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Spokesperson for the CWDM4 MSA
Objective of the CWDM4 MSA

Specify a 100G optical interface for duplex single-mode fiber applications using low-cost low-power CWDM technology via a multisource agreement with broad end-user, OEM, and transceiver manufacturer feedback.

Why an MSA and not an “alliance”? An MSA creates a legal framework for membership and spec negotiation in which all parties have an equal voting weight.
CWDM4 MSA Members

The CWDM4 MSA members are five established transceiver companies whose combined 40G-LR4 and 100G-LR4 component and transceiver shipments represent the VAST majority of world-wide shipments.
CWDM4 MSA focus areas

• **Cost… cost… cost… cost…**
  Don’t aggressively specify parameters such as link budget and receiver sensitivity.

• **End product applicability**
  Broad open industry review of the CWDM4 target specification by end users, OEMs, and component manufacturers to ensure we address the broadest set of user applications.
The CWDM4 MSA specification is on its second round of external review by major end-users, OEMs, and transceiver manufacturers.

**Draft 1 Public Reviewers**
- Arista
- Brocade
- Ciena
- Cisco
- Dell
- Huawei
- Juniper
- Oracle

**Draft 2 Public Reviewers**
- All Draft 1 reviewers
- CommScope
- Facebook
- Infinera
- Kaiam
- Microsoft
- Oplink
- Skorpios
Targeting cost: Spec focus areas

• Use **FEC** to reduce optical parameter requirements, not to increase performance!
• Set **loss budget** to minimum acceptable in order to reduce optical parameter requirements.
• Relax **transmitter** requirements compared to 100GBASE-LR4.
• Relax **receiver** requirements compared to 100GBASE-LR4.
Key findings of review process

• Total loss budget: 5-dB loss budget accounts for vast majority of applications and has minimal impact on cost.

• Receiver sensitivity: For highest yield, specification should be less aggressive than that for 100G-LR4.

• Transmitter launch power: For highest yield, specification should be less aggressive than that for 100G-LR4.
## CWDM4 MSA Specification Status

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<th>Item</th>
<th>Value</th>
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<td>Rate (Gbps)</td>
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<td>Tx OMA (dBm min, @ TDP max)</td>
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<td>Reach (km max)</td>
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<td>TDP (dB max, w/o MPI penalty)</td>
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<td>Loss budget (dB min, w/o penalties)</td>
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<td>ER (dB)</td>
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<td>Tx OMA (dB min, @ TDP ≤ 1 dB)</td>
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Note: A non-FEC specification is in development
Next steps for the CWDM4 MSA

• **~ Two weeks:**
  Finalize specification based upon broad industry review process.

• **~ Three weeks:**
  Once the final specification is developed with appropriate link models, engage the CLR4 Alliance to reconcile the specifications.

• **~Four weeks:**
  Publically release final specification in concert with CLR4 Alliance and open CWDM4 MSA to new members.