Approved Minutes
IEEE 802.3 Next Generation BASE-T Study Group Plenary Meeting
November 13-14, 2012
San Antonio, TX USA

Prepared by George Zimmerman

IEEE 802.3 Next Generation BASE-T Plenary meeting convened at 9:05am, Tuesday, November 13, 2012 by David Chalupsky, Vice Chair & Acting Chair of NGBASE-T Study Group

Attendance is listed in Appendix A

Administrative Matters
The vice-chair David Chalupsky served as acting chair for this meeting.
Mr. Chalupsky appointed George Zimmerman as recording secretary for this session
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Presentation: agenda_01a_1112.pdf
Presenter: David Chalupsky, acting chair.
The acting chair called for introductions and affiliations.
The acting chair reviewed the agenda. Mr. Chalupsky turned to presentation agenda_01a_1112.pdf and reviewed the schedule of presentations for the 2 day meeting.

Motion #1:   to approve the agenda as shown in agenda_01a_1112.pdf

M: W. Diab   S: A. Flatman
Approved by voice vote without opposition (Procedural > 50%)

The acting chair then asked for comments or corrections to the minutes of the last meeting.

Motion #2:   to approve the minutes for the September Interim meeting of the NGBASE-T Study Group as written and posted
(http://www.ieee802.org/3/NGBASET/public/sep12/Unconfirmed_minutes_NGBASET_Sep2012.pdf)
M: W. Diab   S: R. Wagner
Approved by voice vote without opposition (Procedural > 50%)

The acting chair then resumed the review of presentation agenda_01a_1112.pdf.

- Mr. Chalupsky asked if anyone was attending from the press including those who would run a public blog on this meeting. None responded.
- Mr. Chalupsky noted that there should be no recording or photography without permission.

Mr. Chalupsky reviewed the objectives adopted so far, goals for the meeting, access to the reflector and website.

IEEE Patent Policy, Mr. Chalupsky read aloud the patent policy for study groups from agenda_01a_1112.pdf, page entitled "Guidelines for IEEE-SA Meetings" (9:21am).

Attendance, Mr. Chalupsky advised the group of the IEEE meeting attendance tool and procedures, including both the attendance book and the web attendance tracking tool.

Liaisons and Communications

- Letter from ISO/IEC JTC 1/SC 25/WG 3 in relation to 40 Gb/s cabling systems, received in September: 25N2052_Liaison_to_IEEE802_3.pdf
  - The SG will prepare a draft response for consideration by the WG. Ad hoc led by Mr. Alan Flatman, charted in September interim, provided the initial draft that will be reviewed by the SG during this meeting.
- Letter from TIA TR-42 to IEEE 802.3 Working Group TR42-2012-10-194A_Outgoing_Liaison_Letter_to_IEEE%20802.3.pdf
  - The SG will prepare a draft response for consideration by the WG. Mr. Chalupsky charters an ad hoc led by Mr. Chris DiMinico to provide initial draft to be reviewed by the SG during this meeting.

PRESENTATIONS

The acting chair then moved to the presentations for the meeting.

Presentation #1: vaden_01_1112_ngbt.pdf, "Category 8 Limits and modeling tutorial".
Presenter: Sterling Vaden, Optical Cable Corporation, Chair TIA TR-42.7 Copper Cabling Systems
Additional References: The presenter referenced liaisons to IEEE802.3 from TIA TR-42 with attachments:

1. TR42.7-2012-12-115-Category-8-Cabling_d0.5.pdf, (password protected by the 802.3 password at http://www.ieee802.org/3/private/liaison_docs/tia/TR42.7-2012-12-115-Cat8Cabling_d0.5.pdf)
2. TR42.7-2012-10-106b-Category-8-Channel.pdf, (password protected by the 802.3 password at http://www.ieee802.org/3/private/liaison_docs/tia/TR42.7-2012-10-106b-NextGenChannel.pdf)

Mr. Vaden acknowledged modeling based on materials submitted to TIA as TR42.7-2012-08-083-ChannelModels provided by Wayne Larsen (Commscope).

Discussion: The presenter provided an overview of the draft specifications for Category 8 cabling under development in TIA TR42.7. Questions were asked and answered regarding the requirements presented and changes in nomenclature.

Break at 10:28am; the meeting reconvened at 10:46am.

Presentation #2: forbes_01_1112_ngbt.pdf, "NGBASE-T, Reach, Density, Power & Throughput Relationships".
Presenter: Harry Forbes, Nexans
Discussion: The presenter discussed density and power consumption in network equipment in data centers, and how they relate to reach and coverage for NGBASE-T. Questions were asked and answered about the range of switch densities considered, as well as the number of connectors in the channel.

Presentation #3: larsen_01a_1112_ngbt.pdf, "Category 8 Cabling Demonstration".
Presenters: Wayne Larsen, Commscope & Paul Kish, Belden
Additional References: supporting material provides data for those who wish to perform analysis:
http://www.ieee802.org/3/NGBASET/public/nov12/Cat%208%20Links%20Supporting%20Data%20for%20IEEE%20NGBASE-T.zip
Discussion: The presenters discussed measurements made on multi-vendor prototypes of Category 8 cabling based on RJ-45 connectorization out to 2 GHz. Questions were asked and answered to clarify the test configurations and fixtures. Additional questions asked presenters for their thoughts on how the results might evolve with additional prototype iterations and testing. One commenter thanked the presenters for use of a linear frequency axis (rather than logarithmic, common in cabling measurements) and requested that presentations to the study group follow this model, as it was more useful for PHY vendors.

Presentation #4: wagner_01_1112_ngbt.pdf, "Data Center Copper Channel Length Usage".
Presenters: Robert Wagner, Panduit
Discussion: The presenter discussed the benefits and configurations of structured cabling in data centers, as well as a study of cabling reach.

Break for lunch at 12:20pm; the meeting resumed at 1:54pm.

The next presenter, Mr. Flatman, asked the group's consent to present an updated presentation, updated to include the data from wagner_01_1112_ngbt.pdf. No objection was heard, so he proceeded.

Presentation #5: flatman_01a_1112_ngbt.pdf, "Data Centre Link Lengths".
Presenters: Alan Flatman, LAN Technologies (Independent)
Discussion: The presenter discussed and attempted to reconcile data from various studies (flatman 2008, CommScope 2009-2011, Panduit and Siemon (data reported in Commscope contribution)). Questions were asked and answered regarding the data and analysis, and suggestions were made for further analysis.

Presentation #6: dove_01_1112_ngbt.pdf, "NGBASE-TSR - Application Specific PMDs That Interoperate".
Presenters: Dan Dove, Applied Micro
Discussion: The presenter discussed power vs. market adoption, impact, market confusion and interoperability issues as a follow on to the presenter's previous proposal for NGBASE-TSR (dove_01b_0912.pdf). Questions were asked and answered regarding the tradeoffs made in the presentation.

This concluded the presentations scheduled for the day. (Additional presentations were left for the next day, due to presenter availability).

Break at approximately 3:22pm; resumed at 3:49pm.

Mr. Chalupsky explained that he was going to recess the study group meeting to allow for ad hoc meeting led by Mr. Flatman to address the liaison received from ISO.

The meeting recessed at 4:05pm to reconvene at 9pm on Wednesday, 14 November.

The meeting reconvened at 9am Wednesday, 14 November.
Mr. Chalupsky asked for introductions, and (again) reviewed the presentation agenda_01a_1112_ngbt.pdf.

Mr. Chalupsky asked the groups consent to modify the agenda to allow an ad hoc for preparation of a liaison letter to TIA, chaired my Mr. DiMinico. The group consented without objection to breaking to allow the TIA liaison ad hoc to meet prior to the morning break.

Mr. Chalupsky resumed review of the presentation.
•   Mr. Chalupsky asked if anyone was attending from the press including those who would run a public blog on this meeting. None responded.
•   Mr. Chalupsky noted that there should be no recording or photography without permission.
Mr. Chalupsky reviewed the objectives adopted so far, goals for the meeting, access to the reflector and website.
IEEE Patent Policy, Mr. Chalupsky read aloud the patent policy for study groups from agenda_01a_1112.pdf, page entitled "Guidelines for IEEE-SA Meetings" (09:12am).

Attendance, Mr. Chalupsky advised the group of the IEEE meeting attendance tool and procedures, including both the attendance book and the web attendance tracking tool.

Presentation #7: bennett_01_1112_ngbt.pdf, "Reach and Energy Efficiency in NG-BASE-T".
Presenters: Mike Bennett, LBNL
Discussion: Mr. Bennett acknowledged that the content of the presentation was due to his coauthor, Pedro Reviriego, who was unable to be present at the meeting. The

presentation discussed the metrics for energy efficiency and importance of rapid wake and sleep transitions to energy efficiency as currently defined in 802.3az, and recommended that the NGBASE-T group keep this in mind. Questions were asked and answered.

Presentation #8: diminico_01_1112_ngbt.pdf, "NGBASE-T Link Segments".
Presenter: Chris DiMinico, MC Communications
Discussion: Mr. DiMinico presented a discussion of link segment characteristics specified in prior BASE-T standards and to be specified for NGBASE-T. He also discussed measurements made on cabling including balance and insertion loss beyond the specified frequencies for the legacy cabling, and suggested caution on using those frequencies.
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Mr. Chalupsky recessed the meeting at 10:07am for the TIA Liaison Ad Hoc to meet. The meeting resumed at 10:50am.

Presentation #9: kipp_01a_1112_ngbt.pdf, "Link Distance and Server Connectivity".
Presenter: Scott Kipp, Brocade
Discussion: The presenter discussed server topologies within racks and with top-of-rack switches or modular switches. He derived a reach goal based on switch power considerations. There was vigorous discussion understanding the discussion and conclusions of the presentation.

Presentation #10: booth_01a_1112_ngbt.pdf, "Reach Objective Considerations".
Presenter: Brad Booth, Dell
Discussion: The presenter discussed data center reach topologies and PHY power considerations for 40GBASE-T.

Break for lunch at 12:22pm. The meeting reconvened at 2:16pm.

Mr. Chalupsky then turned to the next item on the agenda, review of the liaison letters prepared by the two ad hocs.

He first presented the draft liaison letter in response to the liaison from ISO/IEC SC25 WG3 (25N2052). The draft had been posted overnight as:
draft_response_to_25N2052%20ISOIEC_liaison.doc

There was a minor editorial change by the group. Approval of the draft was deferred until the close of the meeting, in case changes to the group's objectives would force changes to the letter.

Mr. Chalupsky then presented the draft liaison letter in response to the letter from TIA TR42. The draft had been prepared earlier in the day. Minor editorial and punctuation clean-up were performed.   Approval of the draft was deferred until the close of the meeting, in case changes to the group's objectives would force changes to the letter.

Acting Chair Chalupsky then moved on to straw polls regarding objectives

Straw polls:

Straw Poll #1
For the 40Gb/s objective I would support:
- one reach objective   - 14
- Two reach objectives - 7
- More than two reach objectives - 1
- Undecided   - 5

Straw Poll #2
I would support a 40Gb/s reach objective of about:
- (Chicago rules)
a) 10m -9
b) 20m - 8
c) 25m - 14
d) 30m - 23
e) 40m - 4
f) 50m - 2
g) Something else -1
h) Undecided -2

Straw Poll #3
I would support a 40Gb/s reach objective of about:
- (vote for one)
a) 10m - 0
b) 20m - 6
c) 25m - 5
d) 30m - 11
e) 40m - 0
f) 50m - 1
g) 10m & optional 30m - 1
h) Undecided – 3

Straw Poll #4
I would support a 40Gb/s reach objective of up to at least 25m
YES: 20
NO: 6

Straw Poll #5
I would support a 40Gb/s reach objective of up to at least 25m
YES:16
NO: 5
UNDECIDED: 10

Based on the straw polls, the following motions were made:

Motion #3: Adopt a reach objective of up to at least 25 m
M: B. Booth   S: A. Flatman

Break at 3:45, reconvened at 4:00PM.
Discussion resumed on Motion #3, which then proceeded to vote.

Y: 12 N: 20 A: 4   (Technical >=75%)
MOTION FAILS

Motion #4: Study Group will focus on presentations regarding reach objective in the range of 20m-30m.
M: W. Diab   S: G. Zimmerman
Y: 28 N: 3   A: 4   (Technical >=75%)
MOTION PASSES

Motion #5: Study group will adopt a 2-connector channel model as an objective
M: B. Booth   S: A. Flatman
Y: 32 N: 0   A: 5   (Technical >=75%)
MOTION PASSES

Mr. Chalupsky then displayed the draft TIA liaison letter, and the group then edited the draft letter to inform the recipient of Motion #5.

Motion #6: Move that the NGBASE-T Study Group vice-chair submit the following motion to the IEEE 802.3 Working Group:

- Move that IEEE 802.3 approve the text in
  ngbt_tia_liaison_response_1112.pdf, with editorial license granted to the Chair (or his appointed agent), as a liaison communication from the IEEE 802.3 Working Group to TIA.

M: G. Zimmerman   S: B. Booth

(all in the room) Y: 32   N: 0   A: 0 (Procedural >= 50%)

MOTION PASSES

Mr. Chalupsky then displayed the draft ISO liaison letter, and the group then edited the draft letter to inform the recipient of Motion #5.

Motion #7: Move that the NGBASE-T Study Group vice-chair submit the following motion to the IEEE 802.3 Working Group:

- Move that IEEE 802.3 approve the text in
  ngbt_iso_liaison_response_1112.pdf, with editorial license granted to the Chair (or his appointed agent), as a liaison communication from the IEEE 802.3 Working Group to ISO/IEC JTC1/SC25/WG3.

M: B. Booth   S: G. Zimmerman

(all in the room) Y: 34   N: 0   A: 0 (Procedural >= 50%)
MOTION PASSES

Motion #8: Request 802.3 extend the Next Generation Twisted Pair Study Group for an additional period of 6 months
M: A. Flatman   S: D. Koenen
(all in the room) Y: 34   N: 0   A: 0   (Procedural >= 50%)
MOTION PASSES

OTHER ADMINISTRATIVE BUSINESS

Straw Poll #6:
Will you attend the **January 21, 2013** Interim meeting in Phoenix, AZ, USA?
Yes: 15
Probably yes: 14
Probably no: 3
No: 0

Straw Poll #7:
Do you support the September 2-6, 2013 Interim meeting in York, England proposal?
Y: 4   N: 25   A: 4

Adjournment

Motion #9: To adjourn the meeting.
M: B. Booth S: G. Zimmerman
MOTION PASSES by voice without opposition

The meeting was adjourned at 5:01pm 14-November 2012

IEEE 802.3 Next Generation BASE-T Study Group, Nov. 2012			11/13/2012	11/14/2012
Total attended:	42	**Daily # attended:**	39	39
Last Name	**First Name**	**Affiliation**	**Tuesday**	**Wednesday**
Abughazaleh	Shadi	Hubbell	x	x
Ballingall	Iain	The Cable Clinic	x	x
Belopolsky	Yakov	Bel Stewart	x	
Bennett	Mike	LBNL		x
Berry	Joe	Belfuse	x	x
Bliss	Will	Broadcom	x	x
Booth	Brad	Dell	x	x
Brown	Kevin	Broadcom		x
Chalupsky	David	Intel	x	x
Chang	Jacky	HP	x	x
Choi-Feng	Chin	Commscope	x	x
Chou	Joseph	Realtek	x	x
Choudhury	G. Mabud	Commscope	x	x
Cibula	Pete	Intel	x	x
Cook	Charles	CenturyLink	x	x
Diab	Wael	Broadcom	x	x
Flatman	Alan	LAN Technologies	x	x
Forbes	Harry	Nexans	x	x
Grimwood	Michael	Broadcom	x	x
Hammond	Bernard	TE Connectivity	x	x
Hess	John	Bel Stewart	x	x
Huang	Xi	Huawei	x	x
Jimenez	Andrew	Anixter Inc.	x	x
Kawatsu	Yasuaki	Hitachi-Cable	x	
Kish	Paul	Belden	x	x
Koenen	David	HP	x	x
Kosanivich	Keith	Leviton Network Solutions	x	x
Lackner	Hans	QoSCom Gmbh	x	x
Larsen	Wayne	Commscope	x	x
Law	David	HP		x
Lin	Leon	Realtek	x	x
Maguire	Valerie	Siemon, TIA	x	x
Mei	Richard	Commscope	x	
Nordin	Ron	Panduit Corp.	x	x
Umnov	Alexander	Huawei Technoligies	x	x
Vaden	Sterling	Optical Cable Corp.	x	x
Valle	Stefano	ST Microelectronics	x	x
Vanderlaan	Paul	Nexans	x	x

Vareljian	Albert	Independent	x	x
Wagner	Bob	Panduit Corp.	x	x
Wu	Peter	Marvell	x	x
Zimmerman	George	CME Consulting, Commscope	x	x