

Meeting Minutes

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

Event: Plenary meeting

Date: **From:** 7/11/2017 **To:** 7/12/2017

Location: Berlin, Germany

Opening

7/11/2017 9:00:00 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.

Motion #1

Approve the agenda for Task Force meeting to be held July 11-13 2017 in Berlin, GDR located in file http://www.ieee802.org/3/ca/public/meeting_archive/2017/07/agenda_3ca_1_0717.pdf
Moved: John Johnson Second: Duane Remein
Procedural (> 50%) Motion Passed by voice without opposition

Motion #2

Approve the Minutes for Task Force meeting held May 2017, in New Orleans, LA USA located in file http://www.ieee802.org/3/ca/public/meeting_archive/2017/05/minutes_unapproved_3ca_0517.pdf
Moved: Duane Remein Second: Ed Walters
Procedural (> 50%) Motion Passed by voice without opposition

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

7/11/2017 9:14:00 AM The chair made a call for patents, no response was made.

The Chair reviewed the IEEE Participation guidelines, process, and project timeline. Future meeting polls were taken.

The TF reviewed and discussed a liaison letter received from ITU-T Q2.

Presentations

All presentations are in the following format:

Title	Author/Presenter	Affiliation
Comments		
FileRef		

Call for collaboration between IEEE 802.3ca and ITU Q2 for PON convergence

Presented by Wang Bo, China Telecom
Dekun Liu, Huawei

This presentation, supported by numerous providers and vendors, expressed support for PON convergence. The TF had several questions on what exactly was meant by PON convergence. Does convergence only involve PMD and PHY or does it also include MAC (TC Layer) and possibly management?

wangbo_3ca_1_0717.pdf

The Needs of Asymmetric 25G Rate for 100G EPON - And the impacts on wavelength plan

Eugene Dai Cox Communications

This presentation reviewed 25/10G requirements and suggested the 10G upstream wavelength should be TDMA with the 25G upstream wavelength.

dai_3ca_1a_0717.pdf

7/11/2017 10:40:00 AM

Break, reconvened at 11:00 AM

Reconsiderations on 50G and 100G EPON

Wang Bo, (presented by Dekun Liu, Huawei) China Telecom

This presentation suggested that the Task Force reconsider the possibility of a 50G serial PON

wangbo_3ca_2_0717.pdf

7/11/2017 5:57:57 AM

Lunch, reconvened at 1:00 PM

Mitigation of cross-gain modulation in OLT booster amplifier

Hanhyub Lee ETRI

This presentation discussed SOA crosstalk mitigation and provided experimental results of a technique that injects an assist light to the SOA.

lee_3ca_1b_0717.pdf

Reducing input dynamic range of SOA-preamplifier for 100G-EPON upstream

Hanhyub Lee ETRI

This presentation discussed SOA crosstalk/damage threshold mitigation and provided several solution mechanisms. The conclusion was that the best approach is to reduce the output power range of the ONU coupled with power leveling of the ONU. It was noted during discussion that worst case dynamic range is 24 dB not the 19 dB assumed in the presentation, this make the problem even more difficult to solve.

lee_3ca_2a_0717.pdf

SOA Gain Control at OLT

Daisuke Umeda Sumitomo Electric Industries, LTD.

This presentation discussed SOA crosstalk/damage threshold mitigation using a gain control mechanism under the assumption that there would be one SOA per channel at the OLT.

umeda_3ca_1_0717.pdf

Compensation of Channel Insertion Loss at ONU

Daisuke Umeda Sumitomo Electric Industries, LTD.

This presentation discussed SOA crosstalk/damage threshold mitigation using a channel insertion loss compensation mechanism (i.e. power leveling using VOA) at the ONU which is controlled by ONU alone (no OLT protocol needed).

umeda_3ca_2a_0717.pdf

Specifying 25G EPON OLT receiver sensitivity for PR30 - avoiding SOAs

Ed Harstead Nokia

This presentation discussed SOA crosstalk/damage threshold mitigation using a channel insertion loss compensation mechanism (i.e. power leveling using VOA) at the ONU which is controlled by ONU alone (no OLT protocol needed).

harstead_3ca_2b_0717.pdf

7/11/2017 2:35:00 PM

Break, reconvened at 3:00 PM

Views on a two-option wavelength plan

Ed Harstead Nokia

This presentation suggested that a wavelength plan that allows for two 25G channels, one to coexist with 10G-EPON and the other to coexist with GPON, both via WDM, is an optimal solution which maximizes the market for the P802.3ca project.

harstead_3ca_1c_0717.pdf

Wavelength plan options

Frank Effenberger Huawei Technologies

This presentation suggested several variations on the EO wavelength plan (i.e., plan with 2 wide 20nm channels at ~1270 & ~1310) and contrasted these to plan Z.

effenberger_3ca_1_0717.pdf

Discussion of Simplified Plan EO

John Johnson Broadcom Ltd.

This presentation summarized the benefits of a simplified EO plan (i.e., plan with 2 wide 20nm channels at ~1270 & ~1310) suggesting that two narrow wavelengths be included within the wide bands for support of 100G-EPON.

johnson_3ca_1_0717.pdf

100G EPON Wavelength Plan - Back to Fundamentals

Eugene Dai Cox Communications

This presentation reviewed wavelength decision drivers and suggested a plan with 1 wide channel to support 25/10G systems and 4 narrow wavelength pairs for 25/50/100 symmetric systems.

dai_3ca_2b_0717.pdf

GATE/REPORT Behavior

Duane Remein Huawei Technologies

This presentation suggested behavior for Fragment and Forced Report flags. It was suggested that the multi-Part Report field in the REPORT MPCPDU be replaced with an indication of the number of non-empty queues. In addition it provides definitions for Mandatory and Gratuitous reports

remein_3ca_1_0717.pdf

7/11/2017 6:15:00 PM

Recessed for the day

7/12/2017 9:00:00 AM

Reconvened

MPCP+ GATE processing

Duane Remein

Huawei Technologies

This presentation suggested modifying the GATE Processing SD by splitting it into two new SDs; GATE Reception Process and Envelope Commitment Process.

remein_3ca_2_0717.pdf

Channel capability report during registration for 100G-EPON

Dan Geng

ZTE Corporation

This presentation suggested adding a channel capability report to the REGISTER_REQ MPCPDU.

geng_3ca_1_0717.pdf

Progress Report on Envelope Header and Bonding

Duane Remein

Huawei Technologies

This presentation provided a summary of current progress on MPRS and channel bonding solution.

remein_3ca_3_0717.pdf

7/12/2017 10:15:00 AM

Break, reconvened at 10:45

25Gbps PMA, for PON

Ryan Hirth

Broadcom Ltd.

This presentation provided an analysis of CDR under high BER conditions and concluded that operation at BER of 1E-2 is feasible.

hirth_3ca_1a_0717.pdf

Experiment Results on 25G CDR locking for 25G NRZ

Jin Yinrong

Huawei Technologies

This presentation summarized test results of CDR lock capabilities under high BER conditions and concluded that lock at BER of 1E-2 is feasible.

jinyinrong_3ca_1_0717.pdf

FEC Analysis for 100G EPON

Jin Yinrong

Huawei Technologies

This presentation provided an analysis of two LPDC FECs with code rates of 82.4 and 84.4%.

jinyinrong_3ca_2_0717.pdf

FEC proposal - update

Mark Laubach

Broadcom Ltd.

This presentation provided additional analysis of the LDPC (18493, 15677) 0.848 FEC code first presented in the New Orleans meeting.

laubach_3ca_1_0717.pdf

7/12/2017 12:21:00 PM

Recessed for lunch, Reconvened at 1:21

Error characteristic and test in XGPON system (Ber=1e-2)

Jing Lei

Huawei Technologies

This presentation provided channel error statistics for XGPON systems and found that the Gilbert burst model did not accurately predict errors in the upstream channel. The characteristics for 100G-EPON channels are expected to be very similar.

jinglei_3ca_1_0717.pdf

Optical source and FEC code for 25G-EPON

Hanhyub Lee

ETRI

This presentation suggested that both an integrated SOA+EML combined with enhanced FEC will be needed to compensate additional link loss of the 25G-EPON downstream.

lee_3ca_3_0717.pdf

25G EPON upstream Power Budget Analysis Dekun Liu

Huawei Technologies

This presentation examined the optical power budget for the upstream direction and suggested a +5 dBm launch power should suffice.

liu_3ca_1_0717.pdf

Motions and Straw Polls

Motion #3

Adopt the behavior described for the flags, Fragment and Forced Report, and the fragment definitions given in remain_3ca_1_0717.pdf slides 4-9.

Moved: Duane Remein Second: Mark Laubach

For: 20 Against: 0 Abstain: 6

Technical (≥ 75%) Motion Passed

Motion #4

Split the ONU GATE Reception Process state diagram into two SDs, GATE Reception Process and Envelope Commitment Process as illustrated in remain_3ca_2_0717.pdf slides 5 through 9.

Moved: Duane Remein Second: Mark Laubach

For: 23 Against: 0 Abstain: 3

Technical (≥ 75%) Motion Passed

Straw Poll #1

Do you support LDPC for the 25G NRZ channels FEC

For: 12

Against: 6

Abstain: 8

7/12/2017 9:45 AM Break, reconvened at 10:15 AM.

Motion #5

802.3ca shall adopt an upstream wavelength plan for the first 25G and new 10G (EQ based) channel with two options,

Option 1: at 1310nm width 20nm; WDM coexistent with 10G-EPON

Option 2: at 1270nm width 20nm; WDM coexistent with G-PON reduced wavelength set.

TDM coexistence with legacy PONs is not required.

Moved: Frank Effenberger Second: John Johnson

For: 21 Against: 1 Abstain: 4

Technical (≥ 75%) Motion Passed

Closing

The TF reviewed the current time line

Motion #10

Move to amend the TF timeline by shifting all tasks except PAR approved by 12 months from existing dates.

Moved: Duane Remein

Second: Mark Laubach

Procedural (> 50%) Motion Passed by voice without opposition

The Task Force reviewed future work items and action items were taken by the chair

Motion #11

Move to adjourn.

Moved: Duane Remein

Second: Frank Effenberger

Procedural (> 50%)

Motion Passed by voice without opposition

7/12/2017 3:35 PM The meeting was adjourned.

Attendance

Full Name	Affiliation	11-Jul	12-Jul
Ayla Chang	Huawei		x
Eugene Dai	Cox Communication		x
Frank Effenberger	Huawei	x	x
Dan Geng	ZTE Corp	x	x
Yong Guo	ZTE Corp	x	x
Ed Harstead	Nokia	x	x
Ryan Hirth	Broadcom	x	x
Kenneth Jackson	Sumitomo	x	x
John Johnson	Broadcom LTD.	x	x
Curtis Knittle	CableLabs		x
Mark Laubach	Broadcom LTD.	x	x
Hanhyub Lee	ETRI	x	x
Shenxing Liao	Huawei	x	x
Dekun Liu	Huawei	x	x
Moonsoo Park	IDE Solutions America	x	x
Bill Powell	Nokia	x	x
Duane Remein	Huawei	x	x
Ken-Ichi Suzuki	NTT	x	x
Naoki Suzuki	Mitsubishi Electric	x	x
Daisuke Umeda	Sumitomo	x	x
Alexander Umnov	Corning	x	x
Allard van der Horst	Semtech	x	
Edward Walter	AT&T	x	x
Liquan Yaun	ZTE Corp	x	x
Jinrong Yin	Huawei	x	x
Rene Bonk	Nokia	x	x
Shiwei Nei	Huawei	x	x
Jacob Meachen	Semtech	x	x
Joerg R. Kropp	VI-Systems	x	