

Stressed Receiver Sensitivity TBD's

IEEE Interim – Ft. Worth
P802.3cc

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Introduction

1. Propose values for TBDs of stressed receiver test in 25GBASE-LR.
2. Start discussion on TBDs for stressed receiver test in 25GBASE-ER.

Receiver Characteristics TBD's

Table 200-7—25GBASE-LR and 25GBASE-ER receive characteristics

Description	25GBASE-LR	25GBASE-ER	Unit
Signaling rate (range)	25.78125 ± 100 ppm		GBd
Center wavelength (range)	1295 to 1325		nm
Damage threshold ^a (min)	5.5	TBD	dBm
Average receive power (max)	2	-5	dBm
Average receive power ^b (min)	-12.8	-16	dBm
Receive power (OMA) (max)	3	-5	dBm
Receiver reflectance (max)	-26		dB
Receiver sensitivity (OMA) ^c (max)	-11.3	-17.6	dBm
Stressed receiver sensitivity (OMA) ^d (max)	TBD	TBD	dBm
Conditions of stressed receiver sensitivity test			
Vertical eye closure penalty ^e	TBD	TBD	dB
Stressed eye J2 Jitter ^e	TBD	TBD	UI
Stressed eye J4 Jitter ^e	TBD	TBD	UI
SRS eye mask definition {X1, X2, X3, Y1, Y2, Y3}	TBD	TBD	

^aThe receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level.

^bAverage receive power (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.

^cReceiver sensitivity (OMA) (max) is informative.

^dMeasured with conformance test signal at TP3 (see 200.7.10) for the BER specified in 200.1.1

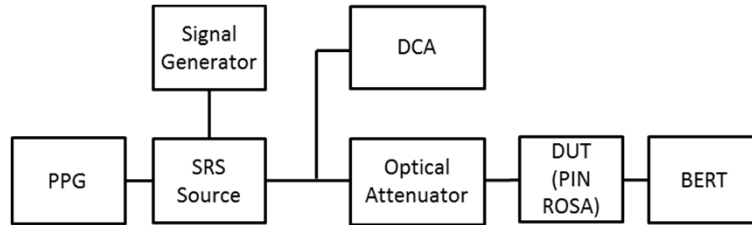
^eVertical eye closure penalty, stressed eye J2 Jitter, and stressed eye J4 Jitter are test conditions for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

Existing SRS Specifications

Proposed

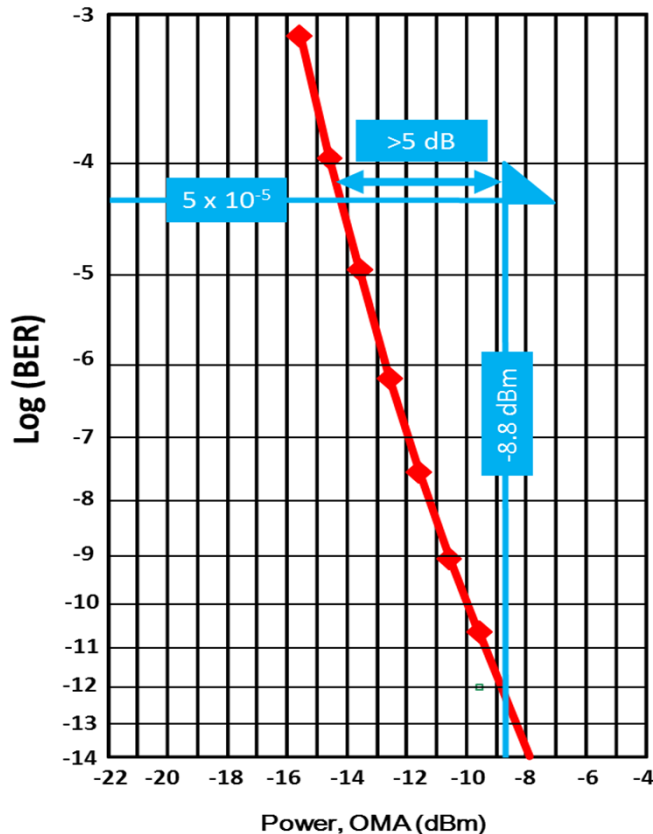
	Units	100GBASE-LR4	100GBASE-ER4	PSM4	CWDM4	25GBASE-LR	25GBASE-ER	25GBASE-SR
Receiver Sensitivity	dBm	-8.6	-21.4	-11.35	-10	-11.3	-17.6	-
Stressed Receiver Sensitivity	dBm	-6.8	-17.9	-8.8	-7.3	-8.8	TBD	-5.2
Vertical Eye Closure Penalty	dB	1.8	3.5	1.9	1.9	1.9	TBD	-
Stressed Eye Closure	dB	-	-	-	-	-	-	4.3
J2 Jitter	UI	0.3		0.27	0.33	0.27	TBD	0.39
J4 Jitter	UI	-	-	0.39	0.48	0.39	TBD	0.53
J9 Jitter	UI	0.47		-	-	-	-	-
SRS Eye Mask Definition	{X1, X2, X3, Y1, Y2, Y3}	-	-	{0.24, 0.5, 0.5, 0.24, 0.24, 0.4}	{0.39, 0.5, 0.5, 0.39, 0.39, 0.4}	{0.24, 0.5, 0.5, 0.24, 0.24, 0.4}		{0.28, 0.5, 0.5, 0.33, 0.33, 0.4}
Pattern	-	PRBS31 or Scrambled Idle		PRBS31	PRBS31 or RS-FEC Encoded Scramble	PRBS31 or RS-FEC Encoded Scramble		PRBS31 or RS-FEC Encoded Scramble
BER	-	10^{-12}		5×10^{-5}	5×10^{-5}	5×10^{-5}		5×10^{-5}

SRS BER Measurement



Test Conditions:

Rx type:	PIN PD (TO-CAN)
Bit rate:	25.78125 Gbps
Wavelength:	~1300 nm
Extinction ratio:	5.4 dB
Temperature:	70 degC
VECP:	1.95 dB
J2:	0.39 UI
J9:	0.85 UI
J4 (calc):	0.56 UI



1. SRS test conditions (VECP, J2, J9) are more severe than any of the specifications on previous slide.
2. Even so, margin > 5 dB obtained.
3. Any of the specs on previous page can be applied → match PSM4 for interoperability with breakout application.

Receiver Characteristics

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Receive power (OMA) (max)	3	–5	dBm
Receiver reflectance (max)	–26		dB
Receiver sensitivity (OMA) ^c (max)	–11.3	–17.6	dBm
Stressed receiver sensitivity (OMA) ^d (max)	–8.8	TBD	dBm
Conditions of stressed receiver sensitivity test			
Vertical eye closure penalty ^e	1.9	TBD	dB
Stressed eye J2 Jitter ^e	0.27	TBD	UI
Stressed eye J4 Jitter ^e	0.39	TBD	UI
SRS eye mask definition {X1, X2, X3, Y1, Y2, Y3}	{0.24, 0.5, 0.5, 0.24, 0.24, 0.4}	TBD	

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Summary

1. Proposed matching SRS and corresponding test conditions to PSM4 to interoperate with breakout application, which is expected to be an important use case of 25GBASE-LR modules.
2. Supportive data shows that proposed SRS and test conditions are reasonable for 25GBASE-LR.
3. Still need to address 25GBASE-ER.

Corrections/Changes After Call

1. VECP of 100GBASE-LR4 corrected to 1.8 dB.
2. Experimental setup diagram added.
3. Added PIN-PD in TO-CAN as Rx type in SRS test description.
4. Added column for 25GBASE-SR on Slide 4.