

802.3dj D3.1

Comment Resolution

Electrical Topics

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Introduction

- This slide package was assembled by the 802.3dj editorial team to provide background and detailed resolutions to aid in comment resolution.
- Specifically, these slides are for the various **electrical-track** comments.

MTF ERL and modal ERL

Comment #31

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CI 179B SC 179B.5.4 P929 L32 # 31

Hajduczenia, Marek

RG Nets

Comment Type TR

Comment Status D

(E)

After the 179B.4 restructuring, two PICS items cite the wrong subclause. TF5 (Mated test fixtures common-mode to common-mode return loss, Per Equation (179B-6)) cites 179B.4.4, which is now "Mated test fixtures integrated crosstalk noise" (p927). TF6 (Per Equation (179B-7), common-mode to differential-mode return loss) cites 179B.4.3, which is now the common-mode to differential-mode insertion loss subclause (Equation (179B-8)). Both return-loss requirements and Equations (179B-6)/(179B-7) reside in 179B.4.2.2 "Mated test fixtures modal return loss specifications" (p923). The equation numbers were updated but the subclause references were not.

SuggestedRemedy

In Table 179B-5, change the Subclause cell of both TF5 and TF6 to 179B.4.2.2 (the modal return loss specifications subclause containing Equations (179B-6) and (179B-7)).

Item	Feature	Subclause	Value/Comment	Status	Support
TF1	Mated test fixtures insertion loss	179B.4.1	Per Equation (179B-3) and Equation (179B-4)	M	Yes []
TF2	Mated test fixtures FOM _{ILD}	179B.4.1	Less than or equal to 0.15 dB	M	Yes []
TF3	Mated test fixtures ERL	179B.4.2	Greater than or equal to 10.3 dB	M	Yes []
TF4	Mated test fixtures common-mode to differential-mode insertion loss	179B.4.3	Per Equation (179B-8)	M	Yes []
TF5	Mated test fixtures common-mode to common-mode return loss	179B.4.4	Per Equation (179B-6)	M	Yes []
TF6	Mated test fixtures common-mode to differential-mode return loss	179B.4.3	Per Equation (179B-7)	M	Yes []

179B.4.3 is now "Mated test fixtures common-mode to differential-mode insertion loss"

179B.4.4 is now "Mated test fixtures integrated crosstalk noise"

In addition: The equations are the RL masks, but we added modal ERL as an alternative

MTF ERL and modal ERL

Comment #31

The apparent reference for items TF4 and TF5 is currently 179B.4.2.1 and 179B.4.2.2 (both address modal return loss together)
179B.4.2 has “modal return loss specifications” under the ERL subclause, inconsistent with other return loss subclauses (e.g. 178.10.3).

- ▼ 178.10 Channel characteristics
 - 178.10.1 Channel operating margin
 - 178.10.2 Channel insertion loss
 - ▼ 178.10.3 Channel return loss specifications
 - 178.10.3.1 Channel ERL
 - 178.10.3.2 Channel modal ERL
 - 178.10.3.3 Channel modal return loss
 - 178.10.4 AC-coupling
 - 178.10.5 Channel signal to common-

- ▼ Annex 179B (normative) Test fixtures for 200GBASE-CR1, 400GBASE-CR2, 800GBASE-CR4, 1.6TBASE-CR8, 200GAUI-1 C2M, 400GAUI-2 C2M, 800GAUI-4 C2M, and 1.6TAUI-8 C2M
 - 179B.1 Test fixtures
 - 179B.2 TP2 or TP3 test fixture
 - 179B.3 Cable assembly test fixture
 - ▼ 179B.4 Mated test fixtures
 - 179B.4.1 Mated test fixtures insertion loss
 - ▼ 179B.4.2 Mated test fixtures effective return loss (ERL)
 - 179B.4.2.1 Mated test fixtures modal ERL
 - 179B.4.2.2 Mated test fixtures modal return loss specifications
 - 179B.4.3 Mated test fixtures common-mode to differential-mode insertion loss
 - 179B.4.4 Mated test fixtures integrated crosstalk noise
 - 179B.5 Protocol implementation conformance statement (PICS) proforma for Annex 179B, Test fixtures for 200GBASE-CR1, 400GBASE-CR2, 800GBASE-CR4, 1.6TBASE-CR8, 200GAUI-1 C2M, 400GAUI-2 C2M, 800GAUI-4, and

MTF ERL and modal ERL

Comment #31

179B.4.2.2 Mated test fixtures modal return loss specifications

The mated test fixtures modal return loss are common-mode to common-mode and common-mode to differential-mode.

The transmitter common-mode to common-mode return loss specification is satisfied by either meeting the requirement of Equation (179B-6) or having ERL_{CC} higher than the value in Table 179B-2.

The transmitter common-mode to differential-mode return loss specification is satisfied by either meeting the requirement of Equation (179B-7) or having ERL_{DC} higher than the value in Table 179B-2.

Table 179B-2— Mated test fixtures modal return loss specifications

Specification	RL mask equation	RL mask figure	Modal ERL type	Modal ERL minimum (dB)
Common-mode to Common-mode	Equation (179B-6)	Figure 179B-3	ERL_{CC}	2
Common-mode to Differential-mode	Equation (179B-7)	Figure 179B-4	ERL_{DC}	17

The word “transmitter” is out of place here. Should be “mated test fixtures” in both places.

MTF ERL and modal ERL

Comment #31

Editor's recommendations:

- In 179B.4.2.2, change "The **transmitter** common-mode to common-mode return loss specification" to "The **mated test fixtures** common-mode to common-mode return loss specification", and "The **transmitter** common-mode to differential-mode return loss specification" to "The **mated test fixtures** common-mode to differential-mode return loss specification".
- Align the hierarchy with 178.10.3:
 - Change the heading of 179B.4.2 to "Mated test fixtures return loss"
 - Insert an initial subclause 179B.4.2.1 "Mated test fixtures effective return loss (ERL)" with the current content of 179B.4.2
 - "Mated test fixtures modal ERL" will become 179B.4.2.2
 - "Mated test fixtures modal return loss" will become 179B.4.2.3
- In the PICS section 179B.5.4, for items TF5 "Mated test fixtures common-mode to common-mode return loss" and TF6 "Mated test fixtures common-mode to differential-mode return loss":
 - Reference subclause: 179B.4.2.3
 - Value/comment: Table 179B–2

Reference Connector

Comment #150

Reference Connector

Comment #150

CI 179B	SC 179B.3.1	P918	L29	# R1-150
Heck, Howard		TE Connectivity		
Comment Type	TR	Comment Status	D	reference connector (E)
There may be multiple configurations of MDI connectors (SMT right angle 1x1, Stacked SMT right angle 2x1, Cabled host, Vertical SMT, etc) which can introduce different high speed performance variabilities. It is requested that this clause reference recommended specific configurations to minimize variations between MCB and Cable Assembly suppliers.				
<i>SuggestedRemedy</i>				
Add text: A single port 1x1 SMT right angle MDI connector or 1x1 Cabled host MDI connector is normative for the MCB specifications. Other connector configurations are informative.				
<i>Proposed Response</i>		<i>Response Status</i> W		
PROPOSED REJECT.				
This comment is a restatement of comment I-240 with somewhat modified text and suggested remedy.				
Comment I-204 was rejected due to lack of consensus to make a change. It was also noted that normative and informative text cannot be interspersed.				
In addition, the comment requests a "reference recommended" while the suggested remedy proposes adding text to explicitly define normative and informative MDI configurations - these are not just recommendations.				
For CRG discussion.				

Initial discussion on Monday, July 13 indicated there is some support for added context and there was interest from a small group to jointly propose consensus text.

Reference Connector

Comment #150

179B.3.1 Cable assembly test fixture insertion loss

The cable assembly test fixture reference insertion loss is defined as the insertion loss between the reference plane of the coaxial connector and the mating point of the MDI connector. The reference insertion loss is defined by Equation (179B–2) and illustrated by Figure 179B–1. The effects of differences between the insertion loss of an actual test fixture and the reference insertion loss are to be accounted for in the measurements.

The insertion loss of the actual test fixture is equal to the measured loss of the actual test fixture with a TP2 or TP3 test fixture minus the loss of the specific TP2 or TP3 test fixture used in that measurement.

Goal of the resolution is to provide sufficient clarity to the reader about the flavor of MDI connector that was used in developing the details in Annex 179B.

Reference Connector

Comment #150

179B.3.1 Cable assembly test fixture insertion loss

The cable assembly test fixture reference insertion loss is defined as the insertion loss between the reference plane of the coaxial connector and the mating point of the MDI connector. The reference insertion loss is defined by Equation (179B-2) and illustrated by Figure 179B-1. The specific MDI connector configuration used to define the reference insertion loss is the “Single Row Surface Mount Technology Connector and Cage” defined in the OSFP1600 specification (see 179C.2.3). Differences between the insertion loss of an actual test fixture and the reference insertion loss, including those arising from other MDI connectors, shall be accounted for in the measurements. Usage of the Single Row Surface Mount Technology Connector and Cage for cable assembly test fixture is recommended.

The insertion loss of the actual test fixture is equal to the measured loss of the actual test fixture with a TP2 or TP3 test fixture minus the loss of the specific TP2 or TP3 test fixture used in that measurement.

XYZ = Updated text, relative to D3P1

Updated text reflects a consensus proposal from a set of in-person attendees at the meetings