LRM Link Budget

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Why a Link Budget

Aims to ensure worst Case Tx will work with worst case Rx over vast majority of links

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Traditional Ethernet Optical Budgets

- Have included all expected degradations in the amplitude domain in the theoretical budget
- Tx and Rx testing has not covered all degradations simultaneously
- An allowance has been left in the budget for non-tested items, but it has not always covered all foreseable items in their worst case simultaneous values.

Items not currently covered in LRM budget

- Tx baseline wander beyond what is in the Stressed Receiver transmitter. (which could be nothing)
- Dynamic effects
- Uncorrelated Tx jitter above that simulated by the noise addition in the Stressed Receiver Sensitivity test.

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LRM Budgeting

	D2.1			D2.3	
	Delta	Resulting		Delta	Resulting
	dB	dBm(OMA)		dB	dBm(OMA
<u>Tx min OMA</u>		-4.5			-4.5
Tx implementation penalty (Pie-D - TWDP(Max))	0			-0.5	
		-4.5			-5
link loss	-2			-2	
Stressed Receiver sensitivity.		-6.5			-7
Assumed Sensitivity		-13.5			-13.5
Additional penalty due to modal noise + Tx RIN allowance	0.5			0.5	
		-13			-13
Pie-D	5			4.2	
		-8			-8.8
Rx Implementation penalty relative to very long equalizer	1.5			NA	
Rx Implementation penalty relative to 14,5 equalizer	NA			1.5	
stressed receiver sensitivity possible.		-6.5			-7.3
Notes					
Tx implementation penalty inc 14,5 equalizer relative to 47	′ps Gau	ssian with ve	ery	long ed	qualizer.
Pie-D assumes -13dBm Rx sensitivity with min OMA from	Tx, but	no RIN or m	oda	al noise	

Recommendation

 Accept comment 14 to reduce OMA for the Stressed Receiver Sensitivity test to –7.0dBm

Thank you

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