Configuration for Ee = 16 MeV w/o quadrupol magnets Q8, Q9, and Q10.

Radiator placement:
Distance from flange STXY5 (being pointed by an arrow in figure below) to the upstream side of the wall 240 cm;
Radiator placed 31 cm downstream the flange STXY5;
We want to see +/-31 cm around the radiator placement;
Kicking beam left and right;
Targer dimension: cylinder with diameter 2 cm and hight 15 cm;

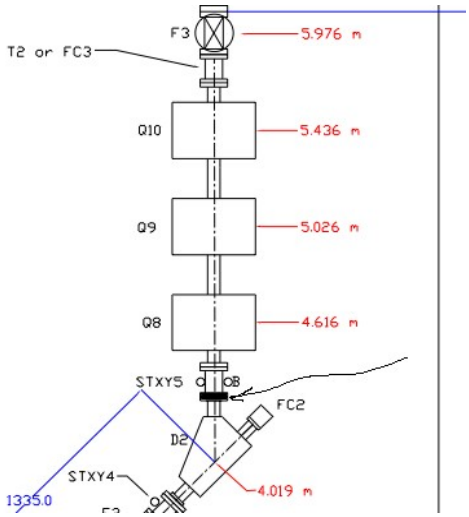


Fig. a. Electrons move from the bottom of the figure to the top.

Case A

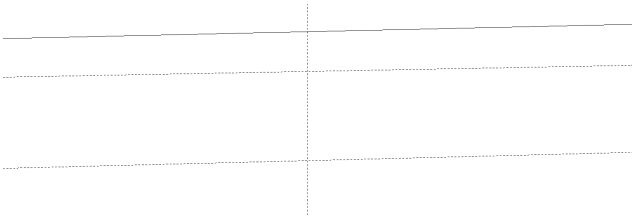
Collimators geometry (the target placed at 200 cm away from downstream side of the wall in the experimental cell):
(x,y) = (0,0) position of the center of the undeflected electron beam in the plane perpendicular to the propagation of the beam ;
Calculated upstream collimator center placement (x,y,z) = (0,+4.72 cm, 209 cm); z is measured from the radiator position;

There is descrepancy 0.062 cm between the calculated position of the upstream collimator center and position of the center determined by geometrical pass nedeed to see +/-31 cm around the converter placement. So the actual position of the center of upstream collimator is at (x,y,z) = (0,+4.66 cm, 209 cm)

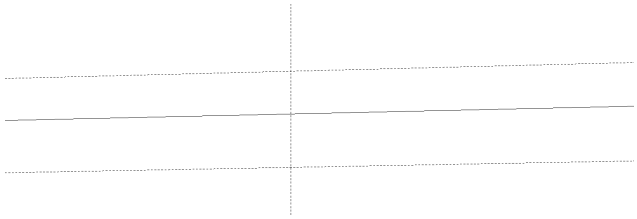
Upstream collimator diameter (to see +/-31 cm around the converter placement) 0.064 cm

Downstream collimator center placement (x,y,z) = (0,+7.43 cm, 329 cm); z is measured from the radiator position;
Downstream collimator diameter (to see +/-31 cm around the converter placement) 0.71 cm

There is no descrepancy between the calculated position of the downstream collimator center and position of the center determined by geometrical pass nedeed to see +/-31 cm around the converter placement.



Upstream collimator, diameter 0.064 cm



Downstream collimator, diameter 0.71 cm

Electron beam spot should be moved 4.72 cm left/right to get the polarization vector at +/-45 ^{0}.

Case B

<u>Collimators geometry</u> (the target placed at 50 cm away from downstream side of the wall in the experimental cell):

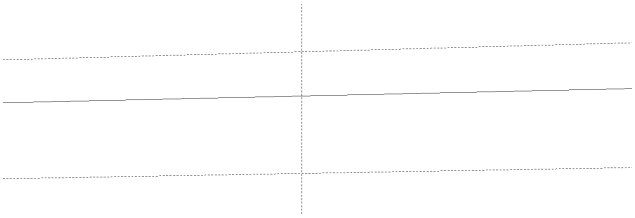
Calculated upstream collimator center placement (x,y,z) = (0,+4.72 cm, 209 cm); z is measured from the radiator position;

There is still descrepancy of about 0.062 cm between the calculated position of the upstream collimator center and position of the center determined by geometrical pass nedeed to see +/-31 cm around the converter placement. So the actual position of the center of upstream collimator is at (x,y,z) = (0,+4.66 cm, 209 cm), however, now it is not important because the diameter of the upstream collimator hole is much larger and both centers are inside the collimator hole.

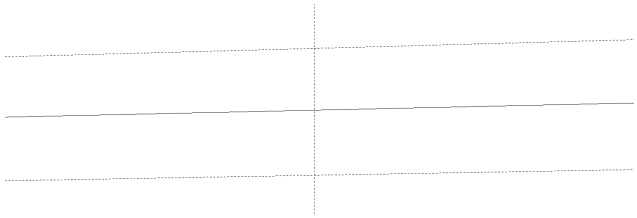
Upstream collimator diameter (to see +/-31 cm around the converter placement) 0.466 cm.

Downstream collimator center placement (x,y,z) = (0,+7.43 cm, 329 cm); z is measured from the radiator position;
Downstream collimator diameter (to see +/-31 cm around the converter placement) 1.55 cm.

There is no descrepancy between the calculated position of the downstream collimator center and position of the center determined by geometrical pass nedeed to see +/-31 cm around the converter placement.



Upstream collimator, diameter 0.466 cm



Downstream collimator, diameter 1.55 cm

Electron beam spot should be moved 4.72 cm left/right to get the polarization vector at +/-45 ^{0}.

As a conclusion Case B is more preferrable than the Case A.