Updates on HRPPD #25 activities
Noise and Signals

Weekly Meet

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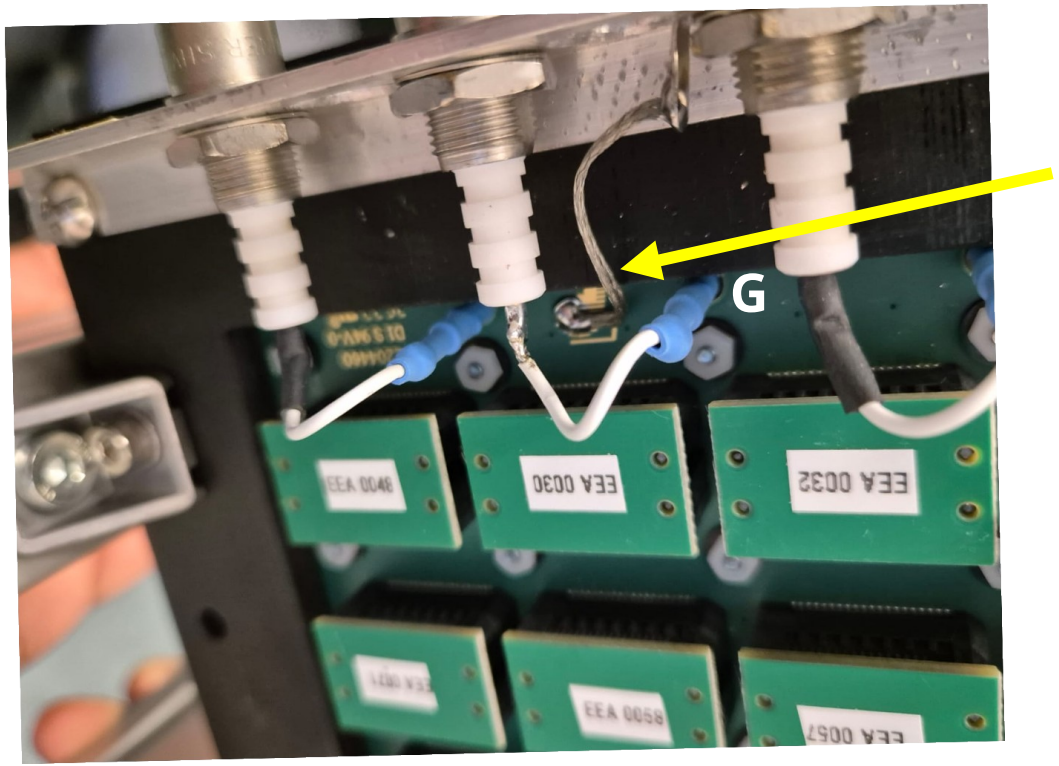
11/03/2025

Outline

- Hardware interventions
- Grounding
- Noise and signals from two groups of 16 pads
- Software

Grounding on backplane

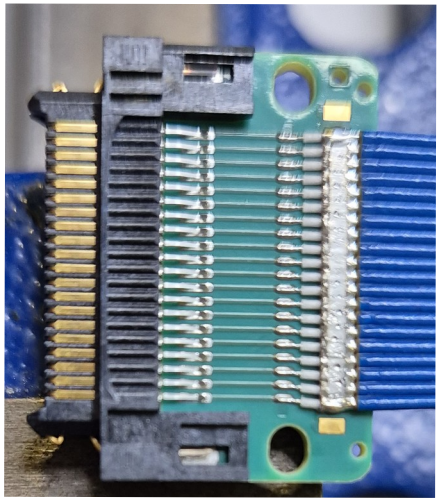


Robust grounding point defined on the backplane

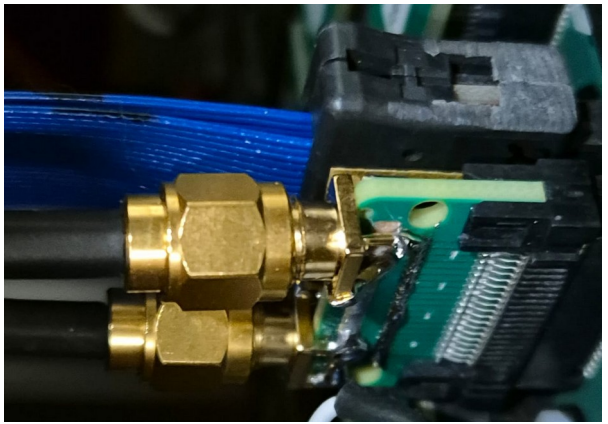
- Connection between backplane surface and external electrode of an SHV

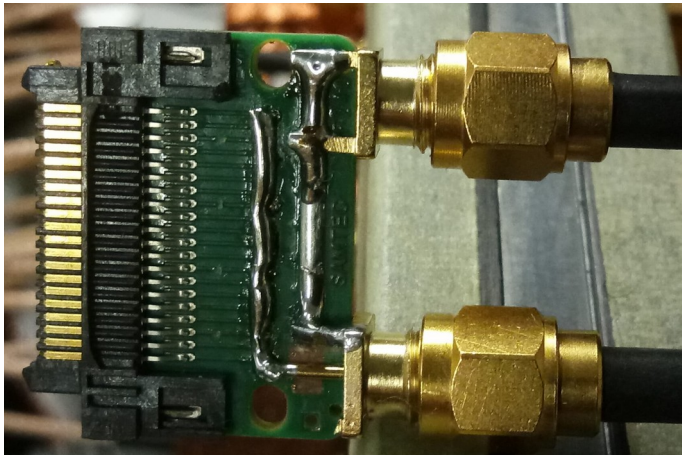
RO with two SMAs

A preparation for reading 16 pads together:



- All μ-Coax removed from a Samtec connector/PCB
- 16 Pins (one side of the PCB) connect central electrode of SMA-I
- 16 Pins (other side of the PCB) connect central electrode of SMA-II
- External electrodes of two SMAs are put together and soldered with PCB ground



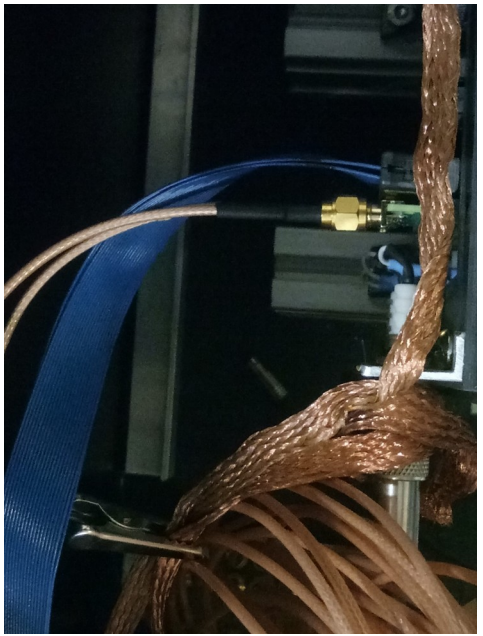


Samtec connector with two SMA

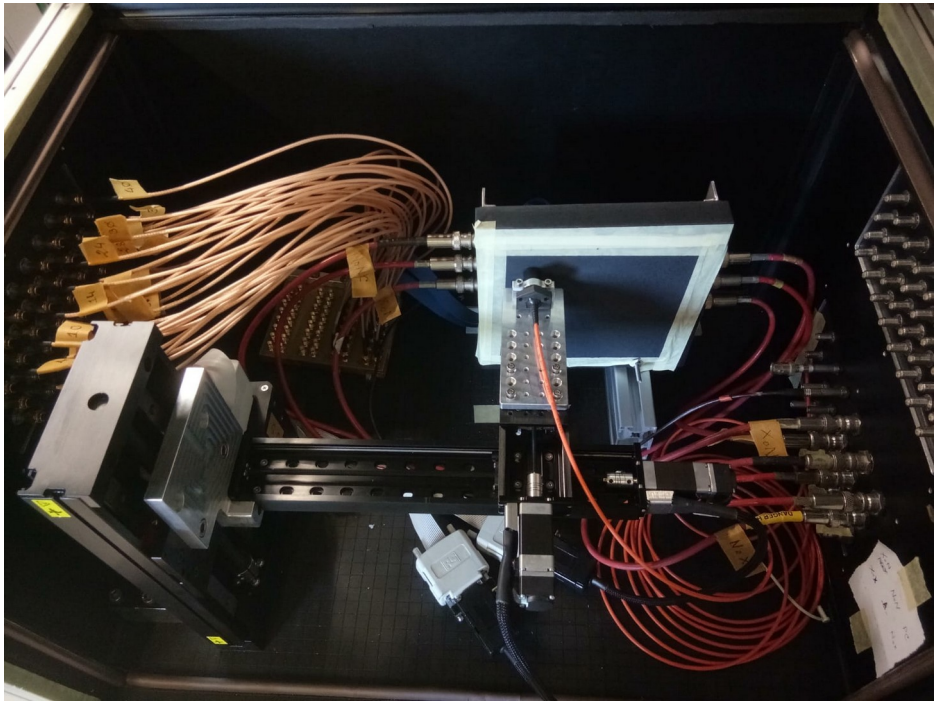
Grounding

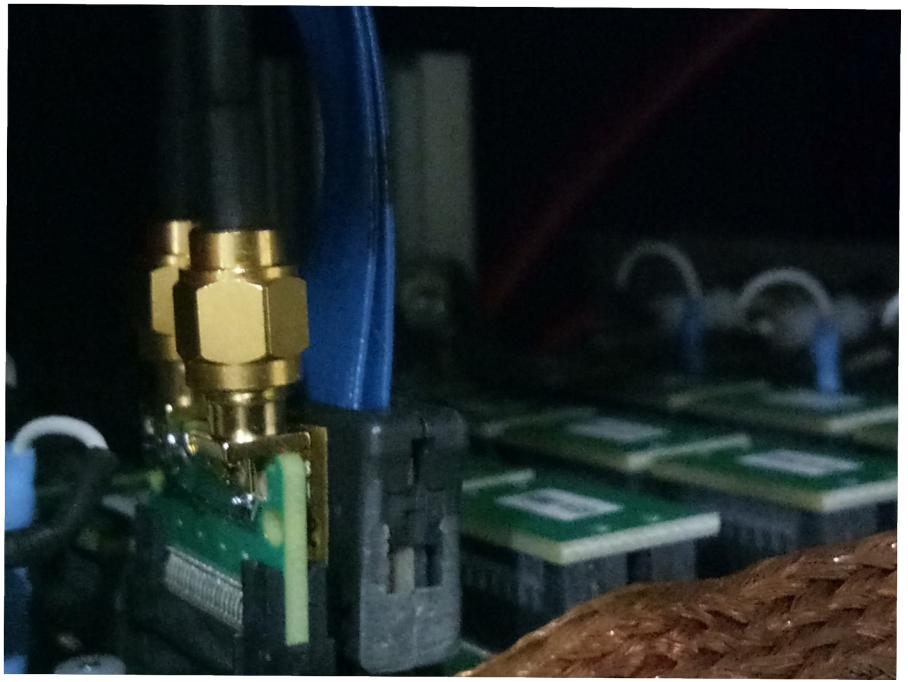
System grounding taken care:

- Common Grounding between two patch panels on darkbox, Al bar (HV panel) provided
- Bread board coax cables terminated with 50 Ω



Set-up





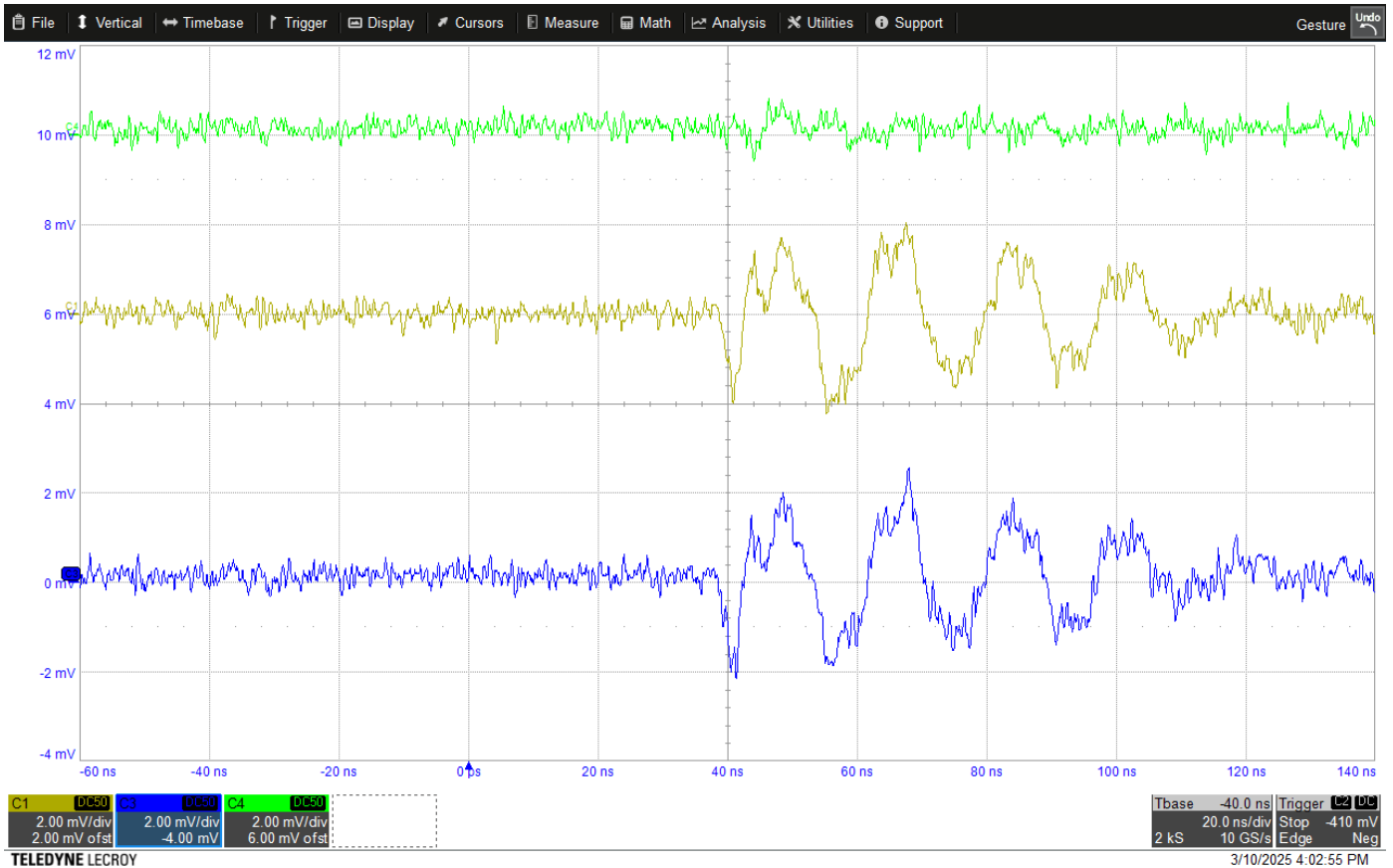
- Double layer protection card
- 8 mm diameter hole
- Fibre (without focalising lens) on moving arm

Readout connectors
16 (SMA-I) + 16 (SMA-II) + 32 (µ-Coax)
Corner middle

Signals from 16 pads

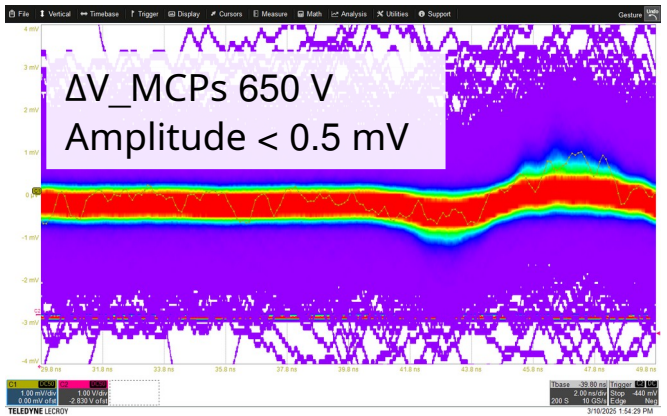
- HV configuration: -200_700_-200_700_-30 V @ XoX_NoX_XoN_NoN_PC
- Trigger on Laser pulse: Intensity - 1.8, Rep. frequency – 600 Hz

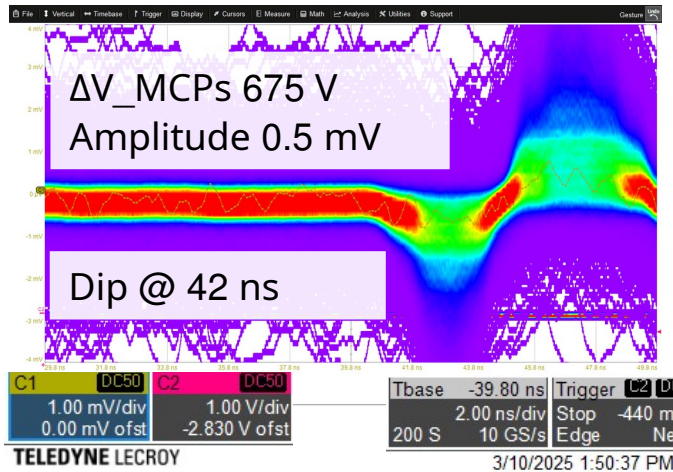
- Ch #19 (μ-coax), SMA-II (middle), SMA-I (corner)
- Noise level 10 mV
- Starts around 40 ns
- Amplitude ~ 2 mV

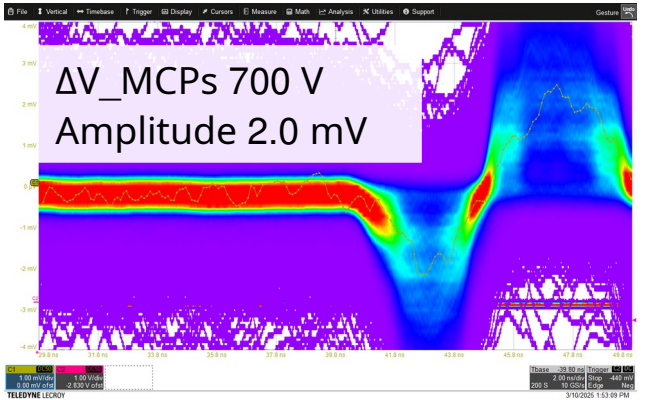


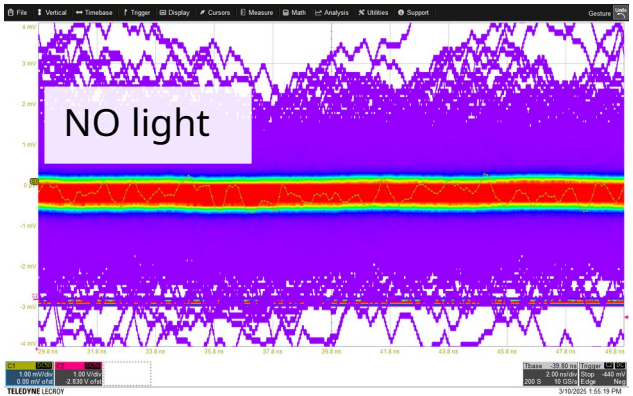
Signals from 16 pads

- HV configuration: -200_ΔV_-200_ΔV_-30 V @ XoX_NoX_XoN_NoN_PC
- Trigger on Laser pulse: Intensity - 1.8, Rep. frequency – 600 Hz









- SMA-I (2 x 8) corner most (without μ-coax/using Red PCB to ground the 32 pins, terminating SMA-II by 50 Ω)
- Appears around 40 ns from Laser sync pulse
- Disappears with Laser Off