LUXSHARE ICT
立訊精密

# eDP 1.2 Test Fixture

## User Manual

LUXSHARE ICT

# CONTENTS

| Product Name | Version | Date | Comments |
|---|---|---|---|
| eDP 1.2 Test Fixture Series | 01 | Apr.23,2019 | Initial release |

# 1. Introduction

This document describes the Dimension and electrical specification for eDP test fixture.

# 2. Objectives

This specification provides the requirements for test fixture performances and test methods of eDP test fixture.

# 3. Method of operation & Cleaning

## 3-1. Handling

Before each use of the test fixture, ensure that all connectors are clean.

## 3-2. Visual Inspection

Be sure to inspect all test fixture carefully before making a connection. Inspect all test fixture for metal particles, scratches, deformed threads, dents, or bent, broken, or misaligned center conductors. Do not use damaged test fixture.

## ⚠ Cleaning method

If necessary, clean the connectors using low-pressure (less than 60 PSI) compressed air or nitrogen with an effective oil-vapor filter and condensation trap. Clean the cable threads, if necessary, using a lint-free swab or cleaning cloth moistened with isopropyl alcohol. Always completely dry a connector before use. Do not use abrasives to clean the connectors. Re- inspect connectors, making sure no particles or residue remains.

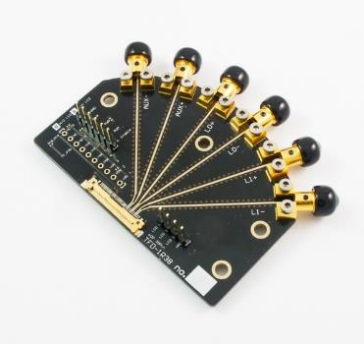
## 3-3. Precautions

Before making any connections, review the “Handling Precautions” section. Follow these guidelines when making connections:

- Align test fixture carefully
- Make preliminary connection lightly
- To tighten, turn connector nut only
- Do not apply bending force to test fixture
- Do not over-tighten preliminary connections
- Do not twist or screw-in test fixture
- Use an appropriately sized torque wrench (depends on SMA gender),and do not tighten past the “break” point of the torque wrench (normally set to 5 in-lbs.)

## 3-4. Calibration Through De-Embedding

The eDP Test Fixture are fully passive components. Therefore, calibration compensating for the losses must occur within the test instrumentation that drives the Creating S2P files. These files will soon be available to de-embed the electrical length and losses within the test fixture up to the eDP connector interface pads.

| | |
|---|---|
| TFD-1R38A<br>  <br>Figure 3-1. eDP 1.2 Receptacle 30pin Test Fixture | TFD-1R38B<br>  <br>Figure 3-2. eDP 1.2 Receptacle 30pin Test Fixture |
| TFD-11R28<br>  <br>Figure 3-3. eDP 1.2 Receptacle 40pin Test Fixture | TLA16EM002<br>  <br>Figure 3-4. eDP 1.2 Plug 30pin Adapter |
| TLA16EM003<br>  <br>Figure 3-5. eDP 1.2 Plug 40pin Adapter | TFD-4C98<br>  <br>Figure 3-6. DP 1.2 1X,2X and SOL Calibration Board |

# 4. Testing Equipment

| Item | Product Model | Name | Manufacturer |
|---|---|---|---|
| **01** | E5071C-TDR | 300KHz~20GHz ENA Network Analyzer | Keysight |
| **02** | N4433A | 200KHz~20GHz Electronic Calibration Module | Keysight |
| **03** | TDS8300+80E04 | TDR with TDR and TDT module | Tektronix |

# 5. Test Conditions

(Reference DisplayPort 1.2 specification)

| Test Fixture | Part No. | S/N |
|---|---|---|
| eDP 1.2 Receptacle 30Pin Test Fixture | TFD-1R38B | 001 |
| eDP 1.2 Receptacle 40Pin Test Fixture | TFD-11R28 | 001 |
| DP 1.2 1X,2X and SOL Calibration Board | TFD-4C98 | 001 |

| Test Item: | Condition | Requirement |
|---|---|---|
| Eye Diagram | | Eye Height :75%<br>ISI Jitter: 5%<br>Rise/Fall Time (10-90): 50ps |
| Differential Intra-pair Skew | No Filter | <5ps |
| Far-End Crosstalk | 300KHz～10GHz | N/A |
| Near-End Crosstalk | 300KHz～10GHz | N/A |
| Insertion Loss( -3dB Bandwidth) | 300KHz～10GHz | 5GHz@-3dB |
| Return Loss | 300KHz～10GHz | N/A |
| Traces Impedance | 130ps (20% - 80%) | 50 Ω ± 5% |
| Differential impedance of Mated Connectors | 130ps (20% - 80%)<br>35ps (10% - 90%) | 100Ω ± 10%<br>100Ω ± 10% |

# 6. Testing Result

## 6-1. eDP 1.2 30Pin Test Fixture

### 6-1-1. Eye Diagram

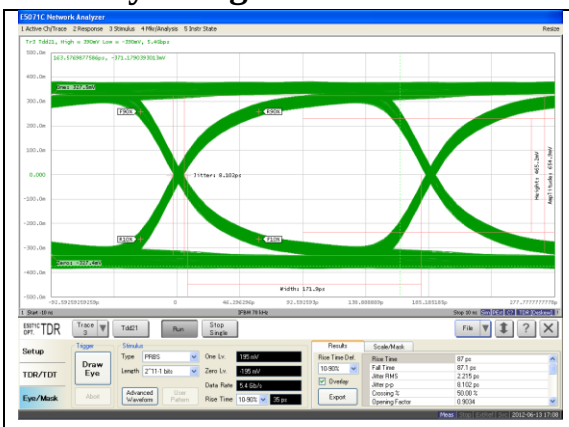


Figure 6-1. AUX Pair

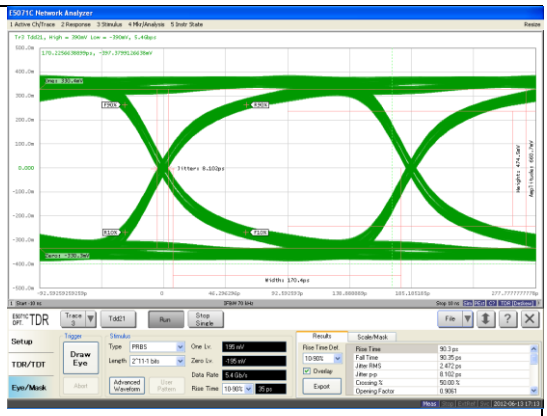


Figure 6-2. L0 Pair

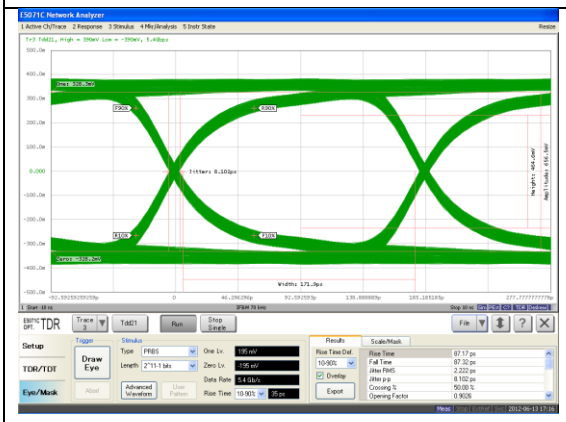


Figure 6-3. L1 Pair

## 6-1-2. Differential Intra-Pair Skew

| DUT / Test Pair | eDP 1.2 30Pin(Ω) | |
|---|---|---|
| | Result (ps) | Remark |
| AUX | 0.87 | Refer to Fig. 6-4 |
| L0 | 1.64 | Refer to Fig. 6-5 |
| L1 | 0.80 | Refer to Fig. 6-6 |

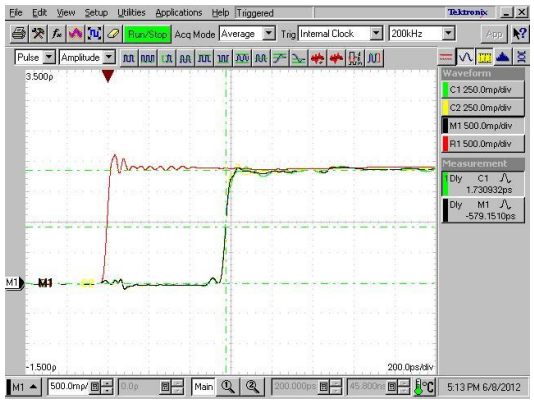



Figure 6-4. AUX Pair

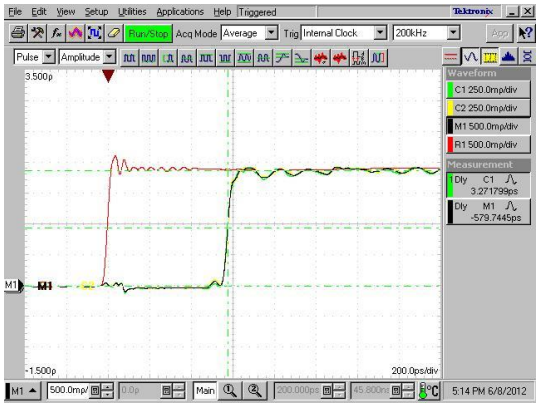



Figure 6-5. L0 Pair

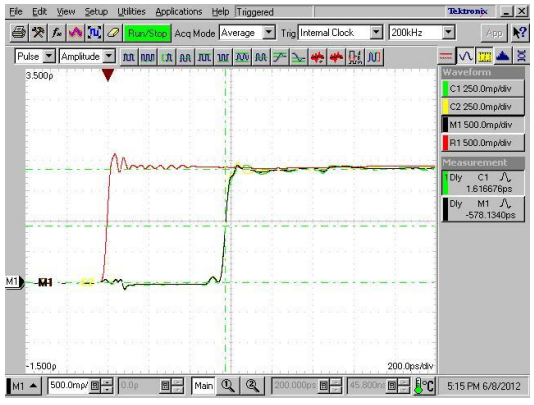



Figure 6-6. L1 Pair

## 6-1-3. Far-End Crosstalk

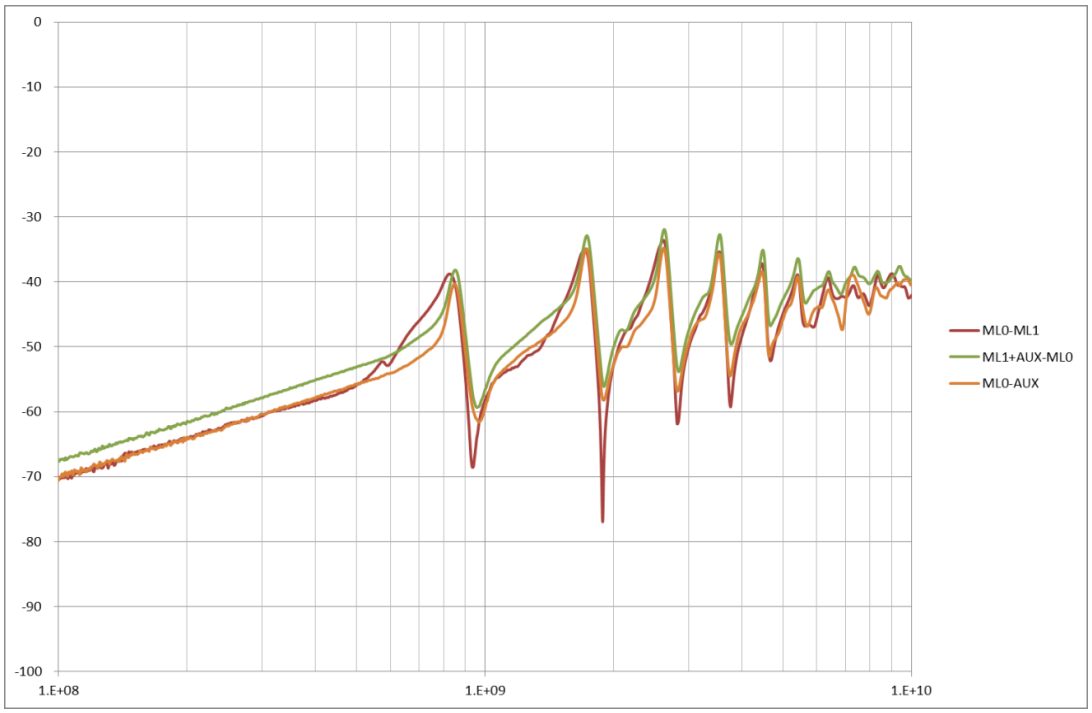



Figure 6-7. FEXT

## 6-1-4. Near-End Crosstalk

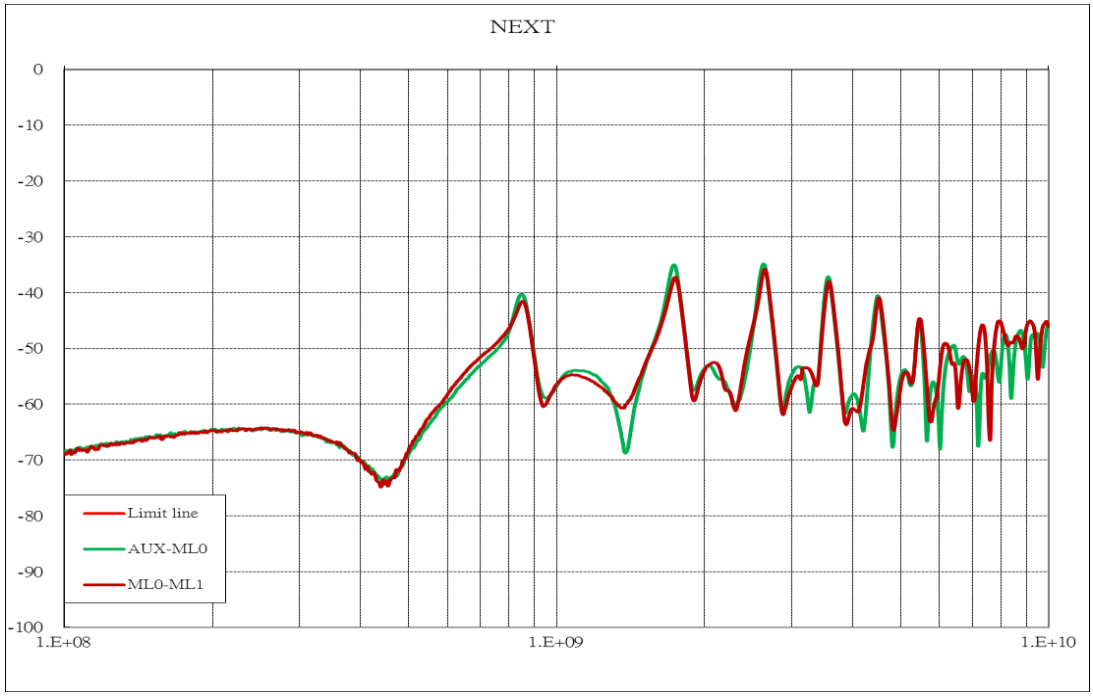



Figure 6-8. NEXT

## 6-1-5. Insertion Loss

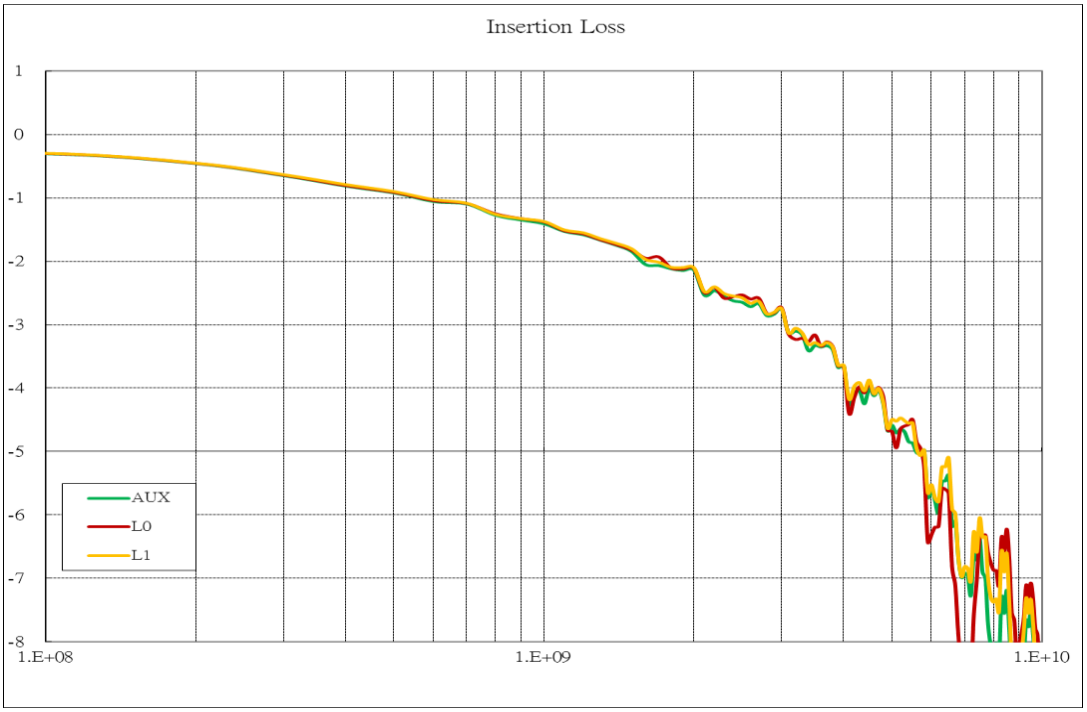



Figure 6-9. Insertion Loss

## 6-1-6. Return Loss

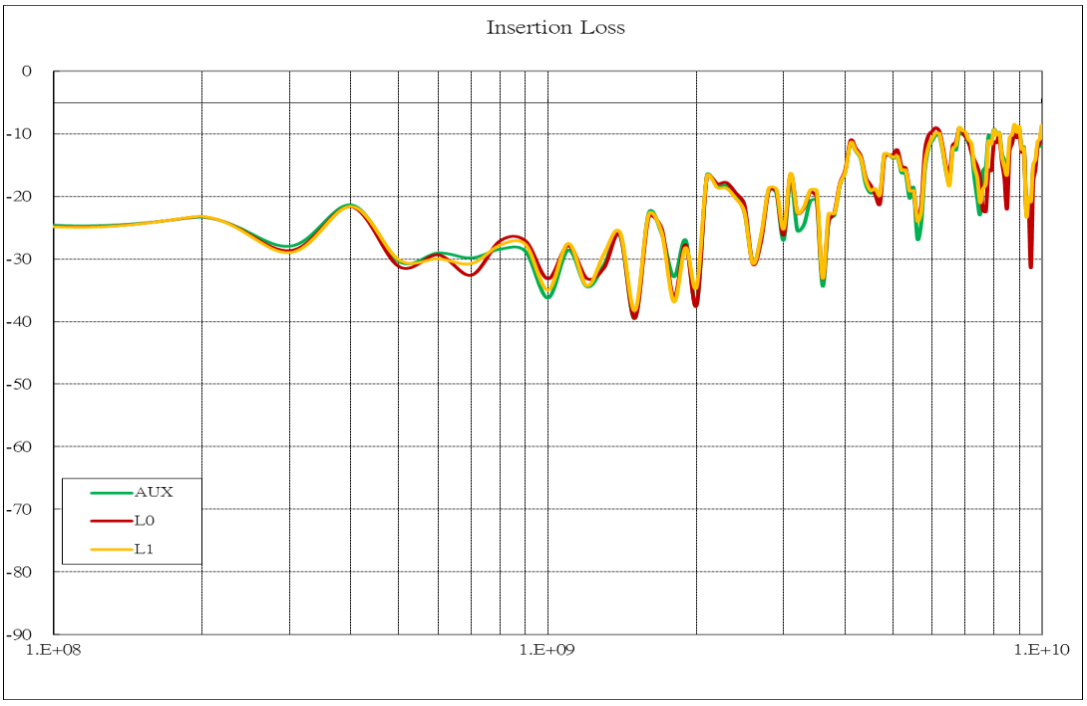



Figure 6-10. Return Loss

## 6-1-7. Traces Impedance

| Test Item | | Impedance (Ω) | | | |
|---|---|---|---|---|---|
| DUT / Test Pin | | eDP 1.2 30Pin Test Fixture | | | |
| Pair | Pin | Max | Min | Δ | Remark |
| AUX | N-Pair | 49.18 | 47.69 | 1.49 | Refer to Fig. 6-11 |
| | P-Pair | 49.42 | 48.38 | 1.04 | Refer to Fig. 6-12 |
| L0 | P-Pair | 49.20 | 47.67 | 1.53 | Refer to Fig. 6-13 |
| | N-Pair | 49.25 | 47.69 | 1.52 | Refer to Fig. 6-14 |
| L1 | P-Pair | 49.20 | 47.74 | 1.46 | Refer to Fig. 6-15 |
| | N-Pair | 49.25 | 47.80 | 1.45 | Refer to Fig. 6-16 |

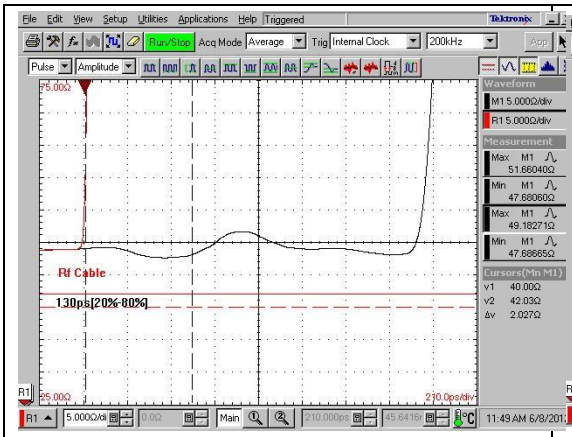



Figure 6-11. AUX N-Pair

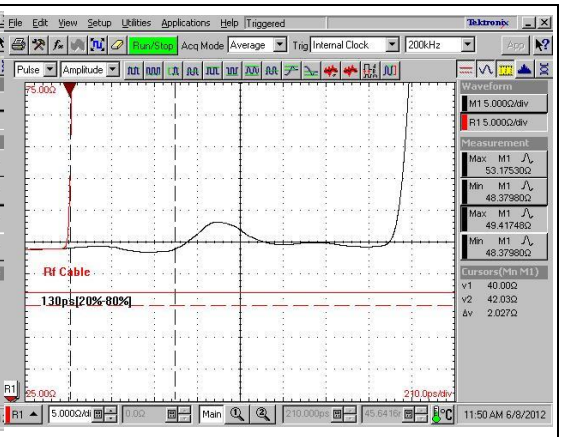



Figure 6-12. AUX P-Pair

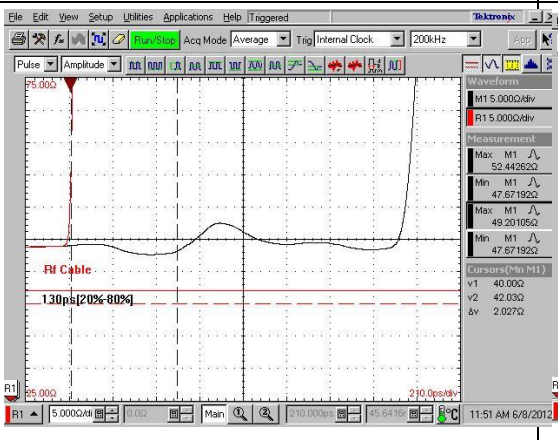



Figure 6-13. L0 P-Pair

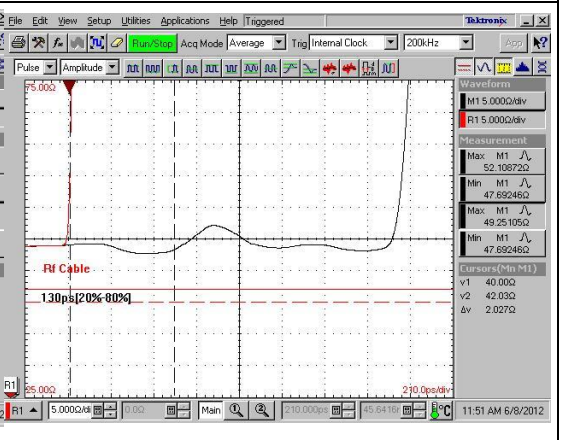



Figure. 6-14. L0 N-Pair

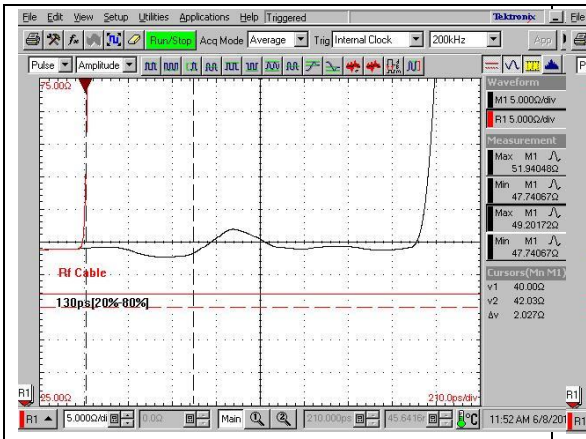



Figure. 6-15. L1 P-Pair

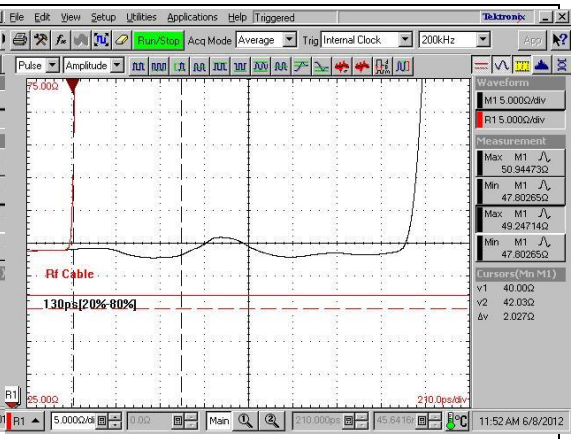



Figure. 6-16. L1 N-Pair

## 6-1-8. Differential Impedance of Mated Connectors

| Test Item | Impedance (Ω) | | | |
|---|---|---|---|---|
| DUT / Test Pin | eDP 1.2 30Pin Test Fixture | | | |
| Pair | Max | Min | Δ | Remark |
| AUX | 96.58 | 93.72 | 2.86 | Refer to Fig. 6-17 |
| L0 | 96.58 | 93.42 | 3.16 | Refer to Fig. 6-18 |
| L1 | 96.59 | 93.22 | 3.37 | Refer to Fig. 6-19 |

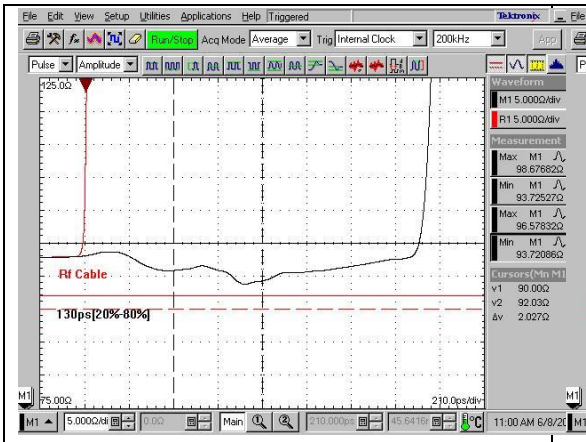



Figure 6-17. AUX Pair

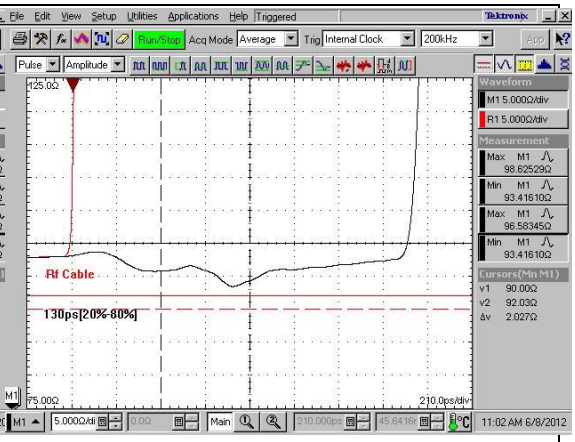



Figure 6-18. L0 Pair

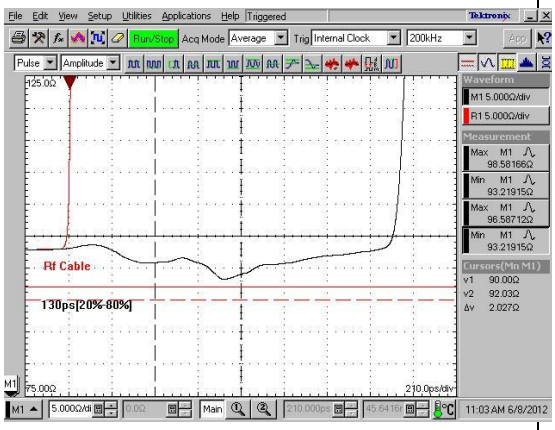



Figure 6-19. L1 Pair

## 6-2. eDP 1.2 40Pin Test Fixture

## 6-2-1. Eye Diagram

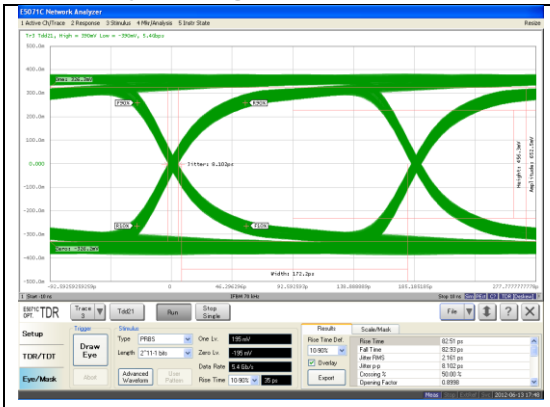


Figure 6-20. AUX Pair

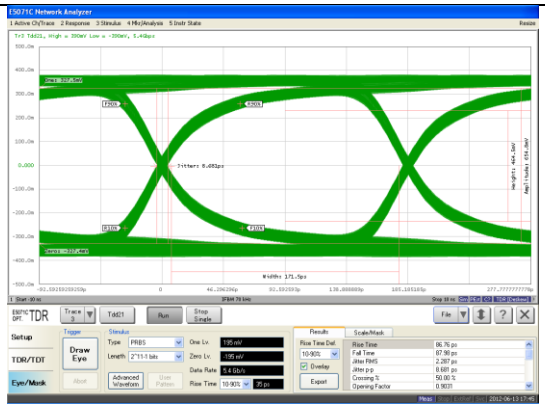


Figure 6-21. L0 Pair

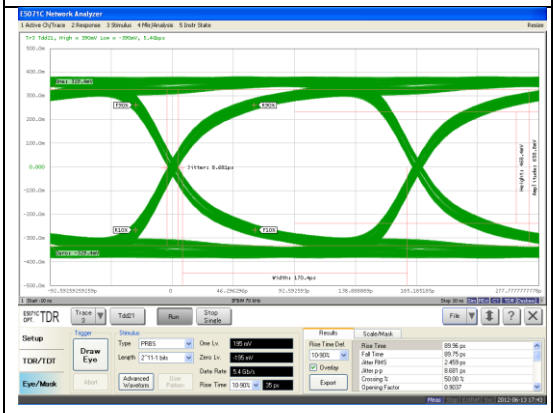


Figure 6-22. L1 Pair

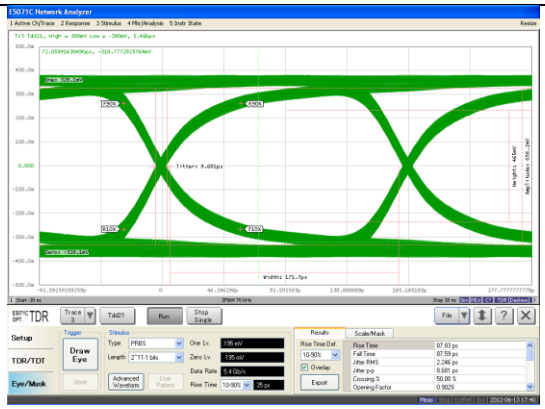


Figure 6-23. L2 Pair

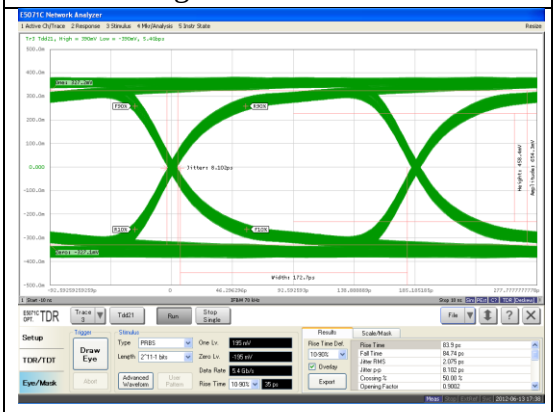


Figure 6-24. L3 Pair

## 6-2-2. Differential Intra-Pair Skew

| DUT / Test Pair | eDP 1.2 40Pin Test Fixture | |
|---|---|---|
| | Result (ps) | Remark |
| AUX | 0.33 | Refer to Fig. 6-25 |
| L0 | 1.29 | Refer to Fig. 6-26 |
| L1 | 2.05 | Refer to Fig. 6-27 |
| L2 | 1.58 | Refer to Fig. 6-28 |
| L3 | 1.77 | Refer to Fig. 6-29 |

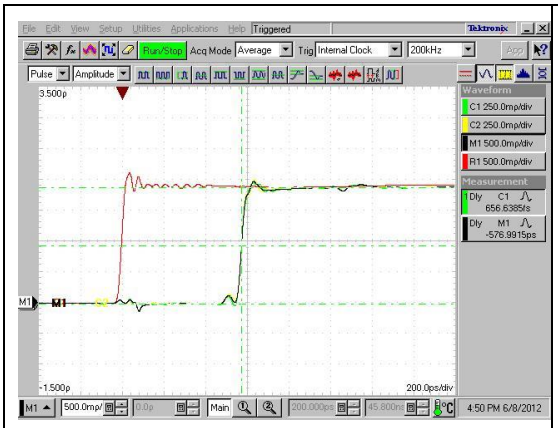


Figure 6-25. AUX Pair

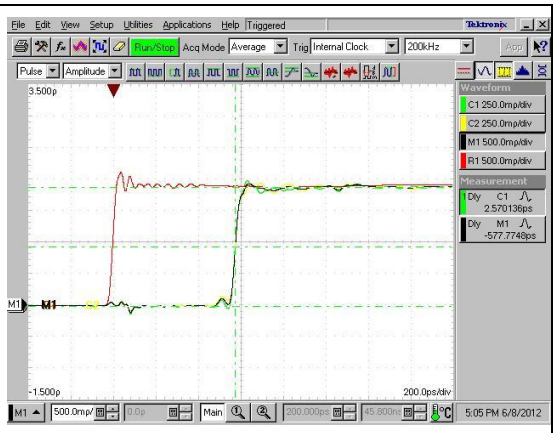


Figure 6-26. L0 Pair

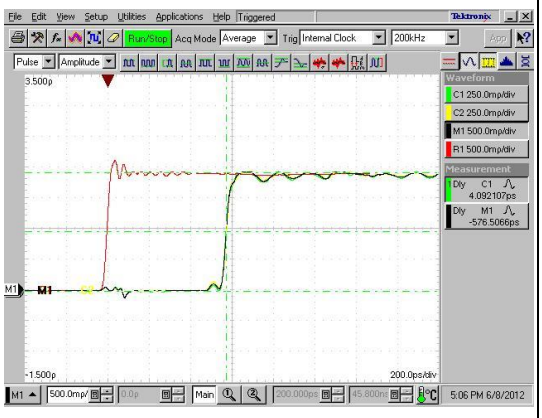


Figure 6-27. L1 Pair

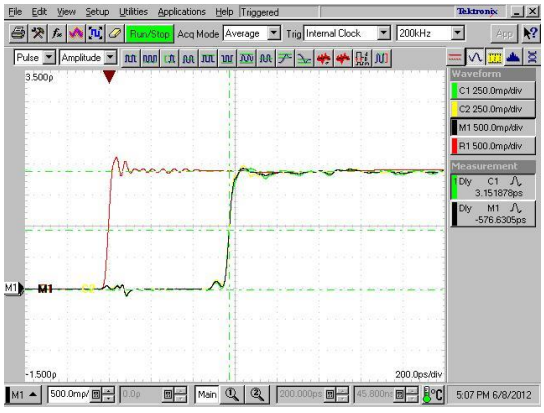


Figure 6-28. L2 Pair

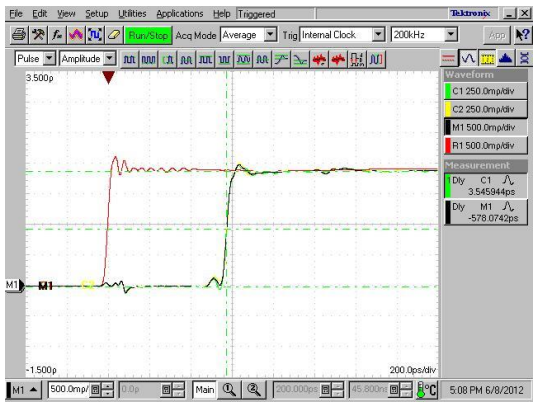



Figure 6-29. L3 Pair

## 6-2-3. Far-End Crosstalk

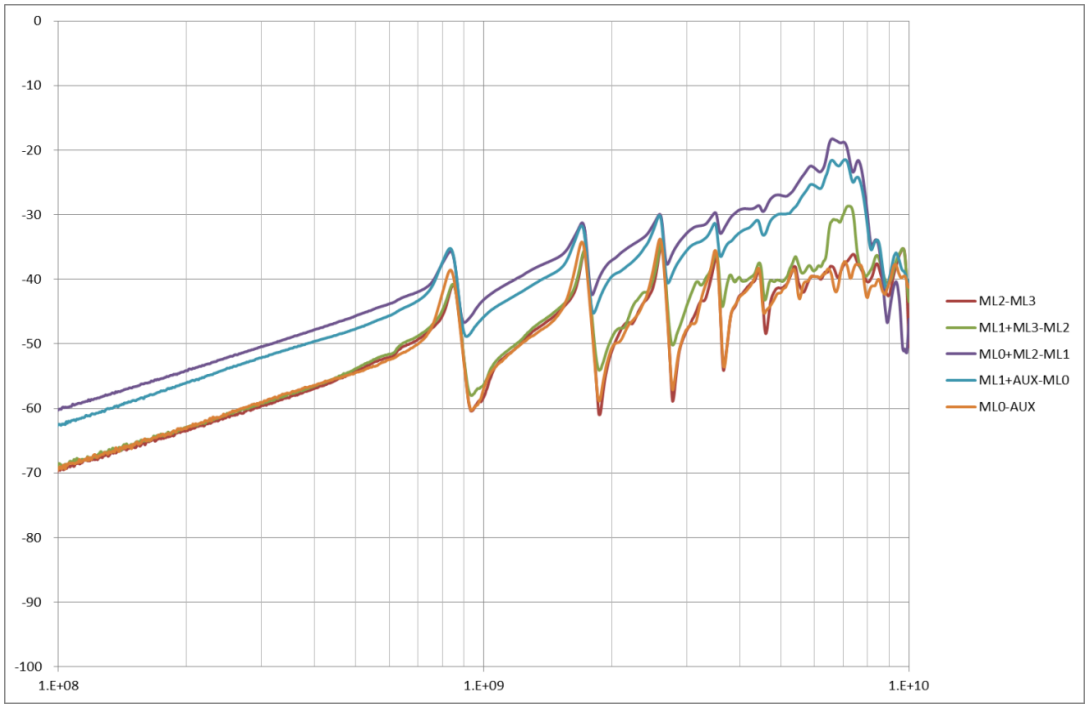



Figure 6-30. FEXT

## 6-2-4. Near End Crosstalk

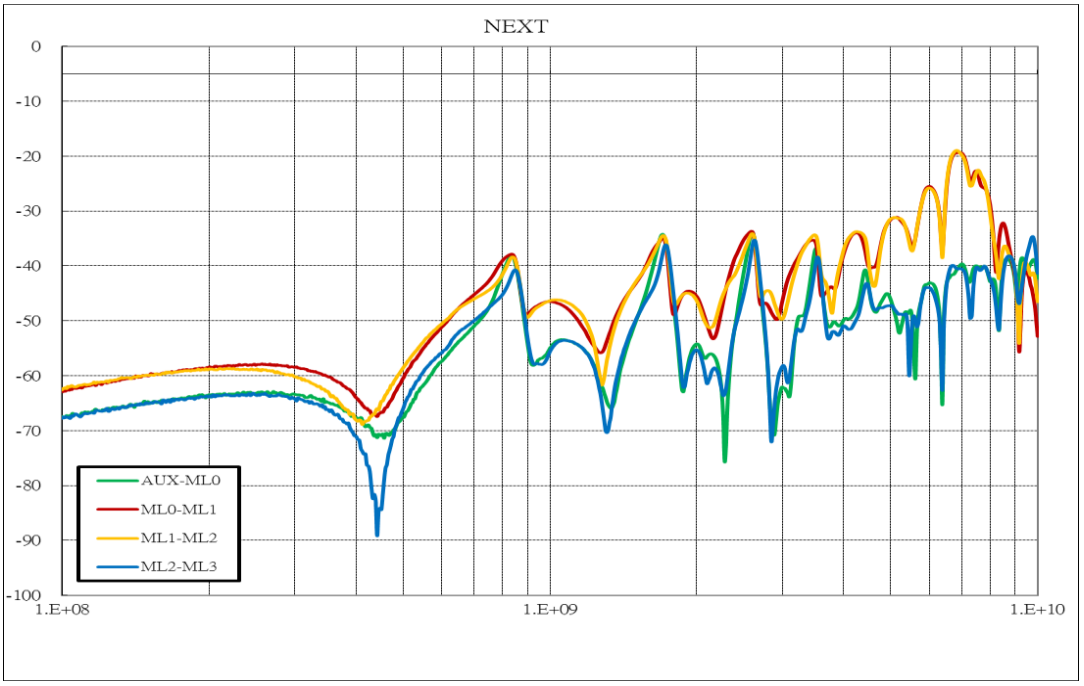



Figure 6-31. NEXT

## 6-2-5. Insertion Loss

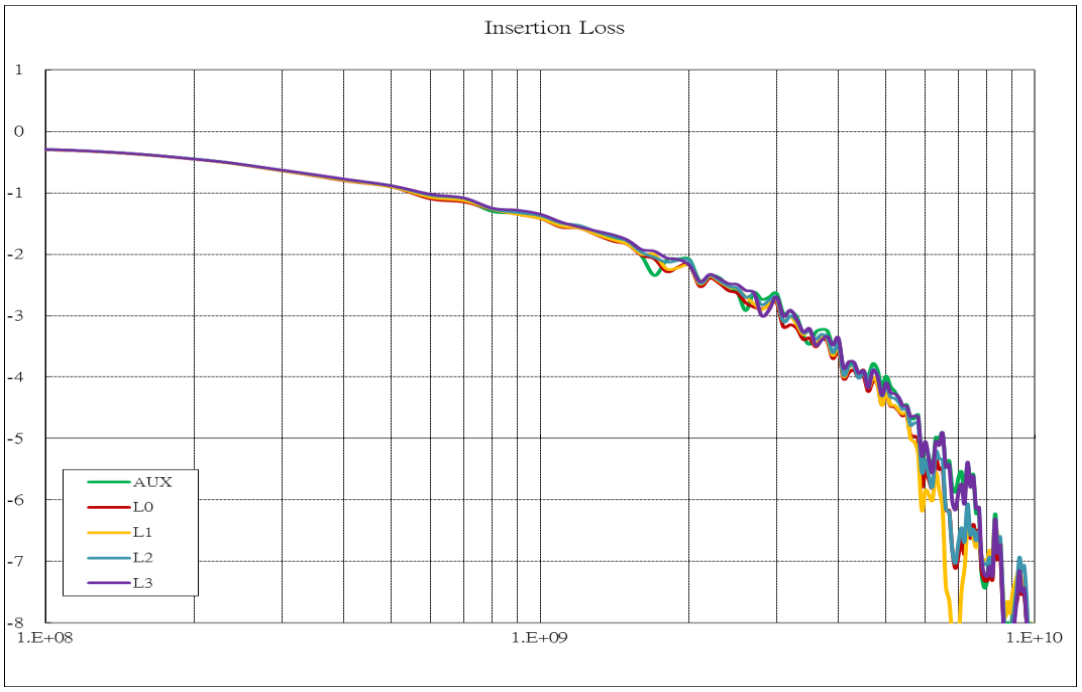



Figure 6-32. Insertion Loss

## 6-2-6. Return Loss

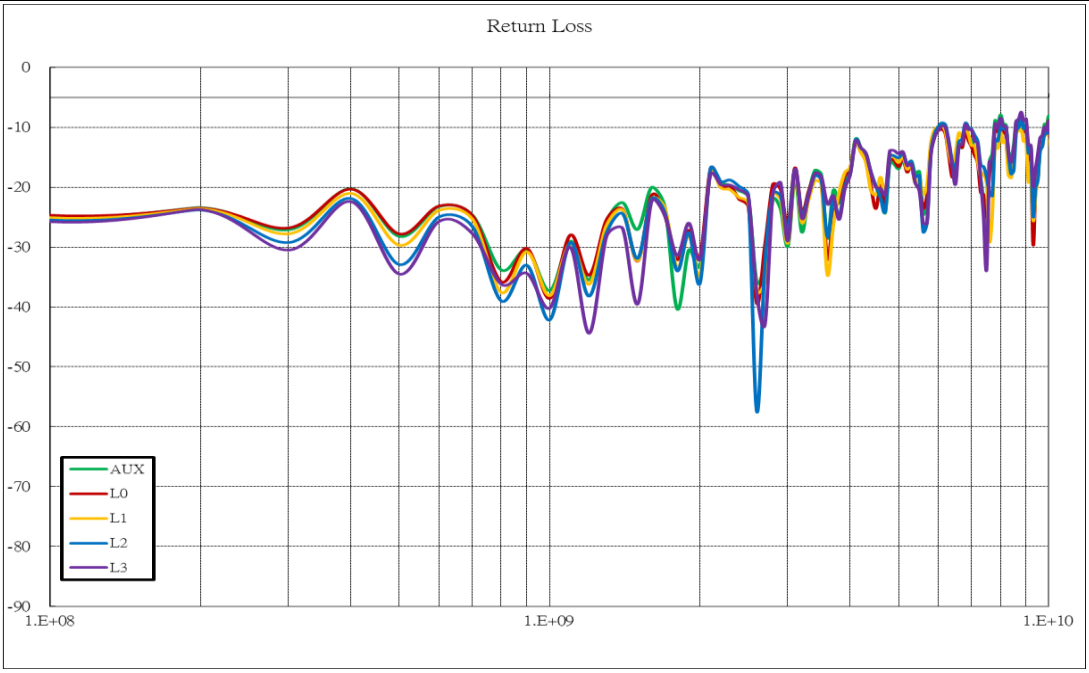



Figure 6-33. Return Loss

## 6-2-7. Traces Impedance

| Test Item | | Impedance (Ω) | | | |
|---|---|---|---|---|---|
| DUT / Test Pin | | eDP 1.2 40Pin Test Fixture | | | |
| Pair | Pin | Max | Min | Δ | Remark |
| AUX | N-Pair | 49.16 | 48.22 | 0.94 | Refer to Fig. 6-34 |
| | P-Pair | 49.22 | 48.31 | 0.91 | Refer to Fig. 6-35 |
| L0 | P-Pair | 49.19 | 48.16 | 1.03 | Refer to Fig. 6-36 |
| | N-Pair | 49.22 | 48.34 | 0.88 | Refer to Fig. 6-37 |
| L1 | P-Pair | 49.25 | 48.42 | 0.83 | Refer to Fig. 6-38 |
| | N-Pair | 49.34 | 48.50 | 0.84 | Refer to Fig. 6-39 |
| L2 | P-Pair | 49.35 | 48.57 | 0.78 | Refer to Fig. 6-40 |
| | N-Pair | 49.34 | 48.62 | 0.72 | Refer to Fig. 6-41 |
| L3 | P-Pair | 49.33 | 48.66 | 0.67 | Refer to Fig. 6-42 |
| | N-Pair | 49.33 | 48.53 | 0.80 | Refer to Fig. 6-43 |

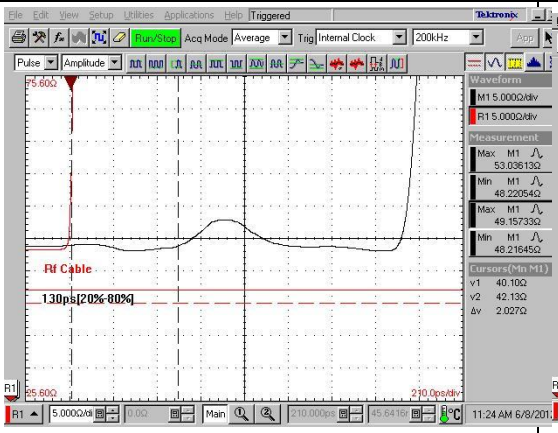



Figure 6-34. AUX N-Pair

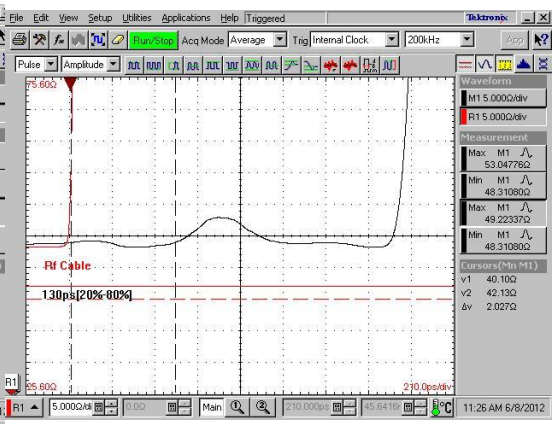



Figure 6-35. AUX P-Pair

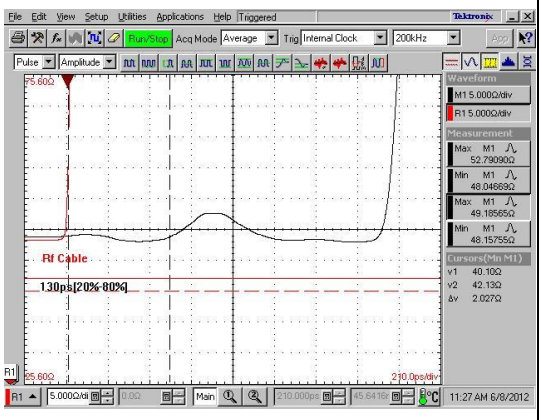



Figure 6-36. L0 P-Pair

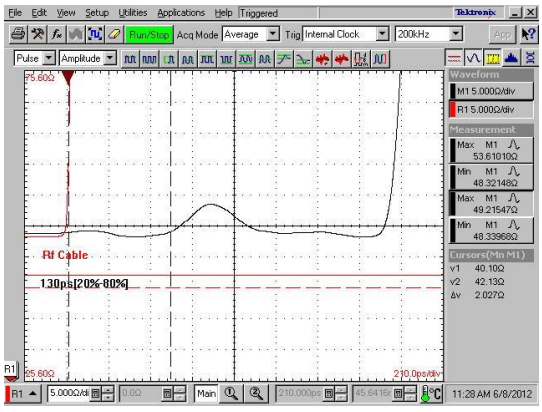



Figure 6-37. L0 N-Pair

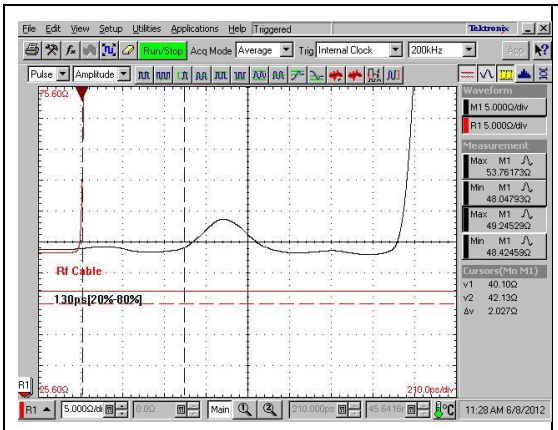



Figure 6-38. L1 P-Pair

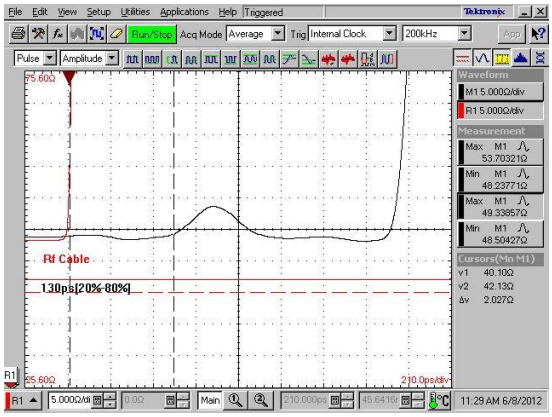



Figure 6-39. L1 N-Pair

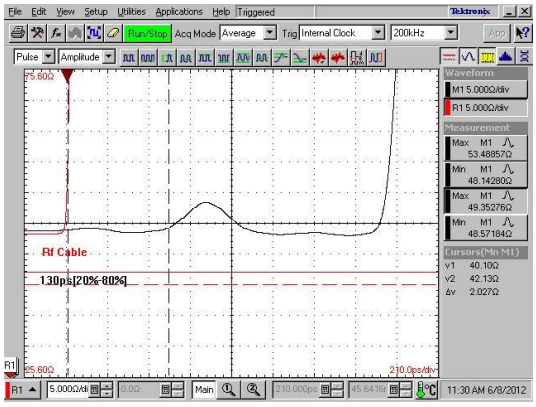



Figure. 6-40. L2 P-Pair

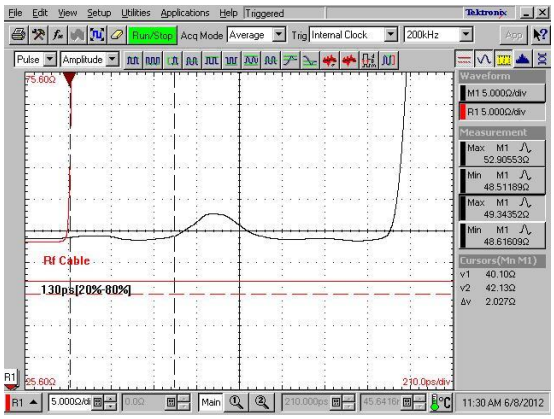



Figure 6-41. L2 N-Pair

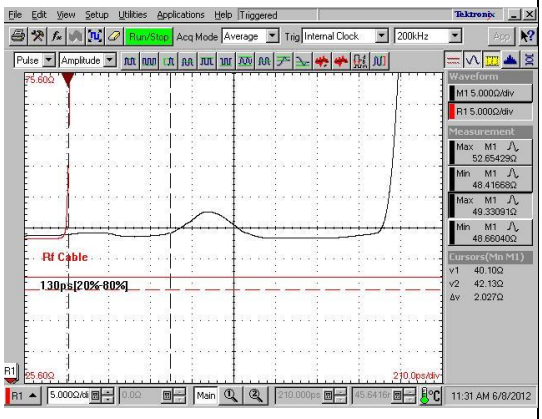



Figure 6-42. L3 P-Pair

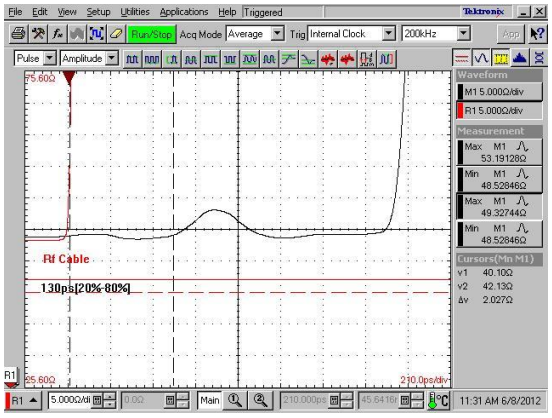



Figure 6-43. L3 N-Pair

## 6-2-8. Differential Impedance of Mated Connectors

| Test Item | Impedance (Ω) | | | |
|---|---|---|---|---|
| DUT / Test Pin | eDP 1.2 40Pin Test Fixture | | | |
| Pair | Max | Min | Δ | Remark |
| AUX | 98.14 | 94.64 | 3.50 | Refer to Fig. 6-44 |
| L0 | 98.33 | 94.52 | 3.81 | Refer to Fig. 6-45 |
| L1 | 98.66 | 95.34 | 3.32 | Refer to Fig. 6-46 |
| L2 | 98.83 | 95.36 | 3.47 | Refer to Fig. 6-47 |
| L3 | 98.66 | 95.17 | 3.49 | Refer to Fig. 6-48 |

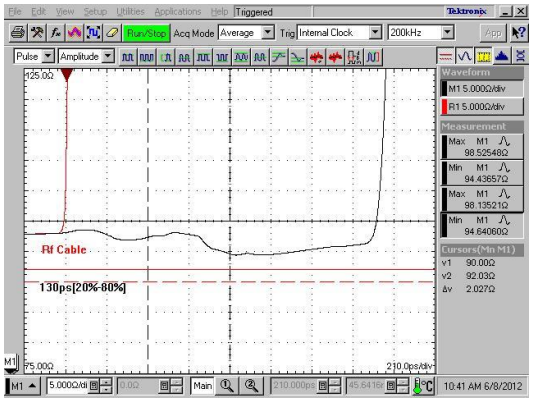



Figure 6-44. AUX Pair

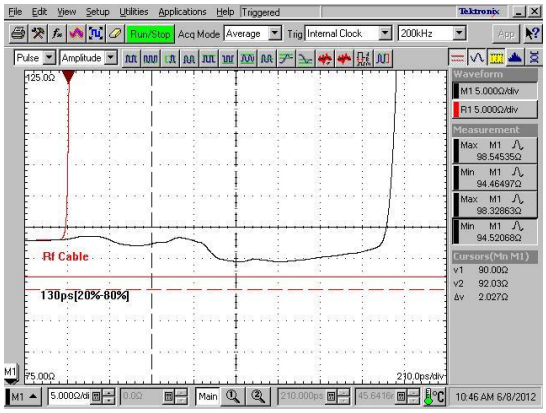



Figure 6-45. L0 Pair

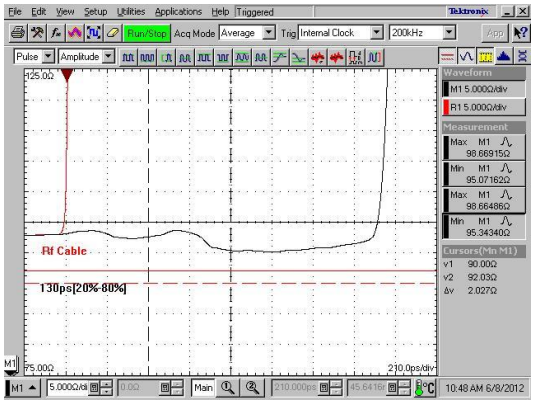



Figure 6-46. L1 Pair

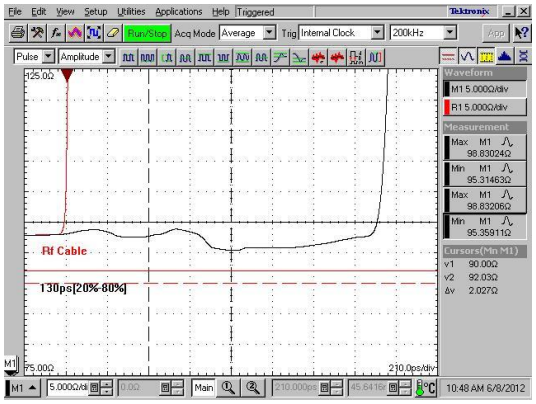



Figure 6-47. L2 Pair

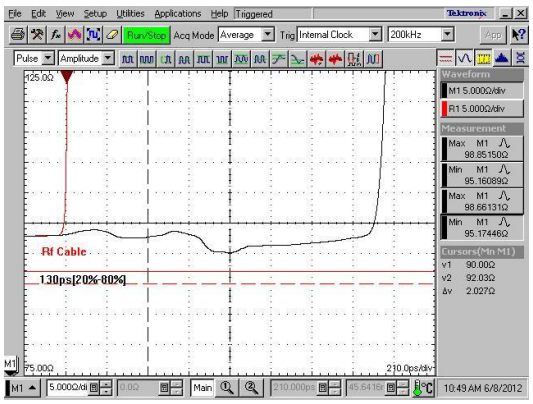



Figure 6-48. L3 Pair

## 6-3. DP 1.2 1X,2X and SOL Calibration Board

### 6-3-1. Eye Diagram

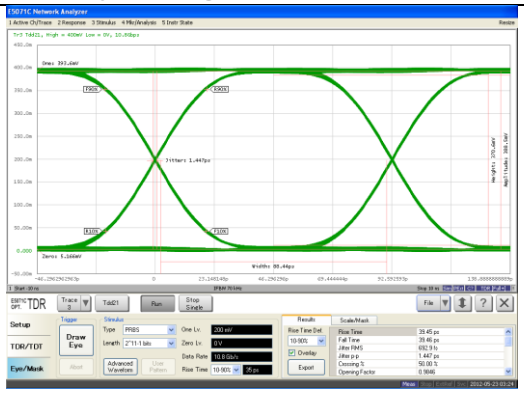


Figure 6-49. 1X Pair

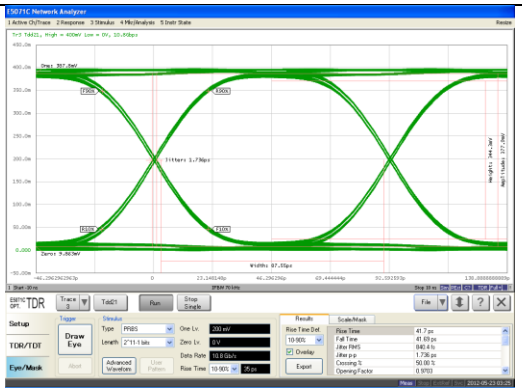


Figure 6-50. 2X Pair

## 6-3-2. Insertion Loss

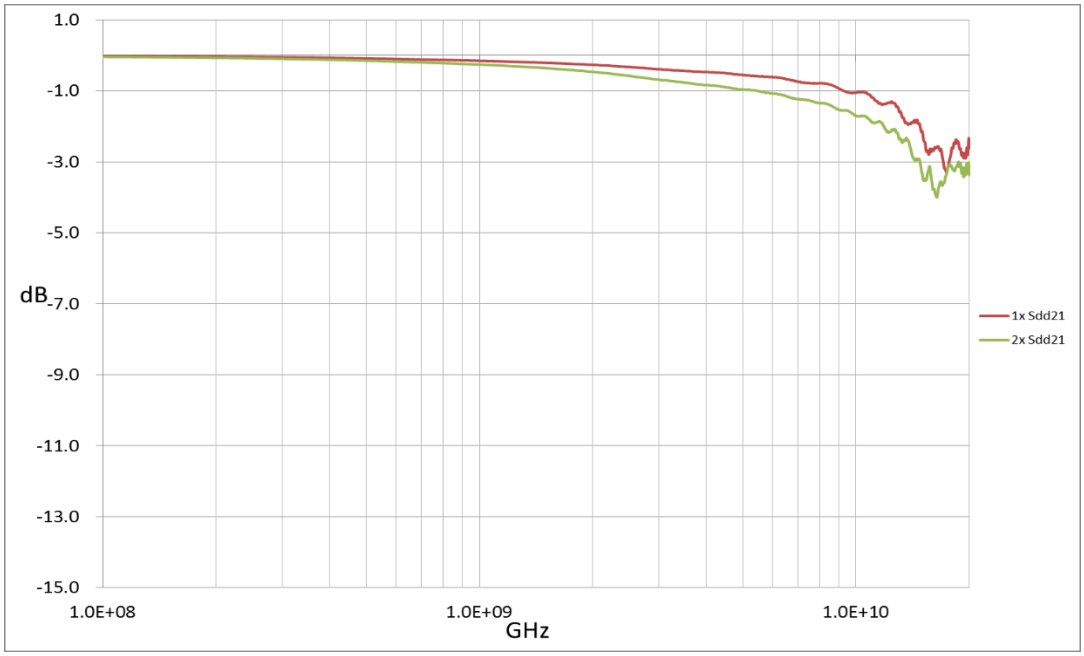



Figure 6-51. Insertion Loss

## 6-3-3. Return Loss

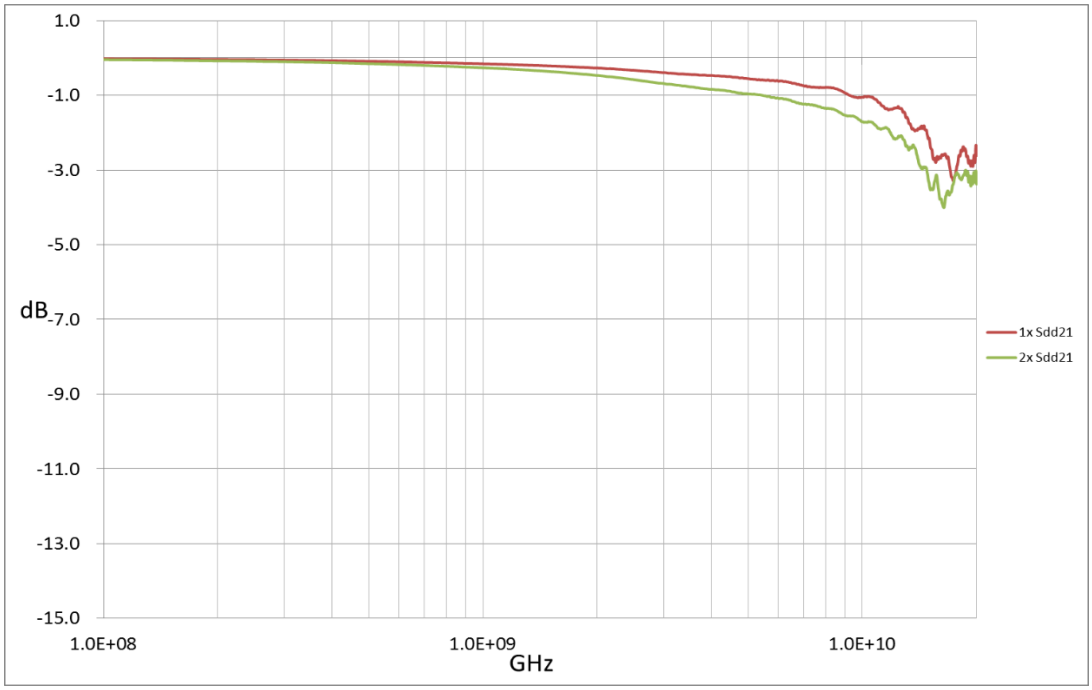



Figure 6-52. Return Loss

## 6-3-4. Traces Impedance

| Test Item | | Impedance (Ω) | | | |
|---|---|---|---|---|---|
| DUT / Test Pin | | DP 1.2 1X,2X and SOL Calibration Board | | | |
| Pair | Pin | Max | Min | Δ | Remark |
| 1X | 1 | 49.06 | 48.45 | 0.61 | Refer to Fig. 6-53 |
| | 2 | 49.18 | 48.43 | 0.73 | Refer to Fig. 6-54 |
| 2X | 1 | 49.58 | 48.58 | 1.00 | Refer to Fig. 6-55 |
| | 2 | 49.60 | 48.45 | 1.15 | Refer to Fig. 6-56 |
| Short | 1 | 48.86 | 48.25 | 0.61 | Refer to Fig. 6-57 |
| | 2 | 48.79 | 47.96 | 0.83 | Refer to Fig. 6-58 |
| Open | 1 | 49.54 | 48.71 | 0.79 | Refer to Fig. 6-59 |
| | 2 | 49.50 | 48.75 | 0.75 | Refer to Fig. 6-60 |
| Load | 1 | 49.13 | 48.83 | 0.30 | Refer to Fig. 6-61 |
| | 2 | 49.19 | 48.52 | 0.67 | Refer to Fig. 6-62 |

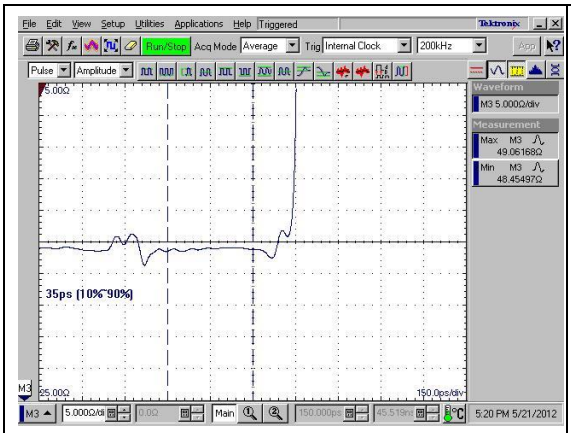



Figure 6-53. 1X _1 Pair

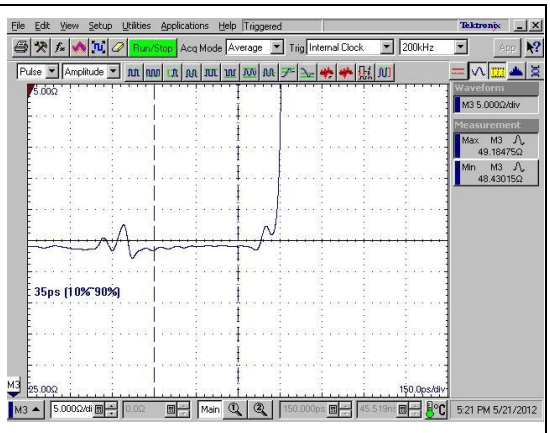



Figure 6-54. 1X _2 Pair

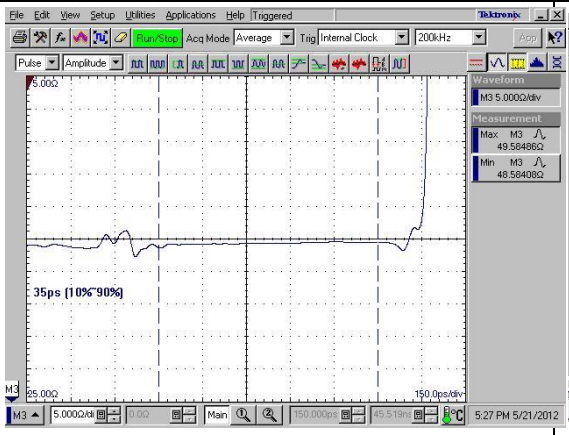



Figure 6-55. 2X _1 Pair

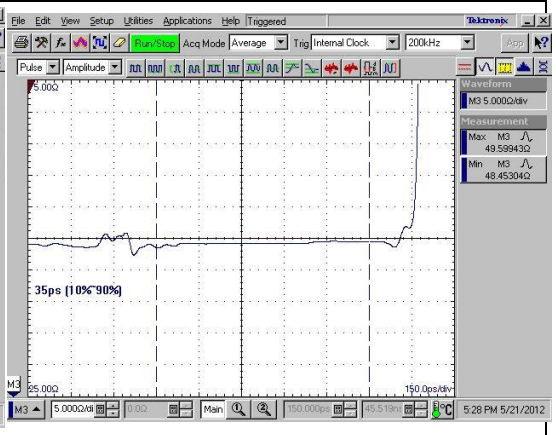



Figure 6-56. 2X _2 Pair

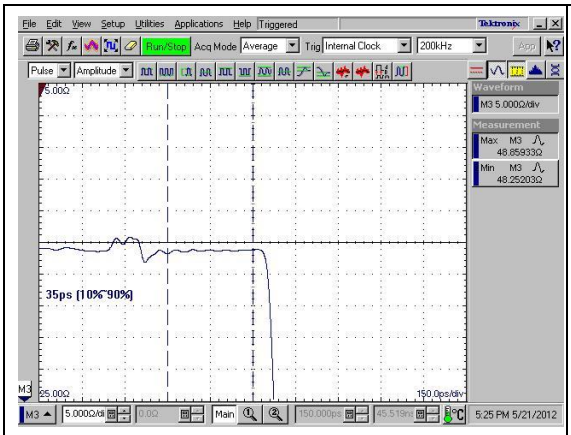



Figure 6-57. Short _1 Pair

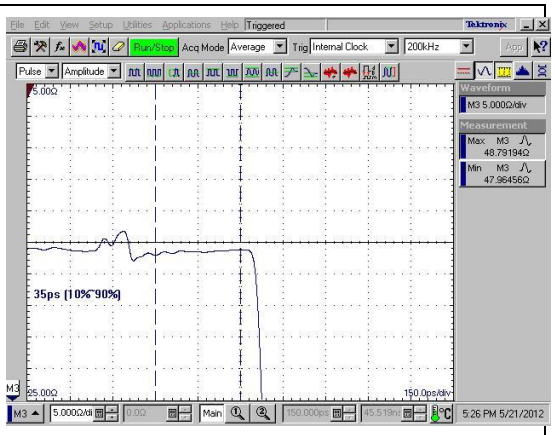



Figure 6-58. Short _2 Pair

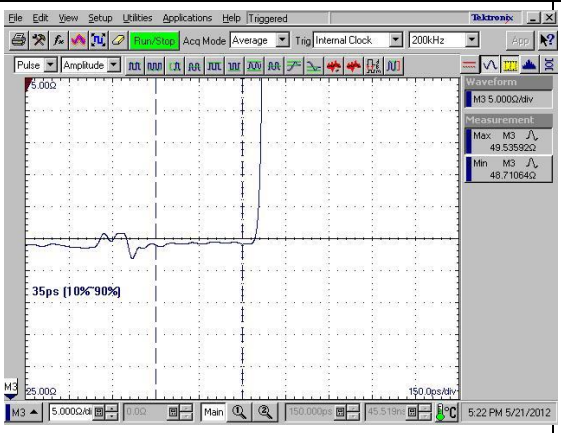



Figure 6-59. Open_1 Pair

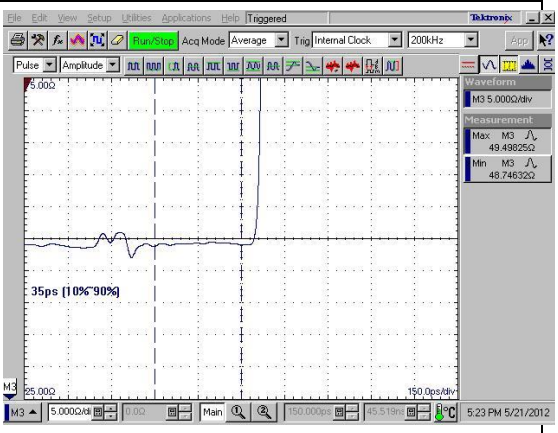



Figure 6-60. Open_2 Pair

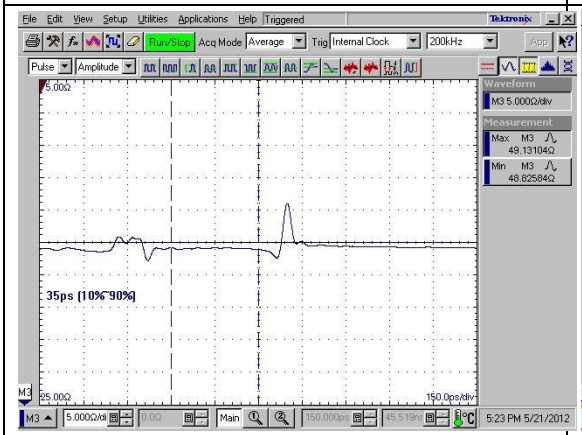



Figure 6-61. Load _1 Pair

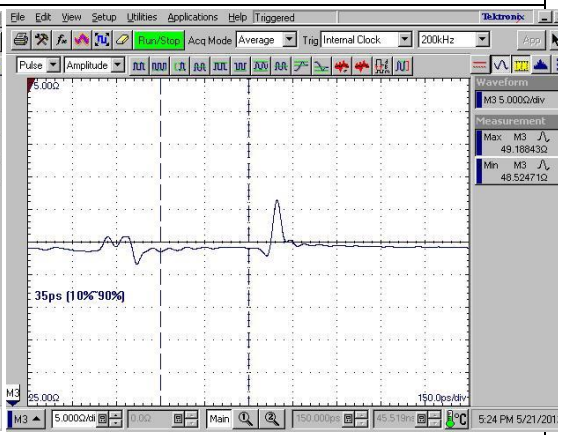



Figure 6-62. Load _2 Pair

## 6-3-5. Differential Impedance

| Test Item | Impedance (Ω) | | | |
|---|---|---|---|---|
| DUT / Test Pin | DP 1.2 1X,2X and SOL Calibration Board | | | |
| Pair | Max | Min | Δ | Remark |
| 1X | 98.46 | 97.52 | 0.94 | Refer to Fig. 6-63 |
| 2X | 99.42 | 98.26 | 1.16 | Refer to Fig. 6-64 |

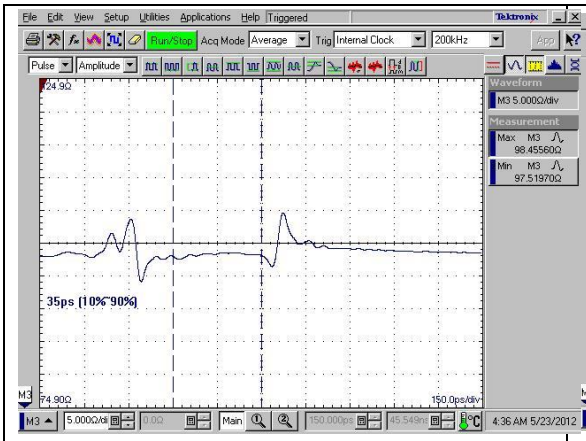



Figure 6-63. 1X Pair

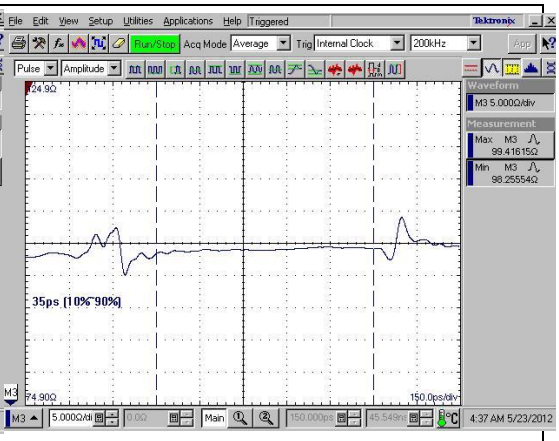



Figure 6-64. 2X Pair

# 7. Reference materials

## 7-1. Keysight

(MOI) for DisplayPort1.2b Cable-Connector Assembly Compliance Test
https://www.keysight.com/upload/cmc_upload/All/ENA-TDR_DisplayPort_MOI_rev3.01.pdf

# eDP 1.2 Test Fixture

## User Manual

# 目錄

| Product Name | Version | Date | Comments |
|---|---|---|---|
| eDP 1.2 Test Fixture Series | 01 | Apr.23,2019 | Initial release |

# 1. 簡介

本文介紹 eDP test fixture 的機械規格與電氣規格。

# 2. 目的

本規範提供了 eDP test fixture 的特性規格與測試結果。

# 3. 操作方式&清潔

## 3-1. 處理

在每次使用測試治具之前，確保所有連接器都乾淨。

## 3-2. 目測檢查

在連接之前，一定要仔細檢查所有的測試治具。檢查所有測試治具是否有金屬顆粒，划痕，變形螺紋，凹痕或彎曲，斷裂或中心導體未對齊。不要使用損壞的測試治具。

### ⚠ 清潔方法

如需清潔，請使用低壓（小於 60 PSI）的壓縮空氣或氮氣與有效的油氣過濾器和冷凝器。如有需要清潔內部，使用沾有異丙醇的清潔布清潔測試治具。清潔後請確認連接器是否為乾燥狀態。請勿使用研磨劑清潔連接器。使用前確保連接器內無殘留物。

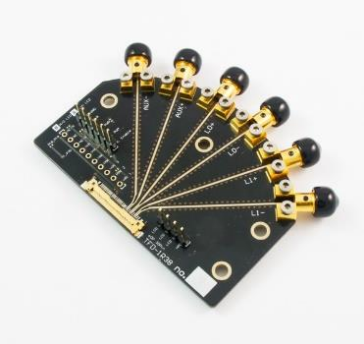
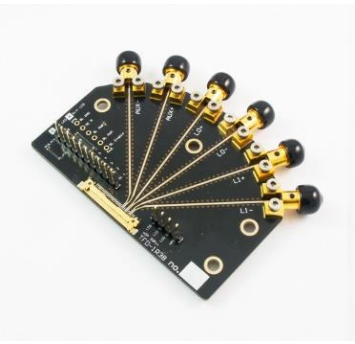
## 3-3. 注意事項

在進行任何連接之前，請查看“注意事項”部分。連接時請遵循以下準則：

- 仔細對齊測試治具
- 輕微進行初步連接
- 確認 SMA 接頭對鎖狀態
- 不要對測試治具施加彎曲力
- 請勿使用磅數過高之扭力板手(5 in-lbs 上)
- 測試治具端請勿旋轉或扭動
- 使用適當尺寸的扭矩板手(取決於 SMA 的規格), 並且不要擰過扭矩扳手的“斷開”點（通常設置為 5 in-lbs）。

## 3-4. 校正

eDP 測試治具是完全無源組件。因此，校準在驅動的測試儀器中必須補償損失。創建 S2P 文件。這些文件將很快用於將測試夾具內的電氣長度和損耗去除到 eDP 連接器接口焊盤。

| | |
|---|---|
| TFD-1R38A<br>  <br>Figure 3-1. eDP 1.2 Receptacle 30pin Test Fixture | TFD-1R38B<br>  <br>Figure 3-2. eDP 1.2 Receptacle 30pin Test Fixture |
| TFD-11R28<br>  <br>Figure 3-3. eDP 1.2 Receptacle 40pin Test Fixture | TLA16EM002<br>  <br>Figure 3-4. eDP 1.2 Plug 30pin Adapter |
| TLA16EM003<br>  <br>Figure 3-5. eDP 1.2 Plug 40pin Adapter | TFD-4C98<br>  <br>Figure 3-6. DP 1.2 1X,2X and SOL Calibration Board |

# 4. 測試設備

| Item | Product Model | Name | Manufacturer |
|---|---|---|---|
| **01** | E5071C-TDR | 300KHz~20GHz ENA Network Analyzer | Keysight |
| **02** | N4433A | 200KHz~20GHz Electronic Calibration Module | Keysight |
| **03** | TDS8300+80E04 | TDR with TDR and TDT module | Tektronix |

# 5. 測試條件

(Reference DisplayPort 1.2 specification)

| Test Fixture | Part No. | S/N |
|---|---|---|
| eDP 1.2 Receptacle 30Pin Test Fixture | TFD-1R38B | 001 |
| eDP 1.2 Receptacle 40Pin Test Fixture | TFD-11R28 | 001 |
| DP 1.2 1X,2X and SOL Calibration Board | TFD-4C98 | 001 |

| Test Item: | Condition | Requirement |
|---|---|---|
| Eye Diagram | | Eye Height :75%<br>ISI Jitter: 5%<br>Rise/Fall Time (10-90): 50ps |
| Differential Intra-pair Skew | No Filter | <5ps |
| Far-End Crosstalk | 300KHz～10GHz | N/A |
| Near-End Crosstalk | 300KHz～10GHz | N/A |
| Insertion Loss( -3dB Bandwidth) | 300KHz～10GHz | 5GHz@-3dB |
| Return Loss | 300KHz～10GHz | N/A |
| Traces Impedance | 130ps (20% - 80%) | 50 Ω ± 5% |
| Differential impedance of Mated Connectors | 130ps (20% - 80%)<br>35ps (10% - 90%) | 100Ω ± 10%<br>100Ω ± 10% |

# 6. 測試結果

## 6-1. eDP 1.2 30Pin Test Fixture

### 6-1-1. Eye Diagram

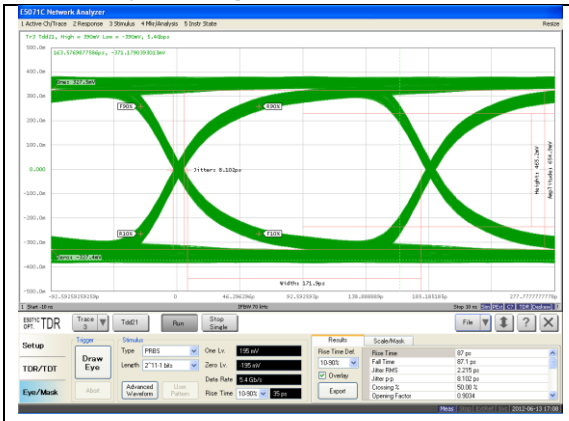


Figure 6-1. AUX Pair

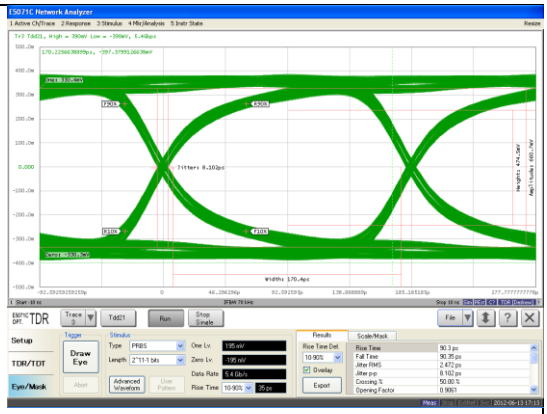


Figure 6-2. L0 Pair

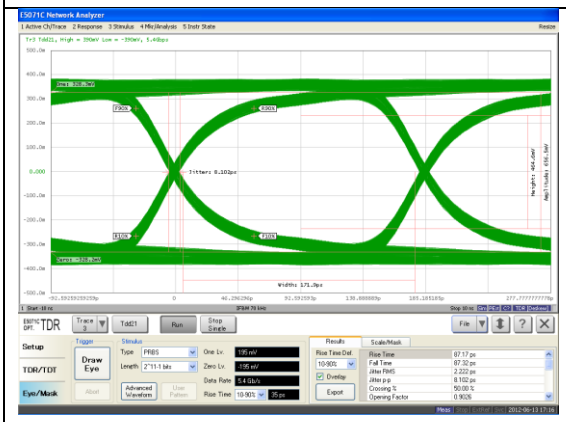


Figure 6-3. L1 Pair

## 6-1-2. Differential Intra-Pair Skew

| DUT / Test Pair | eDP 1.2 30Pin(Ω) | |
|---|---|---|
| | Result (ps) | Remark |
| AUX | 0.87 | Refer to Fig. 6-4 |
| L0 | 1.64 | Refer to Fig. 6-5 |
| L1 | 0.80 | Refer to Fig. 6-6 |

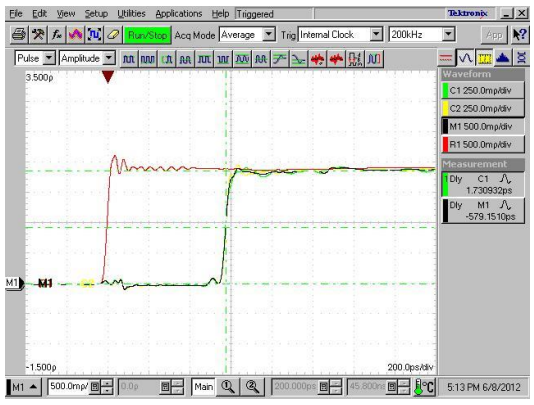



Figure 6-4. AUX Pair

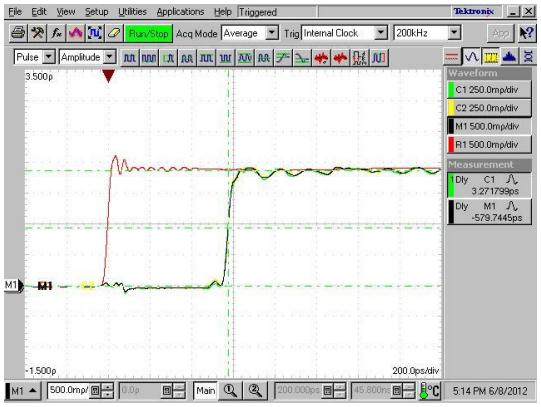



Figure 6-5. L0 Pair

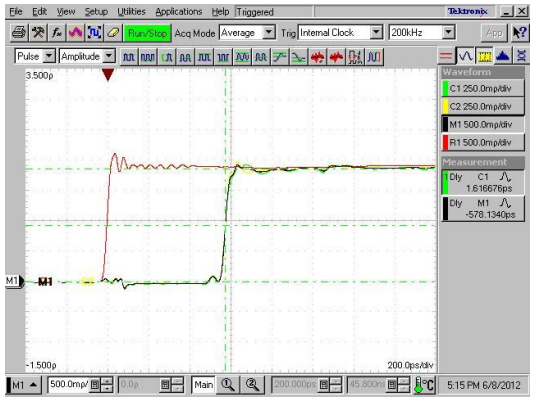



Figure 6-6. L1 Pair

## 6-1-3. Far-End Crosstalk

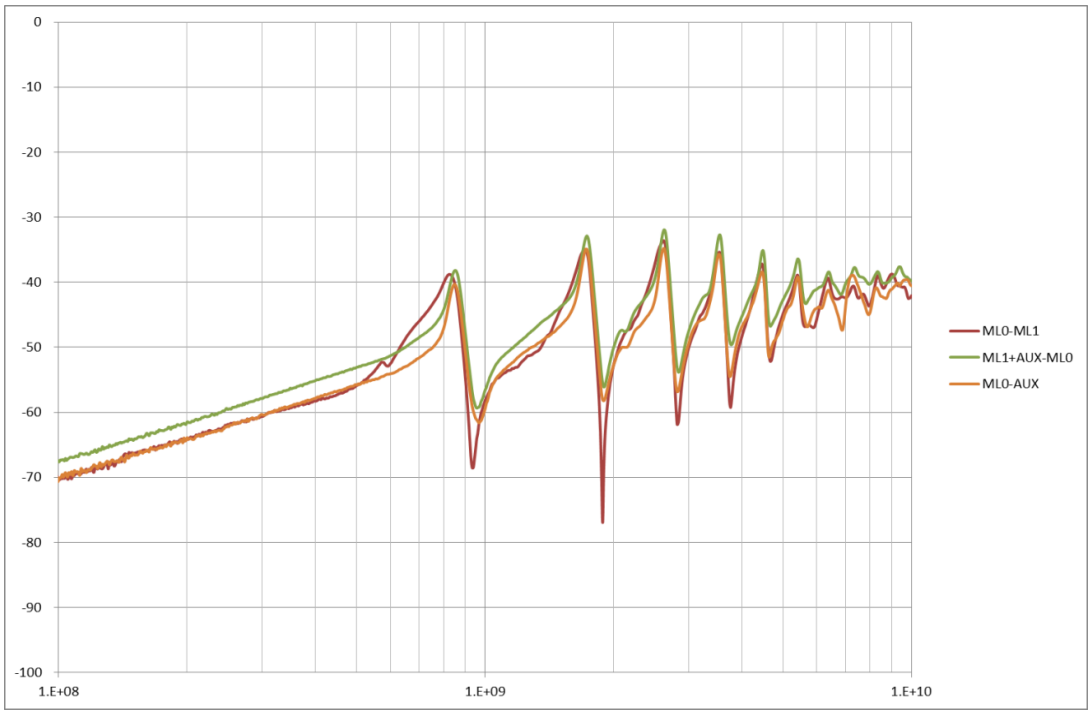



Figure 6-7. FEXT

## 6-1-4. Near-End Crosstalk

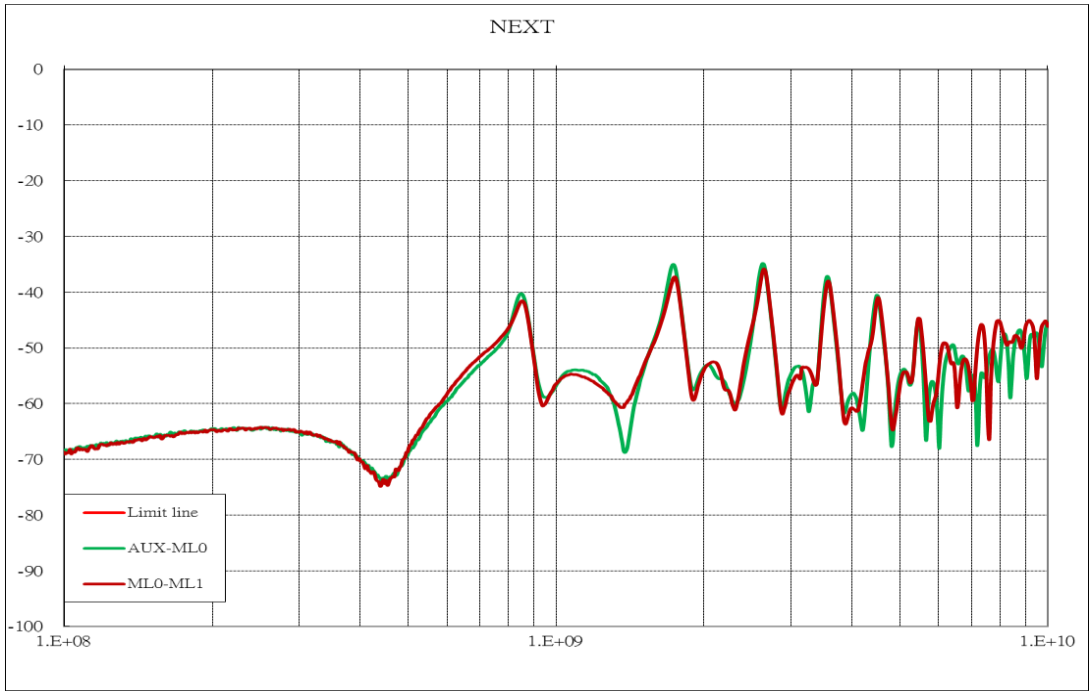



Figure 6-8. NEXT

## 6-1-5. Insertion Loss

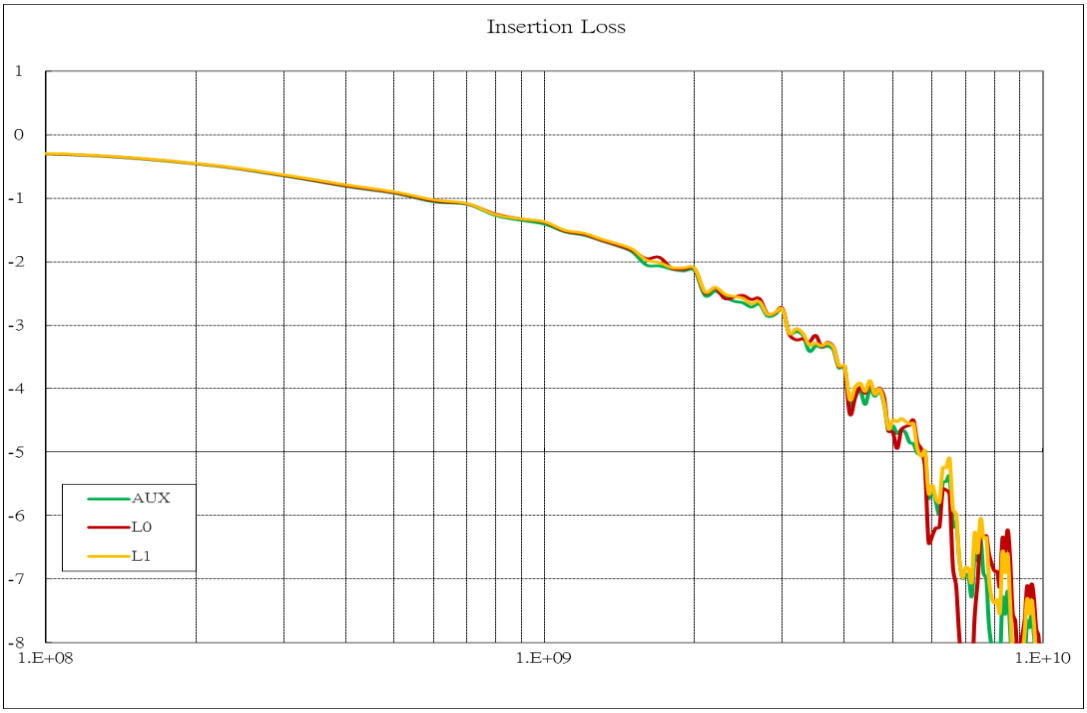



Figure 6-9. Insertion Loss

## 6-1-6. Return Loss

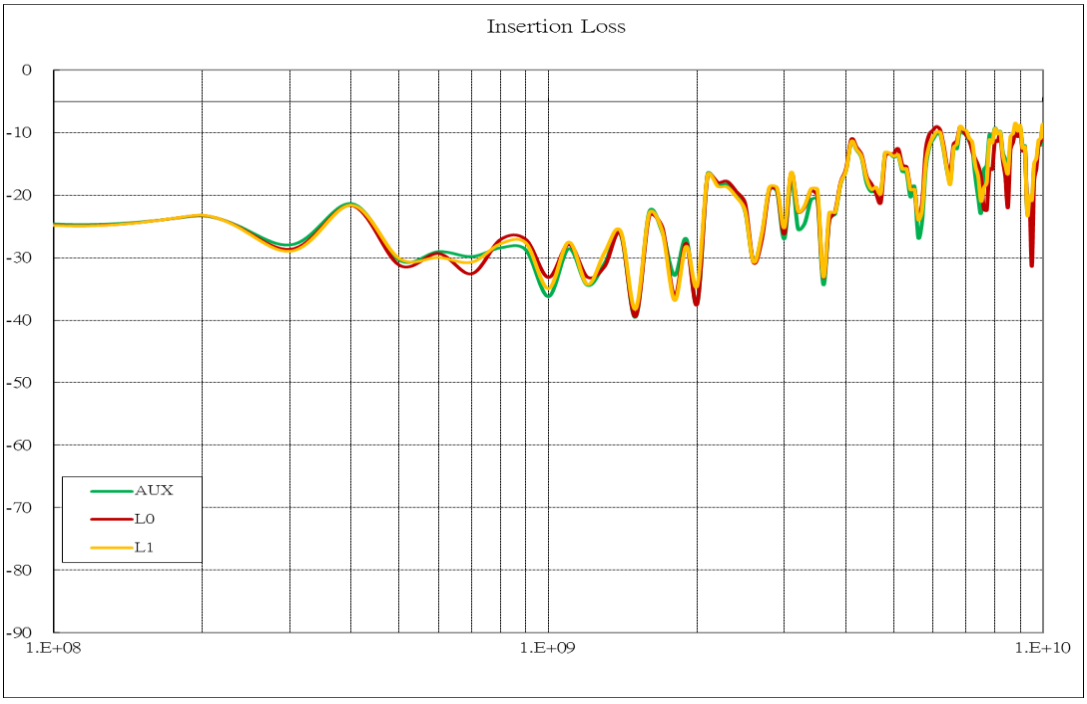



Figure 6-10. Return Loss

## 6-1-7. Traces Impedance

| Test Item | | Impedance (Ω) | | | |
|---|---|---|---|---|---|
| DUT / Test Pin | | eDP 1.2 30Pin Test Fixture | | | |
| Pair | Pin | Max | Min | Δ | Remark |
| AUX | N-Pair | 49.18 | 47.69 | 1.49 | Refer to Fig. 6-11 |
| | P-Pair | 49.42 | 48.38 | 1.04 | Refer to Fig. 6-12 |
| L0 | P-Pair | 49.20 | 47.67 | 1.53 | Refer to Fig. 6-13 |
| | N-Pair | 49.25 | 47.69 | 1.52 | Refer to Fig. 6-14 |
| L1 | P-Pair | 49.20 | 47.74 | 1.46 | Refer to Fig. 6-15 |
| | N-Pair | 49.25 | 47.80 | 1.45 | Refer to Fig. 6-16 |

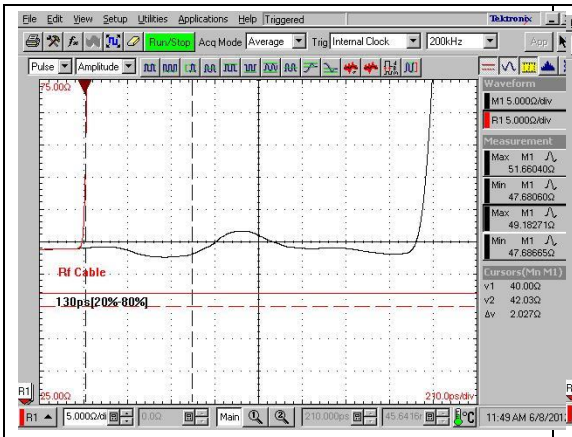



Figure 6-11. AUX N-Pair

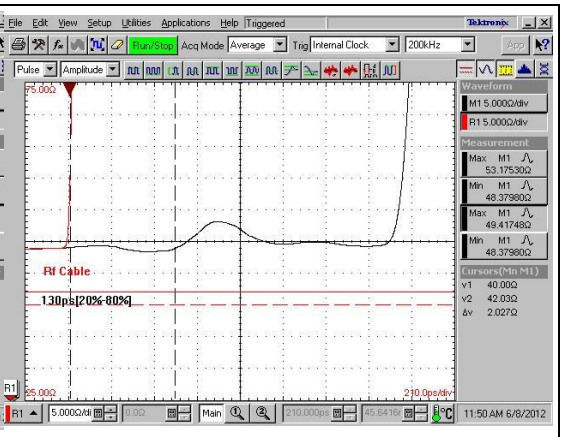



Figure 6-12. AUX P-Pair

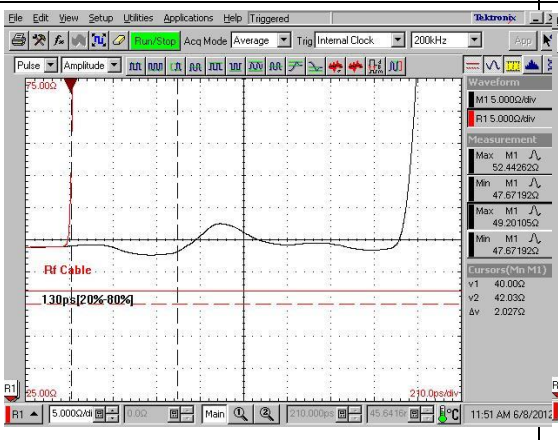



Figure 6-13. L0 P-Pair

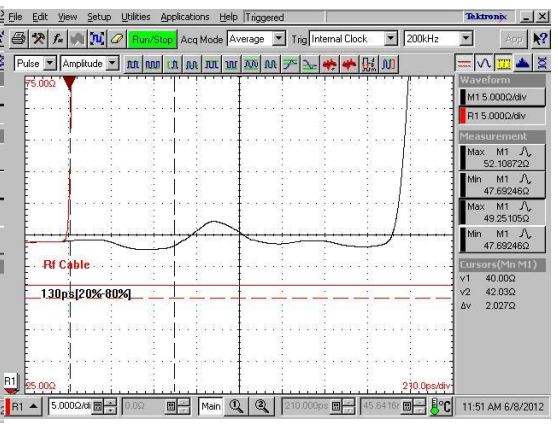



Figure. 6-14. L0 N-Pair

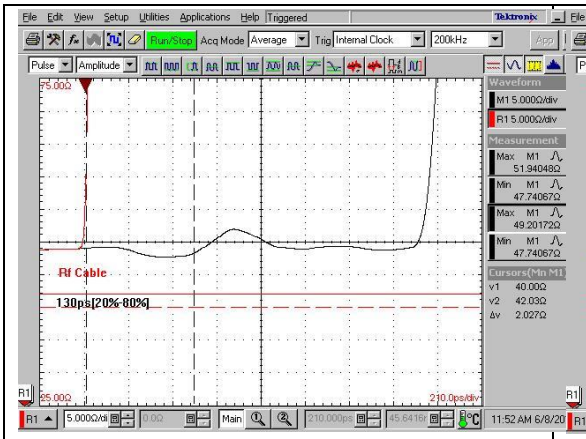



Figure. 6-15. L1 P-Pair

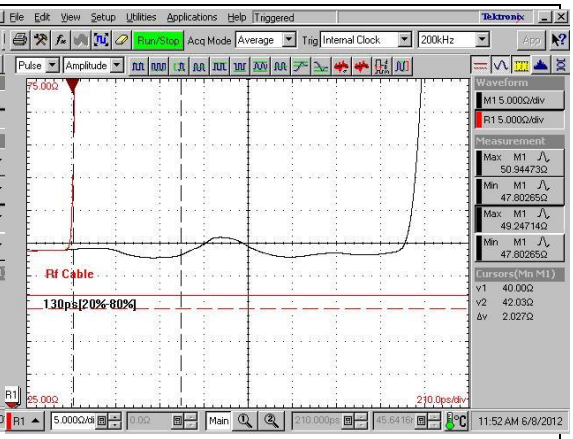



Figure. 6-16. L1 N-Pair

## 6-1-8. Differential Impedance of Mated Connectors

| Test Item | Impedance (Ω) | | | |
|---|---|---|---|---|
| DUT / Test Pin | eDP 1.2 30Pin Test Fixture | | | |
| Pair | Max | Min | Δ | Remark |
| AUX | 96.58 | 93.72 | 2.86 | Refer to Fig. 6-17 |
| L0 | 96.58 | 93.42 | 3.16 | Refer to Fig. 6-18 |
| L1 | 96.59 | 93.22 | 3.37 | Refer to Fig. 6-19 |

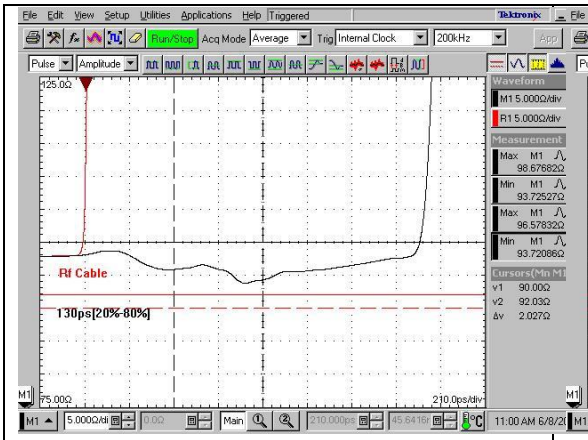



Figure 6-17. AUX Pair

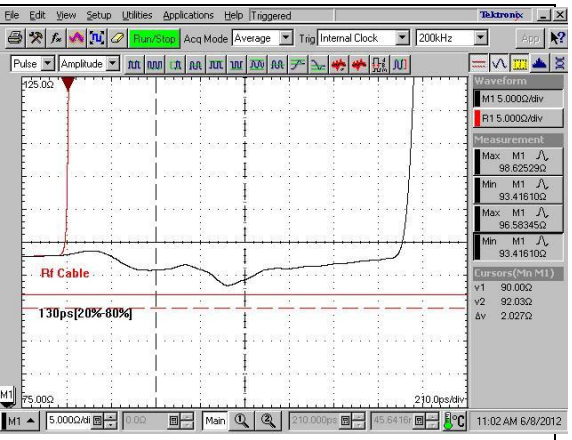



Figure 6-18. L0 Pair

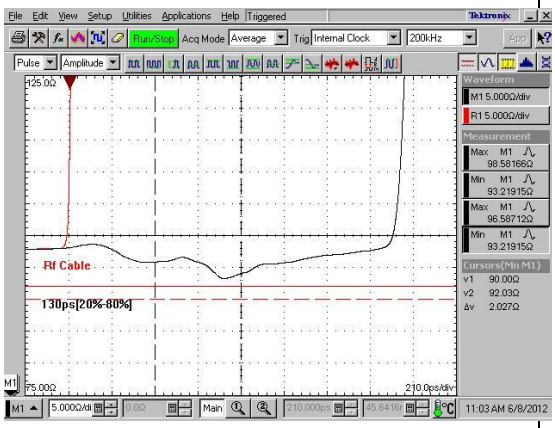



Figure 6-19. L1 Pair

## 6-2. eDP 1.2 40Pin Test Fixture

### 6-2-1. Eye Diagram

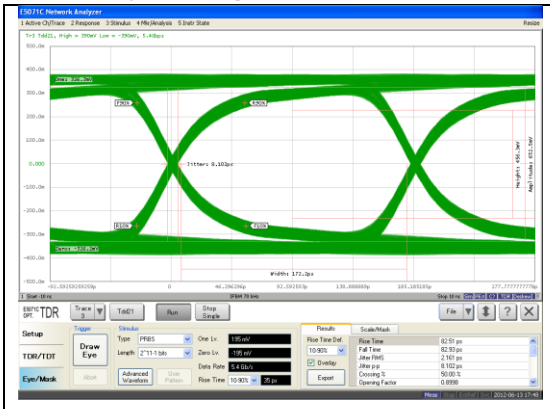


Figure 6-20. AUX Pair

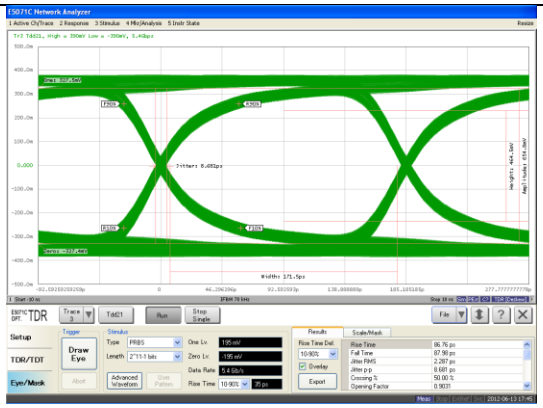


Figure 6-21. L0 Pair

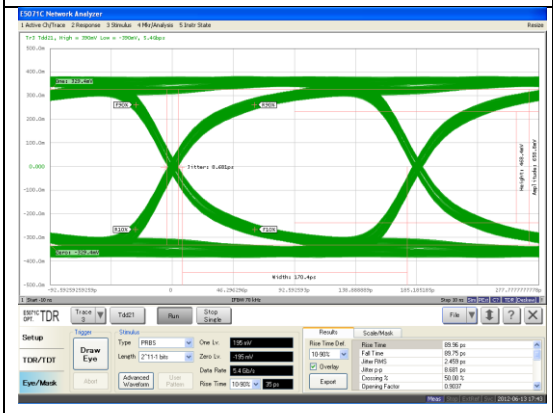


Figure 6-22. L1 Pair

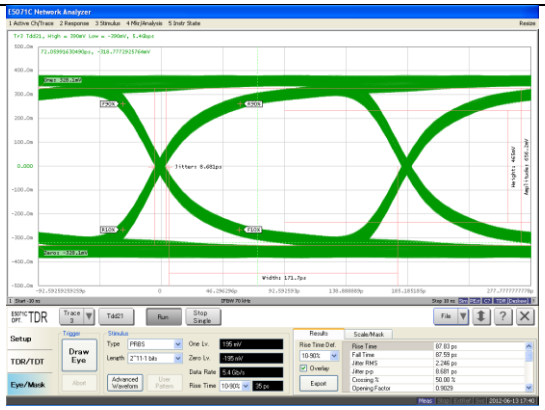


Figure 6-23. L2 Pair

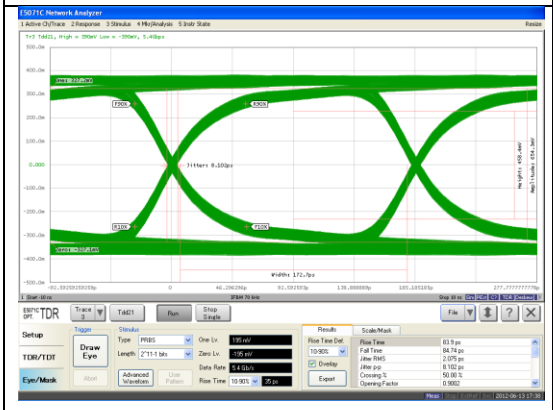


Figure 6-24. L3 Pair

## 6-2-2. Differential Intra-Pair Skew

| DUT / Test Pair | eDP 1.2 40Pin Test Fixture | |
|---|---|---|
| | Result (ps) | Remark |
| AUX | 0.33 | Refer to Fig. 6-25 |
| L0 | 1.29 | Refer to Fig. 6-26 |
| L1 | 2.05 | Refer to Fig. 6-27 |
| L2 | 1.58 | Refer to Fig. 6-28 |
| L3 | 1.77 | Refer to Fig. 6-29 |

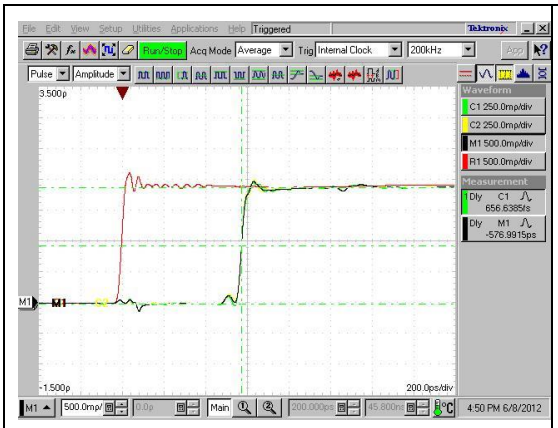


Figure 6-25. AUX Pair

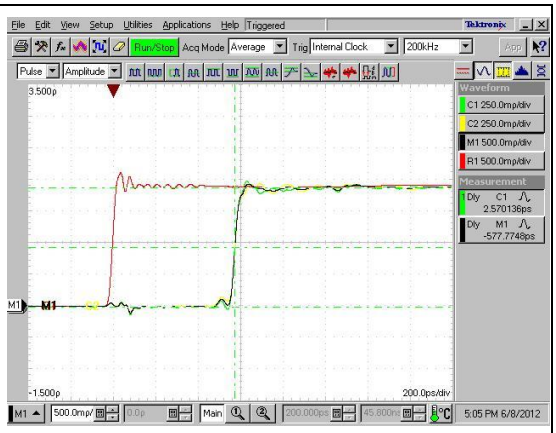


Figure 6-26. L0 Pair

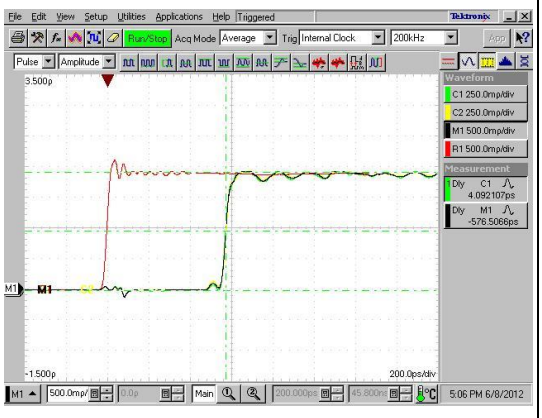


Figure 6-27. L1 Pair

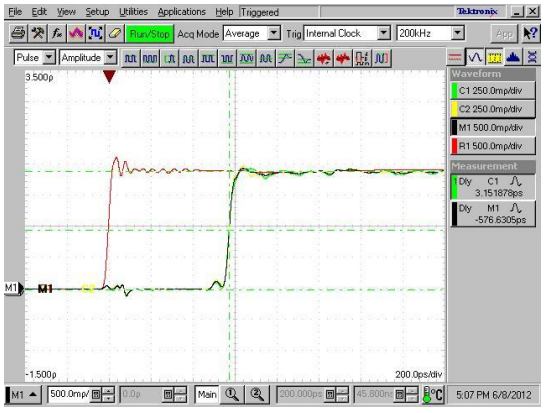


Figure 6-28. L2 Pair

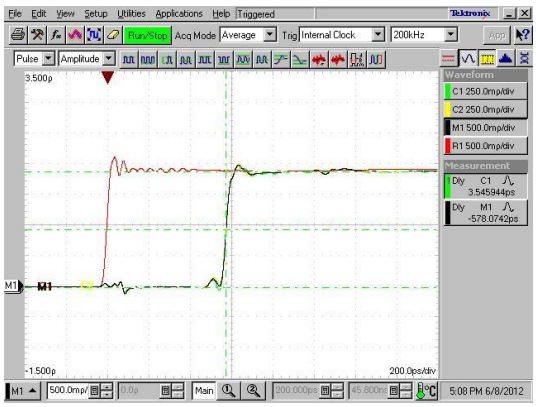



Figure 6-29. L3 Pair

## 6-2-3. Far-End Crosstalk

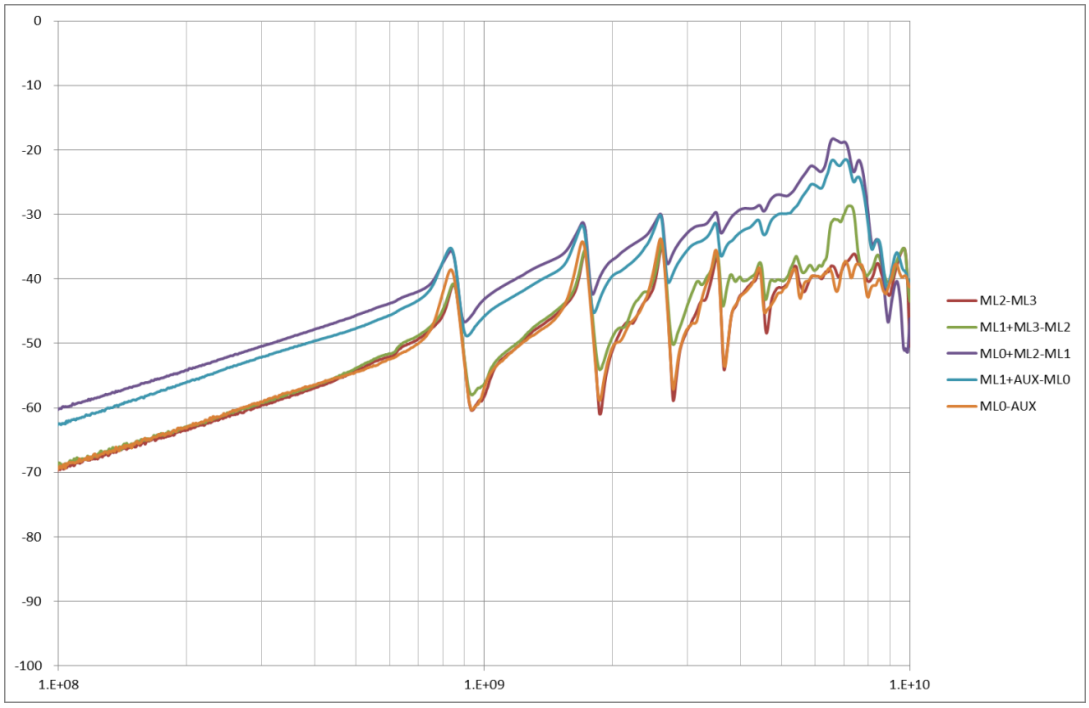



Figure 6-30. FEXT

## 6-2-4. Near End Crosstalk

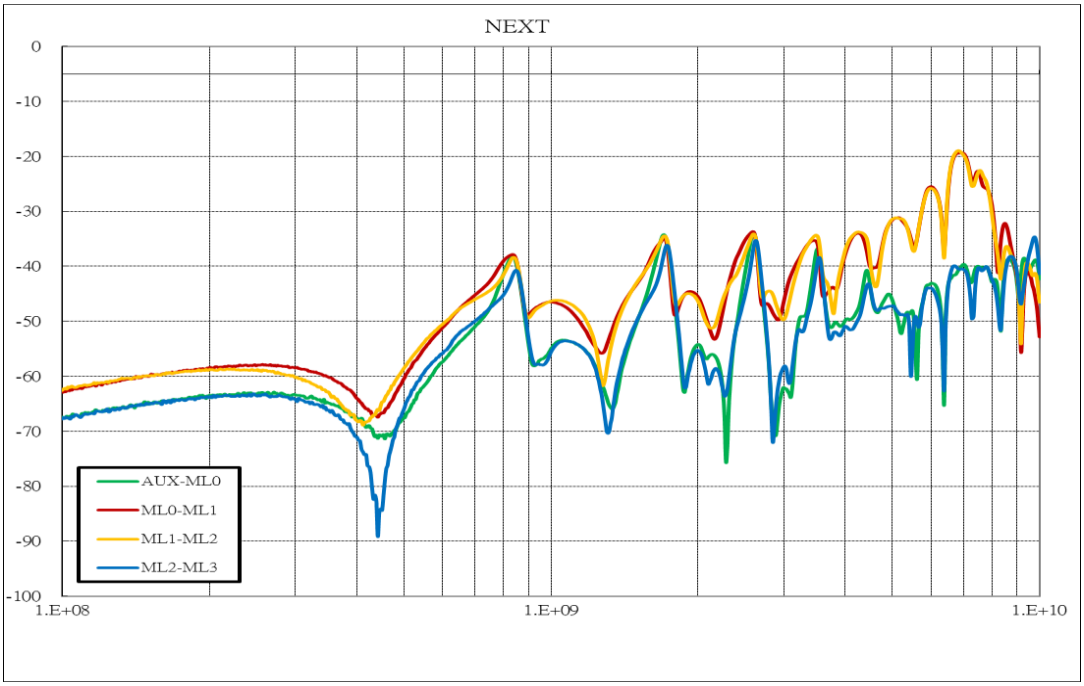



Figure 6-31. NEXT

## 6-2-5. Insertion Loss

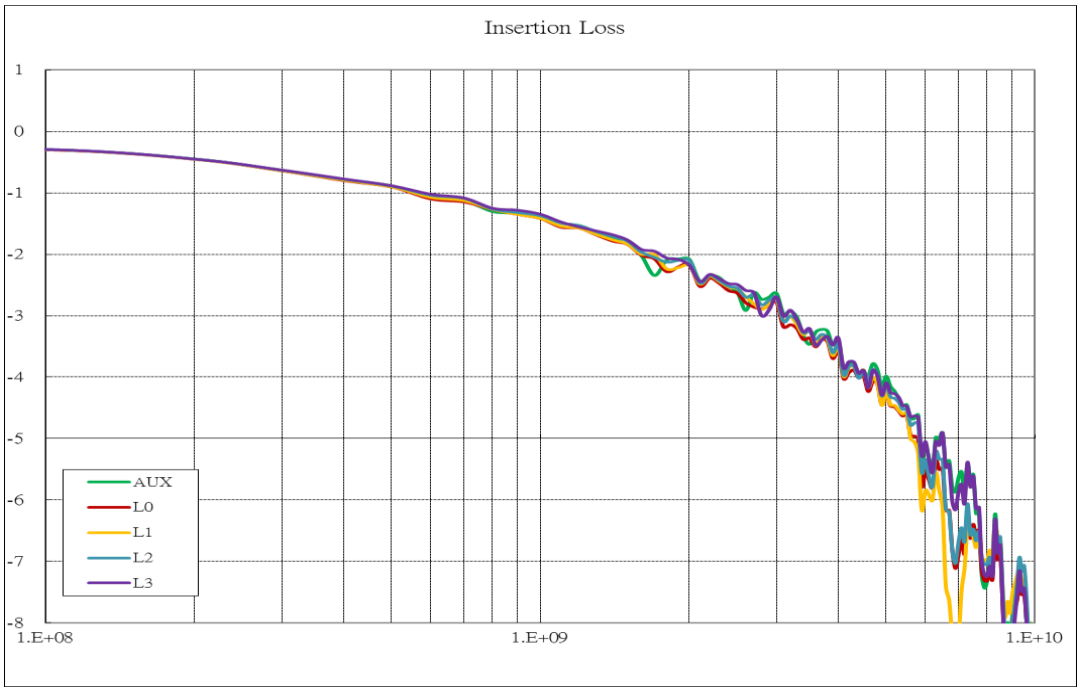



Figure 6-32. Insertion Loss

## 6-2-6. Return Loss

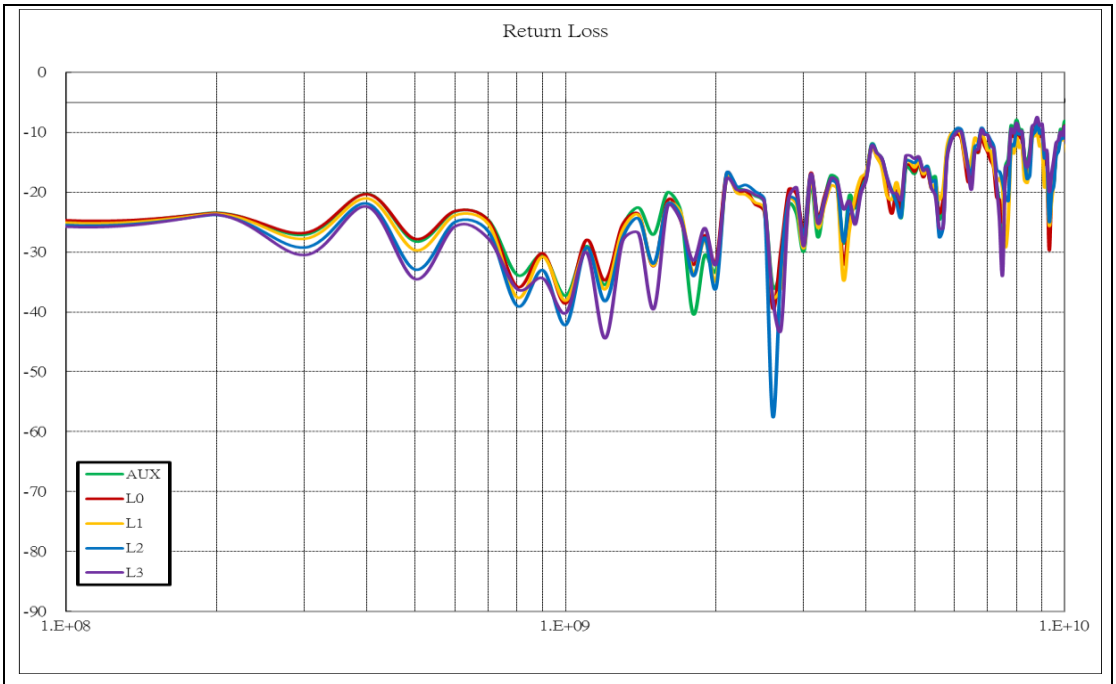



Figure 6-33. Return Loss

## 6-2-7. Traces Impedance

| Test Item | | Impedance (Ω) | | | |
|---|---|---|---|---|---|
| DUT / Test Pin | | eDP 1.2 40Pin Test Fixture | | | |
| Pair | Pin | Max | Min | Δ | Remark |
| AUX | N-Pair | 49.16 | 48.22 | 0.94 | Refer to Fig. 6-34 |
| | P-Pair | 49.22 | 48.31 | 0.91 | Refer to Fig. 6-35 |
| L0 | P-Pair | 49.19 | 48.16 | 1.03 | Refer to Fig. 6-36 |
| | N-Pair | 49.22 | 48.34 | 0.88 | Refer to Fig. 6-37 |
| L1 | P-Pair | 49.25 | 48.42 | 0.83 | Refer to Fig. 6-38 |
| | N-Pair | 49.34 | 48.50 | 0.84 | Refer to Fig. 6-39 |
| L2 | P-Pair | 49.35 | 48.57 | 0.78 | Refer to Fig. 6-40 |
| | N-Pair | 49.34 | 48.62 | 0.72 | Refer to Fig. 6-41 |
| L3 | P-Pair | 49.33 | 48.66 | 0.67 | Refer to Fig. 6-42 |
| | N-Pair | 49.33 | 48.53 | 0.80 | Refer to Fig. 6-43 |

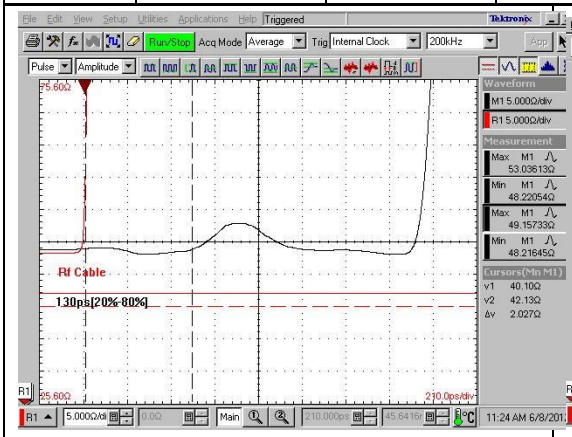



Figure 6-34. AUX N-Pair

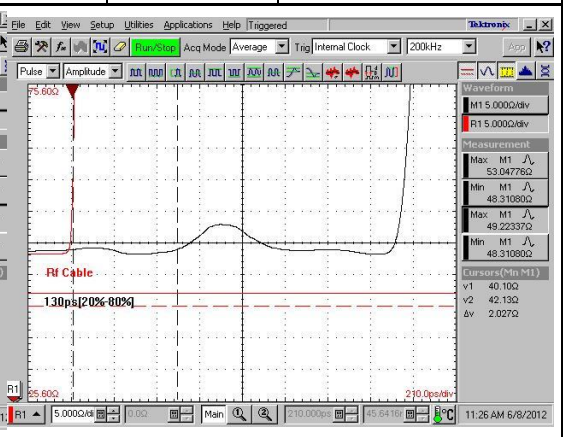



Figure 6-35. AUX P-Pair

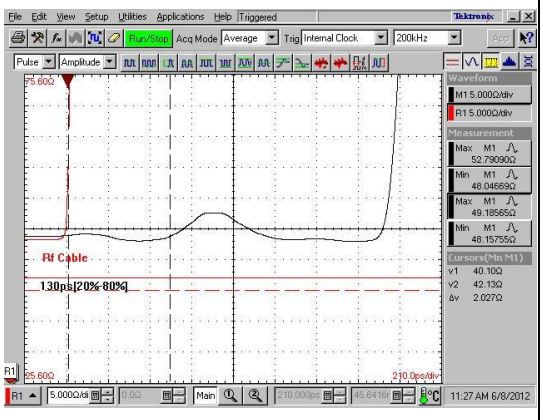



Figure 6-36. L0 P-Pair

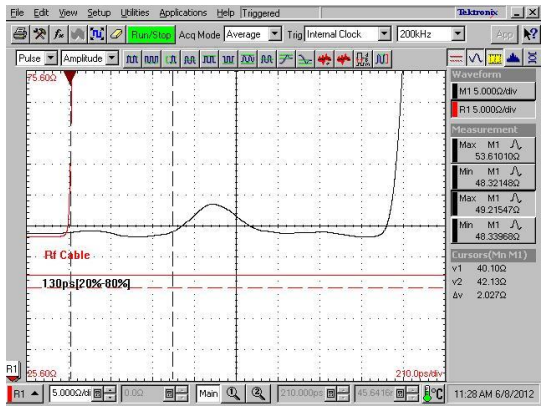



Figure 6-37. L0 N-Pair

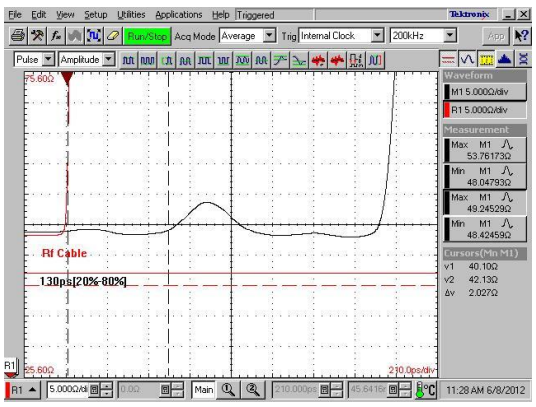



Figure 6-38. L1 P-Pair

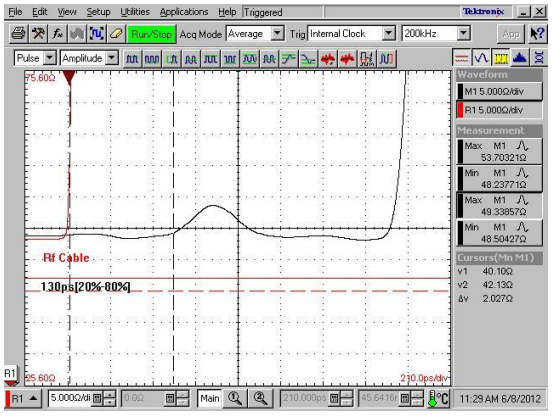



Figure 6-39. L1 N-Pair

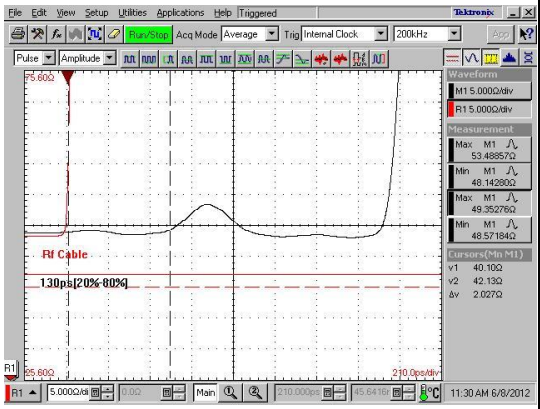



Figure. 6-40. L2 P-Pair

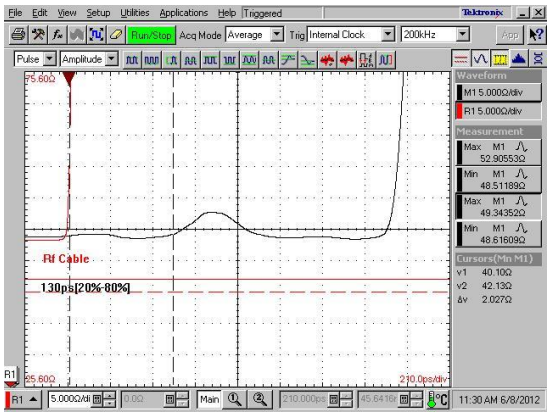



Figure 6-41. L2 N-Pair

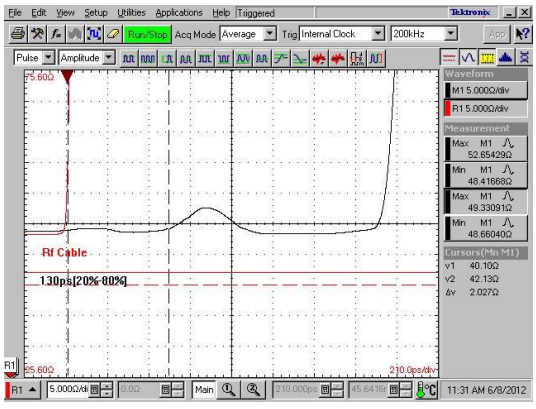



Figure 6-42. L3 P-Pair

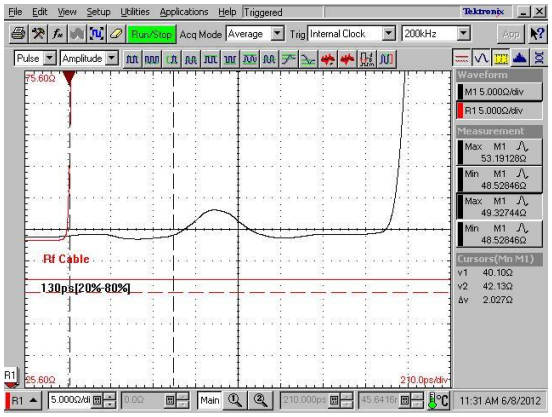



Figure 6-43. L3 N-Pair

## 6-2-8. Differential Impedance of Mated Connectors

| Test Item | Impedance (Ω) | | | |
|---|---|---|---|---|
| DUT / Test Pin | eDP 1.2 40Pin Test Fixture | | | |
| Pair | Max | Min | Δ | Remark |
| AUX | 98.14 | 94.64 | 3.50 | Refer to Fig. 6-44 |
| L0 | 98.33 | 94.52 | 3.81 | Refer to Fig. 6-45 |
| L1 | 98.66 | 95.34 | 3.32 | Refer to Fig. 6-46 |
| L2 | 98.83 | 95.36 | 3.47 | Refer to Fig. 6-47 |
| L3 | 98.66 | 95.17 | 3.49 | Refer to Fig. 6-48 |

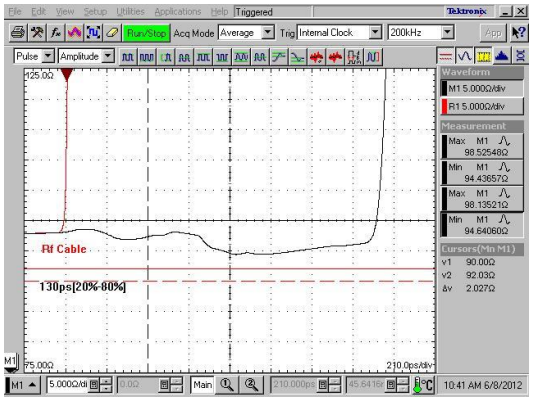



Figure 6-44. AUX Pair

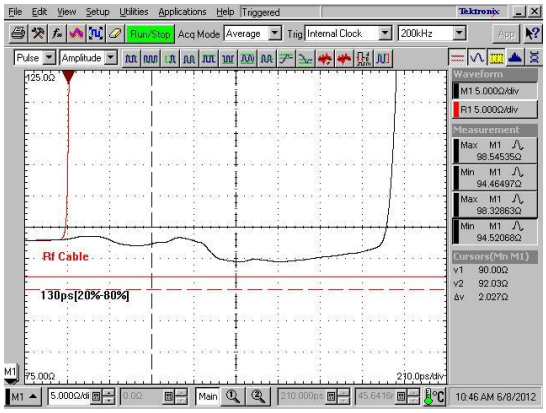



Figure 6-45. L0 Pair

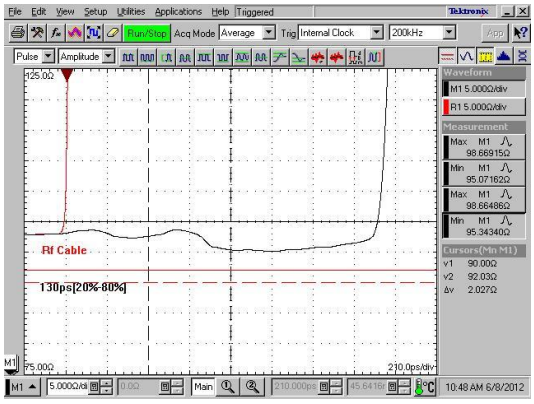



Figure 6-46. L1 Pair

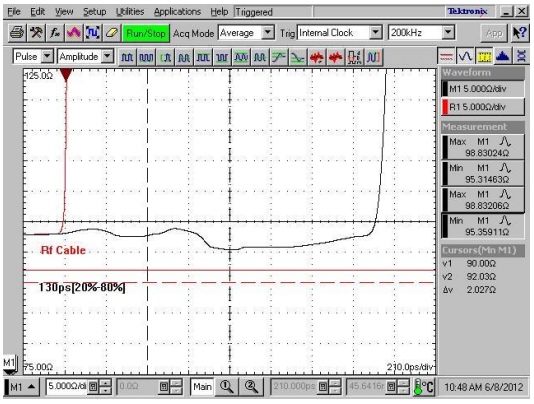



Figure 6-47. L2 Pair

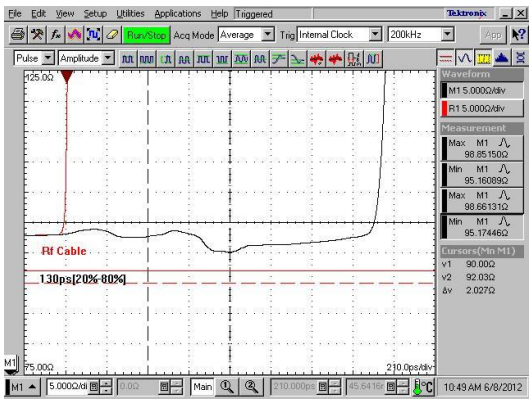



Figure 6-48. L3 Pair

## 6-3. DP 1.2 1X,2X and SOL Calibration Board

### 6-3-1. Eye Diagram

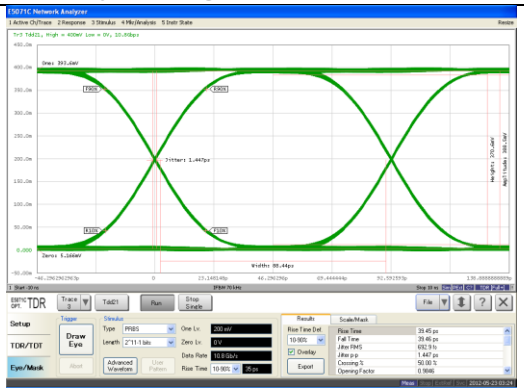


Figure 6-49. 1X Pair

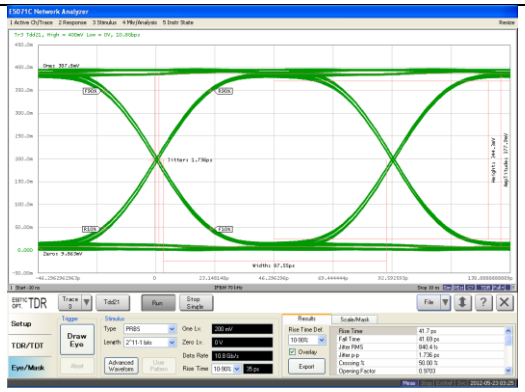


Figure 6-50. 2X Pair

## 6-3-2. Insertion Loss

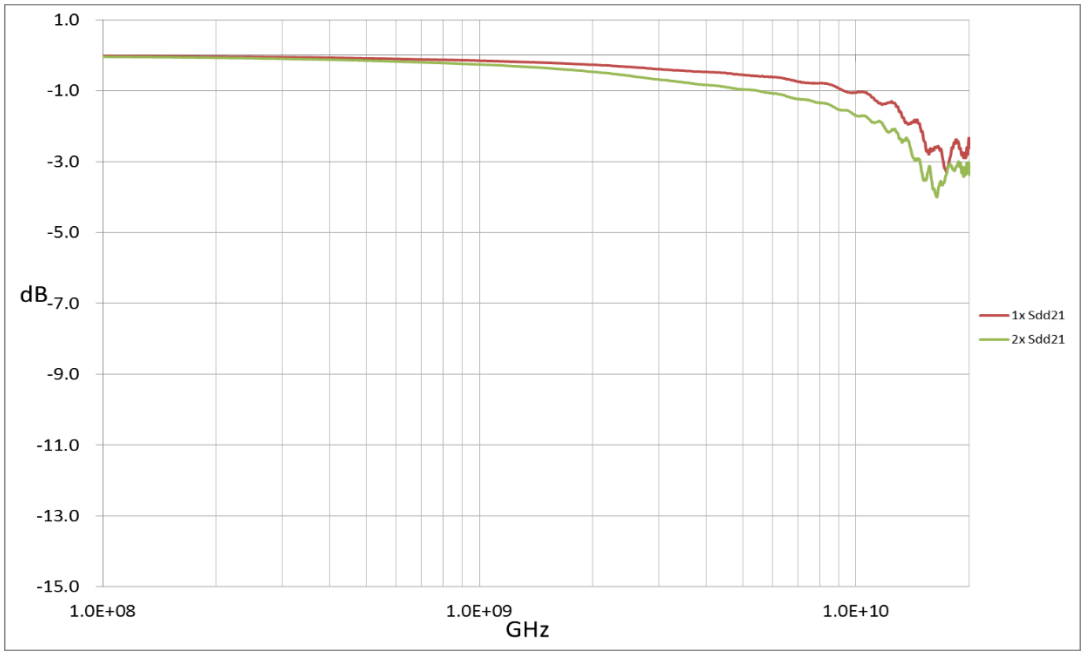



Figure 6-51. Insertion Loss

## 6-3-3. Return Loss

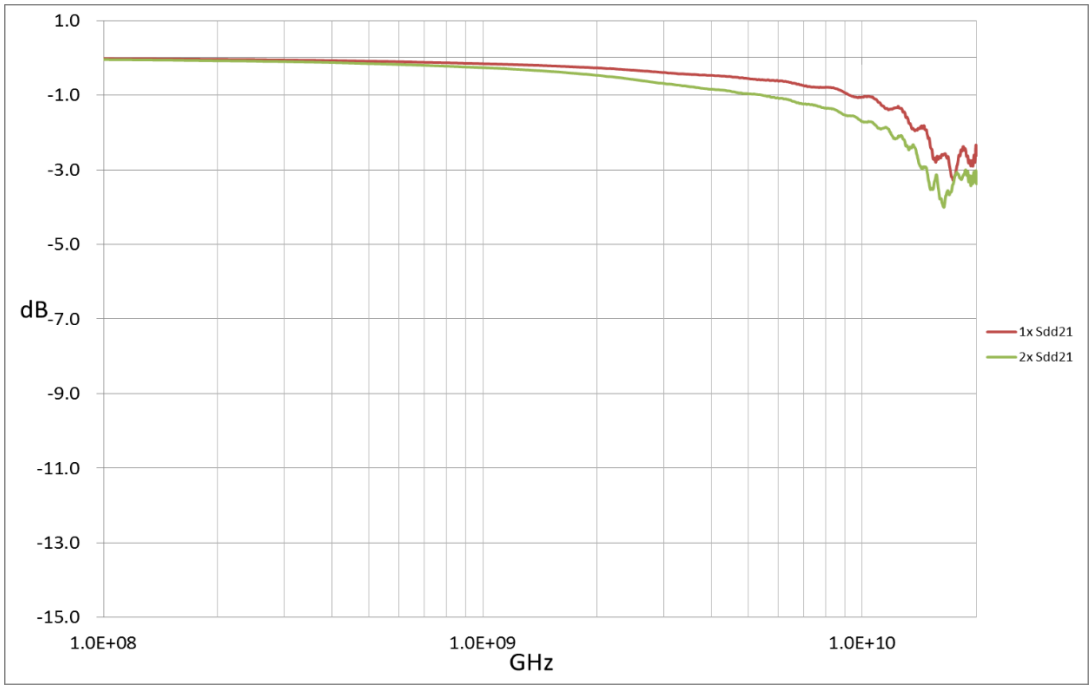



Figure 6-52. Return Loss

## 6-3-4. Traces Impedance

| Test Item | | Impedance (Ω) | | | |
|---|---|---|---|---|---|
| DUT / Test Pin | | DP 1.2 1X,2X and SOL Calibration Board | | | |
| Pair | Pin | Max | Min | Δ | Remark |
| 1X | 1 | 49.06 | 48.45 | 0.61 | Refer to Fig. 6-53 |
| | 2 | 49.18 | 48.43 | 0.73 | Refer to Fig. 6-54 |
| 2X | 1 | 49.58 | 48.58 | 1.00 | Refer to Fig. 6-55 |
| | 2 | 49.60 | 48.45 | 1.15 | Refer to Fig. 6-56 |
| Short | 1 | 48.86 | 48.25 | 0.61 | Refer to Fig. 6-57 |
| | 2 | 48.79 | 47.96 | 0.83 | Refer to Fig. 6-58 |
| Open | 1 | 49.54 | 48.71 | 0.79 | Refer to Fig. 6-59 |
| | 2 | 49.50 | 48.75 | 0.75 | Refer to Fig. 6-60 |
| Load | 1 | 49.13 | 48.83 | 0.30 | Refer to Fig. 6-61 |
| | 2 | 49.19 | 48.52 | 0.67 | Refer to Fig. 6-62 |

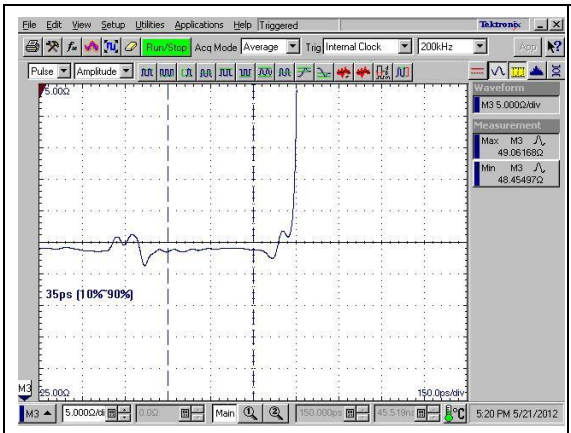



Figure 6-53. 1X _1 Pair

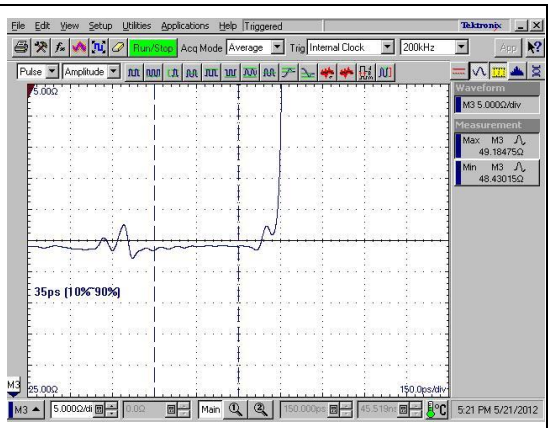



Figure 6-54. 1X _2 Pair

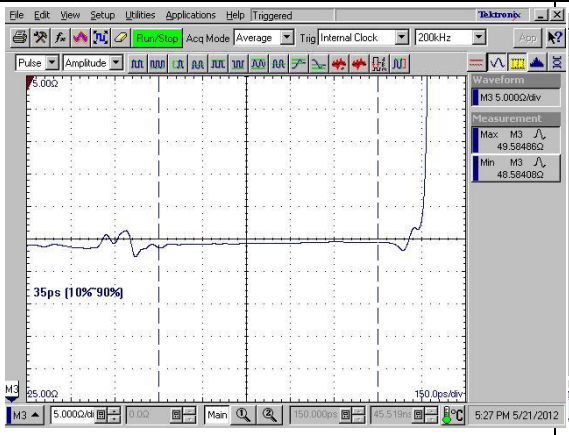



Figure 6-55. 2X _1 Pair

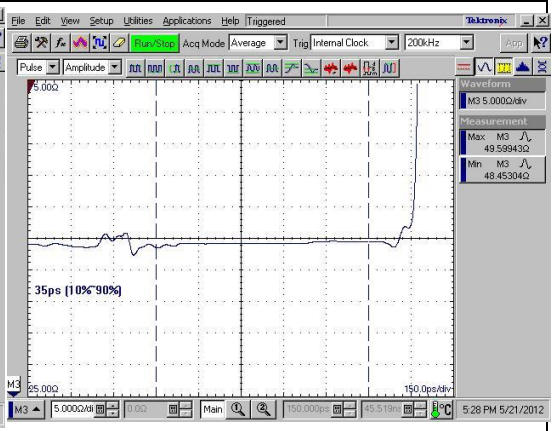



Figure 6-56. 2X _2 Pair

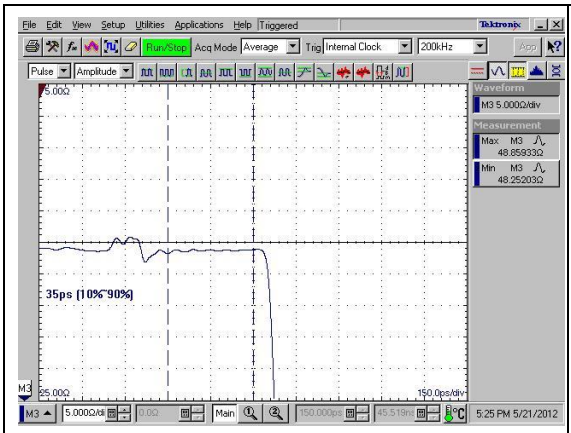



Figure 6-57. Short _1 Pair

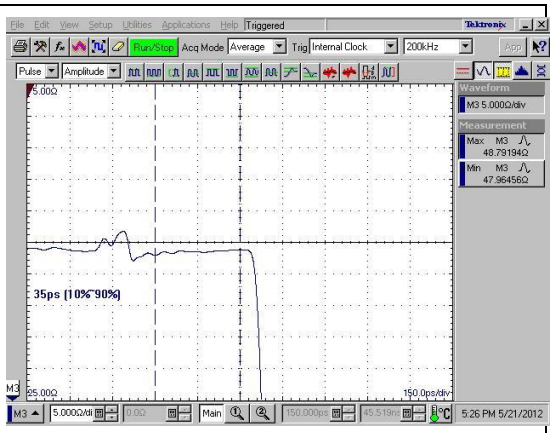



Figure 6-58. Short _2 Pair

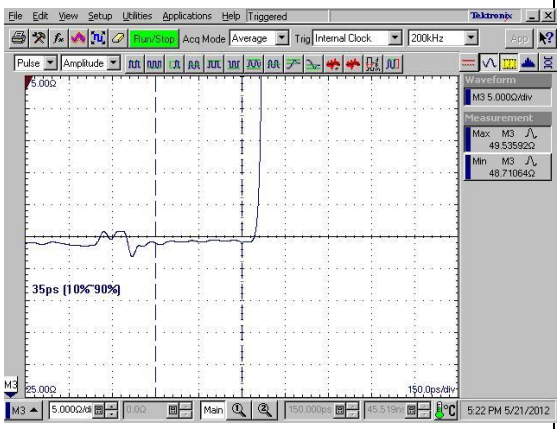



Figure 6-59. Open_1 Pair

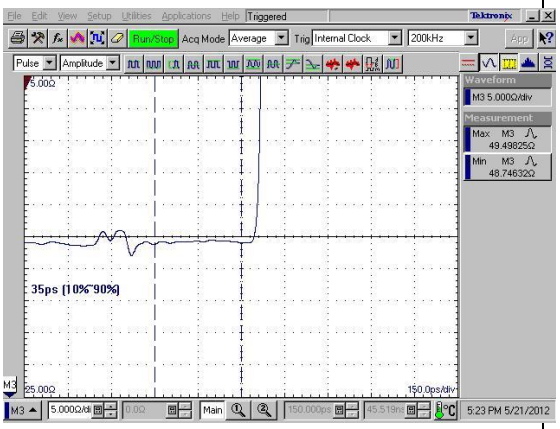



Figure 6-60. Open_2 Pair

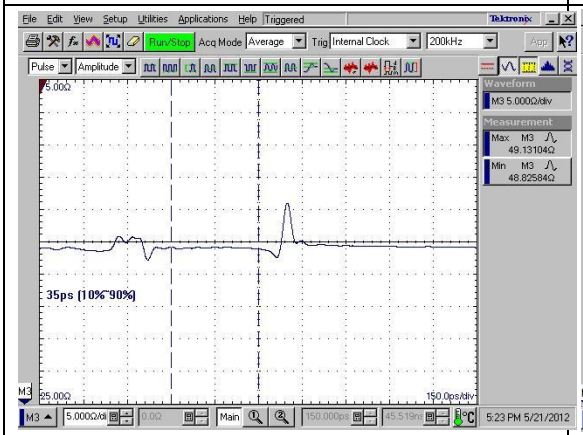



Figure 6-61. Load _1 Pair

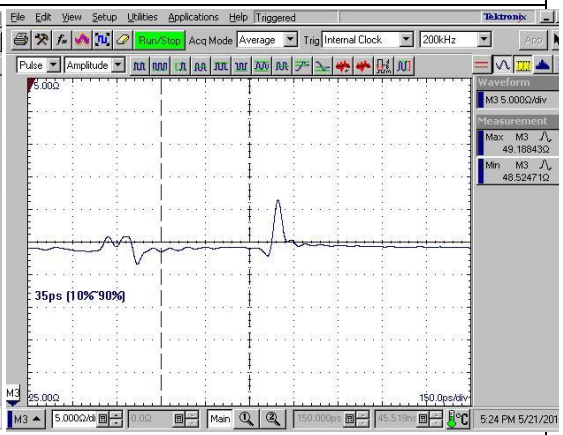



Figure 6-62. Load _2 Pair

## 6-3-5. Differential Impedance

| Test Item | Impedance (Ω) | | | |
|---|---|---|---|---|
| DUT / Test Pin | DP 1.2 1X,2X and SOL Calibration Board | | | |
| Pair | Max | Min | Δ | Remark |
| 1X | 98.46 | 97.52 | 0.94 | Refer to Fig. 6-63 |
| 2X | 99.42 | 98.26 | 1.16 | Refer to Fig. 6-64 |

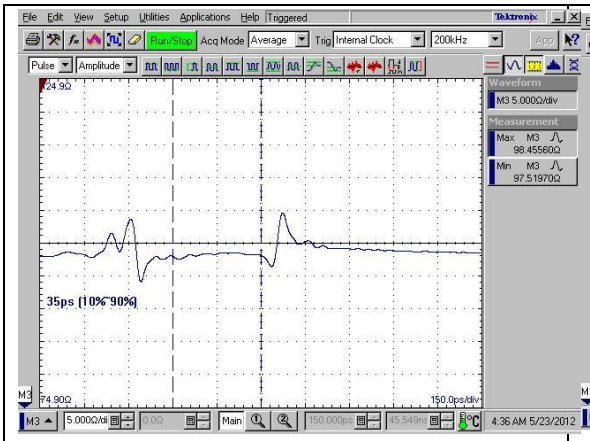



Figure 6-63. 1X Pair

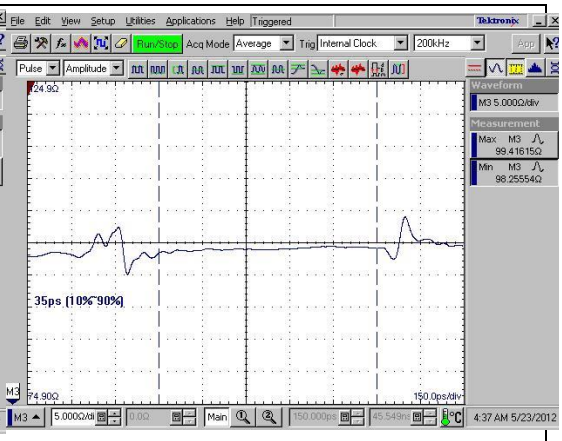



Figure 6-64. 2X Pair

# 7. 參考資料

## 7-1. Keysight

(MOI) for DisplayPort1.2b Cable-Connector Assembly Compliance Test
https://www.keysight.com/upload/cmc_upload/All/ENA-TDR_DisplayPort_MOI_rev3.01.pdf