

-Tutorial-  
What is the correct  
terminology  
for the media path?

P802.3cg TF Interim Mtg  
Huntington Beach, CA  
January, 2017

GEOFF THOMPSON  
GRACASI S.A./INDEPENDENT

# Some Background (1)

GraCaSI

1) Global definitions belong in:  
cl. 1.4, or Merriam-Webster Dictionary  
(per the SA Style Manual)

[NOTE: There may be issues here when going for ISO approval vs. Oxford English Dictionary.

ISO/IEC uses British English rather than American English for its standards. Thus the OED is its primary dictionary reference although Webster's New World College Dictionary is on their reference list.

Such issues are not further addressed here.]

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# Some Background (2)

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2) There is terminology in legacy 802.3 and in the global definitions (cl. 1.4) for labeling with respect to this issue. Whether that terminology is sufficient for equipment internal (e.g. automotive and some card cage) standards is open for discussion.

802.3, for the first 24 years, (until IEEE Std 802.3ap-2007, Ethernet Operation over Electrical Backplanes) was ONLY an external equipment-to-equipment multi-vendor interoperability standard.

3) "Link Segment" was first addressed in FOIRL & 10BASE-T. See 802.3-1996, cl. 9.2.11, 13.2.2 and 14.1.2. "Channel" is defined there in 11.1.2.5

# Some Background (3)

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3) "Link Segment" was first addressed in  
FOIRL (IEEE Std 802.3d-1987)  
10BASE-T (IEEE Std 802.3i-1989)

Easiest place to look would be on your 802 DVD in  
802.3-1996, cl. 9.2.11, 13.2.2 and 14.1.2.

"Channel" is defined there in 11.1.2.5  
It came from 10BROAD36 (IEEE Std 802.3b-1985)

(References from the era before we moved definitions to cl. 1)

# Real 802.3 Definitions

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Link Segment: 1.4.255: The point-to-point full-duplex medium connection between two and only two Medium Dependent Interfaces (MDIs).

Channel: 1.4.134: In 10BROAD36, a band of frequencies dedicated to a certain service transmitted on the broadband medium. (See IEEE Std 802.3, Clause 11.)  
(There is much confusion within 802.3 about the use of this term. That is the subject of this presentation.)

Link: 1.4.248: The transmission path between any two interfaces of generic cabling. (From ISO/IEC 11801.)

# Real Definitions #2

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FROM TR-41

channel: The end-to-end transmission path between two points at which application-specific equipment is connected.(TIA-568)

[NOTE WELL:

This is NOT the same as an 802.3 link segment!

It does not include the "application specific" connectors used to hook to the LAN equipment.]

FROM ISO/IEC 11801

3.1.15. channel: The end-to-end transmission path connecting any two pieces of application specific equipment. Equipment and work area cords are included in the channel, but not the connecting hardware into the application specific equipment.

[NOTE: Equivalent to TR41 definition.]

# Real Definitions #2a

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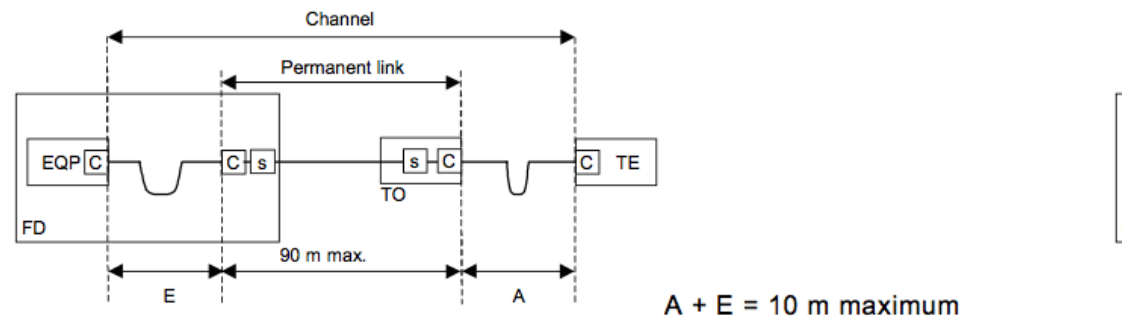


Figure 7c – Optical fibre cabling (with interconnect)

Figure above from ISO/IEC 11801:1995 +A1:1999+A2:1999(E)

## 112.9 Fiber optic cabling model

The fiber optic cabling model is shown in Figure 112-3. The fiber type and length are the same as 100BASE-SR4 (See [Clause 95](#)).

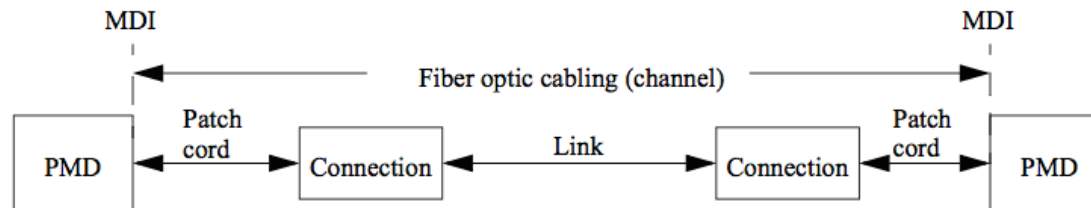


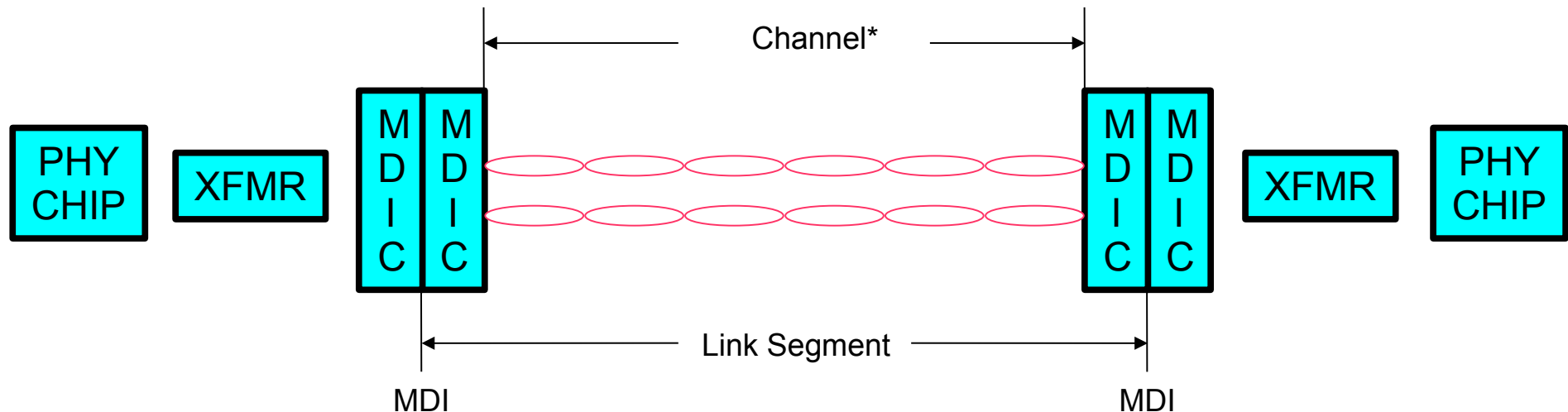
Figure 112-3—Fiber optic cabling model

While this is not incorrect, the term “link segment” should have been used.



# Real Definitions #2b

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\* Channel as defined by TIA & SC25/WG3

(See previous slide)

This diagram only applies to copper cabling.

In the optical case there is no measurable loss between the back and front of the connector because the cabling media is carried forward to the interface.

Note that the “MDI” is different than the “MDI Connector”

# Real Definitions #3

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From Merriam-Webster

Definition of CHANNEL

d : a means of communication or expression: as (1) : a path along which information (as data or music) in the form of an electrical signal passes (2) plural : ...

f : a band of frequencies of sufficient width for a single radio or television communication

# Further discussion

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Informative Annex 69B...

...provides a reasonable model for determining the requirements of a channel that:

- 1) Does not have standardized MDIs
- 2) Has a single point of engineering the end-to-end system.

However...

It is based on characterizing the XMTR and the RCVR and leaving the channel as the variable.

In twisted-pair and fiber optic standards we usually specify the XMTR at the MDI and the link segment, leaving the RCVR design to the implementor.

# Proposal (1)

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1) Where you mean the MDI-to-MDI connection use:  
"link segment"  
(See: 112.9, 112.10 for 2 of several examples)

2) Add a definition to cl. 1.4 to accomodate "channel" as a general term. When used to describe as measurable parameter or quantity, the term "channel" should always be used with descriptive adjectives.

# Proposal (2)

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## 3) **Proposed definition** (based on Merriam-Webster):

Channel: 1.4.134:

A path along which data in the form of an electrical or optical signal passes. Should be used with adjectives defining the reach of the channel, e.g. chip-to-chip channel, especially when used in specifying performance parameters.

In 10BROAD36 (IEEE Std 802.3, Cl. 11), a band of frequencies dedicated to a certain service transmitted on the broadband medium.

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**The END**

**GraCaSI**

**STANDARDS ADVISORS**

**Geoffrey O. Thompson**

**PRINCIPAL**

**158 PASEO COURT  
MOUNTAIN VIEW, CA 94043-5286  
USA**

**PHONE: +1.540.227.0059  
E-MAIL: <THOMPSON@IEEE.ORG>**