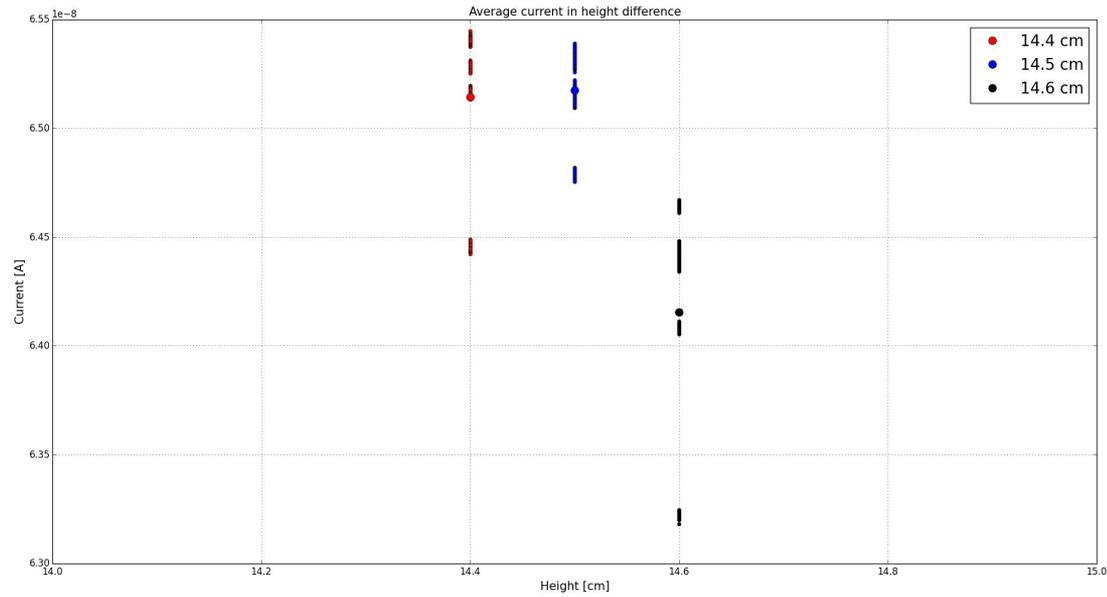


Weekly Update

Nov 21, 2017



14.4 rms = 1.14×10^{-11} ; mean = 6.51×10^{-8}

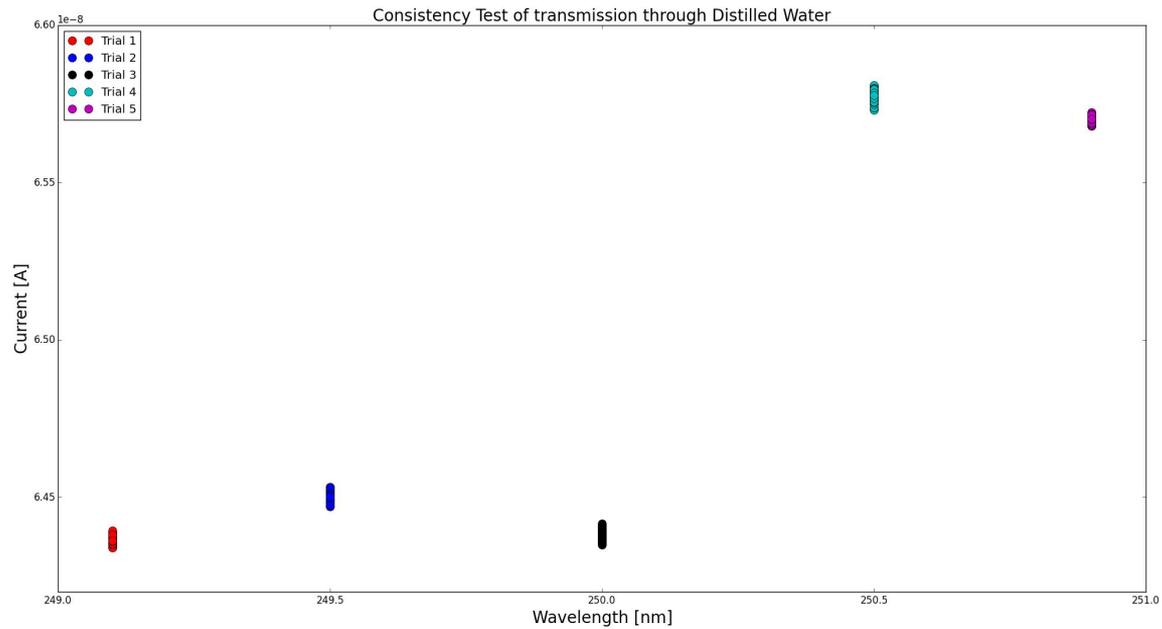
14.5 rms = 1.23×10^{-11} ; mean = 6.52×10^{-8}

14.6 rms = 1.30×10^{-11} ; mean = 6.42×10^{-8}

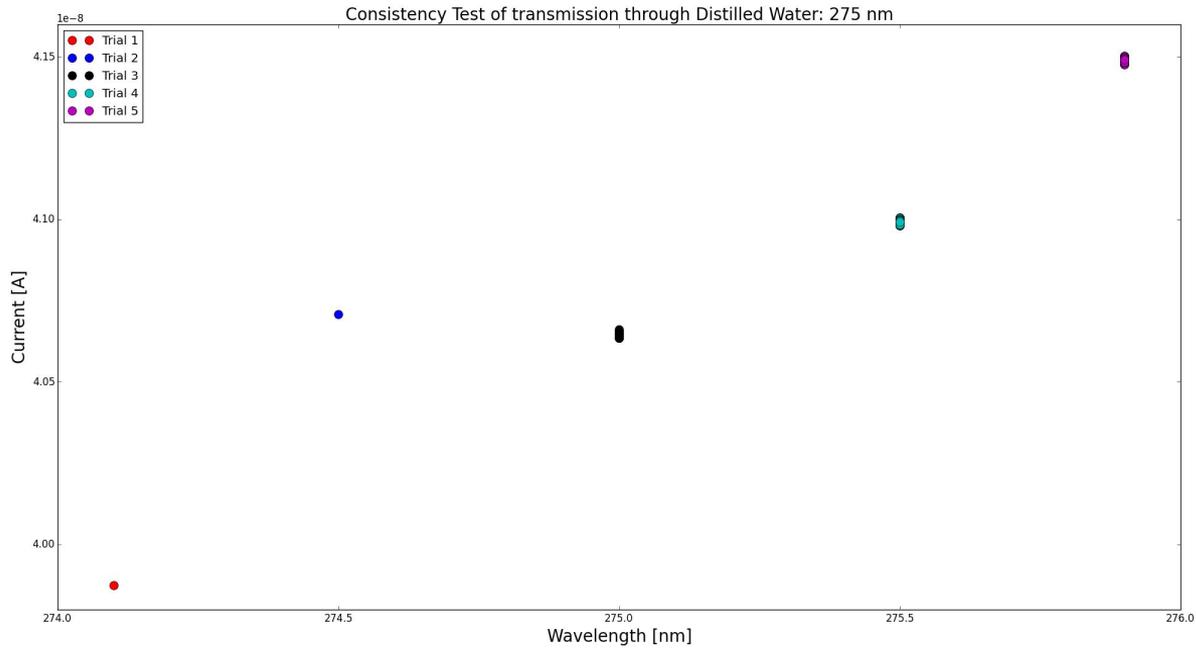
14.6 cm 1.5% difference from 14.4 cm; 14.5 cm is 100% to 2 decimal places

Error analysis

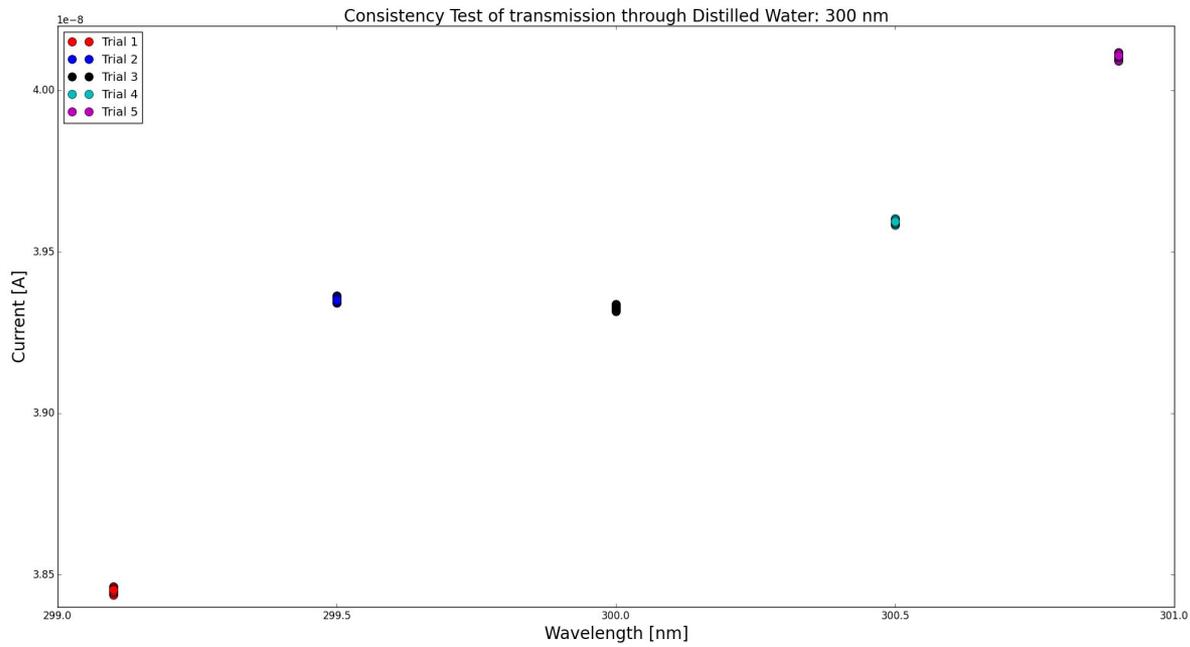
- placing the height between 14.4 cm and 14.5 cm gives an error of $<0.05\%$
- Includes error in rotation since no way of making it consistent so total error including rotation is $<0.05\%$
- Irises and iris mounts will most likely decrease this error further
- Start with cylindrical cuvette



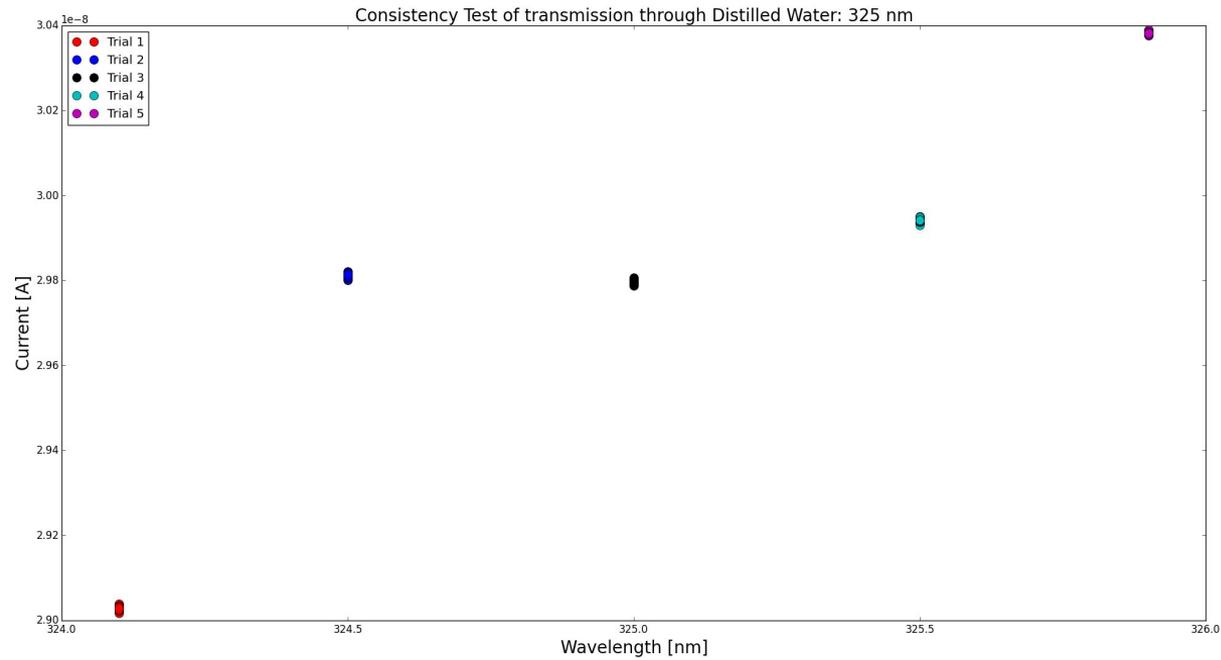
- Trial 4 and 5 lie very far out, approximately 2% difference between Trial 4 and Trial 1
- Could be the rotational error as well since there no guaranteed way to keep it consistent right now
- Spread quite big compared to other wavelengths



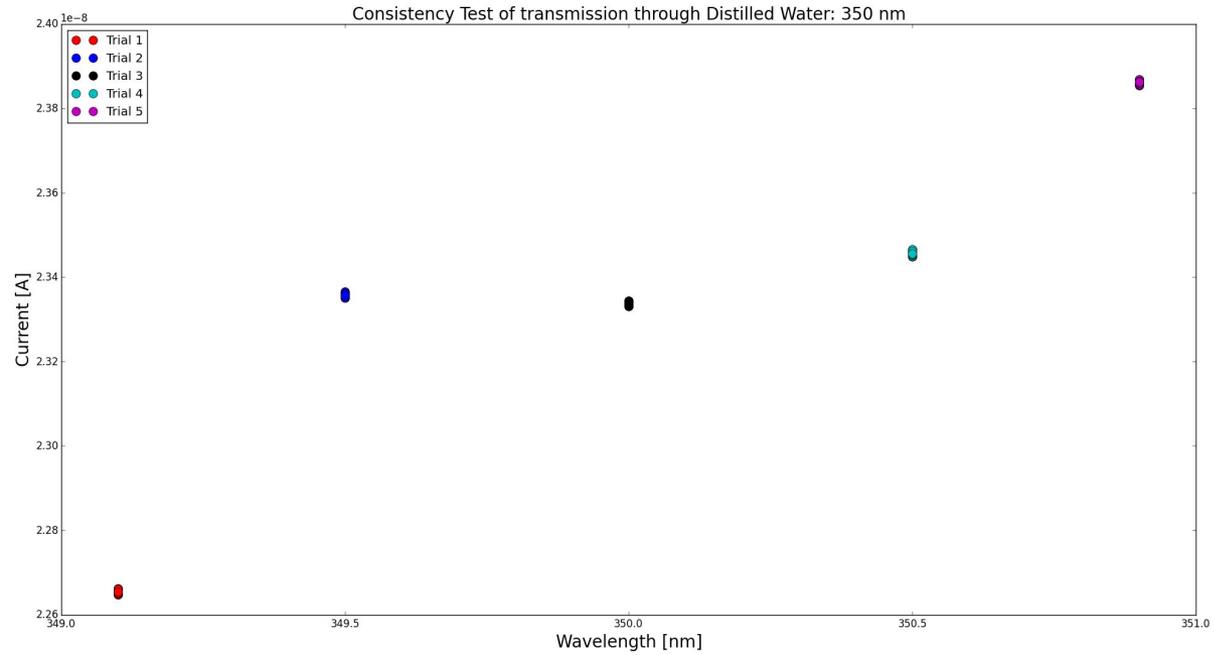
- 275 nm
- Smaller spread than 250 nm
- No trend except Trial 5 still has highest transmission
- 2% difference between Trial 5 and Trial 1
- Total rms = $5.42e-12$



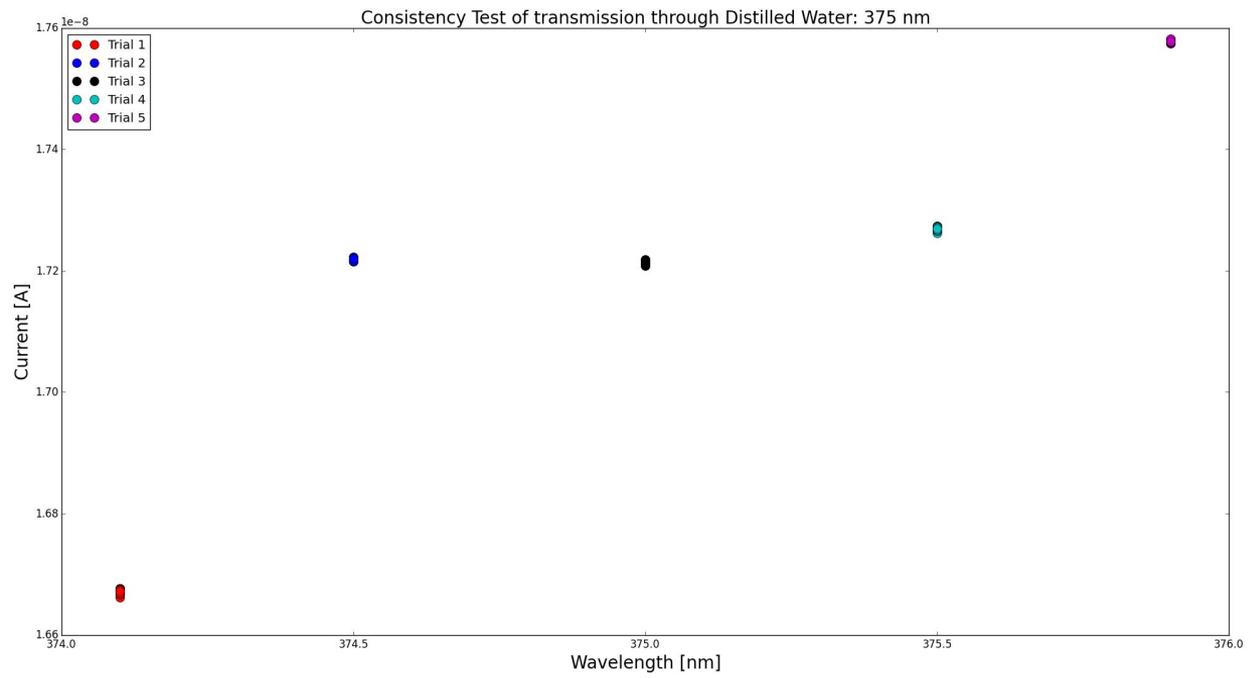
- 300 nm
- Similar trend in comparison with 275 nm
- Total rms = $5.07e-12$



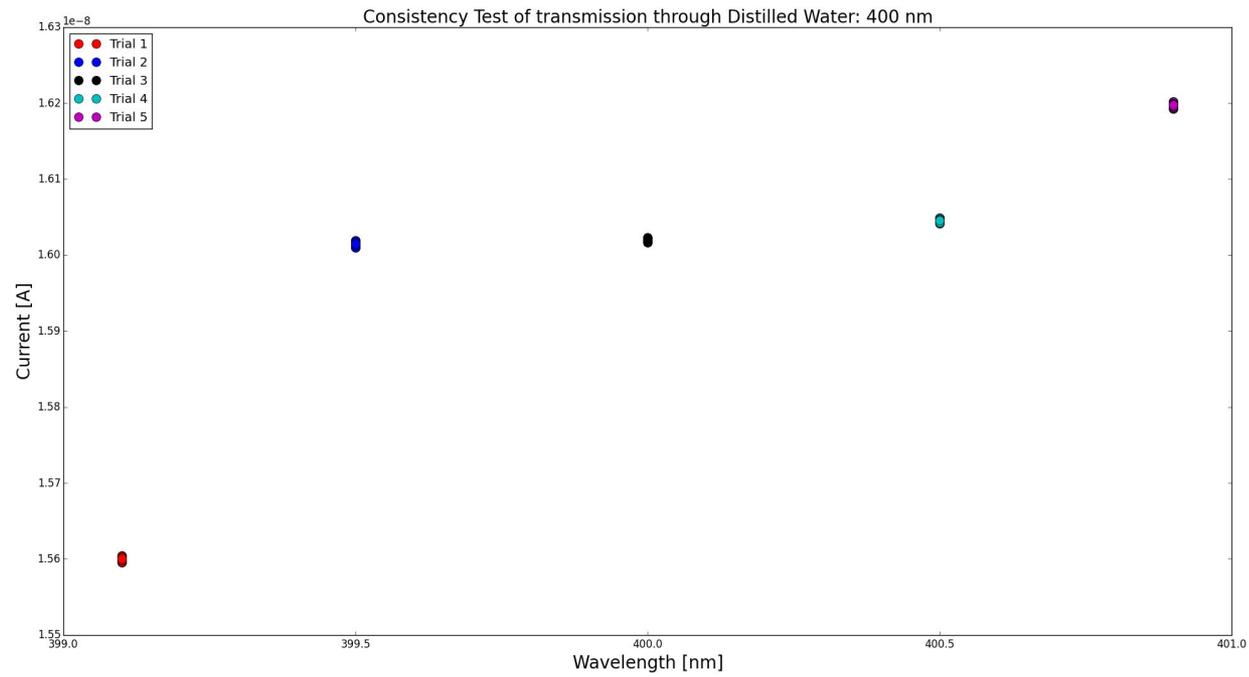
- 325 nm
- Total rms = $2.74e-12$



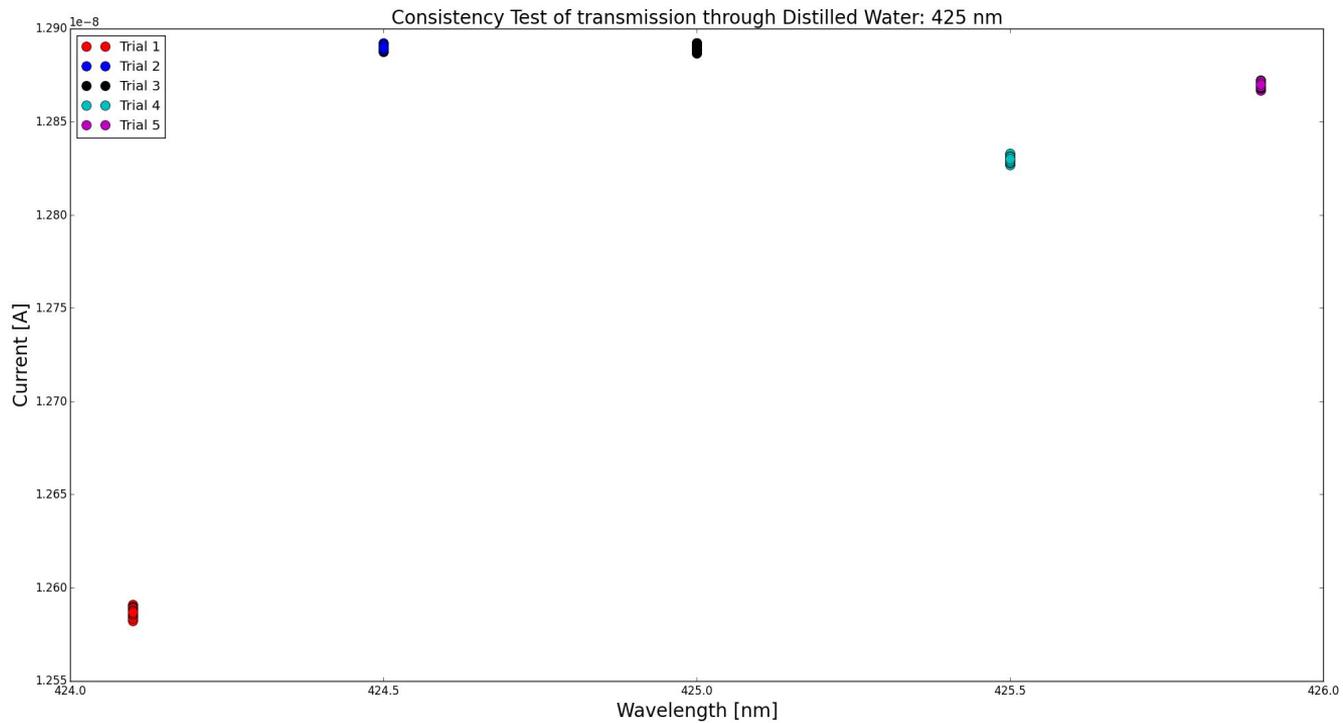
- 350 nm
- Total rms = 2.49e-12



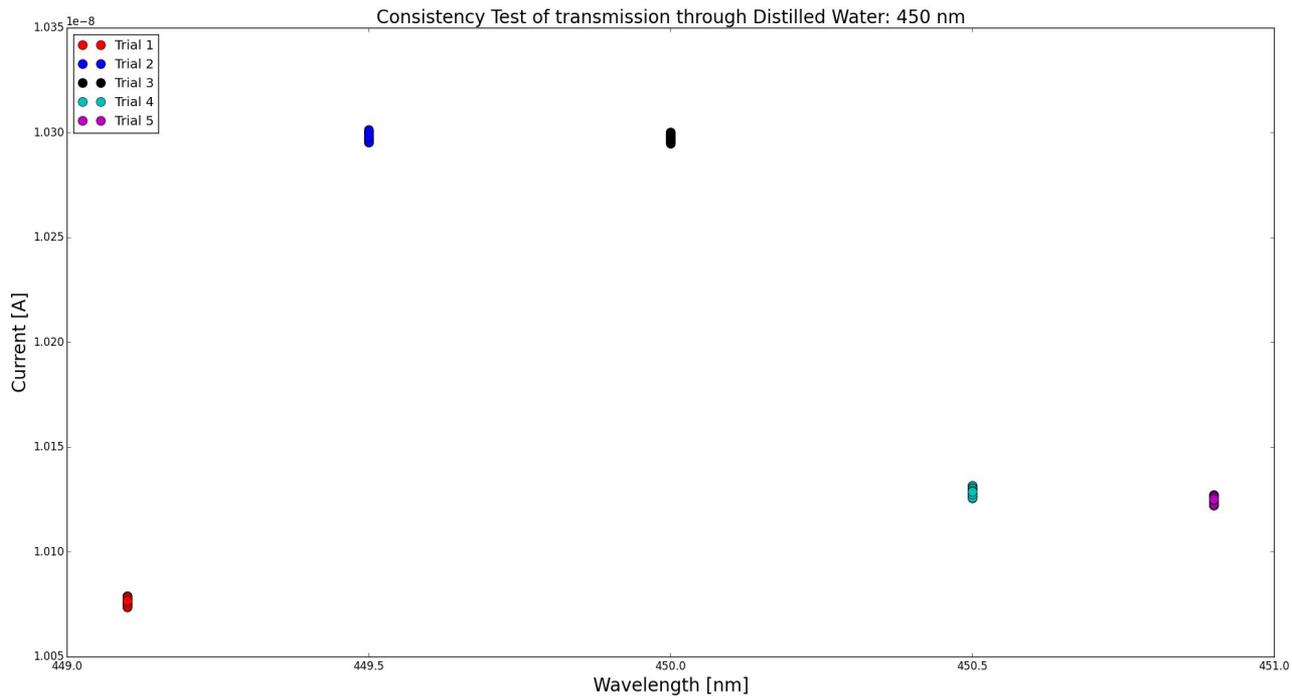
- 375 nm
- Total rms = $1.49e-12$



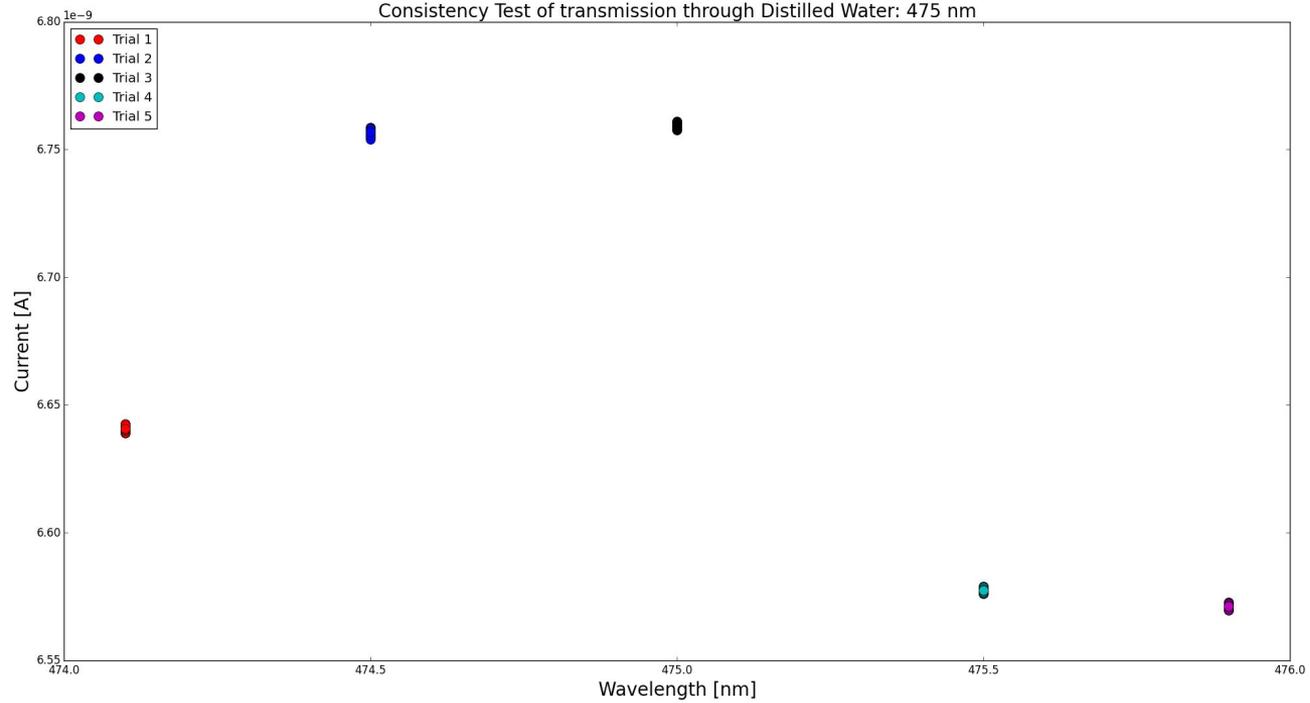
- 400 nm
- Total rms = 1.89e-12



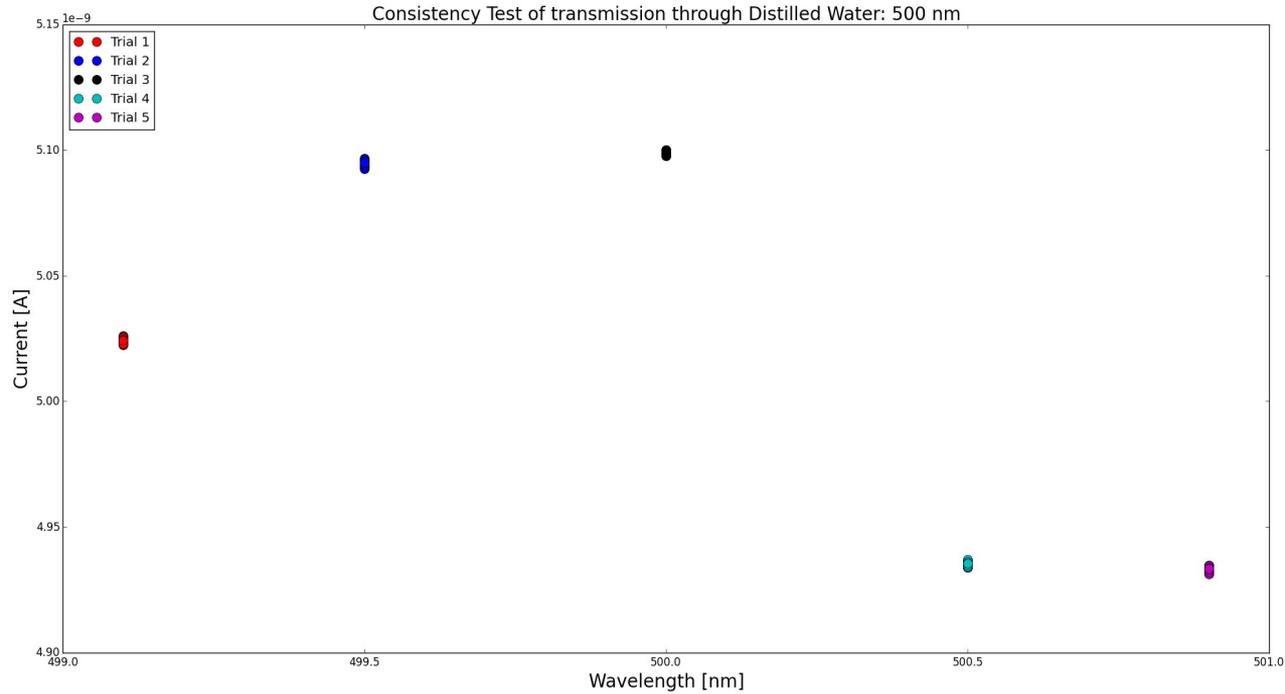
- 425 nm
- Total rms = $1.16e-12$
- Difference between trial 1 and 2 is about 2.4%
- Trial 2 and 3 overtake 4 and 5



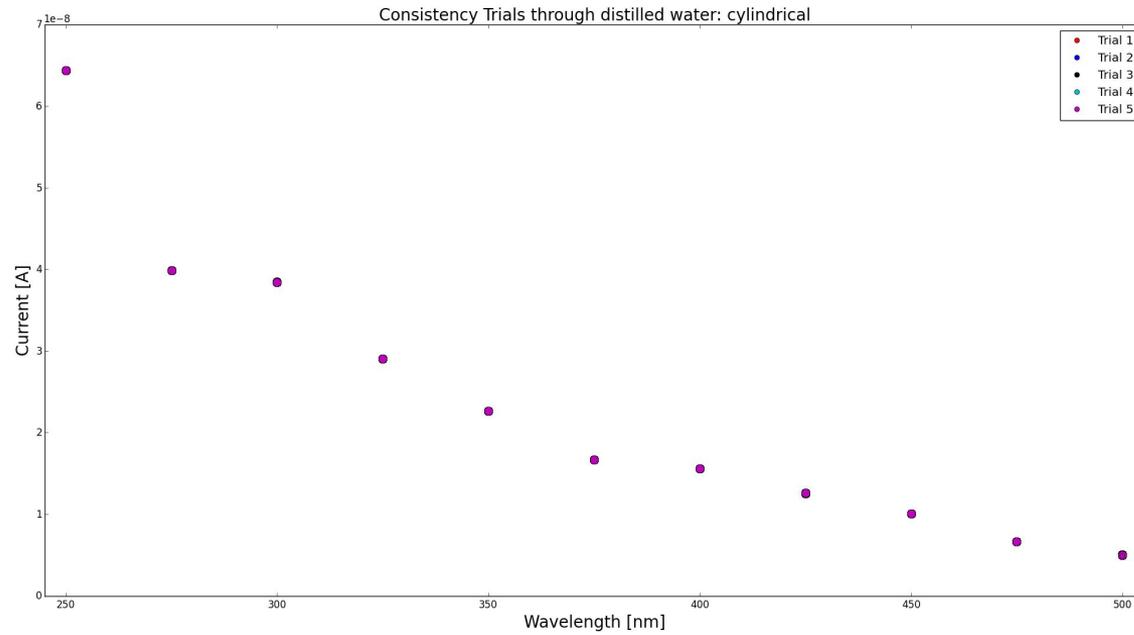
- 450 nm
- Total rms = $9.31e-13$
- Difference between trial 1 and 2 is 2.1%



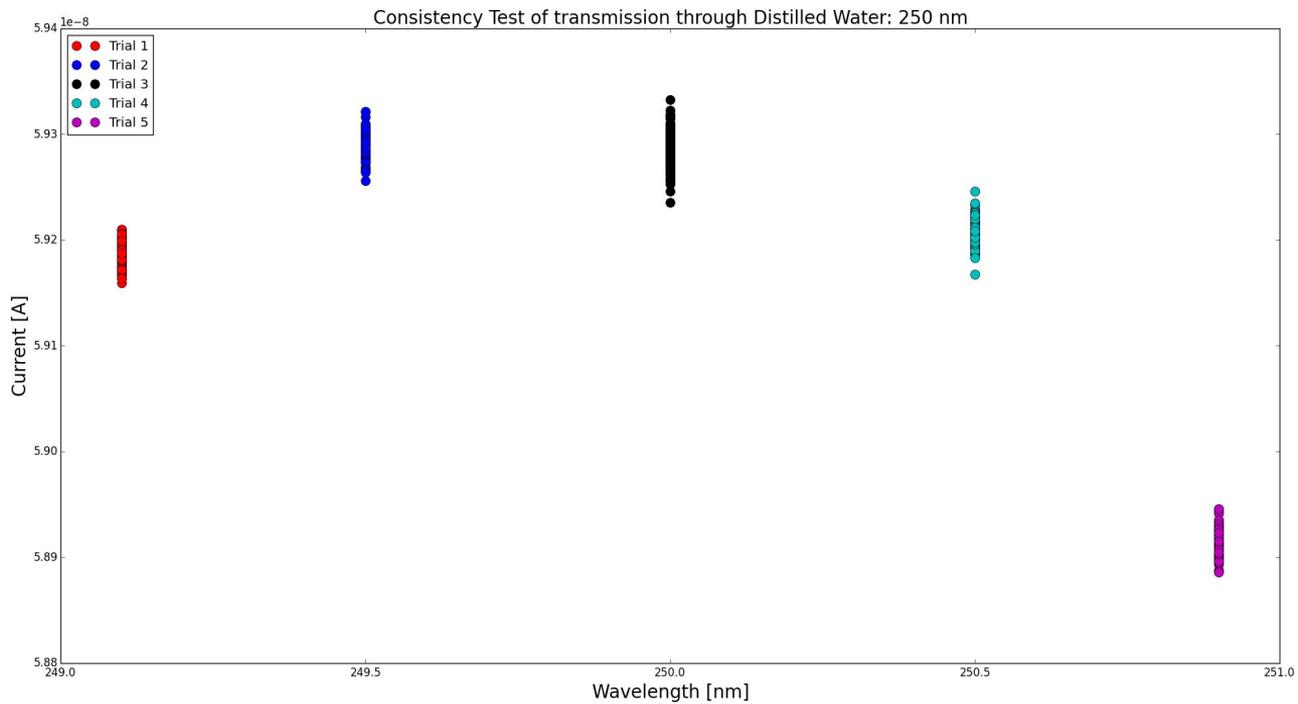
- 475 nm
- Total rms = $6.89e-13$
- Difference between trial 1 and 2 is 1.8%, however, trial 2 and 5 is now 2.8%



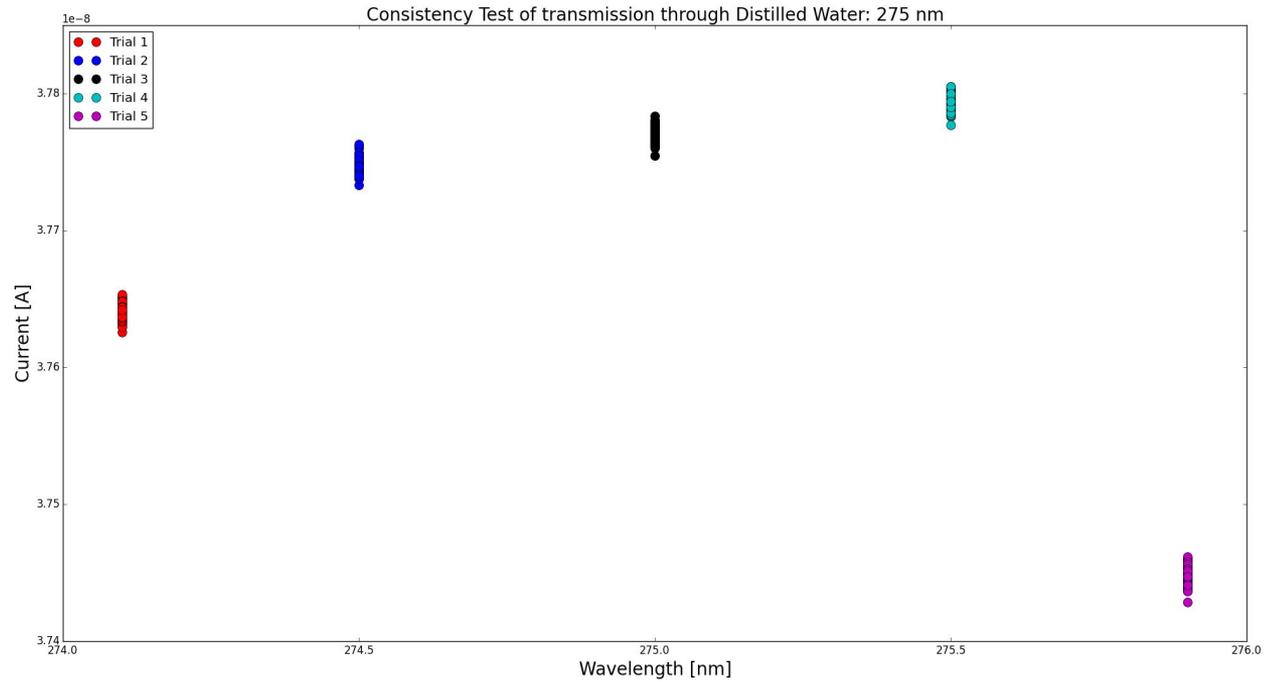
- 500 nm
- Total rms = $7.11e-13$
- Difference between trial 1 and 2 is 1.4% and trial 2 and 5 is 2.8%



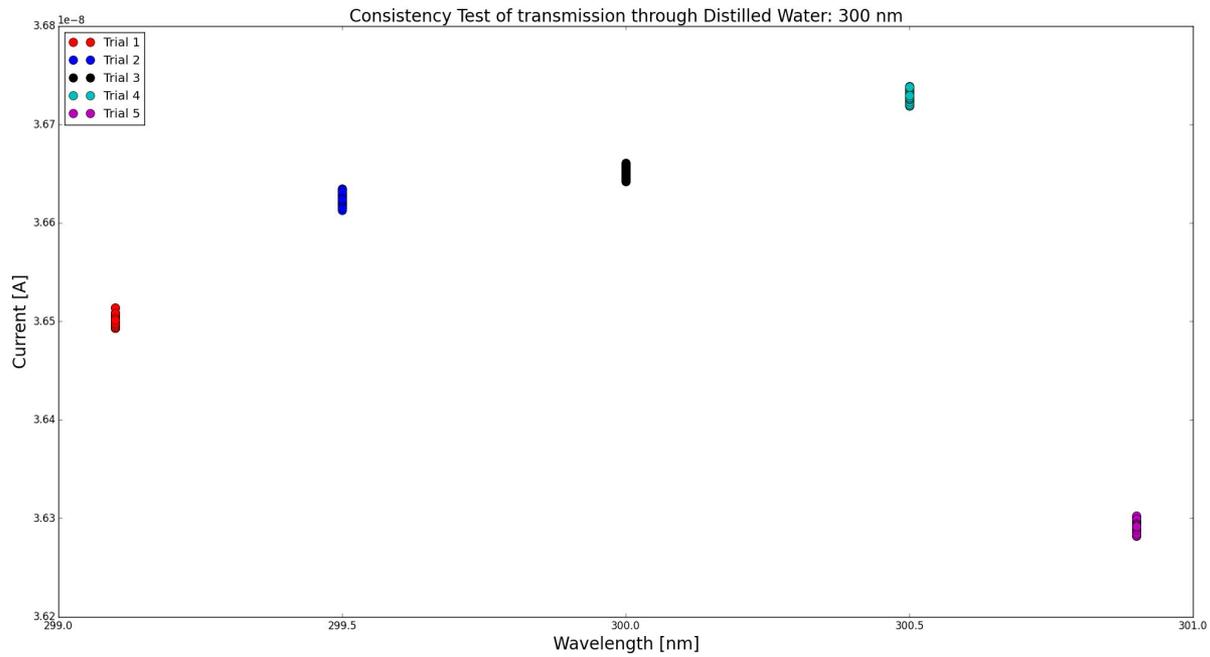
- Seems very consistent, variations are not noticeable at this scale but errors are still within 2% as stated earlier



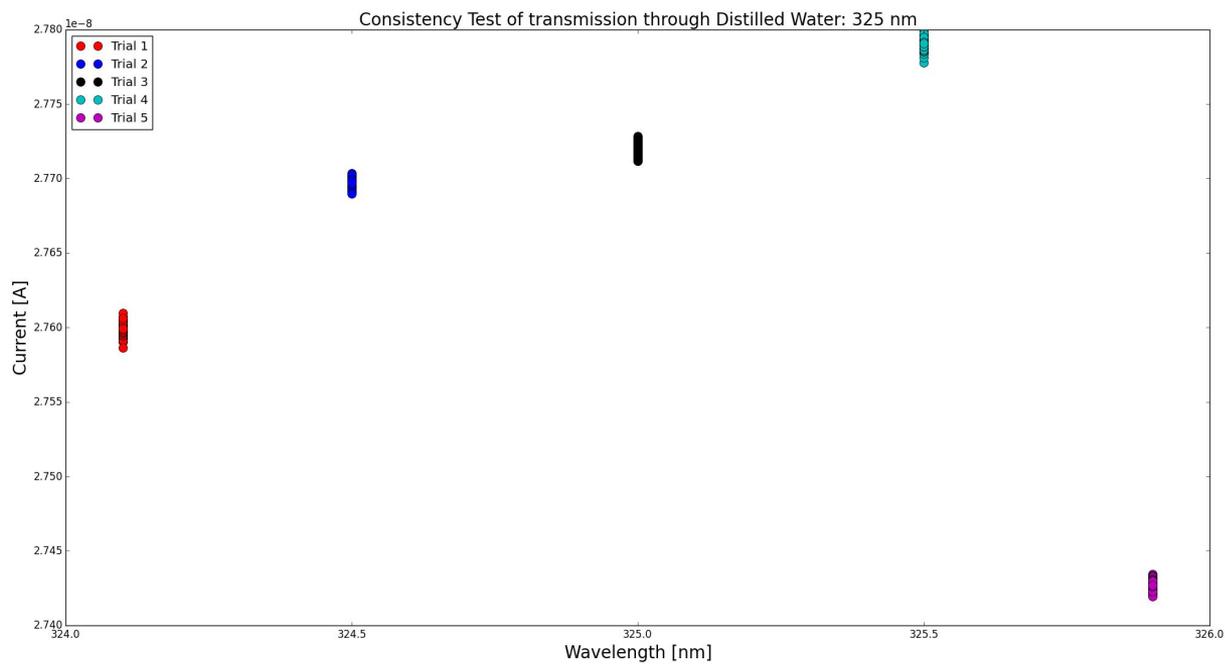
- Total rms = $1.34e-11$
- Trial 1 rms = $1.06e-11$; trial 2 rms = $1.26e-11$; trial 3 = $1.83e-11$; trial 4 = $1.24e-11$; trial 5 = $1.34e-11$
- Bigger spread than cylindrical
- Not sure why trial 5 is so low... but difference is only 0.5% on average



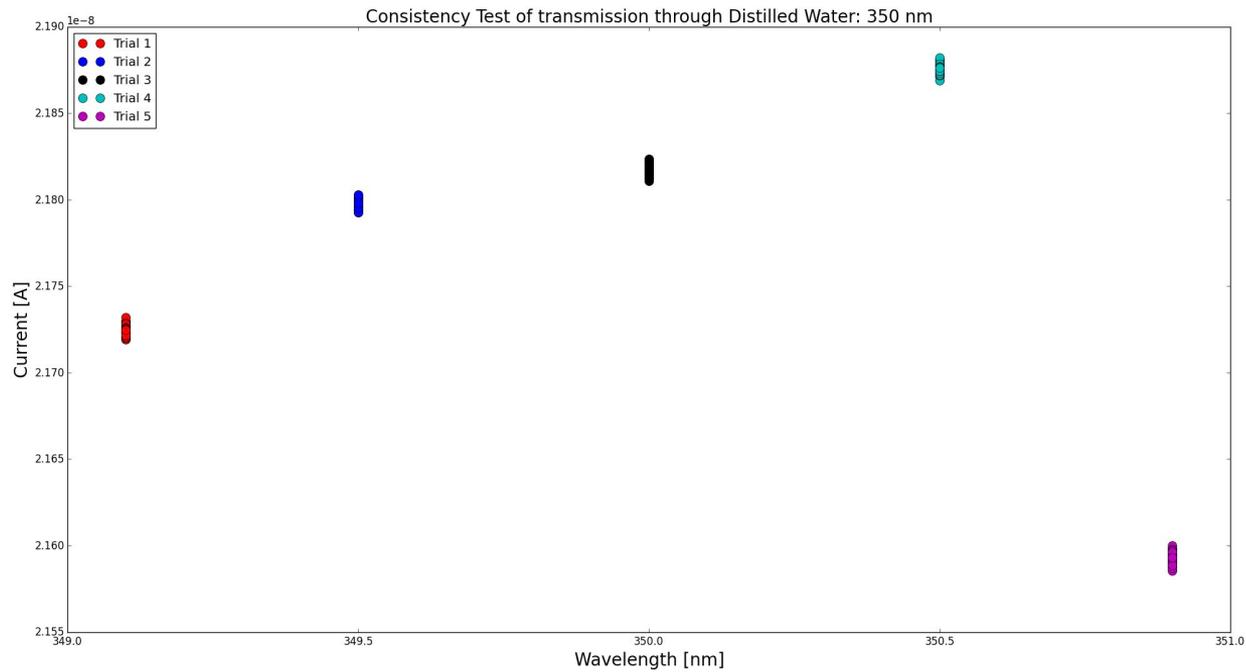
- Total rms = $6.70e-12$
- Trial 1 rms = $5.15e-12$; 2 = $5.42e-12$; 3 = $5.02e-12$; 4 = $5.20e-12$; 5 = $6.70e-12$



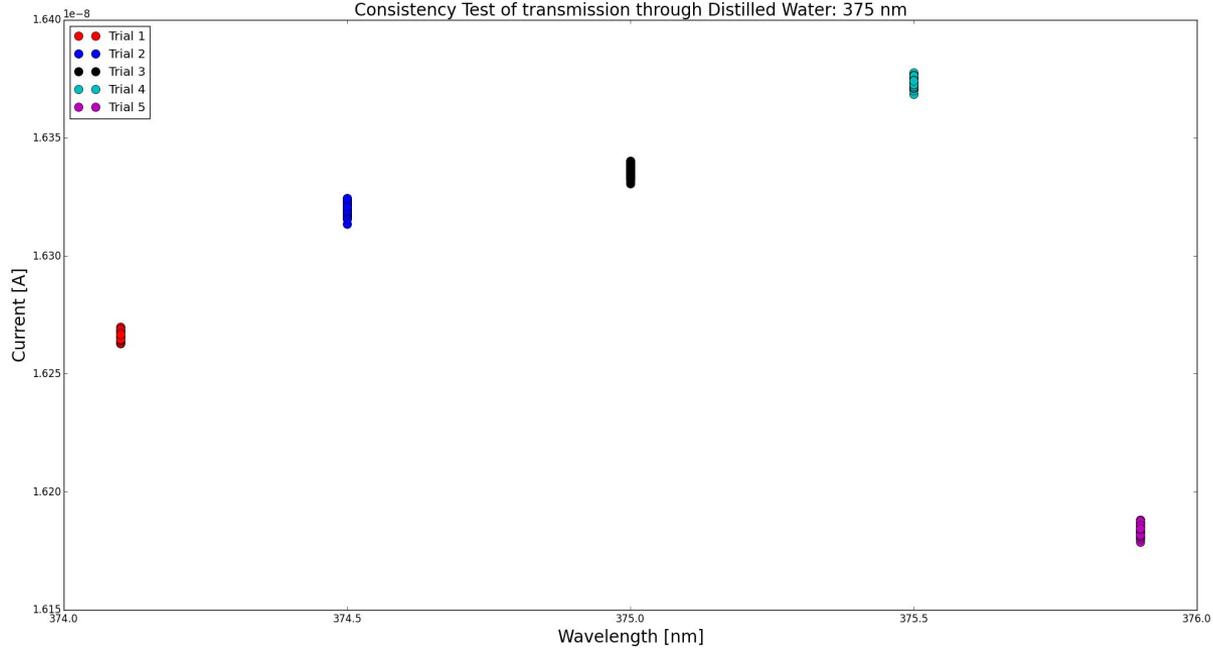
- Total rms = $4.31420270734e-12$
- 1 = $4.17e-12$; 2 = $4.49e-12$; 3 = $4.19e-12$; 4 = $4.57e-12$; 5 = $4.31e-12$



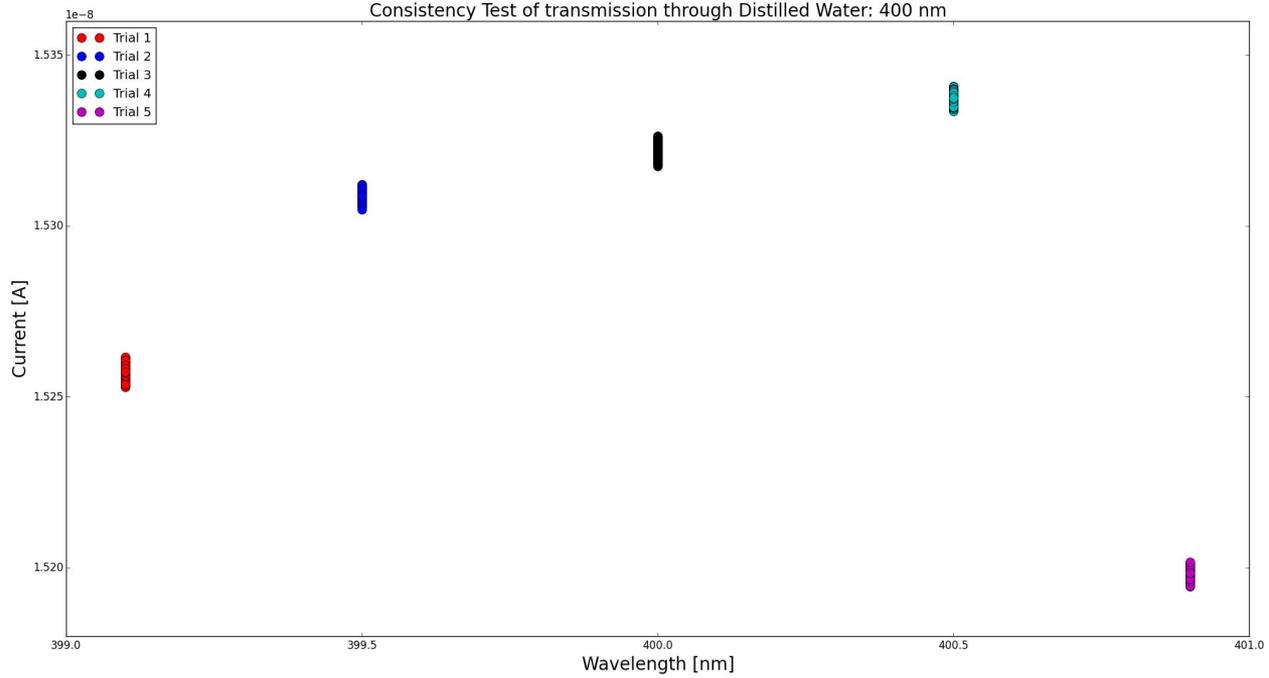
- Total rms = $3.35351101236e-12$
- 1 = $3.97e-12$; 2 = $3.30e-12$; 3 = $3.72e-12$; 4 = $3.37e-12$; 5 = $3.35e-12$



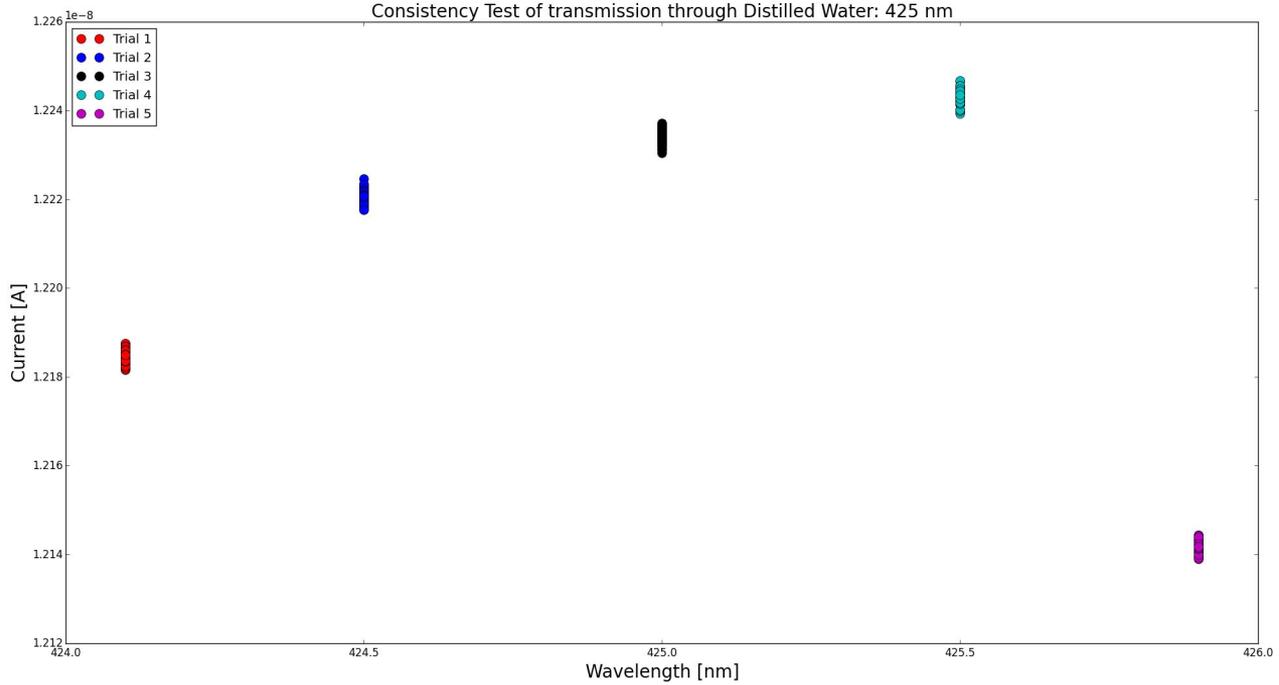
- Total rms = $2.51922928492e-12$
- 1 = $2.48e-12$; 2 = $2.29e-12$; 3 = $2.64e-12$; 4 = $2.40e-12$; 5 = $2.52e-12$



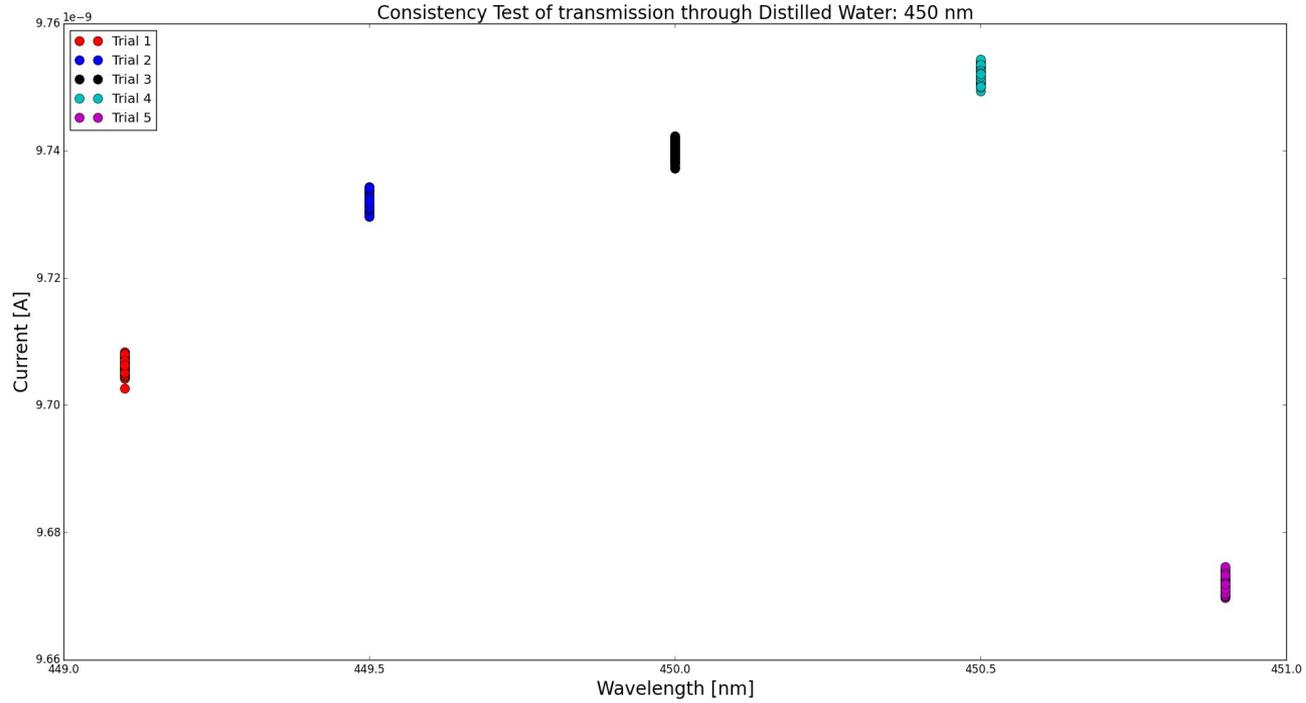
- Total rms = $1.73620649694e-12$
- 1 = $1.56e-12$; 2 = $2.16e-12$; 3 = $1.83e-12$; 4 = $1.68e-12$; 5 = $1.74e-12$



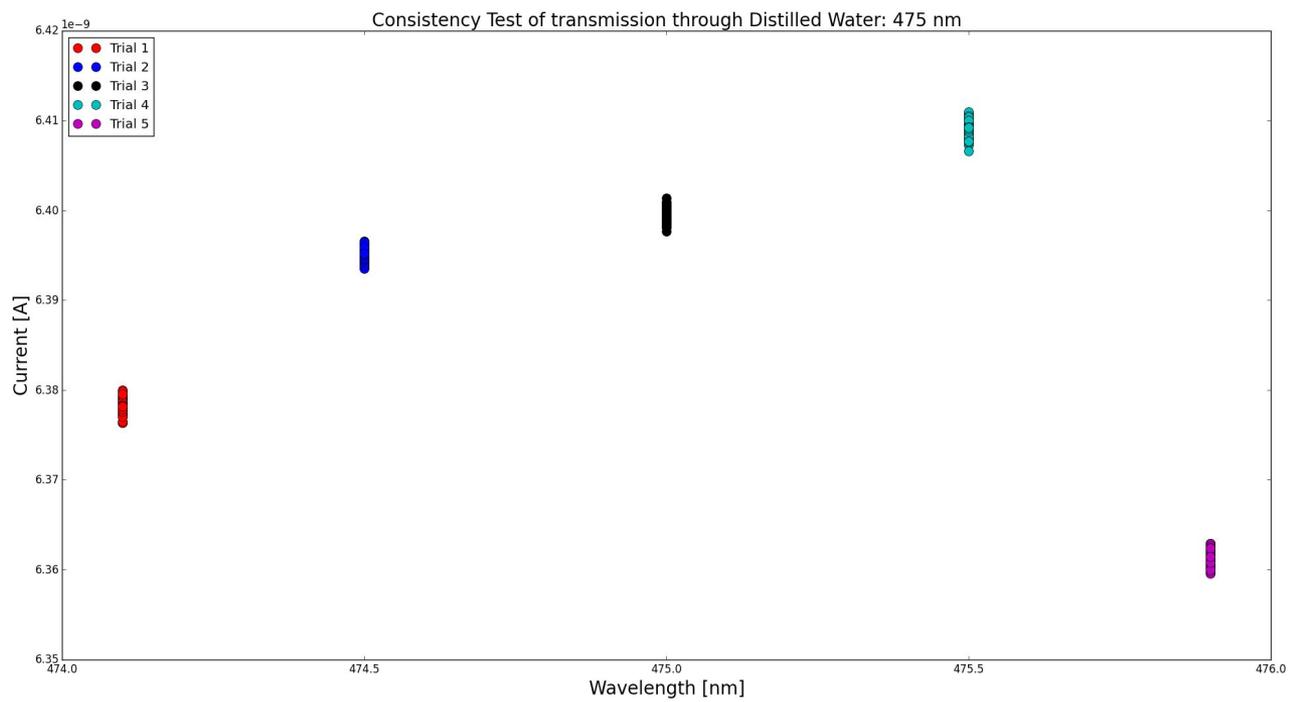
- Total rms = $1.58082402246e-12$
- 1 = $1.618e-12$; 2 = $1.50e-12$; 3 = $1.73e-12$; 4 = $1.62e-12$; 5 = $1.58e-12$



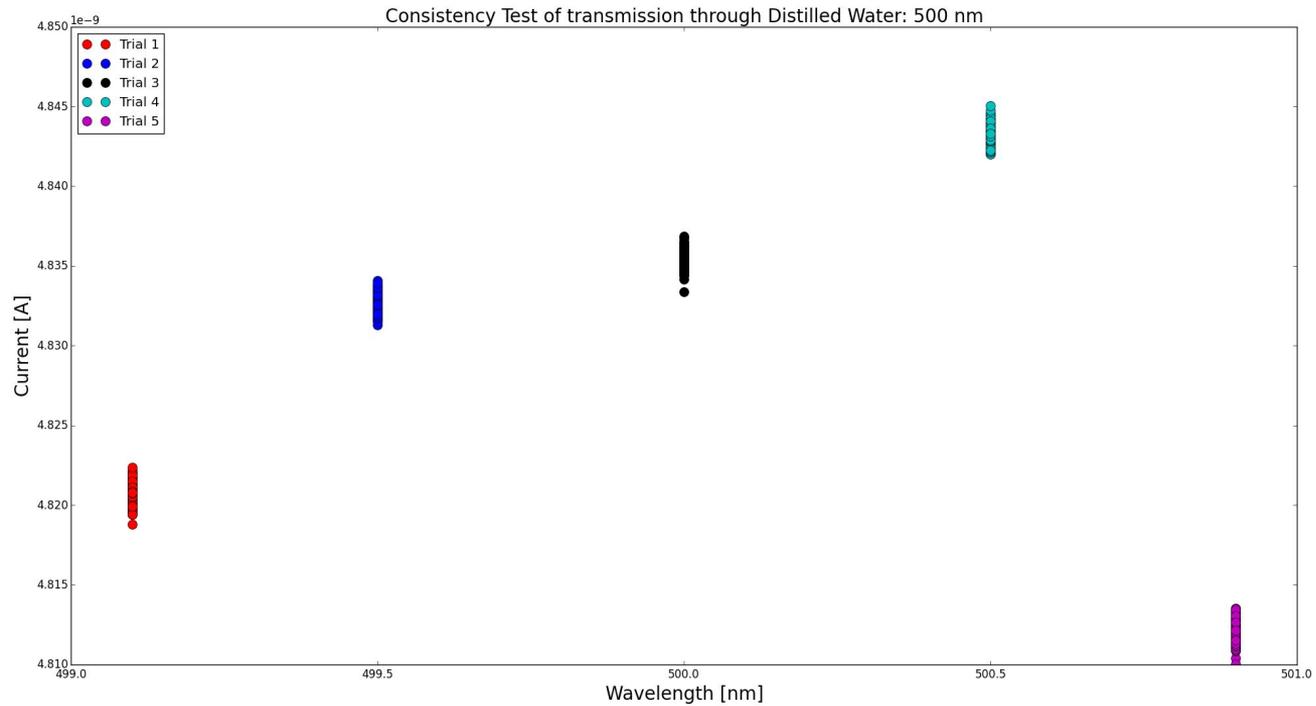
- Total rms = $1.1711518945 \times 10^{-12}$
- 1 = 1.37×10^{-12} ; 2 = 1.34×10^{-12} ; 3 = 1.29×10^{-12} ; 4 = 1.35×10^{-12} ; 5 = 1.17×10^{-12}



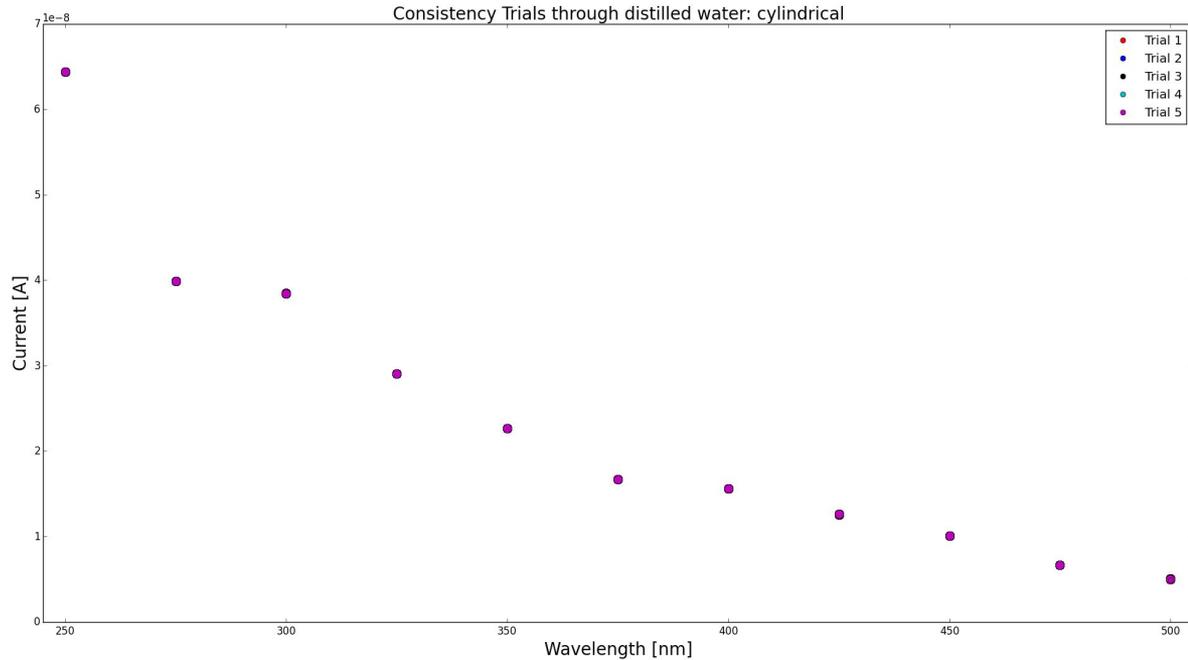
- Total rms = $9.83573781879e-13$
- 1 = $1.01e-12$; 2 = $1.06e-12$; 3 = $1.02e-12$; 4 = $1.00e-12$; 5 = $9.83e-13$



- Total rms = $7.92287031069e-13$
- 1 = $7.78e-13$; 2 = $6.80e-13$; 3 = $7.13e-13$; 4 = $8.42e-13$; 5 = $7.92e-13$



- Total rms = $7.30313925377e-13$
- 1 = $6.40e-13$; 2 = $5.65e-13$; 3 = $5.90e-13$; 4 = $6.10e-13$; 5 = $7.30e-13$



- Overall much more consistent because I did not have to take out the holder to replace the rectangular cuvette; simply a slot to take in and out
- Trial 5 was lowest and was consistently low through all wavelengths
- Major source of error is the inconsistency of rotational DOF in cylindrical cuvette, up to 2.8% error within each wavelength