Is 802.3da Multidrop a dead end? – How can it become future proof?

Peter Fischer / BKS Kabel-Service AG

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Agenda

- IEEE P802.3da Multidrop structure
- Recapitulation of simulations
- Are stubs needed? What do we lose? What do we gain?
- How can Multidrop become future proof?

IEEE P802.3da Multidrop structure

Till now we have seen 14 presentations about how to structure multidrop. Many of the parameters were tuned to see the respective impact (e.g.):

- Capacitance C (per node)
- Inductance L (for PoDL)
- Spacing: Even vs. clumped distribution
- Time domain vs. frequency domain

Recapitulation of simulations

- As all is new a lot of issues were found
- Some of the parameter's correlate, some divergate

Correlate: → Drop Length and MDI Capacitance

Divergate: → Even distribution: IL dip

→ Clumped distribution: Serious RL problem

Optimization: Correlate → Minimize

Divergate → Trade-off

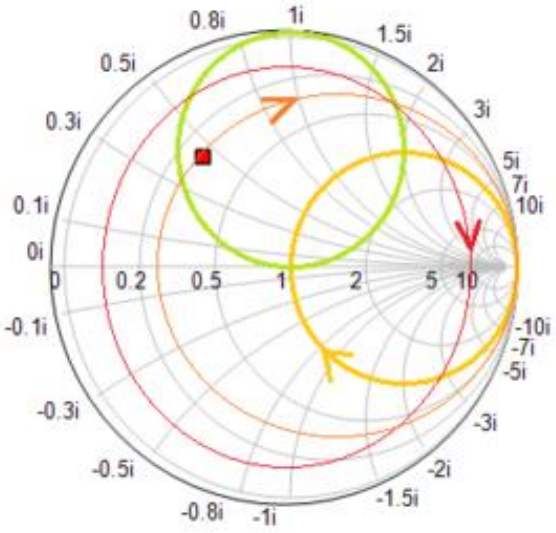
Are stubs needed? What do we loose/ gain?

Drop length and MDI capacitance have both to be minimized to reduce the impact on the transmission parameters. For the MDI capacitance there is a maximum defined so only the impact of the drop length can be further improved by reduction.

In RF technology stubs can be found in each student's book as it has a very specific behavior unknown by new students.

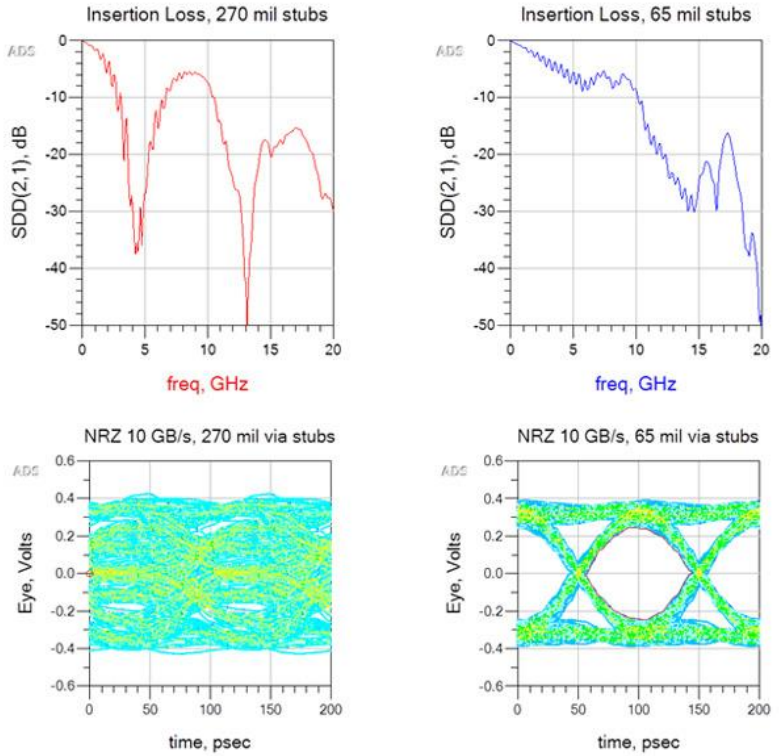
Are stubs needed? What do we loose/ gain?

A typical representation is the smith chart. Translated in frequency range (amplitude) we can find the well-known dips depending on the length of the stubs. Similar effects can be found also in time domain.



270mil = 6.9mm

65mil = 1.7mm



How can Multidrop become future prove?

As shown, stubs are degrading the transmission performance in frequency range (dips and limit violations) and for data as seen in the eye diagrams.

To make applications future prove and not a dead end will ease the adaptation as the motivation to invest in a dead end is rather low.

Therefore, the shorter the stubs the better, ideally zero.

Discussion?