

The small chiller was setup at -15, -5, 5 and 15C. The main goal is to see the entire FOV of the camera. For this, a piece of paper was placed on top of the plate's surface to served as a reference point for the camera to look at the same exact physical position. Two experiments were held; one in the x-direction and one if the y-direction. The camera was moved so the same 'area' next to the paper was recorded by it. In the x-direction there are 640 pixels, 20 pixels at each side were not recorded, leaving 600 pixels that were divided in 15 areas of 40 pixels were data was recorded. In the case of y-direction, the same 20 pixels at the edges were not taken into account, and then the remaining 440 were divided in 11 areas of 40 pixels too. Then, the entire FOV of the camera was divided in 15 columns, and 11 rows of 40x40 pixels. Then, all was add to recreate the FOV of the camera with some restrictions on each experiment. In the x-experiment if we move in the x-direction we are looking at the same physical area on the plate, which means the difference between then is due to the vignetting in x, but we cannot move in y because there could be plate effects that we don't know, same case for the other experiment. These two ideas were put together to get the result of the FOV.

Each area was recorded for 40 seconds, and the camera was moved and re-calibrated again in 20 seconds for both experiments. The camera was calibrated every time it was moved. The frame rate of the recording was 6 frames per second. The humidity of the sensor was keep at 0.0% when dry nitrogen was pumped into the box at 3 PSI of pressure. The height of the camera from the plate was 37.8 cm approx., and a metal ring was place at the center of the plate to serve as reference point. The line in the FOV seems to be of 12 cm long (this needs a little more calculation from the FOV of the camera), the plate transverse dimension is 15.3 cm.

The file is saved with emissivity equals to one, and a room temperature of 22C. No offset in the temperature is considered at this point.