

# Meeting Minutes

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## Industry Connections NG-EPON Activities ad-hoc.

The Chair called the meeting on Sun, July 13, 2014 at 13:13 PM with a brief review of the charter of the activity. The Chair displayed the opening presentation starting with the agenda and noted that the report was moving along faster than he had expected. Edwin Mallette volunteered to be recording secretary.

The attendees in the meeting room then introduced themselves with their affiliation, as per the agenda.

The chair indicated that there is no IMAT attendance for this ad-hoc meeting as this NG-EPON meeting is a) an interim meeting because it begins prior to the plenary and b) is too short - it only counted as a one-day interim. For an interim meeting to be used for attendance purposes the interim must be two days in length.

### Motion to Approve Agenda

Approve the agenda as shown in "[frazier ngepon 01 0714.pdf](#)", slide 2.

Move: Mark Laubach  
Second: Duane Remein

Procedural >50%.

**Result:** Motion passed without objection.

Chair announced that the May 2014 meeting minutes were posted to the website here: [Meeting minutes NGEPON unapproved 140513.pdf](#).

### Motion to Meeting Minutes

Approve the meeting minutes from the May 13, 2014 meeting.

Move: Duane Remein  
Second: Glen Kramer

Procedural >50%.

**Result:** Motion passed without objection.

Chair displayed information on the reflector and web; ad hoc decorum; indicating that the requirement to wear the badges is waived for this NG-EPON interim meeting as IEEE802.3 registration would not open until 5PM; ground rules; project goals; and the current status of the project.

The chair noted that in the May meeting the group indicated the draft was mature enough to receive comments and that there were a decent number of comments received against the draft.

The chair asked if there were any last minute requests for presentations, indicating the only presentation he had received was one from Mr. Remein. There were no additional last minute requests for presentations.

Dr. Kramer requested that line numbers be added to the draft and he requested that there were more formalization in terms of production of the draft. He further requested that all comments against a given draft be resolved within a single draft version. Dr. Kramer suggested using the tool that they used for P1904.1 comment resolution. The chair indicated he would prefer to use the IEEE802.3 tool rather than the P1904.1 comment resolution tool.

The chair indicated that for this review cycle we were supposed to be providing “word bubble” comment and thus the comments should have been submitted via Word. The posted draft including comments was a .pdf document with comments provided within the .pdf.

Mr. Laubach asked about the call for patents. The chair indicated that there were no essential claims because there is no standard development work. Paul Nikolich asked Mark Laubach to follow up with David Law to get a definitive answer on the call for essential patents within IEEE802.3.

#### **Contribution #1:**

**Title:** [Architecture Analysis of Hybrid TDM/WDM PON](#)

**Presenter:** Duane Remein

**Affiliation:** Huawei

This presentation covered the motivation of the draft, indicating that while TDM-PON has proven to be cost-effective flexible and versatile; WDM is often considered as the most practical technology for PON capacity expansion. The position taken is that what is needed is an approach to combine the benefit of TDM PON and WDM by stacking TDM PON on top of a WDM structure.

Two general architectures were wavelength routed, which would require changes to the traditional ODN, and wavelength selected which could re-use existing ODNs.

There were three classes of hybrid TDM/WDM PON including TWDM, WTDM, and Flexible Approach.

- TWDM-PON - each lambda is an independent TDM domain.
- WTDM-PON - all lambdas are combined to create a single large TDM domain.

- Flexible Approach - a mix-and-match of both approaches.

Mr. Remein walked through the optical devices for WTDM-PON (slide 6), for TWDM-PON (slide 7) and for the flexible approach (slide 8.) He then ended with a summary of the options and architectures.

Mr. Remein indicated the lasers could be colored or colorless, including things like injection locking, or self-seeded though that may not work for 10G rate. Mr. Remein indicated that “colorless ONU” should really be noted as tunable on slide 4.

Mr. Remein indicated he wasn’t distinguishing between downstream and the upstream because the ODN is a single fiber. Mr. Remein stated that both options on slide 4 are included in NGPON2. He also stated that if you wanted to be “wavelength agile” to receive a burst on wavelength-1 and then receive another burst on wavelength-2, that’s a costly proposition.

Both Dr. Hajduczenia and Dr. Kramer indicated there was an issue with slide 5 (which uses ITU-T definition for TWDM and WTDM.) The current draft for the NG-EPON IC activity uses different definitions for TWDM and WTDM.

Mr. Laubach asked for a table to list the speed possibilities intersected with the different architectures.

The chair indicated for the report we should try to list pros and cons for various solutions. Only in cases of very strong consensus, should we go beyond pros and cons.

Dr. Hajduczenia indicated that he had sent a contribution to the reflector several hours before and asked if it would be acceptable for him to present. Dr. Hajduczenia was not present when the call for last minute presentations was made. The chair asked the ad-hoc if there were any objections. There were no objections.

### **Contribution #2:**

**Title:** [Services provided over EPON in MSO access networks](#)

**Presenter:** Marek Hajduczenia

**Affiliation:** Bright House Networks

Dr. Hajduczenia contribution detailed a residential FTTH architecture, a commercial dedicated internet access architecture, Metro Ethernet Forum services (E-LINE, E-LAN, and E-Tree), public WiFi backhaul, cellular backhaul and operational efficiency enhancements under “emerging applications.”

Dr. Kramer's second comment is that it would be a very interesting use case for IEEE1904.2.

The Chair called for a break at 14:41PM, to reconvene at 15:00PM.

The Chair called the meeting back to order at 15:09PM.

Marek Hajduczenia, chief editor, presented the draft NG-EPON IC Report R06d.

### Draft Review

**Title:** [NG-EPON IC Report R06d](#)

**Presenter:** Chief Editor Marek Hajduczenia

**Affiliation:** Bright House Networks

Dr. Hajduczenia went over the draft report and the NG-EPON ad hoc added, reviewed, discussed, and resolved comments against the draft. Dr. Hajduczenia indicated that if there were contributions made where the material of said contributions did not make it into the draft, a comment should be raised against the, as it is likely a simple oversight.

Approximately 50 comments were reviewed and proposed resolutions were provided.

The chair offered his thanks to the editors. The chair indicated a desire to clarify the process for reviewing and commenting on the draft in the next review cycle.

Review process for the draft report is located here:

- Editors to produce d0.7 and post it in .docx.
- Reviewers to provide comments in the form of "comment bubbles" in .docx file. Must also provide a supplemental docx file for major changes or new text.
- Editors consolidate comments and repost in docx.
- Editors shall consolidate the comments to be reviewed in the meeting.

The Chair opened a discussion regarding the status of the draft. The Chair stated that he believed March 2015 is realistic due date.

Dr. Kramer asked if the Ethernet alliance would consider a WDM plug fest. The chair responded indicating that the Ethernet Alliance could ask for a demo.

The ad-hoc requested multi-party contributions and expert review on the following topics:

- More information on optics, especially tunable optics

- Advanced mod/demod, FEC,
- Optical amplification.

The chair is to request a one-day meeting in September to not conflict with the EPoC meeting.

**Straw Poll  
(NG-EPON Interim Meeting prior to Plenary)**

Meeting on Sunday in conjunction with a plenary is a

- Good idea: 7
- Bad idea: 4
- Meh: 2

**Straw Poll  
(Kanata, CA Meeting Attendance)**

- I will attend the meeting in September: 9
- I may attend the meeting in September: 3
- I may not attend the meeting in September: 0
- I will not attend the meeting in September: 2

**Motion to Adjourn**

Motion to adjourn.

Move: Duane Remein  
Second: Marek Hajduczenia

Meeting adjourned at 17:40PM

<b>Lastname</b>	<b>Firstname</b>	<b>Affiliation</b>	<b>Sun</b>
Chang	Xin	Huawei	X
Dickinson	John	Bright House Networks	X
ElBakoury	Hesham	Huawei	X
Frazier	Howard	Broadcom	X
Fu	Zhiming	ZTE Corp	X
Gong	Zhigang	D-Net	X
Hajduczenia	Marek	Bright House Networks	X
Knittle	Curtis	CableLabs	X
Kramer	Glen	Broadcom	X
Laubach	Mark	Broadcom	X
Law	David	HP	X
Mallette	Edwin	Bright House Networks	X
Nikolich	Paul	802 Chair/YASBBV	X
Peters	Michael	Sumitomo	X
Rahman	Saifur	Comcast	X
Remein	Duane	Huawei	X
Tajima	Akio	NEC Corporation	X