DSG-NPS R&D Meeting Minutes

Date: July 20, 2021
Time: 11:00AM – 12:30 PM

Attendees: Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, Marc McMullen, and Amrit Yegneswaran

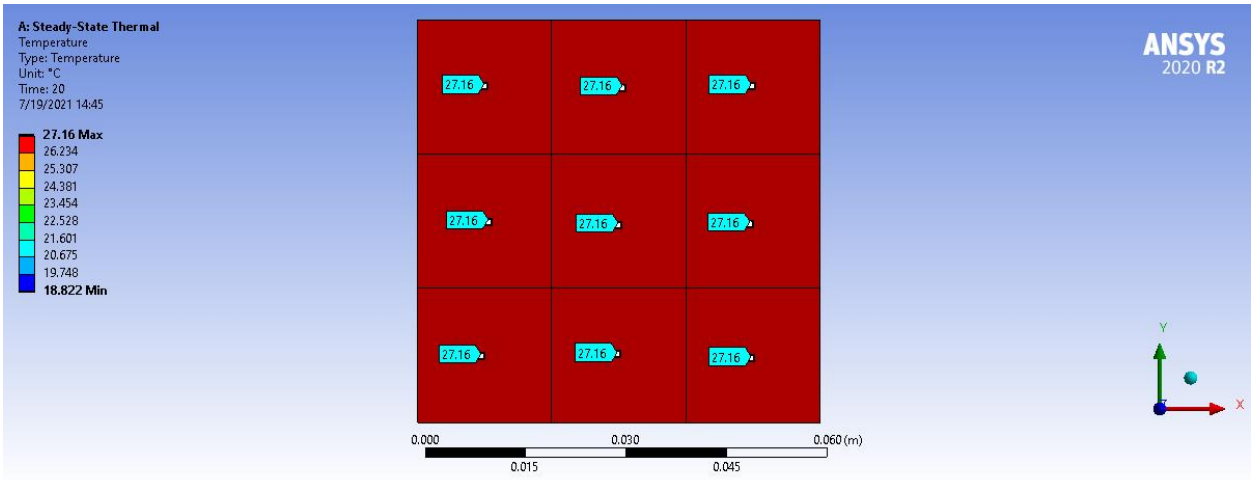
1. **Reviewed minutes from 07/13/2021 meeting**
   DSG
   1. 07/13/2021 DSG-NPS R&D Meeting Minutes

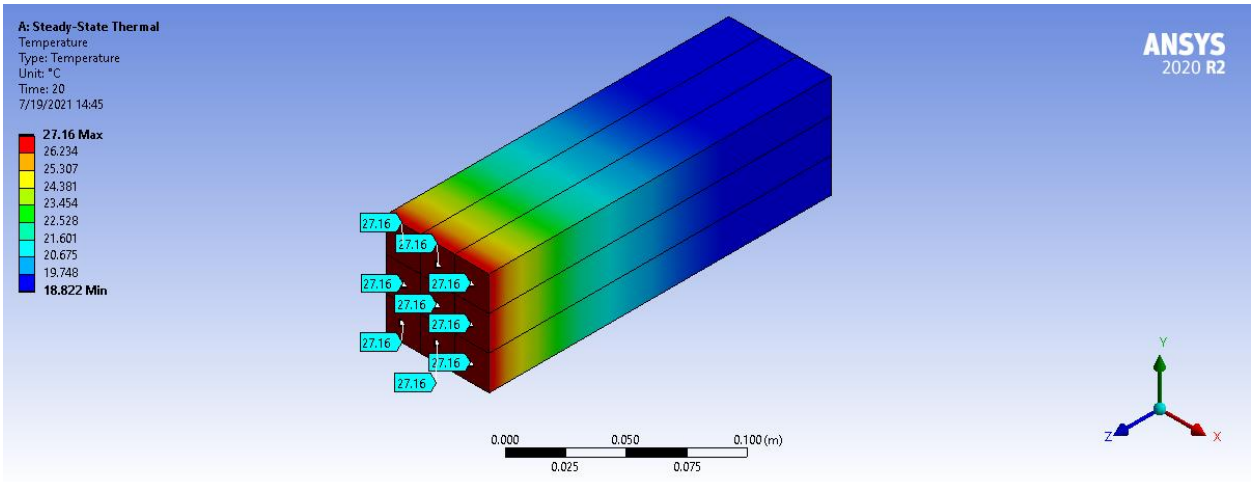
2. **Hardware interlock system development**
   Mary Ann Antonioli, Peter Bonneau, and Aaron Brown
   1. Reviewed progress on the LabVIEW front panel Mary Ann Antonioli is developing for the hardware monitoring system program
      - Current plan for limits of LED indicators will depend on temperature as follows:

Condition	Status Color
T ≤ 16.5°C	Red
T ∈ (16.5°C-17.5°C)	Yellow
T ∈ [17.5°C-18.5°C)	Green
T ∈ [18.5°C-19.5°C)	Yellow
T ≥ 19.5°C	Red

   2. Brian Eng will test a 24 V, 5 A power supply for use in all DSG-designed hardware interlock systems

3. **Thermal analysis and Ansys simulation**
   Aaron Brown
   1. Reviewed Ansys steady-state thermal simulation of 3x3 block of $PbWO_4$ crystals
      - A heat load of 1 W was applied to the front of each crystal, starting temperature of 18°C with an ambient air temperature of 22°C





2. Aaron Brown will contact Carlos Munoz for information regarding the crystal orientation with respect to the NPS detector
3. From the picture you can see the heat is conducted roughly halfway through the crystal

4. HV supply cable testing

Peter Bonneau, Aaron Brown, Brian Eng, George Jacobs, Mindy Leffel, and Marc McMullen

1. Long-term cable testing, with load, completed
    - A loose wire of cable #34 will be repaired and the cable retested
2. Will test a cable with a Radiall 52-pin connector at one end and flying leads at the other
    - CAEN is sending five male pins to use for connection to a voltage calibrator
    - The voltage will be measured via a DMM connected to the flying leads
3. George Jacobs successfully stress-tested the potted (with hot glue) Radiall connector
    - All cables will have their Radiall connectors potted
    - CAEN is sending two sticks of hot glue (WURTH part number 0890100151)
    - Aaron Brown will order an alternative hot glue for future use; the electrical and hygroscopic properties of this glue will be tested before use
4. Marc McMullen will get a quote for Radiall 52-pin connectors from CAEN for spares