

802.3cu D2.1 PMD Spec Proposed Changes

P802.3cu 100 Gb/s and 400 Gb/s over SMF at
100 Gb/s per Wavelength Task Force

Ad Hoc

5 May 2020

Chris Cole, II-VI

802.3cu Consensus Building Group

Vipul Bhatt

Chris Cole

Mike Dudek

Ken Jackson

Mark Kimber

David Lewis

Eric Maniloff

Gary Nicholl

Mark Nowell

Roberto Rodes

Peter Stassar

Penalties Consensus Technical Changes

Table 151–7—400GBASE-FR4 and 400GBASE-LR4-6 transmit characteristics

Description	400GBASE-FR4	400GBASE-LR4-6	Unit
Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane (max)	3.4	3.4	dB
Transmitter eye closure for PAM4 (TECQ), each lane (max)	3.4	3.4	dB

Table 151–8—400GBASE-FR4 and 400GBASE-LR4-6 receive characteristics

Description	400GBASE-FR4	400GBASE-LR4-6	Unit
Conditions of stressed receiver sensitivity test			
Stressed eye closure for PAM4 (SECQ), lane under test	3.4	3.4	dB

TX OMA Consensus Technical Changes

Editorial Alternative 1:

Table 151–7—400GBASE-FR4 and 400GBASE-LR4-6 transmit characteristics

Description	400GBASE-FR4	400GBASE-LR4-6	Unit
OMA _{outer} , each lane (min), TDECQ < 1.3dB	-0.3	0.2	dBm
OMA _{outer} minus TDECQ, each lane (min), 1.3dB ≤ TDECQ ≤ 3.4dB	-1.6	-1.1	dBm

Editorial Alternative 2:

Table 151–7—400GBASE-FR4 and 400GBASE-LR4-6 transmit characteristics

Description	400GBASE-FR4	400GBASE-LR4-6	Unit
OMA _{outer} , each lane (min), TDECQ < 1.3dB	-0.3	0.2	dBm
1.3dB ≤ TDECQ ≤ 3.4dB	-1.6 + TDECQ	-1.1 + TDECQ	dBm

RS Alternatives 1 & 2 Editorial Changes

Editorial Alternative 1:

Table 151–8—400GBASE-FR4 and 400GBASE-LR4-6 receive characteristics

Description	400GBASE-FR4	400GBASE-LR4-6	Unit
Receiver sensitivity (OMA _{outer}), each lane (max), TECQ < 1.4dB	-4.6	-6.8	dBm
Receiver Sensitivity (OMA _{outer}) minus TECQ , each lane (max), 1.4dB ≤ TECQ ≤ 3.4dB	-6	-8.2	dBm

Editorial Alternative 2:

Table 151–8—400GBASE-FR4 and 400GBASE-LR4-6 receive characteristics

Description	400GBASE-FR4	400GBASE-LR4-6	Unit
Receiver sensitivity (OMA _{outer}), each lane (max), TECQ < 1.4dB	-4.6	-6.8	dBm
1.4dB ≤ TECQ ≤ 3.4dB	-6 + TECQ	-8.2 + TECQ	dBm

RS Alternatives 3 & 4 Editorial Changes

Editorial Alternative 3:

Table 151–8—400GBASE-FR4 and 400GBASE-LR4-6 receive characteristics

Description	400GBASE-FR4	400GBASE-LR4-6	Unit
Receiver sensitivity (OMA _{outer}), each lane (max), SECQ < 1.4dB	-4.6	-6.8	dBm
Receiver Sensitivity (OMA _{outer}) minus SECQ , each lane (max), 1.4dB ≤ SECQ ≤ 3.4dB	-6	-8.2	dBm

Editorial Alternative 4:

Table 151–8—400GBASE-FR4 and 400GBASE-LR4-6 receive characteristics

Description	400GBASE-FR4	400GBASE-LR4-6	Unit
Receiver sensitivity (OMA _{outer}), each lane (max), SECQ < 1.4dB	-4.6	-6.8	dBm
1.4dB ≤ SECQ ≤ 3.4dB	-6 + SECQ	-8.2 + SECQ	dBm

Power Budget Consensus Technical Changes

Table 151–9—400GBASE-FR4 and 400GBASE-LR4-6 illustrative power budgets

Parameter	400GBASE-FR4	400GBASE-LR4-6	Unit
Power budget (for maximum TDECQ)	7.8	10.5	dB
Allocation for Penalties (for maximum TDECQ)	3.8	4.2	dB

802.3cu D2.1 PMD Proposed Changes

Thank You