

ARES Operation Meeting

Summary of week 47 / 2022

Max Kellermeier, on behalf of the ARES crew

Summary of week 47

Achievements

Difficulties

Notes

Mon. 21 st November	Tue. 22 nd November	Wed. 23 rd November	Thu. 24 th November	Fri. 25 th November
		<ul style="list-style-type: none"> Laser auto-alignment works again (exposure and gain adjusted) Prepared machine state for high charge, low DC WP Transportable Charge range tested for MDI shift (with high DC) → up to ~70 pC MDI shift: intensity measurements for proper calibration Pulse shot mode tests 	Auto Acc. Shift <ul style="list-style-type: none"> Continuing BO vs. RL studies 	<ul style="list-style-type: none"> Bunch duration measurement with Three-phase method MMG phases determined and set to on-crest Momentum and Pointing jitter measurements for arrival time stability
		<ul style="list-style-type: none"> Local modulator reset of TWS2 necessary Pulse shot mode requires further investigations; No. pulses not reliable yet 		<ul style="list-style-type: none"> Severe reference phase drift of TWS2 (no live correction applied) Periodic vertical oscillations in pointing stability measurements
<ul style="list-style-type: none"> <i>Tunnel open</i> 	<ul style="list-style-type: none"> <i>Tunnel open for cabling work</i> 			<ul style="list-style-type: none"> <i>Tunnel opened for the weekend</i>

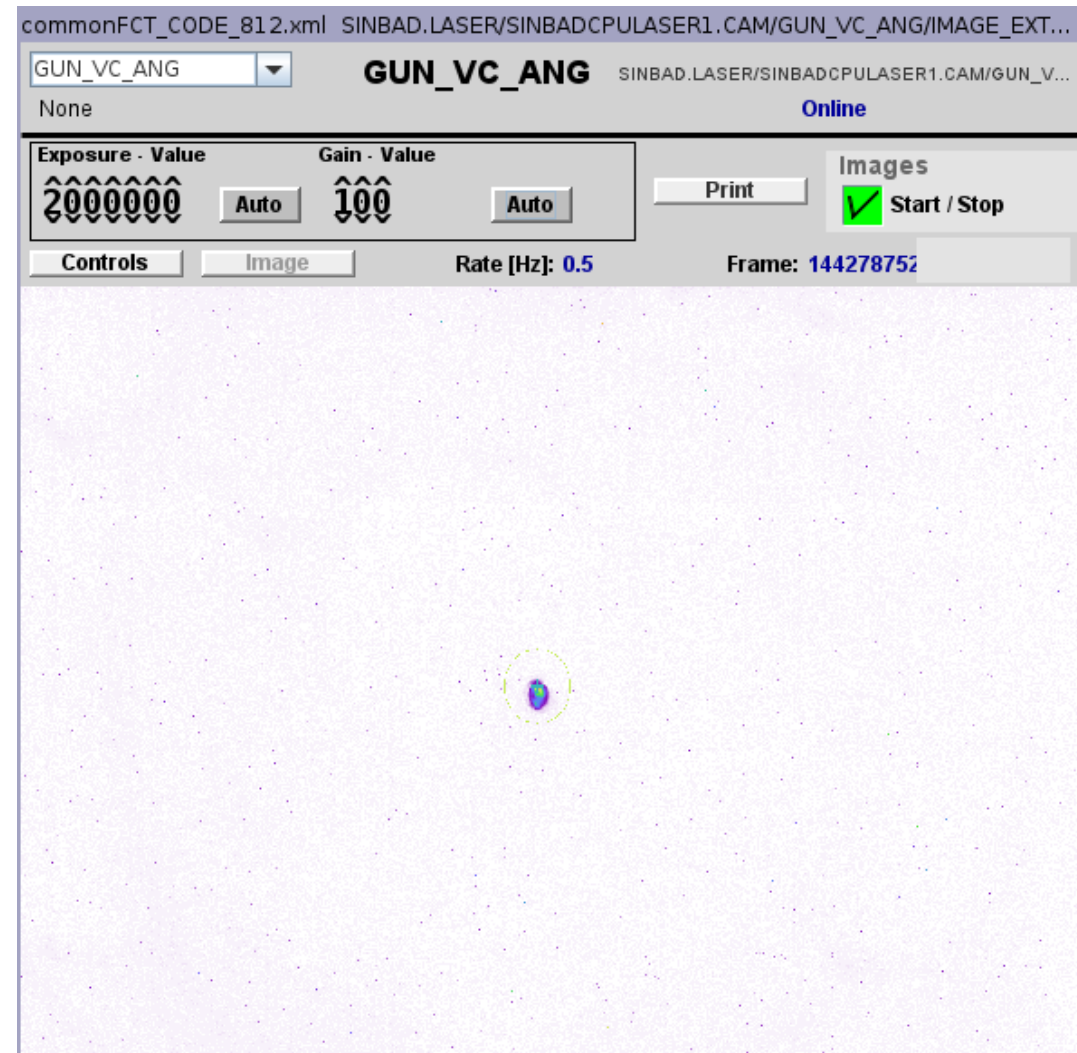
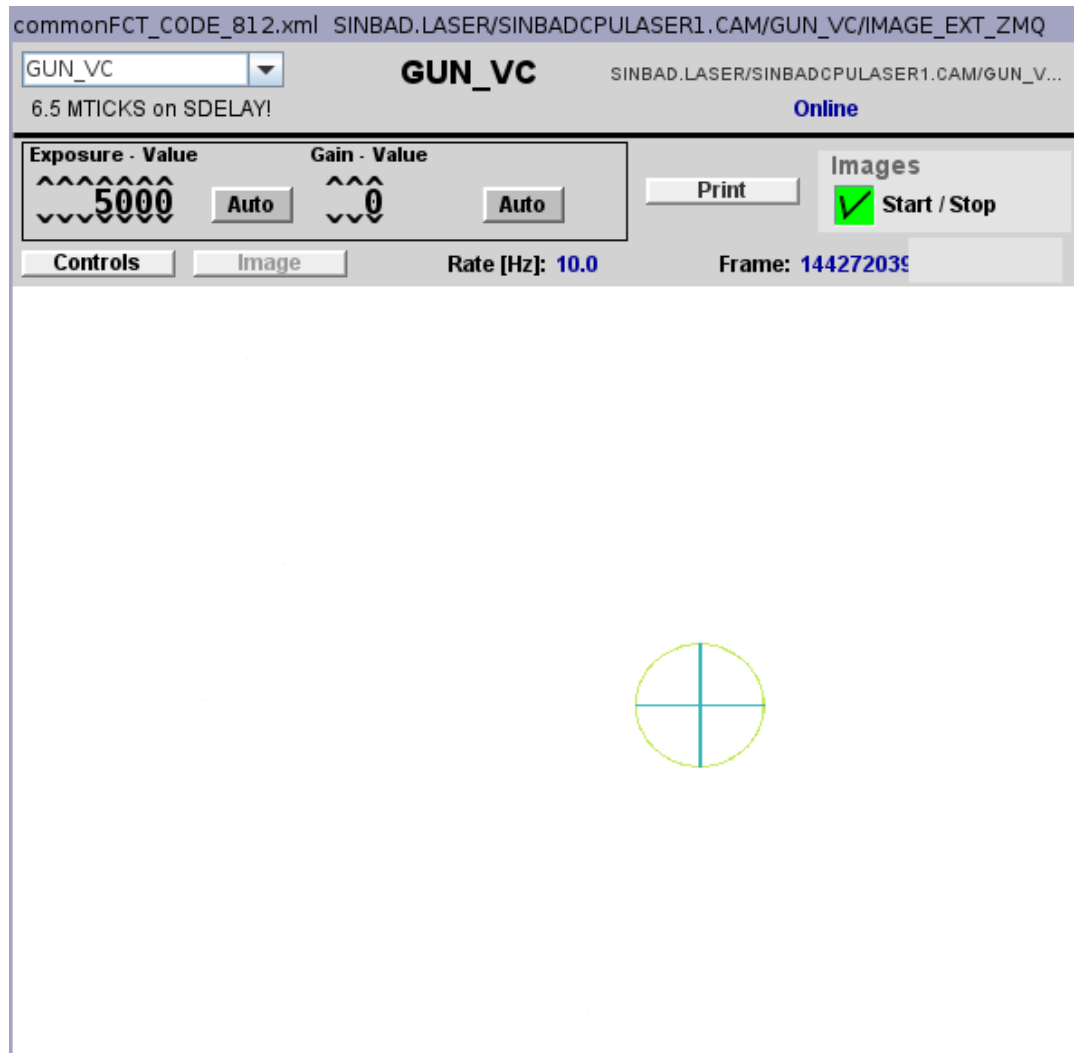
MIN X-Band cabling



+ floor painting works in the Xband Modulator room.

Laser Auto-alignment

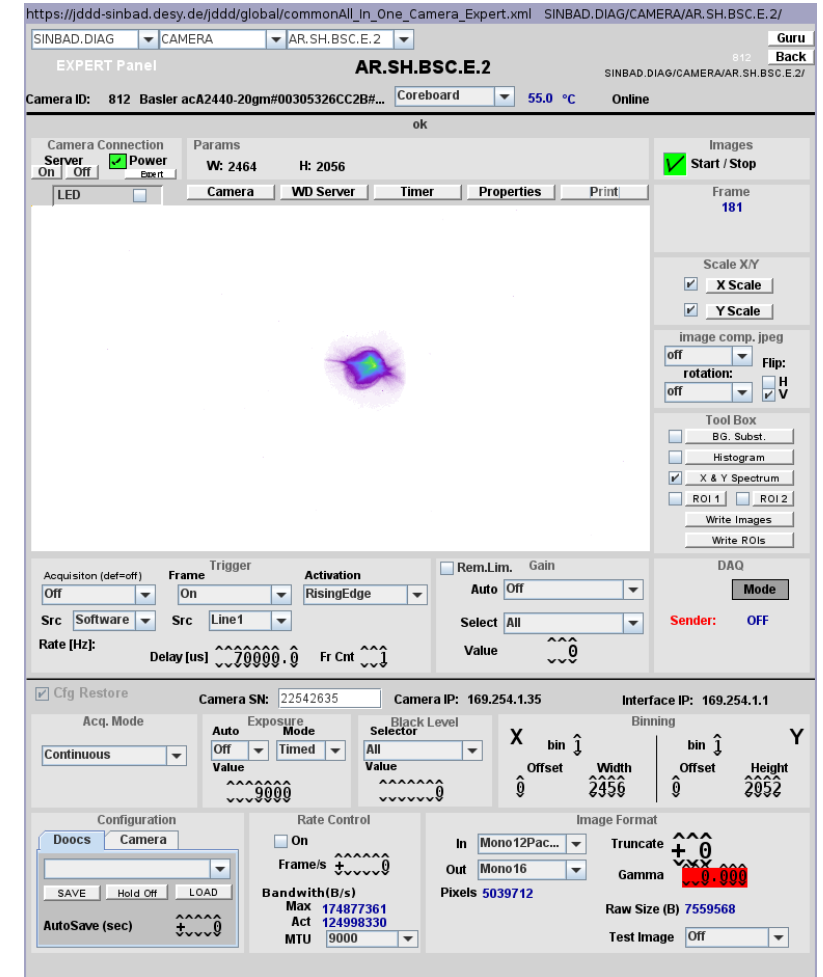
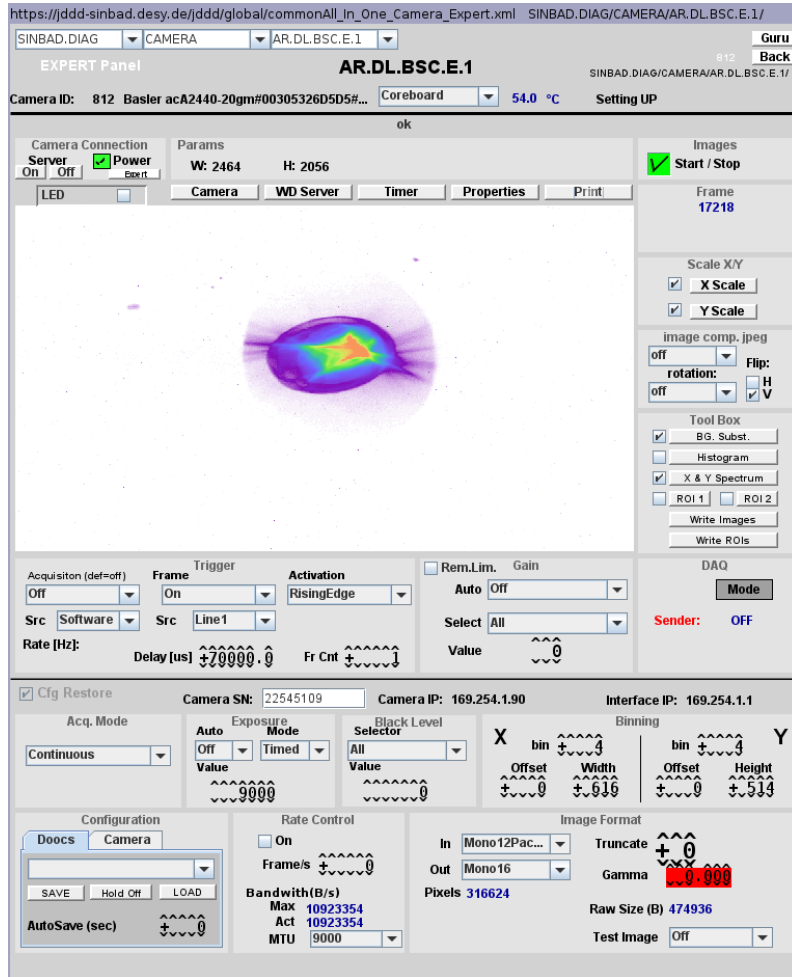
Works again, but slow (0.5 Hz)



High Charge settings for MDI shift

Transport up to SH.E2

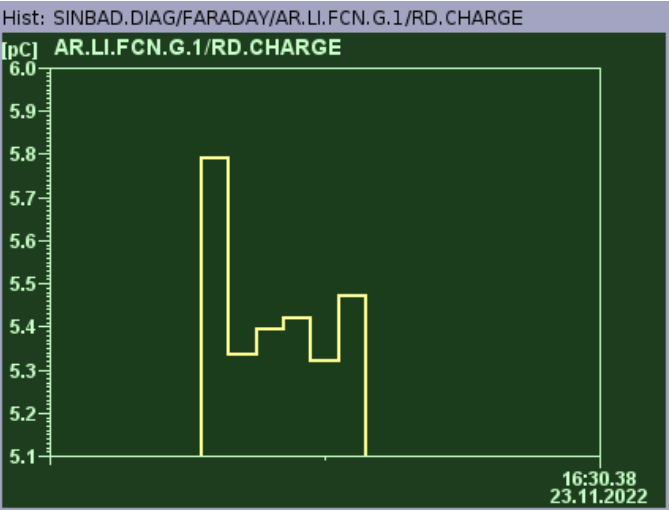
- 62pC (FC1), 71pC (DaMon 1 coarse)
- PHAROS 28%,
aperture 320um,
user attenuator 8000



Laser pulse shot mode

Further investigations needed

Sent 5 shots:



Example:
Counters at 9 and 11 → 99 shots
Sometimes only **98** were counted

- 1 Bug fixed by Hannes
- Tests continued with panel from MCS and test panel
- Charge counter panel extended with pulse counter

ARES TNA Charge Counter

Summation is currently running Stop

Number of Pulses 175

Total Charge Reset to zero 957.68824 pC

Target value 5.50E+2

174.13

Remote address SINBAD.DIAG/FARADAY/AR.LI.FCN.G.1/RD.CHARGE

Remote value -0.0122

Lower threshold 1.00

Upper threshold 1.00E99

SINBAD_PulseShotMode.xml

SINBAD Pulse Shot Mode

Pulse Shot Mode ▼

Choose number of pulses

Counter 1 5 Counter 2 13

Start Pulses

Number Pulses	Counter 1	Counter 2
1	1	1
2	2	1
3	3	1
4	4	1
5	5	1
6	6	1
7	7	1
8	8	1
9	9	1
10	10	1
11	11	1
12	12	1
13	13	1
14	14	1
15	15	1
16	16	1
18	2	9
20	4	5
21	3	7
22	2	11
24	3	8
26	2	13
28	4	7
30	2	15
33	3	11
35	5	7
36	4	9
39	3	13
40	5	8
42	3	14
44	4	11
45	5	9
48	3	16
52	4	13
55	5	11
60	4	15
63	7	9
65	5	13
66	6	11
70	5	14
72	8	9
77	7	11
78	6	13
80	5	16
84	7	12
90	9	10
91	7	13
99	9	11
105	7	15
112	7	16
132	11	12
143	11	13
154	11	14
156	12	13
165	11	15
176	11	16
182	13	14
195	13	15
208	13	16
210	14	15
240	15	16

Autonomous Acc Shift

- Comparison of RL and BO: Results in good agreement with results from week before

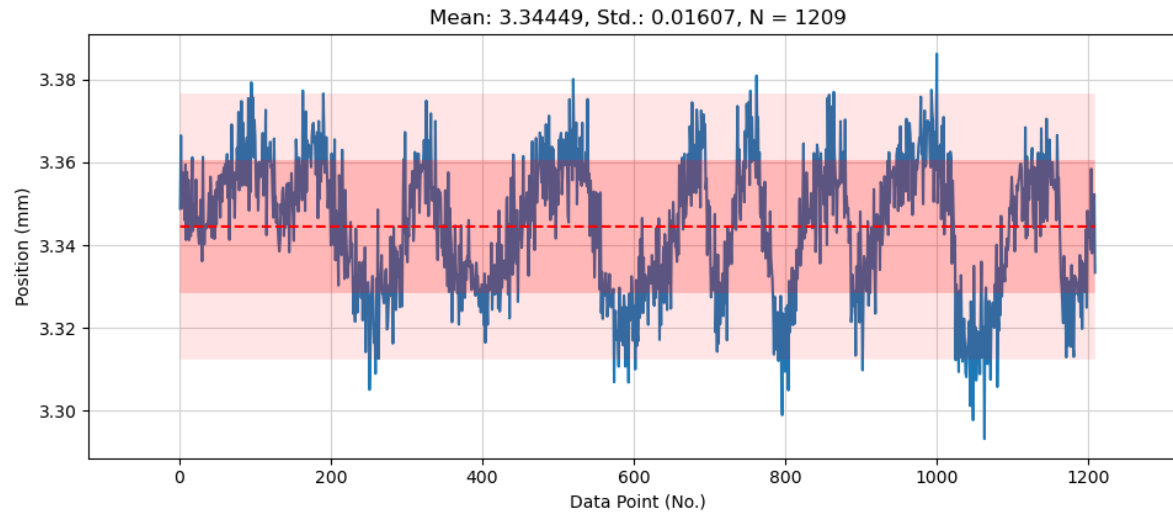
Measurements for arrival time stability

- MMG phase of all three structures measured and set to nominal zero (on-crest), low charge (0.12 pC at FC1)
- Momentum and pointing stability measurements for:
 1. TWS1 on-crest + TWS2 off
 2. TWS1 on-crest + TWS2 on-crest
 3. TWS1 on-crest + TWS2 -90° off-crest
 4. TWS1 on-crest + TWS2 +90° off-crest

Stability of vertical beam position

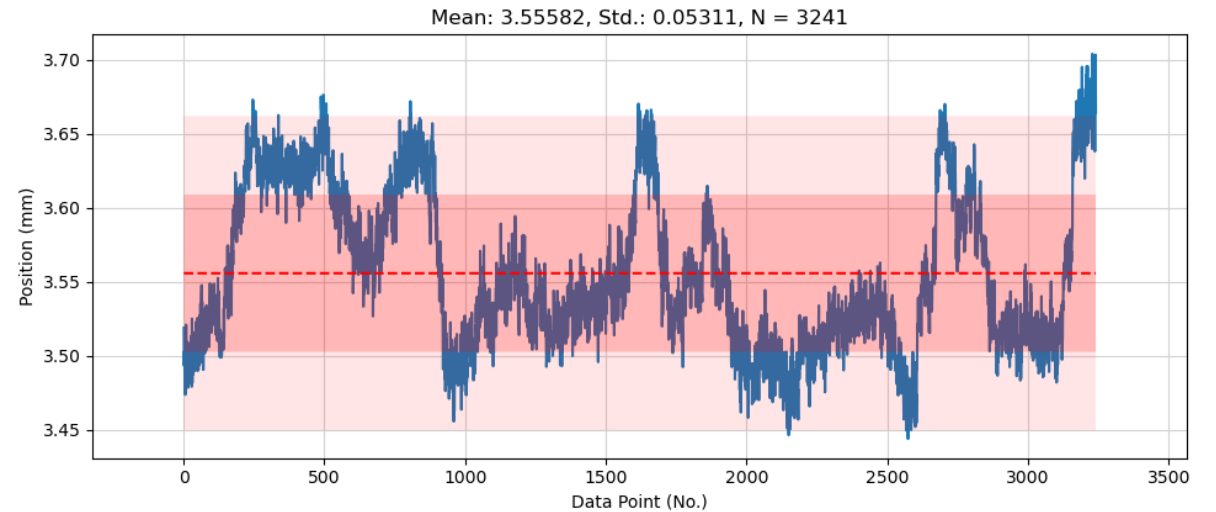
TWS2 on-crest vs. off-crest

- 70 μ m Peak-to-peak



On SH.E2

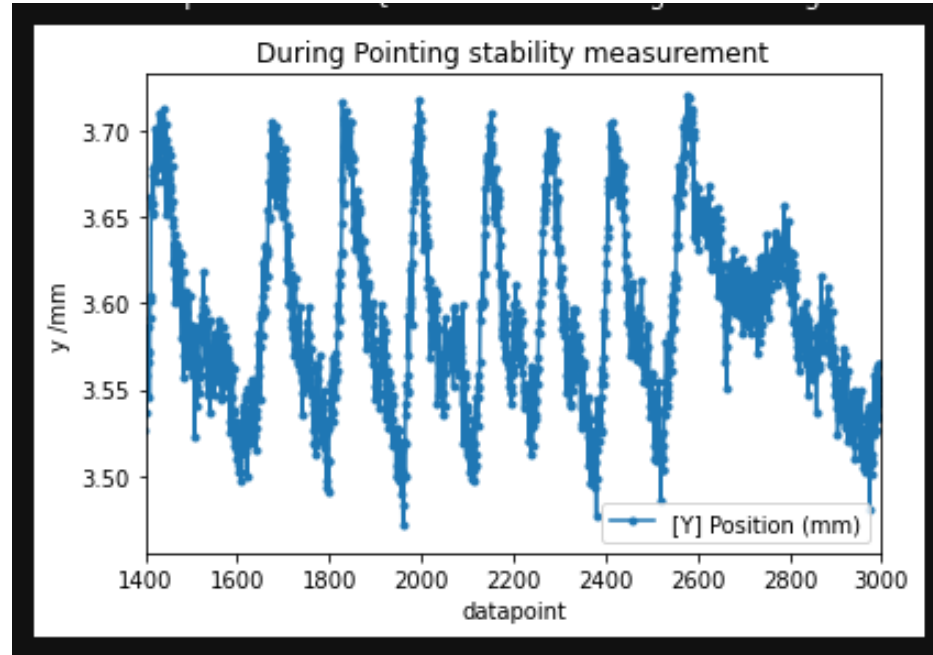
- 200 μ m Peak-to-peak



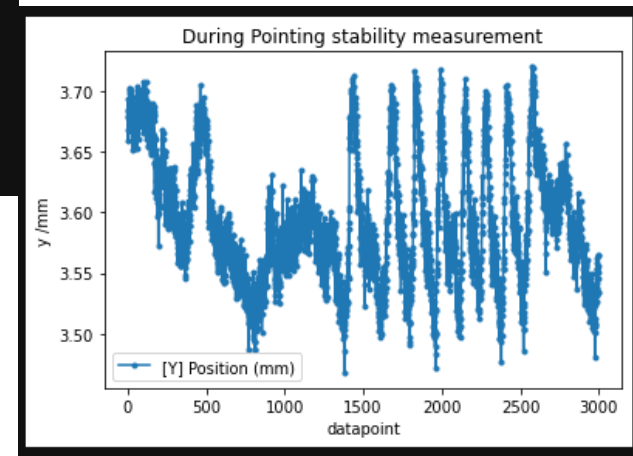
Similar with TWS2 off-crest

Periodic Vertical osc. in pointing stability measurements

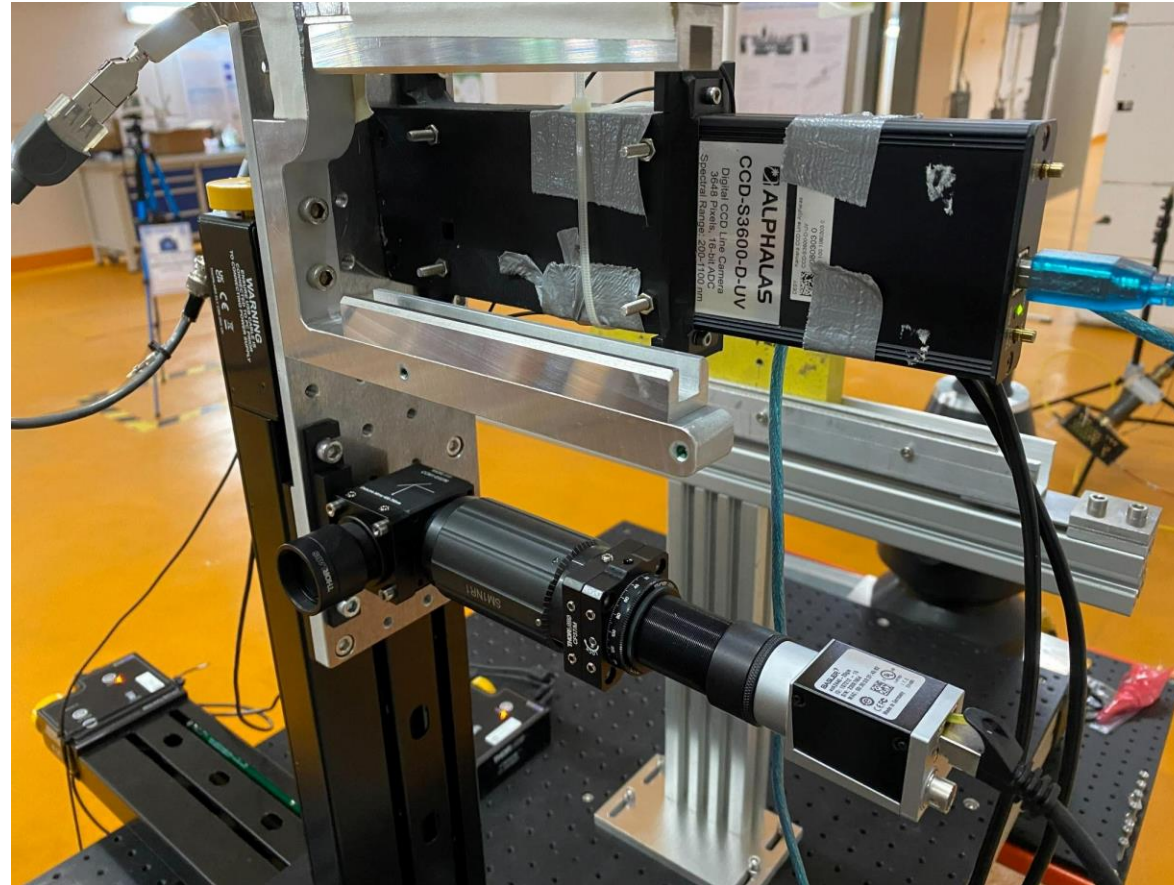
TWS2 off



- Vertical beam variation of about 200μm peak-to-peak verified at end of shift
- No periodic features observed anymore



Ultra-low charge BPM / 1D beam profile monitor



D3 tests??

To be clarified with Oliver

Plan

Week 48

- **Monday**
 - Tunnel open
 - Painting
 - cabling
- **Tuesday**
 - MSK gun gradient attenuator adjustments
 - Ultra-low charge BPM tests
- **Wednesday**
 - BPM & intensity monitor tests (tbc)
 - Beam manipulation in the EA in air.
- **Thursday**
 - AutoAcc
 - (BKR Jahresabschlussbesprechung)
- **Friday**
 - *Tbd*
 - (tunnel search training)

Schedule

Week 48

Date	Schedule
28.11.	Tunnel open
29.11.	Frank
30.11.	Willi
01.12.	Thomas
02.12.	Hannes

If you want to learn or join the shift: please give the shift leader a call (BKR 2840 / SINBAD Box 2454)