
802.3da Mixing Segment Specifications

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Contributors

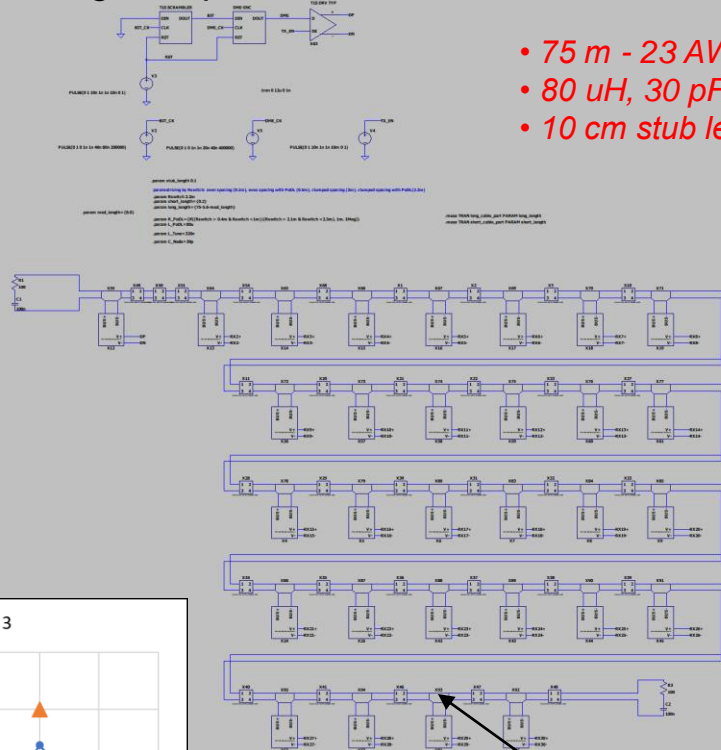
- Bob Voss/Paul Wachtel - Panduit
- Stephan Schreiner - Rosenberger

Purpose

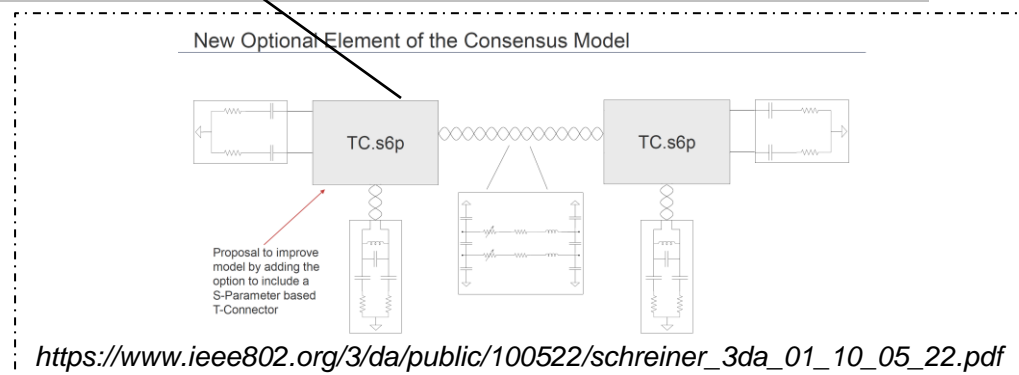
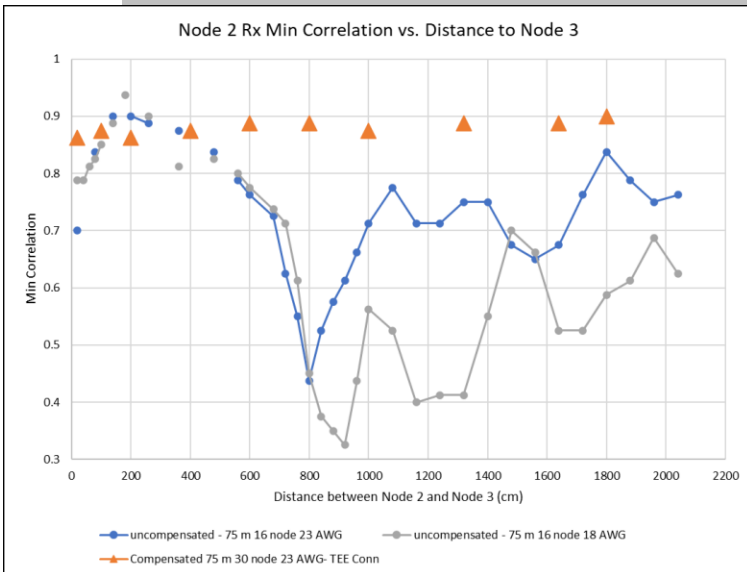
- TCI Specification Review

Mixing Segment Topology - compensated

https://www.ieee802.org/3/da/public/1123/diminico_SPMD_01_1123.pdf



- 75 m - 23 AWG, 30 node, clumped topology
- 80 uH, 30 pF node parasitics
- 10 cm stub lengths

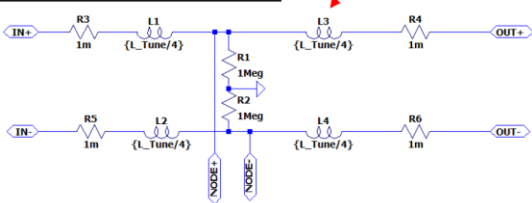


https://www.ieee802.org/3/da/public/100522/schreiner_3da_01_10_05_22.pdf

Compensation

- Compensation networks are to be in trunk connection.
- << Lower loss than prototype TEE

4X80 nH inductances¹



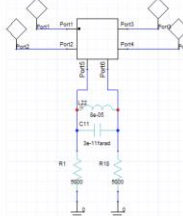
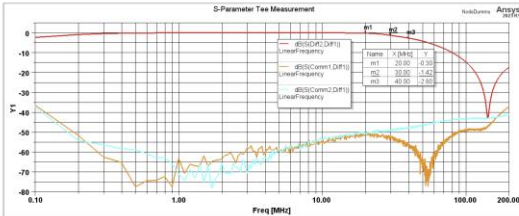
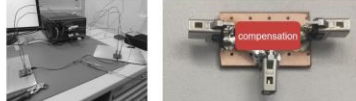
Name	X [MHz]	Y
m1	20.00	-0.30
m2	30.00	-1.42
m3	40.00	-2.80

Prototype Tee

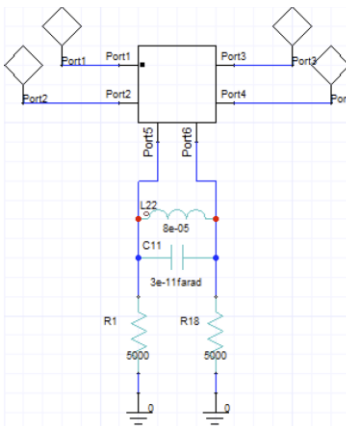
Prototype of a compensated tee

Rosenberger

- Very simple soldered prototype
- Includes compensation components
- Implementation shows low pass characteristic, which might be beneficial



https://iee802.org/3/da/public/050323/schreiner_3da_May_23.pdf



https://iee802.org/3/da/public/050323/schreiner_3da_May_23.pdf

TCI Specifications - IEEE P802.3da™/D1.0, 12/13/23

168.7 Mixing segment characteristics - The TCI may physically be implemented as **two** two-wire connections to the DTE or as an adapter separate from the DTE's PMA assembly or the TCI and the PMA of the DTE may be located within a single assembly. The latter configuration presents a negligible stub length when the PMA attachment is open circuit. Either configuration may include compensation engaged when a PMA or PMA load is attached. Figure 168–17 shows one example of each configuration.

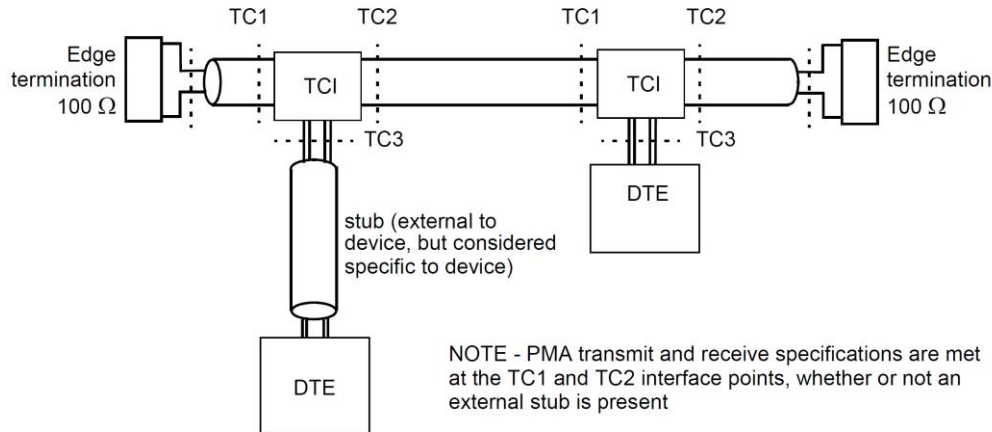
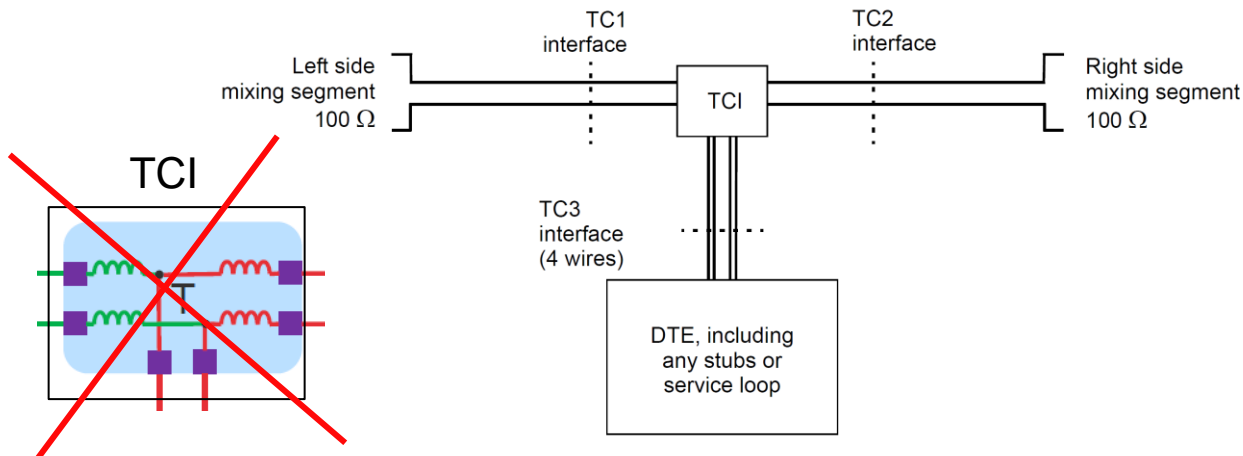


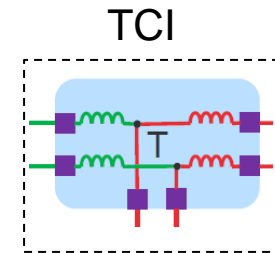
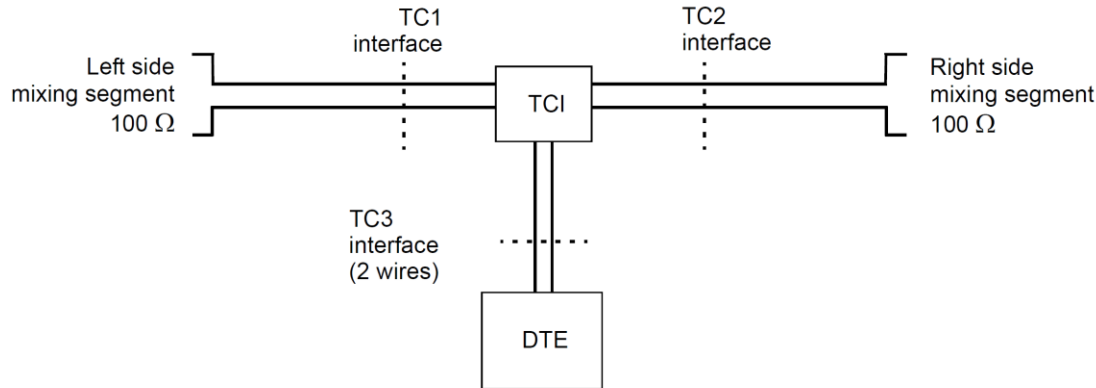
Figure 168–17—Mixing segment and reference points

168.8 TCI specification - Each TCI has one interface facing each direction of the mixing segment (TC1 and TC2), and a four-wire interface facing the PMA (and any associated stub or service loop) (TC3) as shown in Figure

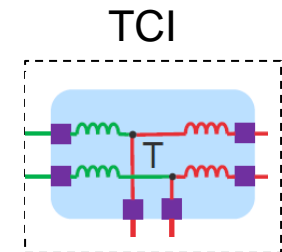
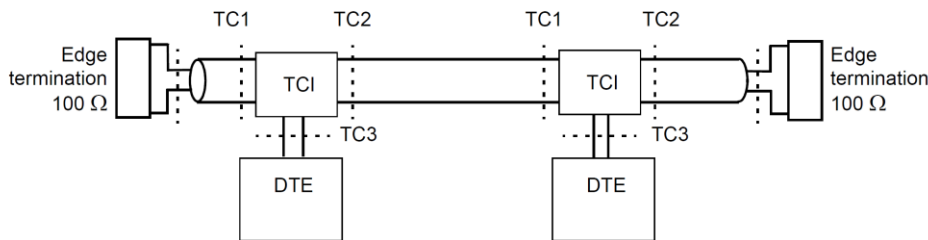


TCI Specifications - with compensation

168.8 TCI specification - Each TCI has one interface facing each direction of the mixing segment (TC1 and TC2), and a two-wire interface facing the PMA as shown in Figure



168.7 Mixing segment characteristics - The TCI may physically be implemented as two-wire connections to the DTE including compensation engaged when a PMA or PMA load is attached.



NOTE - PMA transmit and receive specifications are met at the TC1 and TC2 interface points.

Summary

- TCI Specification Review