

# Proposal for Mated Test Fixture Performance

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*Related to comments #459, #460, #461, #462, and #464*

# Motivation

- Get rid of TBDs in D1P3, Annex 179B

# Comment #459 (and #212)

- Propose to replace the TBD with “0.15”

The  $FOM_{ILD}$  is calculated according to 93A.4 with  $f_b = 106.25$  GHz,  $T_t = 6$  ps, and  $f_r = 0.55 \times f_b$ . The fitted insertion loss and insertion loss deviation are computed over the range  $f_{min} = 0.05$  GHz to  $f_{max} = 67$  GHz.  $FOM_{ILD}$  shall be less than or equal to TBD dB.

# Comment #460 (and #214, #49)

- Propose to replace the TBD with “Table 179-18”
  - Aligned with the format of previous projects
- Alternatively, “Table 93A-4”
  - Per Comment #49

## 179B.4.2 Mated test fixtures effective return loss (ERL)

The values of the mated test fixtures ERL are computed using the procedure in 93A.5 with the parameter values in Table 179B-1. Parameters that do not appear in Table 179B-1 take values from Table **TBD**.

The reference differential impedance for the mated test fixtures ERL computation shall be 92.5  $\Omega$ . The mated test fixtures ERL shall be greater than or equal to 10.3 dB.

Table 179B-1—Mated test fixtures ERL parameter values

Parameter	Symbol	Value	Units
Transition time associated with a pulse	$T_r$	0.005	ns
Incremental available signal loss factor	$\beta_x$	0	GHz
Permitted reflection from a transmission line external to the device under test	$\rho_x$	0.618	—
Length of the reflection signal	$N$	1600	UI
Equalizer length associated with reflection signal	$N_{bx}$	0	UI
Time-gated propagation delay	$T_{ft}$	0	ns
Tukey window flag	$rw$	1	—
Target detector error ratio	$DER_0$	$2 \times 10^{-5}$	—
NOTE—The mated test fixtures test connector and transmission line are not time-gated (by setting $T_{ft}$ to 0) in order to include the entire test fixture.			

# Comment #461

- To compute ERL with a reference differential impedance of  $92.5 \Omega$ , the parameter “Z\_t” must be set to “46.25”

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# Comment #464 and #462 (and #454, #217)

- With the assumptions in Table 179B-4, propose replace the TBDs as shown “below”

Table 179B-4—Multi-lane mated test fixtures integrated crosstalk noise parameters

Description	Symbol	Value	Units
Symbol rate	$f_b$	106.25	GBd
3 dB reference receiver bandwidth	$f_r$	58.4375	GHz
Near-end disturber peak differential output amplitude	$A_{nt}$	600	mV
Far-end disturber peak differential output amplitude	$A_{ft}$	600	mV
Near-end disturber 20% to 80% rise and fall times	$T_{nt}$	4.25	ps
Far-end disturber 20% to 80% rise and fall times	$T_{ft}$	4.25	ps

Table 179B-3—SFP224 mated test fixtures integrated near-end crosstalk noise voltage

Parameter	Value	Units
Integrated near-end crosstalk noise voltage	Less than TBD	mV

Table 179B-5—Multi-lane mated test fixtures integrated crosstalk noise

Parameters	Value	Units
MDFEXT integrated crosstalk noise voltage	less than TBD	mV
MDNEXT integrated crosstalk noise voltage	less than TBD	mV
Total integrated crosstalk noise voltage	less than TBD	mV

1.6

4.2

1.5

4.4