L Gb/s per lane MMF baseline harmonized proposal

Whistler, BC

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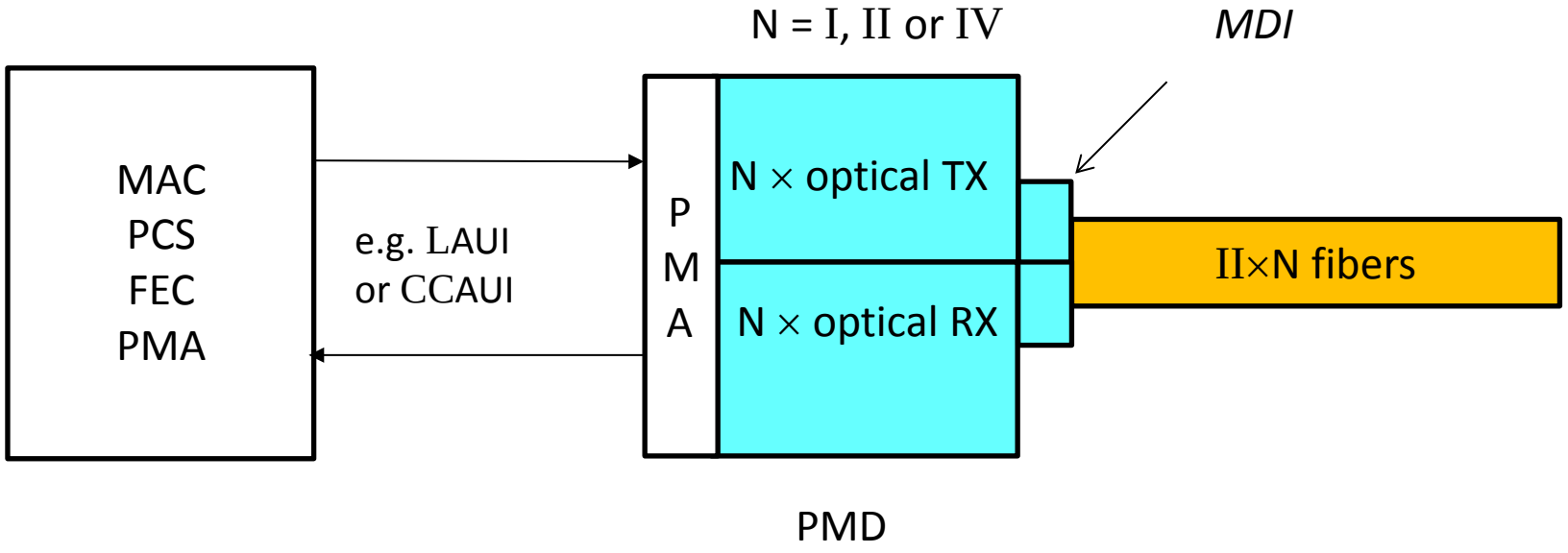
MMF Objectives

- **Define a single-lane L Gb/s PHY for operation over MMF with lengths up to at least C m.**
- **Define a two-lane C Gb/s PHY for operation over MMF with lengths up to at least C m.**
- **Define a CC Gb/s PHY for operation over MMF with lengths up to at least C m.**

Proposal

- Single optical lane per direction for LGBASE-SR
- Four optical lanes per direction for CCGBASE-SR^{IV}
- Each lane @ XXVI GBd PAMIV over C m OMIV fiber.
  - Exact signaling rate is determined by project's choice of FEC.
- DCCCL nm sources and receivers
  - Assumes target BER (prior to error correction) around XXIVxX^{-V} and random error statistics



Transmitter characteristics (each lane) at TPII

Description	Value	Unit
Signaling rate, each lane, (range)	|CC||LXV|DCXXVxX-^{IV}± Cppm	GBd
Modulation format	PAMIV	
Center wavelength (range)	DMMMXL - DMMMLX	nm
RMS spectral width	VIxX^{-I}	nm
Average launch power, each lane (max)	+IV	dBm
Average launch power, each lane (min)	-VI	dBm
Optical Modulation Amplitude (OMA_{outer}), each lane (max)[a]	+III	dBm
Optical Modulation Amplitude (OMA_{outer}), each lane (min)[ab]	-IV *TBC*	dBm
Launch power in OMA_{outer} minus TDECQ (min)[a]	-V *TBC*	dBm
Transmitter and dispersion eye closure (TDECQ), each lane (max)[a]	IV *TBC*	dB
Average launch power of OFF transmitter, each lane (max)	-XXX	dBm
Extinction ratio (min)[a]	III	dB
Encircled Flux	≥ LXXXVI% at IXX μm ≤ XXX% at VLxX^{-1} μm	

[a] OMA_{outer} , and TDECQ are as defined in DCCCII.IIIbs; the V tap T/II reference is *TBC* for MMF links

[b] Even if TDECQ is <I dB, OMA_{outer} must be at least this value

Receiver characteristics (each lane) at TPIII

Description	Value	Unit
Signaling rate, each lane, (range)	|CC||LXV|DCXXVxX-^{IV}± Cppm	GBd
Modulation format	PAMIV	
Center wavelength (range)	DMMMXL - DMMMLX	nm
Damage threshold (min)	+V	dBm
Average receive power, each lane (max)	+IV	dBm
Average receive power, each lane (min)	-LXXIXxX^{-I}	dBm
Receive power, each lane (OMA_{outer}) (max)	+III	dBm
Receiver reflectance (max)	-XII	dB
Stressed receiver sensitivity (OMA_{outer}), each lane (max)[a]	-III *TBC*	dBm at XXIVx10^{-V}
Receiver sensitivity (OMA_{outer}), each lane (max)[ab]	-VII *TBC*	dBm at XXIVx10^{-V}
Conditions of stressed receiver sensitivity test		
Stressed eye closure (SECQ), lane under test[a]	IV *TBC*	dB
OMA of each aggressor lane	+III	dBm

[a] OMA_{outer} , and SECQ are as defined in 802.3bs, the V tap T/II reference is *TBC* for MMF links

[b] Receiver sensitivity is informative

Illustrative link power budget (each lane)

Parameter	OMIII	OMIV	Unit
Effective modal bandwidth at DCCCL nm	MM	MMMMDCC	MHz.km
Power budget (for max TDECQ)	VI *TBC*		dB
Operating distance	LXX	C	m
Channel insertion loss	XVIIIxX^{-I}	XIXxX^{-I}	dB
Allocation for penalties (for max TDECQ)	XLIxX^{-I} *TBC*		dB
Additional insertion loss allowed	IxX^{-I}	0	dB

Q & A

Thanks !