

All-Silicon Updates

12.06.2026

NANA CHYCHKALO

ANSYS MECHANICAL: FIXED, THE SOLVER WORKS.

LOCAL AIRFLOW PROFILES MEASUREMENTS: FOR DERIVING THE INLET AIR FOR SIMULATIONS.

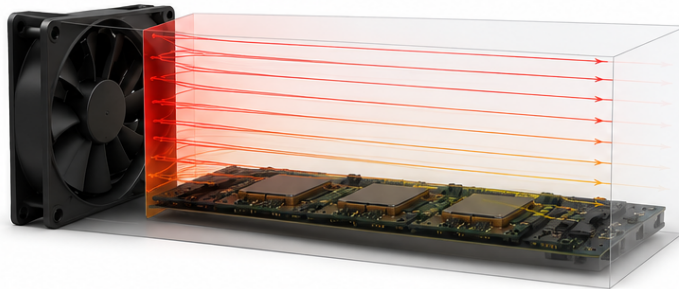
TESTED: THE AIRFLOW WITH A DUCT AND SIMULATION AIRFLOW ARE NOT THE SAME AND NOT SIMILAR.

SELECTED AREA IN THE DUCT THAT CAN BE AS UNIFORM AS POSSIBLE.

Local airspeed profile

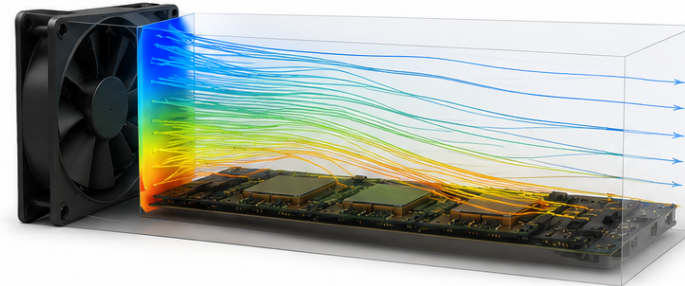
✗ WRONG APPROACH

Inlet = fan speed (e.g. 7 m/s)

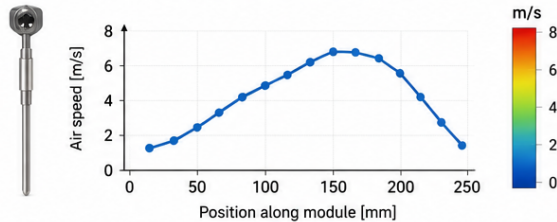


✓ CORRECT APPROACH

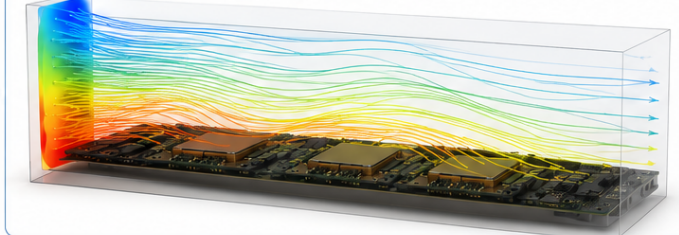
Inlet derived from local airflow profile measurements



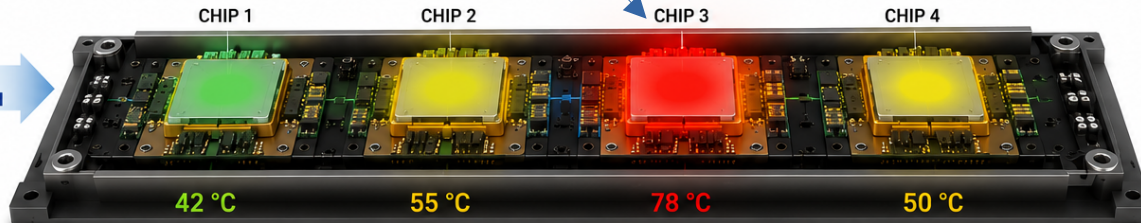
LOCAL AIRFLOW PROFILE MEASUREMENTS



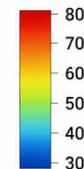
APPLY AS INLET PROFILE IN CFD



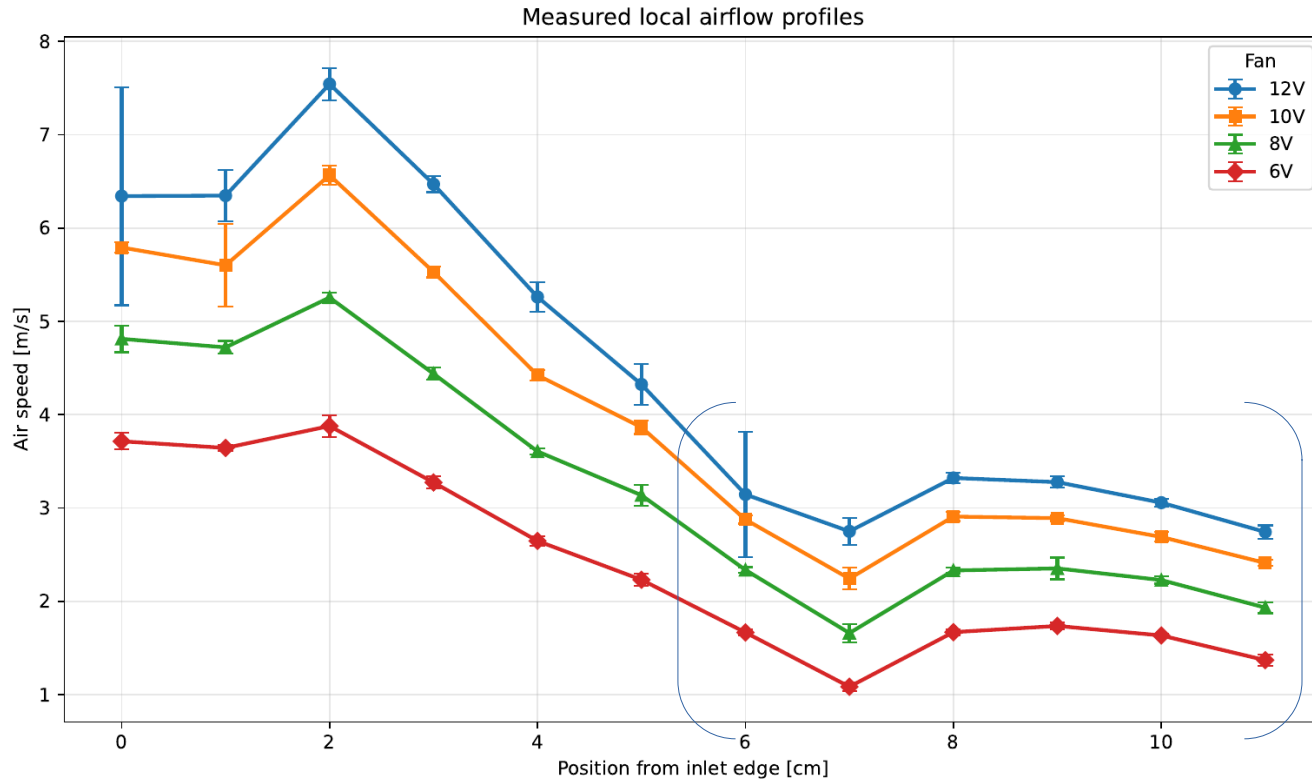
AIRFLOW DIRECTION



Temperature [°C]



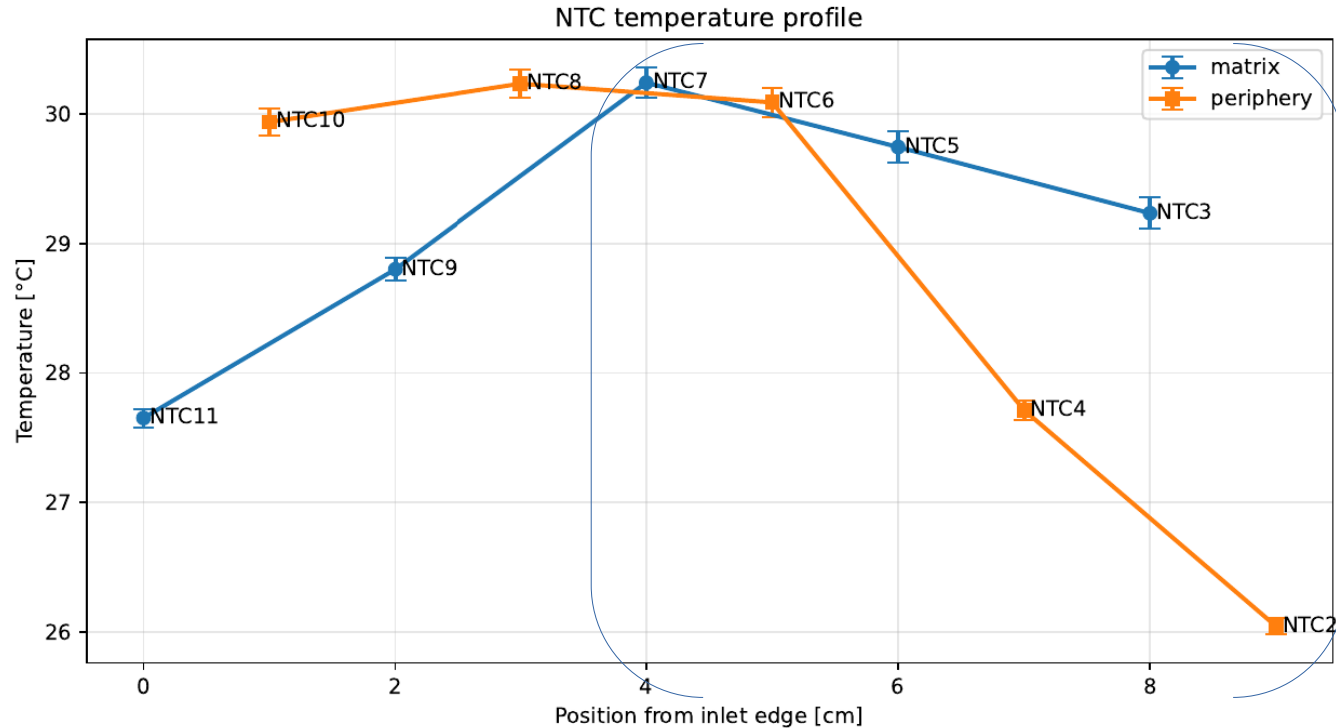
Airspeed profile along the ladder



AIRFLOW ALONG THE LADDER IS NOT UNIFORM WITH A DUCT.

ONLY THE LAST 6 SENSORS SHOW MORE UNIFORM FLOW AND ARE USED FOR VALIDATION.

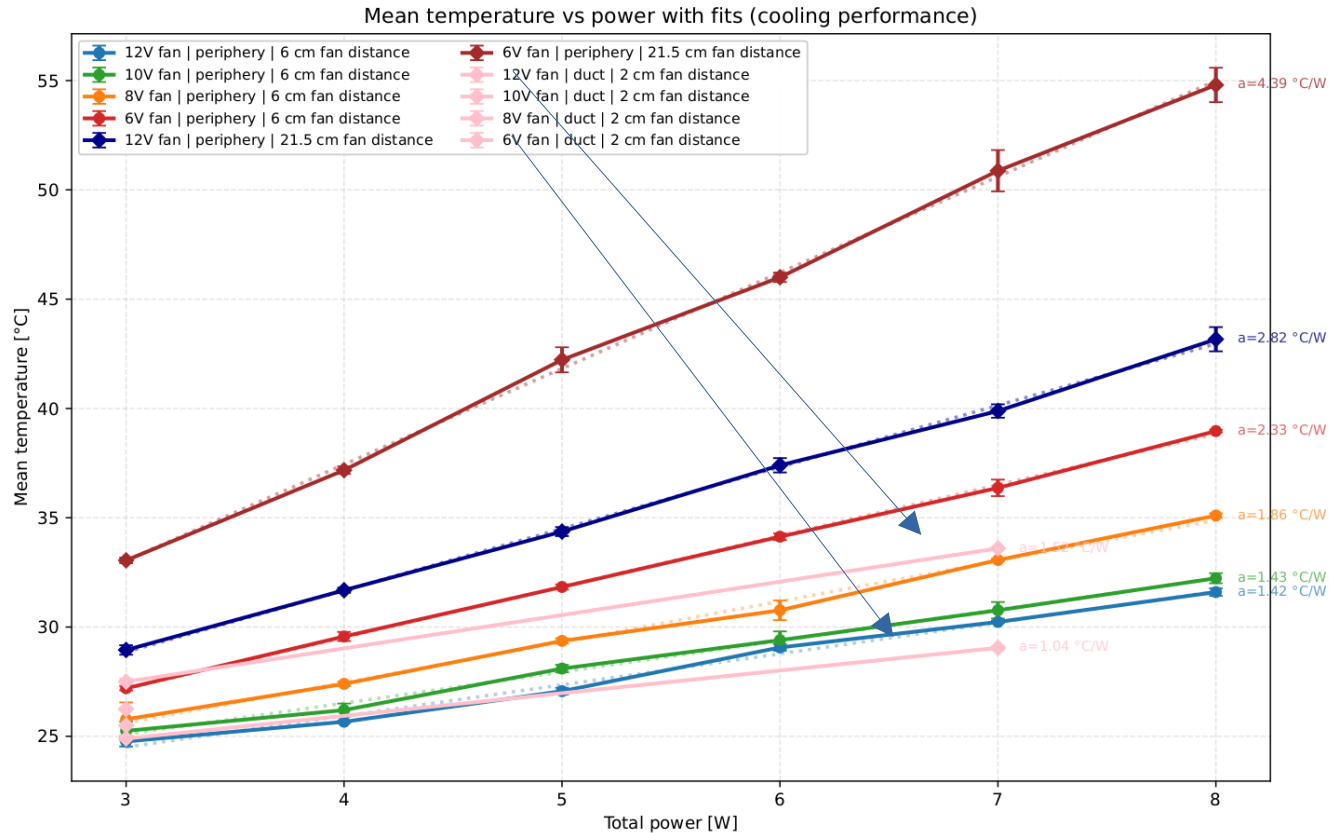
Selected NTC sensors: mapping

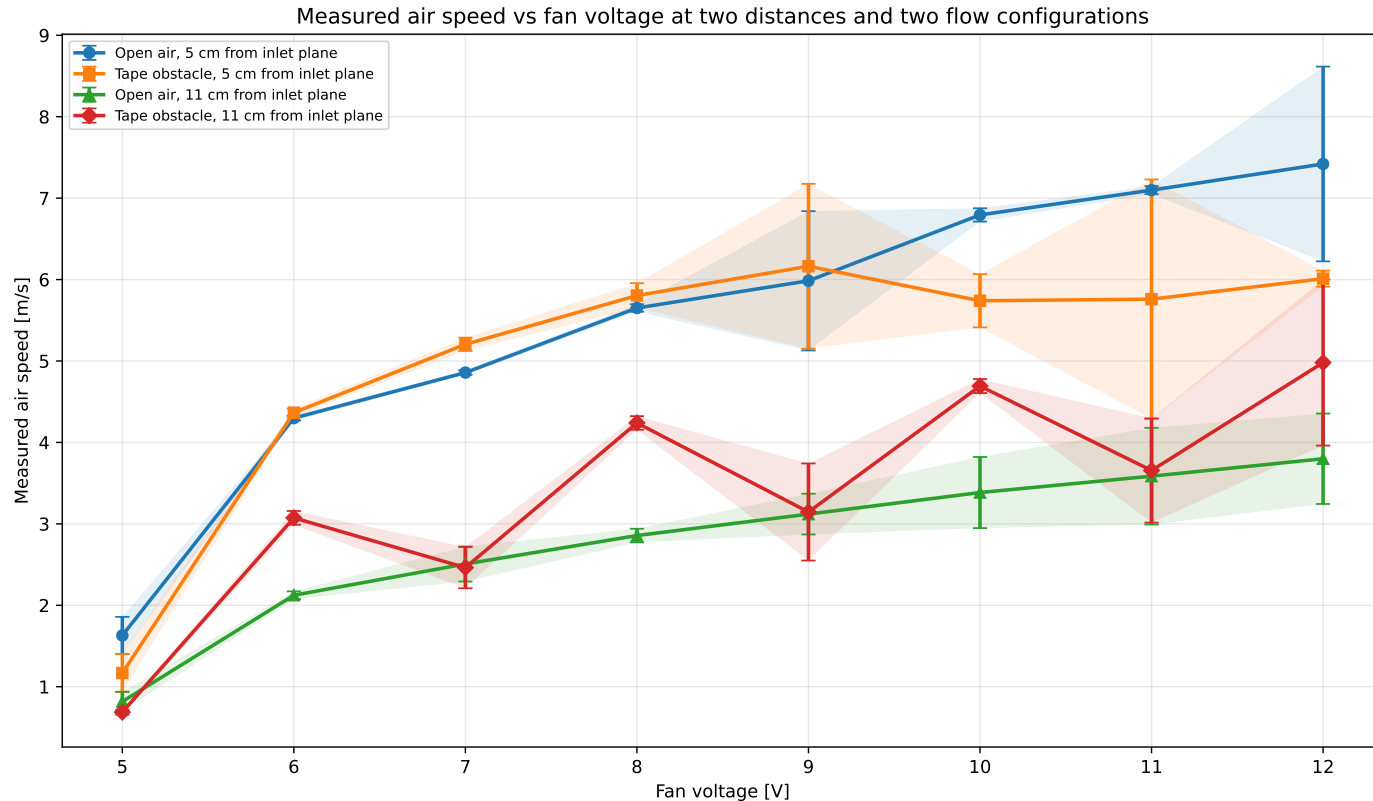


AIRFLOW ALONG THE LADDER IS NOT UNIFORM WITH A DUCT.

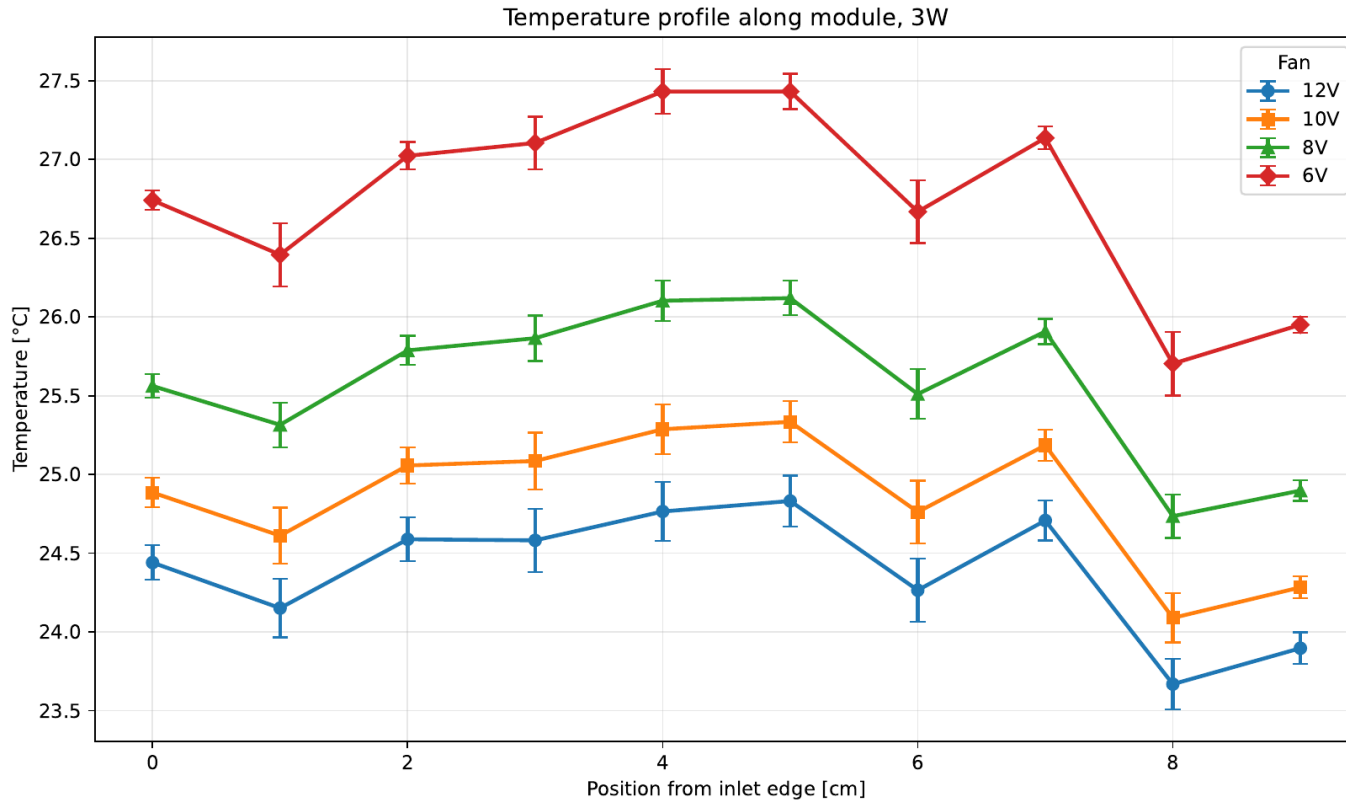
ONLY THE LAST 6 SENSORS SHOW MORE UNIFORM FLOW AND ARE USED FOR VALIDATION.

Duct measurements

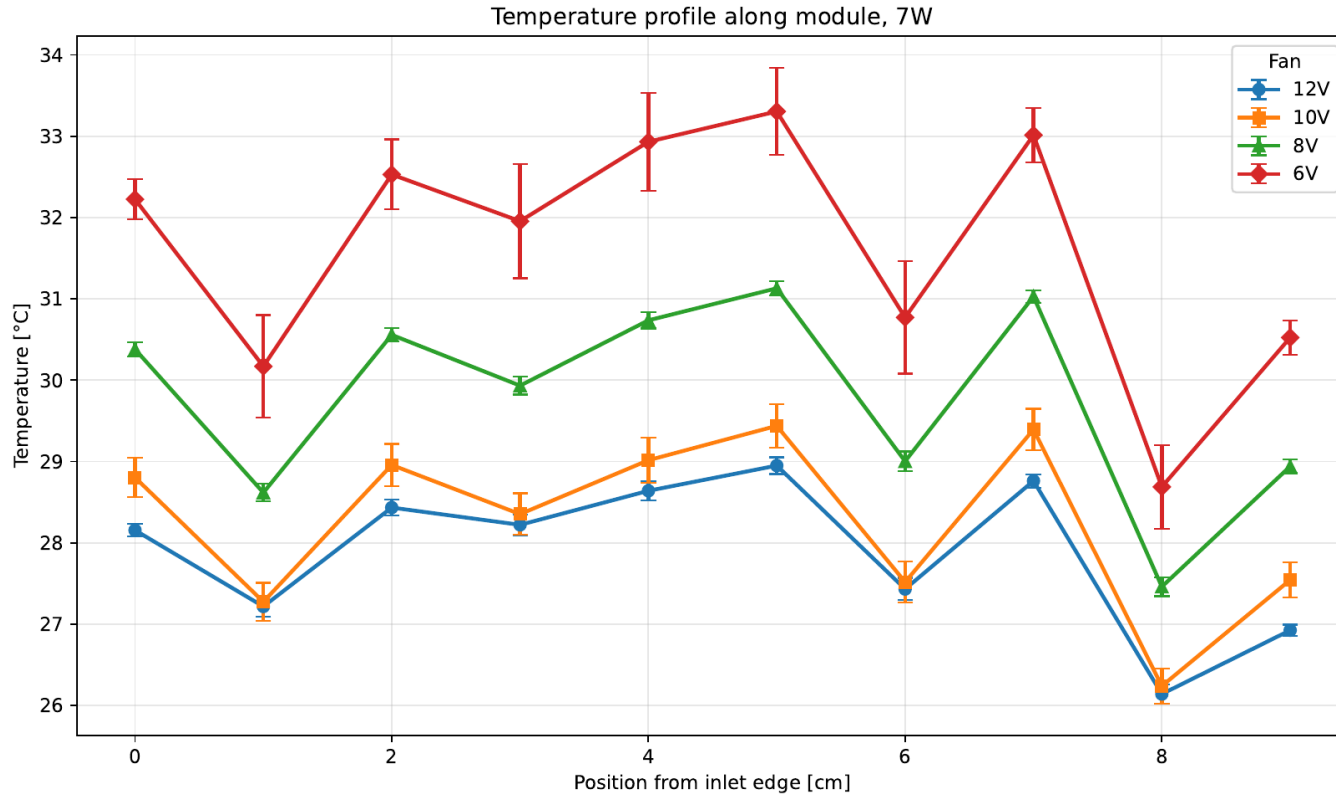


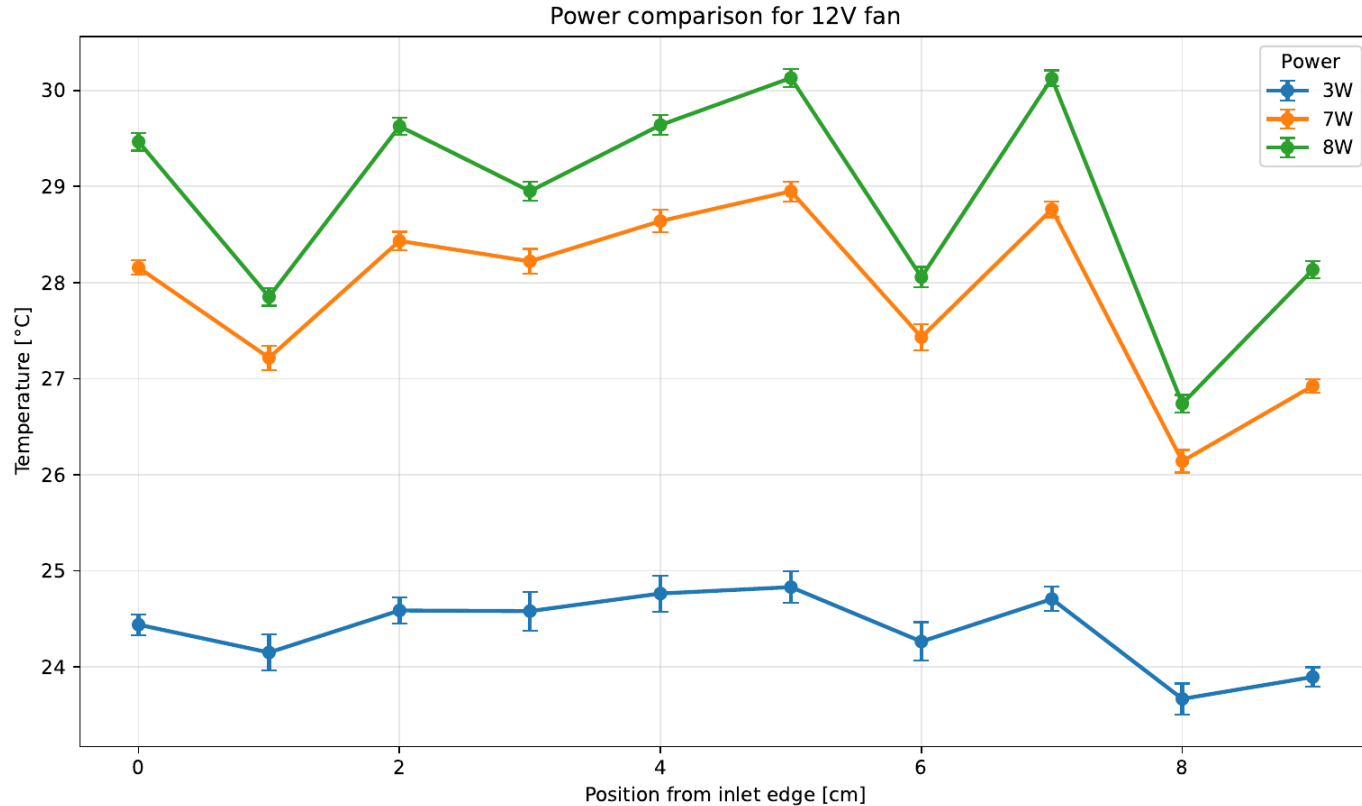


NTC position vs T: 3W

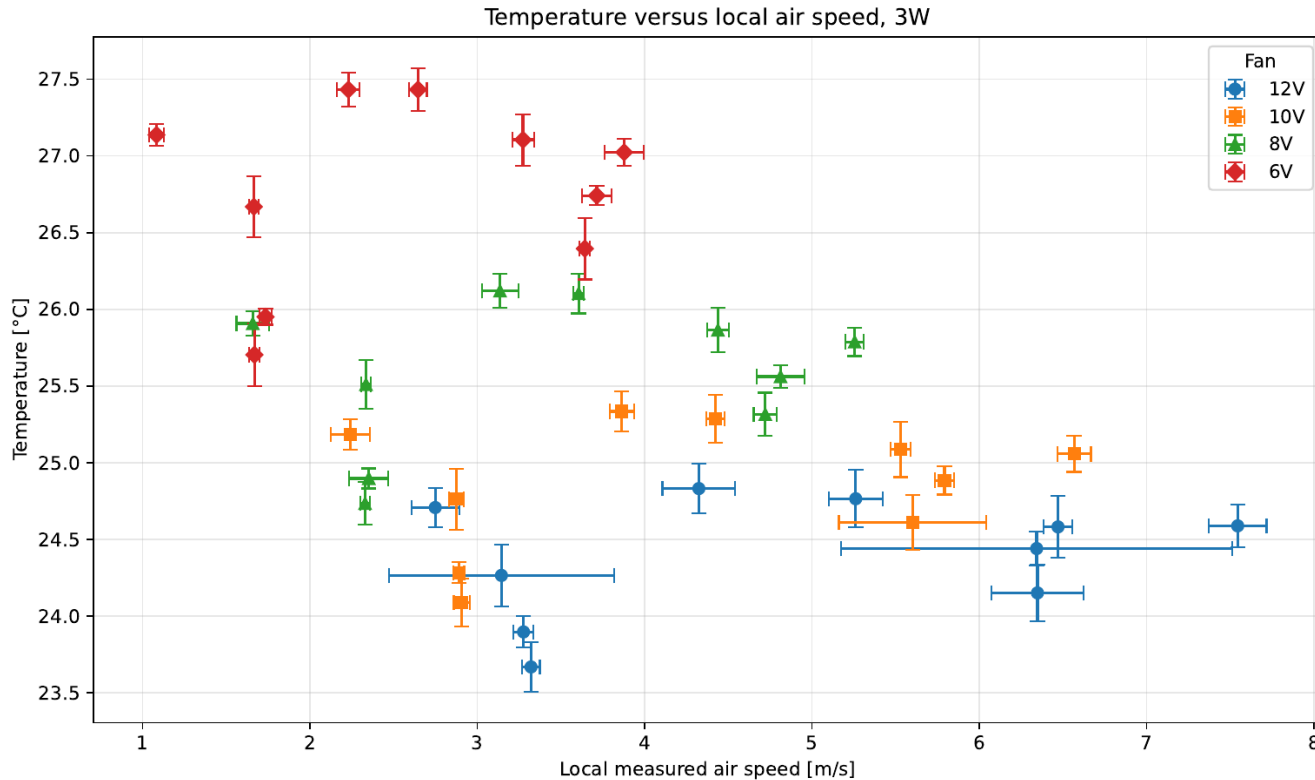


NTC Position vs T: 7W





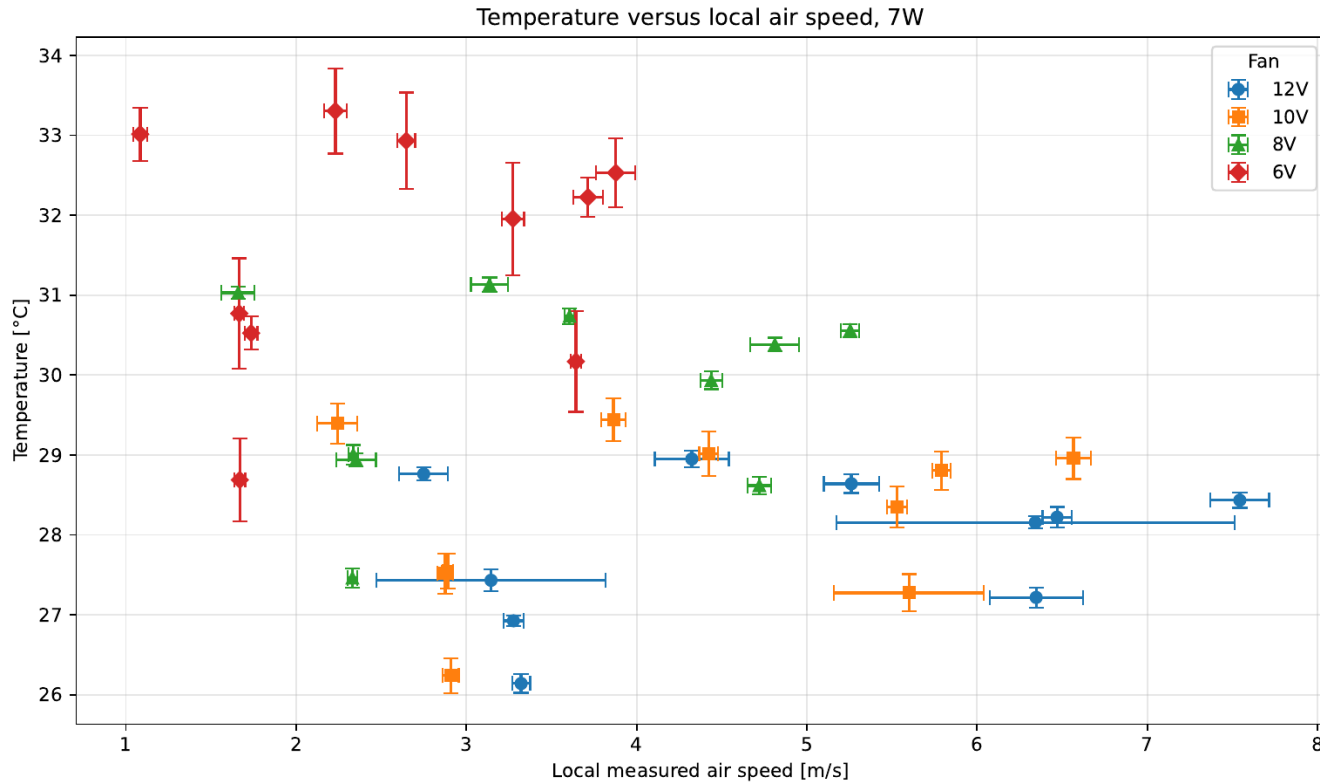
Errors. Temperature vs Airspeed: 3W



AIRSPEED: INTERPOLATION BETWEEN 2 NEIGHBORING POSITIONS OF AIRFLOW.

TEMPERATURE: STD DEV OF REPEATED MEASUREMENT OF THE SAME SENSOR.

Errors. Temperature vs Airspeed: 7W



AIRSPED: INTERPOLATION BETWEEN 2 NEIGHBORING POSITIONS OF AIRFLOW.

TEMPERATURE: STD DEV OF REPEATED MEASUREMENT OF THE SAME SENSOR.