Proposal to modify OIF Stat Eye Methodology for 802.3ap Signaling Evaluation and Channel Compliance

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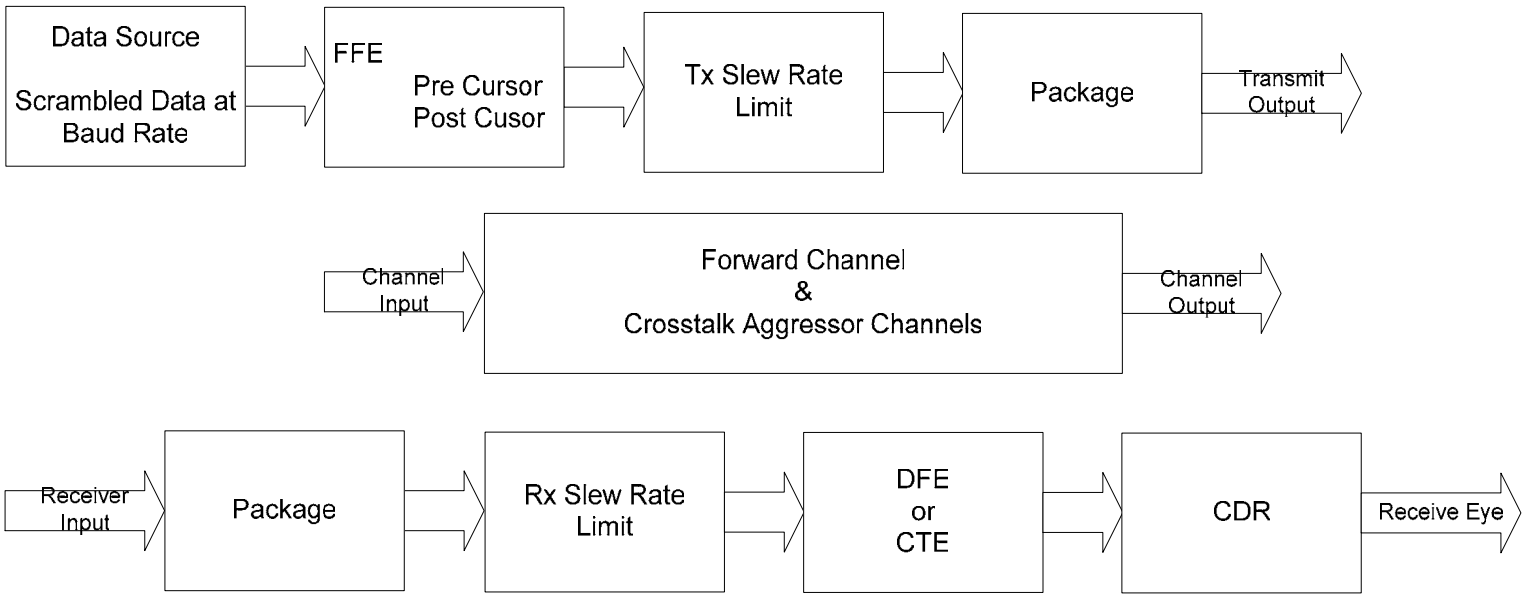
What is Stat Eye?

- OIF Channel Compliance Methodology
  - CEI Clause 2 Specifies a Mathematical Model for a Reference Transmitter, a Reference Receiver, and a Methodology for Analyzing Performance of Candidate Channels.
- OIF Informative Open Source Tool
  - Mat Lab Scripts which implement the CEI Clause 2 math
- Open Source Developer Forum
  - www.stateye.org
  - Resource for code development and information interchange
  - Mat Lab Scripts which implement the CEI Clause 2 math (as well as other things).
  - C++ Code (Near Term Future)

OIF Stat Eye Reference Model

Simulated Transmitter, Measured Channel, Simulated Recevier



For further details on Stat Eye see:

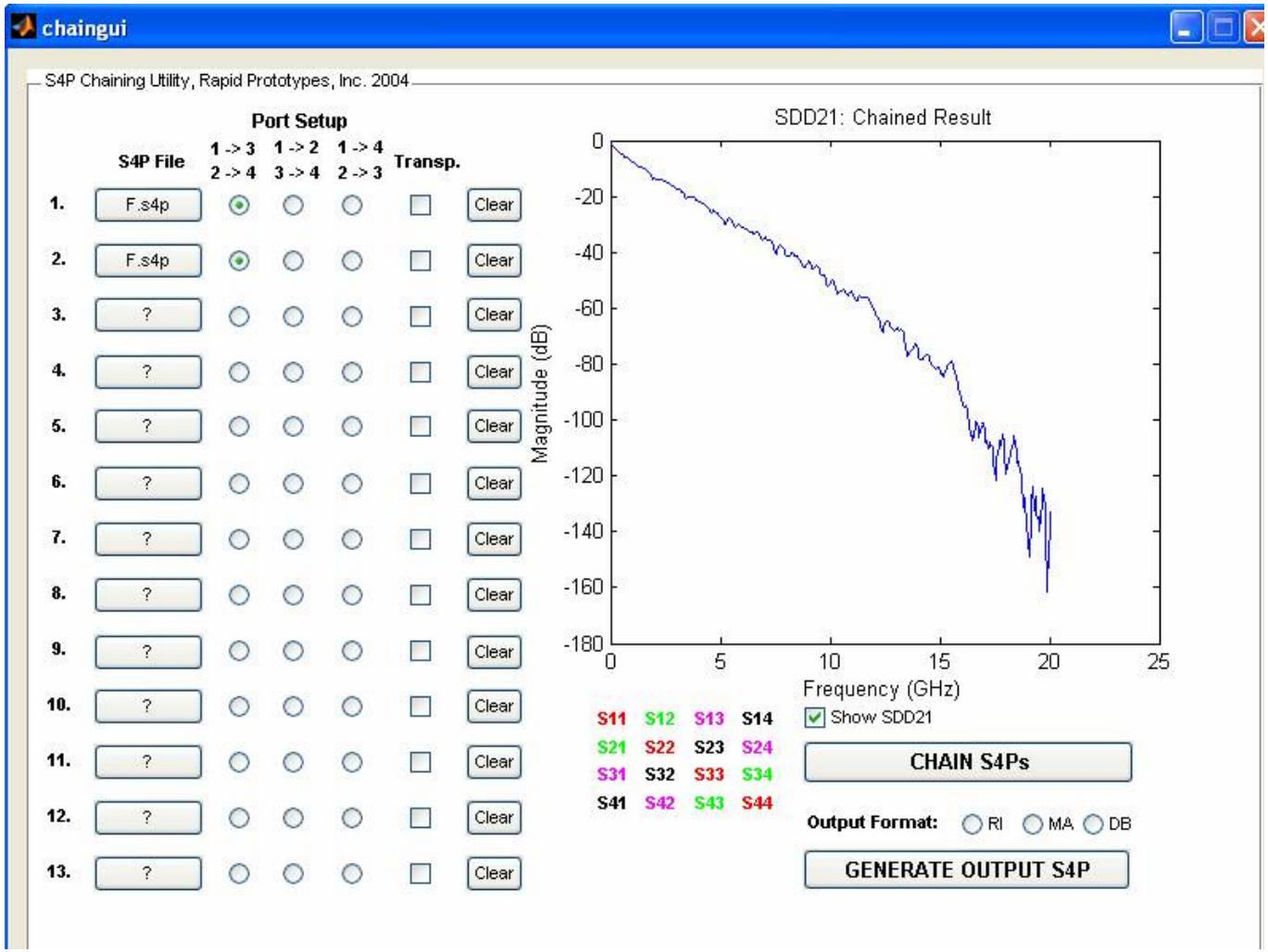
Using StatEye for IEEE Backplane Evaluation

www.ieee802.org/3/ap/public/signal_adhoc/ghiasi_01_0904.pdf

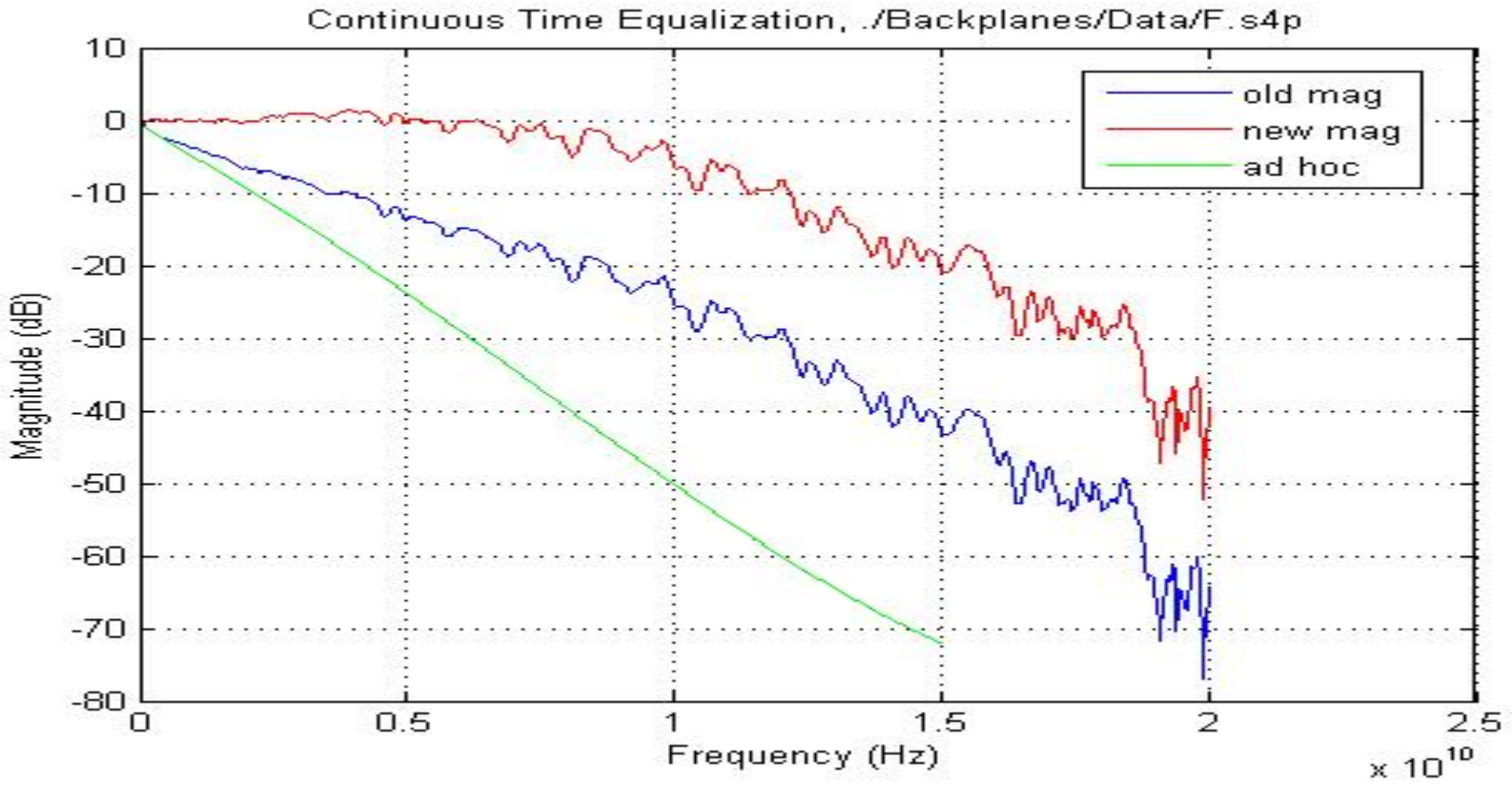
OIF Stat Eye Outputs

- Statistical Eye at BER of interest
  - DJ
  - TJ
  - Eye Amplitude
- Other Information Available
  - Statistical Eye Contours
  - Impulse Response
  - Channel Parameters Sdd21,11,…
  - Equalization Settings
- Work in Progress
  - New User Interface
  - Channel Parameters versus Mask sets
  - TDR view of the channel

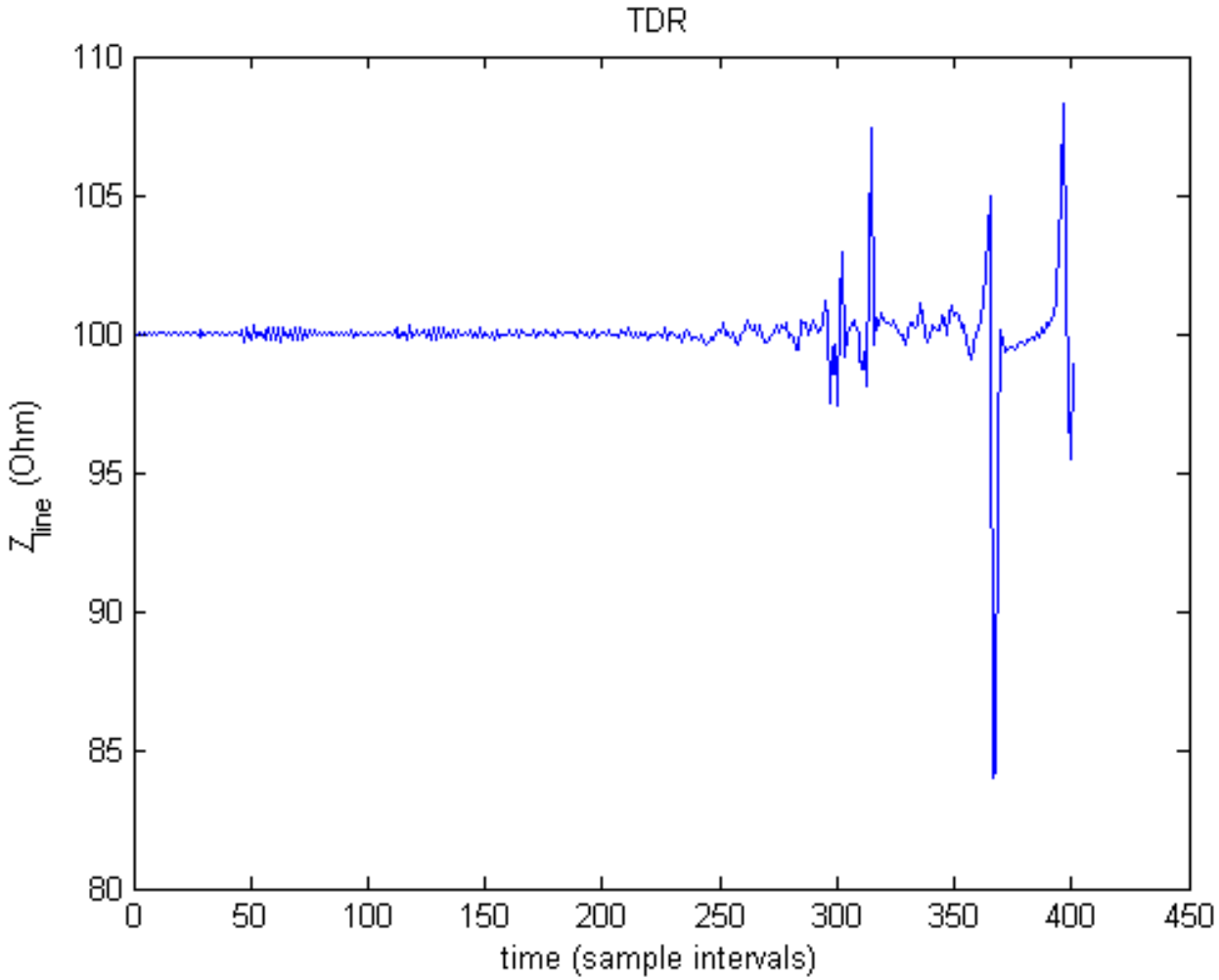
New Stat Eye User Interface
Work In Progress



Channel Parameters versus Mask sets
Work In Progress



Stat Eye TDR Output
Work In Progress



Benefits of Statistical Eye Approach

- Statistical Eye For Signaling Evaluation
  - Open Source
  - **All Participants can validate any & all simulation results**
  - Input, Outputs, and Simulator details visible to all
  - Proponents of a signaling approach develop and contribute any additional functionality required.

802.3ap Channel Reference Model

- Once we adopt Informative or Normative Mask Sets for a Channel
  - Those can be added to IEEE version of Stat Eye

802.3ap Signaling Reference Model

- Once we adopt a Signaling Reference Model & Simulation Assumptions
  - That can be added to IEEE version of Stat Eye.

Benefits of Statistical Eye Approach

- Once the Signaling and Channel Models are adopted.
- Statistical Eye Can Be Used For Channel Compliance
  - Complete consideration of channel
    - with magnitude, phase, stub effects, and crosstalk
  - Accounts for the ability of the “reference” Transmitter and Receiver to compensate for Channel Imperfections
  - Definitive Executable Specification for Channel Compliance

Stat Eye Background

Excerpts of Using StatEye for IEEE Backplane Evaluation to be included here
www.ieee802.org/3/ap/public/signal_adhoc/ghiasi_01_0904.pdf

Stat Eye Background

For further details see:

Using StatEye for IEEE Backplane Evaluation

www.ieee802.org/3/ap/public/signal_adhoc/ghiasi_01_0904.pdf

OIF CEI Draft Specification

oif2003.104.10.pdf

StatEye.Org Web Site

www.stateye.org