Draft Proposal for Workplan of Channel Model Ad-hoc Working Group

Ian White, Chair

Notes on Kick-Off Meeting: 25 May

Attendance = 37

(Peter Pepeljugoski is the keeper of the sign-in list.)

- Overall Mission
  - To agree on common channel models for “worst case” MMF distributions to enable yield analysis of proposed LRM solutions, and determine appropriate validation procedures

- **Short Term Objectives**

Hold a telecon within approximately 2-3 weeks to

1. Determine a model for generating a valid distribution of “worst case” fibres for OM1 and OM2 at 1300 nm operation
   - Ensure model is agreed soon for use by task force
   - What were the specific scaling factors for the 81 fibers?

2. Prioritise further channel modeling issues
   - Agree task actions and seek volunteer experts to lead

3. Produce an agreed timeline for the work, meetings, and method for reporting back to task force

1. Study of DMD distribution of "worst case" fibers for OM1 and OM2 at 1300 nm operation

Issues to be agreed:

- **What is a valid set of worst-case fiber DMD statistics?**
- **Should we use the 81 fiber model for OM1 and/or OM2?**
  - **If so, is the scaling approach right?**
  - **Is 2 ns/km worst case DMD OK?**
- **How should "worst case fiber distributions" be circulated to working group (impulse responses, frequency responses, mode parameters etc)?**
- **How should the model itself be made available to Task Force members?**

Volunteers: 14.
Send name to pkolesar@systimax.com

2. Initial Prioritisation for Discussion

At next meeting can we agree to prioritize these related issues, and have volunteer experts to study them:

1. What is the “worst case” fiber model for OM2 and OM3 – should we use the 81 fiber model. If so should we change the “worst case “ DMD?
2. How do we model the time varying nature of the channel?
3. What model input and output parameters are required to allow the special interest groups to carry out their work?
4. What agreed procedures do we use for modeling special launches into the fiber, and filtering at its end?
5. What is the “worst case” fiber distribution for OM3 – how should we model this?
6. How do we model the impact of (i) modal noise and (ii) jitter on link performance for LRM solutions?
7. What is the impact of mode mixing along the link at connectors?
8. What validation approaches should be adopted: installed base comparison / artifact / simulator / new measurements?

Have we forgotten anything or included issues which should be left to the special interest groups?

3a. Volunteers for Previous List of Tasks
Send your name and task to pkolesar@systimax.com

1. What is the “worst case” fiber model for OM2 and OM3 – should we use the 81 fiber model. If so should we change the “worst case” DMD?
   Volunteers: 9

2. How do we model the time varying nature of the channel?
   Volunteers: 9

3. What model input and output parameters are required to allow the special interest groups to carry out their work?
   Volunteers: 6

4. What agreed procedures do we use for modeling special launches into the fiber, and filtering at its end?
   Volunteers: 7

3b. Volunteers for Previous List of Tasks
Send your name and task to pkolesar@systimax.com

5. How do we model the impact of modal noise?
   Volunteers: 4

6. How do we model the impact of jitter on link performance for LRM solutions?
   Volunteers: 0. TF agreed that this is outside scope of channel ad hoc.

7. What is the impact of mode coupling along the link at connectors?
   Volunteers: 7

8. What validation approaches should be adopted: installed base comparison / artifact / simulator / new measurements?
   Volunteers: 10

4. Other issues

1. Who will create the model?
2. What is the delineation between the channel model and the full model?
3. Do we want to use an email voting process?