

Approved Minutes

IEEE 802.3 Beyond 10 km Optical PHYs Study Group Interim Meeting

September 14-15, 2017

Charlotte, NC, USA

Prepared by Peter Stassar & John D'Ambrosia

David Law, IEEE 802.3 WG Chair called IEEE 802.3 Beyond 10 km Optical PHYs Study Group to order at 1.00 pm, Thursday, September 14, 2017.

Chair appointed Peter Stassar to be a Recording Secretary for the meeting.

Motion #1: Move to confirm John D'Ambrosia as Chair of IEEE 802.3 Beyond 10 km Optical PHYs Study Group

Moved by: Mark Nowell

Second by: Marek Hajduczenia

Results: Motion passed with Yes=42, No=0, Abstains=0

D'Ambrosia took over as chair of the meeting.

Presentation #1 – Agenda and General Information

Presenter: John D'Ambrosia, Futurewei, Subsidiary of Huawei

URL: http://www.ieee802.org/3/B10K/public/17_09/agenda_b10k_01b_0917.pdf

Motion #2: Move to approve the agenda

Moved by: Steve Trowbridge

Second by: Mike Li

Results: The motion passed by voice without opposition

Chair asked if there were any reporters in the room. Nobody identified themselves as representing the press.

Chair reviewed Study Group information, and reminded individuals to sign up for the reflector.

Chair showed IEEE802 Meetings Participation slide.

Motion #3: Approval of Study Group Ad Hoc 8/24 Teleconference Minutes

- http://www.ieee802.org/3/B10K/public/adhoc/sg/minutes_b10k_170824_unapproved.pdf

Moved by: Mike Li

Second by: Pavel Zivny

Results: The motion passed by voice without opposition

Chair read the Pre-PAR Patent Policy for IEEE-SA meetings.

Chair continued with the introductory presentation IEEE Structure, Bylaws & Rules.

Chair reviewed Study Group Chartering Motion –

Move that the IEEE 802.3 Ethernet Working Group authorizes the formation of a study group to develop a Project Authorization Request (PAR) and Criteria for Standards Development (CSD) responses for “Beyond 10km Optical PHYs for 50 Gb/s, 200 Gb/s, and 400 Gb/s Ethernet”

Chair reviewed plan for meeting, and noted that Fernando Villarruel’s presentation discussed objectives related to 100GbE that were outside the scope of the study group. The Study Group would hear the presentation – and interest in this topic would be gauged. The addition of 100GbE related objectives would need a new CFI.

The Chair noted that presentations by Healey and Hajduczenia would be heard before addressing liaisons, due to presenters’ availability.

Presentation #2 – Review of the 5 Criteria

Presenter: Adam Healey, Broadcom

URL: http://www.ieee802.org/3/B10K/public/17_09/healey_b10k_01_0917.pdf

It was noted that the presentation would be checked to see if an update was necessary to reflect any changes to 5 Criteria questions.

Presentation #3 – Project Objectives

Presenter: Marek Hajduczenia, Charter Communications

URL: http://www.ieee802.org/3/B10K/public/17_09/hajduczenia_b10k_01_0917.pdf

Liaison from OIF to IEEE 802.3 had been assigned to the IEEE 802.3 Beyond 10km Optical PHYs Study Group for consideration.

- **OIF – OIF to IEEE 802.3 regarding the 400ZR Interop Project**
 - http://www.ieee802.org/3/minutes/sep17/incoming/OIF_to_IEEE_802d3_400ZR_Aug_2017.pdf

D’Ambrosia reviewed the following proposed response –

http://www.ieee802.org/3/B10K/public/17_09/dambrosia_b10k_01_0917.pdf

Update to the proposed response, based on Study Group discussion -

http://www.ieee802.org/3/B10K/public/17_09/IEEE_802d3_to_OIF_400ZR_0917_draft.pdf

Motion #4

- Move that the IEEE 802.3 Beyond 10km Optical PHYs Study Group approve as liaison communication:
 - to OIF: IEEE_802d3_to_OIF_400ZR_0917_draft
- with editorial license granted to the Chair (or his appointed agent) from the IEEE 802.3 Working Group
- M: Steve Trowbridge
- S: Mike Li
- Technical ($\geq 75\%$)
- Results: Motion approved by voice without opposition

Presentation #4 – 50 GbE 40km Objective

Presenter: David Lewis, Lumentum

URL: http://www.ieee802.org/3/B10K/public/17_09/lewis_b10k_01_0917.pdf

General Discussion

Presentation #5 – Further test for beyond 10km Transmission

Presenter: Xu Yu, Huawei

URL: http://www.ieee802.org/3/B10K/public/17_09/you_b10k_01_0917.pdf

General Discussion

Update to presentation to be provided.

Break @ 2:53 pm

Reconvened at 3:17 pm

Presentation #6 – Eco-System Considerations in Defining Beyond 10m PHYs

Presenter: Ali Ghiasi, Ghiasi Quantum

URL: http://www.ieee802.org/3/B10K/public/17_09/ghiasi_b10k_01_0917.pdf

General Discussion

Presentation #7 – Thoughts on 50G, 200G, 400G Ethernet PMDs beyond 10k

Presenter: Steve Trowbridge, Nokia

URL: http://www.ieee802.org/3/B10K/public/17_09/trowbridge_b10k_01_0917.pdf

General Discussion

Presenter noted that, in his opinion, presentations on economic feasibility would likely be needed for solutions where coherent solutions might be expected.

Discussion about form factors and potential solutions.

Presentation #8 – Backhaul for distributed Architectures in the MSO space

Presenter: Fernando Villarruel, Cisco

URL: http://www.ieee802.org/3/B10K/public/17_09/villarruel_b10k_01b_0917.pdf

General Discussion – Chair directed group to ask questions of clarification, as time had been allocated at end of day for straw poll.

Update to presentation to be provided.

Presentation #9 – Beyond 10km Reach Objective Discussion

Presenter: Wenyu Zhao, China Academy of Information & Communication Technology (CAICT)

URL: http://www.ieee802.org/3/B10K/public/17_09/wenyu_b10k_01_0917.pdf

General Discussion

Chair directed conversation to discussion of 100 GbE related objectives.

Mark Nowell noted the following -

- The current SG Scope is: “Beyond 10km Optical PHYs for 50 Gb/s, 200 Gb/s, and 400 Gb/s Ethernet “
- After a new CFI, the SG scope *could* be expanded to: “Beyond 10km Optical PHYs for 50 Gb/s, 100 Gb/s, 200 Gb/s, and 400 Gb/s Ethernet “

Mark Nowell requested the following Straw Poll –

Straw Poll #1

- I would be interested in a CFI to work towards expanding the scope of “Beyond 10 km Optical PHYs” study group to include 100 Gb/s?
- Y 31
- N 0
- Need more information 20

Break for day @ 5:30 pm

Meeting reconvened at 8:32 am, Friday, Sept 15

Presentation #10 – Major PAR Form Questions

Presenter: David Law, HPE

URL: http://www.ieee802.org/3/B10K/public/17_09/law_b10k_01_0917.pdf

General Discussion

Presentation #11 – Study Groups & PARs

Presenter: David Law, HPE

URL: http://www.ieee802.org/3/B10K/public/17_09/dambrosia_b10k_03_0917.pdf

General Discussion regarding a study group doing more than 1 PAR.

Presentation #12 – Discussion of Objectives / CSD

Presenter: John D’Ambrosia, Futurewei, Subsidiary of Huawei

URL: http://www.ieee802.org/3/B10K/public/17_09/dambrosia_b10k_02_0917.pdf

General Discussion

Chair noted that uploaded file would include updates made during discussion of presentation.

Straw Poll #2 (Chicago Rules)

- I would support reach objectives at
 - a) 50 Gb/s
 - b) 200 Gb/s
 - c) 400 Gb/s

Results

- a) 37
- b) 34
- c) 37

Straw Poll #3 (Chicago Rules)

- I would support reach objectives targeting
 - a) 40km
 - b) 80 km
 - c) Other*
 - d) Need more information

Results

- a) 27
- b) 19
- c) 7
- d) 30

For this straw poll, it was noted that for “Other” reaches, No data defining further breakdown of reaches has been found to date. Presentations would be useful.

Chair noted that reach objectives based on distance or OSNR have been suggested in conversations. Further presentations were needed.

The Chair noted that Straw Poll #4 had been suggested by Fernando Villarruel (Cisco) in presentation - http://www.ieee802.org/3/B10K/public/17_09/villarruel_b10k_01b_0917.pdf. Chair reviewed straw poll wording with Villarruel and Mark Nowell, both indicating they were comfortable with the strawpoll.

Straw Poll #4

I would support an objective(s) targeting “providing appropriate support for DWDM systems.”

Yes

No

Need more information

Results

Yes – 17

No – 6

Need more information – 18

Chair posed Straw Poll #5

Straw Poll #5

- I believe there is sufficient evidence of broad market potential for
 - Solutions targeting 50 Gb/s Yes No
 - Solutions targeting 200 Gb/s Yes No
 - Solutions targeting 400 Gb/s Yes No
 - Solutions targeting 40 km Yes No
 - Solutions targeting 80 km Yes No

After discussion, it was agreed by the group that further presentations on broad market potential were requested.

The following straw poll (Straw Poll #6) was taken, based on discussions in NG-ECDC, NEA, and with SG Participants, where questions were raised about expanding reach of current PAM4 approaches

Straw Poll #6

- I believe a PAM4 approach, based on 50 Gb/s PAM4, targeting 40km would be technical feasible at
 - 50 Gb/s Yes 18 No 0 Need more info 15
 - 200 Gb/s Yes 8 No 0 Need more info 22
 - 400 Gb/s Yes 0 No 0 Need more info 32

Chair reviewed next meetings –

- See: <http://www.ieee802.org/3/interims/index.html>
- Nov 2017 Plenary
 - Week of Nov 6, 2017
 - Caribe Royale
 - Orlando, FL, USA
- Jan 2018 Interim
 - Week of Jan 22, 2018
 - Geneva, CH
- Mar 2018
 - Week of Mar 5, 2018
 - Hyatt Regency O’Hare
 - Rosemont, IL, USA
- May 2018
 - Week of May 21, 2018
 - TBA
- July 2018
 - Week of July 9, 2018
 - Manchester Grand Hyatt
 - San Diego, CA, USA

Attendance Strawpoll –

- I will attend the Nov 2017 Beyond 10km Optical PHYs Study Group Plenary Meeting
 - Yes - 28
 - No - 0
 - Maybe - 7

Chair noted he would be reviewing results of meeting, and may schedule Study Group Ad hoc calls before Nov Plenary.

Motion #5: Motion to adjourn

Moved by: David Ofelt

Second by: Steve Trowbridge

Results: The motion passed by voice without opposition

Meeting adjourned approximately 10:30 am.

IEEE 802.3 Beyond 10km Optical PHYs Study Group			9/14	9/15
Last Name	First Name	Employer / Affiliation	Thurs	Fri
Abbott	Justin	Lumentum	x	
Anslow	Pete	Ciena Corporation	x	x
Brown	Matt	Macom	x	x
Burrell	Gary	Elenion Technologies	x	x
Calvin	John	VTM	x	x
Chabot	Craig	UNH-IOL		x
Chang	Xin	Huawei	x	
Chien	James	ZTE	x	x
Choudhury	Mabud	OFS	x	x
Cole	Chris	Finisar	x	x
Conroy	Keith	Acacia	x	x
D'Ambrosia	John	Futurewei, subsidiary of Huawei	x	x
Dawe	Piers	Mellanox	x	x
Dudek	Mike	Cavium		x
Ghiasi	Ali	Ghiasi Quantum, Ghiasi Quantum / Huawei	x	x
Gorshe	Steve	Microsemi	x	
Grow	Bob	RMG Consulting	x	x
Gustlin	Mark	Xilinx	x	x
Hajduczenia	Marek	Charter	x	x
Hayakawa	Akinori	Fujitsu Laboratories	x	x
Healey	Adam	Broadcom LTD	x	
Hegde	Raj	Broadcom	x	
Huang	Xi	Huawei	x	x
Ingham	Jonathan	Foxconn Interconnect Technology	x	x
Isono	Hideki	Fujitsu Optical Components	x	
Issenhuth	Tom	Issenhuth Consulting	x	x
Johnson	John	Broadcom	x	
Jones	Peter	Cisco	x	
Kareti	Upen Reddy	Cisco	x	x
Knittle	Curtis	Cablelabs	x	
Kolesar	Paul	CommScope	x	
Lapak	Jeff	UNH-IOL		x
Laubach	Mark	Broadcom	x	
Lewis	Dave	Lumentum		x
Lewis	Jon	Dell EMC		x
Lim	Jane	Cisco	x	x
Liu	Hai-Feng	Intel	x	
Malicoat	David	Malicoat Networking Solutions / Senko	x	x
Mellitz	Richard	Samtec	x	
Murray	Dale	Light Counting	x	x
Nakamoto	Edward	Spirent Communications	x	

Nowell	Mark	Cisco	x	x
Ofelt	David	Juniper Networks	x	x
Palkert	Tom	Molex / Macom	x	
Parsons	Earl	Commscope	x	x
Pham	Phong	US Conec Ltd	x	
Piehler	David	Dell EMC	x	x
Rabinovich	Rick	IXIA	x	
Sekel	Steve	Keysight Technologies	x	
Slavick	Jeff	Broadcom, Ltd.	x	
Sone	Yoshiaki	NTT	x	x
Sprague	Ted	Infinera	x	x
Stassar	Peter	Huawei	x	x
Suzuk	Ken-Ichi	NTT	x	
Swanson	Steve	Corning	x	
Tailor	Bharat	Semtech Corp	x	
Takahara	Tomoo	Fujitsu Laboratories	x	x
Tamura	Kohichi	Oclaro Japan	x	
Thompson	Geoff	GraCaSi SA		x
Toyserkani	Pirooz	Cisco	x	x
Tracy	Nathan	TE Connectivity	x	x
Traverso	Matthew	Cisco	x	
Trowbridge	Steve	Nokia	x	x
Umeda	Daisuke	Sumitomo	x	
Villarruel	Fernando	Cisco	x	x
Wang	Hsiuche	Applied Optoelectronics	x	x
Wang	Tongtong	Huawei	x	
Wang	Xinyuan	Huawei	x	x
Way	Winston	NeoPhotonics	x	x
Wertheim	Oded	Mellanox	x	x
Williams	Tom	Acacia Acommunications	x	x
Xu	Yu	Huawei	x	x
Young	James	Commscope	x	x
Zhang	Kevin	IDT	x	
Zhao	Wenyu	CAICT	x	
Zhuang	Yan	Huawei		x
Zivny	Pavel	Tektronix	x	