

802.3dj D3.1

Comment Resolution

Electrical Topics

Adee Ran (Cisco), 802.3dj Electrical Track Lead Editor
Matt Brown (Qualcomm), 802.3dj Chief Editor

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

MTF ERL and modal ERL

Comment #31

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 179.4.2
 - "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