Stateeye for SATA/SAS

An overview of Stateeye v5
Versions

- **v1 & v2**
  - original Matlab scripts used for channel analysis in OIF
  - originally supported by Anthony, now completely obsolete

- **v3**
  - 1st widely available version additionally supported by Acurid from the [www.stateye.org](http://www.stateye.org) website
  - unfortunately, Acurid is now bankrupt and this version has become effectively obsolete

- **v4**
  - commercially supported development by OIF in accordance with CEI Standard
  - supported by Edotronik at [www.edotronik.de/stateye](http://www.edotronik.de/stateye)

- **v5**
  - coming soon...
  - commercial sponsorship for Edotronik under discussion
  - [www.stateye.org](http://www.stateye.org) will be re-vamped to support further open source development
v4 Feature Set

- Matlab based
- S-parameter manipulation and cascading
- LTE Support (adaptive)
- DFE Support (adaptive)
- FIR Support (adaptive)
- CDR (Edge or amplitude based)
- XML Based batch language
- GUI Object editor
- UNIX, Linux, Windows support for engine
v5 Feature Set

As per v4 but..

- Python based
- Measurement scope interface
- PWS Support
- 8b10b
- Wizard
- Connectivity Editor
Software Stack

- GUI Object Editor
  - Definition File: xml
  - Parser: (windows, web)
  - Analysis Script: myscript.m
  - Engine: .cpp, control scripts: .m
  - Display

- S-parameters

- Engine: .py
- matplotlib: .py
- S-parameters, step responses

- Wizard
Figure 5 - Intersymbol Interference (ISI)
Each possible amplitude is the convolution of the data stream $d_n$ with the cursors $r_n$.

$$A = \sum_{n} d_n r_n$$

$$d = \{-1,1\}$$

Figure 12 - ISI PDF
Transitions
Step Responses

![Step Response Graph](image-url)
Edge Extraction using Scope
SATA Channel Demonstration
Preliminary Results
Stateye
- is an open source tool
- is also a freely available tool
- core development is done through voluntarily open source development
- tool development and test is commercially supported through direct sponsorship
  - currently Infineon plus three instrumentation companies are considering the further support of the Stateye tool
Timeline

- v4.2.2 final acceptance by EApr‘07
- v5 Sponsorship closure EMay‘07
- v5 alpha testing June/July‘07
- v5.0 release EAug‘07