Supporting Content for Comment 111 SCMR_CH Limit Adjustment

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EVERY CONNECTION COUNTS

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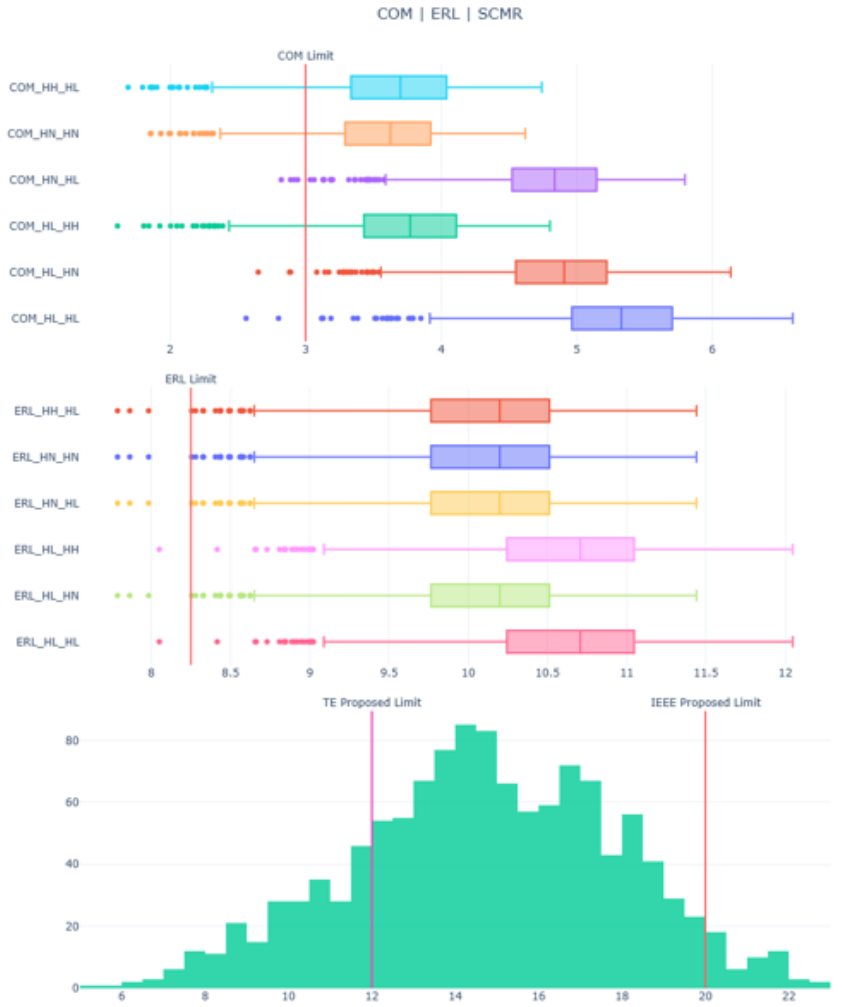
Problem Statement

Draft 2.1 introduced Channel Signal to Common-mode ratio, SCMR_CH, as a normative metric in Table 179-14 with minimum limit of 20. Information demonstrating correlation between SCMR_CH and field failures has not been presented.

SCMR_CH was calculated from data of 77 1m OSFP cable assemblies (1232 differential pairs). 4.1% of the differential pairs and 0% of cable assemblies passed this criteria. This is out of alignment with the number of cables passing mode conversion insertion loss from Draft 2.0: 94.93% differential pairs and 66.23% cable assemblies.

The goal is to align the SCMR_CH limit with cable assemblies that are passing mode conversion insertion loss.

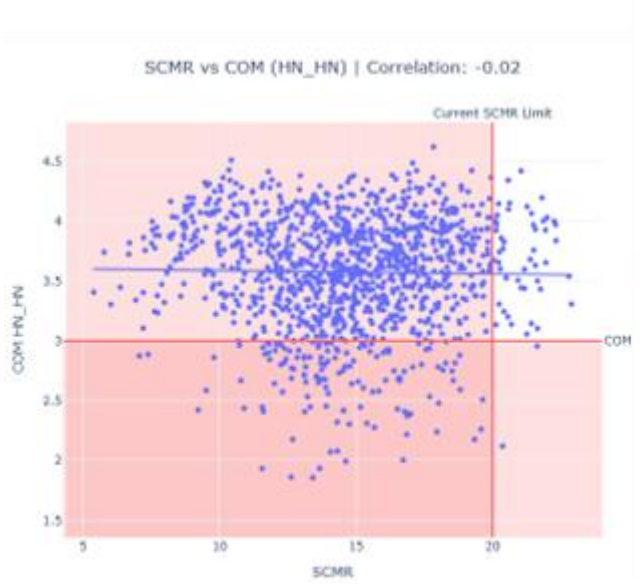


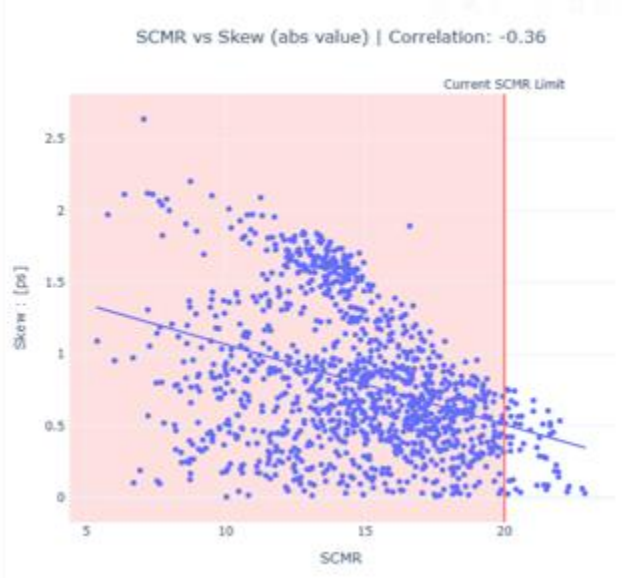
Analysis

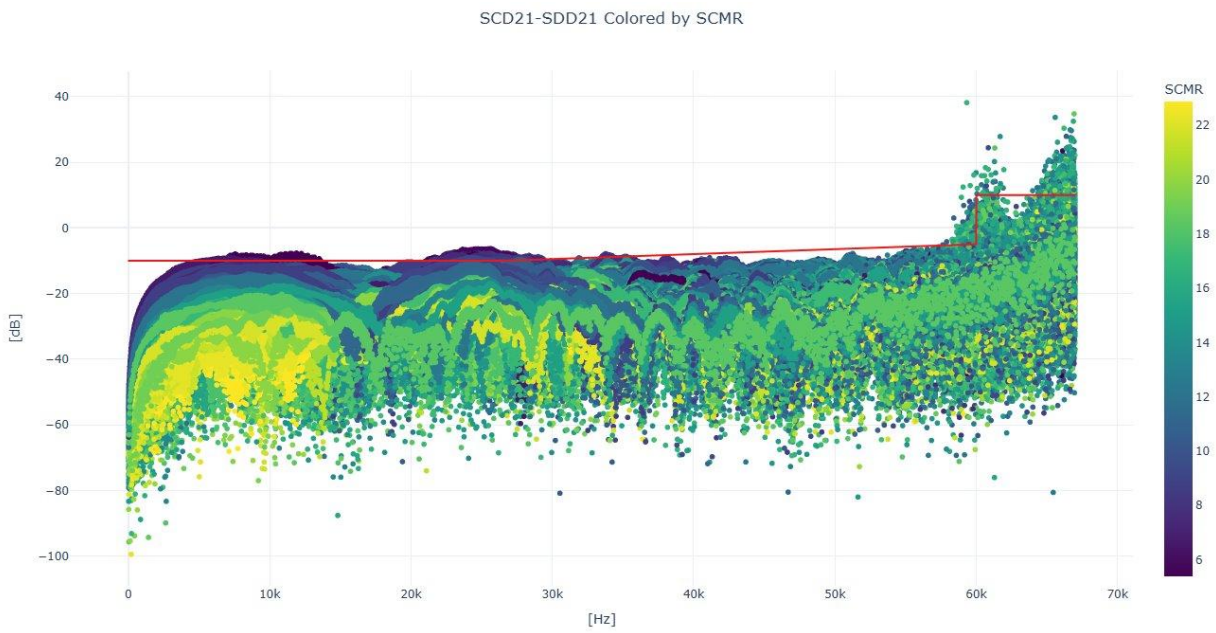
COM is very weakly correlated to SCMR_CH . Meaning, COM is not capturing the effects of skew and imbalance, and another metric such as SCMR_CH is needed.

SCMR_CH is moderately correlated to skew. Which indicates SCMR_CH is capturing the effects of asymmetry reasonably well.

SCMR_CH values trend with mode conversion insertion loss. This indicates SCMR_CH is capturing the effects of mode conversion insertion loss and could be used as a replacement. Further, SCMR_CH values lower than 12.01 are failing the mode conversion insertion loss frequency domain mask limit in D2.0.







Proposal

Without data to correlate field failures with SCMR_CH, an analysis has been performed to correlate SCMR_CH with The mode conversion insertion loss specification in Draft 2.0. Using this data, it is recommended changing the SCMR_CH minimum limit in table 179-14 to 12.0.

This value has been shown to be consistent with the previous mode conversion insertion loss limit in Draft 2.0 and is consistent with currently available hardware and process capability.