

ePIC TOF Structure Thermal Test

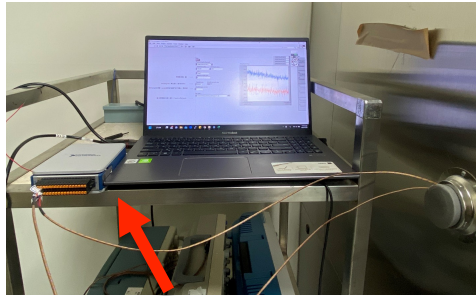
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Test Setup



NI 9213 DAQ



- 16 channels
- Accuracy:
 - High-resolution mode : $<0.02\text{ }^{\circ}\text{C}$
 - High-speed mode : $<0.25\text{ }^{\circ}\text{C}$

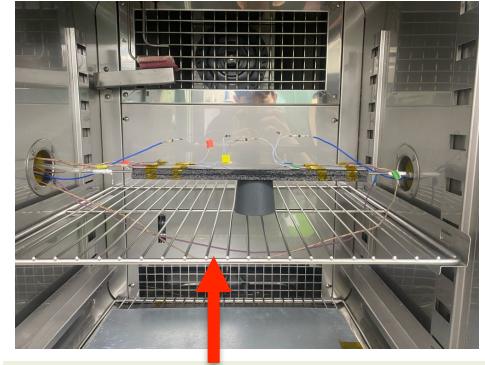


Heat source

- Ceramic plate (5 Ω): $\sim 500\text{ }^{\circ}\text{C}$

Thermocouple

- Type E: $-250\text{ }^{\circ}\text{C} \sim 900\text{ }^{\circ}\text{C}$



Environmental chamber

- Inner dimensions: $40 \times 50 \times 60\text{ cm}^3$
- Temperature: $-40\text{ }^{\circ}\text{C} \sim 100\text{ }^{\circ}\text{C}$ ($\pm 0.2\text{ }^{\circ}\text{C}$)
- Humidity: $10\% \sim 98\%$ ($\pm 2.5\%$)

Cooling system

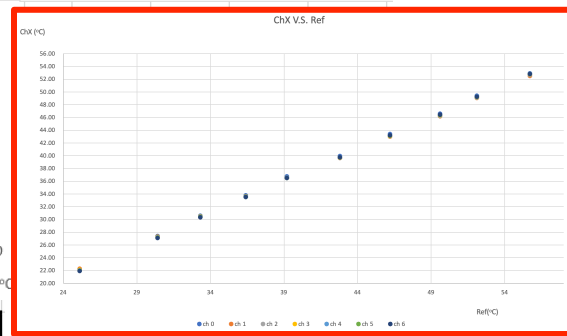
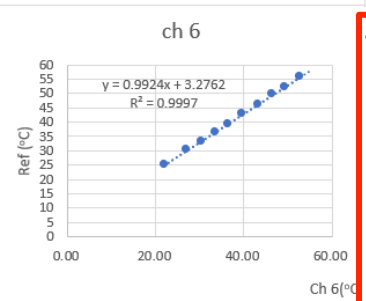
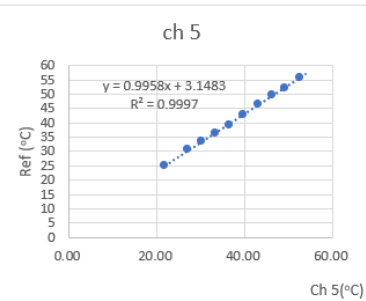
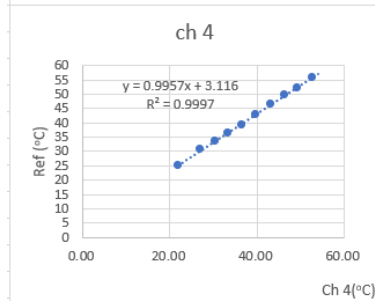
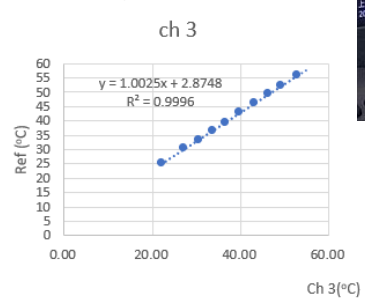
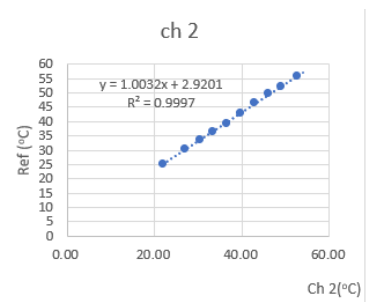
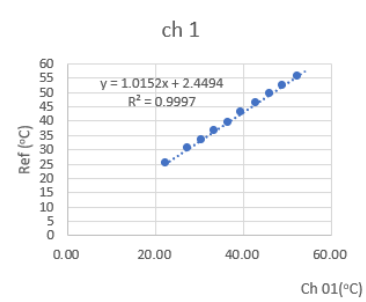
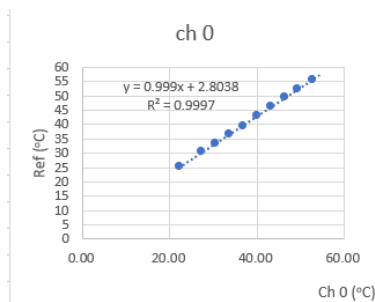
- Temperature: $3\text{ }^{\circ}\text{C} \sim 32\text{ }^{\circ}\text{C}$



Thermocouple Calibration



○ Use a **reference thermometer** to calibrate all thermocouples



Environment temperature: 28.9 °C

Before calibration						
ch 0	ch 1	ch 2	ch 3	ch 4	ch 5	ch 6
25.63	25.67	25.42	25.42	25.36	25.31	25.25
After calibration						
ch 0	ch 1	ch 2	ch 3	ch 4	ch 5	ch 6
28.41	28.51	28.42	28.36	28.37	28.35	28.34



First Test

