

Supporting explanations for P802.3ds draft D1.0 comments

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Comments against P802.3ds draft D1.0

Category	Page	Sub-clause	Line #	Comment	Proposed Change
Technical	52	300.7.1		for Outer Optical Modulation Amplitude (OMA _{outer}), each lane (max), the current spec is 3.5dBm, for Average launch power, each lane (max), the current spec is 5dBm, according to the calculation based on ER 3.5 dB, when AOP is 5dBm, the corresponding OMA _{max} is close to 4 dBm, which has already exceeded the current specification of 3.5 dBm.	recommend that the OMA _{max} specification in the Tx Baseline be updated to 4 dBm
Technical	54	300.7.2		for Receive power (OMA _{outer}), each lane (max), the current spec is 3.5dBm, which has the same issue as OMA _{outer} , each lane (max)	recommend that the Receive OMA _{outer} , each lane (max) specification be updated to 4 dBm
Technical	53	300.7.1		Average launch power of OFF transmitter, each lane (max), the current spec is -15dBm, which is referred to 802.3dj DR, dj DR is for SMF, not MMF, for the Average launch power of OFF transmitter spec, it is better to refer to df	we recommend the spec to be updated to -30dBm according to df

Tx OMA specification of ds draft1.0

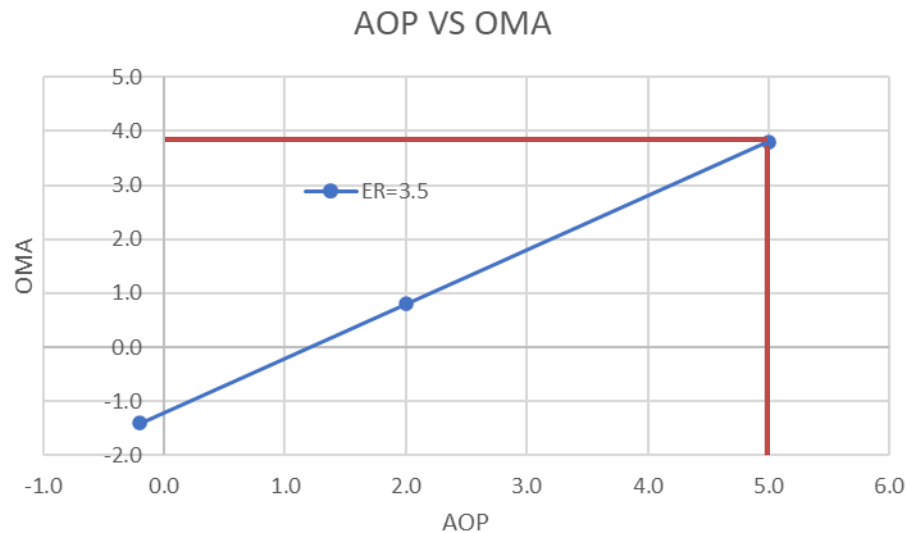
Table 300-7—Transmit characteristics

Description	Reference	200GBASE-SR1-30	200GBASE-SR1-50	Unit
		400GBASE-SR2-30	400GBASE-SR2-50	
		800GBASE-SR4-30	800GBASE-SR4-50	
		1.6TBASE-SR8-30	1.6TBASE-SR8-50	
Signaling rate, each lane (range)	—	106.25 ± 50 ppm		GBd
Modulation format	—	PAM4		—
Center wavelength (range)	300.9.4	844 – 868	852 – 868	nm
RMS spectral width ^a (max)	300.9.4	0.55	0.45	nm
Average launch power, each lane ^b (max)	300.9.5	5		dBm
Average launch power, each lane (min)	300.9.5	-3.4		dBm
Outer Optical Modulation Amplitude (OMA _{outer}), each lane (max)	300.9.6	3.5		dBm
Outer Optical Modulation Amplitude (OMA _{outer}), each lane (min) for max (TECQ, TDECQ) ≤ 1.8 dB for 1.8 < max (TECQ, TDECQ) ≤ TBD	300.9.6	-1.4 -3.2 + max (TECQ, TDECQ)		dBm dBm

- For ds baseline draft1.0, AOP max 5dBm and OMA max 3.5dBm were adopted.

Consideration on OMA_{max}

- Compared with 802.3df, 802.3ds Baseline AOP_{max} is increased by 1 dB, but OMA_{max} remains unchanged.
- Calculated based on AOP and OMA conversion formula, OMA is 3.8dBm corresponding to AOP 5dBm, which is exceed the OMA max spec 3.5dBm
 - Propose setting Tx OMA_{max} specification as 4dBm



Rx OMA specification of ds draft1.0

Table 300–8—Receive characteristics

Description	Reference	200GBASE-SR1-30	200GBASE-SR1-50	Unit	
		400GBASE-SR2-30	400GBASE-SR2-50		
		800GBASE-SR4-30	800GBASE-SR4-50		
		1.6TBASE-SR8-30	1.6TBASE-SR8-50		
Average receive power, each lane (max)	—	5		dBm	
Average receive power, each lane ^b (min)	—	−5	−5.1	dBm	
Receive power (OMA _{outer}), each lane (max)	—	3.5		dBm	
Receiver reflectance (max)	—	TBD		dB	
Receiver sensitivity (OMA _{outer}), each lane ^c (max) for TECQ ≤ TBD for TBD < TECQ ≤ TBD	300.9.14	−3.1 −4.9 + TECQ	−3.3 −5.1 + TECQ	dBm dBm	
Stressed receiver sensitivity (OMA _{outer}), each lane ^c (max)	300.9.15	TBD	TBD	dBm	
Conditions of stressed receiver sensitivity test: ^d					
Stressed eye closure for PAM4 (SECQ), lane under test	—	TBD		dB	
OMA _{outer} of each aggressor lane ^c	—	3.5		dBm	

- Rx OMA max 3.5dBm and OMA of each aggressor lane were adopted in D1.0, which is corresponding to Tx OMA max

- Propose setting Rx OMA_{max} and OMA of each aggressor lane specification as 4dBm

Average launch power of OFF transmitter

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Table 300–7—Transmit characteristics

Description	Reference	200GBASE-SR1-30	200GBASE-SR1-50	Unit
		400GBASE-SR2-30	400GBASE-SR2-50	
		800GBASE-SR4-30	800GBASE-SR4-50	
		1.6TBASE-SR8-30	1.6TBASE-SR8-50	
Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane (max)	300.9.7	<i>TBD</i>	<i>TBD</i>	dB
Transmitter eye closure for PAM4 (TECQ), each lane (max)	300.9.8	<i>TBD</i>		dB
Transmitter overshoot and undershoot, each lane (max)	300.9.9	<i>TBD</i>		%
Transmitter power excursion, each lane (max)	300.9.10	2.3		dBm
Extinction ratio, each lane (min)	300.9.11	2		dB
Transmitter transition time, each lane (max)	300.9.12	9		ps
Average launch power of OFF transmitter, each lane (max)	—	-15		dBm

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Table 167–7—Transmit characteristics

Description	100GBASE-VR1	100GBASE-SR1	Unit
	200GBASE-VR2	200GBASE-SR2	
	400GBASE-VR4	400GBASE-SR4	
	800GBASE-VR8	800GBASE-SR8	
Signaling rate, each lane (range)	53.125 ± 100 ppm		GBd
<u>Other PMDs</u>	53.125 ± 50 ppm		GBd
<u>800GBASE-VR8, 800GBASE-SR8 PMDs</u>			
Outer Optical Modulation Amplitude (OMA _{outer}), each lane (max)	3.5		dBm
Outer Optical Modulation Amplitude (OMA _{outer}), each lane (min)	-2.6		dBm
For max (TECQ, TDECQ) ≤ 1.8 dB			dBm
For 1.8 < max (TECQ, TDECQ) ≤ 4.4 dB	-4.4 + max (TECQ, TDECQ)		dBm
Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane (max)	4.4	4.4	dB
Transmitter eye closure for PAM4 (TECQ), each lane (max)	4.4		dB
Overshoot/undershoot (max)	29		%
Transmitter power excursion, each lane (max)	2.3		dBm
Extinction ratio, each lane (min)	2.5		dB
Transmitter transition time, each lane (max)	17		ps
Average launch power of OFF transmitter, each lane (max)	-30		dBm

- For ds baseline D1.0, Average launch power of OFF transmitter -15dBm, but for df, the corresponding spec is -30dBm

- Propose setting average launch power spec -30dBm, the same as df.

Summary

- Update Tx OMA max spec to 4dBm
- Update Rx OMA max spec to 4dBm
- Update Rx OMA of each aggressor lane spec to 4dBm
- Update Tx average launch power to -30dBm