GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN IN PUBLICA COMMODA SEIT 1737

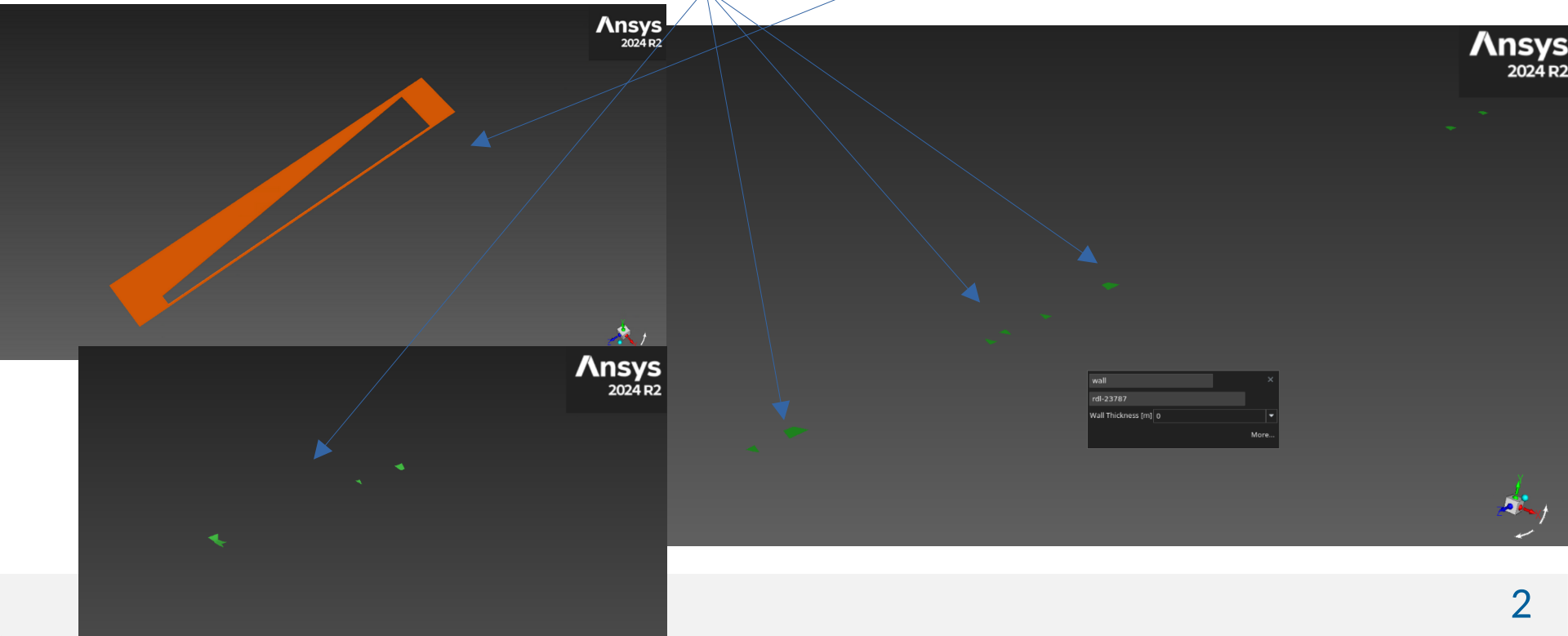
Airflow Measurement Updates

02.04.2026

NANA CHYCHKALO

Segmented Full All-Si: Shell

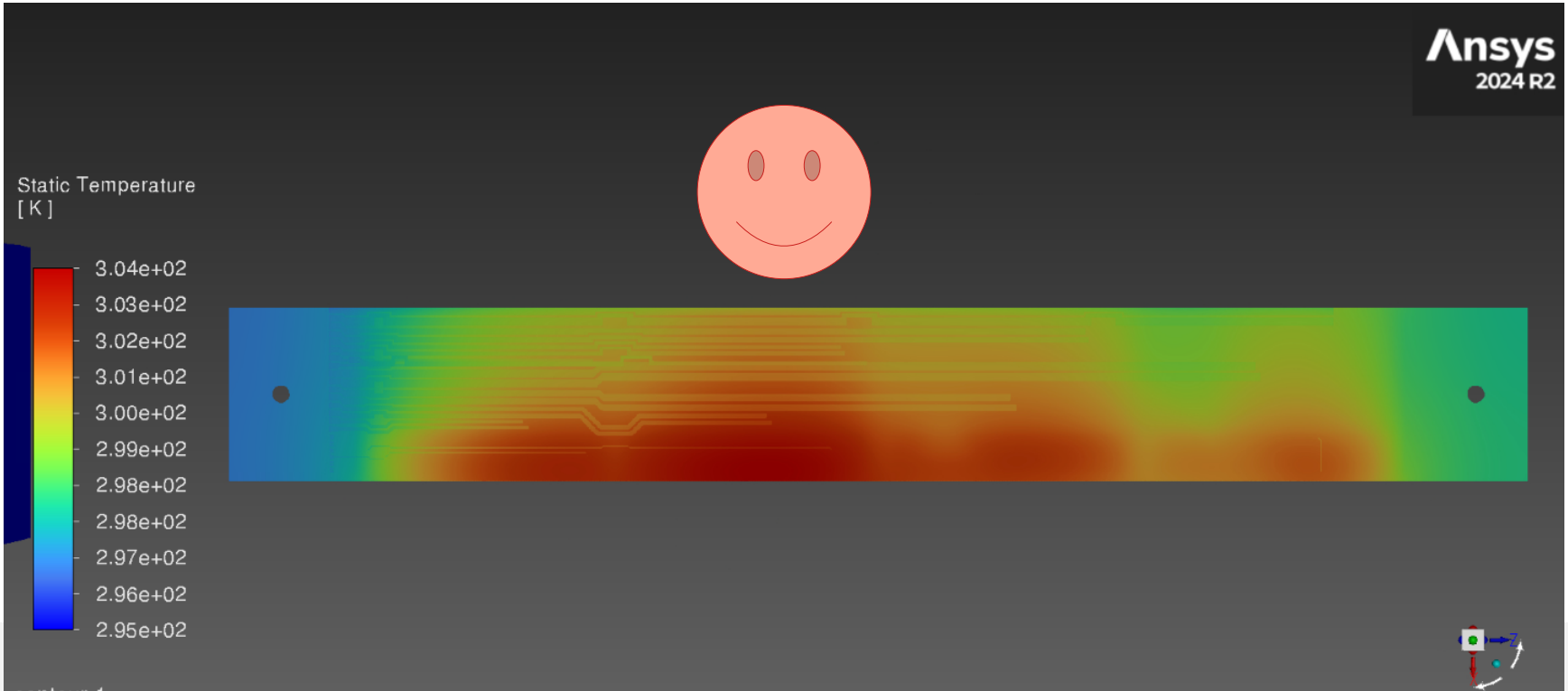
- SIMPLIFIED SEGMENTED FULL ALL-SILICON WITH MULTI-SHELL APPROACH DIDN'T WORK.
- SOFTWARE CREATES MANY TINY WALLS AND HOLES IN SHELLS



Segmented Full All-Si: 300 micron

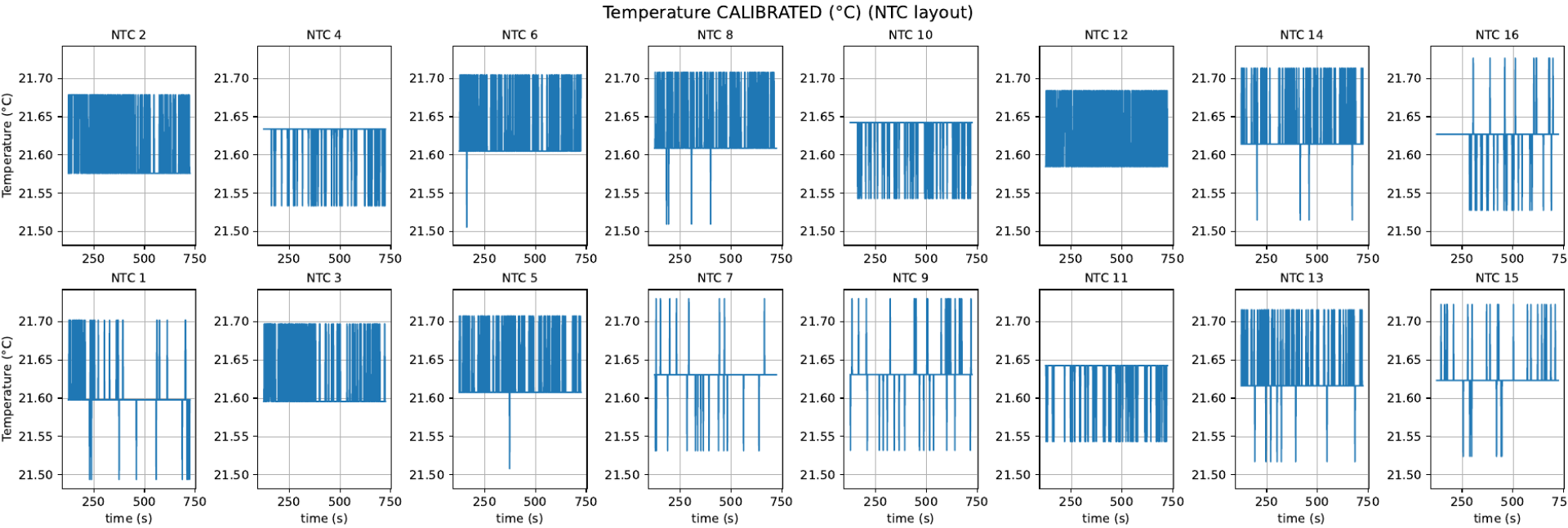
RUNS WITH VERY LIMITED MONITORING: ~28°C MAXIMUM AT 9 M/S INLET.

- SEGMENTS PROPAGATE WELL TO POLYMER/RDL INTERFACES.
- BASED ON RECOVERED PARTS OF CORRUPTED PROJECT FROM AUGUST 2025.



Nanaboard Calibration

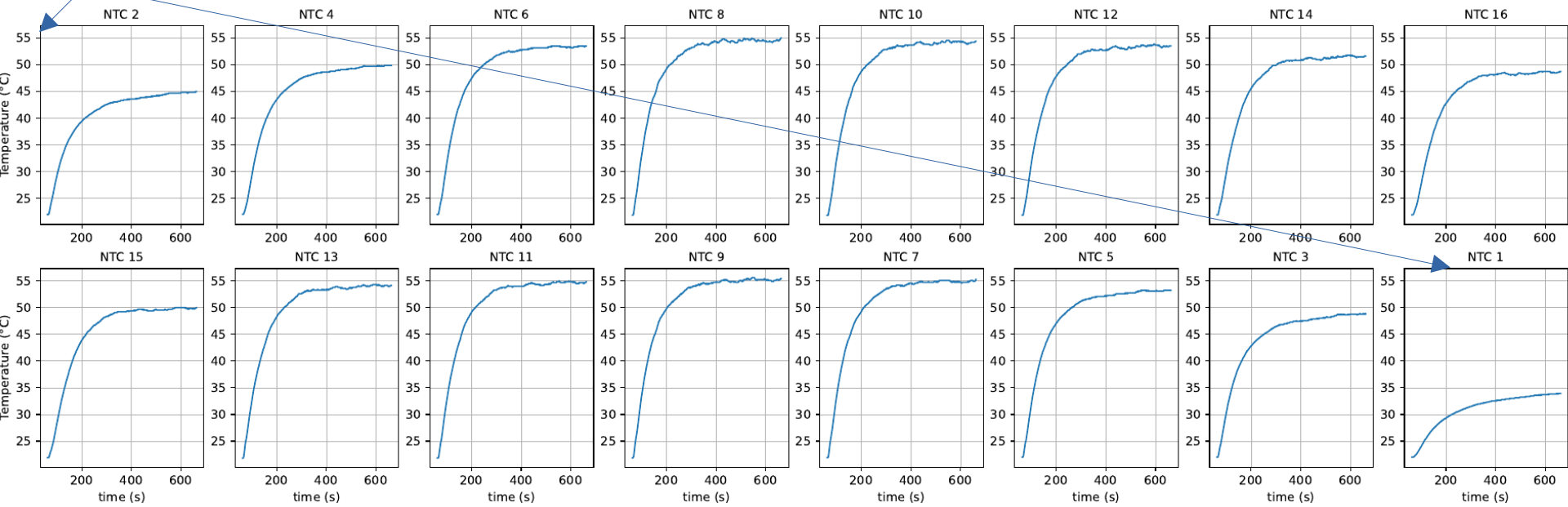
IN BINDER FURNACE, CONTROLLED ENVIRONMENT WITH COMMERCIAL REFERENCE PROBE: 21.6, 39.7, 62.4 AND 82.0 ℃.



T Curves with small airflow

MEASURED FOR 10 MINUTES.

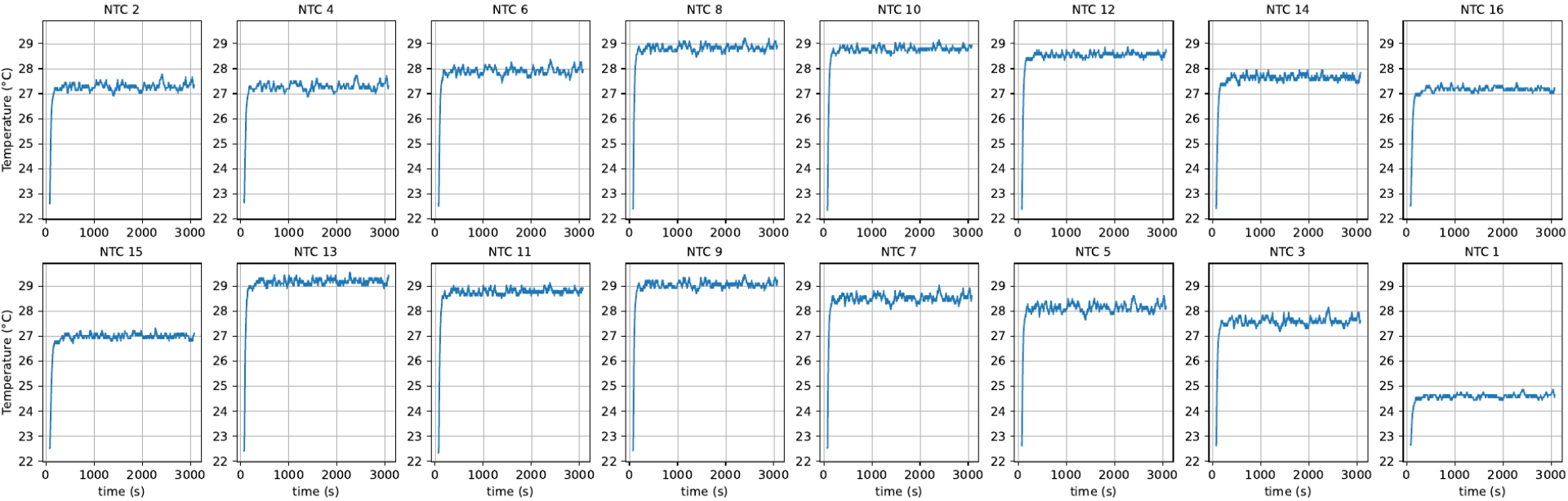
EDGE SENSORS DON'T TOUCH R HEATERS: THEY TOUCH PASSIVE SILICON EDGES.



T Curves with maximum airflow 21.5 cm fan distance

VIBRATIONS CAUSE SENSORS DETACHMENT/ATTACHMENT – TO BE REPEATED WITH THERMAL PASTE.

MEASURED FOR 50 MINUTES.

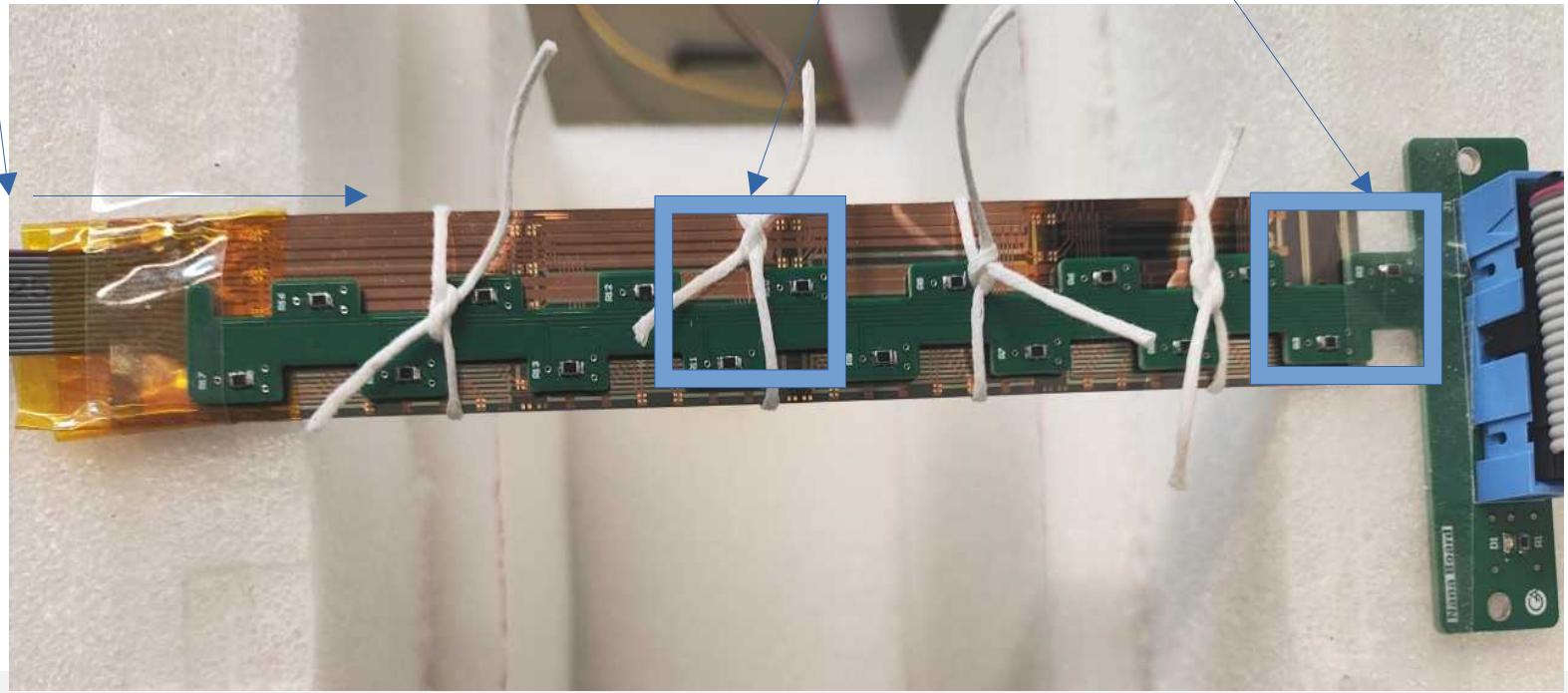


Setup adjustment

IF THE BOARD IS A BIT TILTED – VISIBLE ON THE RESULTS.

SMALL WEIGHT WAS PLACED ON TOP: IN THE MIDDLE OR THE END.

AIRFLOW FROM THE LEFT.

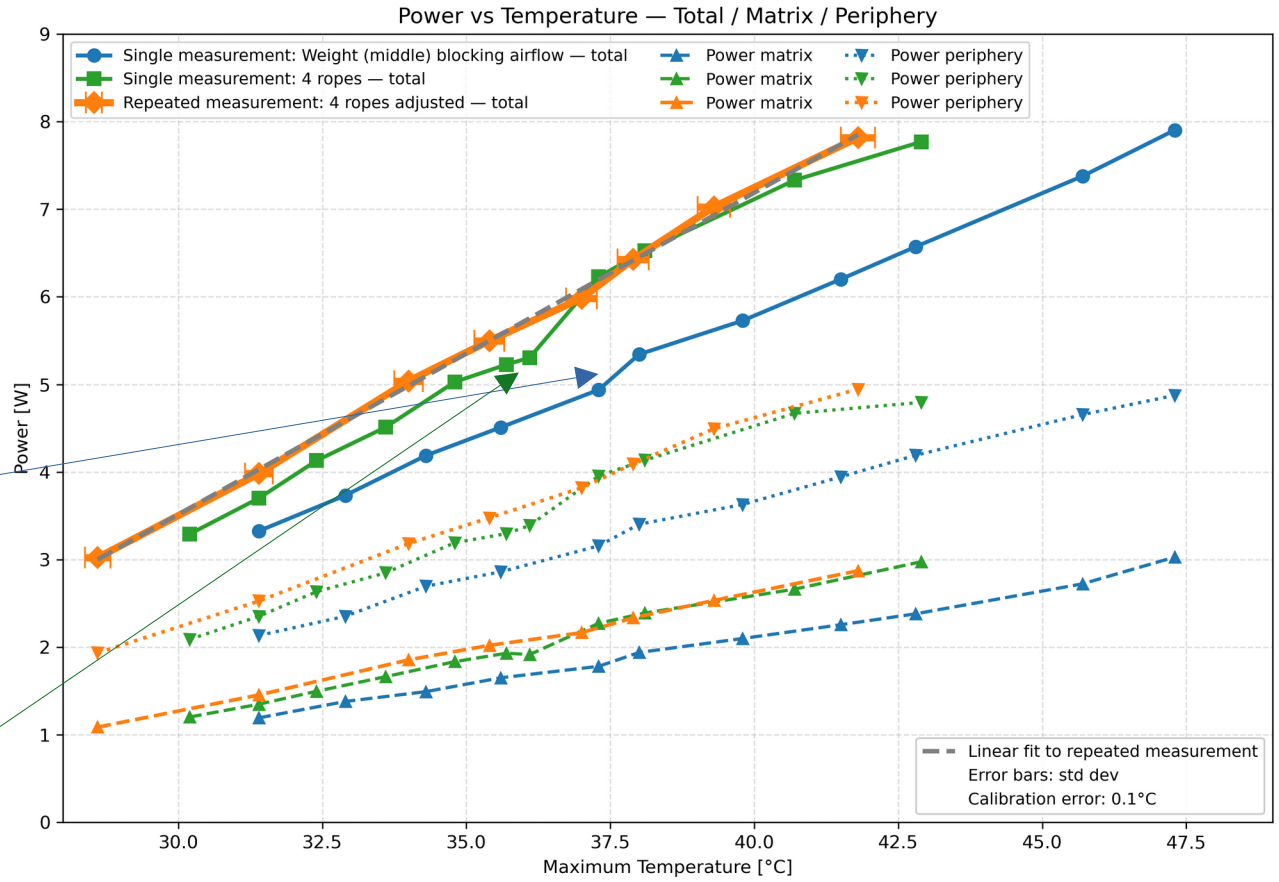


Sensitivity to setup fluctuations

12V FAN, 300 MICRON MODULE, 21.5CM FAN DISTANCE - ON ALL MEASUREMENTS HERE.

BLUE: WEIGHT IN THE MIDDLE OF THE BOARD. MODULE WAS WARMED UP BEFORE MEASUREMENT – NEW BOARD CAPTURED THE DIFFERENCE.

ORANGE AND GREEN: ROPES/RUBBER BANDS ATTACHED TO THE BOARD, NO WEIGHT IN THE MIDDLE. GREEN: POWER INCREMENT WAS NON-LINEAR.



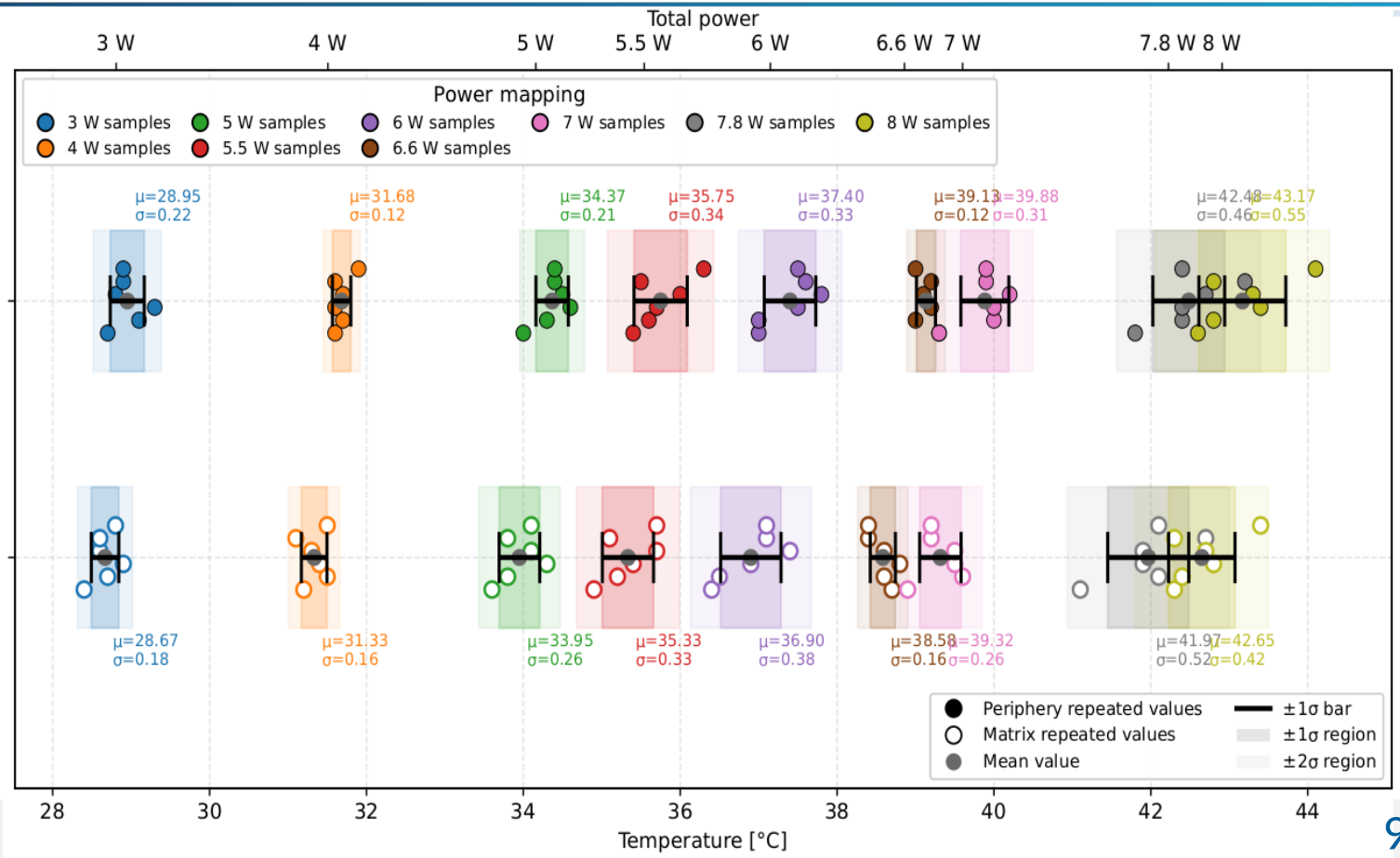
Airflow repeatability

DATAPOINTS SPREAD IS NOT SIGNIFICANT WITH 6 REPEATED MEASUREMENTS.

SPREAD REDUCES WITH REDUCING THE FAN DISTANCE.

REPEATING THE SAME WITH 6CM FAN DISTANCE.

NOT ALL MEASUREMENTS GIVE HIGHER PERIPHERY VALUES THAN MATRIX.



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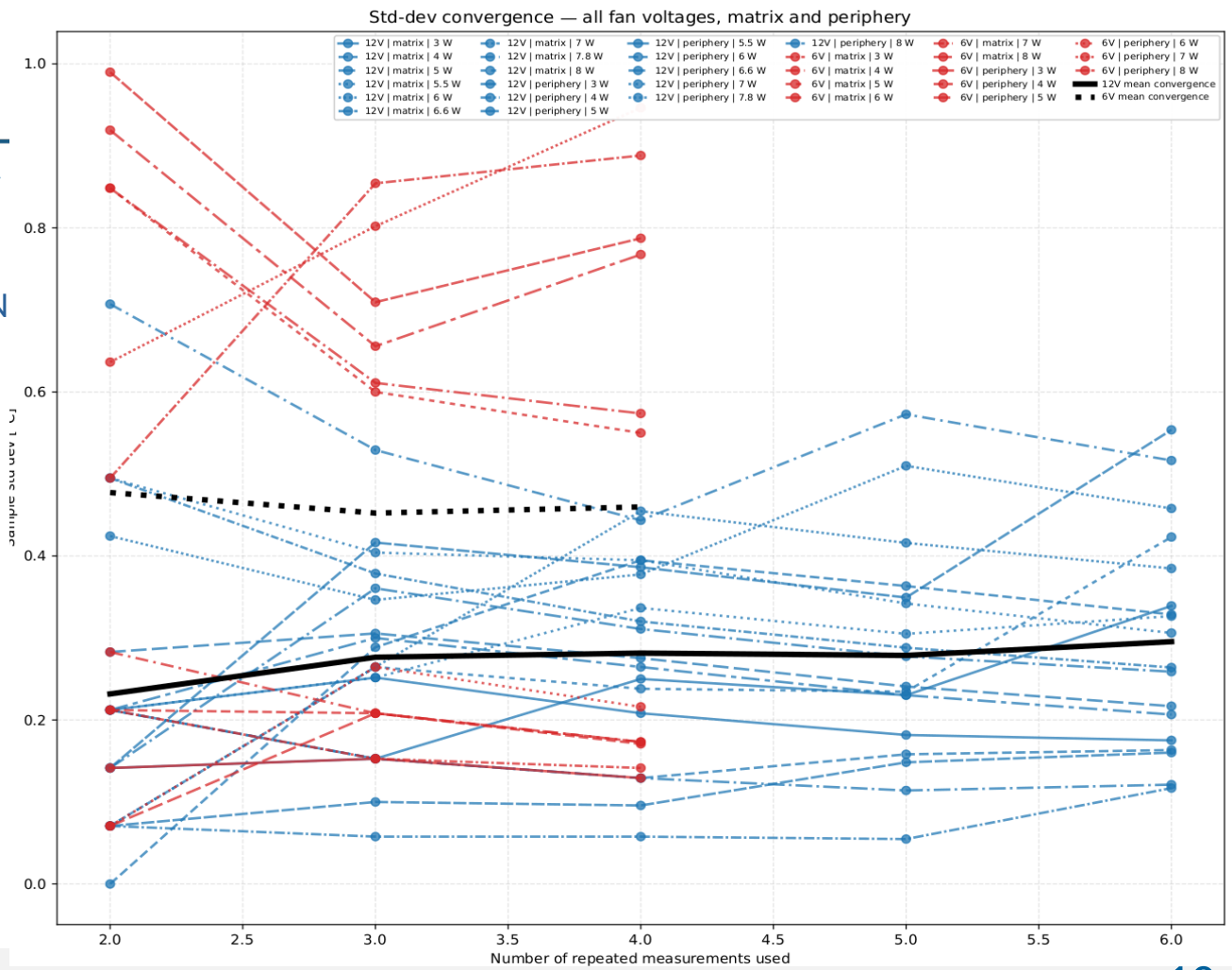
Mean std dev

BLUE: ALL CHANNELS WITH 12V FAN ON 21,5CM DISTANCE WITH **6** REPEATED MEASUREMENTS: ~0.3°C

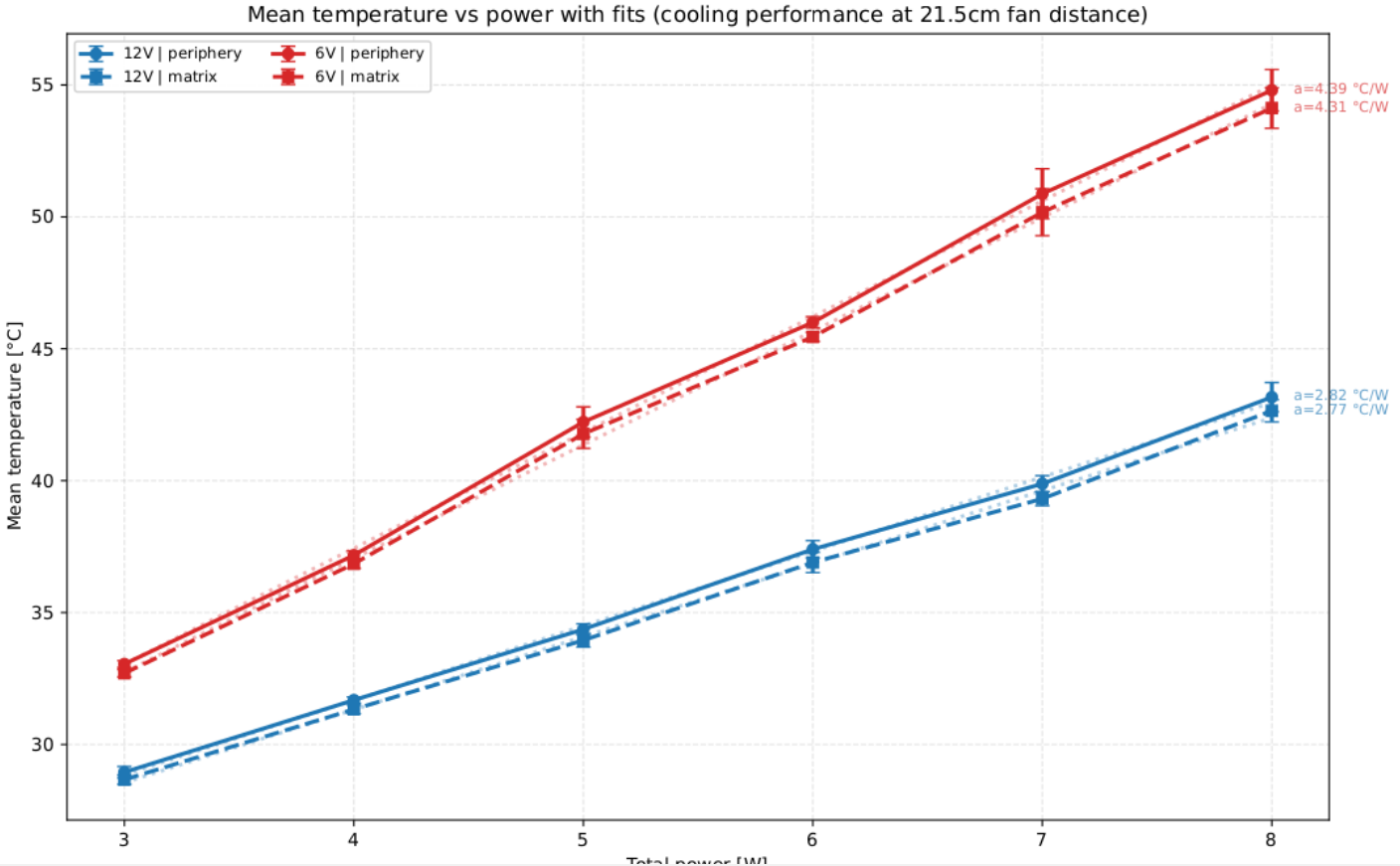
RED: ALL CHANNELS WITH 6V FAN ON 21.5CM DISTANCE WITH **4** REPEATED MEASUREMENTS: ~0.45°C

NEWER MEASUREMENTS WITH 6CM FAN DISTANCE ARE PROMISING; HAVE LOWER SPREAD VALUES.



12V and 6V airflow comparison

300 MICRON MODULE. BLUE: 12V FAN. RED: 6V FAN.



12V/6V fan at 6 and 21.5 cm

300 MICRON MODULE. BLUE: 12V FAN (6 AND 21.5 CM DISTANCE). RED: 6V FAN (6 AND 21.5 CM DISTANCE).