Meeting Minutes

Group: IEEE P802.3ca 100G-EPON Task Force

Event: Interim meeting

Date: **From**: 1/10/2017 **To**: 1/12/2017

Location: Huntington Beach, CA USA

10-Jan-17

Opening

9:00 AM: The meeting was called to order by the Chair. Duane Remein volunteered to serve as recording secretary. The Chair held Introductions and gave the opening report. It was noted that there will be a meeting to discuss PON Convergence the evening of the 11th at 6:00 PM.

Motion #1
Approve the agenda for Task Force meeting to be held Jan 10-12 2017, in Huntington Beach CA located in file http://www.ieee802.org/3/ca/public/meeting_archive/2017/01/agenda_3ca_1a_0117.pdf
Moved: Marek Hajduczenia Second: Duane Remein Procedural (> 50%) Motion Passed by voice without opposition

Motion #2
Approve the Minutes for Task Force meeting held November 2016, in San Antonio TX located in file http://www.ieee802.org/3/ca/public/meeting_archive/2016/11/minutes_unapproved_3ca_1116.pdf
Moved: Duane Remein Second: Glen Kramer Procedural (> 50%) Motion Passed by voice without opposition

The Chair reviewed meeting decorum, the Task Force reflector & web page (including the recently added private area with password), and IEEE Organization & Bylaws. The IEEE patent policy was read by the chair.

9:15 AM A call for patents was made. No response was received.

The Chair reviewed the IEEE participation requirements IEEE process, goals for meeting, and future meeting (Vancouver BC, Mar., New Orleans LA, USA, May,) polls were taken.

The Editor reviewed draft (D0.1) posted in the private area.

Presentations and Discussion

All presentation information is formatted as follows:

Title Author/Presenter Affiliation
Notes
file_name

PMD Clause, initial draft material Marek Hajduczenia Charter Communications
This presentation proposed technical text additions for PMD clause.
hajduczenia_3ca_1_0117.pdf

The Case for O-band John Johnson Broadcom
In this presentation the author provided numerous arguments to keep all PMD channels in the O-Band.
johnson_3ca_1_0117.pdf

The case for TDM coexistence in O-band John Johnson Broadcom
In this presentation the author provided arguments to require TDM coexistence between the upstream 10G-EPON and 25G-EPON wavelengths. A proposed modification to Plan B was suggested. The topic generated some lively discussion on the topic of 10G-EPON coexistence.
johnson_3ca_2_0117.pdf

Revisions of wavelength plan A Yong Guo ZTE Corporation
This presentation proposed modifications to wavelength plan A to address several issues raised against that plan.
guo_3ca_1_0117.pdf

Four Wave Mixing Coupled with Simulated Brillouin Scattering
Eugene Dai Cox Communications
This presentation summarized simulation results of the combined effects of Degenerate Four Wave Mixing and Stimulated Brillouin Scattering which may result in channel impairments for 100G-EPON.
dai_3ca_1b_0117.pdf

Modified Wavelength Plan B, 1+3: cost optimized
Ed Harstead Nokia
This presentation outlined proposed improvements to wavelength plan B (creating plans B1 & B1) to address issues raised in previous meetings.
harstead_3ca_1a_0117.pdf

SOA preamp performance: theoretical modeling
Ed Harstead Nokia
This presentation summarized simulation results of comparisons between various configurations of SOA preamp + PIN versus APD based receivers.
bonk_3ca_1_0117.pdf

Initial experiment results of SOA as Pre-amplifier for 100G EPON

Dekun Liu Huawei Technologies

This presentation gave results of experiments coupling SOA with PINs, APDs and narrowband optical filters.

liu_3ca_1_0117

SOA preamplifier for 100G EPON Hanhyub Lee ETRI

This presentation gave results of experiments coupling SOA with APDs and narrowband optical filters.

lee_3ca_1a_0117.pdf

SOA + PIN-PD receiver performance Naruto Tanaka Sumitomo Electric Industries, LTD

This presentation provided measured receiver sensitivity for an SOA + PIN receiver.

tanaka_3ca_1a_0117.pdf

TDM vs. WDM co-existence with 10G EPON: update

Ed Harstead Nokia

This presentation provided an update to harstead_3ca_2a_1116.pdf and provided a refined analysis of data capacity loss in a system using TDM coexistence as opposed to WDM coexistence.

harstead_3ca_2a_0117.pdf

Coexistence Requirements Frank Effenberger Huawei Technologies

This presentation outlined potential coexistence potential between the various wavelength plans and both EPON and GPON standards.

effenberger_3ca_1_0117.pdf

6:10 PM: Recessed for the day

11 Jan 17 **9:00 AM** Reconvened

PON Convergence and 100G EPON Wavelength Plans

Eugene Dai Cox Communications

This presentation discussed coexistence issues and suggested that the group adopt NGPON2 wavelengths or an O-Band plan based on 400 GHz spacing.

dai_3ca_2a_0117.pdf

Specifying 25G EPON receiver sensitivity for PR30

Ed Harstead Nokia

This presentation derived receiver sensitivities for 25G ONUs and OLTs.

harstead_3ca_4_0117.pdf

25G EPON downstream power budget- 3rd iteration

Ed Harstead Nokia

This presentation derived a downstream 25G-EPON optical budget using the Rx sensitivity from harstead_3ca_4_0117.pdf as a starting point. The proposed solution suggested that the 25G reference points be different from the 100G PMD specification reference points although the delta between R and S would be the same.

harstead_3ca_5a_0117.pdf

Power budget proposals for wavelength plan A

Yong Guo ZTE Corporation

This presentation proposed a optical power budget for wavelength plan A. The optical budget for the 25G only system was same as for the 100G system.
guo_3ca_2_0117.pdf

FEC Selection Considerations Mark Laubach Broadcom

This presentation looked at FEC issues and explored potential approaches to achieving a 0.5 to >1.0 dB optical gain from FEC.
laubach_3ca_1_0117.pdf

NG-EPON Diplexer filter analysis Dekun Liu Huawei Technologies

This presentation examined a 13 degree filter as an alternative to the traditional 45 degree diplexer filter for a NG-EPON BOSA to allow ~40 nm US/DS spacing.
liu_3ca_2_0117.pdf

Consideration on US/DS WDM filter for ONU

Tomoyuki Funada Sumitomo Electric Industries, LTD

This presentation looked at diplexer construction for low US/DS spacing using focused beam and polarization control techniques. Conclusion is that a 40 nm spacing is feasible but 45 nm spacing is preferred.
funada_3ca_1_0117.pdf

PCS/PMA Clause, initial draft material

Marek Hajduczenia Charter Communications

This presentation reviewed .proposed material for the PCS/PMD section of the draft.
hajduczenia_3ca_2_0117.pdf

Line Code Options for 100G-EPON Duane Remein Huawei Technologies

This presentation discussed several lines codes which could be used for 100G-EPON.
remein_3ca_1_0117.pdf

25-32G Burst-Mode CDR/SerDes Ross Mactaggart FMAX Technologies

This presentation provided information on a 25 Gbps burst CDR with <3 ns lock time.
mactaggart_3ca_1_0117.pdf

Dimensioning of Reassembly Buffers at the OLT

Glen Kramer Broadcom

This presentation explored the sizing of fragmentation reassembly buffers and possible solutions to excessive buffer requirements.
kramer_3ca_1_0117.pdf

5:00 PM Recessed for the day

12 Jan 17 **9:00 AM** Reconvened

Proposal for Downstream MPRS Glen Kramer Broadcom
This presentation provided details on using the previously US MPRS for the DS direction.
kramer_3ca_2_0117.pdf

MPRS with preamble replacement Duane Remein Huawei Technologies
This presentation was a follow up to remein_3ca_1_1116.pdf and addressed criticisms voiced in the San Antonio meeting.
remein_3ca_2_0117.pdf

MPRS Comparison Duane Remein Huawei Technologies
This presentation compared the two proposals for MPRS being considered by the TF (kramer_3ca_3b_1116.pdf & remein_3ca_2a_0117.pdf.
remein_3ca_3_0117.pdf

NG-EPON for low latency services Jun Shan Wey ZTE Corporation
This presentation reviewed some of the targeted latency objectives being suggested for various applications. Some of these, such as Virtual Reality and Augmented Reality are extremely aggressive and may not be based in reality.
wey_3ca_1_0117.pdf

The Task Force held a short discussion on a proposed liaison letter to ITU-T Q2.

Motion #3

The 25G-EPON ONU receiver sensitivity specification proposed in harstead_3ca_4_0117.pdf page 14, -24.2 dBm at BER = 10E-3 and ER = 8 dB, shall be adopted as a starting point. The final specification would be adjusted, if required, for these two possible deltas with respect to 10G-EPON: 1) improved FEC, 2) higher diplexer loss due to smaller DS/US gap.

Moved: Ed Harstead Second: Frank Effenberger

For: 26 Against: 0 Abstain: 3
Technical (≥ 75%)
Motion Passed

Motion #4

Move to adopt hajduczenia_3ca_1_0117.pdf as the baseline text for PMD clause for P802.3ca draft D0.2.

Moved: Marek Hajduczenia Second: Alan Brown

For: 29 Against: 0 Abstain: 2
Technical (≥ 75%)
Motion Passed

Motion #5

Move to adopt hajduczenia_3ca_2_0117.pdf as the baseline text for PCS clause for P802.3ca draft D0.2. Remove subclauses on Idle deletion and insertion.

Moved: Marek Hajduczenia Second: Mark Laubach

For: 27 Against: 0 Abstain: 4
Technical (≥ 75%)
Motion Passed

Motion #6

Approve layering diagrams shown in kramer_3ca_2_0117.pdf, slides 14 and 15 for inclusion in D0.2

Moved: Glen Kramer Second: Marek Hajduczenia

For: 26 Against: 0 Abstain: 4
Technical (≥ 75%)
Motion Passed

Motion #7

The P802.3ca standard shall specify a wavelength plan in which all upstream and downstream wavelengths are located in O-band.

Moved: John Johnson Second: Yong Guo

For: 25 Against: 5 Abstain: 2
Technical (≥ 75%)
Motion Passed

Motion #8

The P802.3ca standard shall specify that the first 25G upstream wavelength shall be 1270±10nm and shall coexist with 10G-EPON by time-division multiplexing (TDMA in the upstream direction).

Moved: John Johnson Second: Shawn Esser

For: 0 Against: 0 Abstain: 0
Technical (≥ 75%)
Motion Tabled by Motion #9

Motion #9

Table motion #8

Moved: Phil Miguelez Second: Shawn Esser

For: 23 Against: 0 Abstain: 6
Procedural (> 50%)
Motion Passed

StrawPoll #1

I favor coexistence between 1st 25G channel and 10G-EPON US via
1) TDM
2) WDM

1)	3
2)	12
3) abstain:	15

StrawPoll #2

Same FEC code and codeword size for downstream and upstream.

Yes:	14
No:	4
Abstain:	9

StrawPoll #3

Single codeword size will be selected from range 2K bytes <= size <= 4K bytes. Not precluding shortened last codeword.

Yes:	2
No:	5
Abstain:	21

StrawPoll #4

Desired total overhead limited to support minimum bidirectional 20Gb/s "unobstructed" (at 25.78125 GBd signaling rate).

Yes:	12
No:	1
Abstain:	15

StrawPoll #5

I prefer
a) to remove preamble
b) to preserve the preamble
c) do not care

a)	4
b)	7
c)	12

StrawPoll #6

I prefer
a) to remove IPG
b) to preserve the IPG
c) do not care

a)	3
b)	9
c)	8

Motion #10

Approve Downstream MPRS proposal per kramer_3ca_2_0117.pdf that utilizes the same state diagrams as approved for the upstream direction by Motion #4 and #5 from the November 2016 meeting.

Moved: Glen Kramer Second: Alan Brown

For: 18 Against: 0 Abstain: 2
Technical (≥ 75%)
Motion Passed

Additional discussion on liaison letter to ITU-T Q2

Motion #11

Chair or his designee to submit IEEE_802d3_to_ITUTSG15_0117_draft.pdf liaison draft to IEEE 802.3 Working Group at the interim meeting for approval with editorial license granted to the Working Group Chair (or his appointed agent) as liaison communication to ITU-T SG15/Q2.

Moved: Frank Effenberger Second: Glen Kramer

For: 18 Against: 0 Abstain: 2
Technical (≥ 75%)
Motion Passed

Chairs closing comments on discussions/contributions for next meeting.

Motion #12

Move to Adjourn

Moved: Duane Remein Second: Mark Laubach
Procedural (> 50%)
Motion Passed by voice without opposition

5:25 PM Meeting was adjourned.

Attendance

Family Name	Given Name	Affiliation	10-Jan	11-Jan	12-Jan
Brown	Alan	Adtran	X	X	X
Chen	David	Applied Opto Electronics Inc	X		
Colella	Barry	Source Photonics		X	X
Dai	Eugene	Cox Communication	X	X	X
Effenberger	Frank	Huawei	X	X	X
Emmendorfer	Michael	Arris	X	X	X
Esser	Shawn	Finisar	X	X	X
Funada	Tomoyuki	Sumitomo	X	X	X
Gong	Zhigang	O-Net	X		
Guo	Yong	ZTE Corp	X	X	X
Hajduczenia	Marek	Charter	X	X	X
Harstead	Ed	Nokia	X	X	X
Jackson	Kenneth	Sumitomo	X		
Johnson	John	Broadcom LTD.	X	X	X
Knittle	Curtis	CableLabs	X	X	X
Kramer	Glen	Broadcom LTD.	X	X	X
Laubach	Mark	Broadcom LTD.	X	X	X
Lee	Hanhyub	ETRI	X	X	X
Liu	Dekun	Huawei	X	X	
Miguelez	Phil	Comcast	X	X	X
Nikolich	Paul	802 Chair/YASBBV		X	
Noll	Kevin	Tibit Communication	X	X	X
Parsons	Earl	CommScope	X	X	X
Peters	Michael	Sumitomo	X	X	X

Powell	Bill	Nokia	X	X	X
Remein	Duane	Huawei	X	X	X
Suzuki	Haoki	Mitsubishi Electric	X	X	
Suzuki	Ken-Ichi	NTT	X	X	X
Tanaka	Naruto	Sumitomo	X	X	X
Tucker	Ryan	Charter	X	X	X
Umnov	Alexander	Corning	X	X	
Xu	Qing	Belden	X		
Yu	Xu	Huawei	X		X
Zhang	Huanlin	Applied Opto Electronics Inc	X		X
Liao	Shenxing	Huawei	X	X	X
Zhao	Dianbo	Huawei	X	X	X
Walter	Edward	AT&T	X	X	X
Swirhun	Stan	Fmax Technologies	X		
Wey	Jun Shan	ZTE Corp	X	X	X
Young	Adrian	Leviton	X		
Squiers	Ron	Mentro Graphics	X		
Lin	Alexander	MediaTek		X	
Zhuang	Yan	Huawei			X