Reduced Twisted Pair Gigabit Ethernet PHY

IEEE 802.3 Ethernet Working Group

Steven B. Carlson

High Speed Design, Inc.

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Geneva, CH

Reflector and Web

- To subscribe to the RTPGE reflector, send an email to:

  ListServ@ieee.org

  with the following in the body of the message (do not include "<>"):

  subscribe **stds-802-3-RTPGE** ***<yourfirstname> <yourlastname>***

- Send RTPGE reflector messages to:

  stds-802-3-RTPGE ***@listserv.ieee.org***

- Task Force web page URL:

  www.ieee802.org/3/bp/index.html

IEEE P802.3bp Task Force
May 2013

- Met in Victoria BC Tuesday and Wednesday, May 14 and 55, 2013
- ~40 people in the room
- **Channel ad hoc**
  - Assess feasibility for 1 pair UTP, if not possible try 1 pair STP, and so on per March plan
  - Insertion Loss and Return Loss Consensus
    - Review of Automotive Link Segment
    - IL, RL, NEXT, FEXT, multiple disturber crosstalk, alien crosstalk, balance
    - IL closed form equations provided by CommScope have been accepted
    - ANSI/TIA-568-C.2 Annex I will be used as a basis for RTPGE link segment RL limits
    - Use Cat 6A cable and connector return losses as basis for RL limit modeling (temperature)

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- **EMC and Noise ad hoc**
- Current Status
  - Differential Channel Impairments - Green
  - EMC Modeling & limit lines - Yellow
    - Need immunity data
    - Need to choose test methods
  - EMC Channel Transfer Function - Green
  - Alien XTALK modeling - Green
  - In-Car Background Noise - Green
    - Need OEMs to confirm that this is good data
  - Other Noise Sources - Green

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- Other presentations
  - Alien XTALK and channel balance
    - Scenarios from automotive side
    - Measurement and analysis from 802.3 side
  - Impact of 1-pair vs. 2-pair (non PHY)
    - Multi-pin connector pin assignments
    - Harness costs unlikely to drop over time
  - 1-pair UTP feasibility
    - Wire gauge
    - Temperature
    - Modulation

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- EMC and Noise
  - Impulse Noise
    - Data from automotive OEMs
    - ISO model is OK < 100MHz
    - Above 100MHz spark noise is dominant
      - Worse noise is at engine idle
  - Power Supply Noise with PoDL
    - Establish noise limits and noise sources
    - Noise sources
      - EMI
      - Power supply
      - Load
  - BCI Noise Measurements
    - BCI is an effective technique for analyzing and quantifying the ingress model for EMC immunity
    - It is feasible to characterize the mode-conversion channel functions via BCI
    - Given BC levels and length, it is feasible to calculate the CM and D noise levels at the input of the receiver
    - 1-pair UTP channels exist which can yield DM noise as low as 55mV-pp

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Motion #3: The IEEE P802.3bp Task Force affirms a 1-pair PHY Solution at 15m.

M: Kirsten Matheus
S: Wael Diab

Technical motion, requires 75%
Everyone in the room votes
Y:32 N:0 A:7
Motion Passes

This motion supports the decision made in March to work through the various possible solutions starting with1-pair UTP. It does not commit the TF to 1-pair UTP as the final solution.

Goals for the week

- Meet Tuesday, Wednesday 9:00AM – 6:00PM and Thursday morning (if needed
- Reports
  - Automotive link segment ad hoc
  - EMC ad hoc
- Presentations on channel, channel test fixtures, EMC, MDI
- Wrap up the automotive link segment
- Tutorial on IEEE draft process
- Review TF Draft 0.1
- Plan for next meeting

Thank you!