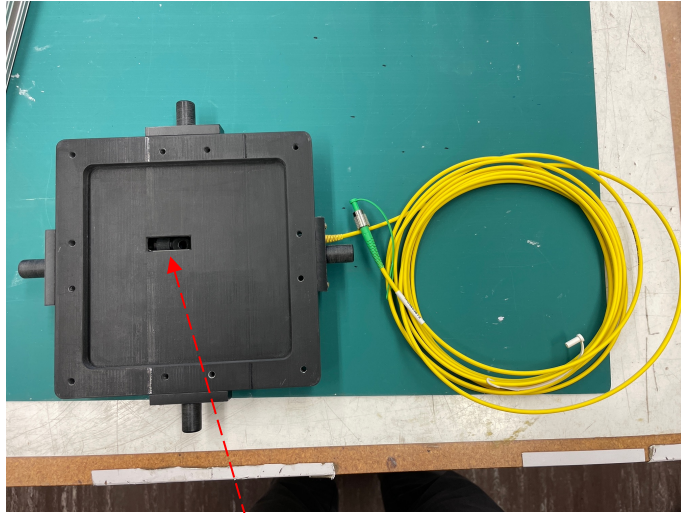
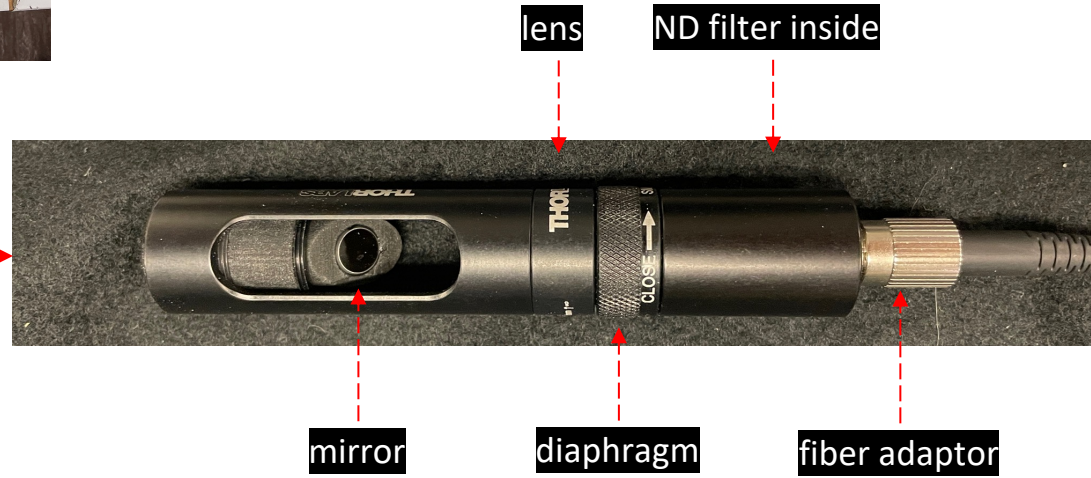


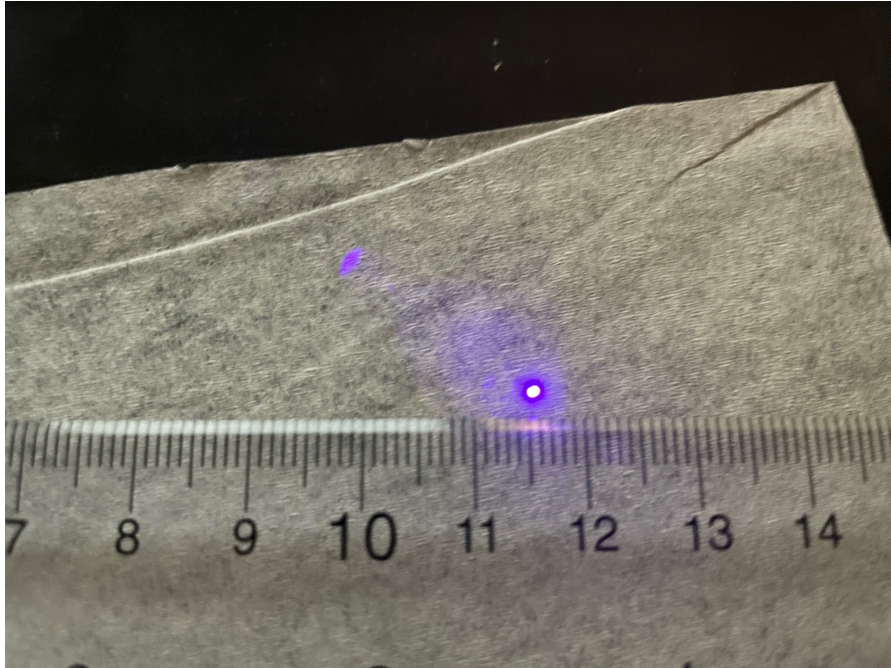
# Optical configuration details



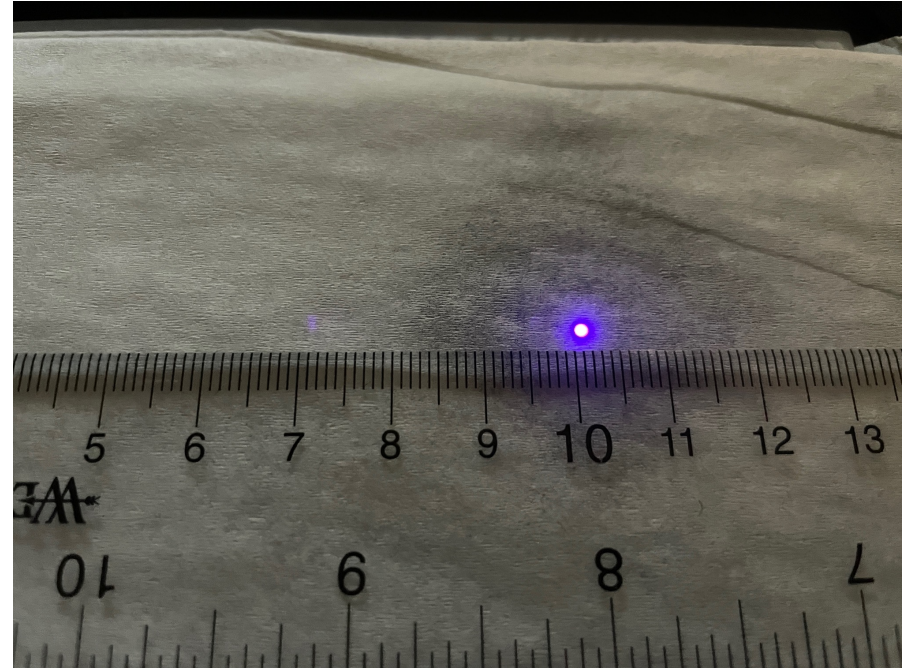
- Use  $F=20\text{mm}$  plano-convex lens in a  $2F-2F$  configuration
- OD4 filter, diaphragm fully open
- At a 30% laser tune get few % useful events
- Beam spot size can be adjusted by adding a spacer
  - See next slides



# “Focused” beam case



“Air side” of the HRPPD window

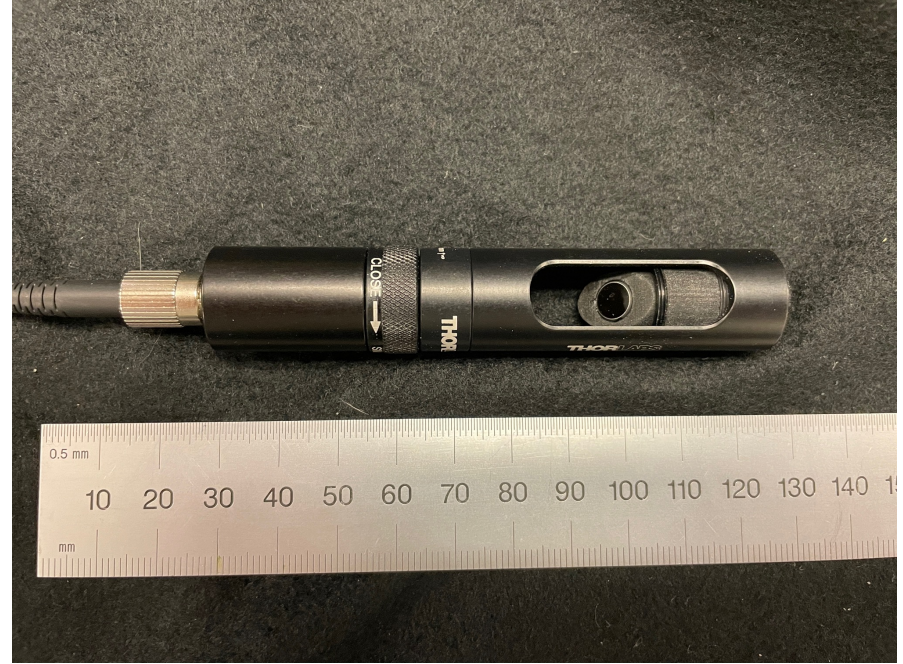
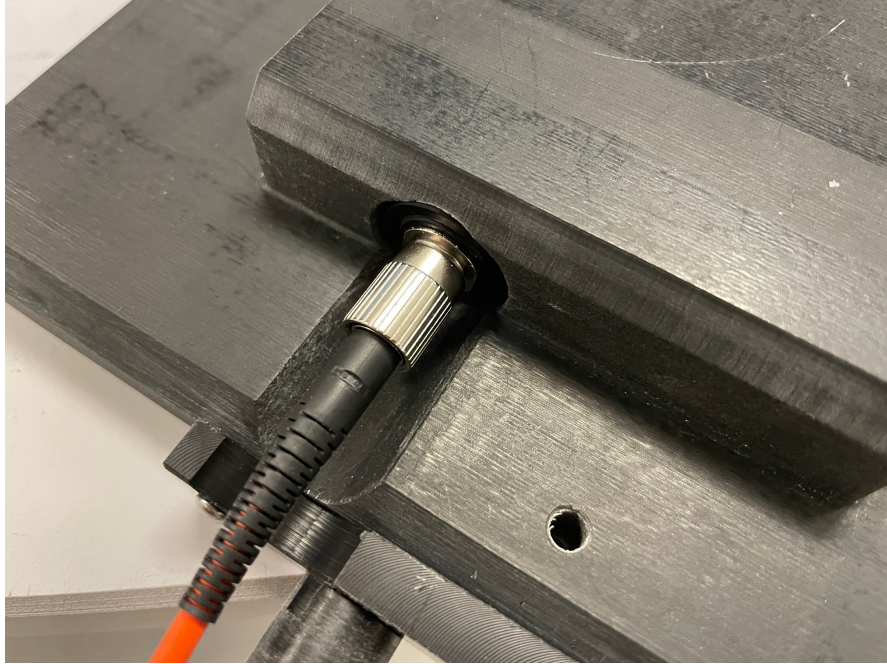


“Vacuum side” of the HRPPD window

- Use a spare HRPPD window, 405nm LED and a SMA->FC/PC MM fiber
  - Unfortunately, could only find a 600  $\mu\text{m}$  diameter one

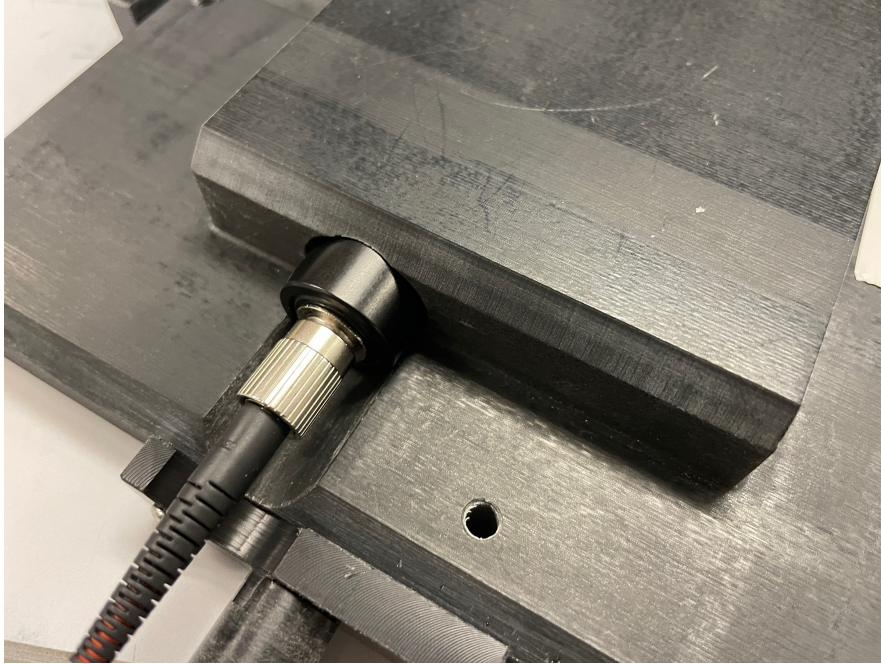


# “Focused” beam case



- Configuration without an additional spacer in the lens tube

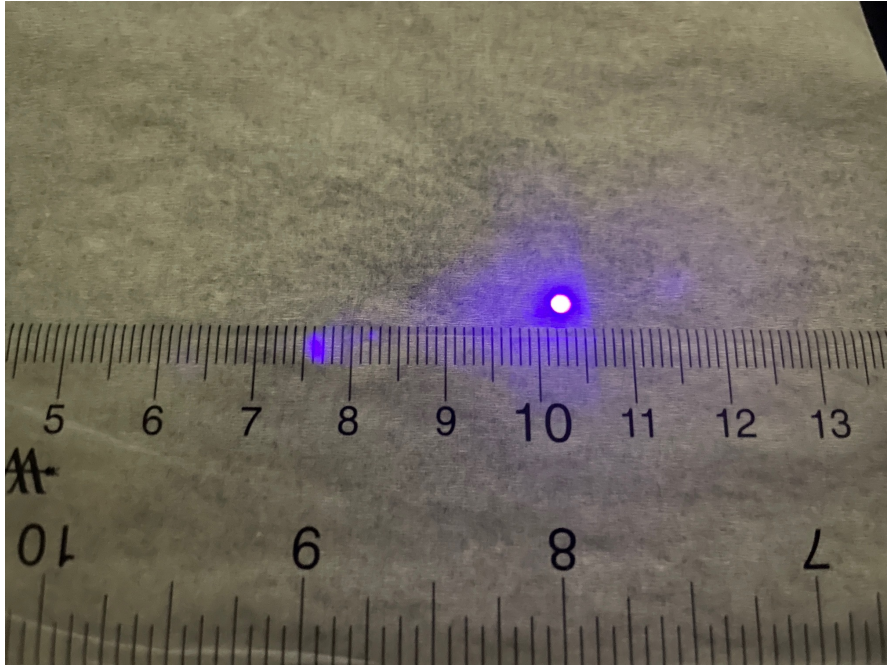
# “De-focused” beam case



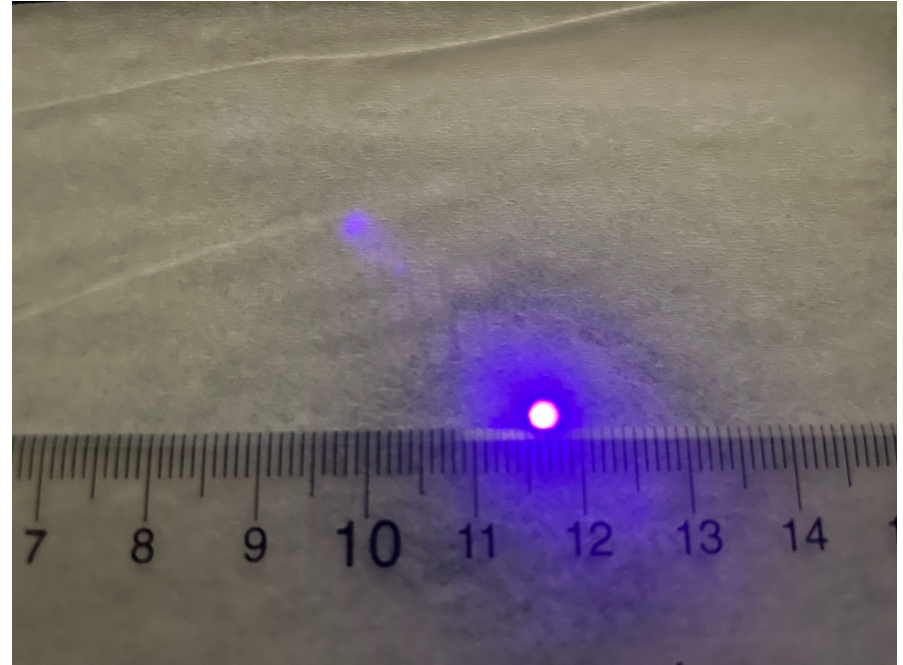
- Configuration with an additional 8mm spacer in the lens tube
- A limiting factor for a max tilt angle in Configuration #2R (see next slides)



# “De-focused” beam case



“Air side” of the HRPPD window



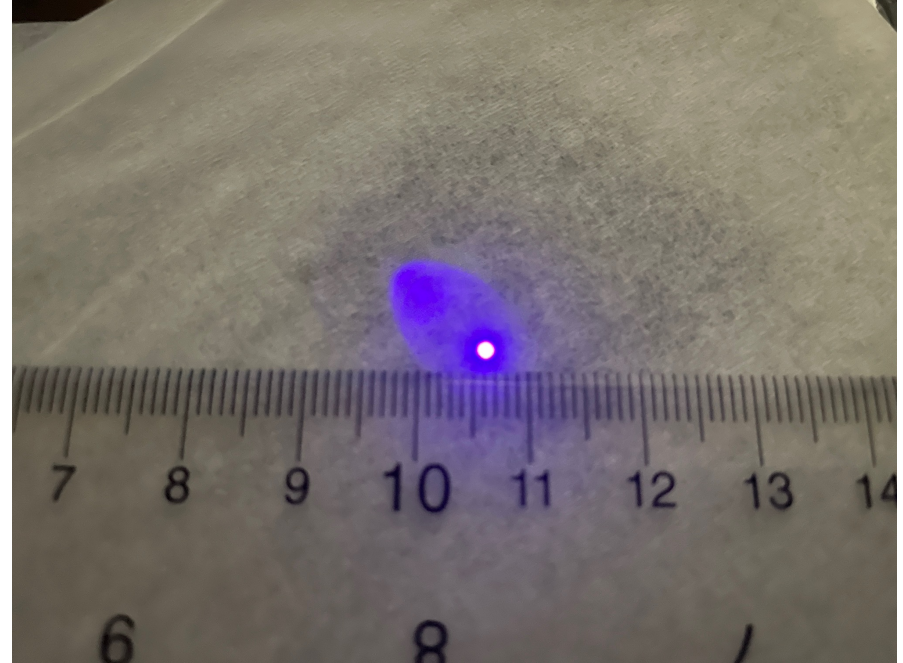
“Vacuum side” of the HRPPD window

- One can seemingly achieve  $\sim 2\text{mm}$  diameter spot if needed

# “De-focused” beam case



Diaphragm at about half aperture setting



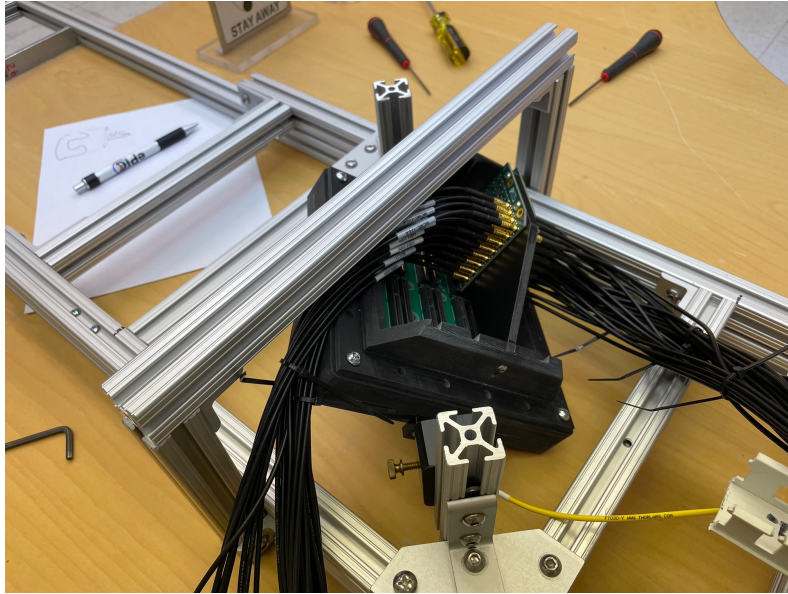
“Vacuum side” of the HRPPD window

- One can also fine tune the diameter, at a cost of useful even fraction change

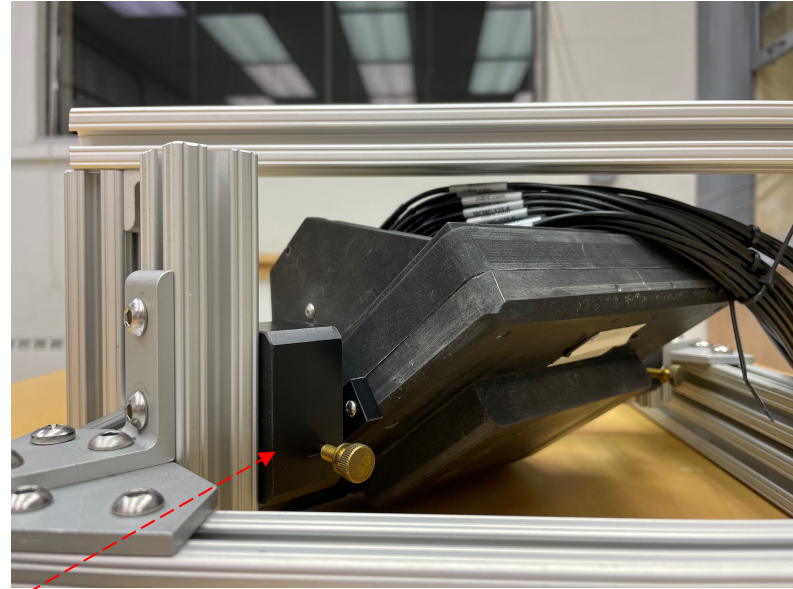


# Configuration #1R (main axis rotation)

35°



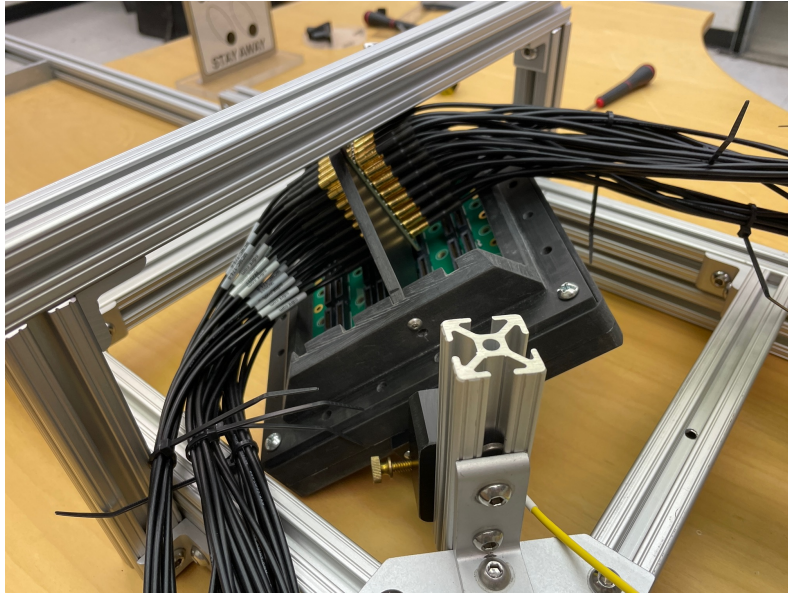
Stereo view



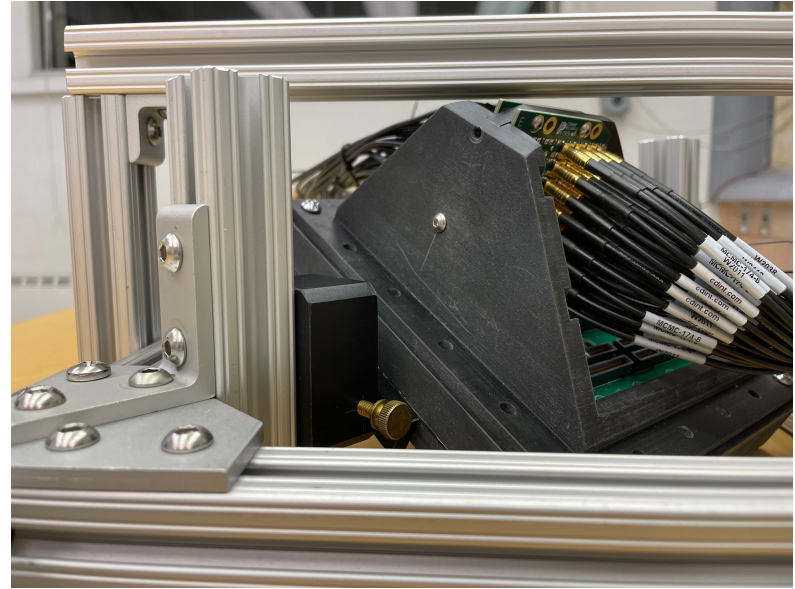
Front view (from dipole center)

- Can reach  $\sim +35^\circ$  tilt (if needed)
- Ideal support height off the base level  $\sim 41.5\text{mm}$

# Configuration #1L (main axis rotation)



Stereo view

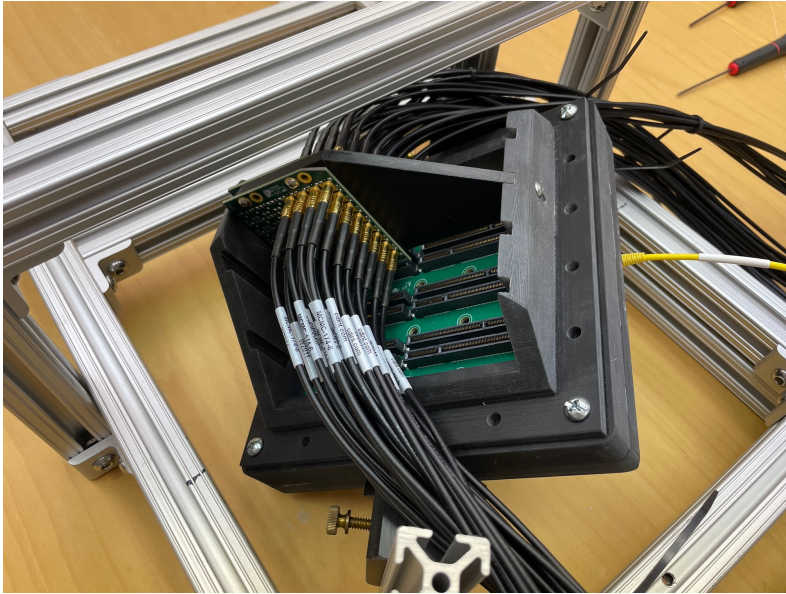


Front view (from dipole center)

- Can reach  $\sim -30^\circ$  tilt
- Ideal support height off the base level  $\sim 35.5\text{mm}$
- With this support configuration #1R can reach  $\sim +30^\circ$



# Configuration #2L (second axis rotation)



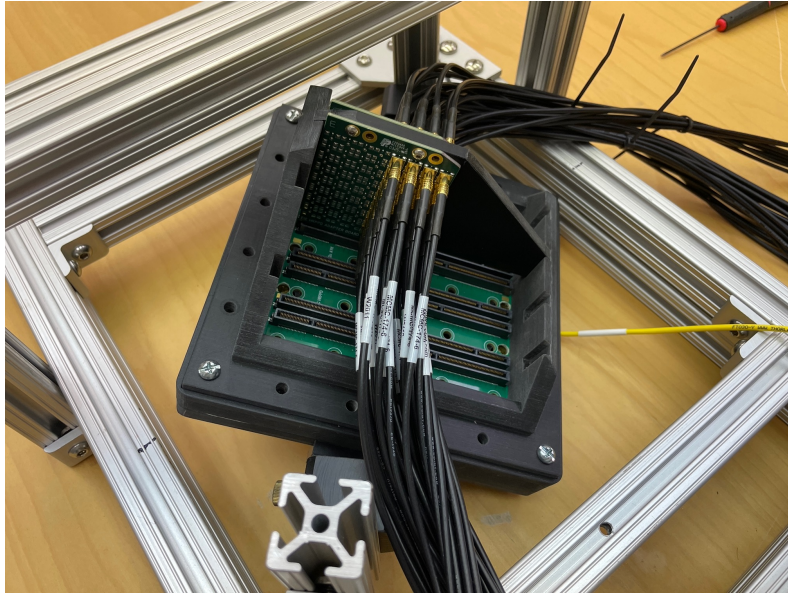
Stereo view



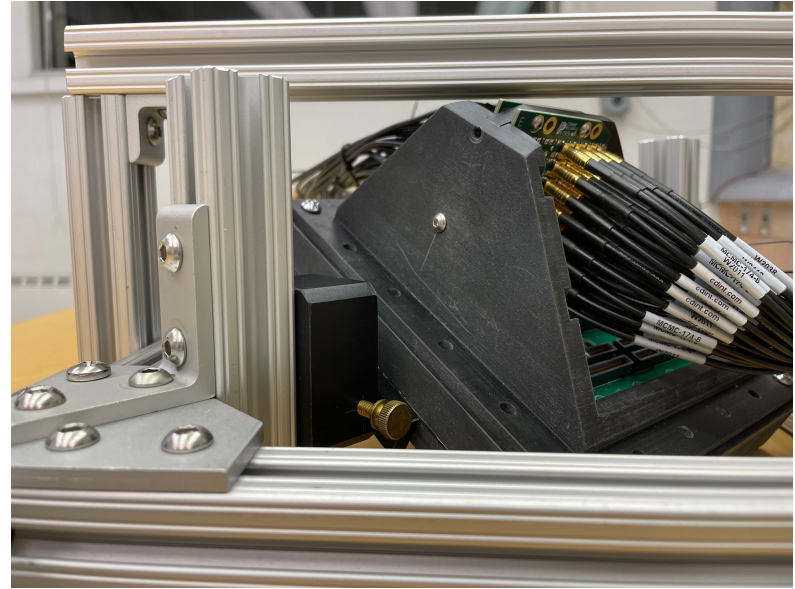
Front view (from dipole center)

- Can reach  $> +45^\circ$  tilt (not needed)
- Ideal support height off the base level  $\sim 48.5\text{mm}$

# Configuration #2R (second axis rotation)



Stereo view



Front view (from dipole center)

- Can reach  $\sim -20^\circ$  (at best)
- Will be worse if fiber tube sticks out by extra 8mm
- Ideal support height off the base level  $\sim 28.5\text{mm}$