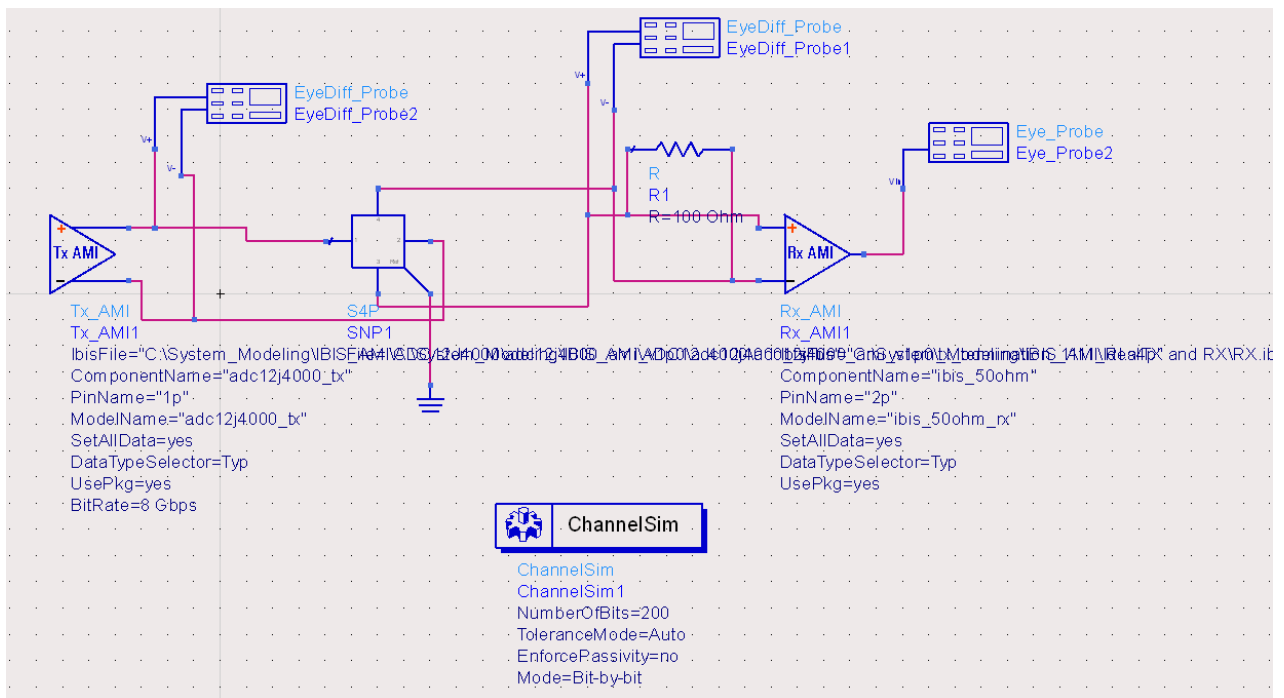


Figure 1. Simulation Workspace

As depicted by Figure 1, TX termination in s-parameter format is instantiated after the TX_AMI module. Please choose the right terminations4p file that corresponds to the pre-emphasis setting. An ideal receiver is used to monitor the TX performance in this setup, and hence an ideal 100 ohm resistor is employed as the receiver's termination. This 100 ohm termination should be replaced by the actual receiver's termination when a non-ideal receiver is used.

Note:

- 1) Please instantiate the tx_termination s4p that corresponds to the pre-emphasis (pre) setting.
- 2) The Port order for the s4p is 1 to 3 and 2 to 4.

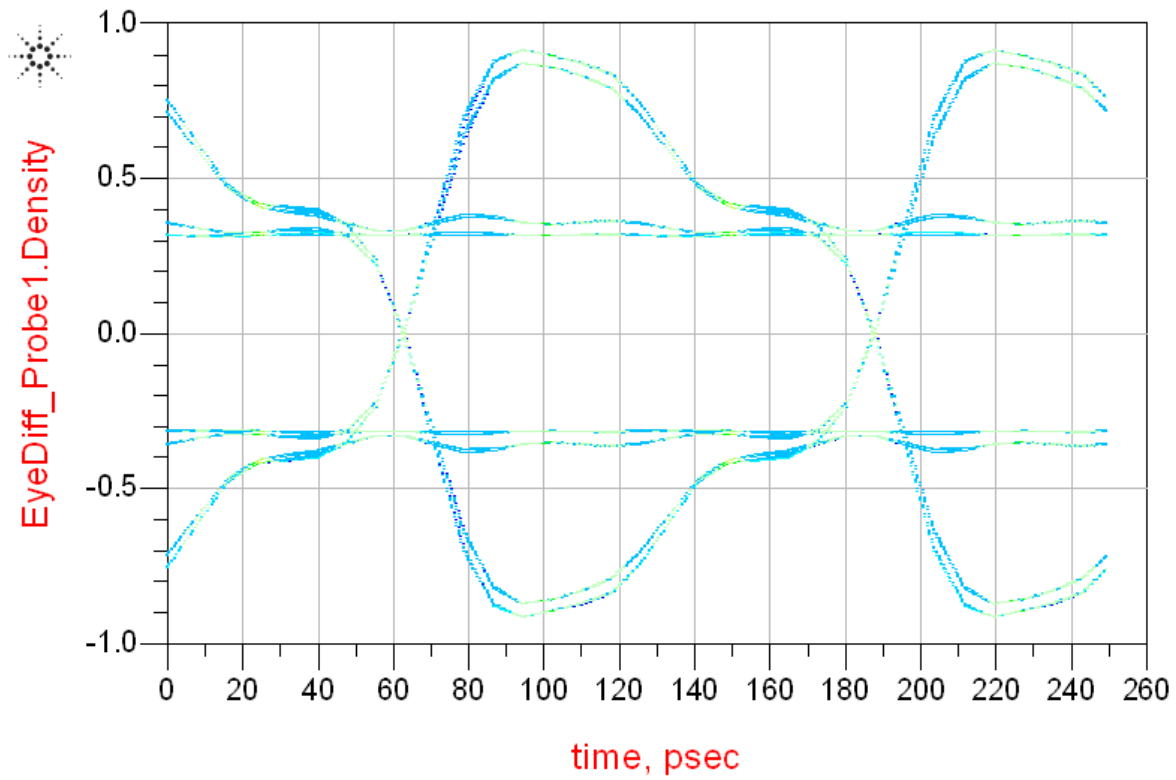


Figure 2. Eye-diagram for pre = 15