

# Channel Modeling ad hoc report

IEEE P802.3bq 40GBASE-T Task Force

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# Channel Modeling ad hoc charter and scope/deliverables

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- Define a set of channel models for PHY complexity evaluation, including host channel model
- Provide early feedback on key parameters to cabling bodies (Can a parameter be improved? Is a relaxation a cost benefit?)

# Channel Modeling ad hoc activity since November 2013

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- Two well attended channel modeling ad hoc calls – November 26<sup>th</sup>, December 18<sup>th</sup>.
  - Planned January call was not held to accommodate our PHY Baseline Proposal ad hoc
- Meeting minutes and contributions are available at the 40GBASE-T website [channel modeling ad hoc area](http://www.ieee802.org/3/bq/public/channelmodeling/index.html)  
<http://www.ieee802.org/3/bq/public/channelmodeling/index.html>

# Channel Modeling ad hoc activity since November 2013

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- Meeting highlights
  - MDI-to-MDI channel subteam has completed their primary work for the channel modeling effort
    - S-parameter data (s16p) is available for eight Category 8 channels representing three different channel topologies and for one patch cord
    - One new 30m channel presented in the ad hoc with data expected to be available soon
  - PCB transmission line and noise subteam has augmented the current channel model PCB segment and is beginning to evaluate PCB host channel noise
    - Added 3 & 8 inch PCB traces at 90/100/110 target impedances, including via effects
  - MDI and isolation path subteam is expected to provide additional ICM data
- An expanded set of elements for end-to-end channels is available at the P802.3bq task force [channel data](http://www.ieee802.org/3/bq/public/channeldata/index.html) area (Double Hurrah!)
  - <http://www.ieee802.org/3/bq/public/channeldata/index.html>

# Channel Modeling ad hoc next steps

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- Further work
  - In general, continue or initiate channel modeling ad hoc activity to support the work of our PHY Baseline Proposal ad hoc
    - Characterize PCB host channel noise
    - Refine cable channel definitions/other – possibly MDI channel noise & impairments
    - Expand MDI and isolation path data set
- Next meetings
  - New for 2014 – Will be held (generally) every other Tuesday at 8:00AM PST
    - Avoids some conflicts with other industry activity; working to synch/alternate with PHY Baseline Proposal Ad Hoc
  - Next ad hoc will be Tuesday, February 4<sup>th</sup>, 2014
- Thanks to all ad hoc contributors and participants
  - You can be a contributor, too!

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# Thank You!

# Channel Model Elements Snapshot

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- Cable Channels
  - Four different 30 meter channels (3m-24m-3m), including with/without MDI
  - One 5 meter channel (1m-3m-1m)
  - Three different 4 meter channels (0.5m-3m-0.5m), including with/without MDI
  - One 3 meter patch cord
- Host PCB Trace Channels
  - Preliminary models from 10GBASE-T LOM, 2 inch & 8 inch
  - Additional LOM models: 3 & 8 inch, 90/100/110 ohm target impedance, with via
- Isolation Channel (Magnetics)
  - 40GBASE-T Integrated Connector Module
  - Discrete transformer & common-mode choke