IEEE 802.3dg
Alien Crosstalk
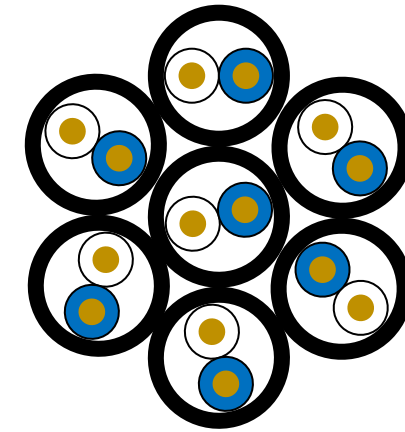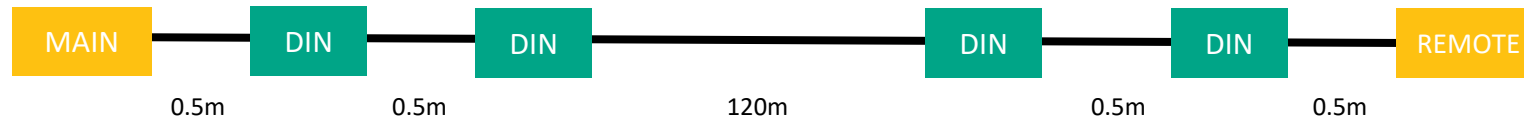
SPE LINK SEGMENT ANALYSIS

Ronald Tellas, Belden

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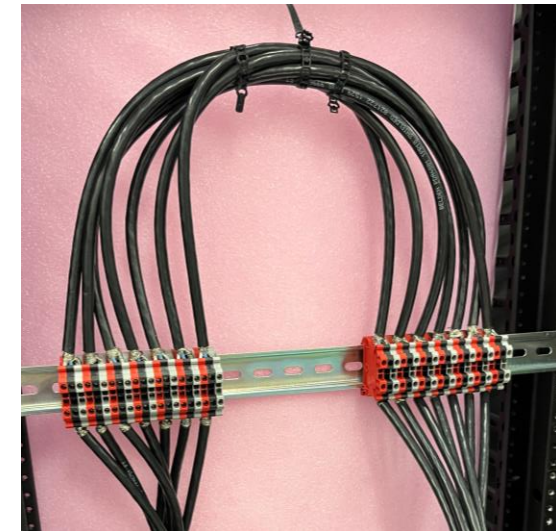
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Overview

- Support for past contributions
    - Same link segment as graber_3dg_01_03152023.pdf
        - 6 around 1 evaluation

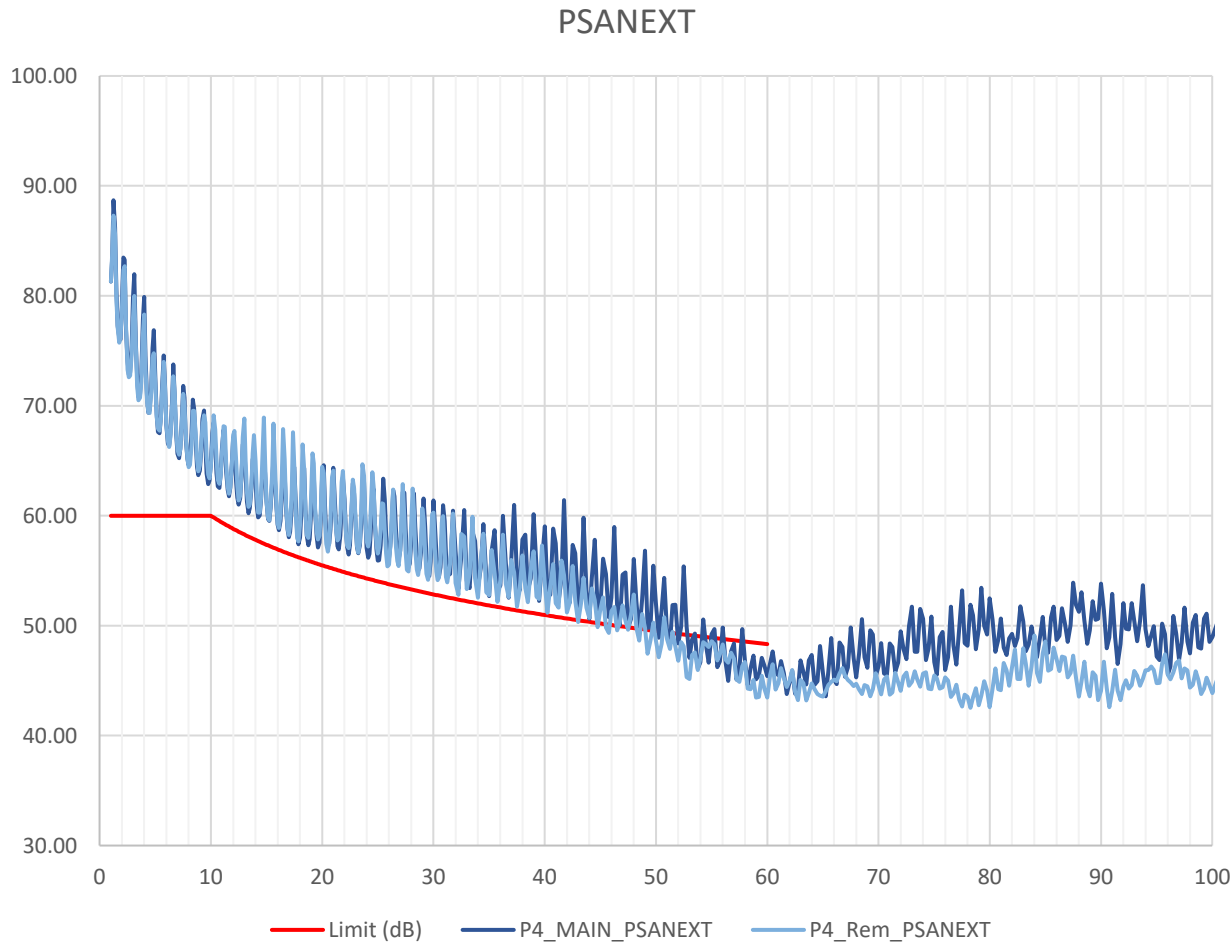| MAIN | DIN | DIN | DIN | DIN | REMOTE |
| 0.5m | 0.5m | 120m | 0.5m | 0.5m | |

6 disturbers around 1 victim

- Support for Fischer_3dg_01a_05172023.pdf
    - One limit, no dependency on overall link length

$$PSANEXT\ [dB] = \begin{cases} 60 & for\ f < 10\ MHz \\ 60 - 15 \times log_{10}\left(\dfrac{f}{10}\right) & for\ 10\ MHz\ \le f \le 60\ MHz \end{cases}$$

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PSANEXT Results
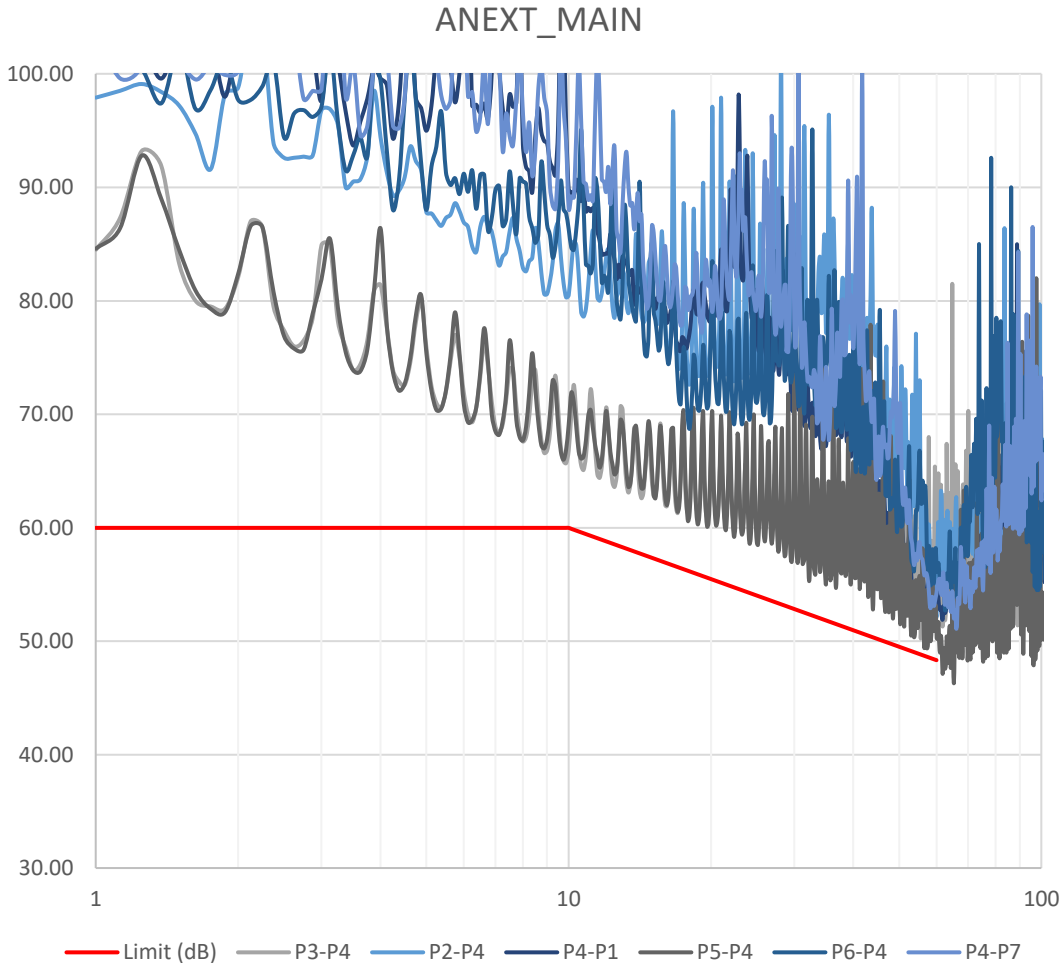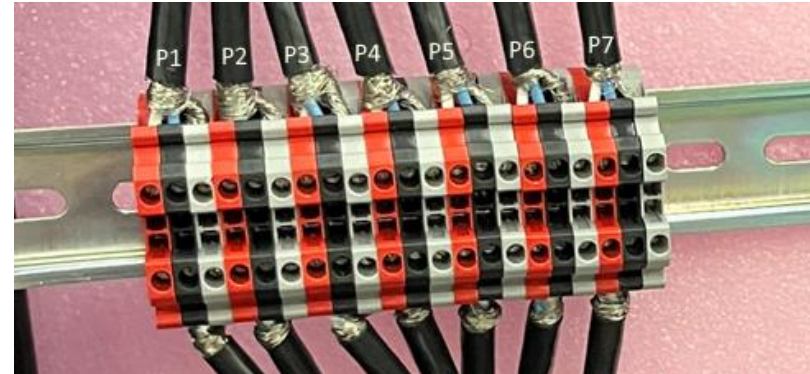
PSANEXT

- Limit Connection Variability
  - Low frequency spike (~20MHz) in graber_3dg_01_03152023.pdf is removed.
  - More symmetrical (main vs remote) results.
  - Spike @60MHz is suspect.

ANEXT Results

- ANEXT Contribution per link

ANEXT_MAIN

Legend: Limit (dB) — P3-P4 — P2-P4 — P4-P1 — P5-P4 — P6-P4 — P4-P7

- P4 is victim link.
- P3 and P5 are adjacent disturbers to P4 and have highest impact.
- P1, P2 and P6, P7 are furthest away and have lowest impact.
- All disturbers contribute to peak at ~60MHz.
- Physical distance between anomalies are main factor.
  - Suspect 0.5m between connections is cause of spike and will move if distance changed.

Conclusions

- Support that we should have one PSANEXT limit

$$PSANEXT\ [dB] = \begin{cases} 60 & for\ f < 10\ MHz \\ 60 - 15 \times log_{10}\left(\dfrac{f}{10}\right) & for\ 10\ MHz \leq f \leq 60\ MHz \end{cases}$$

- Variation in termination can influence 'spurious' spikes.
  - Symmetrical link should have similar PSANEXT curves.

- Distance between terminal blocks causes unavoidable spike.
  - Increase in distance (0.5m to 2m) will cause spike to occur at lower frequency (ffs)

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