

Proposed text based on TCI

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Overview

Follow up text from proposals in Atlanta, based on presentations and straw polls

See https://www.ieee802.org/3/da/public/0323/zimmerman_3da_01a_03092023.pdf

And https://www.ieee802.org/3/da/public/0323/strawpolls_3da_01_03142023.pdf

Review – What is the TCI?

Connects DTE to the mixing segment medium

- Technically meets definition of MDI in IEEE Std 802.3
- Except – 3 ports: left, right, and PMA
- Restricts mixing segments to linear topologies

Eliminates stubs from mixing segment

- Supports in-and-out
- Supports stubs as part of DTE

Supports compensation, but on the PMA side of the interface

TCI/MDI specification

TCI connects to left and right trunk pairs and presents both sides as a 4 pin interface to the PMA (MDI plane)

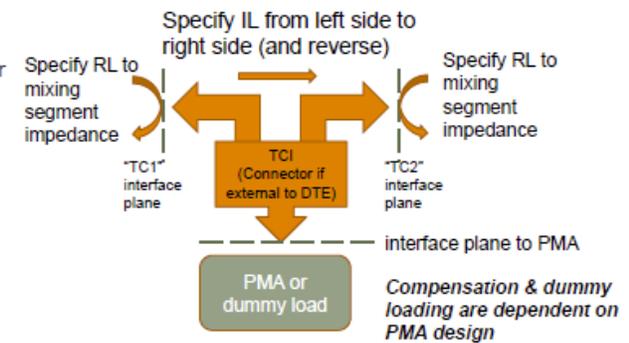
The TCI meets different RL & IL specs depending on whether PMA/loading is or is not attached

When no PMA attached, the TCI maintains continuity between the left and right sides of the mixing segment as part of mixing segment (like an inliner)

When a PMA is attached, the TCI routes continuity of through 4 signal interface (p_left, n_left, p_right, r_right) to the PMA, PMA completes the path from left to right

Normal RL specs associated with the MDI are met at both the left and right side of the TCI – not at a single MDI interface plane

TCI specification contains the left to right side insertion loss when the PMA is attached



Updated to remove "MDI" language and clarify it is the PMA attached

Review – Summary approach

Specify trunk independent of stubs and PMA loading/compensation

- PMA loading & compensation belong in the device, because they depend on the device
- Include margin for trunk connectors as 'inline' connectors (unloaded, uncompensated)

ALREADY IN DRAFT

NEED NUMBERS (Media dependent)

TCI replaces MDI – it's different in that it has 2 media ports, so it deserves its own name

DRAFT CHANGE

Will need specification of end-to-end trunk insertion loss with maximum load TCI & PMAs in place

DRAFT CHANGE

- Not specified in clause 147
- Need contribution on what the appropriate insertion loss curve is
- Need work on budget for reflection magnitude – Consensus model w/RX

NEED NUMBERS (PHY dependent)

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Specify TCI & PMA connection (what we normally think of as MDI) as a unit

- Specify left-to-right insertion loss and left, right side return loss with PMA (or compensated loading) in place
- PMA electricals tested with TCI fixture in place, at left and right TCI ports
- Implementers can include compensation can be included here, or can be uncompensated – just needs to meet specs
 - Should probably add descriptive text, but leaves room for development innovation
- Implementers can incorporate wiring and service loops ("stubs") into device provided that TCI specs are met
- Delete mention of stubs and stub length – this is part of the TCI specification

DRAFT CHANGE –

Replaces:
MDI return loss

Straw Polls

Straw Poll #1

I support organizing the 802.3da specification so that any compensation for PHY loading is outside the specification of the mixing segment (i.e., within the DTE)

Y: 28

N: 1

A: 5

Straw Poll #2

I support eliminating stubs from the definition of the mixing segment, and permitting them (but not requiring them) to be implemented as part of the DTE

Y: 32

N: 1

A: 4

Straw Poll #3

I support asking the editor to redraw Figure 168-17 to show the stubs as separate from the mixing segment, and submitting draft text for 168.7 to represent the separation, and the relationship of the attachment to the rest of the PHY.

Y: 33

N: 0

A: 3

What's in the text?

Two files – one clean, one compare from draft 0.7

- 8023-168_with TCI_clean.pdf and 8023-168_wTCI_CMP.pdf

Editor's notes on PMA specifications which need to be aligned

New descriptive text on Mixing Segment

New requirement that mixing segment be linear

Revised example figure as per straw poll, showing TCI

MDI section replaced by TCI with placeholders for TCI electrical specifications

Consideration for changes

Comment:

- Some TCI connectors may need a dummy load to offset internal compensation in order to meet insertion & return loss requirements

Suggested changes to mixing segment IL & RL requirements:

- Change “without any PMAs or loads attached” to “without any DTEs attached”
- Add “If the mixing segment includes TCI connectors which are specified to use a dummy load, this requirement may be met with the dummy load attached.”

Notes from discussion of text

- Consider up-front line making it clear that TCI is an interface plane, not a device
- Scrub text for remaining instances of MDI – reword for TCI or PMA port of TCI where appropriate
- Refine 2nd para. 168.7 text to: “TCI may physically be implemented as a “T” type connection...” (also in 168.8)
- Consider further reduction of descriptive text at the start of 168.8
- Make it clear that specifications in 168.7 and 168.8 need to be met without regard to the presence or power state of any attached DTEs.