

PHY Baseline Proposal Ad Hoc Report

Contribution to IEEE 802.3: 40G-BASE-T Task Force

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Summary

- PHY Baseline Proposal Ad Hoc chartered by Chair of 802.3bq at November meeting
 - Identify elements necessary to form a baseline proposal
 - Signaling bandwidth (bounds)
 - Modulation, EQ, coding, etc.
- Two telephonic meetings held
 - 5 December 2013: 2 contributions
 - 14 January 2014: 1 contribution
- Strawman proposed, Channel model DFE margins shown
 - Calls for more work made! (analysis & measurements)

Strawman

- zimmerman_3bqah_02_1213.pdf:
 - Strawman based on 10GBASE-T @ 3.2Gbd
 - In 'sweet spot' of Grimwood power curve
 - Easy to standardize
 - Well known
 - Several improvements to consider
 - Alternatives and/or power analysis called for
- Discussion highlighted transmit power as one parameter to optimize

Channel models

- Saltz-SNR-8in-3m-24m-3m-8in.pdf:
 - Demonstrates use of concatenated channel models on Task Force Website
 - Shows a variety of baud rates with good Salz SNR
- Action item (for Channel Modelling ad hoc):
Please solicit contributions on:
 - Measurement methodology for background noise in systems
 - Measurement results of background noise in systems
 - Including broadband, stationary, and nonstationary narrowband sources

Next Steps

- PHY power and tradeoff analysis from strawman (and alternatives that emerge)
 - Normalize performance targets for comparisons
 - (e.g., use common implementation margin & channels on analyses)
 - Baseline power, latency & performance analyses
 - Implementation-specific DSP models
 - PHY designer silicon engineering work!
- Consider improvements needed
- Incorporate background noise when available
- Consider impacts on higher layers, & alternatives (recall barrass_3bq_01_0713)
- Set next ad hoc meeting during this Task Force meeting