Supporting Content for Comment 317 SCMR Limit Adjustment

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Authors: Jason Ellison, Howard Heck, Megha Shanbhag, Nathan Tracy

Supporters

Scott Sommers, Molex

Ali Ghiasi, Ghiasi Quantum

Sam Kocsis, Amphenol

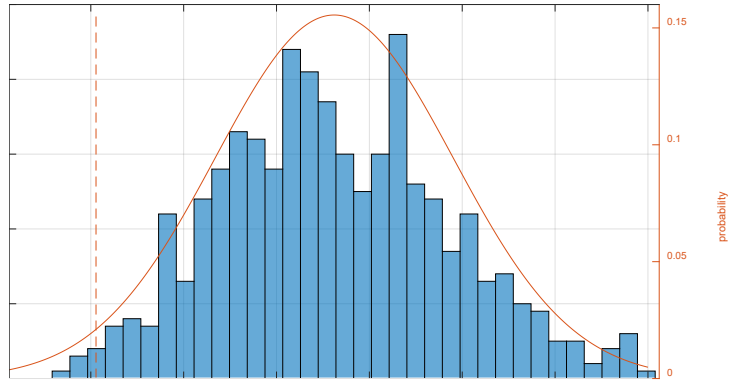
Discussion

- **SCMR**, a new normative parameter 200GBASE-CR1, 400GBASE-CR2, and 800GBASE-CR4 devices, was introduced in D2.1.
- SCMR was extracted from 624 differential pairs from 39 cable assemblies. The total distribution of all SCMR metrics from all cables is shown to the right.
- This data is from cables that are operating successfully in the field.
- **Proposal:** change the minimum $SCMR_{CH}$ from 20 dB to 11 dB
  - Reduces the failure rate of successfully operating production level components from 96.3% to 3.7%.

Table 179–14—Cable assembly characteristics summary

Description	Reference	Value	Unit
Insertion loss at 53.125 GHz, *ILdd* (max) CA-A CA-B CA-C CA-D	179.11.2	 19 24 29 34	 dB dB dB dB
Insertion loss at 53.125 GHz, *ILdd* (min)	179.11.2	16	dB
Minimum cable assembly ERL[a]	179.11.3	8.25	dB
Differential-mode to common-mode return loss, *RLcd*	179.11.4	Equation (179–20)	dB
Mode conversion insertion loss	179.11.5	Equation (179–21) and Equation (179–22)	dB
Common-mode to common-mode return loss, *RLcc*	179.11.6	Equation (179–12)	dB
Minimum COM	179.11.7	3	dB
Channel signal to common-mode ratio, $SCMR_{CH}$ (min)	179.11.8	20	dB
NOTE—The expected cable assembly reach is 0.5 m for CA-A, 1 m for CA-B, 1.5 m for CA-C, and 2 m for CA-D. Compliant cable assemblies may be longer. The length of a cable assembly does not imply compliance to specifications.			

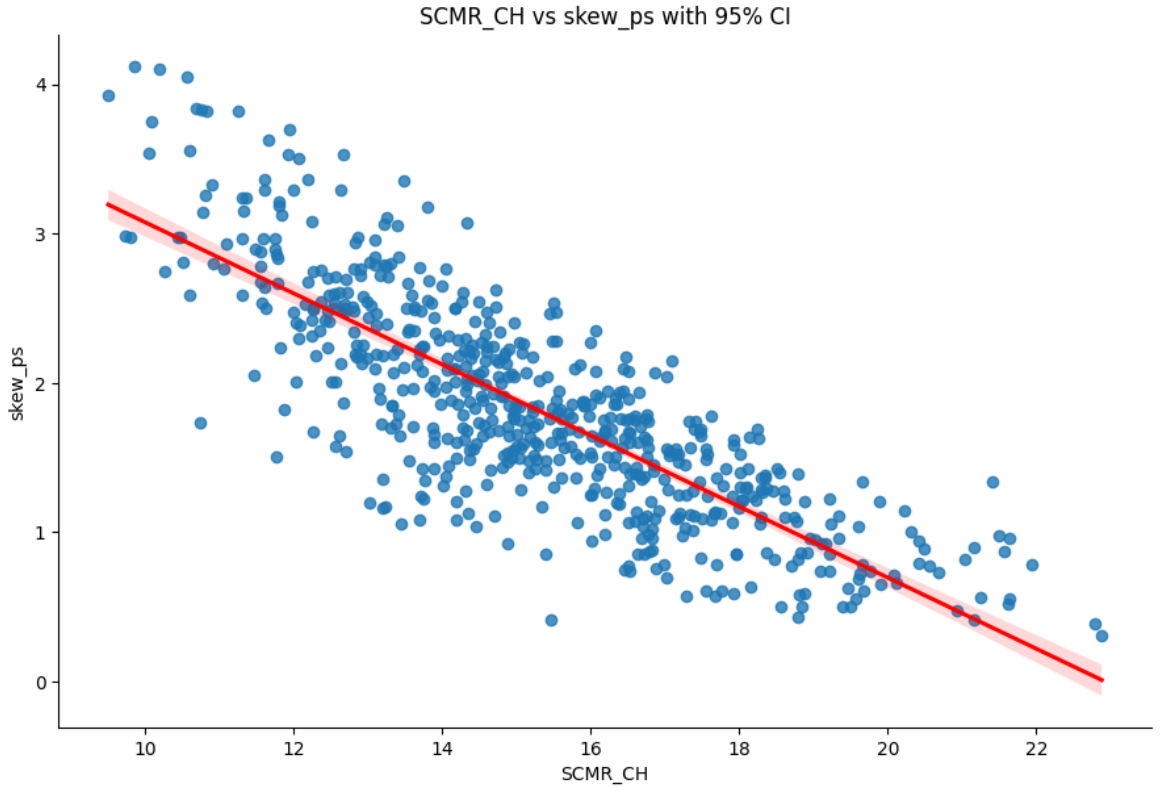
[a] Cable assemblies with a COM greater than 4 dB are not required to meet minimum ERL.

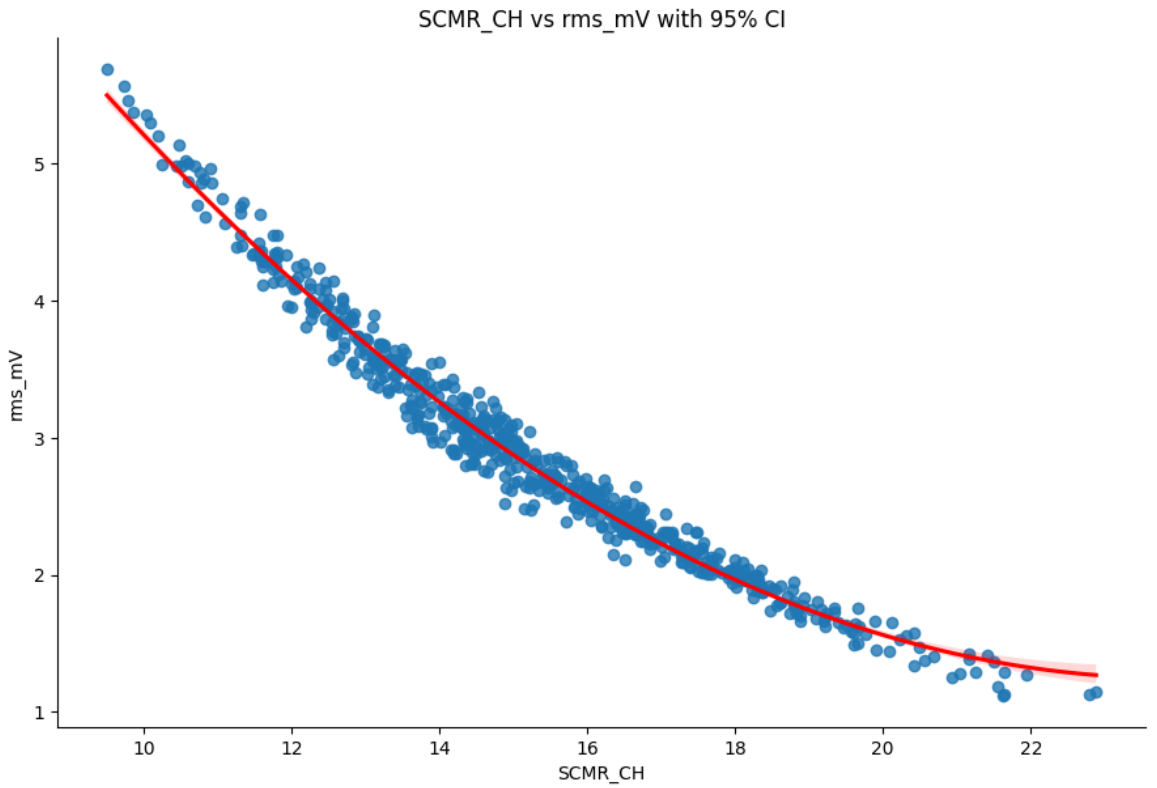


Appendix: Additional Information

SCMR_CH vs Skew and SCD21 RMS Pulse Response

SCMR_CH is well correlated to skew and the RMS value of the pulse response.





Peak Pulse Response of a 11 dB Channel

The pulse response was calculated for a sample with SCMR_CH of 11.55 dB and skew of 2.88 ps. With a 1V input pulse, the output is 160mV.