

100GE SMF Optical Interface Study Alternatives

IEEE 802.3 HSSG Fiber Optic Ad Hoc

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Existing HSSG FO Ad Hoc study alternatives

Objective	λ	Channels	Rate	Source	Mux	Grid
10km SMF	1550nm	10	10	Cooled EML	DWDM	200GHz G.694.1
	1550nm	10	10	Uncooled DML	CWDM	20nm G.694.2
	1310nm	5	20	Cooled EML	DWDM	200GHz G.694.1
	1310nm	5	20	Uncooled DLM/EML	CWDM	20nm G.694.2
	1310nm	4	25	Uncooled DLM/EML	DWDM	20nm or 25nm
	1310nm	2	50	DQPSK	Single λ	n/a

Reach feasibility of 100GE alternatives

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