Summary of ERL, SNR_ISI, and RL comment recommendations (comments #34-#49 other ERL comments #24, #25, #26, #27, #29, #65, #67, #68, #89, #90, #93, #94, #96, #96)

Richard Mellitz, Samtec

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ToC

❑ ERL in Draft

❑ History

❑ Documents suggesting ERL parameters

❑ Overview of Proposal

ERL in Draft 3.1

❑ In Draft 3.1 ERL (effective return loss) is proposed to replace

- SNR_{ISI} specifications
- Frequency domain return loss (RL) mask specifications

❑ The above addresses some of these reported Issues with SNR_{ISI} and RL

- measuring SNDR and SNR_{ISI}
- test fixture variability impacting measurements
- Return loss tracking COM (i.e. performance)
  - Short packages perform better than long packages but have worst return loss
- Frequency domain not representative of time domain PHY requirements
  - Strict RL masks may make the link work
  - But also may be overly prohibitive

History

❑ ERL limits and parameters were presented at the January Interim
  - mellitz_3cd_01a_0118
❑ A proposal for add ERL to Annex 93A was given by Adee Ran
  - 8023cd-anx93A-ERL-proposal
❑ ERL limits and parameters were summarized at the January Interim
  - ran_3cd_01_0118
❑ Draft 3.1 contains data from 8023cd-anx93A-ERL-proposal and 01_0118
❑ Example COM code to compute ERL was posted at subsequent ad hoc
  - mellitz_3cd_020718_adhoc-v2 (COM v2.24)
  - Reflects slight difference between mellitz_3cd_01a_0118 and D3.1
❑ ERL data for real produce was requested at the Task Force so support or change the ELR limits.
❑ Since the interim thre has been somework to suststanciate the ERL values
❑ ERL has been shown to correlate to COM and SNR_{isi}
  - mellitz_022118_3cd_adhoc & heck_022118_3cd_adhoc

Documents suggesting ERL parameters

❑ Presented in an ad hoc by Richard Melitz

- mellitz_022118_3cd_adhoc

❑ Reflects slight differences between mellitz_3cd_01a_0118 and D3.1

❑ Measured product data has considered in ERL limit proposal

Overview of Proposal

mellitz_022118_3cd_adhoc

Clause	ERL Min (dB) Proposal	ρ_x Proposal	N Proposal	ERL Min (dB) D3.1	ρ_x D3.1	N D3.1
136 Tx Host	14.5	0.44	300 UI	9	.3	200
136 Rx Host	14.5	0.44	300 UI	9	.3	200
136 Cable Assembly	14	0.44	t_s*10 s	10.5	.35	200
137 Tx Device	16.1	0.44	100 UI	19.5	0.33	200
137 Rx Device	16.1	0.44	100 UI	19.5	0.33	200
137 Channel	11	0.44	t_s*10 s	9..5	0.11	200

heck_022118_3cd_adhoc

sakai_3cd_01_0318

Thank You!