100GE SMF Optical Interface Study Alternatives Update

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Reach (Technical) Feasibility of 100GE alternatives

	10km 1310nm	40km 1310nm	10km 1550nm	40km 1550nm
10G DML	yes (10λ span needs semi-cooling)	yes (need new DML & RX APD/SOA)	maybe (need new DML)	no
10G EML	yes	yes (need RX APD/ SOA)	yes	yes
20G/25G DML	yes (need new DML)	maybe (need new DML & RX SOA)	no	no
20G/25G EML	yes (need new EML)	yes (need new EML & RX SOA)	yes	yes (need RX DC)
50G DML	no	no	no	no
50G EML	yes (need I/Q ML)	yes (need I/Q ML, RX DC & SOA)	yes (need I/Q ML & RX DC)	yes (need I/Q ML & RX DC)

Green shading designates proposed study alternatives.

Cost (1/Economic Feasibility) of 100GE alternatives

	10km 1310nm	40km 1310nm	10km 1550nm	40km 1550nm
10G DML	low	low	mid	not feasible
10G EML	mid	mid	mid	mid
20G/25G DML	low	low	not feasible	not feasible
20G/25G EML	mid	mid	mid	not economically feasible (RX DC)
50G DML	not feasible	not feasible	not feasible	not feasible
50G EML	high	not economically feasible (RX DC)	not economically feasible (RX DC)	not economically feasible (RX DC)

Green shading designates proposed study alternatives.

Proposed SMF optical interface study alternatives

Alternative	λ	Channels	Rate	Source	Cooling	Grid
1	1550nm	10	10	EML	full semi	200GHz to 400Ghz
2	1310nm	5	20	EML	full semi none	200GHz to 5nm to 20nm
3	1310nm	5	20	DML	semi none	5nm to 20nm
4	1310nm	4	25	EML	full semi none	200GHz to 5nm to 25nm
5	1310nm	4	25	DML	semi none	5nm to 25nm
6	1310nm	2	50	I/Q ML	full	single λ