CURRENT STATE OF HARDWARE DEBUGGING AND HINTS ON SIMULATION DISCREPANCIES

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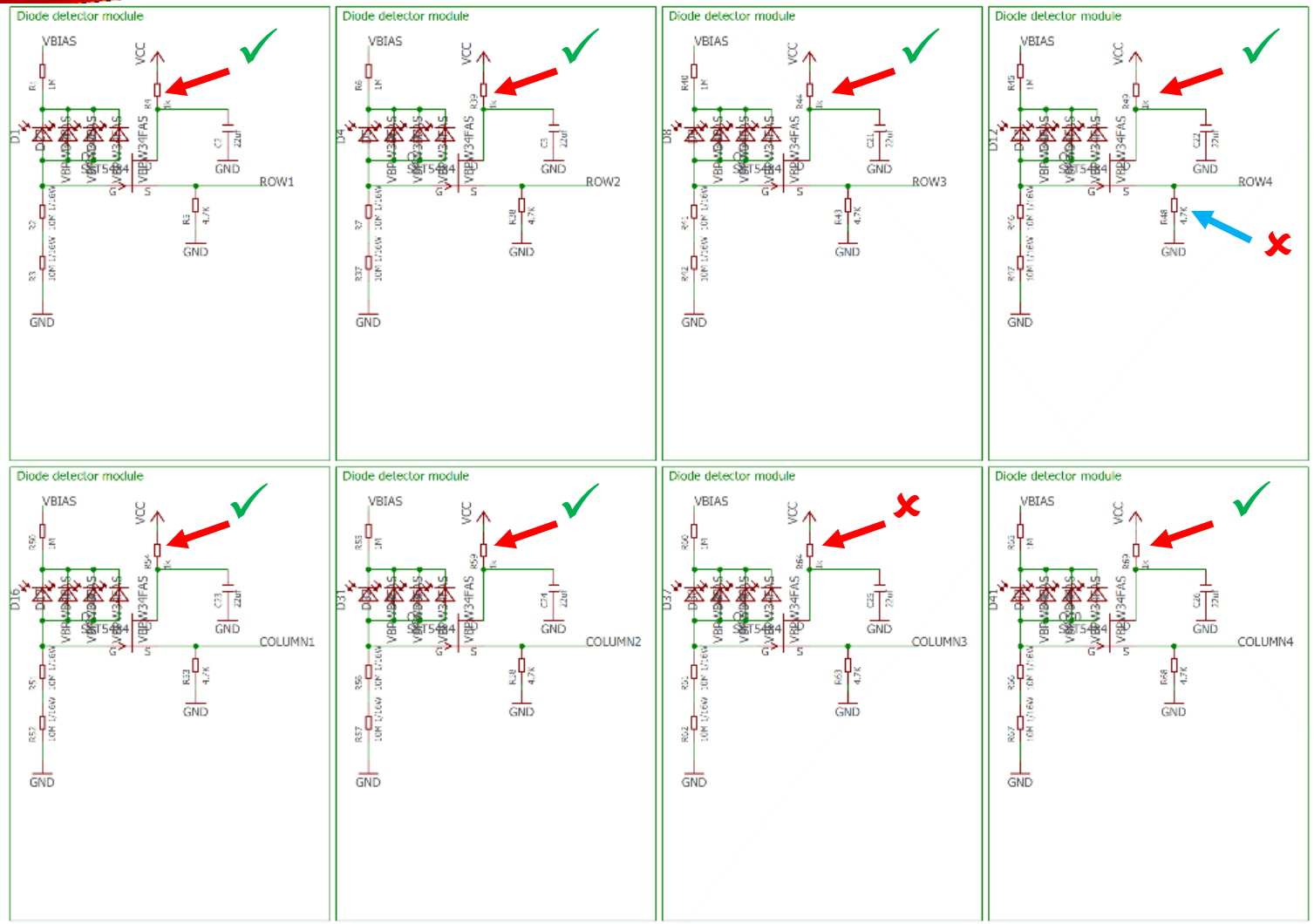
HARDWARE DEBUGGING: CURRENT STATE

- Board repaired as far as feasible during the last week
- Smoke tested the HV circuit (e.g. bias on the pin-diodes)
  - No problems up to 60 V (breakdown voltage)
- Setup for measuring the amplification chain

HARDWARE DEBUGGING: REPAIRS



µTelescope: Schematics for pin-diodes; Important parts are highlighted in red

- ✓
  - Resistor was switched out by the workshop
- ✗
  - At the red arrow: Accident while repairing; trace was pulled out
  - At the blue arrow: Unclear where the short is on the board; further investigation needed

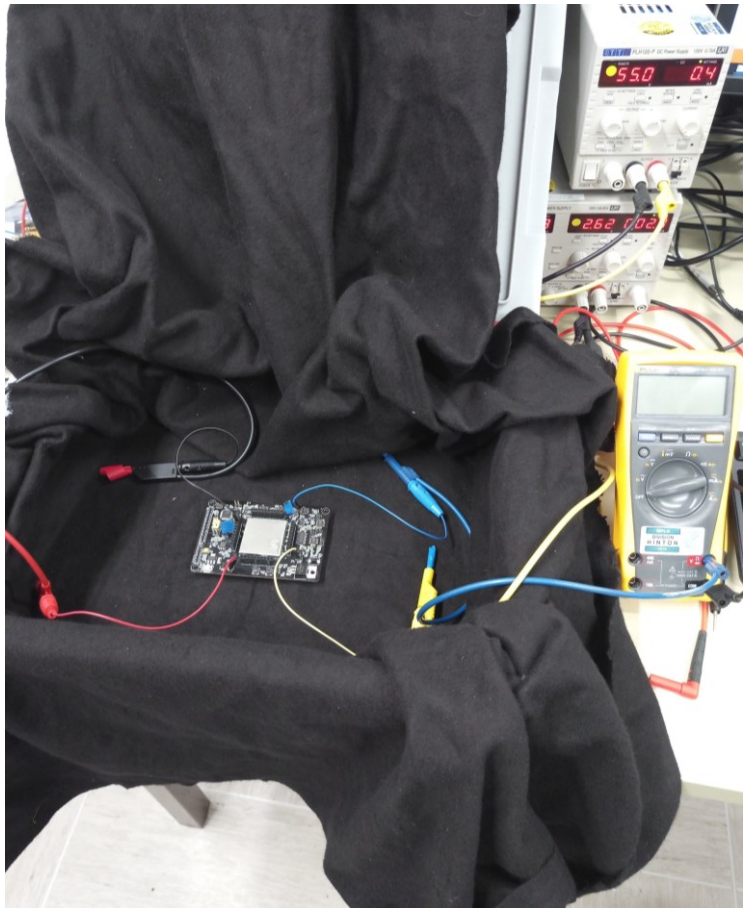
HARDWARE DEBUGGING: CURRENT DETECTOR CAPACITY

Readout: Row/Column	Column 1	Column 2	Column 3	Column 4
Row 1	Full	Full	Full	Half (upper)
Row 2	Full	Full	Full	Half (upper)
Row 3	Half (lower)	Half (lower)	Half (lower)	None
Row 4	Full	Full	Full	Half (upper)

- Table explanation:
  - Full: Sensor correctly wired after repair on both sides
  - Half: Only the sensor on one side is available (no coincidence)
  - None: No working diode in this space
- Design detector area: 1,44 cm^2
- Available detector area (full detection): 0,81 cm^2

HARDWARE DEBUGGING: FURTHER TEST SETUP

- Measurements of the amplification chain
  - Setup a lighttight box
  - Soldering of pins onto the amplifier in and outputs
- Radiation source in the lab
  - Would reduce the time one has to wait for a cosmic, by a large factor
  - The energy of the particles is exactly known
  - Got the OK from Jim
  - Got first information form Ralf Lackner
  - Waiting for response from Ralf



Box with light tight cloth for measurements; PSUs in the background

SIMULATIONS

- Numerical detector acceptance calculation from Michael
  - Reduced calculation need down to one integral
  - Shows the same results as the MC from Michael
  - Currently working on implementing this model into Hendriks numerical simulation
- So far the discrepancy seems to be a systematical error between the two simulations