graph deletes most of 3 cycles done before cleaning
real start is at 181 or 18.1 on plot

sharp drop at 50.0 is a 10 minute lapse; call to davidw.
during this time signal plunged; later recovered.

Recirculator
Standard Meas.
$L = 19.5 \pm 1.0$ m
RO'd drinking water

\[ L = 1.84 \pm 0.01 \text{ m} \]

\[ e^{-\sqrt{1.84}} = 0.58 \] so loses 42% of ample in TUBE

\[ e^{-\sqrt{4.49}} = 0.949 \] loses 5.1% of ample

\[ \times 8.2 \text{ lost somewhere} \]
beam on empty TUBE
beam off TUBE

Ratio PDc

laser beam ~9v

PDc ~0.1v

PDa ~.5v

Maybe 0.2µV coming from glass reflections?

100 → 10µV
10 → 1µV
plot in sequence blocked/open every 10 points, starting blocked
first plot point is 31
first ten dark, then signal, then chopped and cycled with signal at intervals of ten. Jump after 60 is placement of shroud, cuts light to PDB
starts with about 20 blocked at diode, then alternates noblock/block, with blocked at end.
IRIS (.25" D) (exaggerated scale)

PD

baffle
improvised scale

Adjustable, both dimensions

\[
\frac{1}{L} \times \frac{1}{L_n} = \frac{1}{L_m}
\]

<table>
<thead>
<tr>
<th>Range</th>
<th>θ</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mm</td>
<td>2.9°</td>
</tr>
<tr>
<td>20</td>
<td>2.3</td>
</tr>
<tr>
<td>15</td>
<td>1.7</td>
</tr>
<tr>
<td>10</td>
<td>1.14</td>
</tr>
<tr>
<td>7.5</td>
<td>0.86</td>
</tr>
<tr>
<td>5.0</td>
<td>0.57</td>
</tr>
</tbody>
</table>
Usual sequence: 25, 20, 15, 10, 7.5, 5 mm, with an invalid extra set as below.

Tests between 150-200 are invalid: spot not recentered.

RO'd drinking water

Biggest signals are \( \approx \frac{1}{2} \text{ mV} \) (backgrounds \( \approx 20 \% \)).
Unsubtracted data

Raw Diode ratio A/B

Typical scattering angle (degrees)
Scattered Intensity from Different Liquids

Intensity into forward aperture in "Volts"
(Original laser beam about 0.9V)

Typical scattering angle (degrees)

- Pond
- RO Water
Scattered Intensity from Different Liquids

- Pond
- RO Water

Intensity into forward aperture in "Volts"
(original laser beam about 0.9V)

Beam Boundary
Beam Halo Boundary

Typical scattering angle (degrees)

x 8.2