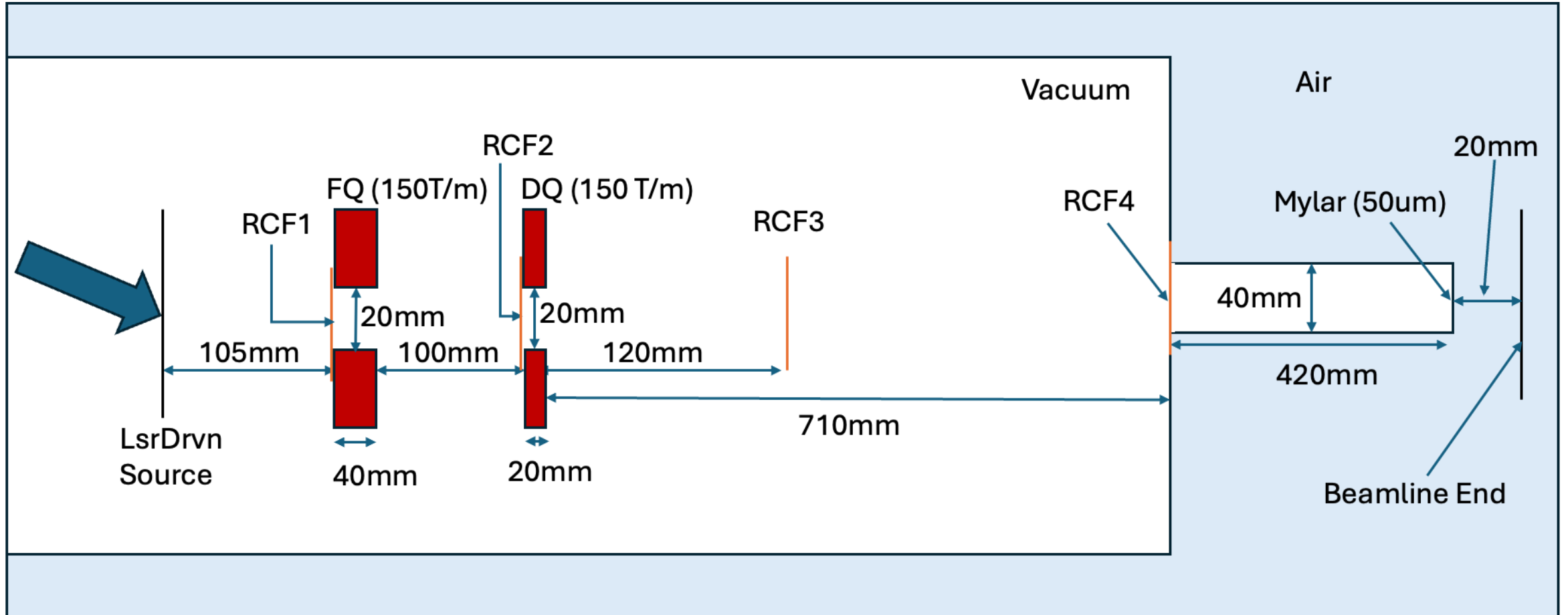
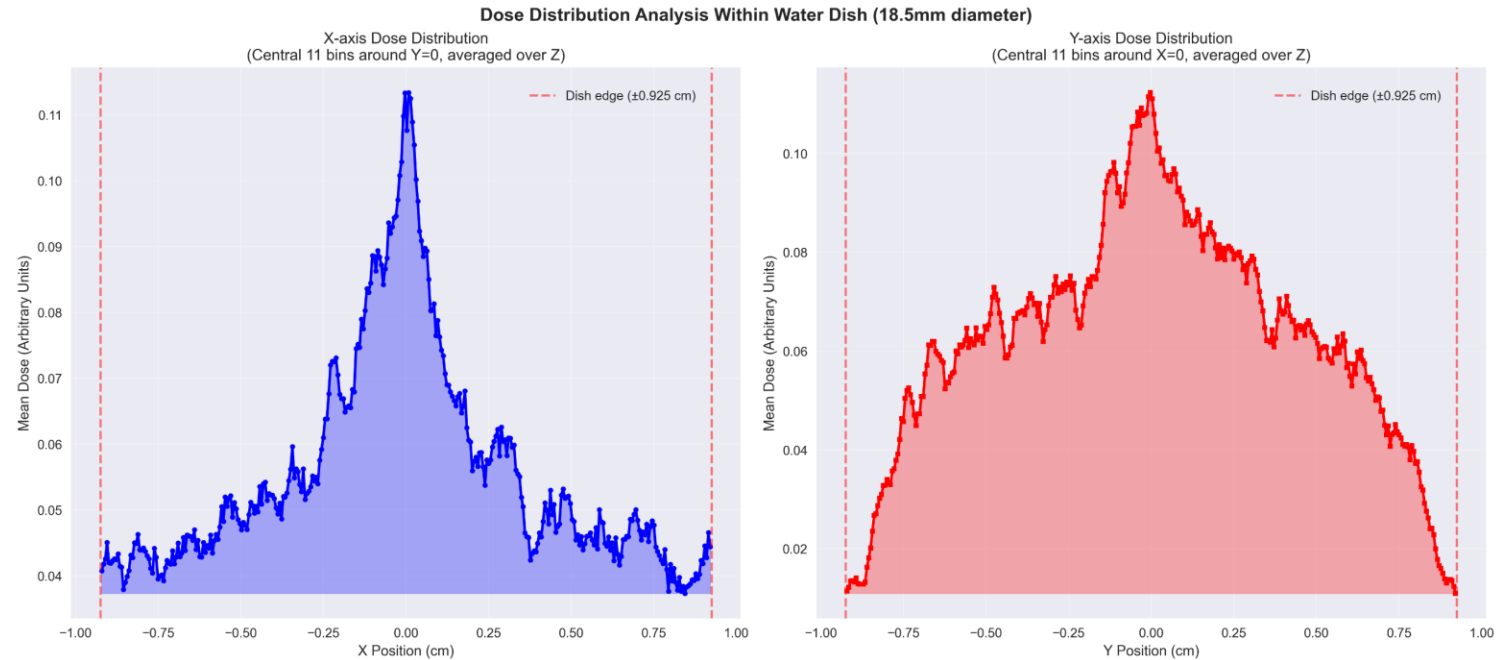
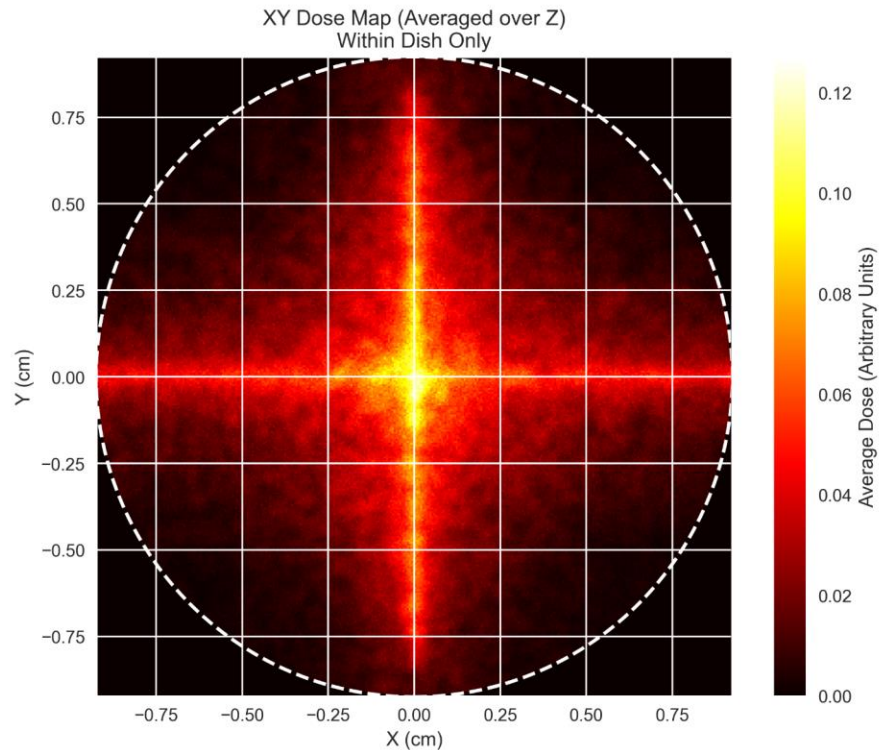


Uniformity Improvements

Setup 1: Base setup

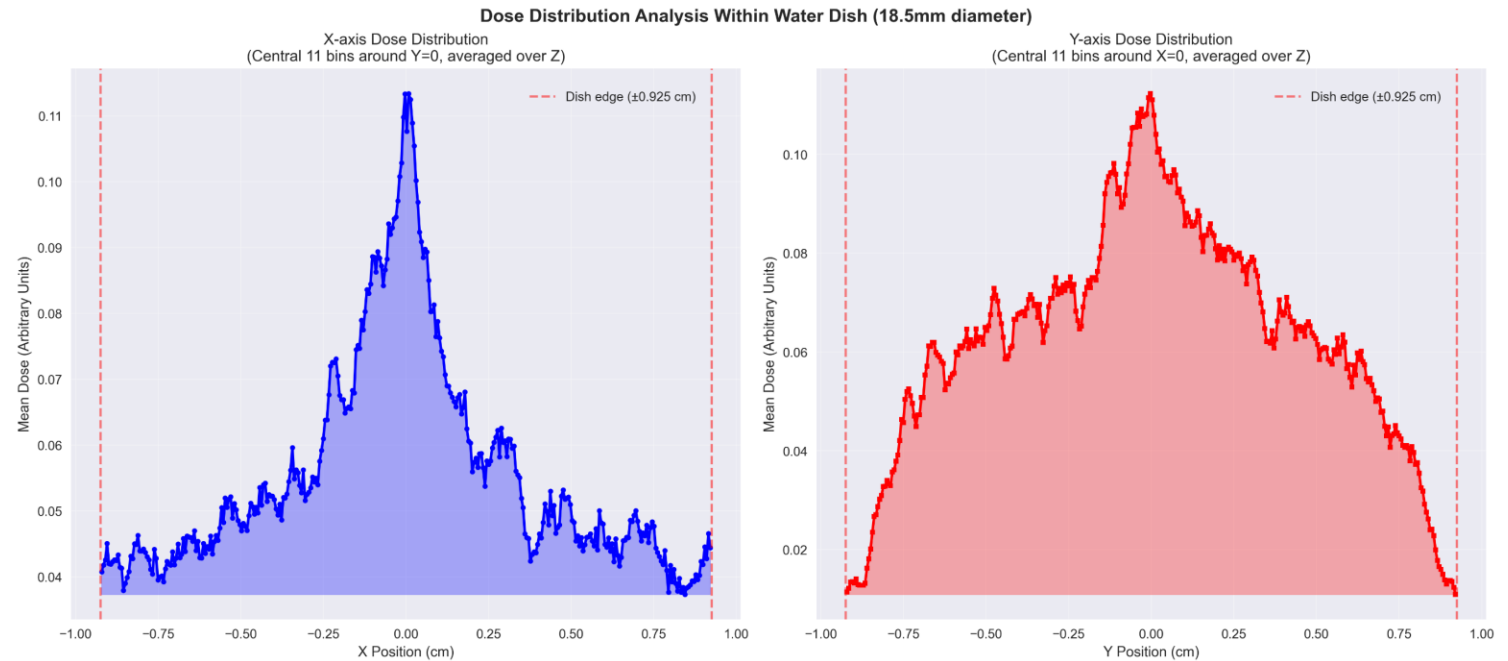
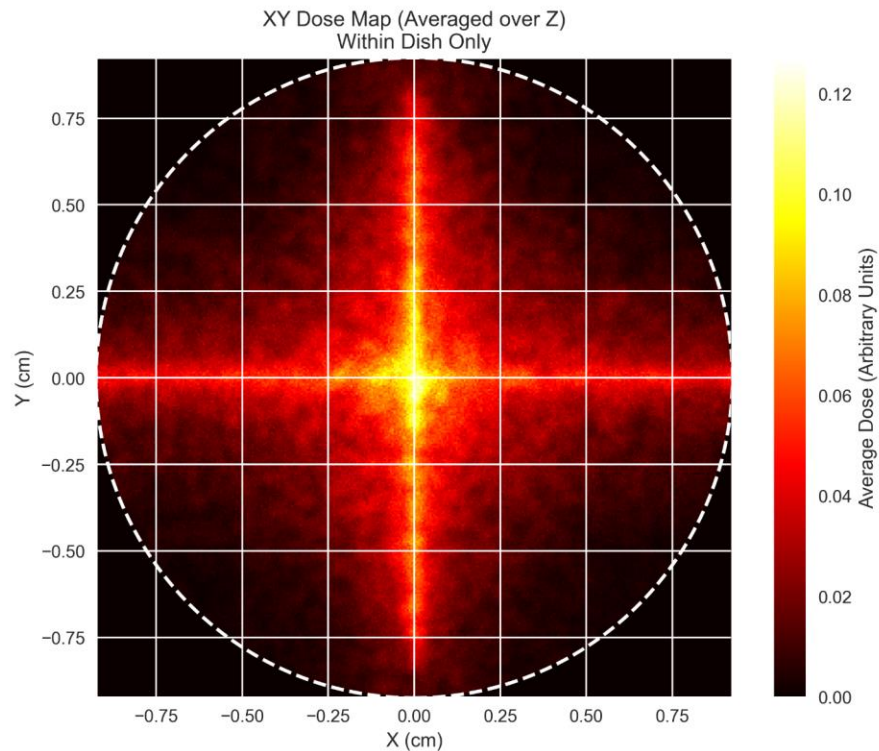


Results from actual setup (previous simulation)



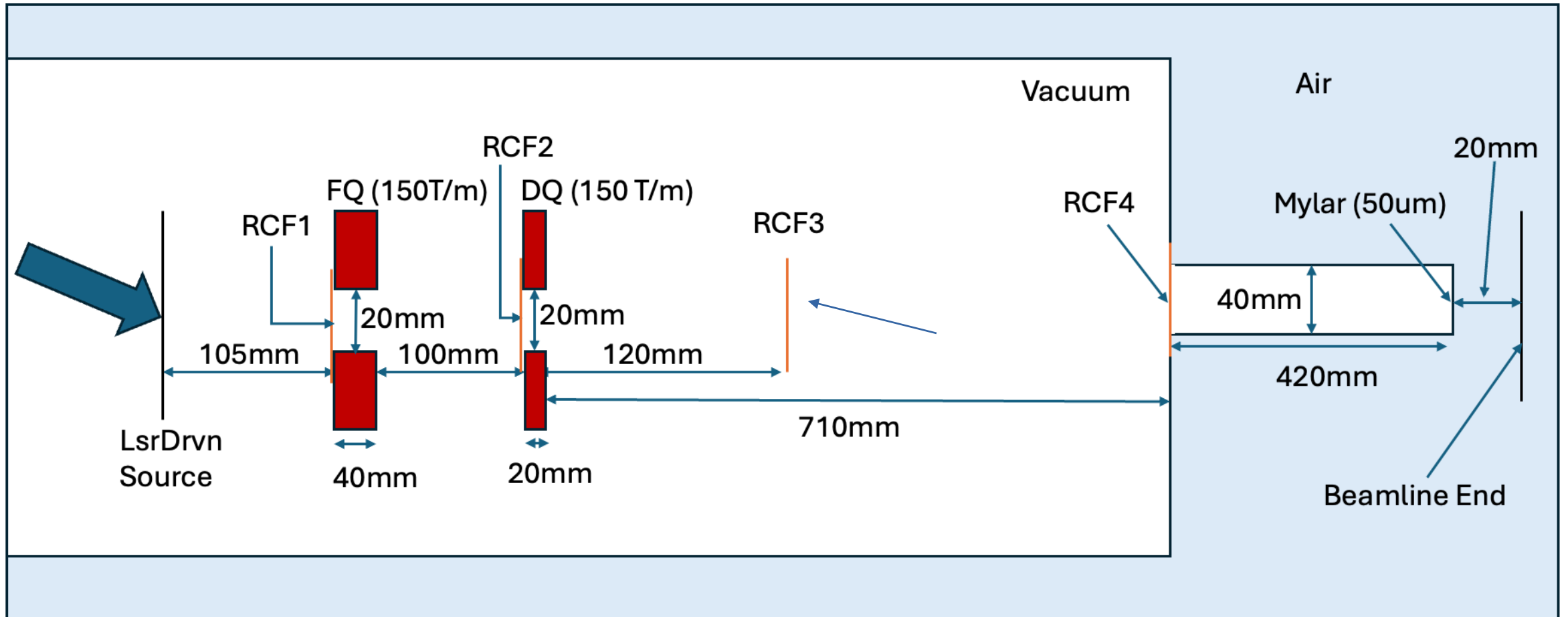
- Integration width of 620 μ m (11 voxels) in the transversal directions
- Dose distributions integrated in the Z direction
- Units: Gy/primary particle. Not representative of actual doses that will be delivered.

Results from actual setup (previous simulation)

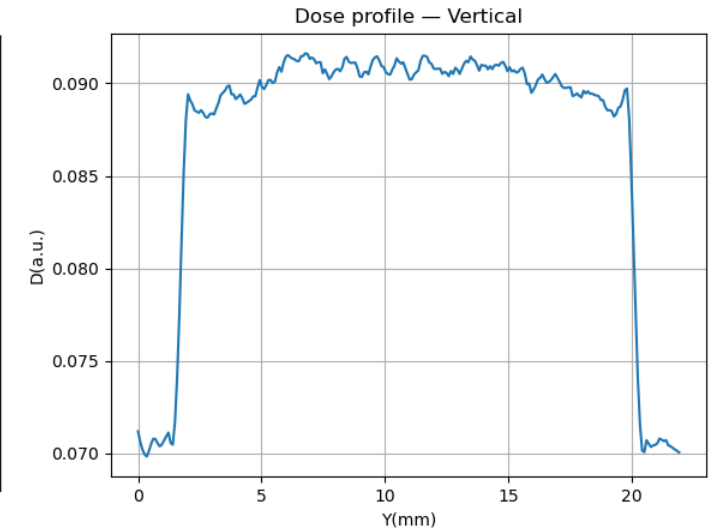
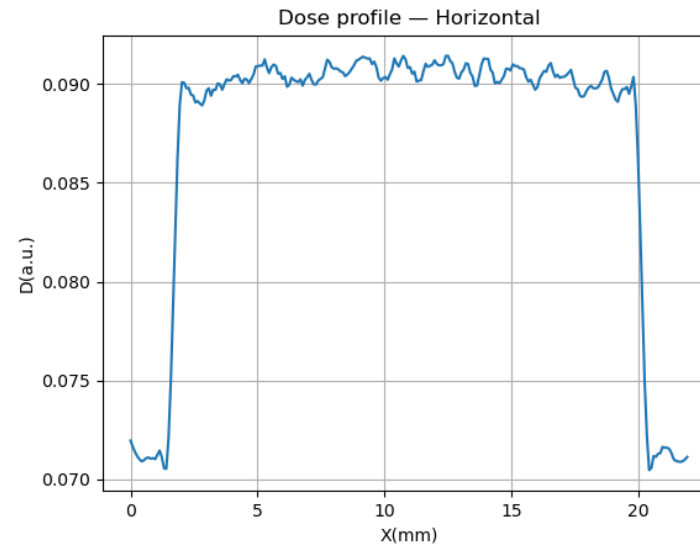
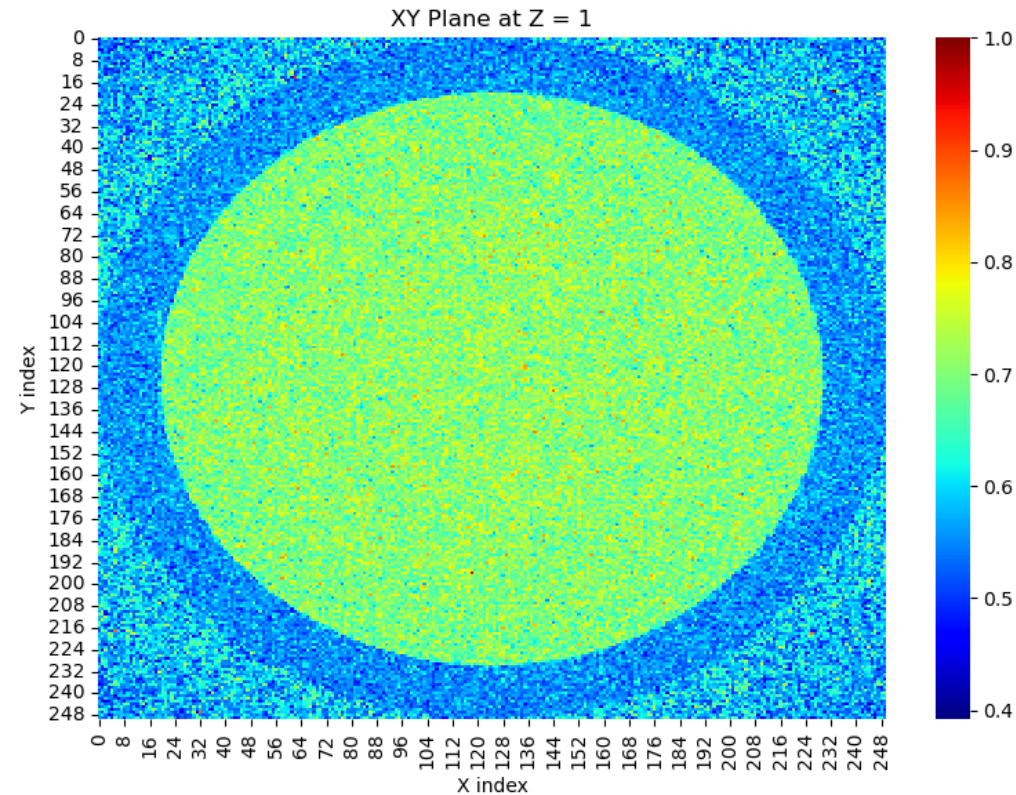


- Mean dose in dish: 0.021 Gy
- Max dose in dish: 0.217 Gy
- Min dose in dish: 0.00 Gy
- Standard deviation in dish: 0.019 Gy
- Uniformity (Coefficient of Variation [CV]) in dish: 90.79%

Setup 2: Gold foil at 355mm from DQ

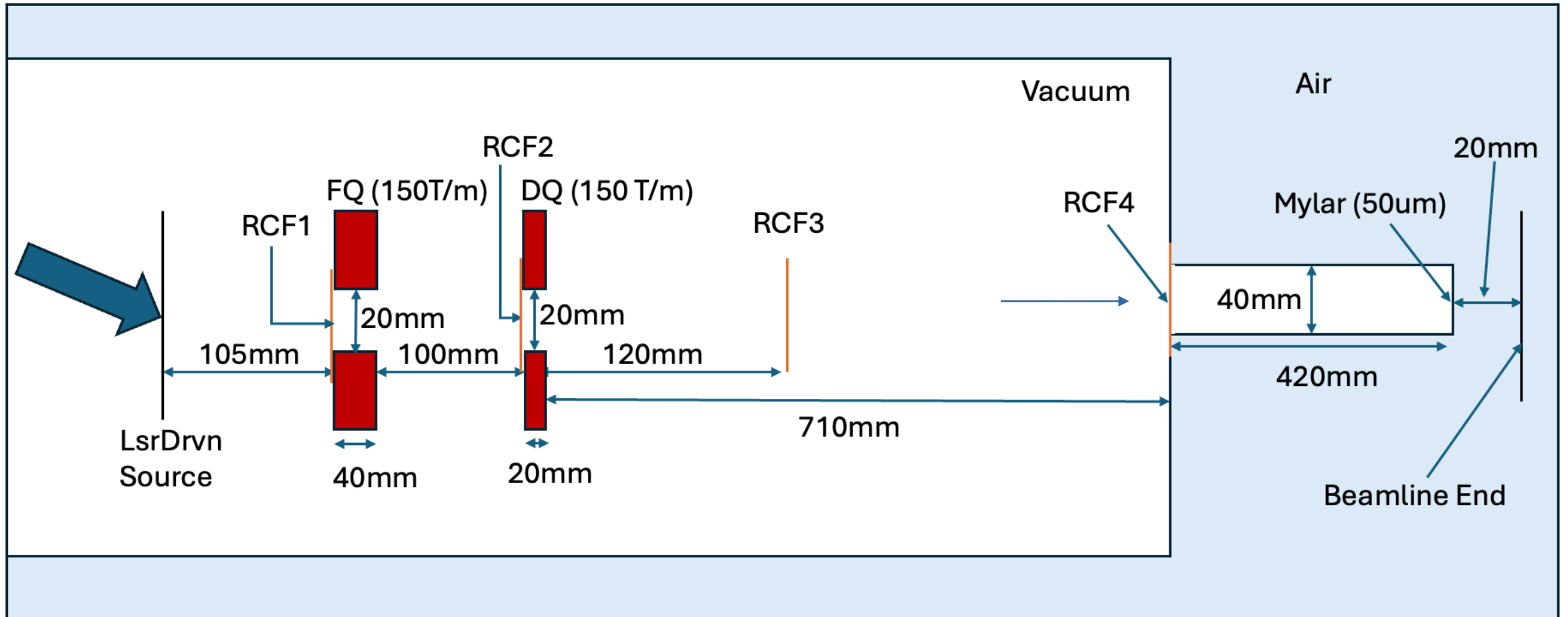


Setup 2: Gold foil at 355mm from DQ

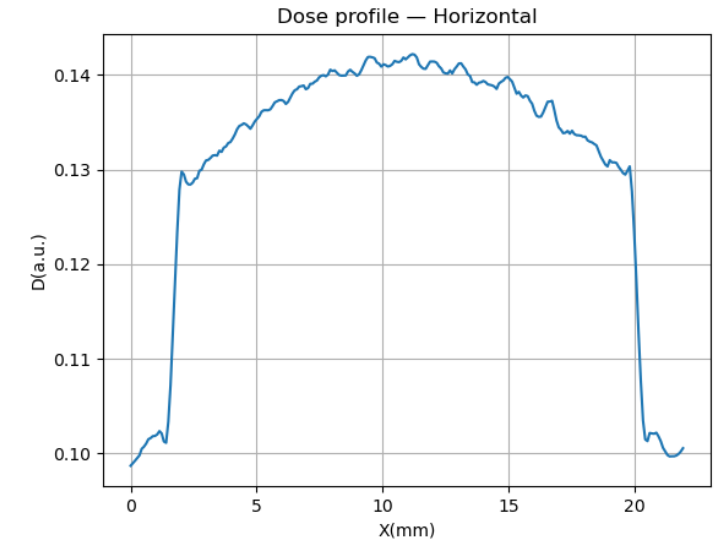
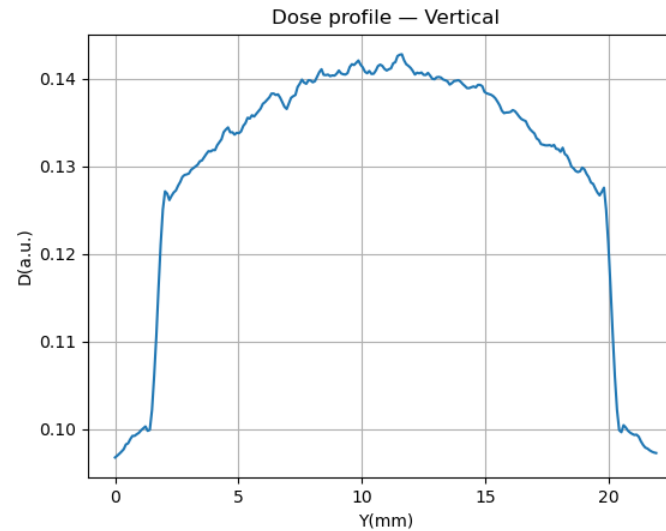
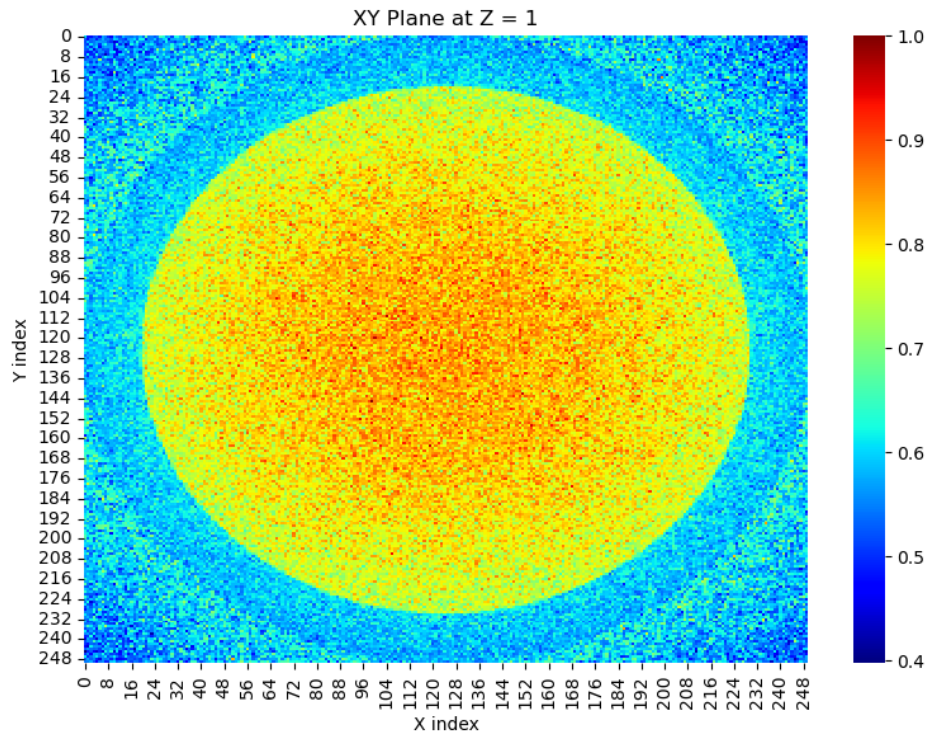


- Mean dose in dish: 0.044 Gy
- Max dose in dish: 0.061 Gy
- Min dose in dish: 0.026 Gy
- Standard deviation in dish: 0.004 Gy
- Uniformity (CV) in dish: 10.2%
- Global transmission efficiency: 0.50%

Setup 3: Gold foil at tube entrance

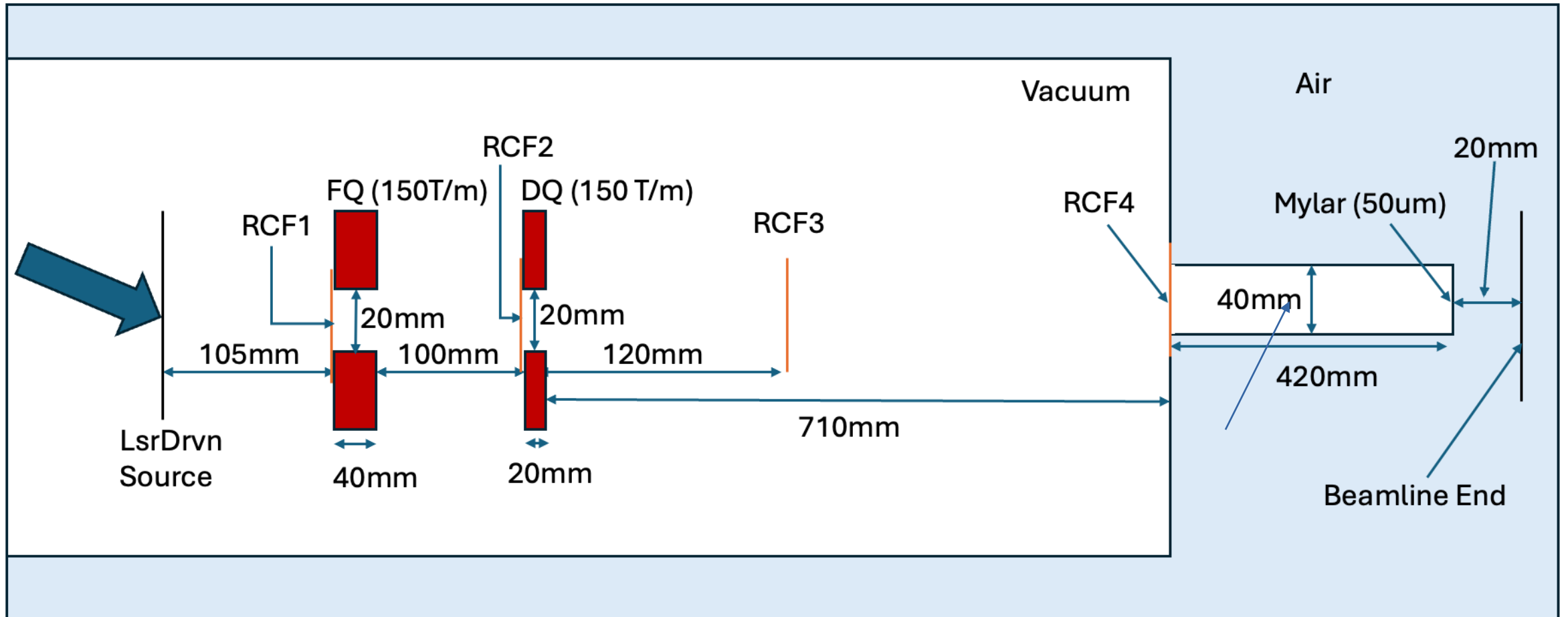


Setup 3: Gold foil at tube entrance

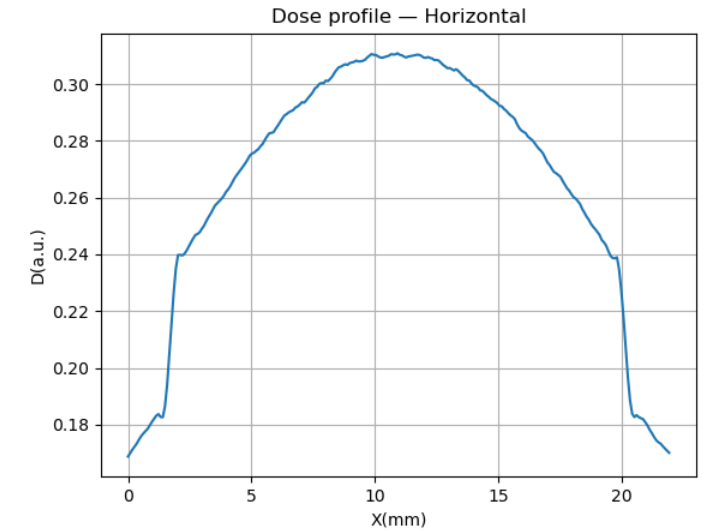
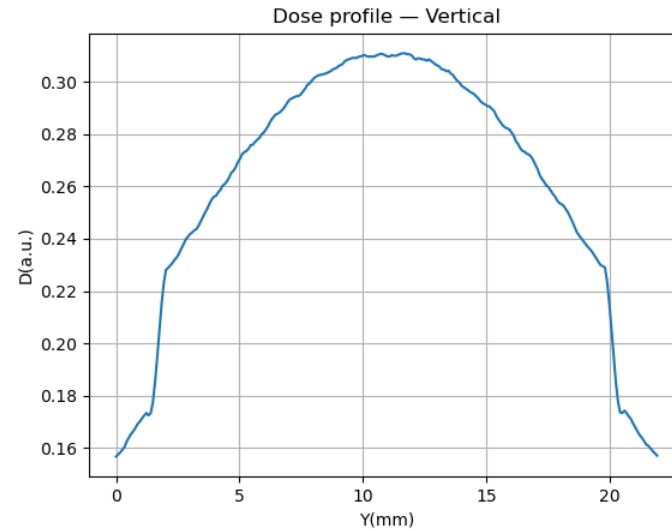
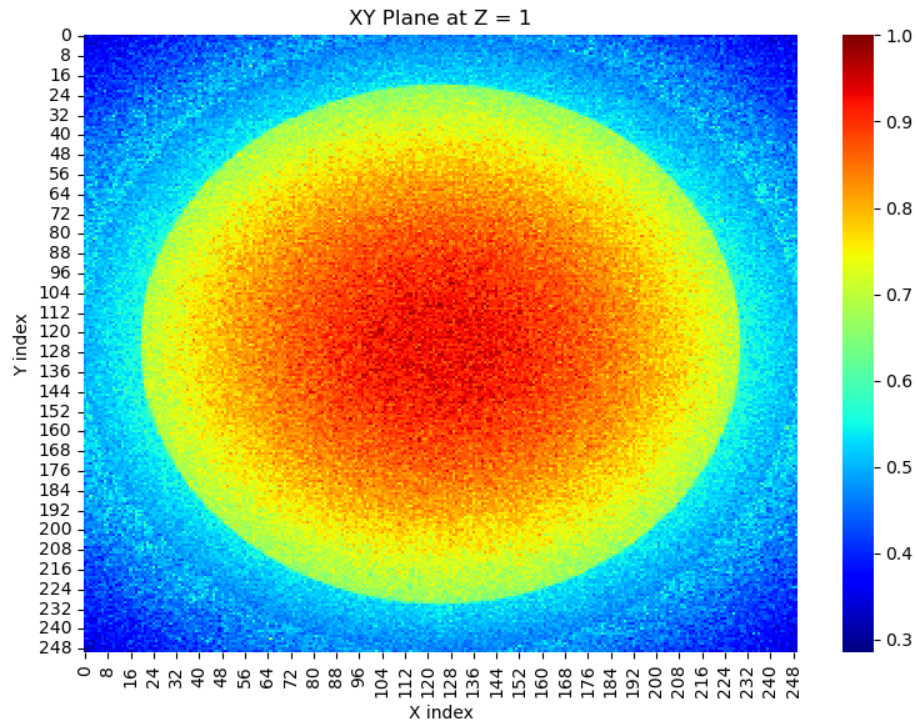


- Mean dose in dish: 0.065 Gy
- Max dose in dish: 0.084 Gy
- Min dose in dish: 0.041 Gy
- Standard deviation in dish: 0.007 Gy
- Uniformity (CV) in dish: 10.9%
- Global transmission efficiency: 0.98%

Setup 4: Gold foil inside tube

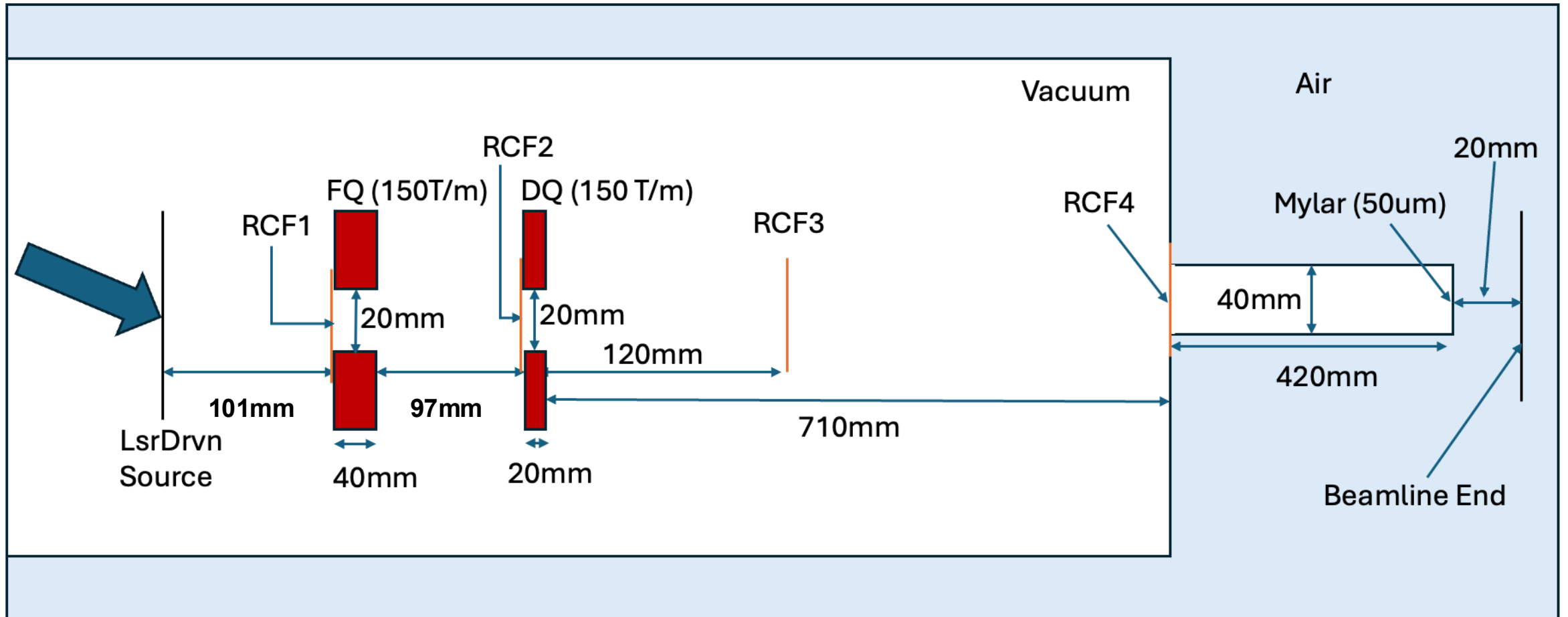


Setup 4: Gold foil inside tube

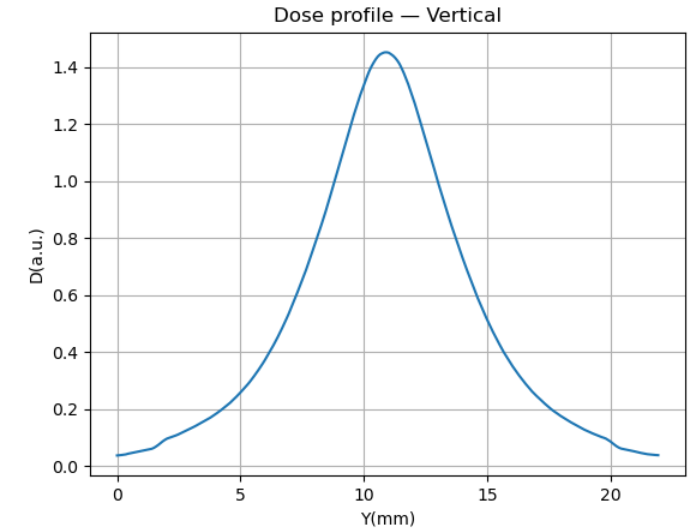
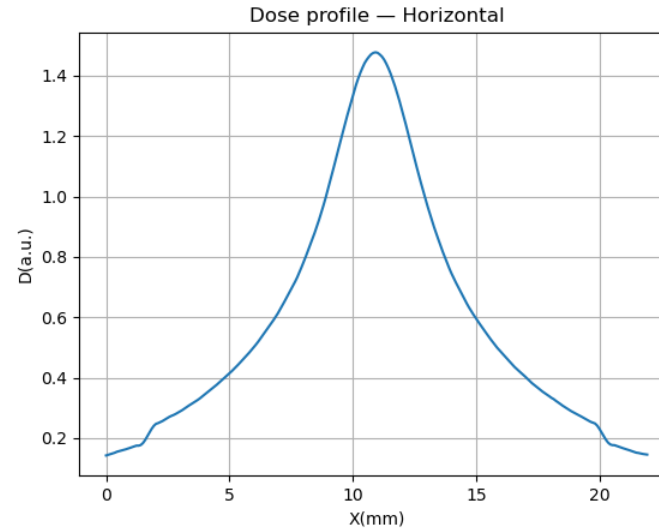
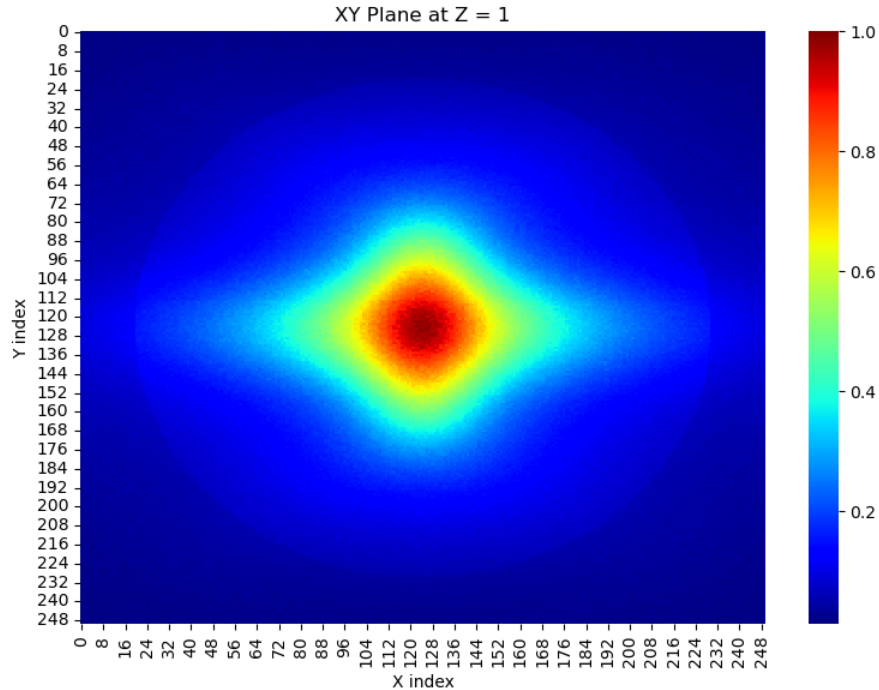


- Mean dose in dish: 0.13 Gy
- Max dose in dish: 0.17 Gy
- Min dose in dish: 0.08 Gy
- Standard deviation in dish: 0.02 Gy
- Uniformity (CV) in dish: 16.0%
- Global transmission efficiency: 1.87%

Setup 5: Max transmission without gold foil



Setup 5: Max transmission without gold foil



- Mean dose in dish: 0.16 Gy
- Max dose in dish: 0.82 Gy
- Min dose in dish (non-zero): 0.02 Gy
- Standard deviation in dish: 0.15 Gy
- Uniformity (CV) in dish: 92.6%

Overview

- Need to simulate the beamline without gold in the same conditions to have a comparison baseline.
- Need to simulate with more particles the two positions outside the tube.
- Will simulate the gold foil in max. transmission position
- If we know the dose per pulse, we can estimate it for the different gold foil positions and choose.