

Suggested practices for reporting simulation results (reprise)

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Motivation

- Simulations expected to be the basis for important discussions and decisions going forward
 - Multiple sources
- Foster consistent and complete disclosure of the simulation conditions
 - Better understanding of what simulation results mean
 - Facilitate independent verification of results
- Precedent
 - IEEE P802.3ap Signaling Ad Hoc
 - http://www.ieee802.org/3/ap/public/signal_adhoc/index.html

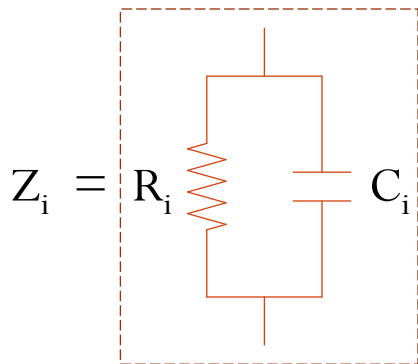
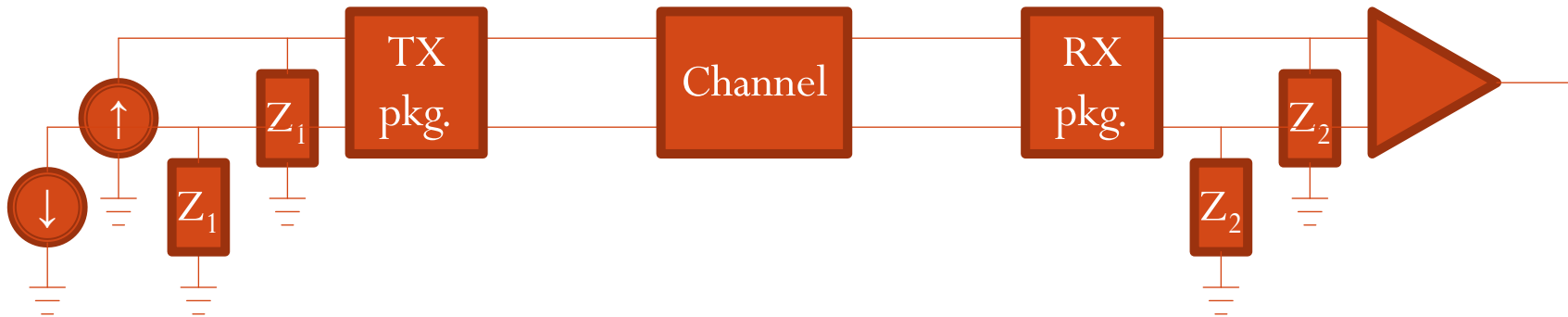
Guiding principles

- Not recommending values, just what should be reported
 - Submitter sets values based on expectations
- Not requiring that simulations include all specified parameters
 - But should disclose which parameters are omitted

Teleconference

- March 3, 2011
- 16 participants
- Incorporated participant input for presentation at this meeting

Channel parameters



TRANSMITTER	RECEIVER
Device package	Device package
Single-ended resistance, R_1	Single-ended resistance, R_2
Single-ended capacitance, C_1	Single-ended capacitance, C_2

Additional channel considerations

- Channel consists of a victim path and possibly one or more aggressor paths
- Each path may have different device packages and/or terminations
 - Define the complete channel configuration
- If package crosstalk is included, explain methodology

Link level parameters

Parameter	Comments
Bit rate	—
Modulation	—
Signaling rate	—
Number of symbols simulated	—
Target symbol error ratio	—

Transmitter parameters

Parameter	Comments
Test pattern	—
Differential output voltage, peak-to-peak	Based on steady state output voltage without de-emphasis
Deterministic jitter, peak-to-peak	—
Deterministic jitter model	e.g. dual Dirac, sinusoidal (specify frequency), filtered PRBS-n (specify filter)
Duty cycle distortion, peak-to-peak	As defined in IEEE 802.3 TM -2008 72.7.1.8
Random jitter, RMS	—

- Reference point is the input to the transmitter package
- Transmitter jitter bandwidth
 - Jitter is measured at the output of a reference clock recovery unit with a prescribed bandwidth
 - 10 MHz was specified for 100GBASE-LR4/ER4

Receiver parameters

Parameter	Comments
Random noise, RMS	—
Deterministic jitter, peak-to-peak	—
Deterministic jitter model	As defined for the transmitter
Random jitter, RMS	—
Continuous time filter	Define transfer function
Equalizer structure	Relevant information dependent on equalizer type, e.g. number of taps, tap spacing, etc.
Receiver target amplitudes	Mean values of the detected symbols

Additional crosstalk considerations

- In principle, transmitter parameters may be replicated for each aggressor
- In addition, the timing relationship between the victim and aggressor should be documented
 - Asynchronous
 - If synchronous, then define methodology for setting the phase relationship

Next steps

- Maintain a “living list”
 - Reference for those who want to present simulation data
 - Update suggested practices as issues are exposed