

Weekly Meeting

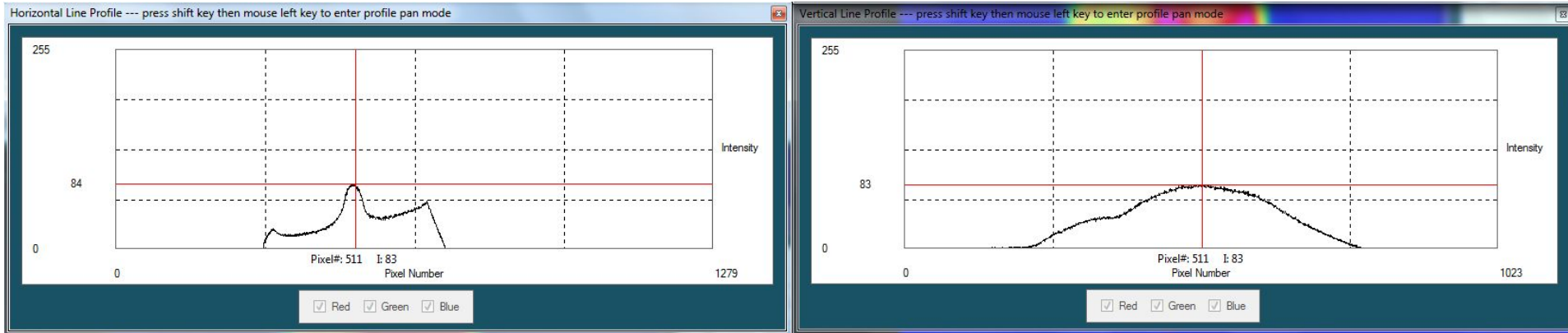
Jan 11/18

Dec. 19: Rectangular tests

- Test rectangular for consistency; cylindrical wasn't
- Taking averages
 - Trial 1 ~ 16.6 nA
 - Trial 2 ~ 16.5 nA
 - Trial 3 ~ 17.2 nA
- I tried to using vacuum pump to see if its air
 - Trial 1 ~ 19.00 nA
 - Trial 2 ~ 19.35 nA
- Not an air problem
- Test angle, ie. if the cuvette is straight when placed in

Dec. 19: Rectangular tests and profiling

- Went back to the camera to test if angle changes much
 - Not much really changed
- Looked into profiling the intensity



- Ultimately wanted to see if I could record intensities at each point
 - Couldn't find it in the manual online

Dec. 20: Maybe solved?

- Put a line across the side of the cuvette
 - To test consistency: angle problem as I predicted before?
- Angle doesn't change the picture much from ThorCam; actually take data then
- Seems more consistent when lining the cuvette with the line
- Angle changes about ~ 0.1 nA which is about 5-10%
- 11 trials, max 1.1% difference (on average)
- 12th trial instantly jumped from 19 nA to 27 nA
 - Why??? I didn't change anything

Dec. 20: Consistent...?

- Maybe I moved something by accident (since its really dark)
- Attached ThorCam again and the settings are the same (intensity autoscaling and the picture looks very close)
- Moved the collimating lens around but doesn't seem to change the shape much (I even have it screwed down) so not lens problem
- Attached diode back and redid the trials again...
 - Trial 1 ~ 24.6 nA
 - Trial 2 ~ 24.6 nA
 - Trial 3 ~ 20.6 nA
 - Trial 4 ~ 20.6 nA
 - Trial 5 ~ 20.6 nA
- Not sure why there's a drop again after trial 2... maybe lamp problem??

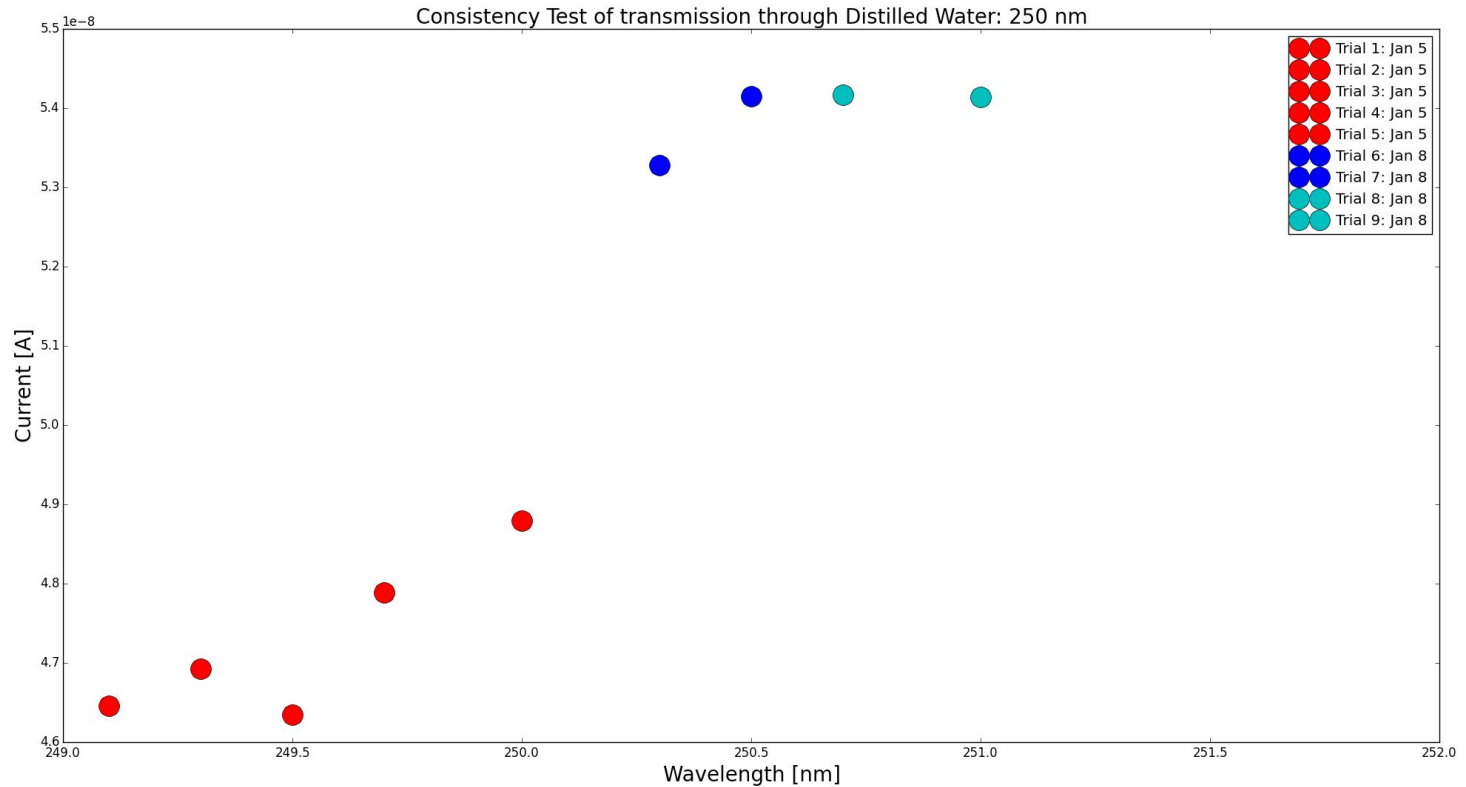
Jan. 4: Consistent!

- After break (left setup as it is for the break)
 - Trial 1 ~ 20.64
 - Trial 2 ~ 20.65
 - Trial 3 ~ 20.64
 - Trial 4 ~ 20.64
- Within 0.15% error from before break!
- Wanted to finish trial 5 and continue onto next sample but had to rush somewhere so did trial 5 next day (again left setup as is)

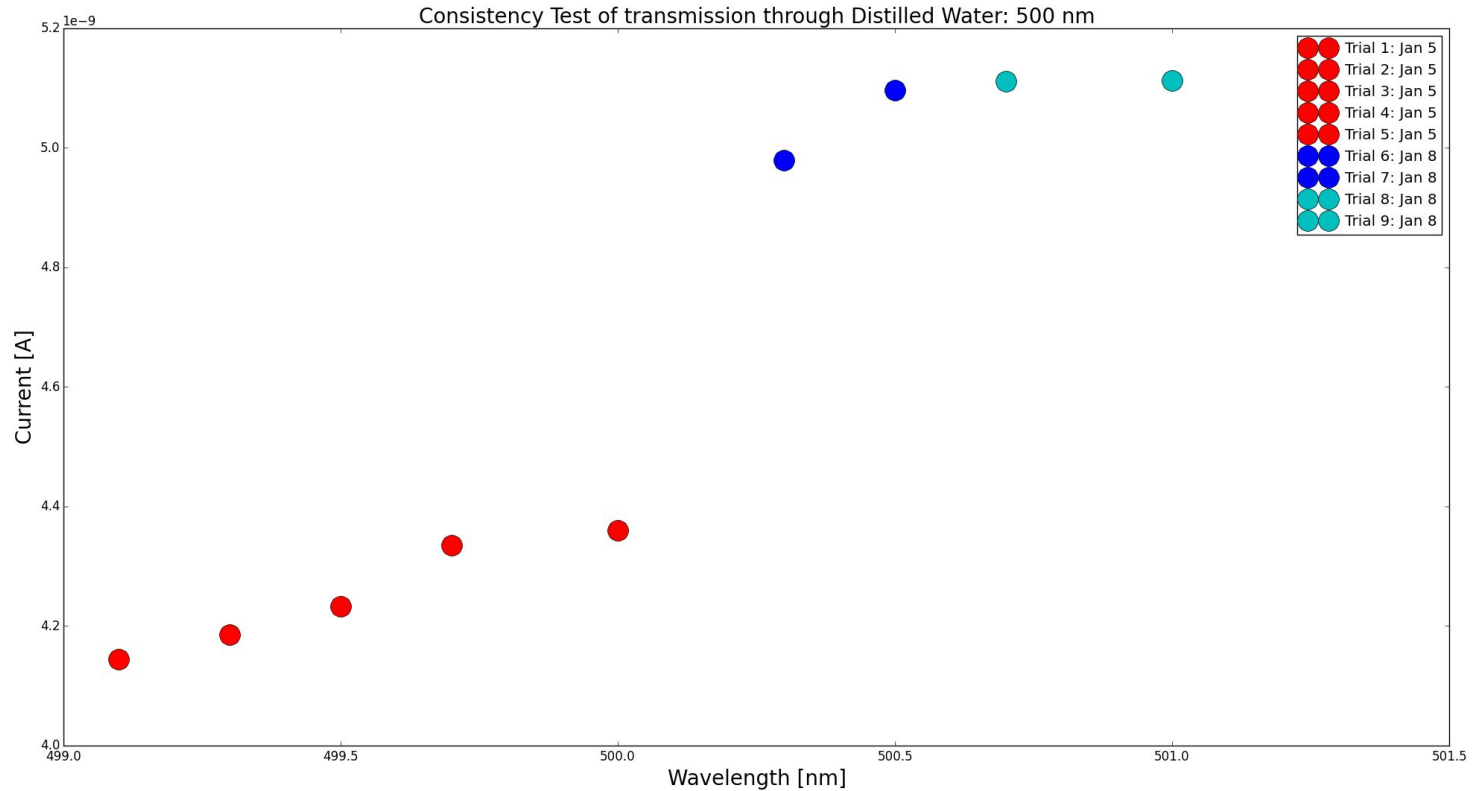
Jan. 5: Consistent...not...

- Not working!
- Left setup as is, hoping to do trial 5 but turned out to be ~ 21.6 nA which almost 5% higher than yesterday
- Back to square one; redo the thing... it maybe the lamp?? Or it could possibly be the angle of the cuvette
- Very careful of how I place the cuvette down, placing it straight as I could
- Testing to see if lamp is easy enough, will try that
- Readjusted everything and redid all the trials again

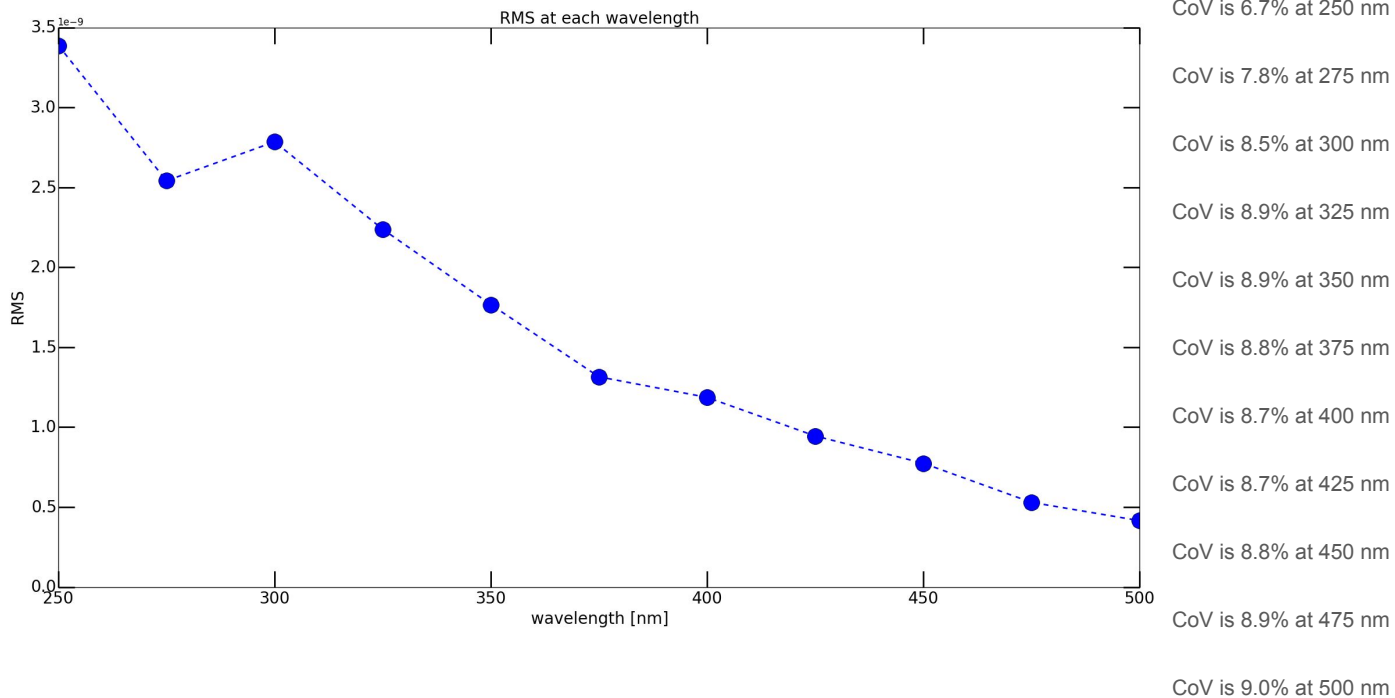
Jan. 9: Analysis for 250 nm



Jan. 9: Analysis for 500 nm



Jan. 9: Analysis – Mean, RMS, CoV



Jan. 9: Analysis—next step

- It is not the lamp problem
- Still very inconsistent
 - I thought I had it down by making it angled and placed in the same spot more consistent
- Could just do the trials without touching the cuvette when I take the trials?
- The same goes for the cylindrical cuvette