

MEMORANDUM

Date: 09/10/21

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Organization: NASA Ames Research Center

Subject: Summary of AHF 348 POCO Graphite Experiment

This document provides a summary of the data products from the POCO graphite Iso-Q run from AHF 348. POCO graphite is an UNCLASSIFIED material, and therefore this experimental dataset is being considered for public release as thermal response code validation exercise.

Summary of data package to be made public:

- Arc heater conditions needed to generate flow environment from CFD (Table 1)
- Engineering drawing of test article assembly (Figure 1)
- Engineering drawing of POCO graphite coupon (Figure 2)
- Engineering drawing of LI-2200 sample holder (Figure 3)
- In-depth thermocouple data (Figure 4)
- Pyrometer surface temperature measurements (Figure 5)
- Coaxial calorimeter heat flux and pressure measurements (Figure 6)

Nozzle Exit Diameter, in.	Distance from nozzle exit, in.	Main N2 mass flow rate, g/s	Add mass flow, g/s	Argon mass flow, g/s	Facility centerline enthalpy, MJ/kg	Expected cold wall heat flux, W/cm ²	Expected Stagnation Pressure, kPa	Exposure time, s
18	12	310	0	36	24.3	230	8.47	5

Table 1: AHF 348 arc jet conditions

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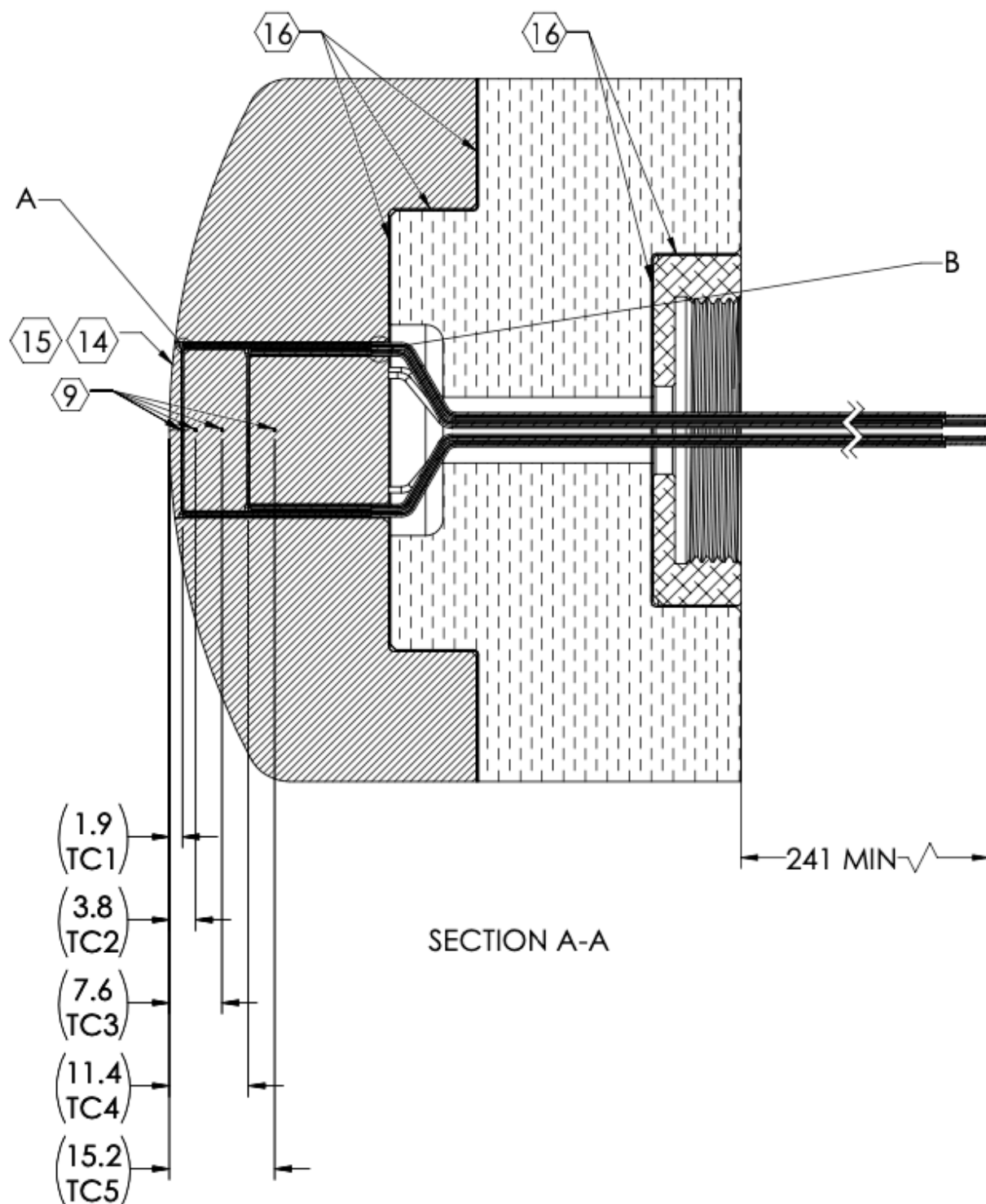


Figure 1: Full test article assembly, dimensions in mm



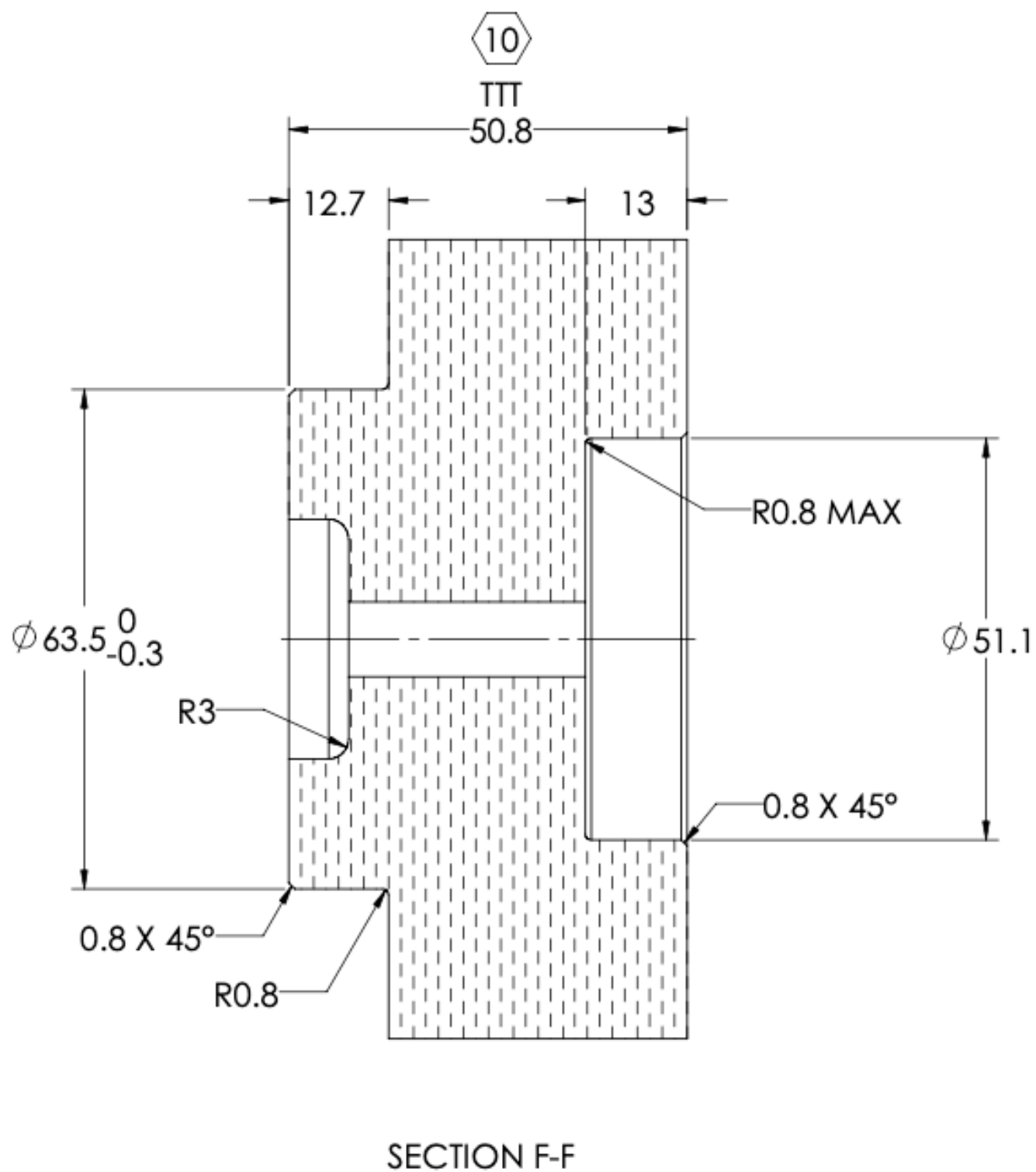


Figure 3: LI-2200 model holder, dimensions in mm

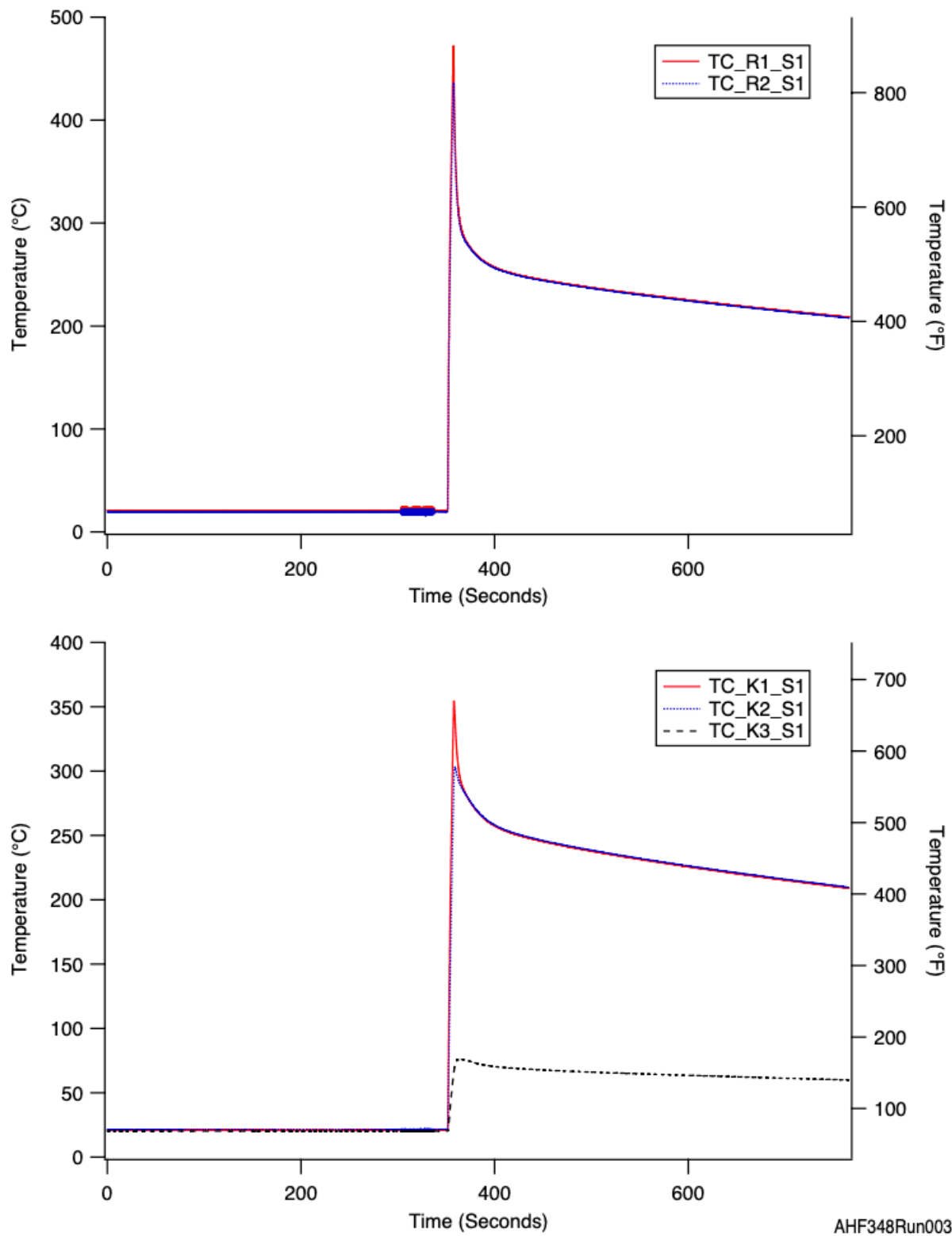
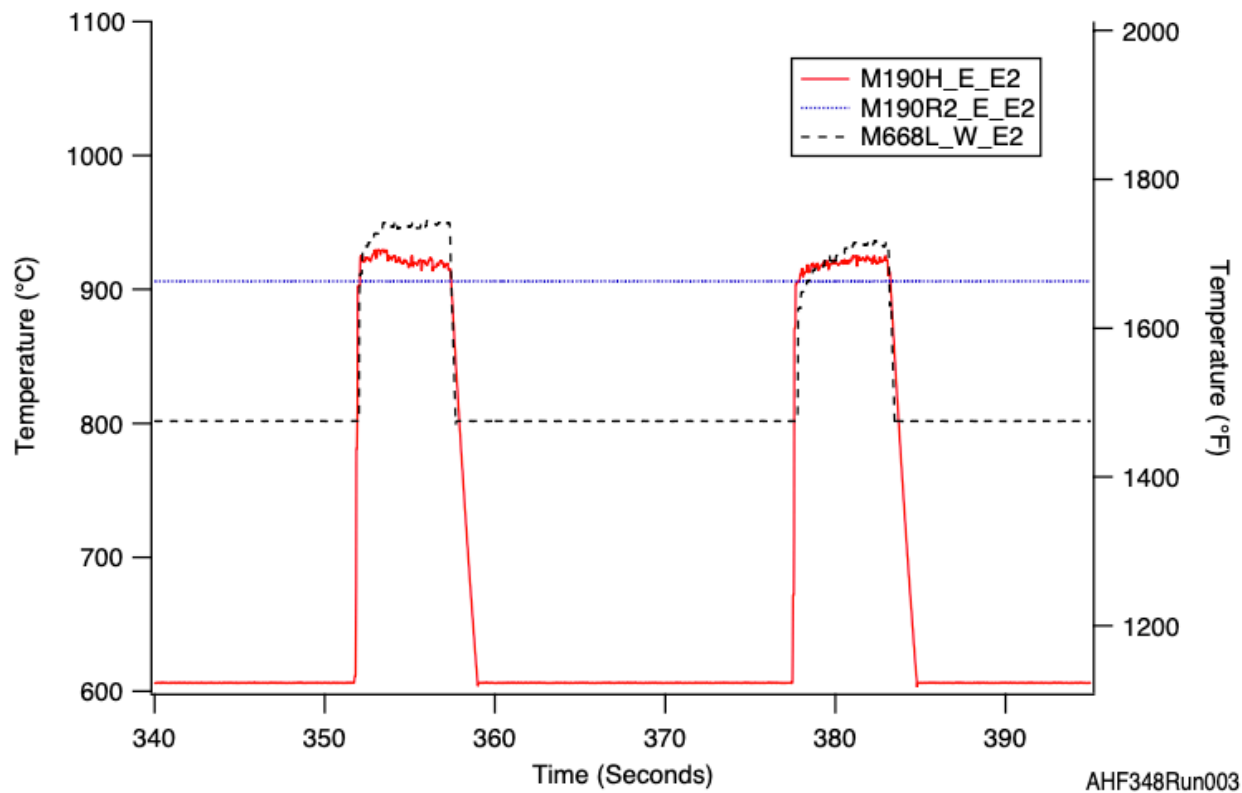
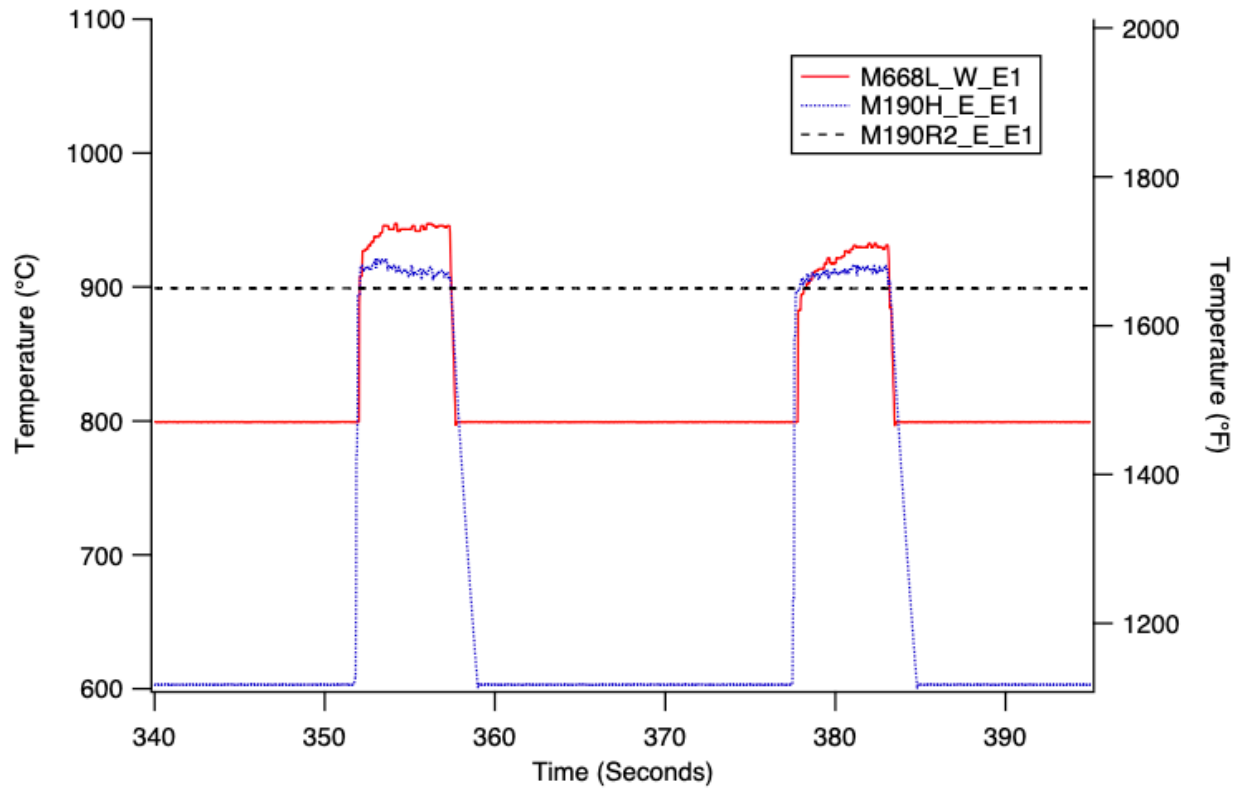


Figure 4: Thermocouple data for instrumented POCO graphite model



AHF348Run003

Figure 5: Pyrometer data for POCO graphite models

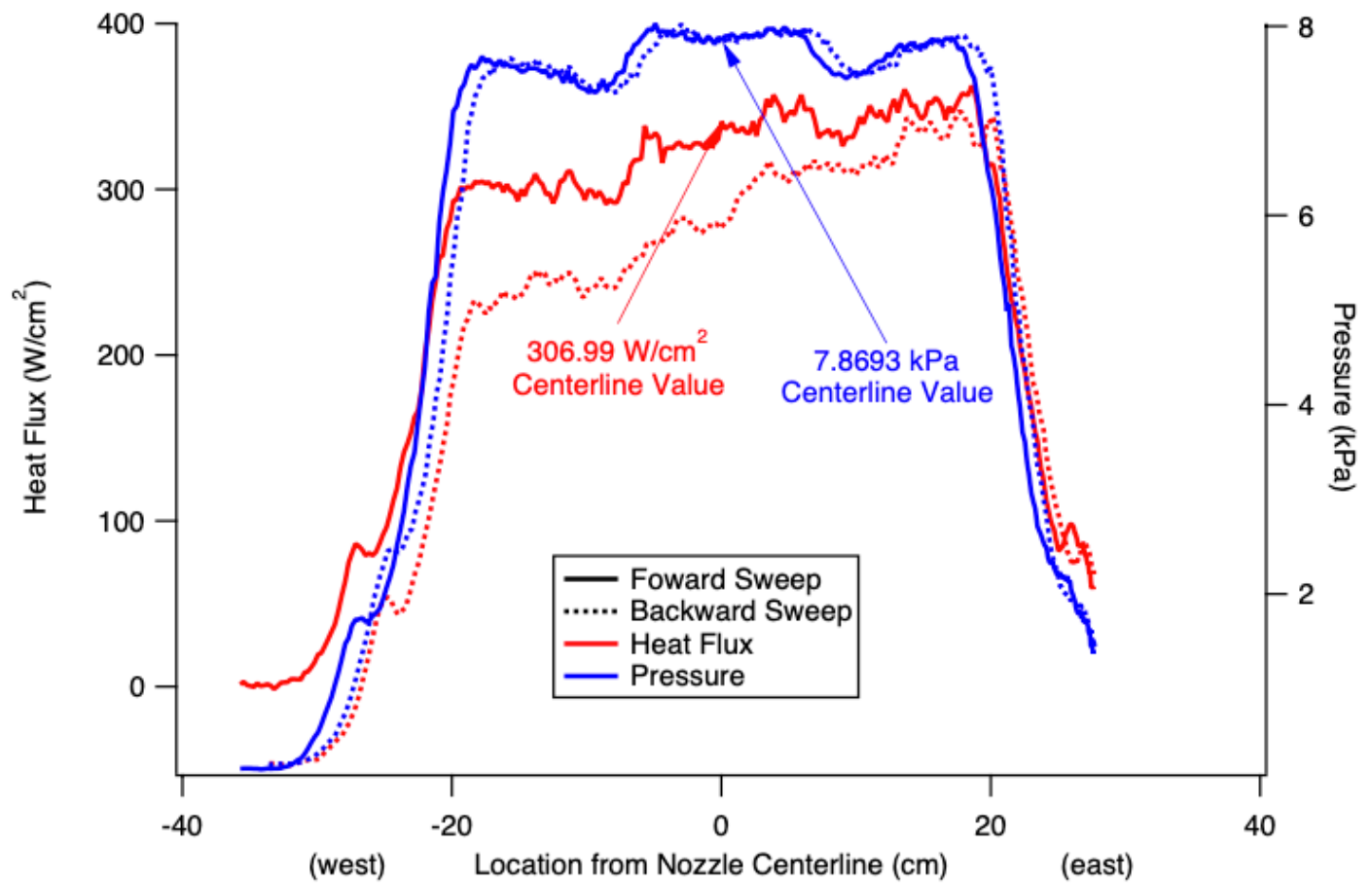


Figure 6: Calorimeter measurements of heat flux and pressure