

DSG-Ansys R&D Meeting Minutes

Date: February 3, 2022

Time: 14:00 to 15:00

Attendees: Pablo Campero, Brian Eng, George Jacobs, and Tyler Lemon

1. EIC beryllium section

Pablo Campero and Brian Eng

1. Brian Eng confirmed purchase of CFD license
2. Discussed results from steady-state thermal analysis
 - Simulations performed with the implementation of component to simulate nitrogen and air fluids for the inner face of the beryllium pipe and annulus space respectively
 - Ran simulation for different separation lengths between beryllium pipe and silicon sensors L1. Results as follow:

Measured temperature			
Air temp. (annulus space and enclosure): 20°C			
Separation between Be pipe and Si sensor L1 [mm]	Be pipe inner face temp. [°C]	Si sensor L1 temp. [°C]	ΔT between Be pipe and Si sensor L1 [°C]
1.24	100.00	72.00	28.00
2.00	100.00	61.94	38.06
3.00	100.00	53.70	46.30
4.00	100.00	47.99	52.01
5.00	100.00	43.66	56.34

Measured temperature			
Air temp. (annulus space and enclosure): 10°C			
Separation between Be pipe and Si sensor L1 [mm]	Be pipe inner face temp. [°C]	Si sensor L1 temp. [°C]	ΔT between Be pipe and Si sensor L1 [°C]
1.24	100.00	68.50	31.50
2.00	100.00	57.18	42.82
3.00	100.00	47.91	52.09
4.00	100.00	41.49	58.51
5.00	100.00	36.61	63.39

- Suggested to run simulation for air temperature of 5, 15 and 20°C
3. Installed Licensing Client Settings 2021 R2 on DSGPLC1 computer (used for thermal analysis)
 - Software allows the user to check the availability of the licenses for Ansys software and packages
 - Previously installed version R1 was not working
 4. Ran Ansys CFD Solver
 - Previously unable to run CFD solver due to unavailable site licenses; with recent availability, results will be evaluated