

COMMENT #110

Limit for Cable Assembly ERL

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Supporters

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Overview

- Comment Overview
- ERL comparison between Draft 1.2 and 1.3
- Proposed limit
- Questions

Comment Overview

- Comment addresses TBD in Table 162-16 concerning Cable Assembly ERL Value

162.11.3 Cable assembly ERL

ERL of the cable assembly at TP1 and at TP4 are computed using the procedure in 93A.5 with the values in Table 162-17. Parameters that do not appear in Table 162-17 take values from Table 162-18.

Cable assembly ERL at TP1 and at TP4 shall be meet the requirement specified in Table 162-16 for cable assemblies that have a COM less than 4 dB.

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Table 162-16—Cable assembly characteristics summary

Description	Reference	Value	Unit
Maximum insertion loss at 26.56 GHz	162.11.2	19.75	dB
Minimum insertion loss at 26.56 GHz	162.11.2	11	dB
Minimum cable assembly ERL ^a	162.11.3	TBD	dB
Differential to common-mode return loss	162.11.4	TBD	dB
Differential to common-mode conversion loss	162.11.5	TBD	dB
Common-mode to common-mode return loss	162.11.6	Equation (162-9)	dB
Minimum COM	162.11.7	3	dB

^aCable assemblies with a COM greater than 4 dB are not required to meet minimum ERL.

CI 162 SC 162.11 P 156 L 37 # 110
 Champion, Bruce TE Connectivity
 Comment Type T Comment Status D ERL value
 Cable Assembly ERL listed as TBD in Table 162-16
 SuggestedRemedy
 TBD to be changed to 7.4 dB. See presentation
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 [Editor's note: Addresses incomplete specification.]
 Resolve using the respose to comment #114.

Resolve using the response to comment #129.

CI 162 SC 162.11 P 156 L 37 # 114
 Kocsis, Sam Amphenol
 Comment Type TR Comment Status D ERL value
 Minimum cable assembly ERL = TBD
 SuggestedRemedy
 Change to "7.4dB", see background/consensus presentation
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 [Editor's note: Addresses incomplete specification.]
 Implement suggested remedy.
 Pending review of the presentation
 [Editor's note: Add presentation URL.]
 For task force discussion.task force review of cited presentation.

ERL Draft Comparisons

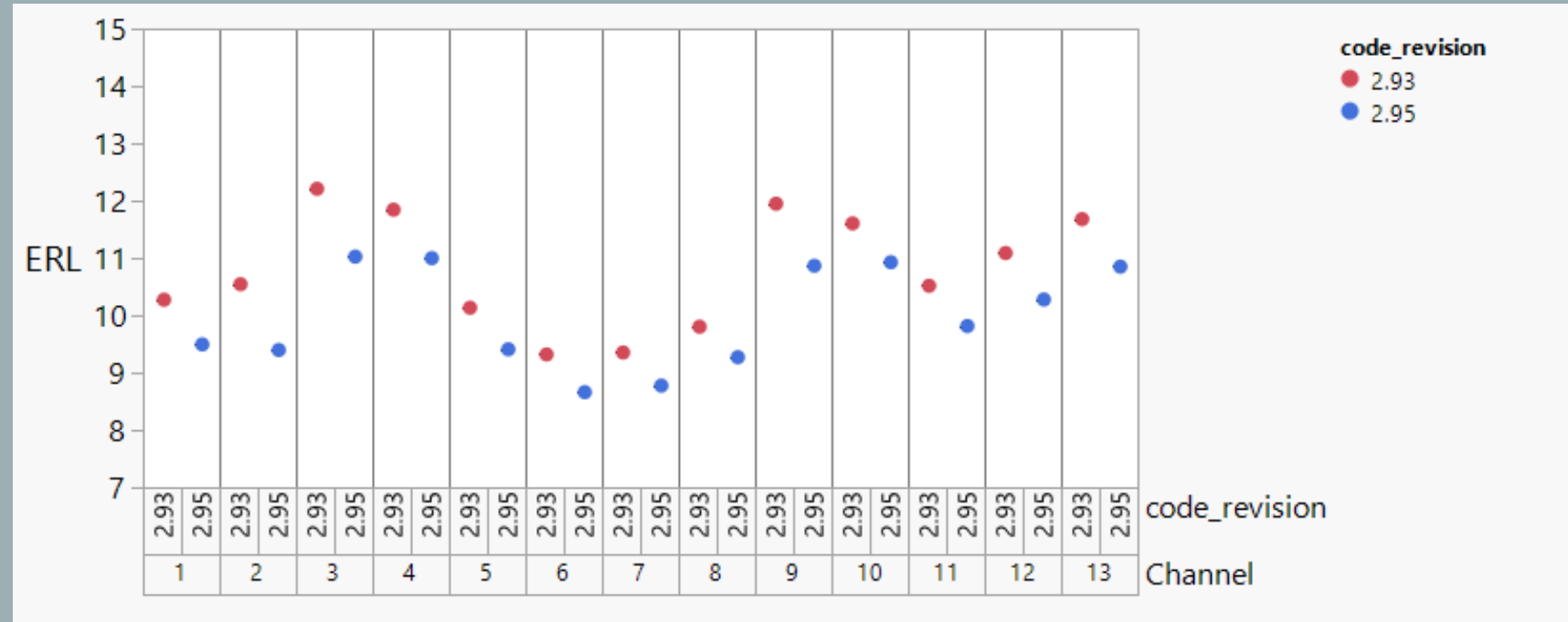
- Draft 1.2 and 1.3 use different approach to ERL

Draft 1.2 (2.93 Settings)

TDR and ERL options		
TDR	1	logical
ERL	1	logical
ERL_ONLY	0	logical
TR_TDR	0.01	ns
N	7000	
beta_x	0.0000E+00	
rho_x	0.618	
fixture delay time	[0.5e-9 0.5e-9]	[port1 port2]
TDR_W_TXPKG	0	
N_bx	21	UI

Draft 1.3 (2.95 Settings)

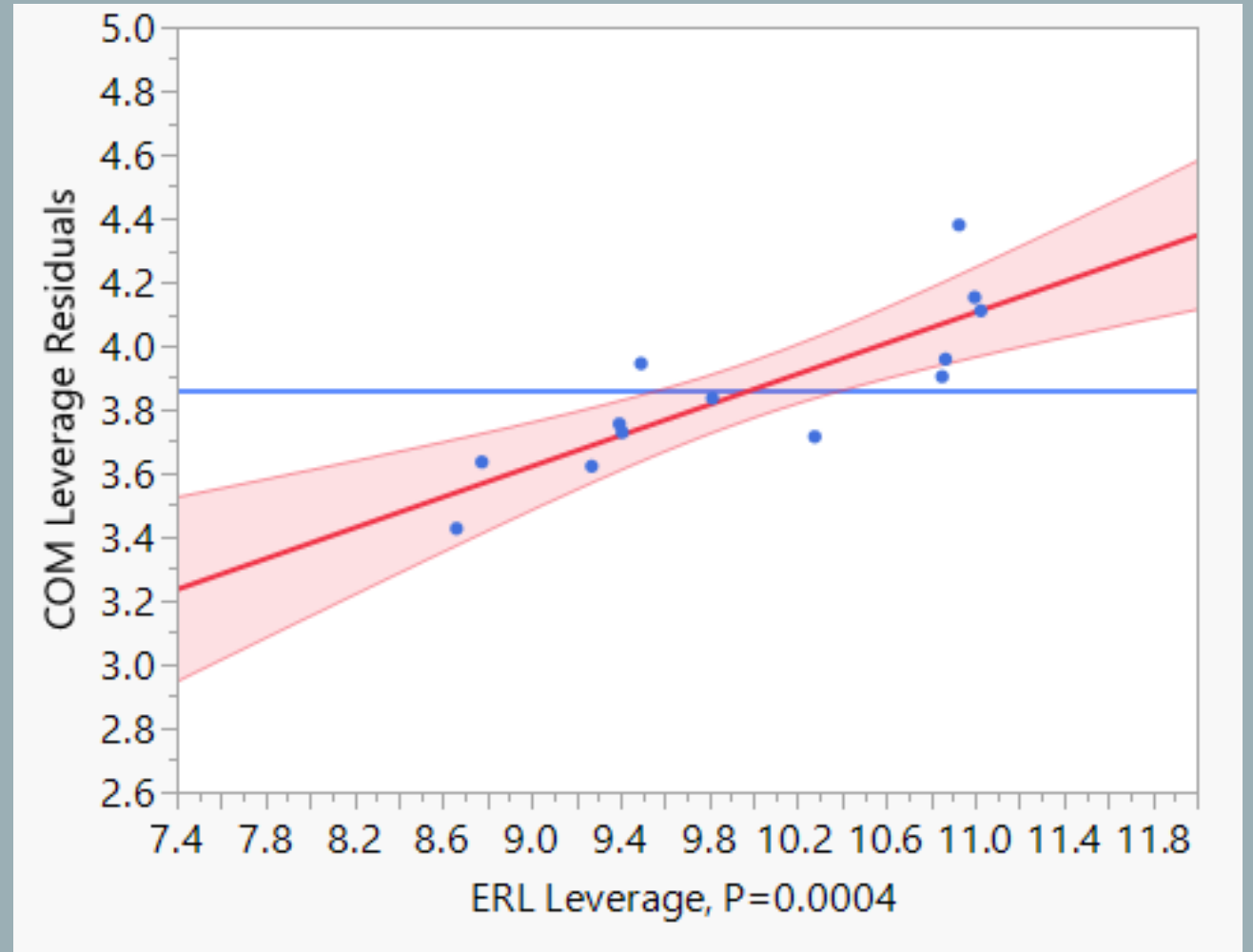
TDR and ERL options		
TDR	1	logical
ERL	1	logical
ERL_ONLY	0	logical
TR_TDR	0.01	ns
N	3500	
beta_x	0	
rho_x	0.618	
fixture delay time	[.2e-9 .2e-9]	[port1 port2]
TDR_W_TXPKG	0	
N_bx	0	UI
Tukey_Window	1	logical



- 13 channels compared
- Data represents T_{p1} - T_{p4} measurements
- All channels have $-19.5 < IL < -19.75$ dB
- Changing to fixed fixture delay time, $N_{bx}=0$, and tukey window reduced ERL numbers by an average of 0.81 dB

Proposed Limit

- Same 13 channels from previous slide used
- Relationship between ERL and COM observed
- The linear fit of data is showing:
 - COM = 3 dB at ERL = 6.4 dB
- Looking at the confidence interval:
 - COM = 3 dB at ERL \approx 7.4 dB
 - Using this data, a limit of 7.4 dB for ERL is proposed



Summary

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- ERL comparison between Draft 1.2 and 1.3
- Proposed limit
- Questions