

400Gb/s 500m PSM4 PAM-4 PMD Nominal Specifications

400 Gb/s Ethernet Task Force
802.3 Plenary Session
San Antonio, TX
4 - 6 November 2014
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Background

- Nominal specifications from:

http://www.ieee802.org/3/bs/public/adhoc/smf/14_10_14/cole_01a_1014_smf.pdf

- These specifications are not a final proposal because insufficient measurements are available

Transmit Characteristics (duplex SMF)

Description (Outer Eye 11-00)	2km NRZ	10km NRZ	Unit
Signaling Rate, each lane	26.6		GBd
Operating BER	2.0E-04		
Total average launch power (max)	12.2		dBm
OMA, each lane (max)	3.0		dBm
OMA, each lane (min)	-1.5		dBm
Launch Power in OMA – TDP, each lane (min)	-2.5		dBm
Transmitter and dispersion penalty, (TDP) each lane (max)	1.0		dB
Extinction ratio (ER) (min)	4.5		dB
RIN OMA (max)	TBD		dB/Hz
Transmitter 3dB frequency (min)	21		GHz
Optical return loss tolerance (max)	TBD		dB

Receive Characteristics (PSM4)

Description (Inner Eye 01-00)	500m PAM-4		Unit
Signaling Rate, each lane	26.6		GBd
Operating BER	2.0E-04		
Receiver reflectance (max)	TBD		dB
Receiver Sensitivity (OMA), each lane (max)	-12.5		dBm
Receiver 3 dB electrical upper cutoff frequency, each lane (max)	31		GHz
Stressed receiver sensitivity (OMA), each lane (max)	TBD		dBm
Conditions of stressed receiver sensitivity test	TBD		

Illustrative Link Power Budgets (PSM4)

Parameter	500m PAM-4		Unit
Power Budget (for maximum TDP)	11.0		dB
Operating Distance	2.0		km
Channel Insertion Loss	5.0		dB
Maximum Discrete Reflectance	TBD		dB
Allocation for Penalties (for maximum TDP)	1.0		dB
Allocation for Modulation Penalties	5.0		dB

WDM Lane Assignments

Lane	Center Frequency THz	Center Wavelength nm	Wavelength Range nm
L0	233.8	1282.26	1277.89 to 1286.66
L1	229.8	1304.58	1300.05 to 1309.14

Appendix: Example CFP2 Layout



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Thank you