

IEEE P802.3av Interim Meeting Minutes

Atlanta, GA, 13-15 November 2007

Recorded by Robert Lingle, Jr. and Ken Maricondo

Tuesday, 13 November 2007

Meeting commences at 09:00 (Glen Kramer, Chair).

Presentation by Chair: Agenda and General Information (3av_0711_agenda.pdf)

- Group introductions (List of participants is available at the end of the Minutes.)
- Robert Lingle, Jr. volunteered as recording secretary for Tuesday only.
- Chair reviewed policies and procedures, emphasizing responsibility to declare affiliation; sheet for recording affiliation was circulated at 9:14AM
- Patent policy was reviewed at 9:15AM (<http://standards.ieee.org/board/pat/pat-slideset.ppt>); call for patents at 9:17AM yielded no responses.
- Chair covers Private Directory on Task Force Reflector (09:11) Private Directory **802.3av** password ***** (*removed from the Minutes*)
- Timeline was reviewed at 09:25.
- Discussion on approving minutes of the Seoul meeting at 9:30

Motion #1 [Procedural, required $\geq 50\%$]

Approve minutes of September 2007 meeting as recorded in 3av_0709_minutes_unapproved.pdf and post them on the TF website as 3av_0709_minutes_approved.pdf

Moved: Ken Maricondo

Seconded: Duane Remein

Approved by voice vote without opposition.

- Schedule for meeting was reviewed at 09:32.

Motion #2 (09:39) [Procedural, required $\geq 50\%$]

Approve agenda for November 2007 meeting as presented in 3av_0711_agenda.pdf

Moved: Bidyut Parruck

Seconded: Marek Hajduczenia

Approved by voice vote without opposition.

- Chair reviews future IEEE 802.3 plenary and interim meetings
- Chair reviewed that

ITU-T SG-15 considers organizing a joint ITU-T SG15/FSN/IEEE 802.3av workshop on broadband optical access network issues

- ITU-T headquarters in Geneva, Switzerland
- June 19-20, 2008
- Room capacity: 100 people

How many will participate? 23

Total in the room: 48

What topics would group like to cover?

- FASN operator deployment plans, timelines, services, technologies
- Inter-relationship between IEEE and ITU-T PON standards
- Future wavelength allocation
- IEEE current status review; FSAN current status review
- 10GEPON technical details, solution overview

Books of attendance were brought at 09:43.

Presentation: Channel Link Model (v2.1) Ad Hoc Activity Report

- Presented by Marek Hajduczenia at 09:51 (3av_0711_hajduczenia_1.pdf)
- Demonstration was given

Break at 10:05AM

Resume at 10:35AM

Presentation: 10G EPON Power Budget

- Presented by Frank Effenberger at 10:37AM (3av_0711_effenberger_1.pdf)
- Summarized results from decisions made in Seoul and discussed extensively on the reflector after Seoul meeting.
- Questions and discussion. During questions, Frank clarified that system margin should be captured by using worst-case, EOL parameters when evaluating the parameters in the tables.

Motion #3 (10:05) [Technical, required $\geq 75\%$]

Adopt the power budgets defined on pages 3-5 of 3av_0711_effenberger_1.pdf as the baseline for PR10, PR20, and PR30 PMDs.

Moved: Frank Effenberger

Seconded: Marek Hajduczenia

Yes: _42

No: _0

Abstain: _5

Motion Passes

Total in Room: 47

Presentation: 10G EPON Downstream 1590nm is the right choice

- Presented by Frank Effenberger at 11:07AM (3av_0711_effenberger_2.pdf)
- Gave reasons for choosing 1590nm as the choice for PR10 and PR20.
- Questions and discussion revolved around clarifying possible Raman interactions between analog video and 1590nm wavelength, origin of the benefits of having 1590nm and 1577nm bands contiguous, and whether one could allow 1550nm as an optional and additional wavelength over and above 1590nm.

Presentation: C-band Wavelength Plan for 10G EPON Downstream

- Presented by Dongsoo Lee at 11:39AM (3av_0711_lee_1.pdf)
- Gave reasons for choosing 1555nm as the choice for PR20 and 1577nm as the choice for PR10 (to match PR30).
- Questions and discussion revolved around the number of PMDs required to support the proposals, and the future of RF video overlay.

Adjourn for lunch 12:06PM

Meeting is called to order at 13:30.

Marek Hajduczenia took over as recording secretary at 1:32PM

Presentation: Wavelength plan for PR-20

- Presented by Bin Young Yoon at 11:33AM (3av_0711_yoon_1.pdf)
- PR20 power budget system proposal, motivation and overview of the pros and cons of the current wavelength allocation schemes for PR20 systems. Technical parameters for PR20 systems' operation were discussed (power consumption, power penalties etc.)

Robert Lingle, Jr. took over the minutes at 13.40PM

Straw Poll #1 [standard rules] by Frank Effenberger

Define the OLT transmit wavelength range for PR10 and PR20 PMDs to be:

- 1580 to 1600nm: 29
 - 1545nm to 1565nm: 3
 - Something else: 1
 - No opinion: 9
- Number in the room: 47

Motion #4 (2:05) [Technical, required \geq 75%]

Define the OLT transmit wavelength range for PR10 and PR20 PMDs to be 1580nm to 1600nm.

Moved: Frank Effenberger
Seconded: Marek Hajduczenia
Yes: _31
No: _3
Abstain: _10

Motion Passes

Total in Room: 47

Straw Poll #2 [standard rules] by Bidyut Parruck

I would like to change PR30 downstream wavelength to the range 1580 to 1600nm

Yes: 5
No: 30
No opinion: 9
Total count in the room: 45

Presentation: Pseudo-Random Test Pattern Mode

- Presented by Jeff Mandin at 2:20PM (3av_0711_mandin_1.pdf)
- Discussion issues with the use of the PSC pseudo-random test pattern defined in 10GBASE-R considering the presence of FEC in 10G EPON.
- Extensive discussion about what are the functions of the test patterns, how they are used in practice, whether FEC decoder itself can be used to report performance, how these test patterns would be used with burst-mode receivers.

Presentation: Square Wave and PRBS31 Test Modes

- Presented by Jeff Mandin at 2:20PM (3av_0711_mandin_2.pdf)
- Discussion issues with the use of the PSC square wave test pattern defined in 10GBASE-R considering the presence of FEC in 10G EPON.

Straw Poll #3 [standard rules] by Jeff Mandin

10G EPON should include support for square-wave test mode and optional support for PRBS31 test mode.

Yes: 16
No: 0
More study needed: 17
No opinion: 5

Break at 3:08 for 30 minutes

Reconvene at 3:38

Straw Poll #4 [standard rules] by Jeff Mandin

1) 10G EPON should support mandatory or optional pseudo-random test pattern mode with:

- a) FEC parity blocks included in the test pattern
- b) 10GEAPON burst preamble/delimiter at the start of the upstream test pattern ___ 8 ___

2) 10G EPON should support pseudo-random test patten mode as in 10GBASE-R and implement special sync state machines ___ 0 ___

3) More study needed ___ 30 ___

4) 10G EPON should not support pseudo-random test mode ___ 0 ___

4. No opinion ___ 6 ___

Presentation: Timing Consideration for 10GEAPON Burst Receiver

- Presented by Haim Ben-Amram at 3:55PM (3av_0711_benamram_2.pdf)
- Discussion issues with the use of the PSC square wave test pattern defined in 10GBASE-R considering the presence of FEC in 10G EPON.
- Extensive discussion followed on multiple topics from Haim's presentation.

Presentation: Power Budget Class (PBC) and PMD naming

- Presented by Marek Hajduczenia at 4:37PM (3av_0711_hajduczenia_2.pdf)
- Discussed issues surrounding naming PMDs for D1.0

Motion #5 5:20 PM [Technical, required $\geq 75\%$]

802.3av Task Force approves the 10G EPON Power Budget Class (PBC) naming nomenclature as presented in 3av_0711_hajduczenia_3.pdf, slides 2 and 3 (symmetric and asymmetric data links, respectively).

Moved: Marek Hajduczenia

Seconded: Ken Maricondo

Yes: ___38

No: ___0

Abstain: ___4

Motion Passes

Motion #6 5:23 PM [Technical, required $\geq 75\%$]

802.3av Task Force approves the 10G EPON Physical Medium Dependent (PMD) naming nomenclature as presented in 3av_0711_hajduczenia_3.pdf, slides 4.

Moved: Marek Hajduczenia

Seconded: Ken Maricondo

Yes: ___40

No: ___0

Abstain: ___1

Motion Passes

Chair led group in a discussion of Wednesday's agenda beginning at 5:26PM based on following outline (including amendments during discussion).

1. Remaining PMD parameters
 - a. Burst mode timing study (Ton, Toff) (Ken-ichi Suzuki)
 - b. Burst mode timing study (AGC, CDR) (Haim Ben-Amram)
 - c. Transmitter spectral limits (Frank Effenberger)
 - d. Define value for TDP (Hamano-san)
2. Jitter Budget Reference Model (Vijay Pathak)
3. Coexistence clause/annex (discussion on Wed)
 - a. Model description
 - b. Layer diagram
 - c. Dual-rate burst-mode receiver
4. FEC method (discussion on Wed)
 - a. FEC algorithm selection
 - b. FEC framing details (SH, SOD) (Frank Effenberger)
5. 10G PCS changes for burst-mode operation
 - a. BER monitoring
 - b. Link fault signaling
 - c. Synchronization
6. PMD Testing (Jeff Mandin)
7. PY30 Upstream power budget (Marek Hajduczenia)
8. Definitions of optical and electrical subassemblies (Ken Maricondo)

Recessed for the day by Chair at 5:48PM

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Wednesday, 14 November 2007

Meeting commences at 09:00AM (Glen Kramer, Chair).

Ken Maricondo took over as recording secretary at 09:00AM

Announcements:

- Future meeting venue <http://ieee802.facetoface-events.com/sessions/46/survey.php>
- How many people are interested in the HSSG and what areas of specialty track? 6 people interested in the fiber track.
- Draft 1.0 being creating and posted and will be reviewed on Thursday.
- Reminder to sign-in in the attendance list
- Review liaison letter
- Approved link model V2.1 posted for review

Presentation by Chair: Agenda and General Information (3av_0711_agenda.pdf)

- Timeline was reviewed at 09:10AM.
- Burst mode timing study (AGC, CDR) (Haim Ben-Amram) to be presented in January meeting.
- Definitions of optical and electrical subassemblies (Ken Maricondo) out of scope and removed from day's presentation.

Duane Remein taken over as chair 09:15AM

Presentation: Consideration and proposal of laser on/off time for 10G EPON.

- Presented by Ken-ichi Suzuki at 9:20PM (3av_0711_suzuki_1.pdf)
- Propose definitions of T_{on} and T_{off} times be adjustable verse remaining 512ns.
- MPCP and OAM Query options discussed along with pro and cons.

Straw Poll #5 [standard rules] by Ken-Ichi Suzuki

I support adjustable (ONU-specific) Laser ON and Laser OFF times for only 10G PON.

- Yes: __33__
- No: __0__
- No opinion: __4__

Total count in the room: 42

Straw Poll #6 [standard rules] by Ken-ichi Suzuki

Adjustable (ONU-specific) Laser ON and Laser OFF times should use:

- a) Modify REGISTER_REQ and REGISTER messages: __28__
- b) OAM messages: __0__
- c) No opinion: __9__

Total count in the room: 42

Glen Kramer took over as chair 9:45AM

Presentation: Transmitter spectral limits

- Presented by Frank Effenberger at 9:45AM (802.3-2005_section4.pdf)
- Single mode lasers will not have to have their spectral width defined
- Only quote optical path penalties

Presentation: How and When TDP should be determined for 10GEPON??

- Presented by Hamano-san at 10:03AM (3av_0711_hamano_1.pdf)
- Current values of 802.3ae 3.0dB verse the proposed value of 1.5dB
- No Hi-power DML production results
- Action item: Hamano-san and Jessica Jiang will study the TDP implications to the 10GEPON for the January meeting
- Decision on TDP before July
- General open discussion on topic

The attendance books had entered the room at 10:15AM

Break at 10:35AM

Resume at 11.05AM

Presentation: 10GEPON Reference Model: 96.96.ps challenge

- Presented by Vijay Pathak at 11:05AM (3av_0711_pathak_1.pdf)
- Total jitter budget less than 97ps total for the system
- Review of the IEEE Jitter definitions - 4 jitter test points identified
- Action item: Vijay Pathak to propose values at the January meeting

Intended interruption of 10GEPON Reference Model 96.96.ps challenge for Bob Grow discussion on liaison letter response by the task force and 802.3 WG. 11:20AM

Presentation resumed by Vijay Pathak at 11:25AM

**Straw Poll #7 [standard rules] by Vijay Pathak
Specify optical and electrical domain jitter budgets for PR and PBX in a format similar to IEEE802.3ah table 60-10 and 60-11:**

- Yes: __36__
- No: __ 0__
- No opinion: __ 2__

Chair proposed to move coexistence clause/annex discussion to end of day. No objections from the group.

Presentation: FEC Codes

- Presented by Fumio Daido at 11:35AM (3av_0707_daido_1.pdf are shown again)
- Comparison of FEC codes
- Codes other than RS Code: BCH code and Concatenated Code
- Performance and implementation complexity of RS(255, 223) is compared with RS(255, 239)
- RS(255, 223) is proposed to be the best by presenter.

**Straw Poll #8 [standard rules] by Bidyut Parruck
I prefer the following FEC algorithm:**

(Vote for only one)

- RS(255, 239): __ 7__
- RS(255, 223): __20__
- BCH(1944, 1690): __ 2__
- Something else: __ 0__
- No opinion: __ 6__

Number in Room: __41__

Motion #7 12:33 PM [Technical, required \geq 75%]

Accept RS(255, 223) as the baseline proposal for the FEC algorithm.

Moved: Fumin Daido
Seconded: Bidyut Parruck
- Yes: 22
- No: 3
- Abstain: 12
Total in Room: 39

Motion Passes

Adjourn for lunch 12:35PM.

Meeting is called to order at 02:00PM.

Presentation: A better sync header pattern for the FEC Parity Blocks

Presented by Frank Effenberger at 02:00PM (3av_0711_effenberger_3.pdf)

- FEC frame structure using the RS(255, 223)
- Proposed Sync header pattern

Motion #8 02:13 PM [Technical, required \geq 75%]

For 10G EPON, accept as baseline proposal for the sync header pattern for the FEC parity block to be {00, 11, 11, 00}.

Moved: Frank Effenberger
Seconded: Bidyut Parruck
Motion withdrawn by mover.

Straw Poll #9 [standard rules] by Frank Effenberger

Which sync header pattern for the FEC parity blocks do you like?

(Vote for only one)

- {00, 11, 11, 00}: 8
- {00, 11, 00, 11}: 5
- Any balanced pattern proposed of 00 and 11 sync headers: 9
- No opinion: 15

Action item: Frank Effenberger will present state machine that uses these patterns at the January meeting.

Break at 2:35PM

Resume at 3.00PM

Motion #9 03:07 PM [Technical, required \geq 75%] by Marek Hajduczenia

802.3av Task Force adopts the channel link model (formulas not Particular values) including in 3av_0711_linkmodel_v2_1.xls.

Moved: Marek Hajduczenia
Seconded: Duane Remein
Head count: 38 (technical \geq 75%)

Motions passed by voice vote without opposition.

Presentation by Chair: Draft review D1.0 (3av_c91_d1_0_markup.pdf)

- Proposed 15 minutes allotted for review for the document. Issue brought up by Jeff Mandin that some text in the draft has not been approved and therefore should be deleted before approving the draft.
- Proposed plan is not to vote on the draft editors' will remove old (carry-over) text tonight and vote planed for tomorrow.
- Jeff Mandin posed question on what is an editorial changes verse technical changes.
- Group agreed that editorial changes are not a reason to stop the approval process.
- Kenneth Maricondo expressed concerns' that voting on a document that has not been completely reviewed. Chair explained the reason why the need for the approval of the daft need to occur today, so that a review of draft comment process could take place tomorrow.
- Discussion on forcing the review process. Chair polled room by a show of hands to find out who has reviewed the draft with mixed results.
- Duane Remein walked through draft clause 92 and made editorial changes while group review draft on presentation screen. Editorial comments made to the draft while reviewed.
- Changes to the Clause 92
 - o 92.1.1.3 line rate value additions
 - o 92.4 alignment function in the upstream not the downstream
- Chair - Things that have not been reviewed or voted cannot be in the draft and must be removed. Draft does not need to be complete at this point in the process.
- Editors notes are not binding
- Chair - if text is not clear, it can be changed (does not violate procedure)
- Marek Hajduczenia walked through draft clauses 91 and 64 and made editorial changes while group review draft on presentation screen.
- Changes to Clause 91
 - o Changes to values in table 91-2
- Changes made to Clause 64
- Editors will post the revised draft online tonight and group was advised to review the draft for tomorrow's motion to vote.

**Motion #10 05:4PM [Technical, required $\geq 75\%$] by Ken-Ichi Suzuki
Accept as a baseline proposal for MPCP handshake-based adjustable Laser On and Laser Off times for 10G EPON using modified REGISTER_REQ and REGISTER messages shown in pages 6 and 7 of 3av_0711_suzuki_1.pdf.**

Moved: Ken-ichi Suzuki

Seconded: Bidyut Parruck

Yes: __ 33__

No: __ 0__

Abstain: __ 3__

Number in room: __37__

Motions passed

Presentation: PRX30-U3 Upstream power budget

- Presented by Marek Hajduczenia at 5:51PM (3av_0711_hajduczenia_4.pdf)
- Explanation of changes to spreadsheet
- Group advised to review power budgets
- Action item: Marek Hajduczenia will post the spreadsheet on the website for download and will present changes at the January meeting.

Chair asked Jeff Mandin if the following topics could be put off until next meeting.

- 10G PCS changes for burst-mode operation
 - BER monitoring (Jeff Mandin will present in January)
 - Link fault signaling (Jeff Mandin will present in January)

Jeff Mandin agreed to postpone presentation.

Presentation: Clause 64 and Coexistence Annex

- Presented by Jeff Mandin at 5:56PM (3av_0711_mandin_3.pdf)
- Background reviewed
- Option 1: 10 G EPON MAC functionality is a superset of the 1G EPON MAC
- Option 2: 10G MAC functionality coexists with 1G MAC
- General discussion on topic
- Action item: Marek Hajduczenia will do drawings in PowerPoint.

Coexistence clause/annex moved to January. Marek, Jeff, and Glen - will review suggest examples of FSM complications when 10G and 1G are combined.

- o Model description
- o Layer diagram
- o Dual-rate burst-mode receive

Chair proposed meeting start time for Thursday at 8:30AM. No objections from the task force.

Recessed for the day 6:21PM

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Thursday, 15 November 2007

Meeting commences at 08:30AM (Glen Kramer, Chair).

Announcements:

- Future meeting venue survey to be conducted before break.
- Chair asked if anyone was unable to access draft. No such reports received from the group.

Motion #11 08:35AM [Technical, required $\geq 75\%$]

Adopt draft 1.0 of clauses 64, 91, and 92 as presented in 3av_c64_d1_0.pdf, 3av_c91_d1_0.pdf, and 3av_c92_d1_0.pdf.

Moved: Marek Hajduczenia

Seconded: Kenneth Maricondo

Yes: 32

No: 0

Abstain: 0

Head count: 33

Motion Passes

Presentation by Chair: Agenda and General Information (3av_0711_agenda.pdf)

- Timeline was reviewed at 08:40AM.

Motion #12 08:40AM [Procedural, required $\geq 50\%$]

Adopt P802.3av project timeline as presented in 3av_0711_agenda.pdf.

Moved: Duane Remein

Seconded: Kenneth Maricondo

Yes: 29

No: 0

Abstain: 4

Head count: 34

Motion passes.

Straw Poll #10 [standard rules] by Chair

I will attend 802.av meeting in Portland, Oregon, on January 22-24, 2008.

Yes: 26

No: 3

Overview of submitting comments for the draft

- Eric Lynskey demonstrated web tools (comment submission tool)
- General comment submission procedure
- Duane Remein and David Law demonstrated the database input submission (access) and comment resolution process

Comment Resolution on Comments Submitted to Date

- Proposed responses are generated by editors and posted in 3av_0711_responses_proposed.pdf
- Resolution on 5 technical comments', all proposed responses accepted after discussions and comments
- Resolution on 1 editorial comments', all proposed responses accepted after discussions and comments
- Report generated and posted in 3av_0711_responses_accepted.pdf

Break at 10:35AM

Resume at 11.05AM

Presentation by Chair: Timeline for January meeting

- Timeline for submissions January meeting was reviewed at 11:05AM.
- Final day for comments submission to editors is December 17, 2007
- December 20, 2007 – all comments without proposed responses are published.
- January 7, 2008 - comments with proposed responses published on website for review
- January 22-24, 2007 – comment resolution during January Interim meeting

**Presentation by Chair: On topics what will be presented at 802.3 closing plenary.
(3av_0711_closing.pdf)**

- Baseline proposals
- Objectives of the group :
 - o Power Budget Classes
 - o PMDs
 - o Project timeline
- Review of the action items
- Approved Link Model v2.1
- Approved Draft 1.0
- Approved timeline

Chair asked if anyone has any new business to be brought forward.

Motion #13 11:35AM

Move to adjourn.

Moved: Marek Hajduczenia

Seconded: Jeff Mandin

Motion passes by voice vote without opposition.

Taskforce meeting adjourned by Chair at 11:35AM

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List of Attendees

Name	Affiliation
Beaudoin, Denis	Texas Instruments
Ben Amram, Haim	PMC Sierra
Carroll, Martin	Verizon
Chang, Frank	Vitesse
Chow, Jacky	Marvell
Cook, Charles	Qwest
Daido, Fumio	Sumitomo Electric
Effenberger, Frank	Huawei

Farmer, Jim	Wave7 Optics
Feng, Dongning	Huawei
Hajduczenia, Marek	Nokia Siemens
Hamano, Hiroshi	Fujitsu Labs
Hirano, Kengo	NEC
Ikeda, Hiroki	Hitachi
Jiang, Jessica	Salira
Kimura, Mitsunobu	Hitachi Communications Tech.
Kozaki, Seiji	Mitsubishi Electric
Kramer, Glen	Teknovus
Kusano, Toshihiko	PMC Sierra
Lamb, Lowell	Teknovus
lapak, Jeff	UNH-IOL
Lee, Dongsoo	ETRI
Leung, Raymond	Huawei
Lin, Rujian	Shanghai Luster Teraband Photonics
Lingle, Jr., Robert	OFS
Lynskey, Eric	Teknovus
Mandin, Jeff	PMC Sierra
Maricondo, Ken	independent
Nagahori, Takeshi	NEC
Nomura, Takumi	NEC Communication Systems
Otaka, Akihiro	NTT
Parruck, Bidyut	Cortina Systems
Pathak, Vijay	Kawasaki Microelectronics
Remein, Duane	Alcatel-Lucent
Saeki, Naoto	NEC Corporation
Sanchez, Oliver	Oplink/OCP
Smith, Joe	Alcatel-Lucent
Suzuki, Ken-Ichi	NTT
Suzuki, Naoki	Mitsubishi Electric
Tajima, Akio	NEC
Takizawa, Motoyuki	Fujitsu Access
Tanaka, Keiji	KDDI R&D Labs
Tsuji, Shinji	Sumitomo Electric
Uematsu, Kiyoshi	OKI Electric
Umnov, Alexander	Fujitsu
Yamashita, Hajime	NEC Access
Yokomoto, Tetsuya	Fujitsu Access
Yoon, Bin Yeong	ETRI