Comment Resolution for ILdd Topic (comment i-168)

Kent Lusted, Intel Corporation, P802.3ck Vice-Chair

ILdd Comment Overview

CI 162	SC 162.8.1	P 161	L 48	# I-168

Dawe, Piers J G   NVIDIA

Comment Type E   **Comment Status** D   *ILdd terminology*

"differential-mode to differential-mode insertion loss" is wordy and everyone understands just "insertion loss" to mean differential-mode to differential-mode if they know it's a system or component that uses differential signalling, which is made plain above. Similarly for return loss. The base document doesn't use this term, and uses "differential-mode insertion loss" only twice, in figures 128-4 and 130-4. But it does use "differential insertion loss" and "differential output return loss" many times, and unqualified "insertion loss" very many times.

SuggestedRemedy

Change "differential-mode to differential-mode" when an adjective to "differential-mode" (correct and unambiguous), "differential" (unambiguous, matches base document) or to nothing, throughout the document.

Proposed Response   *Response Status* W

PROPOSED ACCEPT IN PRINCIPLE.
The recently adopted wordy phrases are necessary for clearly identifying the conversion and common-mode insertion losses. Differential insertion loss is commonly used in practice for ILdd. Change all instance of "differential-mode to differential-mode insertion loss" to "differential insertion loss" or just "insertion loss".
For task force discussion.

Background - Part 1

Comment #13 against P802.3ck D2.1 made a change related to the terminology of "insertion loss" and "conversion loss"

CI 162B	SC 162B.1.3.3	P 283	L 33	# 13

Brown, Matt — Huawei

Comment Type	ER	Comment Status	A	IL terminology

Throughout 802.3cd, the terminology for insertion loss and conversion loss parameters is inconsistent. In this subclause alone two terms are used.

SuggestedRemedy

Select and use common terminology throughout the draft. A summary presentation will be provided.

Response — **Response Status** C

ACCEPT IN PRINCIPLE

The commenter indicated that the comment should refer to 802.3ck rather than 802.3cd.

The following presentation was reviewed by the task force:
https://www.ieee802.org/3/ck/public/adhoc/july14_21/brown_3ck_adhoc_01_071421.pdf

Implement the parameter names and variables names provided in slide 15 of the following presentation:
https://www.ieee802.org/3/ck/public/21_07/brown_3ck_01a_0721.pdf

[Editor's note: CC: 120F, 120G, 162, 163, 162A, 162B]
[Editor's note: Changed clause/sublclause from 162/162.B.1.3.3]

162/162A/162B/163/120F/120G IL terminology, part 2
116, 13, 14

- Based on ad hoc conversation, there was some preference for the changes to the proposed terminology as shown below.
- The table below also provides derivation from mixed mode s-parameters for reference.

Parameter name	Variable name	Derivation (dB)
Differential-mode to differential mode insertion loss	ILdd	-20*log10(SDD21(f))
Common-mode to common-mode insertion loss	ILcc	-20*log10(SCC21(f))
Common-mode to differential-mode conversioninsertion loss	ILdc	-20*log10(SDC21(f))
Differential-mode to common-mode conversioninsertion loss	ILcd	-20*log10(SCD21(f))

https://www.ieee802.org/3/ck/public/21_07/brown_3ck_01a_0721.pdf

Background - Part 2

Comment #92 against P802.3ck D2.2 requested a change that was rejected pending terminology changes to the 802.3dc Revision project

CI 162	SC 162.8.1	P 165	L 48	# 92

Dawe, Piers — Nvidia

Comment Type **E**   Comment Status **R**   IL terminology (CC)

"differential-mode to differential-mode insertion loss" is unnecessarily wordy; everyone understands just "insertion loss" to mean differential-mode to differential-mode if they know it's a system or component that uses differential signalling, which is made plain above. Similarly for return loss. It would be disruptive and unnecessary to go through the many clauses in the base document for this, although the terminology and notation for mixed-mode and common-mode losses may be worth retrofitting.

SuggestedRemedy

Change "differential-mode to differential-mode insertion loss" to "insertion loss", change "differential-mode to differential-mode return loss" to "return loss" throughout the document.

Response   Response Status **C**

REJECT.
The changes were made after task force discussion acceptance of D2.1 Comment #13. The resolution was to:
"Implement the parameter names and variables names provided in slide 15 of the following presentation:
https://www.ieee802.org/3/ck/public/21_07/brown_3ck_01a_0721.pdf"
Resolution to comments against the new revision (802.3dc) has resulted in terminology different to what was recently adopted in 802.3ck D2.2. To minimize churn in 802.3ck, it would be best to defer this topic until after the next draft of 802.3dc is published.
No changes to the draft.
[Editor's note: CC: many]

Background - Part 3

In the 802.3dc Revision project, comments #86/87/88/89/90/91 against D2.0 aligned terminology in the base specification for "common mode" and "differential mode" in Clause/Annex 96, 97A, 146, 147, 145A, 83E, 120D, 120E, and 93.

The changes were implemented in 3dc Revision D2.1.
No comments on the topic have been received by the 3dc CRG since implementation.

CI 96	SC 96.5.1.1	P 3896	L 49	# 86

Ran, Adee   Cisco

Comment Type E   **Comment Status** A   CM

"common mode" and "differential mode" (used here as adjectives) should be spelled with a hyphen.

Also in 96.7.1.4, 97.6.1.4, 97.11.11.1, 97A.1, 97A.2, 97A.3, 97A.3.2.2, 97A.3.3, 97B.1.1, 97B.2.

SuggestedRemedy

Change to "common-mode" and "differential-mode" in all listed subclauses.

Response   **Response Status** C

ACCEPT IN PRINCIPLE.

[Editor's note: Page changed to 3896]

Change to "common-mode" and "differential-mode" in 96.5.1.1, 97A.2, 97A.3, 97A.3.2.2, and 97B.2.

In 96.7.1.4, 97.6.1.4, 97.11.11.1, 97A.1, and 97A.3.3:

Change all occurrences of "common mode to differential mode" to "common-to-differential-mode"

Change all occurrences of "differential to common mode" to "differential-to-common-mode"

Change all occurrences of "differential mode to common mode" to "differential-to-common-mode"

https://www.ieee802.org/3/dc/comments/P8023_D2p0_comments_final_by_id.pdf

Base Specification "Insertion Loss" Examples

The term "insertion loss" or "differential insertion loss" is used in place of "differential-to-differential-mode insertion loss" in many, many instances of the base specification

Example: Cl 136.8.1 and Table 136-7

"insertion loss" is more common than "differential insertion loss"

For purposes of system conformance, the PMD sublayer is standardized at the test points described in this subclause.

The electrical transmit signal is defined at TP2. Unless specified otherwise, all transmitter measurements and tests defined in 136.9.3 are made at TP2 utilizing the test fixture specified in Annex 136B.

The electrical receive signal is defined at TP3. Unless specified otherwise, all receiver measurements and tests defined in 136.9.4 are performed at TP3 utilizing the test fixture specified in Annex 136B.

A mated connector pair has been included in both the transmitter and receiver specifications defined in 136.9.3 and 136.9.4. The recommended maximum insertion loss from TP0 to TP2 or TP3 to TP5 including the test fixture is provided in 136.9.3.2. Annex 136A provides information on parameters associated with test points TP0 and TP5 that may not be testable in an implemented system.

The channel (see 136.10) is defined between the transmitter (TP0) and receiver (TP5) blocks to include the transmitter and receiver differential controlled impedance printed circuit board insertion loss and the cable assembly insertion loss, as illustrated in Figure 136–2. All cable assembly measurements are to be made between TP1 and TP4 as illustrated in Figure 136–2. The cable assembly test fixture of 136B.1, or its equivalent, is required for measuring the cable assembly specifications in 136.10 at TP1 and TP4. Two cable assembly test fixtures have been included in the cable assembly specifications defined in 136.10. Transmitter and receiver differential controlled impedance printed circuit board insertion losses defined between TP0 and the MDI and between the MDI and TP5, respectively, are provided informatively in 136A.4.

Table 136–7 describes the defined test points illustrated in Figure 136–2.

Table 136–7—Test points

Test points	Description
TP0 to TP5	The channel including the transmitter and receiver differential controlled impedance printed circuit board insertion loss and the cable assembly insertion loss.
TP1 to TP4	All cable assembly measurements are made between TP1 and TP4 as illustrated in Figure 136–2. The cable assembly test fixture of Annex 136B, or its equivalent, is required for measuring the cable assembly specifications in 136.10 at TP1 and TP4.
TP0 to TP2 TP3 to TP5	A mated connector pair has been included in both the transmitter and receiver specifications defined in 136.9.3 and 136.9.4. The recommended maximum insertion loss from TP0 to TP2 or from TP3 to TP5 including the test fixture is provided in 136.9.3.2.
TP2	Unless specified otherwise, all transmitter measurements defined in 136.9.3 are made at TP2 utilizing the test fixture specified in Annex 136B.
TP3	Unless specified otherwise, all receiver measurements and tests defined in 136.9.4 are made at TP3 utilizing the test fixture specified in Annex 136B.

Potential Response

Replace "differential-mode to differential-mode insertion loss" with "insertion loss"

Implement with editorial license

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