

**10GBASE-LRM MEETING
CLOSING REPORT TO IEEE 802.3**

18 NOVEMBER 2004

Task Force Chair: David Cunningham

10GBASE-LRM NOVEMBER 2004

- **Officers and activities**
- **Reflector and Web details**
- **Objectives**
- **Project schedule**
- **Attendance & Goals for this meeting**
- **Plan for this week**

IEEE 802.3 aq Officers

- Task Force Chair: [David Cunningham](#)
- Editor: [Nick Weiner](#)
- Web Master: [Piers Dawe](#)

- Channel Ad hoc Chair: [Ian White](#)
 - Task 1 (OM1, OM2, OM3 & connectors) leader: [Richard Penty](#)
 - Task 2 (Time variation of channel & MN) leader: [Jonathan King](#)
 - Task 3 (Input-output parameters) leader: [Lars Thon](#)
 - Task 4 (Launch & Mode Filtering) leader: [Yu Sun](#)
 - Task 5 (Validation) leader: [Nick Weiner](#)

- TP2 weekly call leader: [Tom Lindsay](#)
- TP3 weekly call leader: [Mike Lawton](#)

REFLECTOR AND WEB

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OBJECTIVES

- **Use the existing 10GBASE-R PCS**
- **Support a BER of better than or equal to 10^{-12}**
- **Support fiber media selected from IEC 60793-2-10: 2003**

- 62.5 μ m
 - 160/500 MHz-km (A1b, 60793-2-10:2003)
 - 200/500 MHz-km (A1b, 60793-2-10:2003)
- 50 μ m
 - 500/500 MHz-km (A1a.1, 60793-2-10:2003)
 - 400/400 MHz-km (A1a.1, 60793-2-10:2003)
 - 1500/500 MHz-km (A1a.2, 60793-2-10:2003)

- **Provide a Physical Layer specification which supports link distances of:**
 - at least 220m on installed 500MHz.km multimode fiber
 - at least 300m on selected multimode fiber

ATTENDANCE & GOALS FOR THE MEETING

- **Attendance: 50-70 people at each session.**

GOALS FOR MEETING

- **To review the draft D0.2 and associated comments (Done).**
- **To consider contributions proposing corrections or additions to the draft (Done).**
- **To adopt the baseline draft with amendments agreed during the interim meeting (Done).**
- **To direct the editor to prepare a draft D1.0 for a 30 day task force review (Done).**

Agenda – 10GBASE-LRM

10GBASE-LRM

Tuesday 16 November 2004

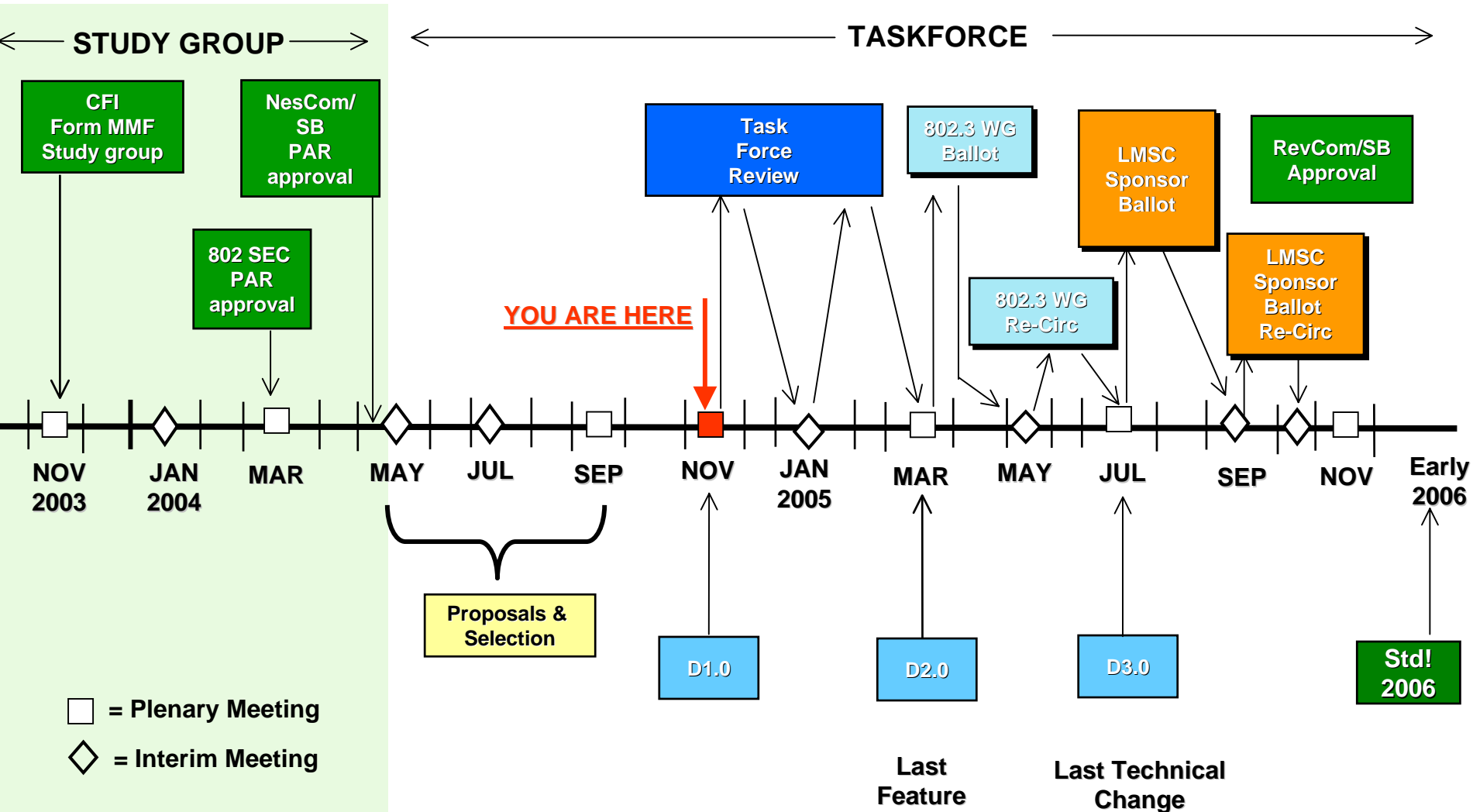
Presenter	Topic	Length (Minutes)	Start	Finish
David Cunningham	Opening Session	00:30:00	08:00	08:30
	Welcome and Introduction			
	Appoint Recording Secretary			
	Goals for the Meeting			
	Reflector and Web			
	Ground Rules			
	Review of Draft Project Timeline (not to be voted upon during 25 May)			
	Approve Minutes			
	Channel Ad Hoc Reports			
DGC for R Penty	Report from Task 1 Group	00:15:00	8:30 AM	8:45 AM
Jonathan King	Report from Task 2 Group	00:15:00	8:45 AM	9:00 AM
Jonathan King	Experiments on Time Variation Due to Polarisation and MMF Shaking and Initial Results	00:15:00	9:00 AM	9:15 AM
Ketan M Patel	Detailed Study on Impulse Response Fluctuation Induced by Polarization Variation	00:15:00	9:15 AM	9:30 AM
Petar Pepeljugin	Improvements to Modal Noise Penalty Calculations	00:30:00	9:30 AM	10:00 AM
Yu Sun	Report from Task 4 Group	00:15:00	10:00 AM	10:15 AM
	Break	00:15:00	10:15 AM	10:30 AM
Joerg-R Kropp	Variation in Multimode Fiber Response Summary of Experimental Results	00:15:00	10:30 AM	10:45 AM
David Cunningham	Observed Variation of Received Waveforms in Multimode Fibre:....	00:15:00	10:45 AM	11:00 AM
	Other Reports			
Tom Lindsay	Report of TP2 Con-Calls	00:15:00	11:00 AM	11:15 AM
Tom Lindsay	Relationship between TP2 and TP3 Tests and Budget (update)	00:30:00	11:15 AM	11:45 AM
Piers Dawe	Signal Metrics for 10GBASE-LRM	00:30:00	11:45 AM	12:15 PM
Tom Lindsay	Preliminary TP2 Waveform Study Results	00:30:00	12:15 PM	12:45 PM
	Lunch	01:15:00	12:45 PM	2:00 PM
Greg Lecheminant	Test Metrics for TP2	00:15:00	2:00 PM	2:15 PM
Jan Peeters Weem	Alternative Proposal to TP2 testing	00:30:00	2:15 PM	2:45 PM
Mike Lawton	Report of TP3 Con-Calls	00:15:00	2:45 PM	3:00 PM
	Break	00:15:00	3:00 PM	3:15 PM
	General			
Prof Ralph	Fiber Modelling Resolution and Assumptions Analysis, Data and Recommendations	00:30:00	3:15 PM	3:45 PM
John Abbott	Monte Carlo Update: PIE Metric Results, Further Benchmarking to Fiber Data	00:30:00	3:45 PM	4:15 PM
		00:15:00	4:15 PM	4:30 PM
Yu Sun	Updated Results of PIE Metrics Calculations	00:15:00	4:30 PM	4:45 PM
John Ewen	108-Fiber and Gen54YY Delay Sets: Comparison with Spreadsheet Model	00:15:00	4:45 PM	5:00 PM
	Break	00:15:00	5:00 PM	5:15 PM
John Ewen	PIE Metric Comparison: 108-Fiber and Gen54YY Delay Sets	00:15:00	5:15 PM	5:30 PM
Paul Kolesar	10GBASE-LRM Specification Philosophy	00:15:00	5:30 PM	5:45 PM

Proposed Agenda – 10GBASE-LRM

Wednesday 17 November 2004				
Presenter	Topic	Length (Minutes)	Start	Finish
	Comment Review		8:00 AM	6:00 PM

Thursday 18 November 2004				
Presenter	Closing Plenary and Voting	Length (Minutes)	Start	Finish
All	Introductions		8:30 AM	
David Cunningham	Opening comments			
Nick Weiner	Editors Report			
	Continue comment resolution ?			
	Break		10:00 AM	10:20 AM
All	Motions			
	Other Business?			
	Meeting Adjourned			12:00 PM

10GBASE-LRM TIMELINE



Motion 1a: Technical

To meet the time line of the 802.3aq task force and include the specific target of 300m for OM1 fiber, it is essential to solidify aspects of the channel modeling critical to link estimates.

a. Based on modeling and analysis thus far completed, the task force estimates that channel models which show a PIE-D metric of 5dB or less simulate working links and those which show a PIE-D metric of 5dB or more simulate nonworking links. These bounds may change but will be used for estimating % of working/nonworking links for the January meeting.

Moved: John Abbott

Y:5

N: 30

Ab: 9

Seconded: John George

Motion 1b: Technical

b. The task force solicits work from the TP3 group to quantify the gap between ideal infinite equalizer estimates (PIE-D) and the results using ideal finite equalizers, define a common method for calculating PIE-D, and define the PIE-D required to support 300 meters on installed 500 MHz-km rated MMF.

Request that the channel ad hoc group provide OM2 models to complete this work by January interim.

Moved: John Abbott

Y: 3

N: 28

Ab: 11

Seconded: John George

Motion 2: Technical

- Move that IEEE 802.3aq modify its link length objectives of the 10 GBASE-LRM Standard from

“Provide a Physical Layer specification which supports link distances of:

- At least 220 meters on installed 500MHz*km multimode fiber
- At least 300 meter on multimode fiber”

to

“Provide a Physical Layer specification which supports link distances of:

- At least 300 meters on installed 500MHz*km multimode fiber”

Moved: Steve Swanson
Seconded: John Abbott

TF vote
802.3 vote

Y:3
Y: 2

N: 22
N: 11

Ab: 17
Ab: 9

Motion 3 Technical

- Move that IEEE 802.3aq demonstrate a 10-12 BER over the rated distance on specified channel(s) (TBD) and show interoperability between PMD's of at least three vendors for 10GBASE-LRM to support technical feasibility prior to sponsor ballot.

Moved: Steve Swanson
Seconded: John George

Y:35 N:1 Ab: 0

Motion 4 Technical: Tabled until Jan05 Meeting

- Motion:
 - In Table 68-4 (receive characteristics)
 - Adopt 40 MHz for Clock sinusoidal jitter frequency.
 - Adopt 0.05 UI peak-peak for Clock sinusoidal jitter amplitude.
 - Moved: Lew Aronson Second: Piers Dawe

Motion 5 (Procedural): To table Motion 4 to next meeting (Jan).

- *Moved: Ali Ghiasi; Seconded: Paul Kolesar*
- *Y:20; N:5; Ab: 7*
- *Motion passes*

Motion 6 Technical

- 10GBASE-LRM accepts changes and edits to D0.2 and directs the editor to create draft D1.0.
- The editor is given permission to address the comments that were agreed to be editorial.
- D1.0 to be sent for 30 Day TF review.
 - Moved: John Jaeger
 - Second: Tom Lindsay

Y 29 N 0 Ab 0