



HDMI CTS Environment Setup

May 28, 2020

Overview

- HDMI CTS setup is divided to HDMI1.4 and HDMI2.0 which can be covered by the following resolutions.
 - HDMI 1.4: 480p60hz, 720p60hz, 1080p60hz and 2160p30hz.
 - HDMI 2.0: 2160p60hz.
- The above resolutions can be established in the settings of UI, and it needs to disable the "Automatic Resolution Switching" first.
- It can use current MP Image for HDMI CTS test, we don't have specific version of Image for it.
- Please note that the following setup are provided by Tektronix which is used in FXN SI lab, and might have slightly differences if using the other brands of oscilloscope. Please follow the guideline/instruction of the oscilloscope under testing.

Equipment

- Oscilloscope *1: Tektronix DSA71604C with HDMI test software
- Differential probe *4: Tektronix P7508SMA
- HDMI type A test plug*1: Wilder HDMIA2-TPA-P
- HDMI EDID PCB*1: Wilder HDMIA2-TPA-E
- Power supply*1: GPC-3030D
- 4K TV*1
- Remote controller*1
- DUT*1

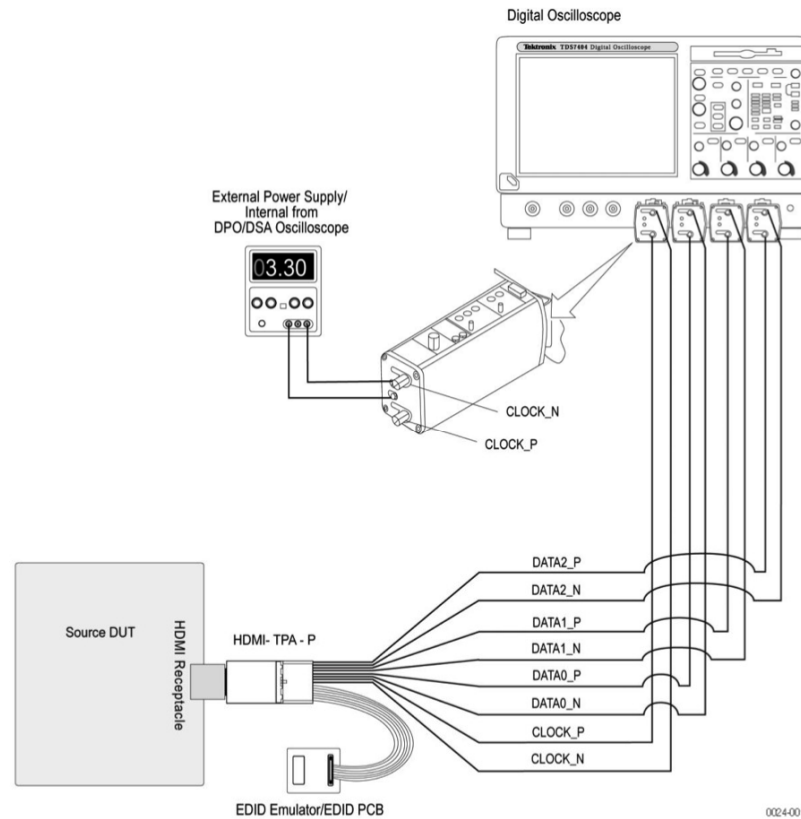


Environment Setup

- For HDMI CTS 1.4, it has two conditions corresponding to the test items shown below:
 - Differential Tests:
 - ☐ Eye Diagram
 - ☐ Duty Cycle
 - ☐ Rise Time
 - ☐ Fall Time
 - ☐ Clock Jitter
 - ☐ Inter-Pair Skew
 - Single-Ended Tests
 - ☐ Intra-Pair Skew
 - ☐ Low Amplitude +
 - ☐ Low Amplitude -

Environment Setup

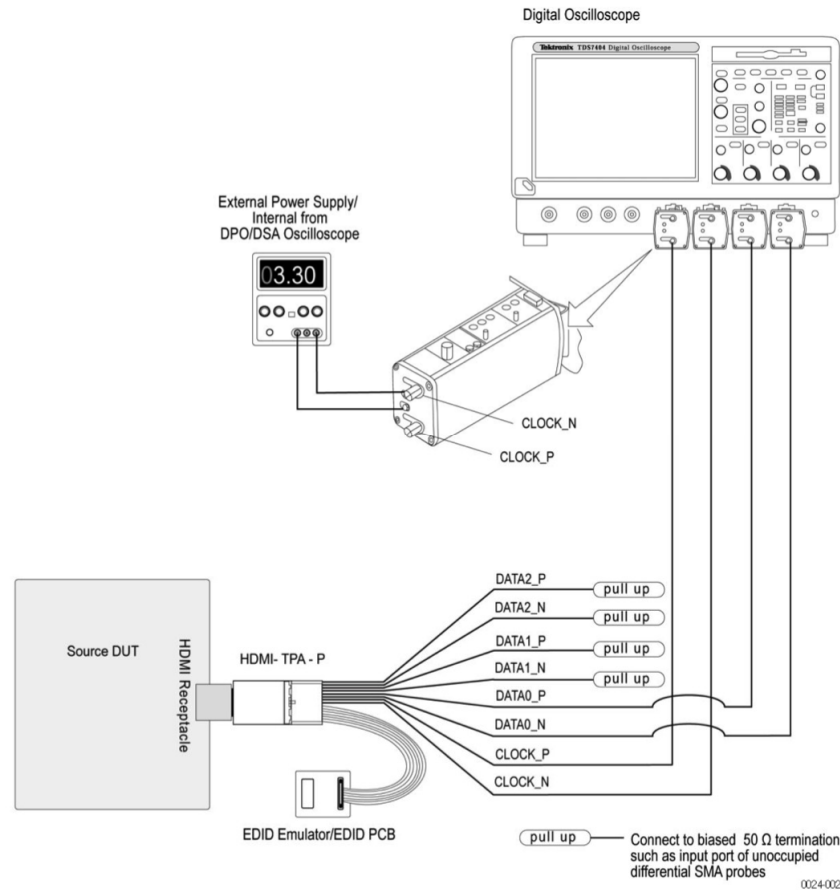
- Differential Tests



*The power supply is optional, some of the oscilloscope can supply the 3.3V internally.

Environment Setup

- Single-Ended Tests



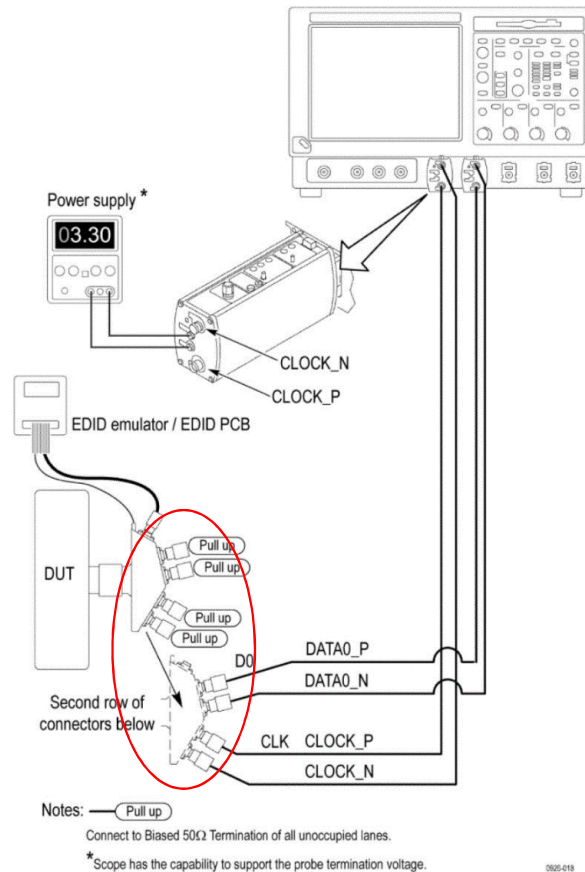
*The power supply is optional, some of the oscilloscope can supply the 3.3V internally.
*It doesn't need to pull up for those floating data pins of Eagle.

Environment Setup

- For HDMI CTS 2.0, it has two conditions corresponding to the test items shown below:
 - Differential Tests:
 - ❑ TRISE, TFALL
 - ❑ Inter-Pair Skew
 - ❑ Differential Voltage
 - ❑ Clock Duty Cycle and Clock Rate
 - ❑ Clock Jitter
 - Single-Ended Tests
 - ❑ Data Eye diagram
 - ❑ VL and VSwing
 - ❑ Intra-Pair Skew

Environment Setup

- Differential Tests (TRISE/TFALL, Inter-Pair Skew, Differential Voltage)



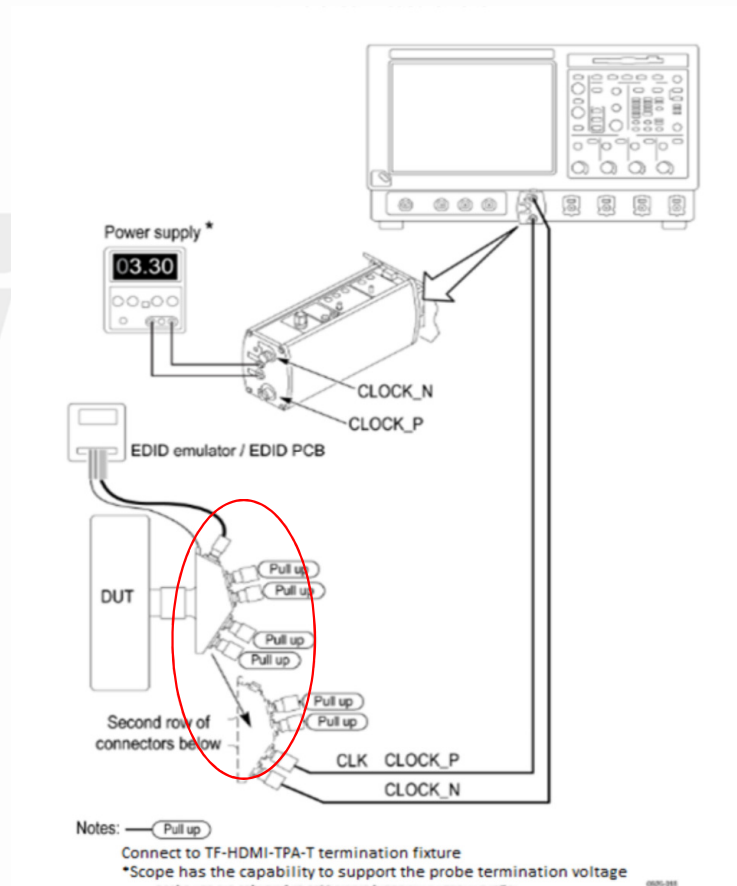
*The power supply is optional, some of the oscilloscope can supply the 3.3V internally.

*It doesn't need to pull up for those floating data pins of Eagle.

*It can use the type A test plug as the test fixture mark in red.

Environment Setup

- Differential Tests (Clock Duty Cycle and Clock Rate, Clock Jitter)



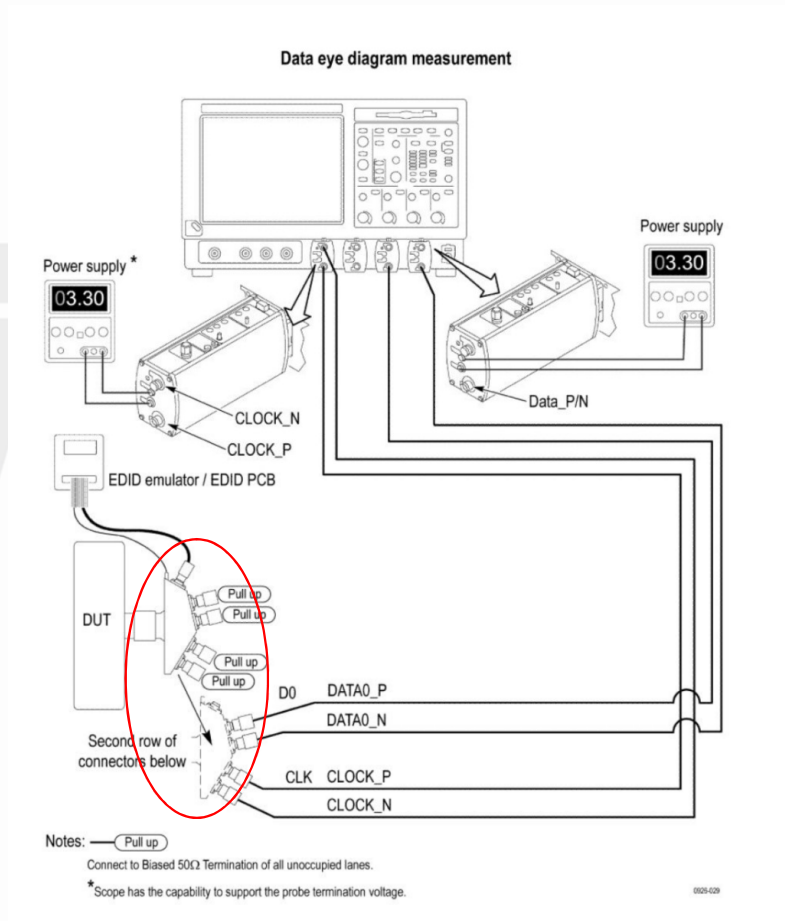
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*It can use the type A test plug as the test fixture mark in red.

Environment Setup

- Single-Ended Tests (Data Eye diagram)



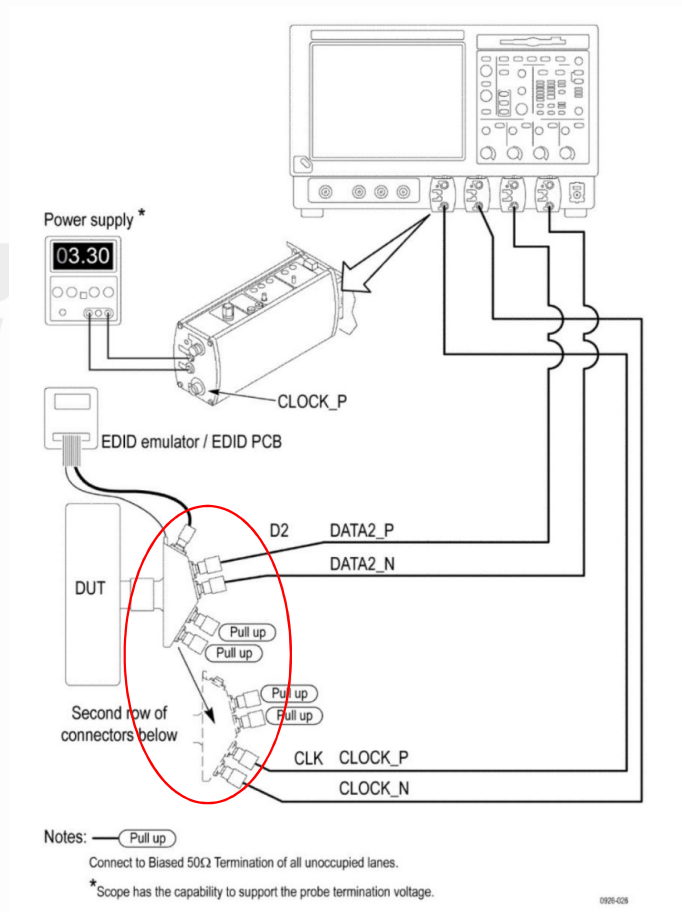
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Environment Setup

- Single-Ended Tests (VL and VSwing, Intra-Pair Skew)



*The power supply is optional, some of the oscilloscope can supply the 3.3V internally.

*It doesn't need to pull up for those floating data pins of Eagle.

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