
IEEE P802.3bp (RTPGE) PHY Task Force Channel Definitions Ad Hoc

**Ad hoc – co-chairs
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Broadcom**

Action items

- **Test fixture specifications**
 - **Straw proposal:**
 - ✓ **802.3bp test points-3-6-14.pdf**
 - **Request to consider 3-port balance measurements - Broadcom**

- **Optional link segment specifications**
 - **Straw proposal(s):**
 - ✓ **diminico_3bp_01_0514.pdf**

- **Link segment balance test procedures (Annex)**
 - **Straw proposal: moffit_3bp_01_1113.pdf**
 - **UNH-IOL: Curtis Donahue - Annex98Draft0.3-ckd.pdf**

- **Alien crosstalk topologies and test procedures (Annex)**
 - **Straw proposal(s):**
 - ✓ **moffitt_3bp_01_0713.pdf**
 - ✓ **mueller_01_0114_baseline.pdf**
 - ✓ **alien crosstalk annex-discussion document.pdf C.DiMinico**

Meeting Plan

- **Meet weekly 8 AM PST**

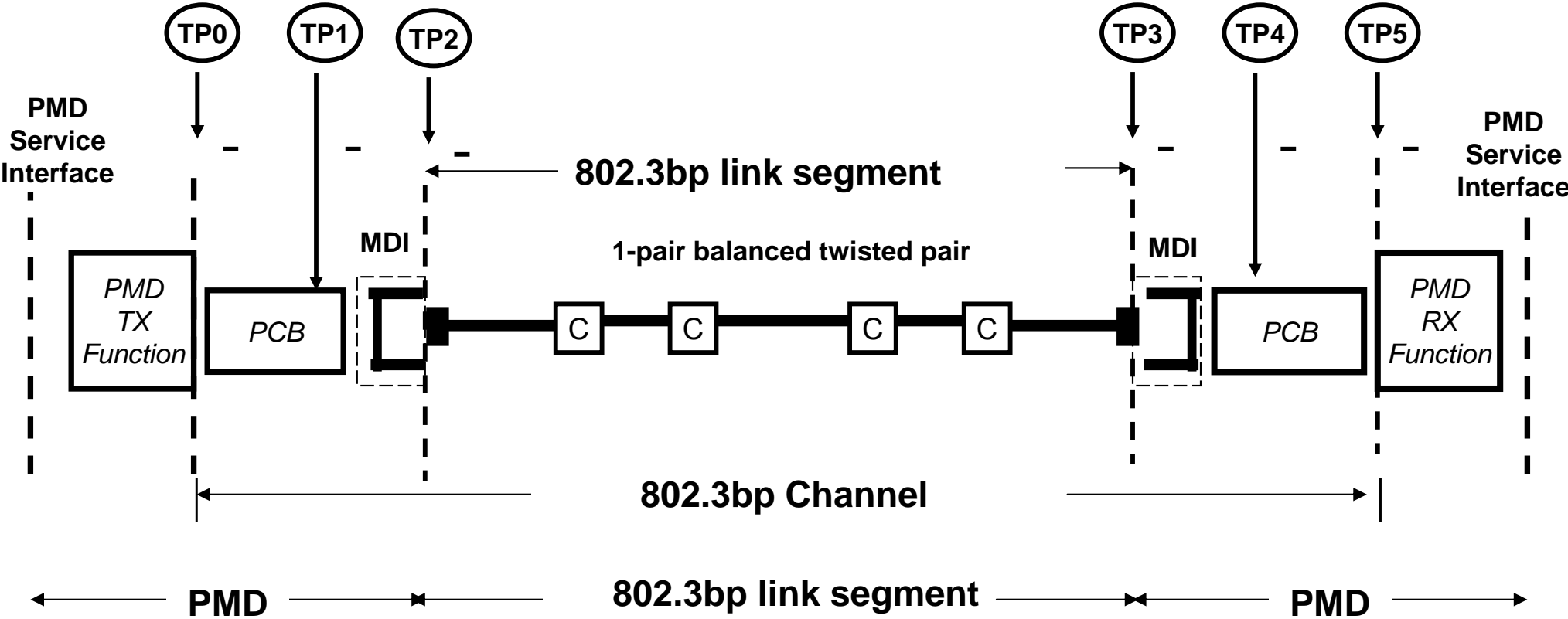
802.3bp test points, test fixtures and parameters

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Presentation objectives

- **802.3bp test points, test fixtures and parameters**

802.3bp test points



1000BASE-Tx link (one direction is illustrated)

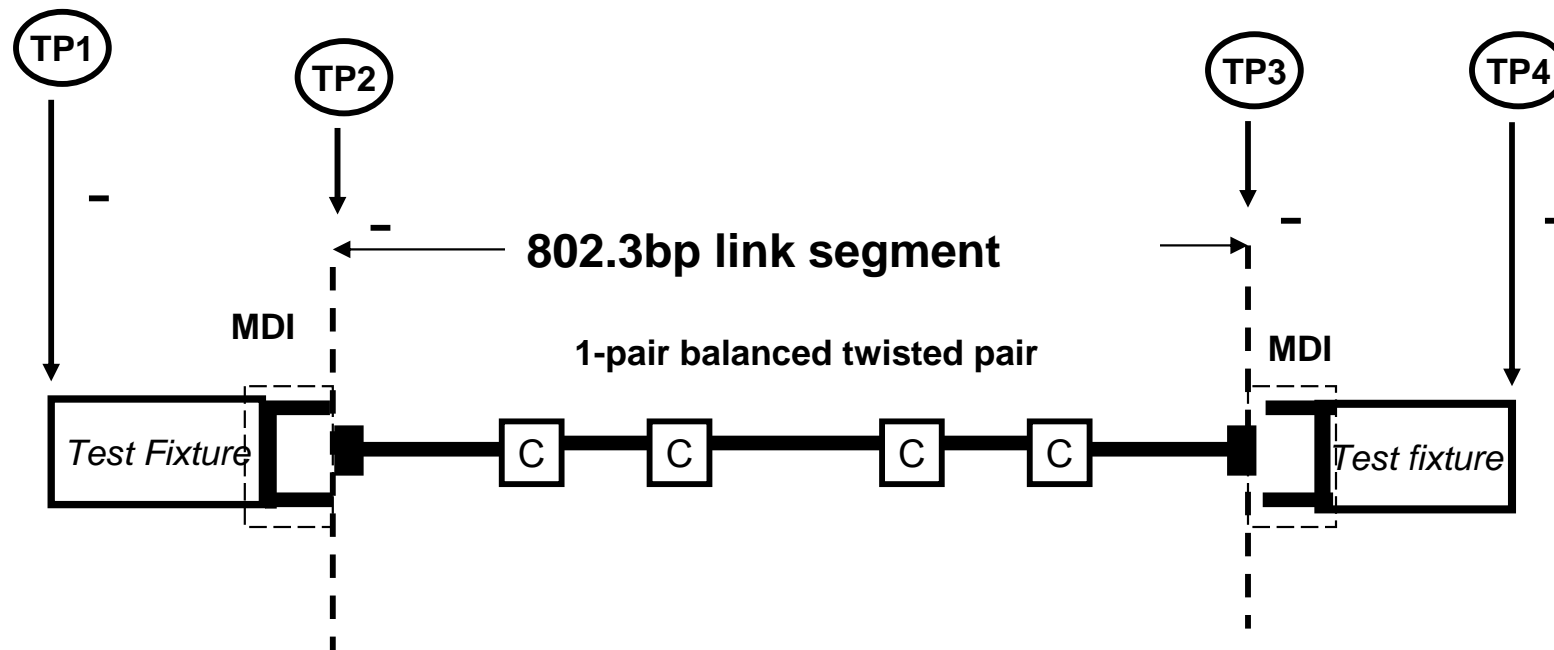
*Material for baseline draft PMD Function

1000BASE-Tx test points

Reference	Description
TP0-TP5	The 1000BASE-Tx channel including the transmitter and receiver differential controlled impedance printed circuit board insertion loss, the MDI, and the link segment insertion loss.
TP1-TP4	The test fixture specified in 98(TBD) is required for measuring the link segment specifications in 98.4.4 at TP1 and TP4.
TP2-TP3	The link segment specifications in 98.4.4 are referenced to TP2 and TP3.
TP2	Transmitter measurements defined in 98(TBD) are made at TP2 utilizing the test fixture specified in 98(TBD).
TP3	Transmitter measurements defined in 98(TBD) are made at TP3 utilizing the test fixture specified in 98(TBD).

*Material for baseline draft PMD Function

802.3bp link segment

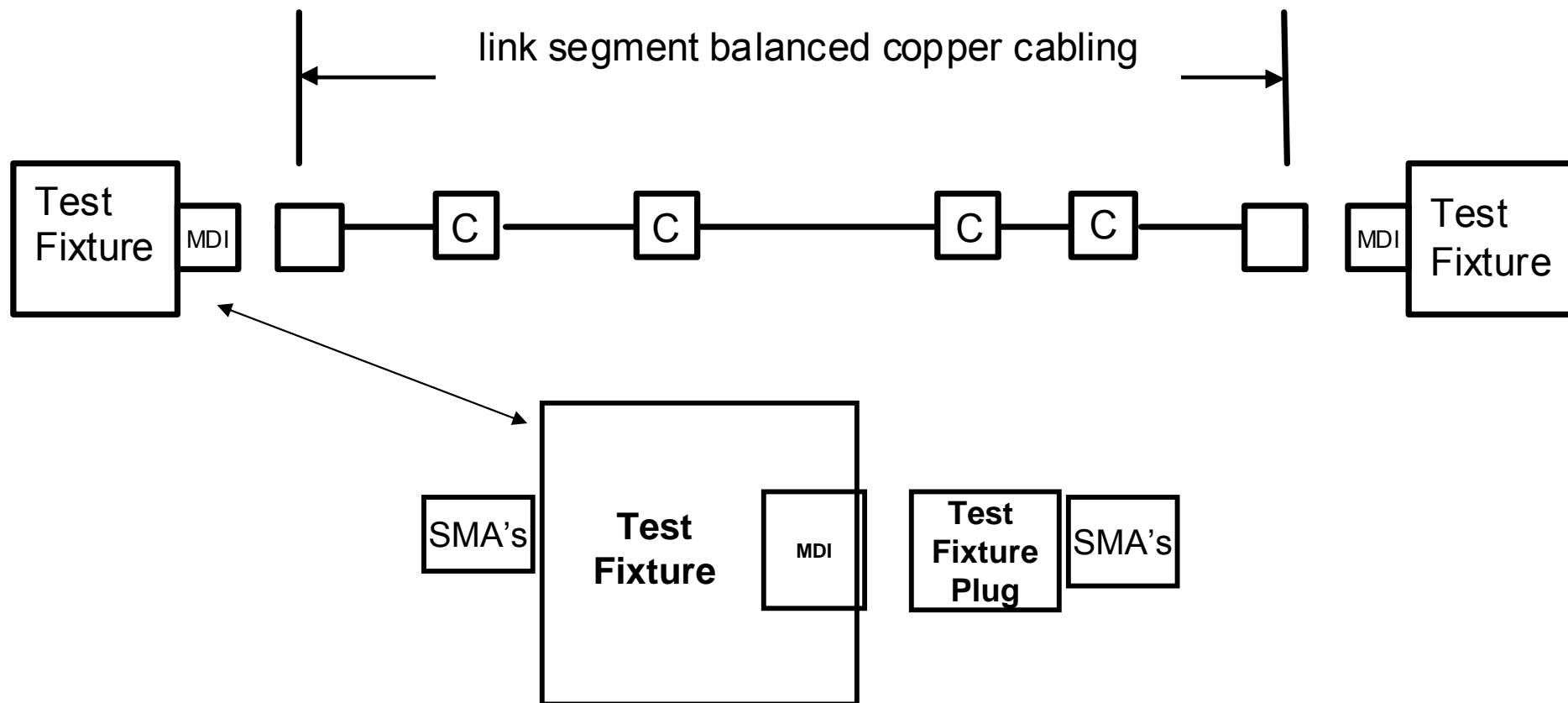


Link segment transmission and coupling parameters – TP2-TP3

- Insertion loss
- Return loss
- Common to differential conversion loss (SDC12/SDC21) (UTP)
- Alien Crosstalk
 - PSANEXT, PSAACRF

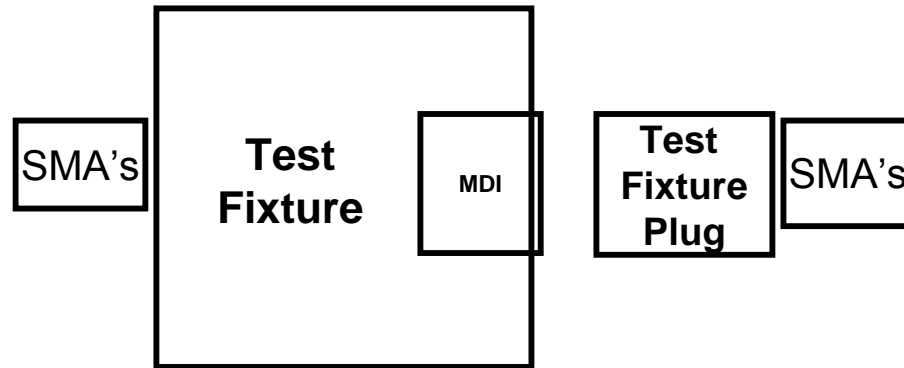
*Material for baseline test fixture specifications

RTPGE Test Fixtures



Specified in a mated state

RTPGE Test Fixtures



Specified in a mated state

- Insertion loss
- Return loss
- Common to differential conversion loss (SDC12/SDC21)
- Common to differential conversion loss (SDC11/SDC22)

- Alien Crosstalk (between MDI's)
 - PSANEXT, PSAFEXT

*Material for baseline test fixture specifications

Backup

Link segment transmission parameters (UTP)

Link segment transmission and coupling parameters (UTP)

- Insertion loss
- Return loss
- Alien Crosstalk
 - PSANEXT, PSAACRF
- Common to differential conversion loss (SDC12/SDC21)

• Insertion loss

- Amended Motion #2 - Move that The IEEE P802.3bp Task Force affirms the proposed
- Baseline IL Channel Performance for link segment insertion to establish the absolute
- value across the frequency range through 600MHz. (herman_3bp_01_0913.pdf)
- Technical 75%
- Vote
- Y: 25 N: 0 A: 4
- MOTION: Passes

$$IL = .4927\sqrt{f} + 0.0023f + (0.0639 / \sqrt{f}) + 0.08\sqrt{f} + 0.018\sqrt{f}$$

where

f := frequency_in_MHz

Link segment transmission parameters (UTP)

• Alien Crosstalk -PSANEXT

Motion 4: Move that 802.3bp adopt the “Proposed baseline” Alien NEXT specification on slide 8 of mueller_01a_3bp_0314.pdf

M: Thomas Müller S: Chris Mash

Y: 29 N:0 A: 9

Existing baseline

$$60 - 10 \log\left(\frac{f}{100}\right) \quad [1 \text{ to } 100 \text{ MHz}]$$
$$60 - 15 \log\left(\frac{f}{100}\right) - 6 * \left(\frac{f-100}{400}\right) \quad [100 \text{ to } 600 \text{ MHz}]$$

Proposed baseline

$$54 - 10 \log\left(\frac{f}{100}\right) \quad [1 \text{ to } 100 \text{ MHz}]$$
$$54 - 15 \log\left(\frac{f}{100}\right) - 6 * \left(\frac{f-100}{400}\right) \quad [100 \text{ to } 600 \text{ MHz}]$$

Link segment transmission parameters (UTP)

• Alien Crosstalk -PSAACRF

Motion #8 - Move that The IEEE P802.3bp Task Force affirms the proposed Baseline PSANEXT (in slide 11 in herman_3bp_01_0913.pdf) and PSAACRF (in slide 13 in herman_3bp_01_0913.pdf) for link segment specification over frequency range 1MHz - 600MHz. (alien crosstalk configuration in

http://www.ieee802.org/3/bp/public/jul13/moffitt_3bp_01_0713.pdf)

M: Todd Herman S: Xiaofeng Wang

Technical 75%

Vote

Y: 18 N: 1 A: 10

MOTION: Passes

$$\text{PSAACRF} := -20 \cdot \log_{10} \left(10^{\frac{-10 \cdot \log\left(\frac{15}{100}\right) + 38.2 - 20 \cdot \log\left(\frac{f}{100}\right)}{-20}} + 4 \cdot 10^{\frac{67 - 20 \cdot \log\left(\frac{f}{100}\right)}{-20}} \right)$$

where

f := frequency_in_MHz

Link segment transmission parameters (UTP)

•Return Loss

Frequency range	Requirement
1-10 MHz	19 dB
10-40 MHz	$24-5\log(f)$ dB
40-130 MHz	16 dB
130-400 MHz	$37-10\log(f)$ dB
400-600 MHz	11 dB

Motion #2: Move that the IEEE P802.3bp Task Force affirms that proposed RL specifications for the automotive link segment in herman_3bp_01_1113.pdf for inclusion in the 802.3bp baseline specification.

Moved by: Xiaofeng Wang

Seconded by: Mehmet Tazebay

Technical 75%

Link segment transmission parameters (UTP)

- Mode conversion

Frequency, MHz

$$- 50_{\text{dB}} \quad 10 < f_{\text{MHz}} < 80$$

$$[5 \log_n (f_{\text{MHz}}) - 72]_{\text{dB}} \quad 80 < f_{\text{MHz}} < 600$$

Motion #3: Move that The IEEE P802.3bp Task Force affirms the proposed Mode Conversion limit line for the automotive link segment in Slide # 13 of tazebay_3bp_01a_0913.pdf for inclusion in 802.3bp baseline specification.

Moved by: Mehmet Tazebay

Seconded by: Gary Yurko

Technical 75%

Y: 33 N: 0 A: 5

MOTION: Passes