LINK DEFINITIONS AND TESTING

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Introduction

- Review terminology differences between IEEE and ISO/TIA.
- Review differences in definitions between IEEE and ISO/TIA.
- Propose a new test configuration that emulates the inclusion of the IEEE MDI to twisted-pair link segment.
- Review the development that needed to satisfy this proposal.

Terminology

- IEEE 802.3 uses the term “twisted-pair link segment” to describe the transmission path between two interfaces of generic cabling.
- ISO11801 uses the term “channel” to describe this same connection
- TIA568 also uses the same “channel” term to describe this connection.

IEEE Definitions

14.1.2 Definitions

See 1.4 for additional definitions.

14.1.2.1 twisted-pair link: A twisted-pair link segment and its two attached MAUs (see Figure 14–1).

14.1.2.2 twisted-pair link segment (duplex link segment): Two simplex link segments for connecting two MAUs (see Figure 14–2).

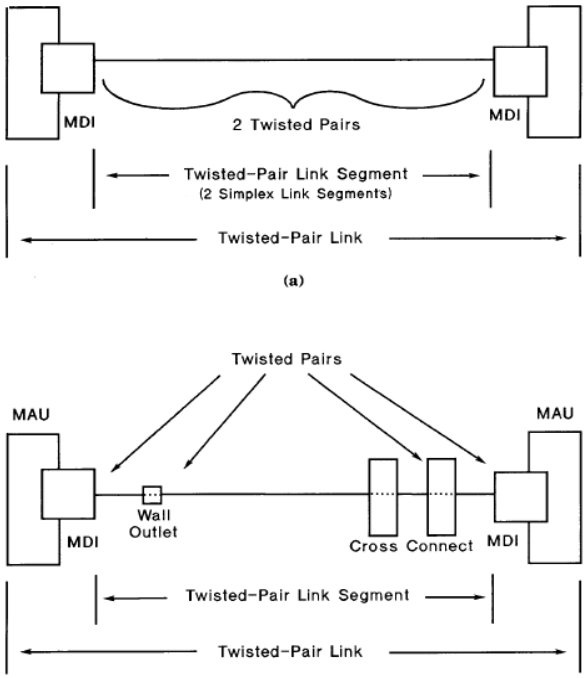


Figure 14–2—Twisted-pair link

ISO11801 Channel definition

6.1 General

This clause specifies the minimum performance of generic balanced cabling. The performance of balanced cabling is specified for channels, permanent links and CP links (see Figure 10).

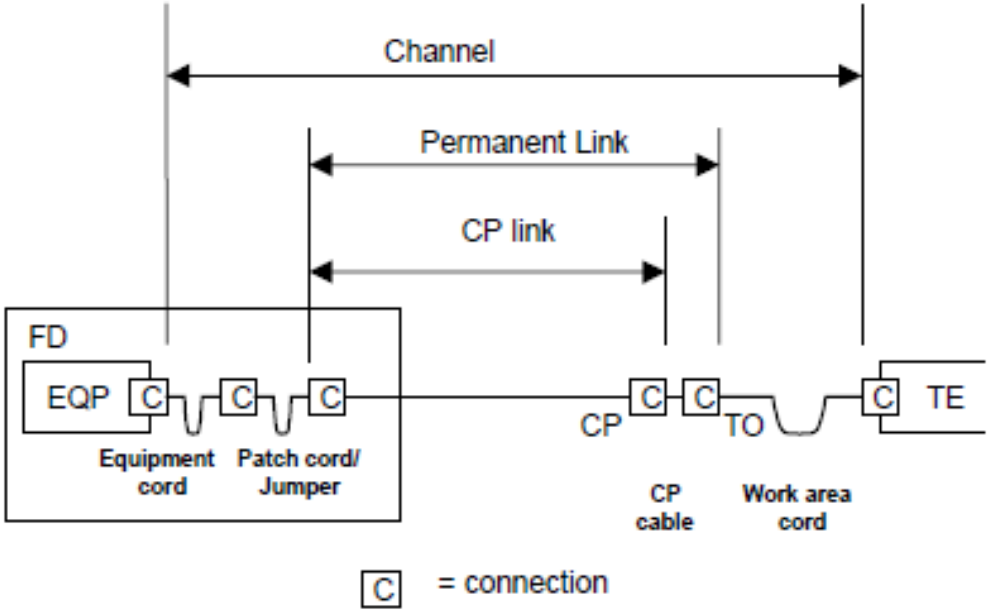


Figure 10 – Channel, permanent link and CP link of a balanced cabling

TIA Channel Definition

6.2 Channel transmission performance

This clause contains the transmission performance specifications for balanced twisted-pair channels. The channel test configuration is illustrated in figure 3. See Annex J for worst case modeling configurations.

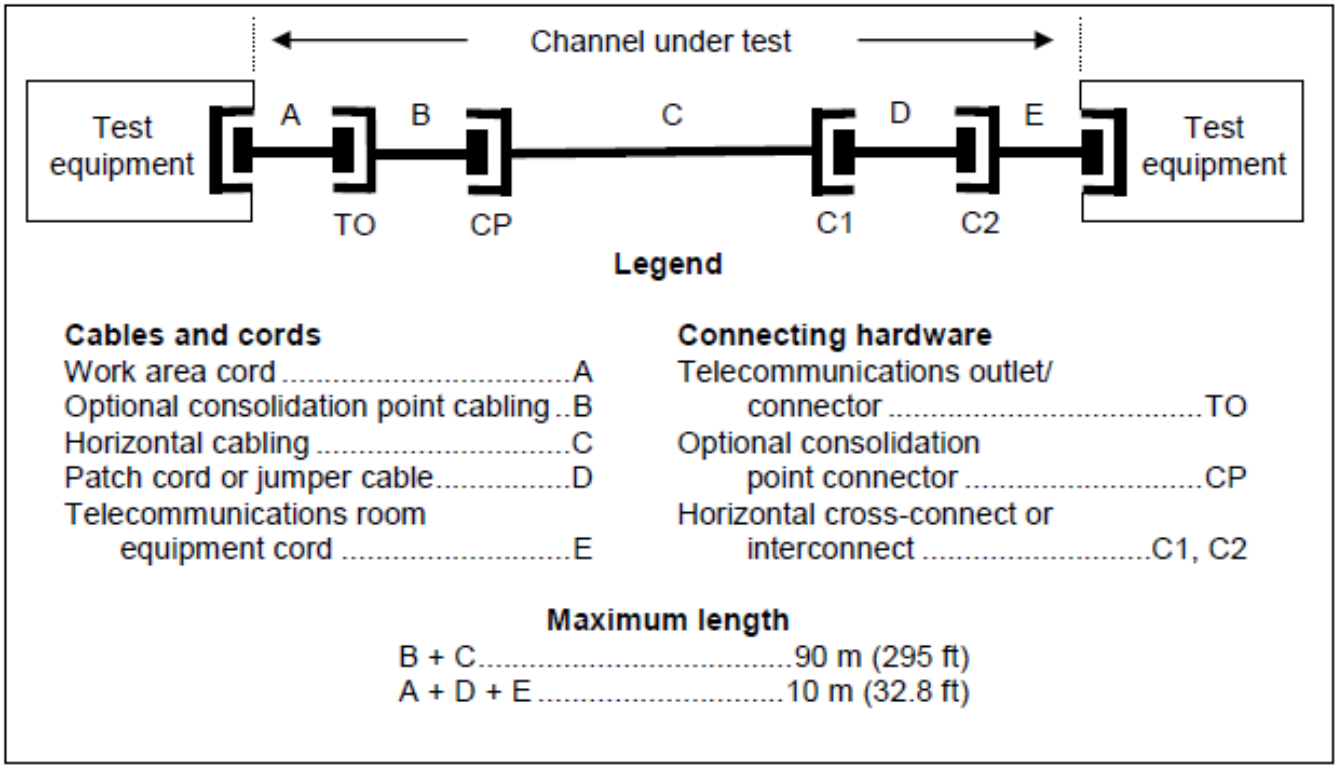


Figure 3 - Supplemental schematic representation of a channel test configuration

Differences

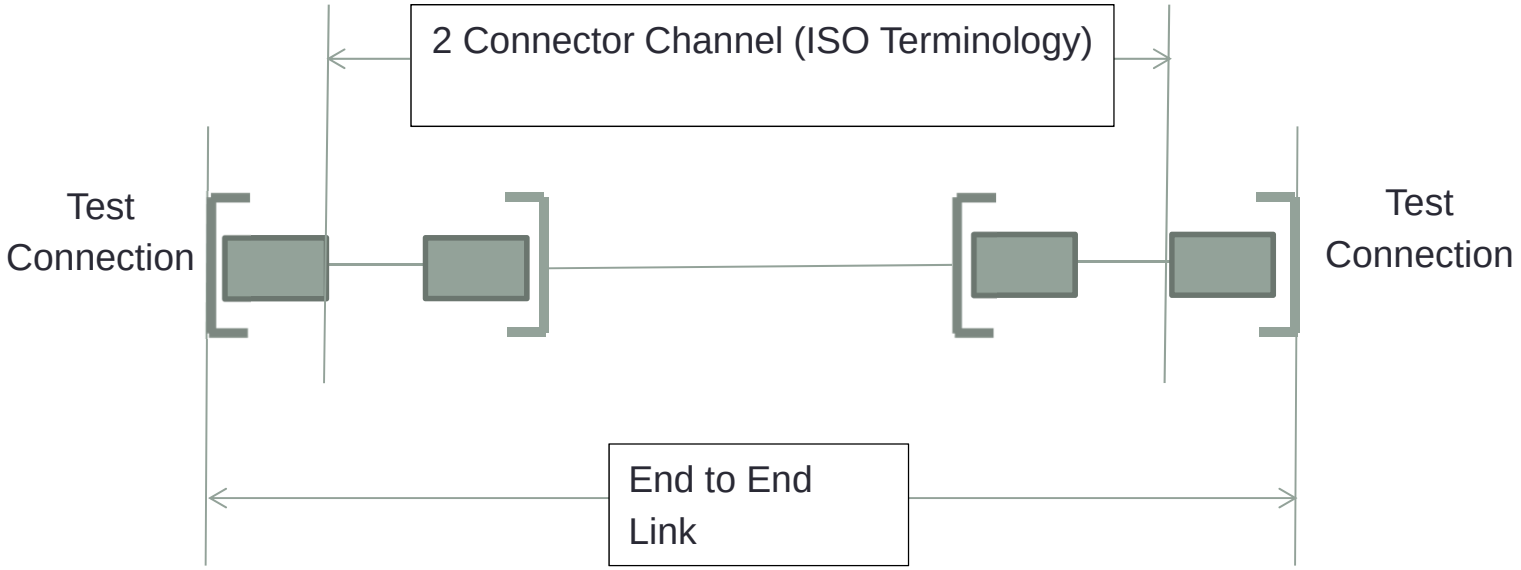
- ISO and TIA channel performance levels do not include the MDI.
- ISO and TIA testing procedures do not include the MDIs.
- ISO and TIA testing procedures do not include methods for evaluation of the full performance of a plug terminated link.

Comparison of definitions

	IEEE Twisted- pair Link Segment	MDI	End plugs of TIA/ISO Channel
IEEE Twisted-Pair Link Segment	Included	Not Included	Not Included
ISO/TIA Channel	Included	Not Included	Not Included

Proposal

- To add a new definition to TIA and ISO, for “End to End Links” (E2E Link).



Test connector

- The test connector is proposed to be a *reference grade* connector representing the average performance of that category when mated with a standard reference plug of that category.
- It should be noted that the test connector would not be an installed MDI as such, but could be defined to represent the specified performance of an MDI.

Advantages

- The tested and specified channel would include a reference connector representing the MDI.
- The end plugs of the supplied channels would be evaluated as part of the link.
- Laboratory measurements of channels could be complimented by E2E Link tests
  - Increasing the correlation between Field testing and Laboratory testing
  - Avoiding the destructive nature of laboratory channel measurements

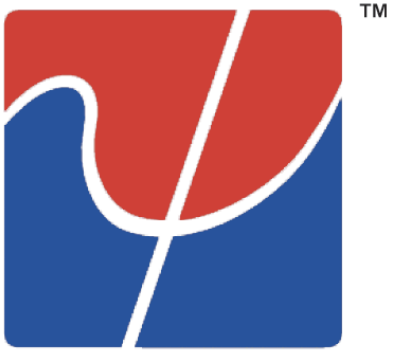
Development tasks

- Acceptance and specification of this E2E Link definition in ISO and TIA.
- Specification of the test procedures.
  - Specification of the test connectors.
  - Method of including test connector specification.
- Development in ISO/TIA of E2E link test limits (e.g. adding the test connectors to the existing channel performance criteria).

Conclusions

- We propose that TIA and ISO add (not replace) a new channel configuration for E2E to the existing CH and PL configurations for Category 8.
- We contend that adding an E2E link definition to TIA and ISO standards for Category 8 will provide:
  - Greater understanding of IEEE cabling performance needs.
  - Faster, simpler, and more accurate testing of the supporting cabling.
  - Greater possibilities for correlation between laboratories and field test instrumentation.

Thank you.



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