IEEE 802.3ap Signaling Ad Hoc

IEEE 802.3ap Task Force 5 Nov'04



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Signaling ad hoc Work Items

- **1. Signaling Quality Metrics**
 - **1. BER**
 - 2. Voltage/timing margin
 - **3. Power, complexity**
- 2. Definition of aggressors
 - NEXT / FEXT Presentation from John Stonick
 - Background (system) noise
 - Random noise
- **3. Define remaining link elements No presentations**
 - Elements beyond the channel model
 - Package
 - AC Coupling cap and TP5 trace
- Outcomes Today ☺
 - Finalize the treatment of aggressors
 - Request presentation material for link elements

Treatment of Aggressors

• NEXT/FEXT

- Presentation from John Stonick
- Straw polls from 29/10/04 mtg contradictory
 - Group prefers both determinstic and random treatment, yet
 - driven by the measured channel NEXT/FEXT data
- Difficult to equitably partition these
- Should we reconsider the straw poll?
 - Some support for completely random treatment can we
- Environmental noise
 - Random or Deterministic?
 - Can we find a single amplitude for it?
- Thermal and electronic noise
 - Random (obviously) Do we specify a noise BW?
 - 100 Ω environment noise floor is 1.287nV/ \sqrt{Hz} , over 5GHz is 90 μ VRMS
 - Account for Rx input referred noise adder say, 4X
 - Can we agree on a number? 365µRMS (5.096mVp-p)

Aggressor Treatment straw polls

- Should we reconsider treating NEXT/FEXT as random?
 - Yes
 - No
- Can we select a random noise voltage for the minimum random component?
 - PSD
 - No
- What value should we use a for thermal noise?
 - 365mVRMS/5mV@5GHz
 - Something else
- Should we have a background noise contribution?
 - Yes
 - No
- What magnitude for fixed background should we use?
 - Chicago rules, set bin values

Proposals Needed

- This process is contribution-driven.
 - Without contributions, there is not much to discuss
- Need to make progress on the remaining open work items
- We need specific proposals for simulate-able models for other elements in the link. Specifically:
 - **1.** Transmitter output BW and Impedance model
 - **2.** AC Coupling cap and TP5 link
 - **3.** Receiver input BW and Impedance model