## **Meeting Minutes**

20 Jan 2016	
Location	Atlanta GA, USA
Date:	<b>From</b> : 20 Jan, 2016 <b>To</b> : 21 Jan 2016
Event:	Task Force Interim meeting
Group:	IEEE 802.3 100G-EPON Task Force

**9:00 AM** – The meeting was called to order by the Working Group Chair. Duane Remein is serving as recording secretary.

Motion #1		
Confirm Curtis Knittle as the IEEE 802.3	cb 25 Gb/s, 50	Gb/s, and 100 Gb/s EPON Task Force Chair.
Moved: Kevin Noll	Seconded:	Duane Remein
For: 26 Against: 0 Abstain:	0	
75% by Rule Motion Passed		

The new Chair held Introductions and gave his opening report. The following appointments were made: Glen Kramer as Vice Chair and Marek Hajduczenia as Chief Editor.

Motion #2		
Approve the agenda for Task Force meeting to be held Jan 20-21 2016, in Dallas, TX, located in file		
http://www.ieee802.org/3/NGEP	ONSG/public/2015_3	11/ngepon_1511_agenda_v1.pdf
Moved: Glen Kramer	Seconded:	Frank Effenberger
Procedural > 50% Passed by	voice without oppos	ition

The Chair reviewed meeting decorum, the Task Force reflector & web page, IEEE Organization & Bylaws, Guidelines for IEEE-SA Meetings. The IEEE patent policy was read.

9:22 AM – A call for patents was made. No response to the call for patents was received.

The Chair reviewed the IEEE process, goals for meeting, project documents/objectives, future meeting (Macau in March, Whistler BC in May) polls were taken.

## **Presentations and Discussion**

## 9:30 AM – Presentations

## 100G EPON Backward Compatible with 10G EPON

## M. Emmendorfer

Arris

This presentation reviewed coexistence objectives and how various mechanisms could be used to meet these objectives. Discussion reveled that there was confusion on the meaning of the term coexistence

and it was suggested that the group agree on the definition of this term. emmendorfer\_3ca\_01b\_0116.pdf

100G EPON reference ModelsE. DaiCox CommunicationsThis presentation covered bonding architecture options in conjunction with Network configurations.Three bonding options were covered:PHY layer, RS layer, and MAC layer. Network configurationsincluded 25G ONU on 4 separate wavelength pairs, 50G ONUs (2 wavelength pairs), 75G ONU (3wavelength pairs), and 100 G ONUs (all 4 pairs).dai\_3ca\_01\_0116.pdf

NG-EPON: Considerations on architectureY. GuoZTEThis presentation covered bonding architecture options and suggested a multi-step approach. First stepwould be a single 25G lane and second step would be a multi-lane specification based on a 25G per lane.guo\_3ca\_01a\_0116.pdf

Frame latency issues in multi-lane EPONG. KramerBroadcomThis presentation addressed potential latency issues in multi-lane systems discussed in the SG/TF and<br/>included simulation results (see kramer\_3ca\_3\_0116.xlsx) showing where in the path each delay<br/>component occurred.component occurred.kramer 3ca 1a 0116.pdf10116.pdf

 Options for placing the channel bonding sublayer
 G. Kramer
 Broadcom

 G. Kramer
 Broadcom

 This presentation examined where to perform bonding in the layer model and issues that need to be

 resolved for each option.

 kramer\_3ca\_2b\_0116.pdf

RS Layer work planD. RemeinHuaweiThis presentation outlined items within the RS that may/will need to be addressed by the Standard.remein\_3ca\_1\_0116.pdf

# Baseline proposals for NG-EPON PCSM. HajduczeniaBright House NetworksThis presentation outlined the 10G-EPON PCS layer.hajduczenia\_3ca\_1\_0116.pdfbright House Networks

PMD Work AreasF. EffenbergerHuaweiThis presentation outlined items within the PMD layer that may/will need to be addressed by the<br/>standard.effenberger 3ca 01 0116.pdf

NG-EPON PMD analysisY. GuoZTEThis presentation examined possible modulation techniques that could be used and concluded that NRZis preferred.guo\_3ca\_02a\_0116.pdf

5:17 PM – recessed.

## 21 Jan 2016

9:05 AM – reconvened.

It was agreed to amend the agenda to allow a late presentation from Jorge Salinger to be given.

## **Presentations** (continued)

## Towards building a low cost 25G "base PHY" for 100G EPON

E. Harstead This presentation explored the possibility of defining a wavelength plan that included one low cost "base" lane in O band and three DWDM bands for higher performing ONUs. FEC was also considered and the possibility of using a hard decision LDPC FEC was suggested. harstead 3ca 1b 0116.pdf

## O-band DWDM NRZ transmission of 100G-EPON

H. Lee ETRI This presentation addressed Coexistence Requirements, Wavelength Plan, Line code, ONU Tuning of 25G ONUs, and Spectrum needed. The presentation concluded that O band could be used for 4 channel tuned DWDM.

lee\_3ca\_01a\_0116.pdf

#### Wavelength Plan Proposals F. Effenberger Huawei

This presentation examined possible wavelength plans. An architecture with one single lane 25G generation system and a separate 4x25G channel 100G system. The possibility of a 4 channel CWDM system was also discussed. effenberger\_3ca\_02\_0116.pdf

Manage Colors for 100G EPON E. Dai **Cox Communications** This presentation described using four 25Gb streams on the same ODN using wavelength routed (selective) and wavelength selected (broadcast over power split ODN) architectures. dai 3ca 02a 0116.pdf

**Flexible Wavelengths** R. Tucker **Charter Communications** This presentation discussed wavelength plan and its impact on PMD architecture, especially tunability. tucker 3ca 1 0116.pdf

Straw Poll #1		
P802.3ca will r	not define a new	10Gbps EPON PHY.
Agree: 19	Disagree: 0	No Opinion: 1

## Straw Poll #2

The standard will enable an implementation optimized for a single wavelength pair operating at 25Gbps symmetric and for 25G/10G asymmetric.

Agree: 19 Disagree: 0 No opinion: 1

## Alcatel-Lucent

## Motion #3

The P802.3ca standard shall enable an implementation using a single wavelength pair operating at 25Gbps symmetric. The P802.3ca standard shall enable an implementation using a single wavelength pair operating at 25/10Gbps asymmetric (reusing 10G-EPON US). Moved: Jorge Salinger Seconded: Kevin Noll For: 18 Against: 0 Abstain: 2 Technical ≥ 75%Passed

## Presentations (continued)

## 100G EPON Standard Development Timeline and Work Plan Objective

J. Salinger

Comcast

This presentation reiterated time-to-market need, and reviewed both objectives and timeline. An

updated timeline was proposed salinger\_3ca\_01\_0116.pdf

## Motion #4

Adopt the time line as presented on slide #1 in timeline\_3ca\_0116.pdfMoved:Jorge SalingerSeconded:Kevin NollFor:8Against:0Procedural > 50%Passed

Glen held a very short discussion on Web file naming. It was agreed that files would be of the form: *presenter\_3ca\_#a\_mmyy.pdf* where:

"presenter" is the family name of the presenter, "3ca" and "\_" are literals "#" is number of the presentation from the presenter without leading zeros (1, 2, 3, ...), "a" is an alpha character (a, b, c, ...) indicating the revision of the posted presentation (the initial file has no letter, the first revision uses letter "a", the second revision uses "b"), "mm" is the month (01, 02, ...12), and "yy" is year (16, 17, 18).

The Chair presented his closing report including the following topics:

- There was a short discussion on allowing votes to be taken during conference calls; this would require an 802.3 rules change.
- It was noted that additional details are requested from the 4 work area leads (MPCP, RS, PCS/PMA, & PMD). In particular decisions and their interdependencies should be identified. The eventual outcome may become a detailed project plan.

Move to Adjourn	
Moved: Jorge Salinger Seconde	d: Duane Remein

### 5:22 PM - The meeting was adjourned.

## Attendees on 1/20:

AFFILIATION EMAIL NAME, AFFILIATION, EMAIL NAME Nou, KEVIN /TWC /kevin. nolle tweable.com Hanhyub Lee / ETRI / hanhyund etri. re. Kr Ed Harstead | Nokia / ed. harstead @ nokia. 102 Kyeong HUan /ETR/, Khdoo@etri.re.14 MARTER HA-POLOGINA / PHIN / MARTER HAZBOLOGINA Weyl Wang Accelink weyl. wange accelink Fernando Villamed Caco / villarf@cisce.com - Coin SHAWN ESSER/FINISAR MARK LABACH BROADCOM ShAWN. ESSERE FINISARCAN BZ SHEN Broadcom Phil MIGUELEZ/CONCAST Phik \_ MiGuelez & Capile, Carlos J. Con Yong Guo ZTE Corportion THELARBhardon Alan M. Brown / Comm Scope Tom KOLZE BROADCOM Alan. Brown @ commiscope, com Herham ElBakaury ALEXANDER UMNON CORNING Nack. Suzuk: / Mitsubishi Electric ) HYATT Michael Emmendor FR. ARR Amen PO ARRIS COM

MICHAEL PETERS mpeters & sunitomo electrice. com Ryan Tucker / ryan tucker Ccharler Renkach DUANE REMEIN/ HURWET- COM Glen Framer/ Broadcom Tor How / Broadcon Trank Esserbarger / Huawei Vavid Chan/Applied Opto electronics. Inc. Huanlin ZHANG ( Applied Opticelectronics, MOONSOO PARK / DE Solutions America Richard Mei/ CommScope. JERGE SALINGER /COMOST Lagene Dai ICOX. Barry Colella I SOURCE MO

## Attendees on 1/21:

REGENCY (UNY Z ) 2016 01 21 HYATT Yous (Tuo, ZTE Corporation Huanlin Zhang, Applied Optoelectronics, Inc. David Chen, Applied genelectronics. Inc. Ed Harsterd Alcadel-Lucert/Note MARECHATPUCZENM BHA Y. IC. ICim Catholic Herv. Frank Esenberrar Huawci Minseok off, Kyonggi Univ. SHAWN ESSER FINISAR BARRY Cololla, Source Photonics WEI RUAN, Huawei Victor Hou Broadcox Neyl Wang, Acceliak MICHAEL PETERS, SUMITOMO Kyeeng Hwan Dos, ETRI Nack: Snzaki, Mitmischi Electric Moonsoo Park, OE Solutions America Hanhyub Lee, ETRI Bazhong (BZ) SHEN, Broadcom Enfense Dai Cox KAVIN Nove, TWC MARK LANDRCH BROADCOM ALEXANDER UMNOV CORNING Tom KOLZE BROADCOM Ryan Tueler Cherter Gley Kramer / Broadcom OUTINE REMEIN, HUMWEI ALAN M. BROWN, COMMSCOPE Phil MIGUELEZ, CONCAST JORGE SALINGAR, COM CAST