

400Gb/s 10km duplex SMF NRZ PMD Baseline Specifications

400 Gb/s Ethernet Task Force
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Transmit Characteristics (duplex SMF)

Description	10km NRZ	Unit
Signaling Rate, each lane	53.2	GBd
Operating BER (w/ KP4 FEC)	2.0E-04	
Total average launch power (max)	12.2	dBm
OMA, each lane (max)	3.0	dBm
OMA, each lane (min)	-2.5	dBm
Launch Power in OMA – TDP, each lane (min)	-3.5	dBm
Transmitter and dispersion penalty, (TDP) each lane (max)	2.5	dB
Extinction ratio (ER) (min)	4.5	dB
RIN OMA (max)	-130.0	dB/Hz
Optical return loss tolerance (max)	20.0	dB
Transmitter 3dB frequency (min)	21	GHz

Receive Characteristics (duplex SMF)

Description	10km NRZ	Unit
Signaling Rate, each lane	53.2	GBd
Operating BER (w/ KP4 FEC)	2.0E-04	
Receiver reflectance (max)	-26.0	dB
Receiver Sensitivity (OMA), each lane (max)	-9.8	dBm
Receiver 3 dB electrical upper cutoff frequency, each lane (max)	42.0	GHz
Stressed receiver sensitivity (OMA), each lane (max)	TBD	dBm
Conditions of stressed receiver sensitivity test	TBD	

Illustrative Link Power Budgets (duplex SMF)

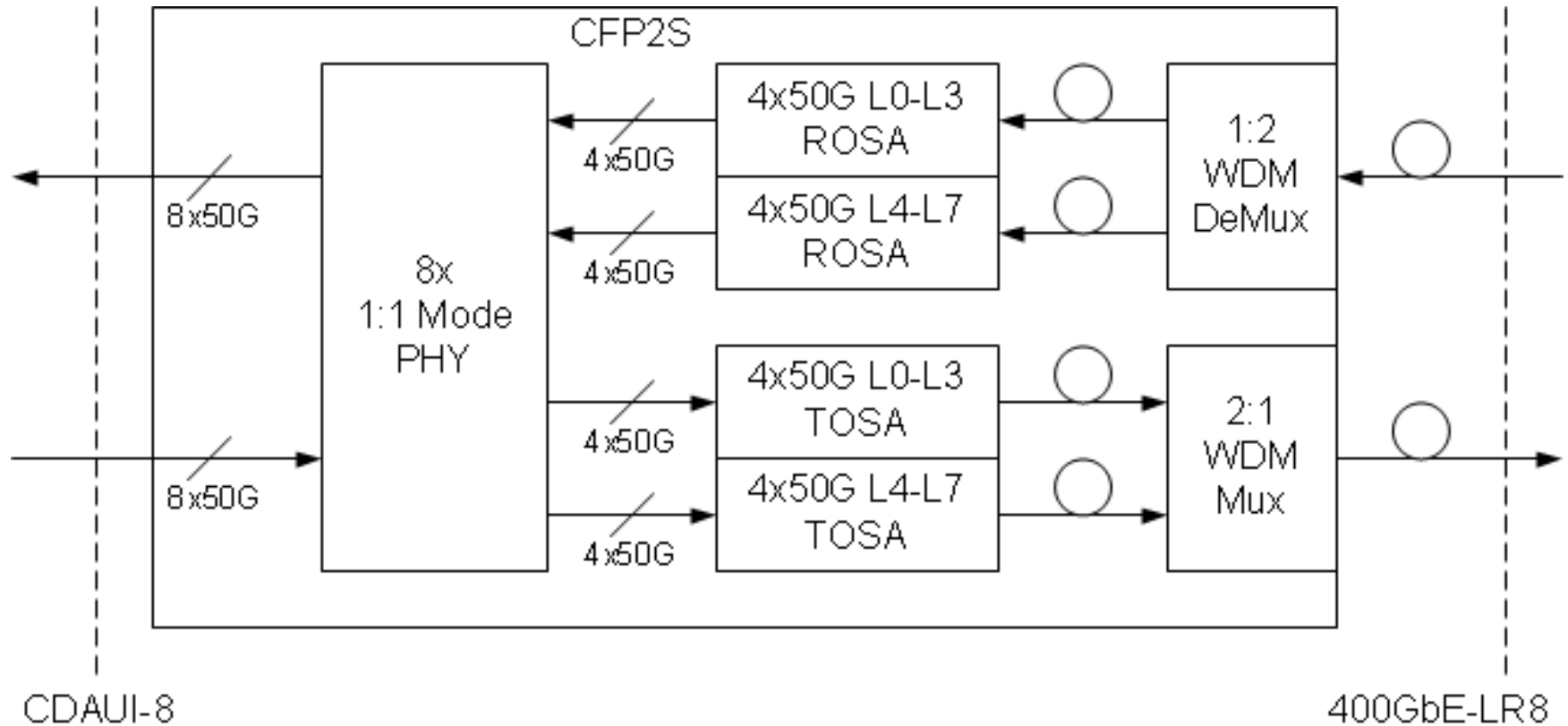
Parameter	10km NRZ	Unit
Power Budget (for maximum TDP)	8.8	dB
Operating Distance	10.0	km
Channel Insertion Loss	6.3	dB
Maximum Discrete Reflectance	-26.0	dB
Allocation for Penalties (for maximum TDP)	2.5	dB
Allocation for Modulation Penalties	0.0	dB

WDM Lane Assignments

Lane	Center Frequency THz	Center Wavelength nm	Wavelength Range nm
L0	235.4	1273.55	1272.55 to 1274.54
L1	234.6	1277.89	1276.89 to 1278.89
L2	233.8	1282.26	1281.25 to 1283.28
L3	233.0	1286.66	1285.65 to 1287.69
L4	231.4	1295.56	1294.53 to 1296.59
L5	230.6	1300.05	1299.02 to 1301.09
L6	229.8	1304.58	1303.54 to 1305.63
L7	229.0	1309.14	1308.09 to 1310.19

Appendix 1: 10km PMD Block Diagram Ex.

← 3dB nominal 8:1 DeMux loss ←



→ 3dB nominal 8:1 Mux loss →

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Thank you

