

Irradiation

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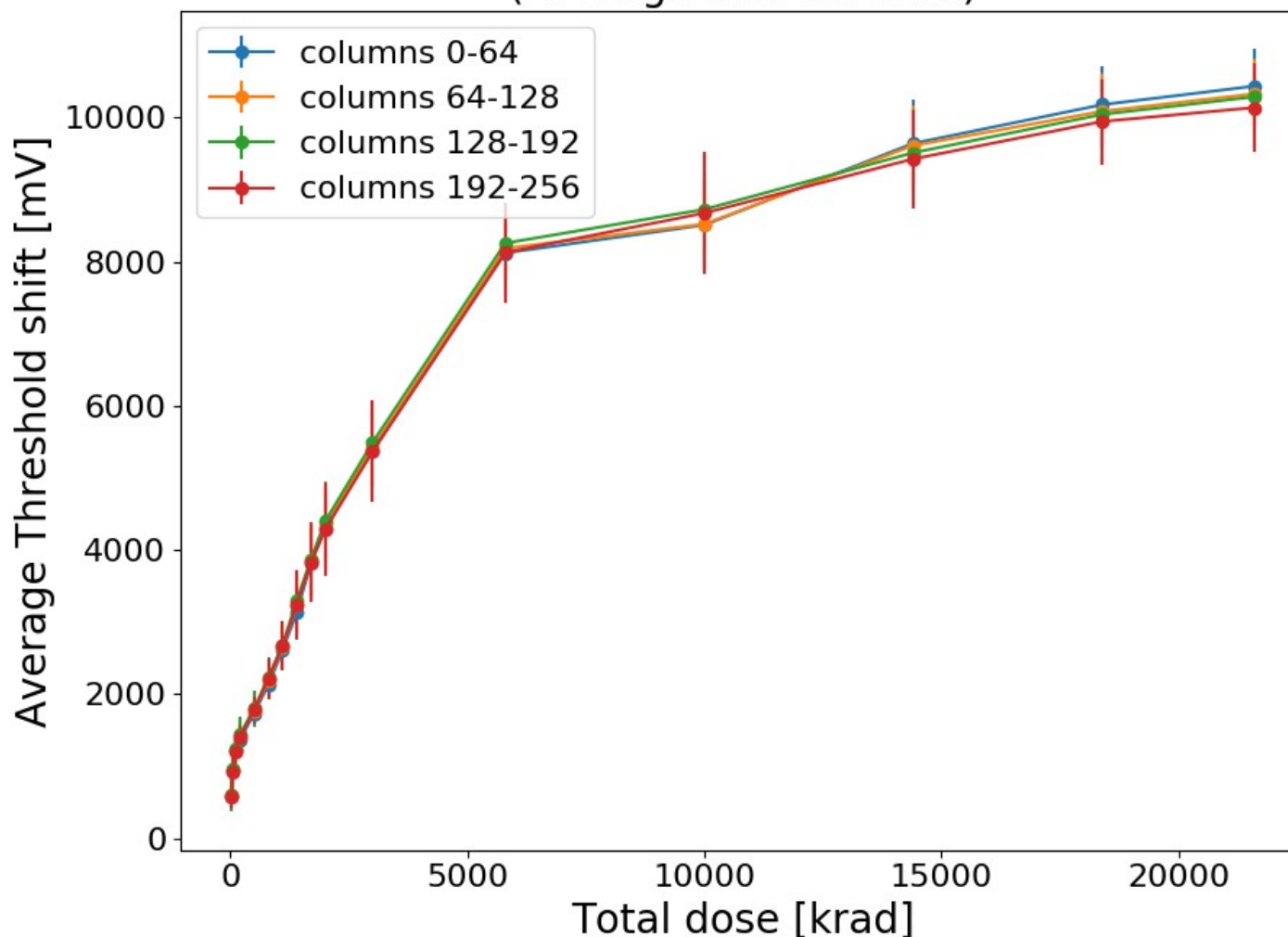
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**Work in
progress**

Threshold voltage

-

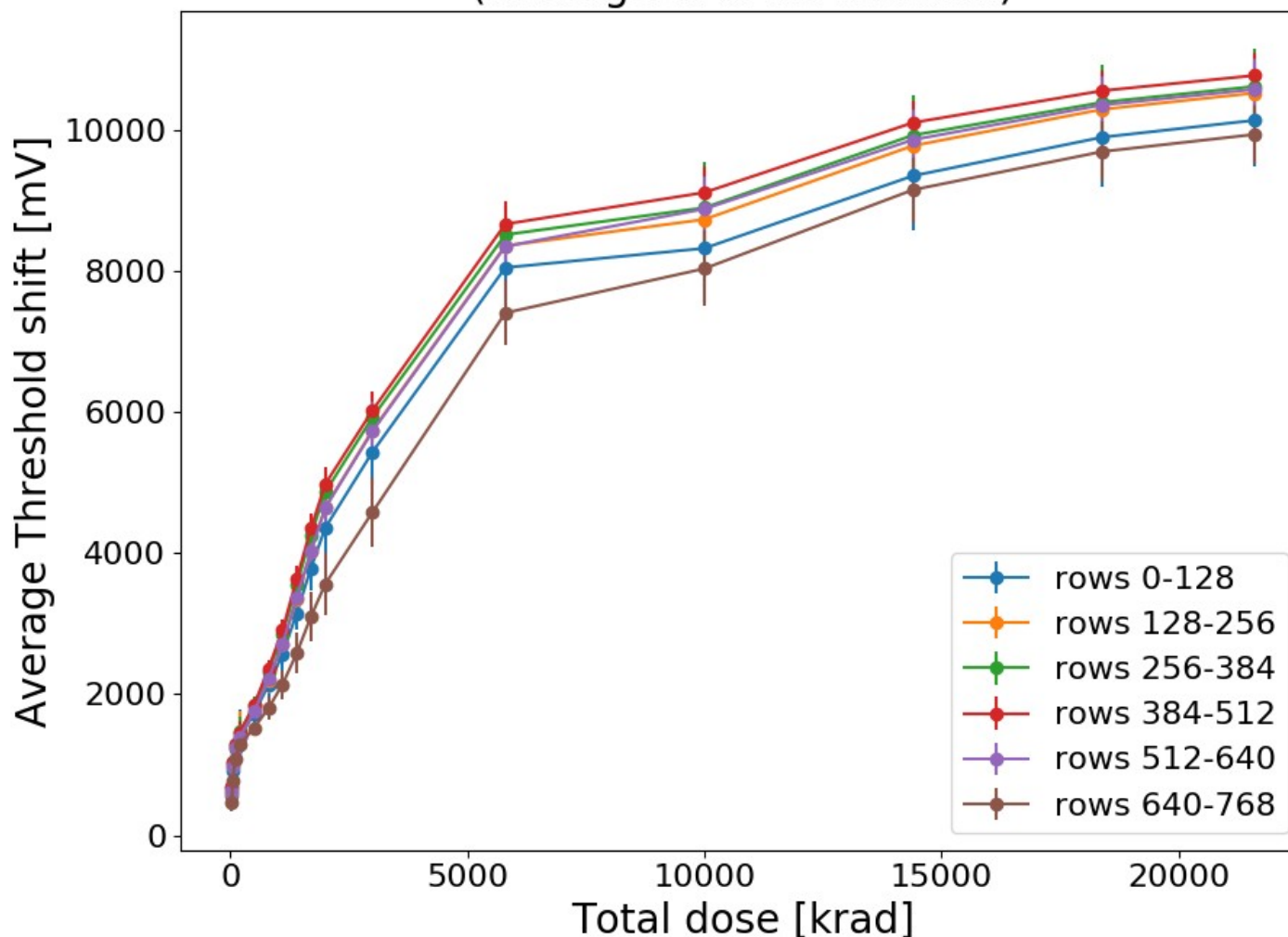
Threshold shift at different regions of the sensor
(Average over all rows)



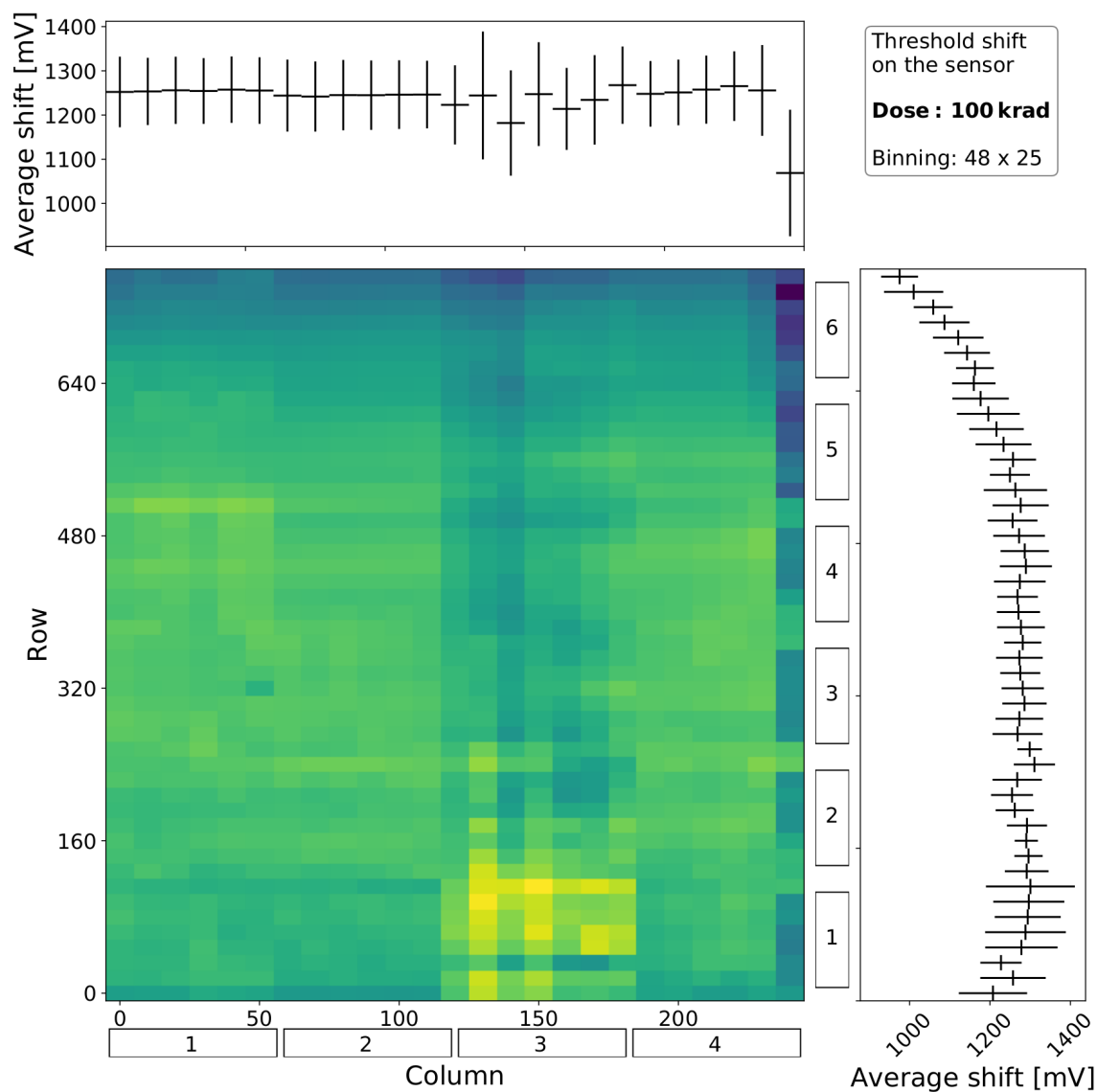
Threshold voltage

●

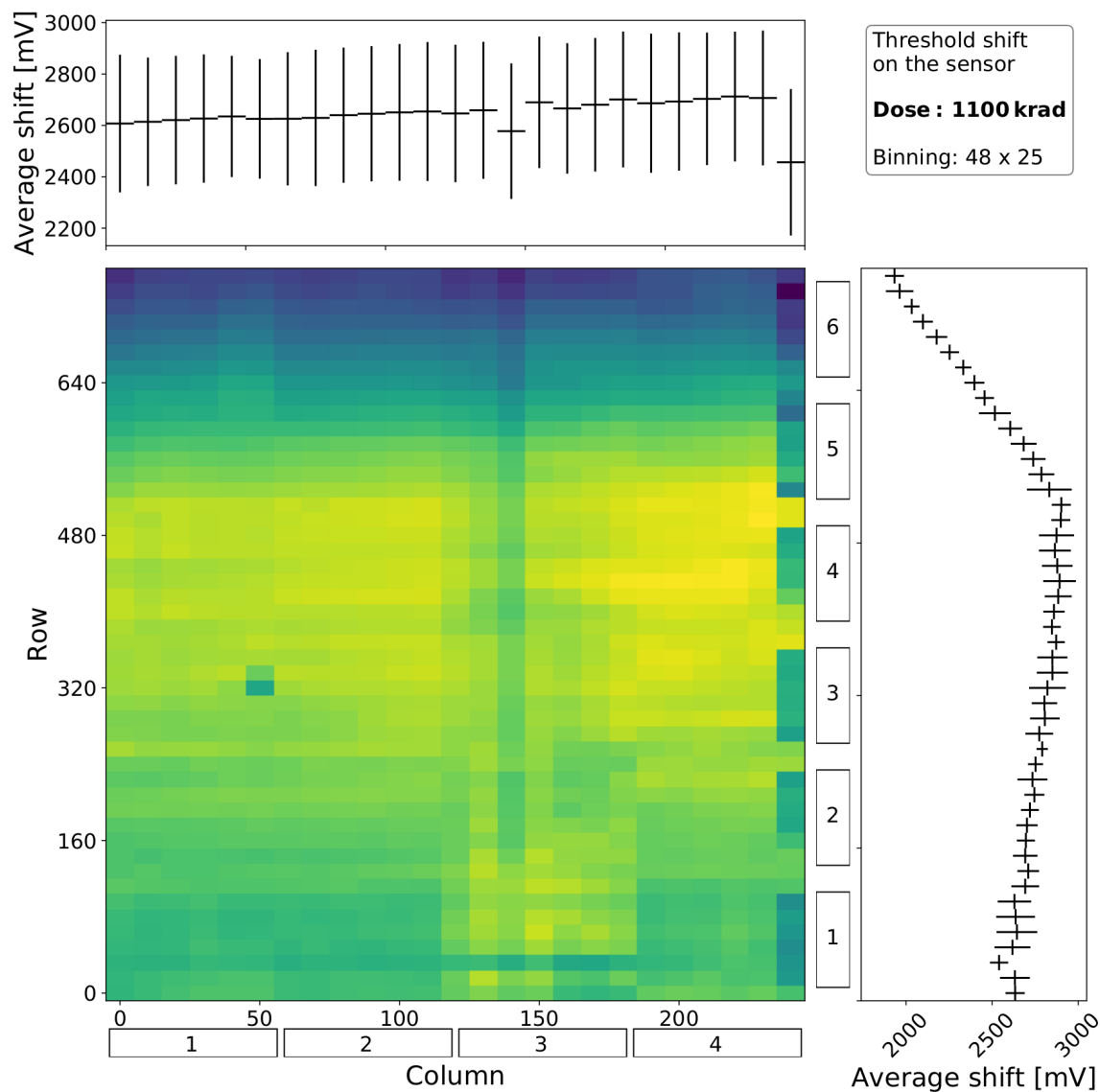
Threshold shift at different regions of the sensor
(Average over all columns)



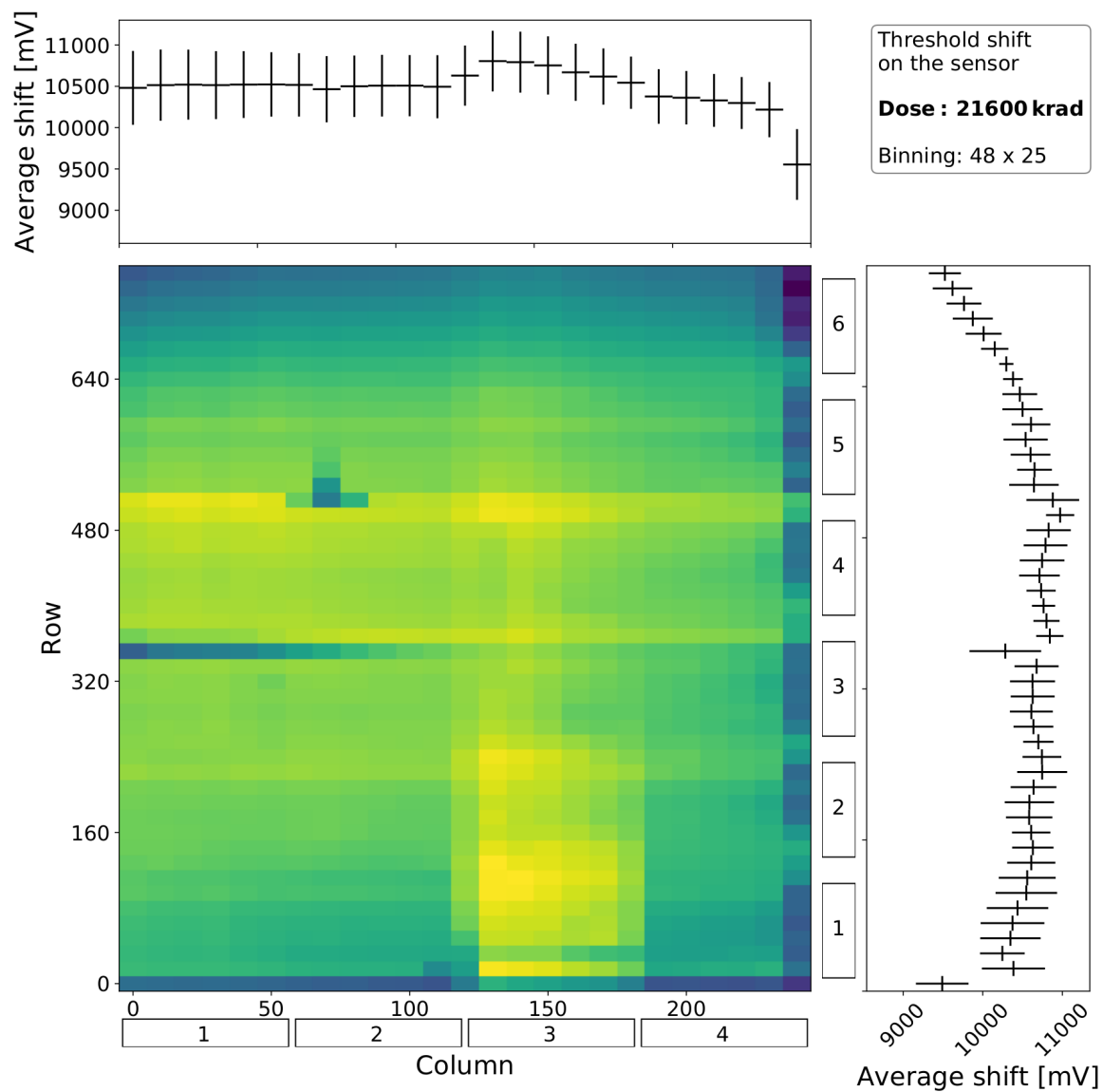
Threshold voltage



Threshold voltage

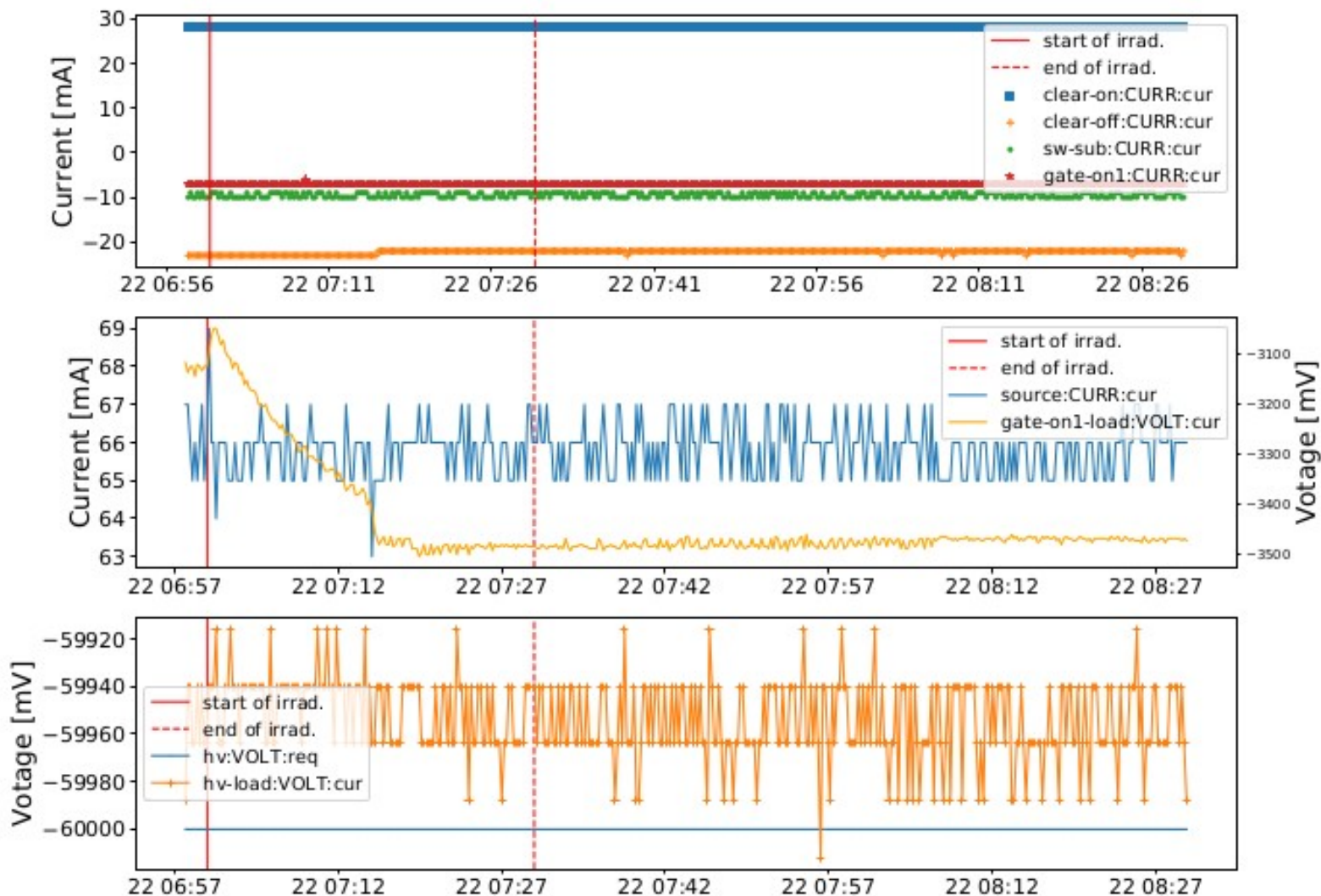


Threshold voltage



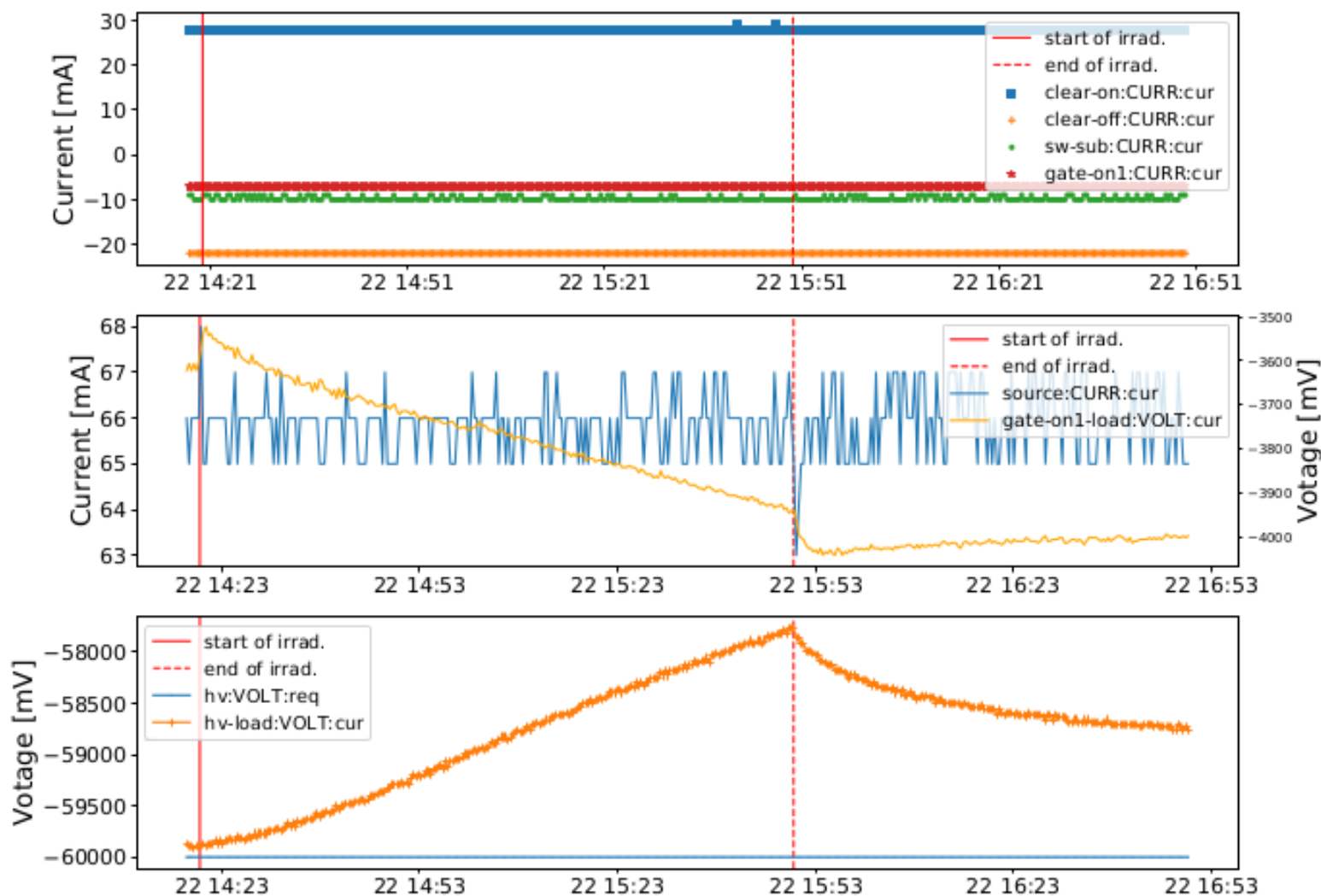
Voltage/Current evolution

- Step from 50 krad to 100 krad



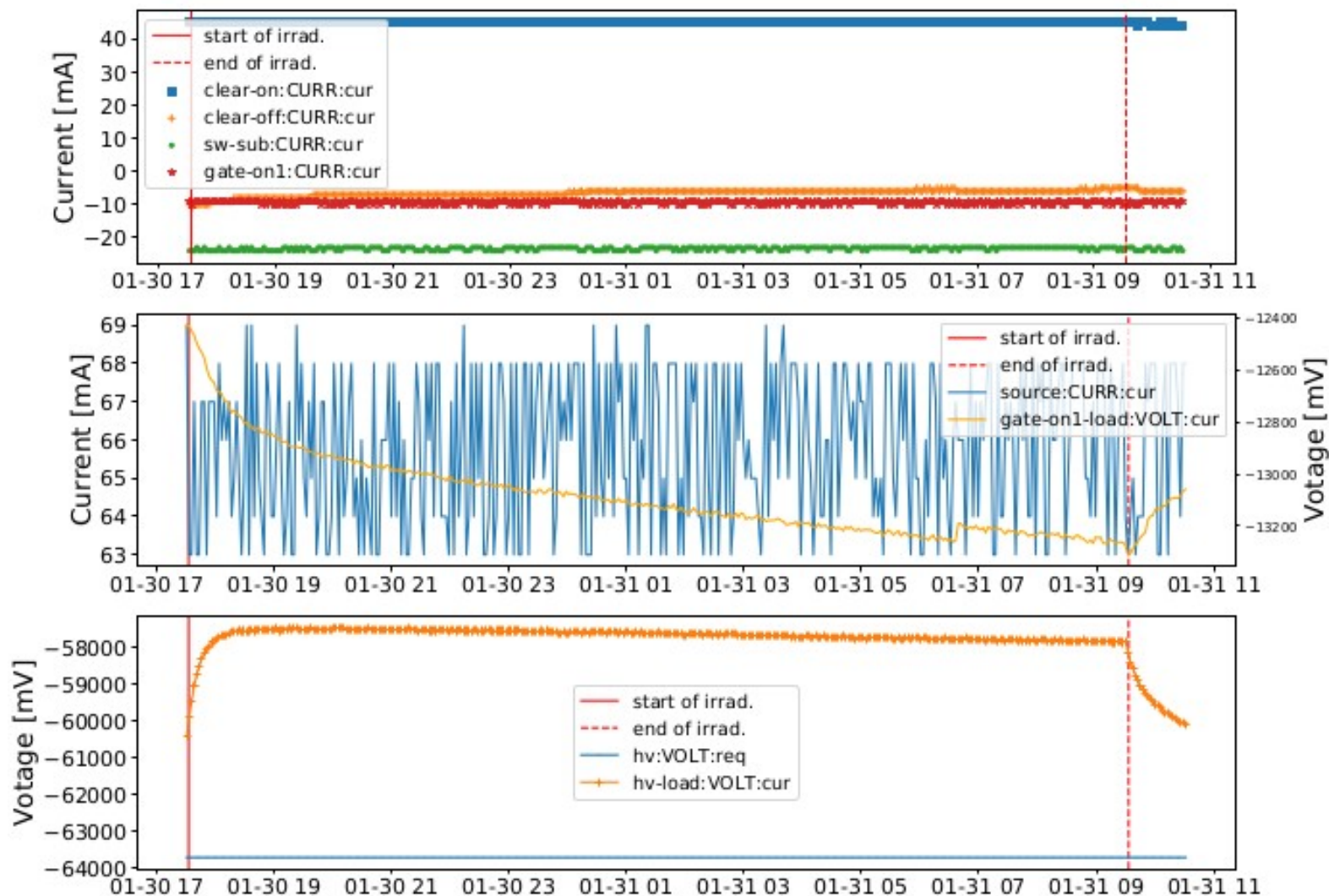
Voltage/Current evolution

- Step from 200 krad to 500 krad



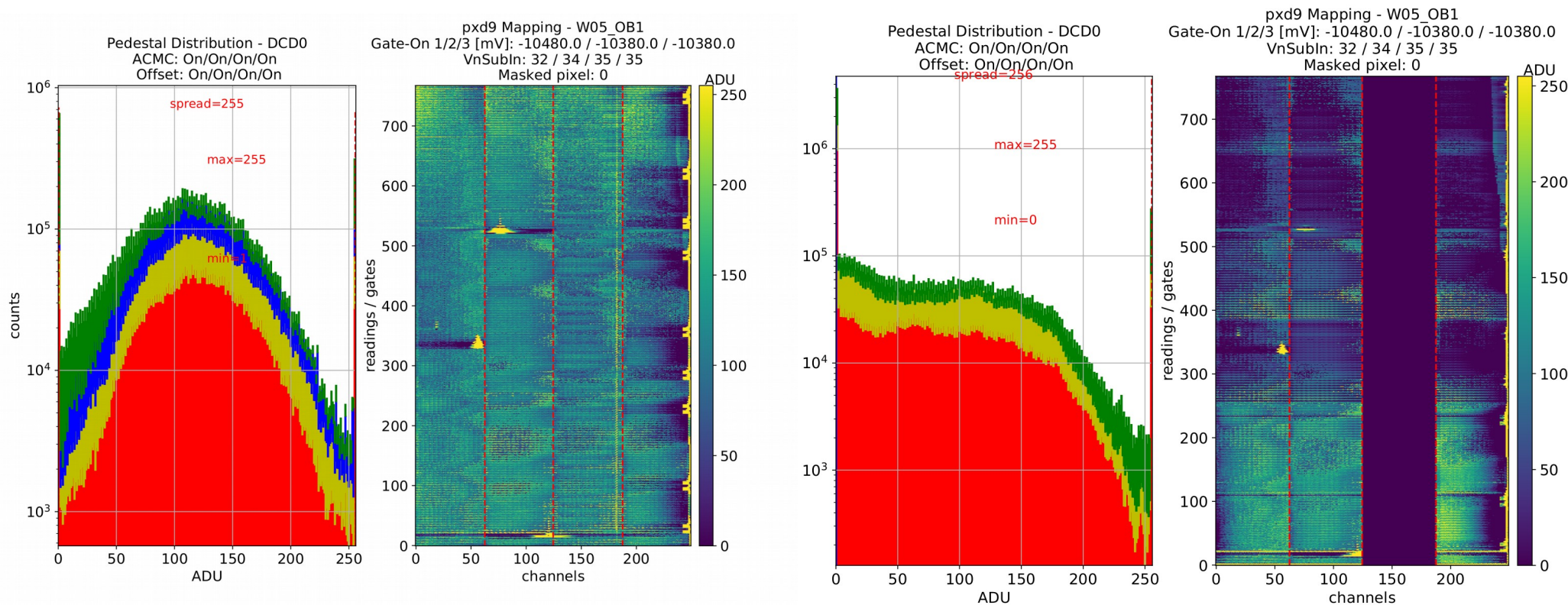
Voltage/Current evolution

- Step from 18400 krad to 21600 krad

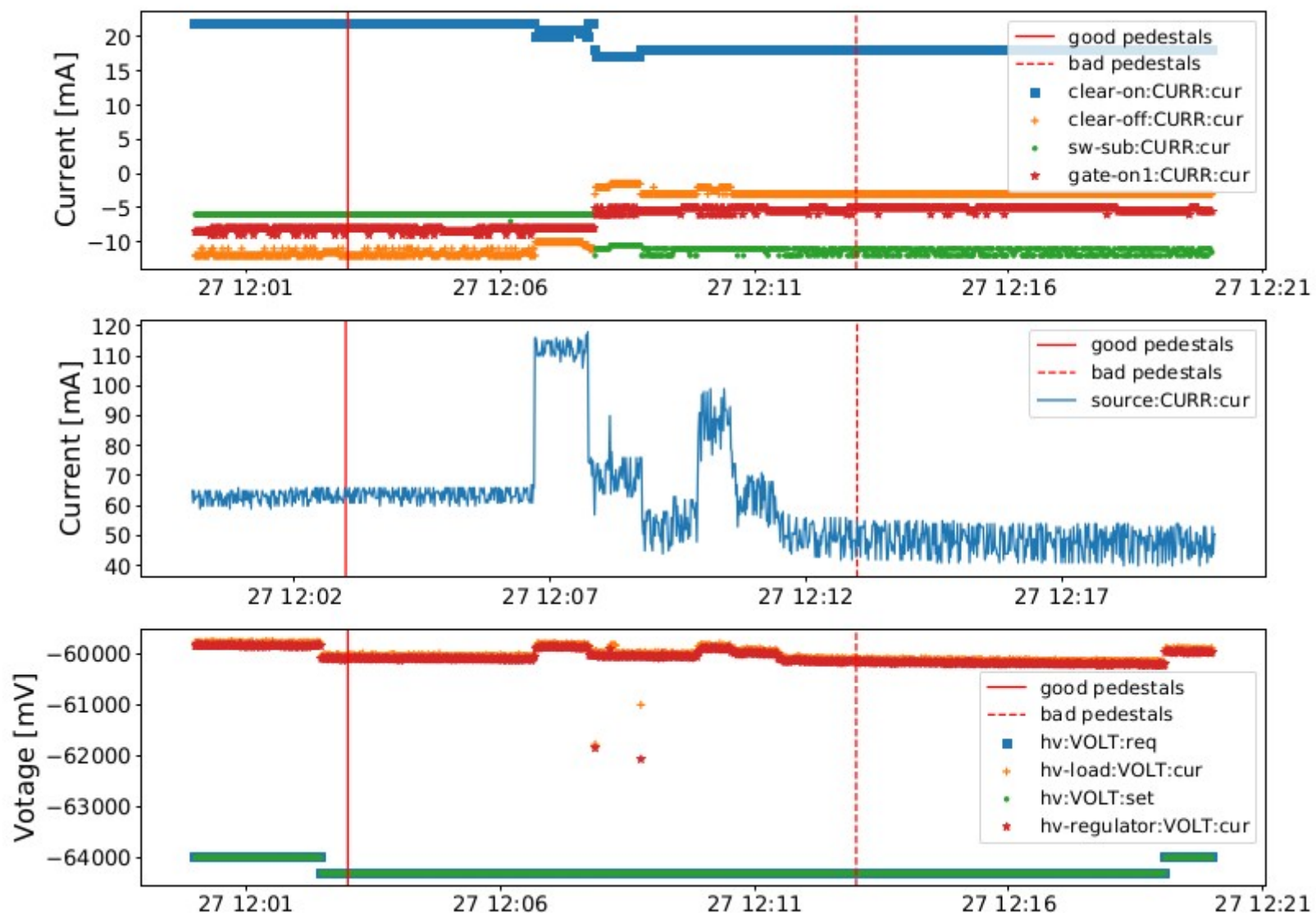


Incident on 27.01.19

- Some incident happend at 5.8Mrad
- Good pedestal at 12:03, bad at 12:13
- Same VnSubIn, same Gate-On



Incident on 27.01.19



Incident on 27.01.19

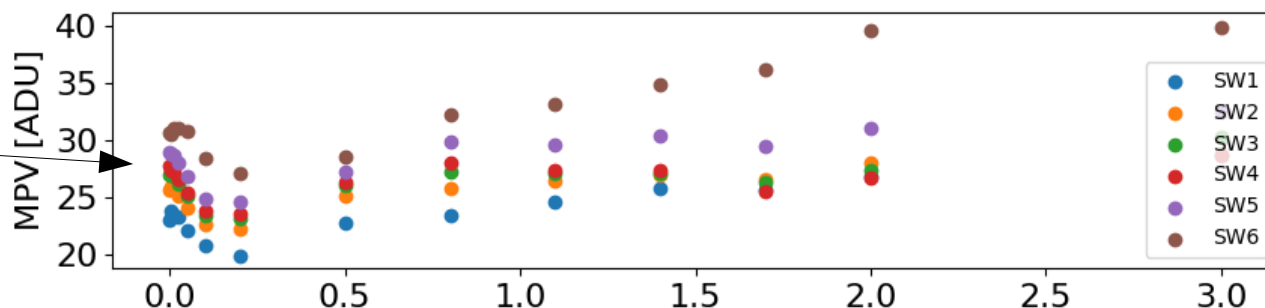
- Pedestals could not be recovered by changing various DCD settings and matrix voltages
 - Decided to power cycle the module
- After the power cycle we saw different switcher and clear voltages:
 - Clear-on: $\sim 25\text{mA}$ \rightarrow $\sim 40\text{mA}$
 - Sw-Sub: -10mA \rightarrow -23mA
- In Addition some gates seem to be „broken“ (see source scans)

Source scans

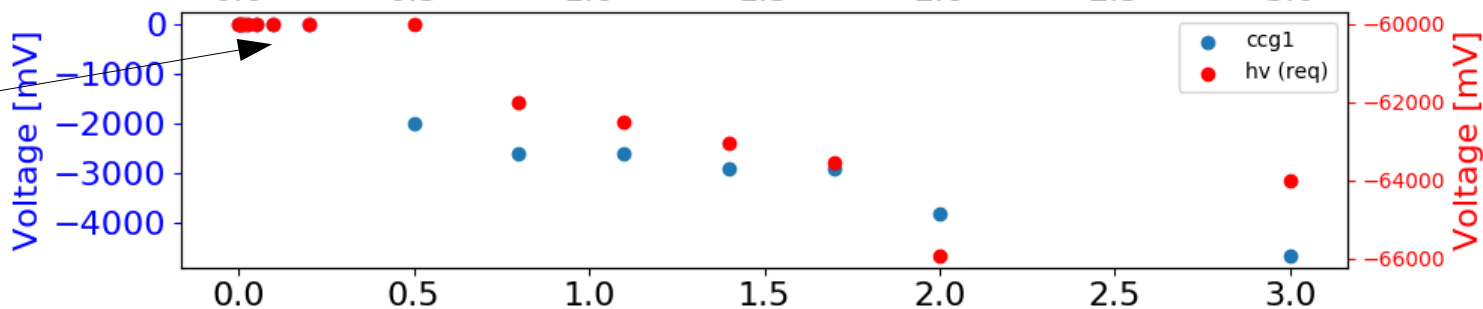
- MPV evolution

MPV and CCG evolution

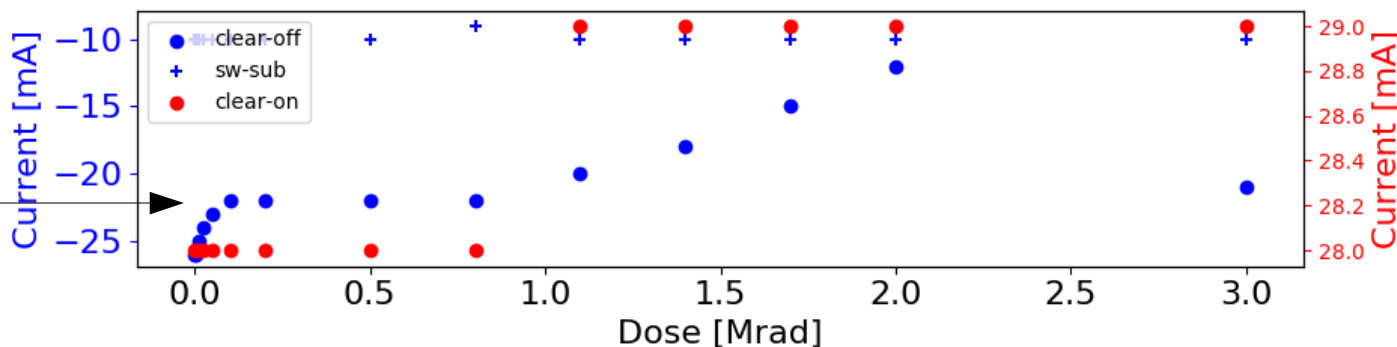
MPV is decreasing
(Gate-On adjusted!)



CCG at 0V



Clear-Off
Slowly
increasing

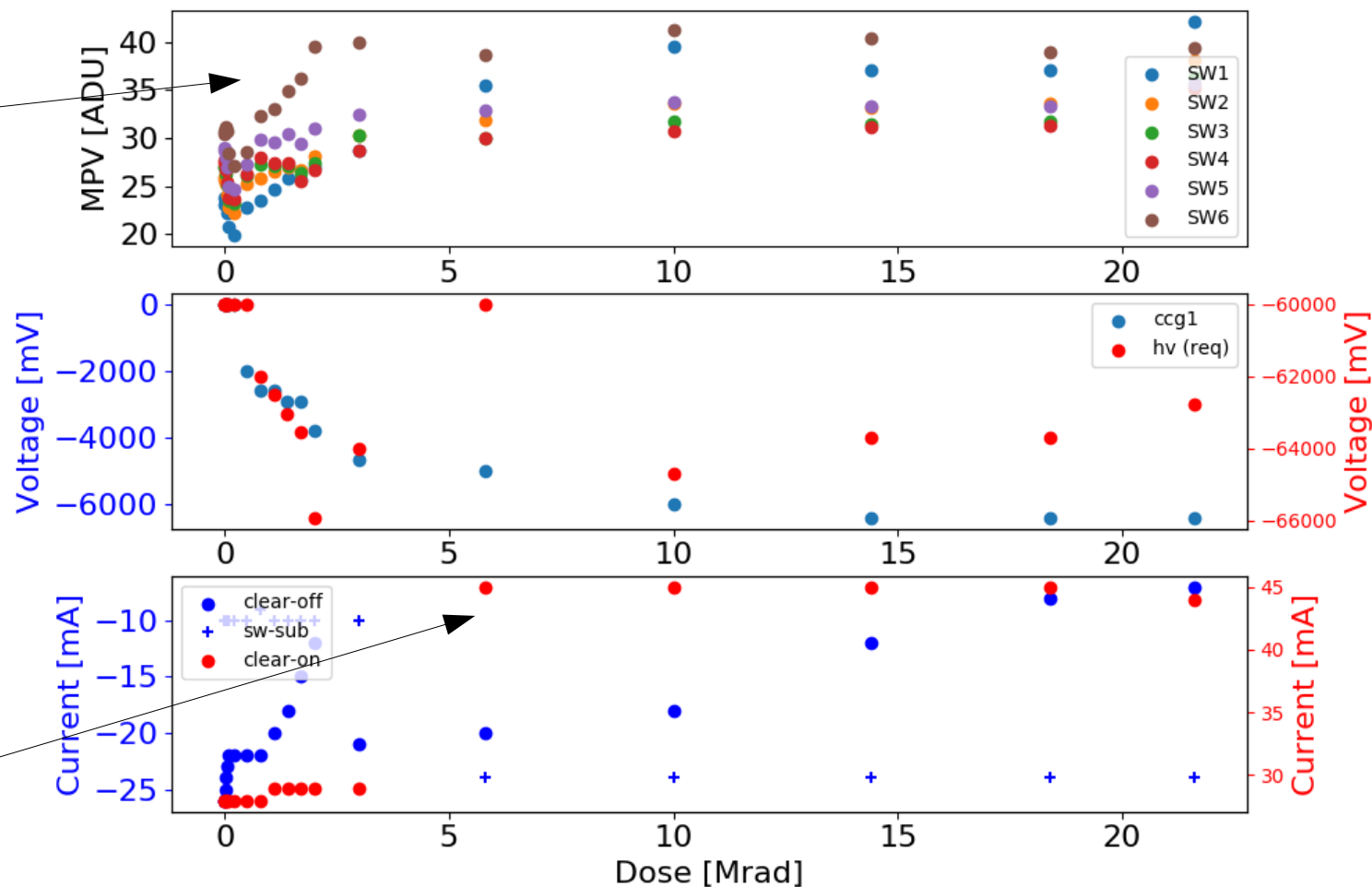


Source scans

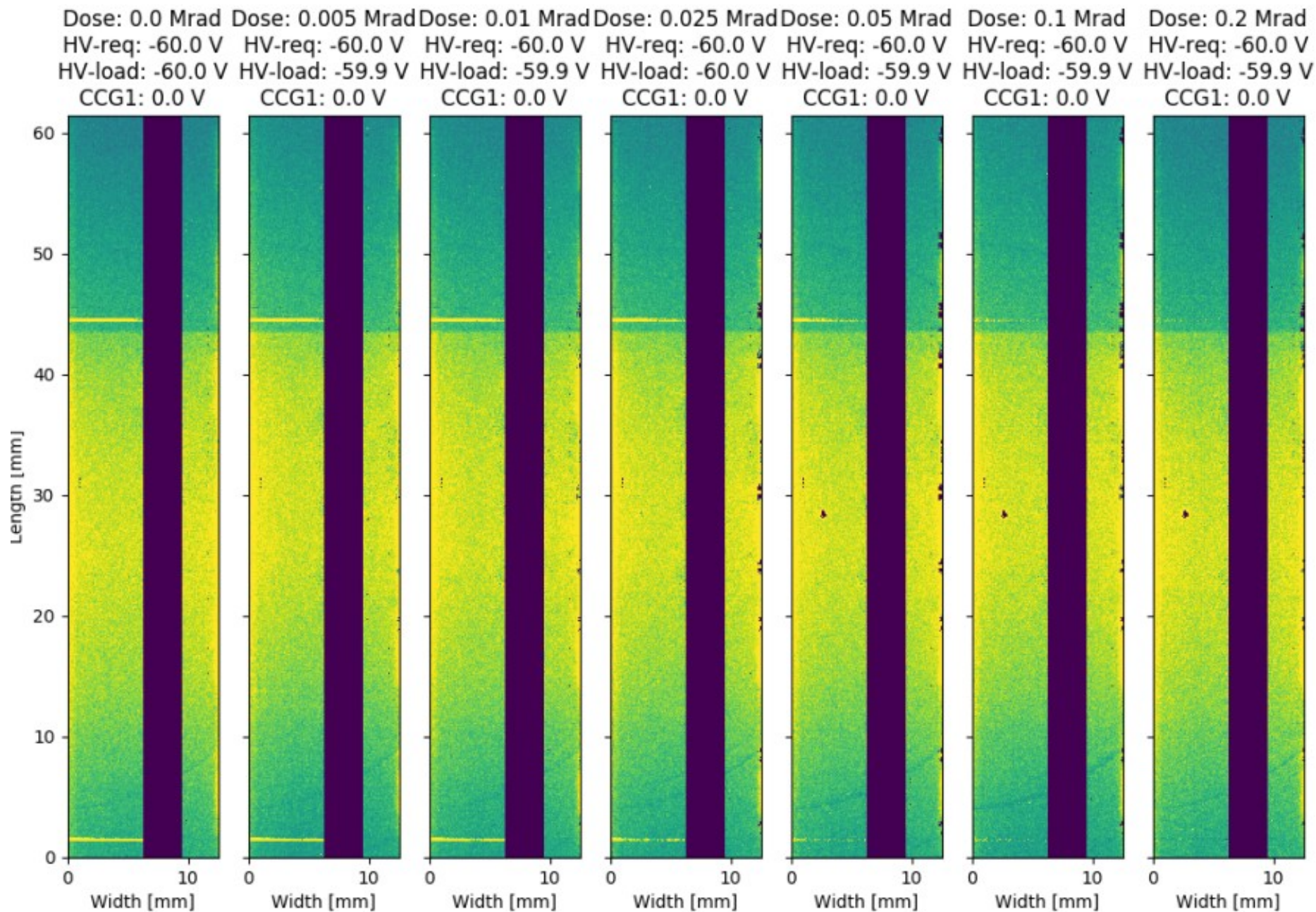
- MPV evolution

MPV and CCG evolution

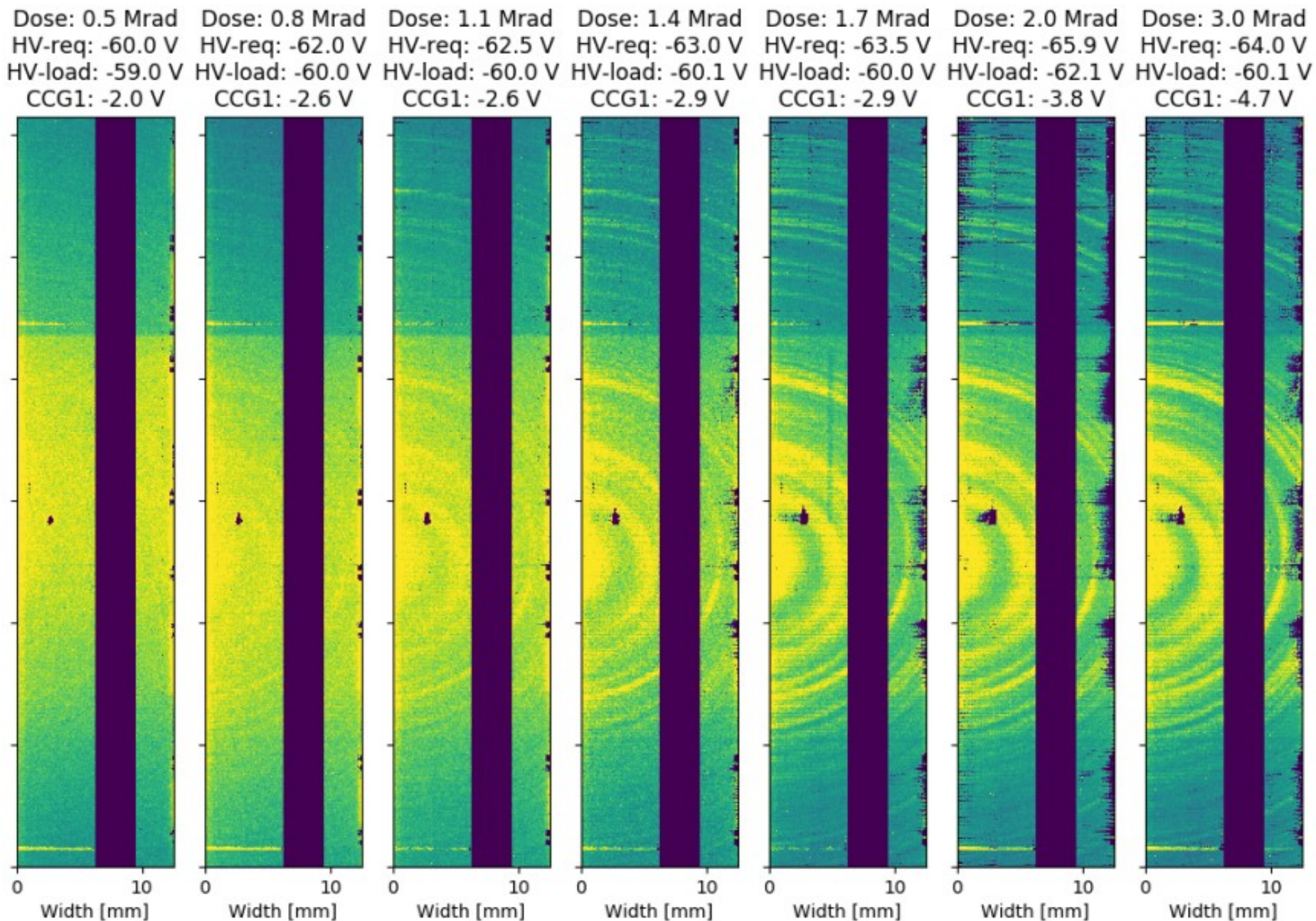
MPV is increasing
(Gate-On
and ccg
adjusted!)



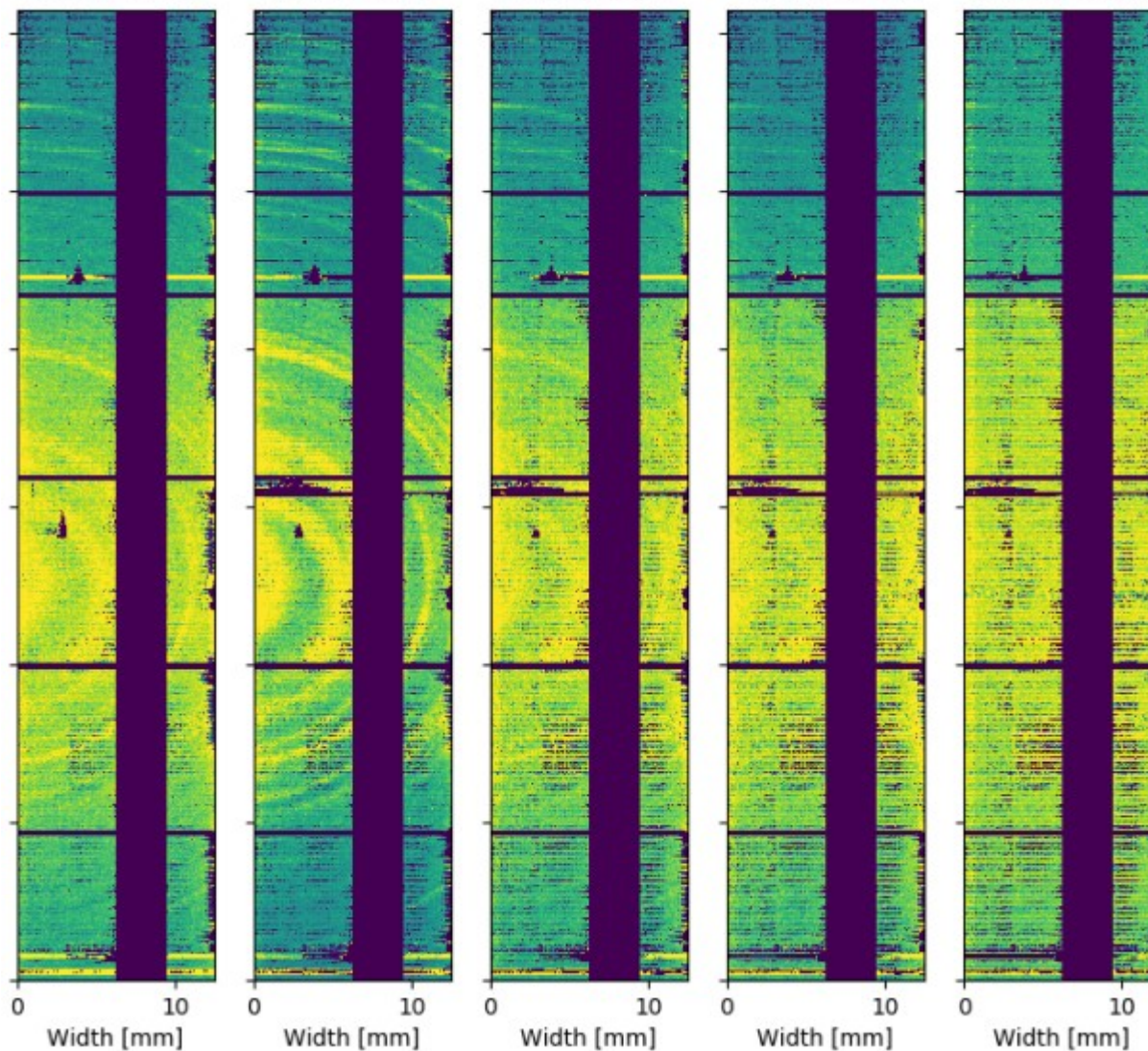
Clear-On
Jump after
power cycle



Analysis of Irradiation Data



Dose: 5.8 Mrad	Dose: 10.0 Mrad	Dose: 14.4 Mrad	Dose: 18.4 Mrad	Dose: 21.6 Mrad
HV-req: -60.0 V	HV-req: -64.7 V	HV-req: -63.7 V	HV-req: -63.7 V	HV-req: -62.8 V
HV-load: -56.9 V	HV-load: -60.4 V	HV-load: -60.3 V	HV-load: -60.6 V	HV-load: -60.0 V
CCG1: -5.0 V	CCG1: -6.0 V	CCG1: -6.4 V	CCG1: -6.4 V	CCG1: -6.4 V



Pedestal Noise

