Meeting Minutes

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

Event: Rosemont IL meeting

Date: **From**: 3/6/2018 **To**: 3/8/2018

Location: Rosemont, IL USA

Opening

3/5/2-18 1:04 PM Opening

The meeting was called to order by the Chair, Curtis Knittle. Duane Remein volunteered to serve as recording secretary. The Chair held Introductions and gave the opening report (see file tf_opening_3ca_1_0318.pdf).

Motion #1			
Approve the agenda for March 2018 Task Force meeting as shown in file agenda_3ca_1a_0318.pdf			
Moved:	Marek Hajduczenia	Second:	Alan Brown
For: 20	Against: 1	Abstain: 1	
Procedural (> 50%)		Motion Passed	

The Chair reviewed the Task Force Web site / password, and IEEE rules. The Chair reviewed the IEEE patent policy.

3/5/2018 1:34 PM The Chair made a call for patents, no response was made.

The Chair reviewed the IEEE Participation guidelines.

Motion #2			
Approve the Minutes for of 802.3ca Task Force meeting held January 2018, in Geneva, CH as shown in file minutes_unapproved_3ca_0118.pdf and post the approved minutes as minutes_approved_3ca_0118.pdf.			
Moved:	Duane Remein	Second:	Glen Kramer
Procedural (> 50%)		Motion Passed by voice without opposition	

The Chair reviewed the IEEE process. The Task Force reviewed a liaison from ITU Q2/15 on higher speed optical access. The Chair reviewed goals for this meeting, Task Force Objectives, and timeline. Future meeting polls were taken.

Presentations

All presentations are in the following format:
Title Presenter (author if not presenter) Affiliation
Comments
(FileRef)

Coexistence Dilemmas of 25GEPON & 2x25GEPON with 10GEPON
E. Dai Cox
This presentation was only partially given, the remainder was deferred at the request of the author.
(dai_3ca_1a_0318.pdf)

25G and 50G EPON downstream wavelength plan E. Harstead
Nokia
This presentation suggested a downstream wavelength of DS0 at 1358 nm ± 2 nm and DS1 at 1342 ± 2 nm. The plan addressed both 25 Gb/s (DS0 or DS1) and 50Gb/s (DS1) PONs.
(harstead_3ca_1b_0318.pdf)

Motion #3			
Adopt the following downstream wavelength plan:			
DS0: 1358 +/- 2 nm			
DS1: 1342 +/- 2 nm			
25G-EPON shall use DS0, and update the draft accordingly.			
Moved: Ed Harstead		Second: Glen Kramer	
For: 26	Against: 0	Abstain: 0	
Technical (≥ 75%)	Motion Passed		

25G upstream power budget analysis D. Liu Huawei
This presentation summarized the upstream optical power budget and proposed OLT sensitivity of -25.0 dBm at 1e-2 BER and an ONU transmit ER of 5 dB. Proposed specifications for the ONU transmitter were an AVPmin of 5.0 dBm and an ER of 5 dB.
(liu_3ca_2_0318.pdf)

3/5/2018 Break, reconvened at 3:15 PM

Transmitter power and penalty specification J. Johnson Broadcom
This presentation provided additional details on the "launch power minus dispersion penalties" power budget methodology adopted in the Geneva meeting motions #8 & 9.
(johnson_3ca_1a_0318.pdf)

25G Upstream Power Budget Ed Harstead Nokia
This presentation proposed an upstream optical power budget (PR30) with an OLT sensitivity of -24.2 dBm at BER 1e-2 and an ER of 5 dB. Proposed specifications for the ONU transmitter were an AVPmin of 6.6 dBm and an ER of 5 dB.
(harstead_3ca_2a_0318.pdf)

Gain control of SOA preamplifier D. Umeda Sumitomo

This presentation proposed a SOA preamplifier with several levels of gain control to achieve multi-level amplification for different "classes" of ONU attenuation (i.e., ONUs with low, medium, or high attenuation).
(umeda_3ca_1b_0318.pdf)

10G .3ca upstream PMD E. Harstead Nokia

This presentation proposed that 10G ONUs intended for 25/10 dual rate operation use the LDPC FEC from 802.3ca.
(harstead_3ca_3_0318.pdf)

Coexistence Dilemmas of 25GEPON & 2x25GEPON with 10GEPON

E. Dai Cox

This presentation suggested that 2x25G will not coexist with either GPON or XGSPON. Comments from the floor noted that this is not an objective.
(dai_3ca_1b_0318.pdf)

3/5/2018 5:35 PM recessed for the day.
3/6/2018 9:05 AM Reconvened

Continued presentations

Estimate interleave of LDPC B. Gao Huawei

This presentation investigated the need for the approved interleaver, suggesting that the increased complexity of the interleaver was not worth the minimal gain attained (0.01 dB). Comments from the floor indicated that the specific interleaver does indeed need more study.
(gao_3ca_1_0318.pdf)

Straw Poll #1

I agree to remove omega256 structured interleave presented in laubach_3ca_1_0517.pdf pages 10 and 11 with seed code as in laubach_3ca_2_0517.txt for downstream and upstream channels.

Yes:	4
No:	0
Need more information:	20
Don't care	0

Data Rate to Line Rate Conversion (Further Optimization)

G. Kramer Broadcom

This presentation proposed a revision of what was adopted in the Geneva motion #6 by changing the FEC to an integer multiple of 257-bits and replacing one 64-bit block of data with an unscrambleld synchronization pattern.
(kramer_3ca_1_0318.pdf)

LDPC Parity Code Matrix Update for Improved Alignment

M. Laubach Broadcom

This presentation outlined a new shorter FEC which would enable the rate optimization proposed in kramer_3ca_1_0318.pdf. Text files showing the details of the FEC CW and puncturing are also available.
(laubach_3ca_1a_0318.pdf, laubach_3ca_2_0318.pdf, laubach_3ca_3_0318.txt)

3/6/2018 10:00 AM Break, Reconvened at 10:34 AM

Details on proposed state diagrams for PCS layer and input to PMA

D. Remein Huawei

This presentation proposed state diagrams accommodating the approved FEC for ONU transmit PCS and PMA.
(remein_3ca_2a_0318.pdf)

Data Detector Glen Kramer Broadcom

This presentation outlined the history of the data detector and proposed state diagrams for the OLT transmit PCS.
(kramer_3ca_2_0318.pdf)

Text and figures for Cl 142.2 Duane Remein Huawei

This presentation proposed text to be added to the draft for Clause 142.2.
(remein_3ca_1_0318.pdf)

Motion #4			
Accept text for Clause142.2 as presented in remein_3ca_1a_0318.pdf and include in the draft.			
Moved: Duane Remein		Second: Glen Kramer	
For: 22	Against: 0	Abstain: 2	
Technical (≥ 75%)	Motion Passed		

3/6/2018 12:20 PM Recessed for lunch. Reconvened at 1:30 PM

Comment resolution

The Task Force considered comments submitted against draft 0.7. See 802d3ca_D0_7_approved.pdf for resolutions.

3/6/2018 3:15 PM Recessed for Break, reconvened at 3:45 PM

Completed comment resolution.

Mid meeting motion madness

Motion #5			
P802.3ca 10G upstream channels associated with 25G/10G ONUs, operating on UW0 or UW1 wavelengths, shall use 10G PHY specified as shown in harstead_3ca_4a_0318.pdf.			
Moved: Ed Harstead		Second: Dekun Liu	
For: 26	Against: 0	Abstain: 0	
Technical (≥ 75%)	Motion Passed		

Motion #6

Adopt the FEC codeword format shown in slide 6 of kramer_3ca_1_0318.pdf. Adopt the indicated draft text changes in laubach_3ca_2_0318.pdf and update 142.2.2.3.1 Low Density Parity Check Coding and 142.2.2.3.2 LDPC Encoder as needed. Accept the machine readable format of the parity code matrix in laubach_3ca_3_0318.txt. Update machine readable Omega256 interleaver seed as contained in laubach_3ca_4_0318.txt. This motion modifies motion #6 from meeting in Nov 2017.

Moved: Glen Kramer Second: Duane Remein

For: 18 Against: 0 Abstain: 8

Technical (≥ 75%) Motion Passed

Motion #7

Adopt the following 25G EPON PR30 upstream specifications:

- 25G OLT receiver sensitivity: -25.0 dBm at BER = 1e-2 and ONU Tx ER = 5 dB,
- 25G ONU transmitter: ERmin = 5 dB, (AVP minus TDP)min = 4.0dBm and update the draft.

Moved: Dekun Liu Second: Ed Harstead

For: 25 Against: 0 Abstain: 0

Technical (≥ 75%) Motion Passed

Presentations (continued)

Flexible-Rate 50G-PON Supporting 50, 37.5 and 25 Gb/s Date Rates

F. Effenberger Huawei

This presentation outlined experimental results using a DSP based receiver to achieve a PHY with flexible bit rates of 25, 37.5 and 50 GB/s transmission rates. The mechanism utilized an NRZ modulation at 25G, PAM3 encoding 1.5-bits per symbol at 37.5G and PAM4 encoding 2-bits per symbol at 50G.
(effenberger_3ca_1_0318.pdf)

Symmetric 50G PON using NRZ L. Zhou Huawei

This presentation outlined experimental results of a 50g NRZ modulated PON using an FFE equalization technique.
(zhou_3ca_1_0318.pdf)

3/6/2018 5:46PM recessed for the day.
3/7/2018 9:00 AM Reconvened

Why should be one by 50Gb/s in P802.3ca D. Liu Huawei

This presentation suggested that adopting a single wavelength 50 Gb/s would be a lower cost solution to meeting the objective for a 50G PON.
(liu_3ca_1_0318.pdf)

Propose to standardize 50G TDM-PON D. Liu (authored by D. Zhang) Huawei (China Telecom)

This presentation summarized why the authors favored 50G serial over a 2x25G solution.
(zhang_dezhi_3ca_1a_0318.pdf)

Baseline proposal for 50G single-wavelength J. Zhang ZTE

This presentation provided experimental results supporting technical feasibility for 50 Gb/s serial.
(zhang_junwen_3ca_1a_0318.pdf)

3/7/2018 10:25 AM Break, Reconvened at 10:43 AM

Motion #8			
P802.3ca shall adopt 1 X 50Gb/s as a solution for 50GEPON.			
Moved:	Junwen Zhang	Second:	Dekun Liu
For: 7	Against: 11	Abstain: 6	
Technical (≥ 75%)	Motion Failed		

Motion #9			
In order to extend OLT burst receiver dynamic range, move to extend the discovery message shown in umeda_3ca_1b_0318.pdf pages 7 and 8 to support ONUs with different RX_RSSI to be registered in different time slots. Align the table with new bit positions in draft as amended in this meeting.			
Moved:	Daisuke Umeda	Second:	Dekun Liu
For: 19	Against: 0	Abstain: 3	
Technical (≥ 75%)	Motion Passed		

Motion 10			
IEEE P802.3ca Task Force instructs the editor to produce draft version D1.0 from current draft version D0.7 by incorporating approved motions and changes as recorded in 802d3ca_D07_approved.pdf.			
Moved:	Marek Hajduczenia	Second:	Duane Remein
For: 24	Against: 0	Abstain: 0	
Technical (≥ 75%)	Motion Passed		

The Chair reviewed the Task Force time-line and noted that future contributions will focus on the approved scope and missing or incorrect content in the draft. Anything outside the scope must be approved by the Task Force.

The Task Force reviewed draft liaison IEEE_802d3_to_SG15_Q2_0318_draft.pdf

Motion #11			
Move that the P802.3ca Chair (or his appointed agent) request that the IEEE 802.3 Working Group approve IEEE_802d3_to_SG15_Q2_0318_draft.pdf with editorial license granted to the Chair (or his appointed agent) as liaison communication from the IEEE 802.3 Working Group to the ITU-T Q2/15.			
Moved:	Ed Walter	Second:	Alan Brown
Technical (≥ 75%)	Motion Passed by voice vote without opposition		

Glen Kramer took the floor to discuss the implication of Motion #8 and the need to continue the engagement with the proponents of 50 Gb/s-per-wavelength PON. He stated that the rejection of the 50Gb/s proposals in 802.3ca does not make the issue go away. He pointed out that while the TF has made clear its desire to not abandon or delay the 2x25 Gb/s PON solution, we must offer Chinese operators an acceptable strategy that would lead to 1x50G-EPON and possibly 2x50G-EPON solutions becoming available in the Chinese market by 2025. Kramer suggested that the best way to achieve this is to expand the scope of High-Speed Point-to-Point for Access study group, which is likely to be approved at the closing 802.3 plenary, to also include 1x50Gb/s and maybe 2x50Gb/s PON PMDs. He stated that

the MPRS and higher sublayers accepted by 802.3ca TF already support MAC data rates up to 100 Gb/s, and thus, 802.3ca can serve as the foundation for the new project. Therefore, the new project only needs to focus on the PMDs. To quantify the TF support in this strategy, Glen Kramer offered the following straw poll:

Straw Poll #2	
Would you support starting a new project that includes higher speed P2P single fiber, and 1x50 Gb/s (serial single wavelength) PON and 2x50 Gb/s (serial dual wavelength) PON?	
Yes, I support a single project for higher speed access:	12
I would support two separate projects for higher speed access (P2P and PON):	21
I don't support any 1x50 Gb/s (serial single wavelength) PON project:	2
(Chicago rules)	

Motion #12			
Move to adjourn.			
Moved:	Duane Remein	Second:	Marek Hajduczenia
Procedural (>50%)	Motion Passed by voice without opposition		

3/7/2018 11:46 AM Meeting was adjourned

Attendance

Full Name	Affiliation	5-Mar	6-Mar	7-Mar
David Baran	Arris	x	x	
Francois Beauregard	Belden	x		
Alan Brown	Adtran	x	x	x
Cedric Caudron	APTIV		x	
Barry Colella	Source Photonics	x	x	
Eugene Dai	Cox Communication		x	
Claudio Desanti	Google	x	x	x
Liang Du	Google	x	x	x
Frank Effenberger	Huawei	x	x	x
Vincent Ferretti	Corning	x	x	x
Bo Gao	Huawei	x	x	x
Marek Hajduczenia	Charter	x		x
Ed Harstead	Nokia / Nokia, Bell Labs	x	x	x
John Johnson	Broadcom LTD.	x	x	x
Curtis Knittle	CableLabs	x	x	x
Glen Kramer	Broadcom LTD.	x	x	x
Mark Laubach	Broadcom LTD.	x	x	x
David Law	HPE		x	x
David Li	Ligent		x	x
Dekun Liu	Huawei	x	x	x
Phil Miguelez	Comcast	x	x	x
Kevin Noll	Tibit Communication	x	x	x
Earl Parsons	CommScope	x	x	
Carl Posthuma	Noika	x		
Bill Powell	Nokia	x	x	x
Duane Remein	Huawei	x	x	x
Matthew Schmitt	CableLabs			x
Daisuke Umeda	Sumitomo	x	x	x
Dora van Veen	Nokia / Nokia, Bell Labs	x	x	x
Edward Walter	AT&T	x	x	x
Jun Shan Wey	ZTE Corp	x	x	x
Junwen Zhang	ZTE Corp	x	x	x
Richard (Yujia) Zhou	Charter		x	x