Minutes for IEEE 802.3aq channel modeling ad-hoc conference call #2

15:00 to 17:00 GMT Wednesday 30 June 2004

Chaired by Ian White
Minutes by Jonathan Ingham

Attendees

Albrecht Rommel	Acuid
Lars Thon	Aeluros
David Cunningham	Agilent Technologies
Ali Ghiasi	Broadcom
Jonathan Ingham	Cambridge University
Richard Penty	Cambridge University
Ian White	Cambridge University
Tom Lindsay	ClariPhy
Norm Swenson	ClariPhy
John Abbott	Corning
Steve Swanson	Corning
Jim Morris	DOC
Henry Wong	Gennum
? Kesyap	Georgia Tech
Petar Pepeljugoski	IBM Research
Joerg Kropp	Infineon
John Ewen	JDS Uniphase
John George	OFS
Yu Sun	Optium
Gary Shaulov	RSoft
Brent Whitlock	RSoft
Abhijit Shanbhag	Scintera Networks
Paul Kolesar	Systimax Solutions

Ian White welcomed the attendees and proceeded to briefly review the agenda.

Agenda Item 1 Compile attendance list

An attendance list was compiled (see above). Apologies were received from Chet Babla, Jonathan King, Nick Weiner and Ben Willcocks.

Agenda Item 2 Review minutes and actions from the conference call of 17 June 2004

Ian White asked if there were any known inaccuracies in the minutes from the conference call of 17 June 2004. None were reported.

An action point from the last conference call was to investigate the possibility of a web page for sharing materials within the Ad-Hoc. Ian White reported that a page with 40 MB to 50 MB of storage was possibly available at Cambridge University. Ian White stated that he is investigating whether larger filespace may be available. The possibility of using the TIA ftp site was raised. Paul Kolesar replied and indicated that this could be considered. However, Paul Kolesar said that

he had experienced some difficulties in accessing the site. Paul Kolesar offered to investigate this possibility further. Paul Kolesar mentioned that the materials from the Gigabit Ethernet MBI are on the IEEE website and expressed that it would be desirable for the Ad-Hoc to use the IEEE website. David Cunningham replied and indicated that the IEEE website could be used but that it is essential that any material on the website is not subject to copyright. Ian White confirmed that the modeling release from Cambridge University is subject to copyright. David Cunningham also suggested that the IEEE website is most appropriate for archiving of completed work, as for the MBI. David Cunningham indicated that David Law is the person who should be contacted for further advice. Finally on this topic, Ian White suggested that the possibility of Big Bear Networks providing a webpage should be investigated before the next conference call.

Agenda Item 3 Brief reports from the task leaders on progress

Ian White suggested that each task should be considered in turn, with reports from the task leaders to be followed by comments from the participants.

Task 1 OM1/OM2/OM3 model

Richard Penty (Task 1 leader) reported that the Task 1 conference call held on 23 June 2004 had been the main activity within Task 1, and that minutes had been submitted to the 10GMMF email reflector. Richard Penty proceeded to provide a brief review of the minutes, in which he first identified the attempt to define the problem, in which Task 1 had taken the lead from David Cunningham. David Cunningham had identified the modeling of OM1 fiber as most urgent, with a requirement for progress by the time of the IEEE 802.3 Plenary in July 2004, with the modeling of OM2 and OM3 identified as less urgent. Richard Penty reported that the required outputs of the fiber model had been discussed, with modal delays being identified, together with, possibly, refractive-index profiles and modal field distributions. Richard Penty mentioned the proposal by Jonathan Ingham of the 81 fiber model for OM1 and also that a long discussion had followed on the topics of the 81 fiber model and the Monte-Carlo model for OM3. Regarding the 81 fiber model, Richard Penty reported that the discussion on the model included the choice of perturbations, the possibility of scaling to an OFL BWL of 500 MHz km rather than a worst-case DMD value, and that Ian White had asked for evidence of the 81 fiber model being unrepresentative. Regarding the Monte-Carlo model for OM3, Richard Penty reported that the discussion on the model included the possibility of adapting the model for OM1, the determination of the corresponding refractive-index profile perturbations, and that some participants were concerned about the large amount of data associated with this approach. Richard Penty proceeded to report that no conclusion had been reached regarding the appropriate methodology and that a further conference call had been scheduled for 1 July 2004, in which the key modeling participants would attempt to decide on the methodology to be announced at the IEEE 802.3 Plenary in July 2004. Richard Penty outlined that at least three possible approaches exist: (i) adopt the 81 fiber model; (ii) adopt a Monte-Carlo model adapted for OM1; (iii) adopt a hybrid model. Richard Penty indicated that some fiber manufacturers had offered to supply data on current and historical OM1 production ahead of the next Task 1 conference call. Finally, Richard Penty mentioned a strawman from John Abbott on the choice of perturbations and also that the mode coupling / connector approach of Petar Pepeljugoski had been discussed.

Steve Swanson questioned whether the terminology “OM1” was being applied correctly. Steve Swanson indicated that the OM1 specification is 200 MHz km / 500 MHz km, whereas the FDDI-grade specification is 160 MHz km / 500 MHz km. Since the standard is concerned with FDDI-grade cable, Steve Swanson proposed that the title for Task 1 should be “FDDI-grade/OM2/OM3 model” rather than “OM1/OM2/OM3 model”. Petar Pepeljugoski enquired if there is a difference in the optimization of OM1 and FDDI-grade fiber. Paul Kolesar replied and indicated that FDDI-grade fiber is more loosely constrained at 850 nm, and that slight differences in statistics would

be expected between the two fiber types. David Cunningham agreed that there is a slight difference between the meaning of “FDDI-grade” and “OM1” fiber. In conclusion, Richard Penty proposed that the terminology “FDDI-grade” should be used in preference to “OM1”. The attendees agreed with this proposal.

Task 2 Time-varying study

Ian White reported that Jonathan King (Task 2 leader) was absent because of vacation, and that John Jaeger had kindly agreed to act as leader of Task 2 until his return.

Task 3 Input and output parameters

The first point of discussion was that Lars Thon (Task 3 leader) had calculated the storage requirement for the 81 fiber model results with modal field distributions to be approximately 49 MB, compared to approximately 2 MB without the modal field distributions. Albrecht Rommel enquired about the content of the proposed distributions generated by Lars Thon. Lars Thon indicated that modal delays are the key component of the proposed MATLAB distribution and that impulse responses are not incorporated in order to allow different distances to be easily considered and to allow the user to choose arbitrary Tx/Rx filtering. Albrecht Rommel enquired whether Lars Thon had any particular link model in mind, e.g. StatEye. Lars Thon indicated that the distribution is not tailored to the requirements of a specific link model. Albrecht Rommel asked the attendees if there was any interest in StatEye. Petar Pepeljugoski indicated his support for StatEye, but suggested that nonlinearities might be difficult to incorporate into a StatEye model.

Regarding time-varying effects, Lars Thon asked for participants to email him with regards to how to begin to incorporate these effects. Petar Pepeljugoski indicated his concern regarding the possible difficulty of incorporating time-varying effects, e.g. a lack of stationarity could affect the methodology. Ian White indicated his support of Lars Thon’s proposal to incorporate time-varying effects within the existing approach. Petar Pepeljugoski agreed that the static effects should be finalized first, before upgrade to an incorporation of time-varying effects.

Task 4 Launch and filter modeling

Ian White reminded the attendees that the tasks of launch modeling and filter modeling had been combined into one task for administrative reasons. Ian White asked Yu Sun (Task 4 leader) for input. In response, Yu Sun reported that a conference call had not yet been scheduled for Task 4 and also stressed that further information on the outputs from the fiber modeling activity is essential for progress to be made within Task 4. Yu Sun reiterated the requirement for refractive-index profiles as an output from Task 1.

Ali Ghiasi indicated that some discrepancy had existed between the results from his modeling activity and Yu Sun’s results, but that this had now been resolved. Ali Ghiasi offered to share more details on this topic.

Joerg Kropp reported that he has performed some connector modeling and is in a position to share results.

Yu Sun suggested that the participants of Task 4 should be given an opportunity to review their work. Ian White expressed his support of this approach.

Some discussion followed on the presentation sent by Yu Sun for the Task 1 conference call scheduled for 1 July 2004 . It was agreed to postpone the detailed discussion of these results to the Task 1 conference call.

Yu Sun proposed that review material from the participants should be circulated ahead of the first Task 4 conference call and that the modeling could be discussed on the basis of how to proceed when the fiber model outputs are eventually ready.

Task 8 Validation

Ian White reported that Nick Weiner (Task 8 leader) had sent his apologies for his absence. Ian White indicated that he was aware that some progress had been made within Task 8.

Agenda Item 4 Discussion of proposed submissions to the July IEEE 802.3 Plenary

Ian White began the discussion by asking when the submissions to the IEEE 802.3 Plenary in July 2004 are required. David Cunningham replied and said that the deadline for submission to David Law (webmaster) is Wednesday 7 July 2004. David Cunningham indicated that slight changes in material between submission and presentation are acceptable.

Ian White enquired whether a short presentation on the individual tasks would be appropriate or whether a combined presentation would be more suitable. The consensus was that a combined presentation is most appropriate, with the possible exception of Task 1. For Task 1, it was decided to produce a separate presentation which should identify the key issues in the development of a suitable fiber model, especially for FDDI-grade fiber. Ian White asked for first drafts from the task leaders by Monday 4 July 2004 for circulation. Ian White suggested that the slides for each task should indicate: (i) activities and goals for the task; (ii) timelines for the activities of the task; (iii) the participants in the task. Regarding the participant list, David Cunningham indicated that this should be compiled in terms of individuals, with affiliation details for information.

Ian White agreed to contact John Jaeger (acting Task 2 leader) and Nick Weiner (Task 8 leader) regarding their contributions.

Ian White asked David Cunningham when the timelines in the slides should terminate. David Cunningham indicated that the channel modeling activity is likely to continue throughout the development of the standard. Some discussion followed on the timeline for the static and dynamic aspects of the channel modeling. It was agreed that the static aspect should be completed quickly and then extended to the dynamic aspect. Petar Pepeljugoski suggested the end of July 2004 for the completion of the static modeling and also indicated his intention to release 5000 modal delay sets for OM3 fiber converted to an operating wavelength of 1300 nm. Ian White suggested the end of September 2004 as a possible target for the dynamic modeling. Paul Kolesar enquired whether the dynamic aspects are critical for baseline proposals. David Cunningham replied and indicated that a baseline static model should be agreed in July 2004, with refinement throughout the progress of the standard. Ian White asked for comments on the July 2004 and September 2004 targets. David Cunningham indicated his support but reiterated that the channel modeling activity should continue throughout the standard development. Paul Kolesar suggested that some of the proposed solutions might be dependent on time-varying aspects of the model, which would make it difficult to evaluate these proposals until the dynamic aspect of the model was developed.

Ian White summarized the discussion by indicating that the task leaders should generate some slides, with the content as agreed earlier. It was decided to finalize the presentation by email discussion rather than by means of a conference call.

Agenda Item 5 AOB and next conference call

Petar Pepeljugoski asked for confirmation of the details for the forthcoming Task 1 conference call. Richard Penty confirmed that he would be distributing the dial-in details imminently.

Regarding the next Ad-Hoc conference call, it was decided to hold this after the IEEE 802.3 Plenary in July 2004, with timing yet to be decided.