

# Optional MDI Concerns

802.3cg 10SPE TF

Bankok November 2018

Peter Jones - Cisco

# Overview

- This presentation is in support of my comments #407 and #409.
- Presenter/commenter believes that decisions of the group in Spokane with respect to comments #617 (accept in principal) and #618 (reject) were detrimental for the draft.
- Comments #407 and #409 are two different ways to address this issue

**Motion #10:** Move to resolve comment 617 as **ACCEPT IN PRINCIPLE** with the new paragraph above.

**M:** Masood Sheriff **S:** Chris DiMinico

(Technical  $\geq 75\%$ )

**Y:** 23    **N:** 2    **A:** 3

**Motion Passes**

**Motion #11:** Move to reject comment 618 with rationale of **NO CONSENSUS TO CHANGE..**

**M:** Gerrit den Besten    **S:** Chris DiMinico

(Technical  $\geq 75\%$ )

**Y:** 17    **N:** 1    **A:** 12

**Motion Passes**

# D2.1 #407

Comment#	Comment	SuggestedRemedy	Response
407	<p>The IEC 63171-1 connector was prematurely added to the draft, and should be removed. Comments against D1.0 (#571, #572, #617, #618) requested that IEC 63171-1(MICE1) &amp; IEC 61076-3-125 (MICE3) be defined for both T1-L and T1-S (as listed in "SC25 WG3 Interim Update Report for 802.3 Sept 2018.pdf" ). Comment resolution for D2.0 only added IEC 63171-1(MICE1) for T1-L making the draft internally inconsistent (T1L vs T1-S) and also inconsistent with the liaison from S25/WG3.</p> <p>I am not aware of any public review or assessment performed on these connectors outside that done in ISO/IEC SC25/WG3. I am also not aware of the membership of ISO/IEC SC25/WG3, or if it's detailed assessments are publically available.</p> <p>The only presentation to 802.3cg that I can find providing significant details is pelletier_3cg_01_0918.pdf presented in Spokane. While it addresses IEC 63171-1 limits for IL, RL, TCL and TCTL, I don't see any information about other key parameters (e.g., mechanical characteristics, relative costs</p>	<p>Delete lines 34 to 45 in "146.8.1 MDI connectors". This is the second paragraph and the accompanying editor's note.</p>	<p>PROPOSED REJECT. TFTD</p> <p>Commenter was part of extensive discussion and resolution of the comment on draft 2.0. Liaison reports have documented discussion on connectors in IEC (mechanical specifications) and ISO/IEC, where membership is well known as being by country and national TAGs are open to participation.</p> <p>Comment 617 on draft 2.0 put in this text was resolved by motion with a vote of Y:23 N:2 A:3</p>

# D2.1 #409

Comment	Comment	Suggested Remedy	Response
409	<p>Comments against D1.0 (#571, #572, #617, #618) requested that IEC 63171-1(MICE1) &amp; IEC 61076-3-125 (MICE3) be defined for both T1-L and T1-S (as listed in "SC25 WG3 Interim Update Report for 802.3 Sept 2018.pdf" ). Comment resolution for D2.0 only added IEC 63171-1(MICE1) for T1-L making the draft internally inconsistent (T1L vs T1-S) and also inconsistent with the liaison from S25/WG3. Add IEC 63171-1(MICE1) to T1-L. Add IEC 63171-1(MICE1) &amp; IEC 61076-3-125 (MICE3) to T1-S.</p>	<p>Change paragraph 2 of 146.8.1 MDI connectors to say "Connectors meeting the requirements of IEC 63171-1 (MICE1 environments) or IEC 61076-3-125 (MICE3 environments) may be used as the mechanical interface to the balanced cabling. The plug connector is used on the balanced cabling and the MDI connector on the PHY. These connectors are depicted (for informational use only) in Figure 146-XXX and Figure 146-YYY. The assignment of PMA signals to connector contacts for PHYs is shown in Figure 146-ZZZ"</p> <p>Update editor's note in 146.8.1 to match.</p> <p>Add the following paragraph to 147.9.1 MDI connectors "Connectors meeting the requirements of IEC 63171-1 (MICE1 environments) or IEC 61076-3-125 (MICE3 environments) may be used as the mechanical interface to the balanced cabling. The plug connector is used on the balanced cabling and the MDI connector on the PHY. These connectors are depicted (for informational use only) in Figure 147-XXX and Figure 147-YYY. The assignment of PMA signals to connector contacts for PHYs is shown in Figure 147-ZZZ"</p> <p>Add equivalent editor's note taken from 146.8.1.</p>	<p>PROPOSED ACCEPT IN PRINCIPLE.</p> <p>TFTD</p> <p>Consider with comment 81 (include resolution of comment 350 in wording, changing "and the MDI connector" to "and the socket connector is used as the MDI connector" if accepted)</p> <p>Note the name of the proposed IEC 61076-3-125 Standard reference is likely to be changed to IEC 63171-6</p> <p>Consider also with MDI connector comments on clause 147</p>

## SC25 WG3:

- SC25 WG3 process relates to connector selection for the cabling system, the 802.3cg equipment MDI is in 802.3cg scope, not SC25 WG3.
- ISC25 WG3 liaisons to 802.3 invited participation in the SC25 WG3 process (e.g., via national bodies like the USTAG). In addition the liaison officer offered assistance in the this process.
- Acknowledging that participation was welcomed, I'm not aware of any significant representation for system and/or end device vendors in that SC25 WG3 process.

# Presenter's History

- Advocated for specifying an optional MDI in [jones 10spe 02 0916.pdf](#)
- Proposed goals and non-goals for optional MDI(s) in [8023cg\\_adhoc\\_optional\\_mdi.pdf](#) (Jan 26 2017 AdHoc).
  - “Next Steps” described getting input from a number of ecosystem groups including users and systems vendors. As far as I am aware, this did not happen.
  - Authored IEEE\_802d3\_to\_ISOIEC\_SC25\_WG3\_10SPE\_0118.pdf and IEEE\_802d3\_to\_TIA\_TR42\_10SPE\_0118.pdf liaison drafts in Geneva Jan 2018.
  - These liaisons referenced [8023cg\\_adhoc\\_optional\\_mdi.pdf](#) and included:
    - “The IEEE P802.3cg 10 Mb/s Single Twisted Pair Ethernet Task Force is contemplating the selection of one or more optional MDI connectors for use with this standard.”,
    - “We plan to refine our requirements for MDI connectors and will communicate this information to you as it becomes available”
- Presenter's opinion changed (early 2018) to prefer NOT specifying any MDI connector in 802.3cg.
  - Allows ecosystem as a whole to determine the appropriate connector.
  - Removes expectation that only connector(s) in 802.3cg are OK (“optional becomes required” process).
  - Aligns to 100/1000 BASE-T, and effective practice in 802.3 optical groups (let the market decide).

## D2.0 #617 #618

- Add IEC 63171-1 (MICE1) and IEC 61076-3-125 (MICE2/MICE3) as required (shall) connectors for 10BASE-T1L and 10BASE-T1S.
  - [“SC25 WG3 Interim Update Report for 802.3 Sept 2018.pdf”](#) reported the results of national body questionnaire for SPE connectors selecting IEC 63171-1 (MICE1) and IEC 61076-3-125 (MICE2/MICE3)
- Effect of #617 AIP and #618 Reject was:
  - add IEC 63171-1 (MICE1) as optional (may) for 10BASE-T1L
  - no change for MICE2/MICE3 or 10BASE-T1S
- Draft is now inconsistent

# Presenters Concerns with Draft 2.1 Optional MDI text

- Inconsistency having only accepted one of the four combinations.
- Impact on system/end device design and cost not well understood.
- Premature given the long term impact (equivalent of RJ45 for SPE) and the level of active discussion in 802.3cg.
- Discourages adoption of application specific connectors, e.g., for new use cases like tiny sensors.
- Doesn't track industry practice for other 802.3 standards (e.g., optical PMDs, 100/1000 BASE-T1), where no MDI or multiple MDIs are listed. This enables MDI evolution independent of the 802.3 standard.



# Some Possible Resolutions

- D2.1 #407 – remove IEC 63171-1 (MICE1) from 10BASE-T1L

Accept

Remove connector selection from 802.3cg, defer to system vendors and users.

Commenter's preferred resolution.

- D2.1 #409 - add IEC 63171-1 (MICE1) to 10BASE-T1S, add IEC 61076-3-125 (MICE2/MICE3) to 10BASE-T1L/T1S

Accept:

Negative consequences for system vendors, prefer single connector form factor with varying "cases" (e.g., M8, M12) to reduce internal variation (e.g., dimensions, PCB attachment, etc.).

Discourages connector evolution.

Accept in Principle

In suggested remedy, replace "MICE3" with "MICE2/MICE3"

Insert the following new paragraph after the first paragraph of 146.8.1

***Specific systems or applications can use any other connector that conforms to the link segment specification defined in 146.7.***

Insert the following new paragraph after the first paragraph of 147.9.1

***Specific systems or applications can use any other connector that conforms to the link segment specification defined in 147.7 or to the mixing segment specification defined in 147.8.***

# Consensus

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