

100G Next Gen Optics MMF ad hoc meetings review

March 2012

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MMF ad hoc aims

- The MMF ad hoc should develop objectives which can then be judged against the 5 criteria by the study group as a whole.
 - *We haven't agreed objectives, but there are emerging common themes.*
- MMF objectives should have supporting work which estimates 'performance' (e.g. % link coverage for data centers), and 'relative cost', and 'relative power burn'.
 - Graphs of relative link cost vs reach, and/or relative power consumption vs reach would be a desirable output from this ad hoc into the main study group.
 - *Multiple presentations in the ad hoc and to the 100G Next Gen Optics: presentations on coverage, relative cost, and power, with reasonable agreement.*

100G Next Gen Optics MMF ad hoc

- Formed at November 2011 plenary
 - Two 1 hour teleconference meetings since January interim
 - Typically ~40 experts, diverse backgrounds across the industry
 - Meeting notes and presented materials are available on the 100G Next Gen Optics website:

<http://www.ieee802.org/3/100GNGOPTX/public/mmfadhoc/meetings/index.html>

and

<http://www.ieee802.org/3/100GNGOPTX/public/tools/index.html>

Work since Jan 2012

- Aimed at encouraging consensus for the MMF objective
 - 100G Next Gen Optics MMF ad hoc next steps ?
 - Collated responses to questions on MMF Objectives
- Optimizing MMF reach using the Kolesar spreadsheet tool
 - Setting Optimal MMF Reach Objectives, Indications from Total Cost Analysis (revised)
- An opinion poll was conducted using the 100G Next Gen Optics reflector, based on the generic wording in Anslow_01_0112, and asking
“Define a 4-lane 100 Gb/s PHY for operation over OM~~X~~ MMF with lengths up to at least Y m.”

1) A reasonable MMF reach objective

(i.e. the value of Y) would be:

- a) 100m
- b) Significantly less than 100m (what reach?)
- c) Significantly more than 100m (what reach ?)
- d) decided in the task force

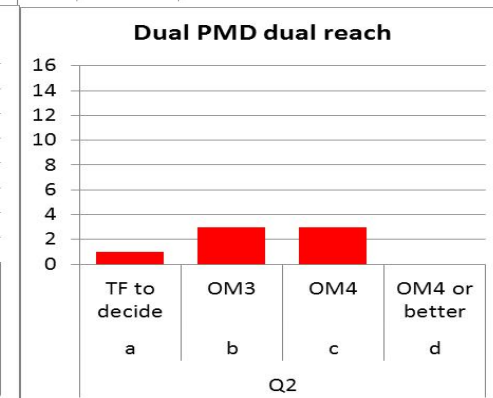
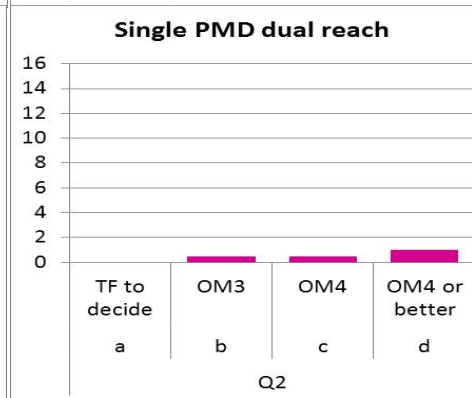
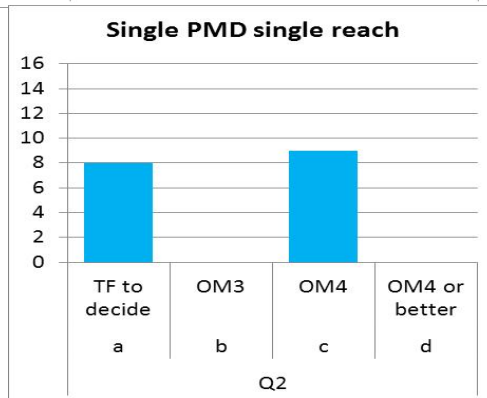
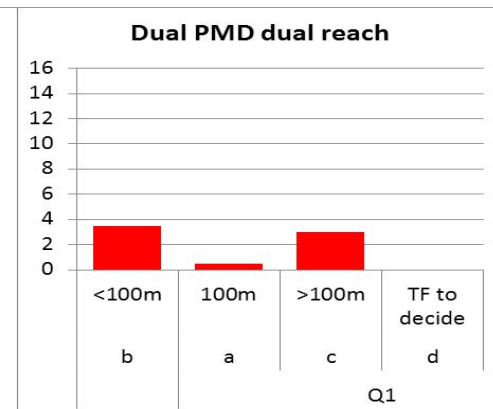
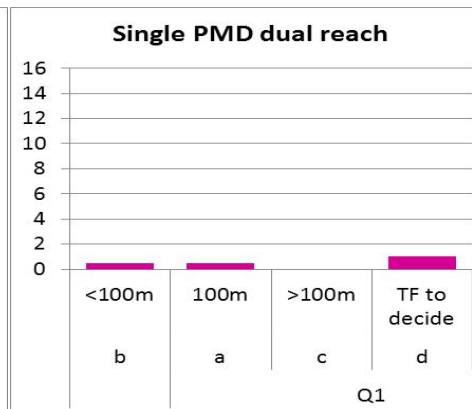
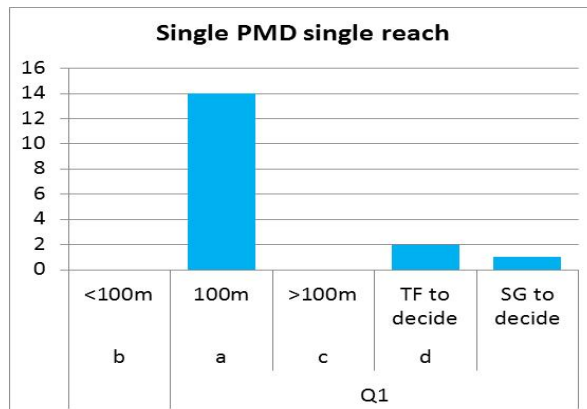
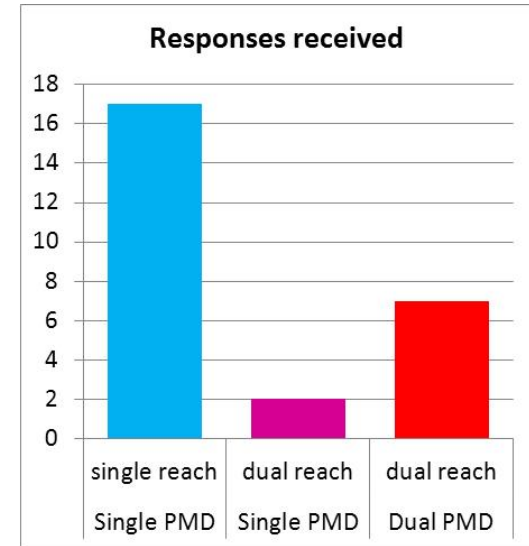
2) The MMF type should be:

- a) decided in the task force
- b) OM3
- c) OM4
- d) at least as good as OM4

Responses

26 people responded, about half had additional comments

- 1 objection to the wording in Anslow_01_0112
- 17 responded on a single PMD, single reach objective
- 2 people supported a single PMD, dual reach objective
- 7 people (27%) supported dual PMDs with different reach objectives
 - one for low cost, one for long reach



Likely most popular objectives

Single PMD single reach objective:

- “Define a 4-lane 100 Gb/s PHY for operation over OM**4** MMF with lengths up to at least **100** m.”
 - Or (slightly less popular)
- “Define a 4-lane 100 Gb/s PHY for operation over MMF (to be decided by the task force) with lengths up to at least **100** m.”

Dual PMD, dual reach objectives:

- “Define a 4-lane 100 Gb/s PHY for operation over OM**4** MMF with lengths up to at least **150** m”
- “Define a 4-lane 100 Gb/s PHY for operation over OM**3** with lengths up to at least **50** m.”
 - a short reach PMD optimized for lowest cost and power
 - a long reach PMD with optimized cost and power

Thanks !