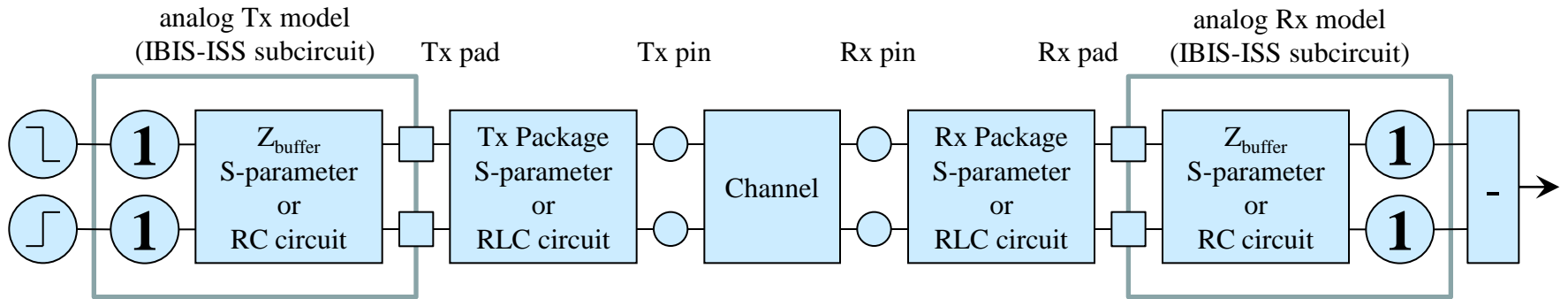


Analog Models for IBIS-AMI

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The AMI analog model



PWL voltage sources in EDA tool (parameters in .ami file)

infinite input impedance must be guaranteed by an ideal isolation amplifier in the netlist or an ideal isolation amplifier incorporated within the Touchstone S-parameter data
(model parameters may be defined in the .ami file)

zero output impedance must be guaranteed by an ideal isolation amplifier in the netlist or an ideal isolation amplifier incorporated within the Touchstone S-parameter data
(model parameters may be defined in the .ami file)

difference waveform and IR are generated by the EDA tool for AMI simulations

The analog IBIS model for AMI channel characterization

- **The PWL stimulus voltage sources are NOT part of the analog model, these will be provided by the EDA tool**
 - their parameters (V_{oh} , V_{ol} , t_r , t_f) are defined in the .ami file using predefined Reserved_Parameters (Usage Info)
- **The analog Tx models must have an infinite input impedance, and the analog Rx models must have a zero output impedance at the algorithmic/analog boundary**
 - this may be achieved by using an ideal isolation amplifier voltage controlled voltage source (E-element) in the circuit topology, or by incorporating an isolation amplifier within a Touchstone S-parameter file that models this boundary
 - model parameters may be defined in the .ami file (as Reserved or Model Specific parameters)
- **The difference waveform is generated by the EDA tool from the differential output of the Rx model**
- **This difference waveform is further processed by the EDA tool to generate the channel's impulse response for the algorithmic model**

Questions brought to the ATM Task Group and **decisions made by the group**

- Should the specification mention that the EDA tool is responsible to generate a difference waveform as well as the Impulse Response from the Rx model's differential output waveforms?

yes, yes

- Should the specification also mention that the input of the analog model may come from Tx GetWave and the output may be passed to Rx GetWave?

no, no

- Should the specification describe how the single difference waveform of Tx GetWave is converted to a differential waveform for the differential input of the Tx analog model?

- connect P side to Tx GetWave output and N side to node 0
- connect P side to $+\frac{1}{2} * (\text{Tx GetWave})$ and N side to $-\frac{1}{2} * (\text{Tx GetWave})$
- how does this allow DC and/or common mode components and mode conversions to be processed correctly?

no

- Does this mean that the specification should describe two types of flows?

no

- Or should the specification be silent about any other approach besides the time domain impulse response generation method?

yes

- **It was also stated in the meeting that all IBIS-AMI analog models must comply with the requirements described on the previous pages so that all EDA tools should be able to generate an impulse response using the models.**