

Display Port Cable

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supported by:

Heinz Maier-Leibnitz Zentrum

Cluster of Excellence: Origin and Structure of the Universe,

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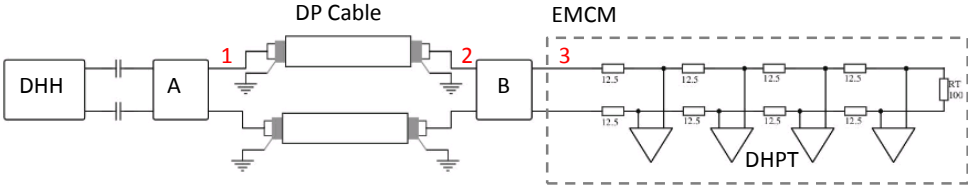


1. Display Port Cable 9mm

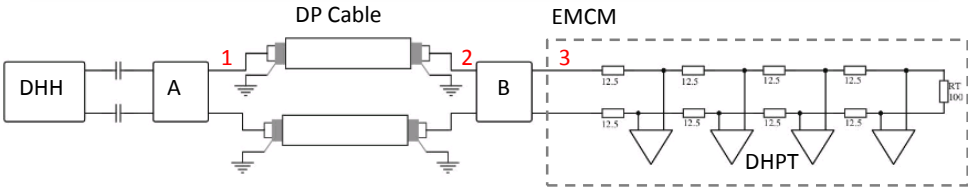
- Diameter: 9mm
 - Length: 15 meter
 - High speed link between EMCM and DHH
- **Correct DHPT command through**

2. Display Port Cable 7mm

- Diameter: 7 mm
 - Length: 20 meter
 - **NO** high speed link between EMCM and DHH
- **DHPT command ??**



- A, B are transition cards between Infiniband, RJ45 and DP connectors
- Measure Point 1: input of the DP cable
- Measure Point 2: output of the DP cable
- Measure Point 3: input of the EMCM

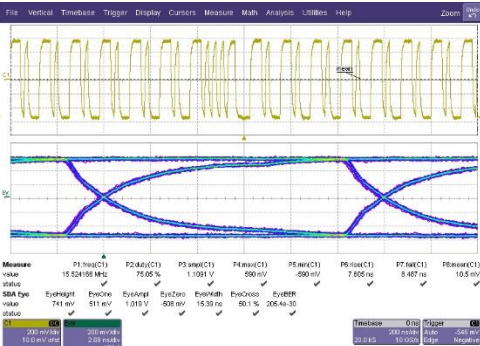
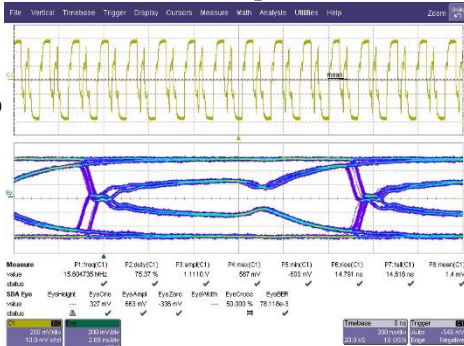


- 7mm DP cable
HP link → No,
Reflections.
- 9mm DP cable
HP link → Yes,
Reflections.

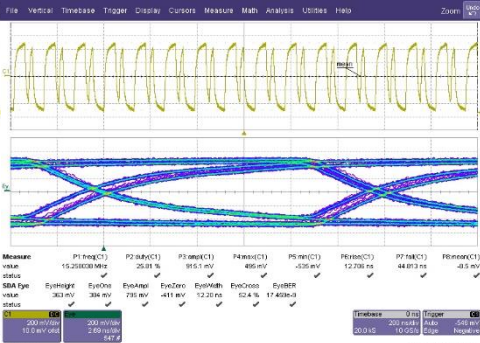
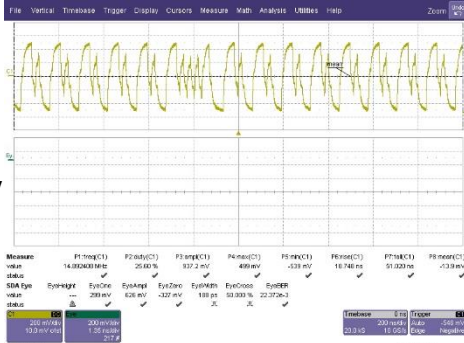
DP Output

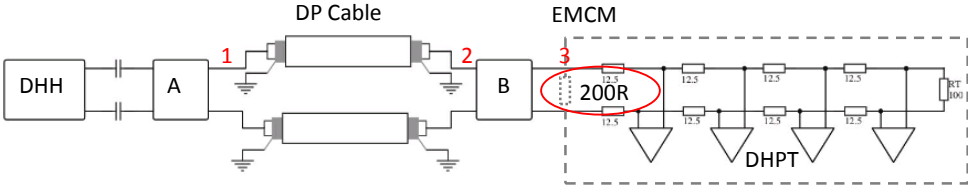
EMCM in

9



7



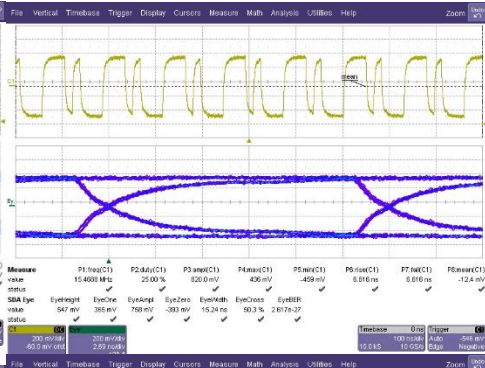
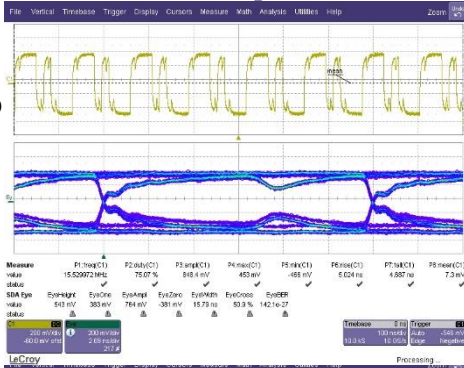


- Because of reflections, 200 Ohm resistor is in parallel
→ links **can not** be established even with 9mm DP cable

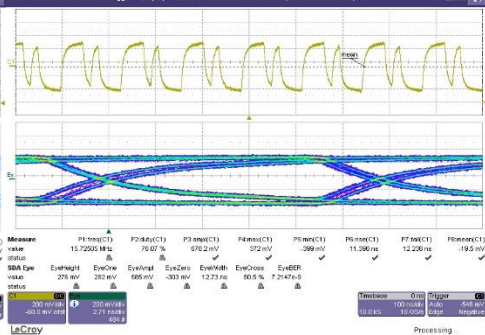
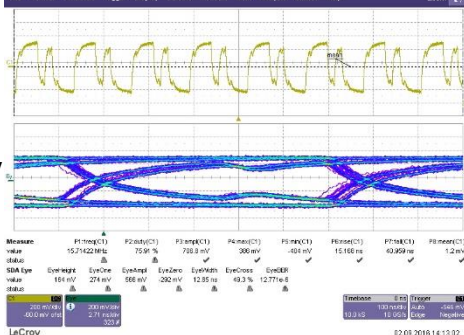
DP Output

EMCM in

9



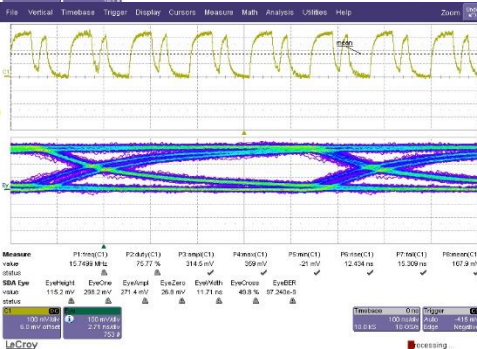
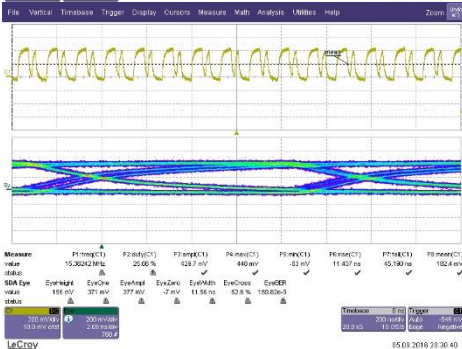
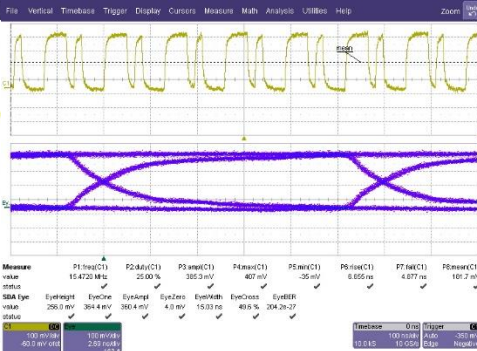
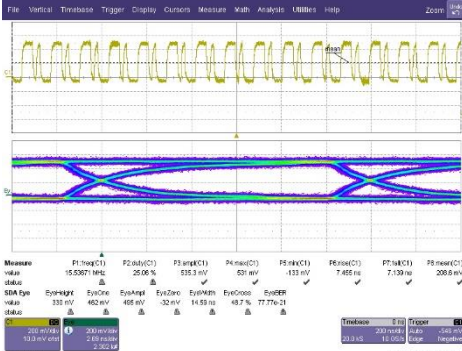
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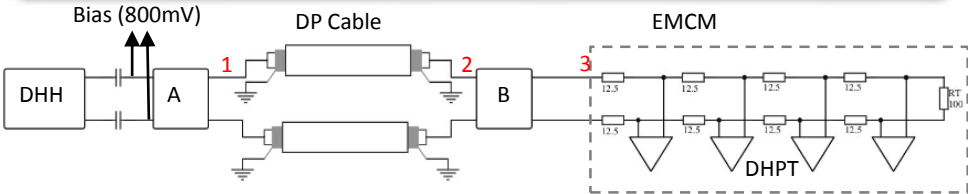


WO 200R

TRG_P

W 200R



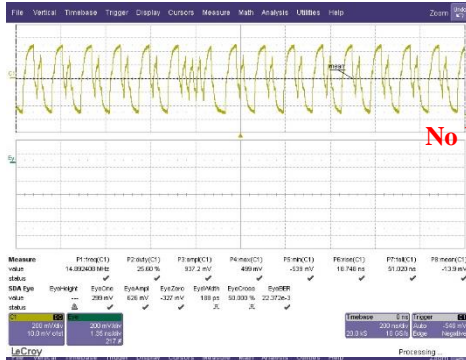


- Set the common mode voltage $V_{cm} = 800\text{mV}$ (from V_{dd} , V_{ss} of DHPT)
→ links *can* be established with **Both** DP cable

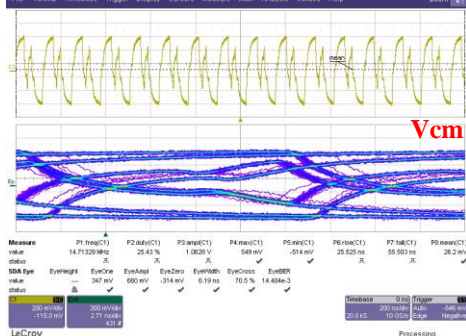
DP Output

7mm Only

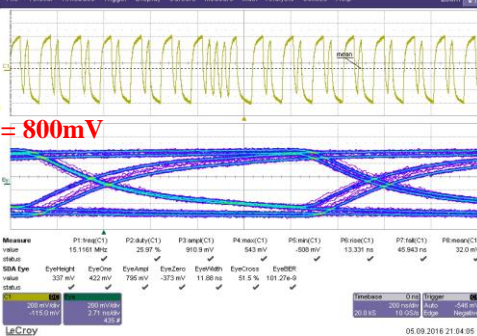
EMCM in

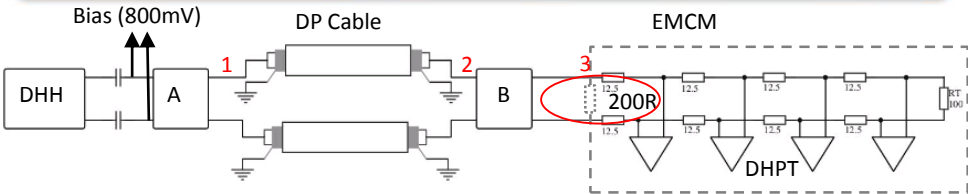


No biasing



Vcm = 800mV





- Set the common mode voltage $V_{cm} = 800\text{mV}$ (from V_{dd} , V_{ss} of DHPT)
→ links can be established by using 9mm DP cable with 200 Ohm resistor

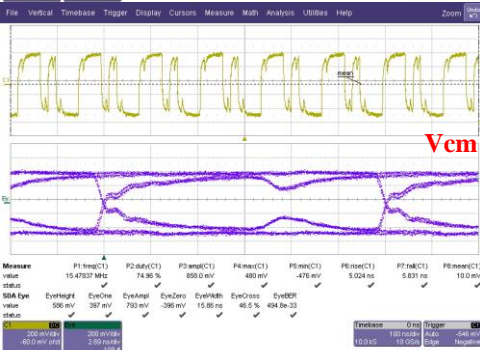
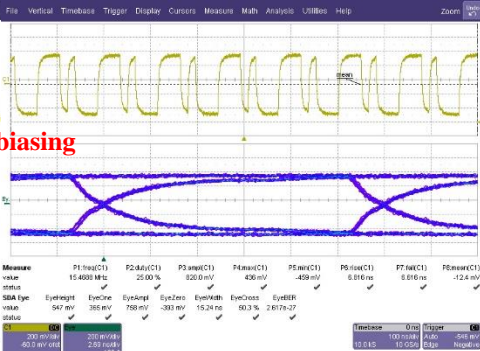
DP Output

9mm Only/ 200R

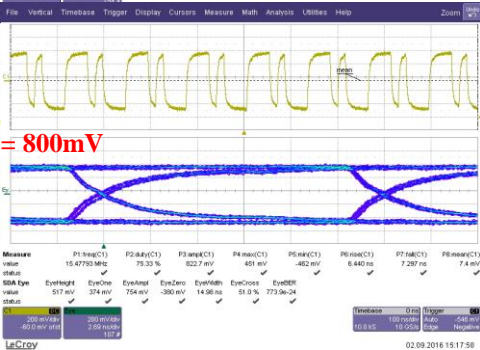
EMCM in

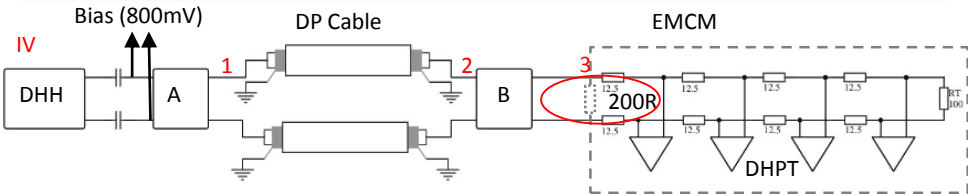


No biasing



Vcm = 800mV





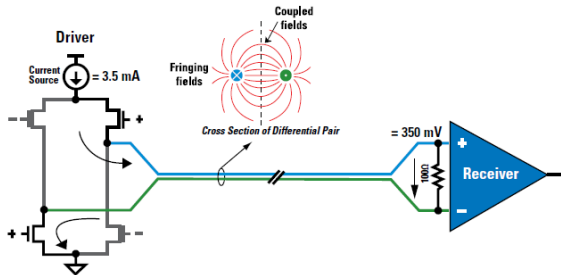
- 7mm DP cable ✓
- 9mm DP cable ✓
- Reflections 😊

- Optical transmitter (3.3V, approx. 250mA) supply is delivered by DP cable
7mm DP cable → 5.2V @ input, 1.9V drop
9mm DP cable → 3.8V @ input, 0.5V drop
- **9mm display cable is final decision**



Backup

$$V_{cm} = 800\text{mV}$$



Diameter: 9mm

Length: 15m

With 200 Ohm

