Simulation for KURAMA Shift in E42 (3)

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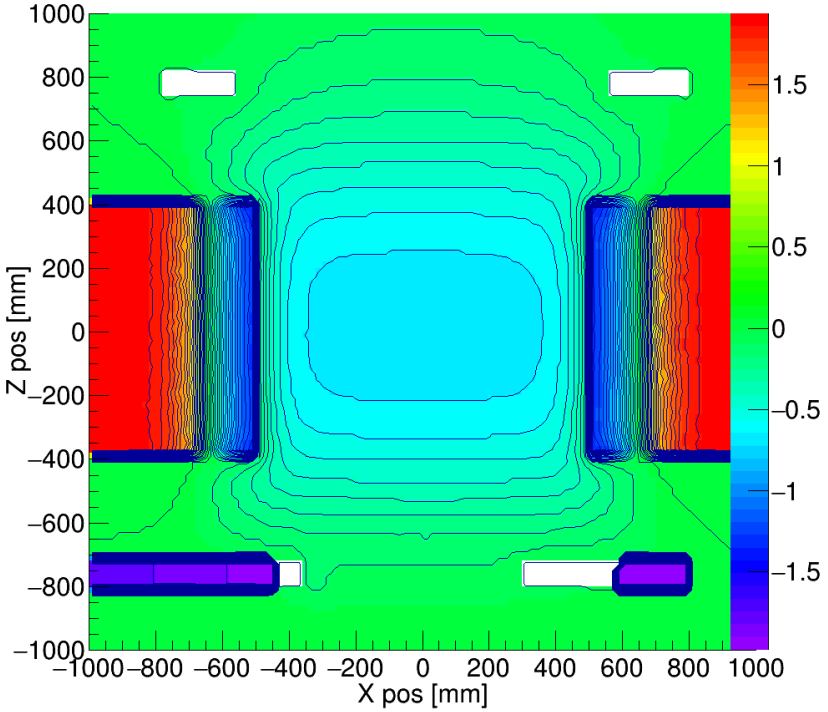
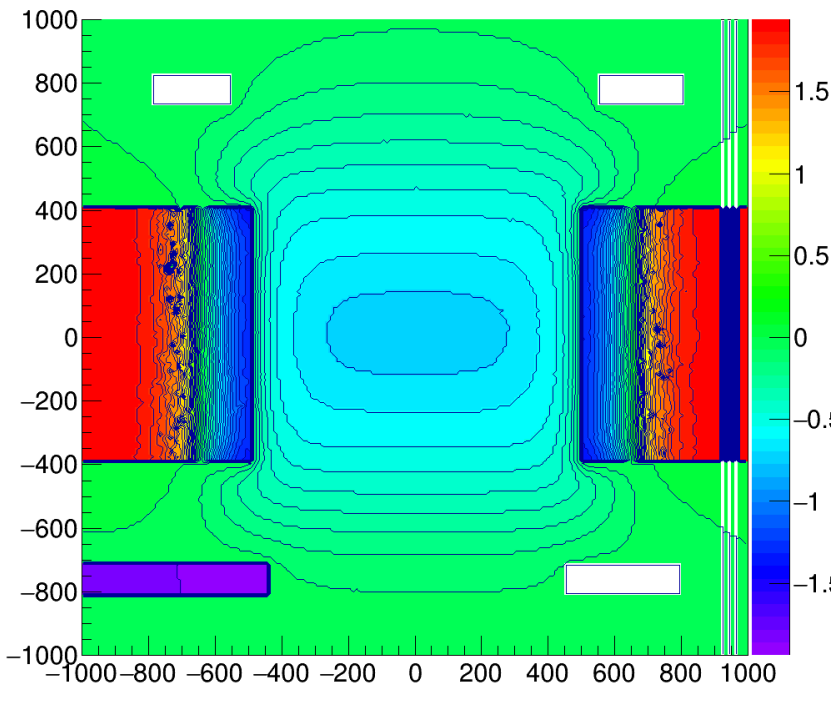
KURAMA Field Map

20160608 version



20180823 version



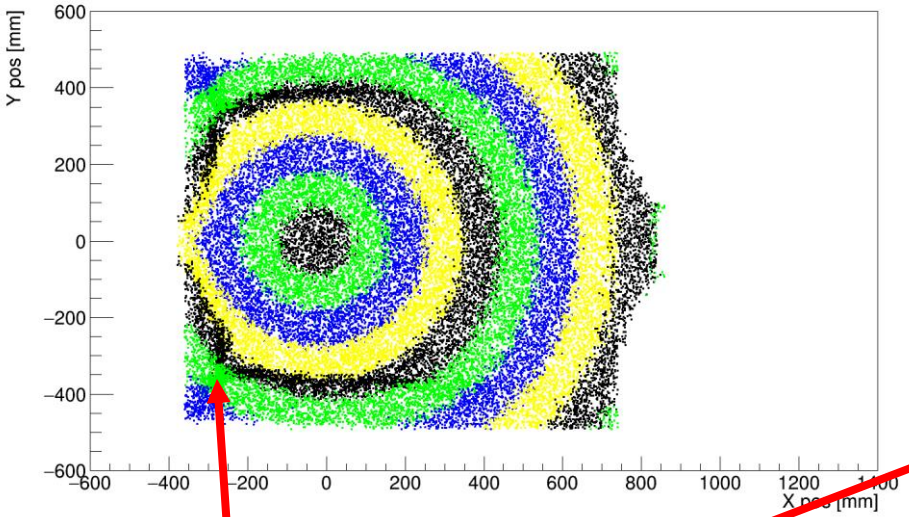
Upstream end-guard window size is widened.

y-direction: +- 150 mm → +- 200 mm

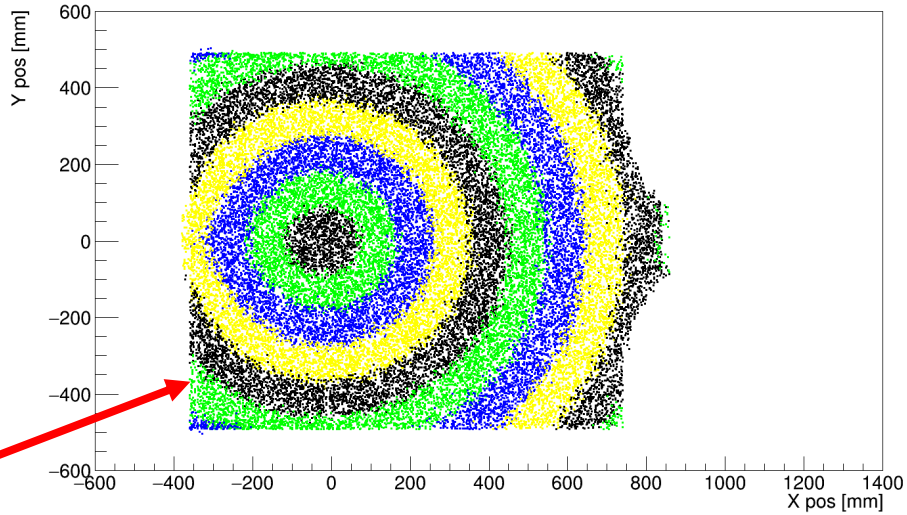
x-direction: +- 300 mm → +- 400 mm

DC2 hit pattern

20160608 version



20180823 version

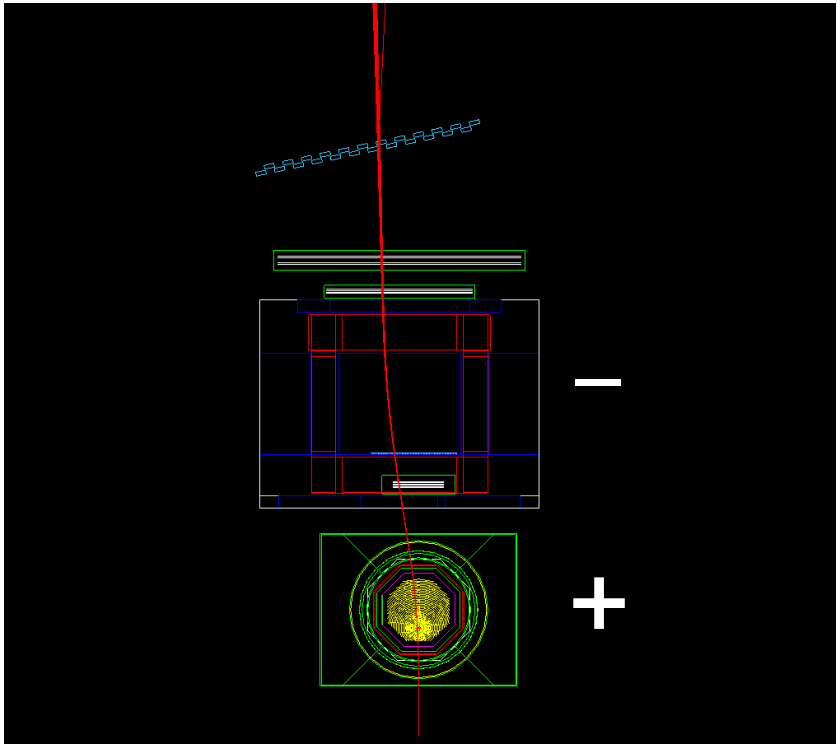


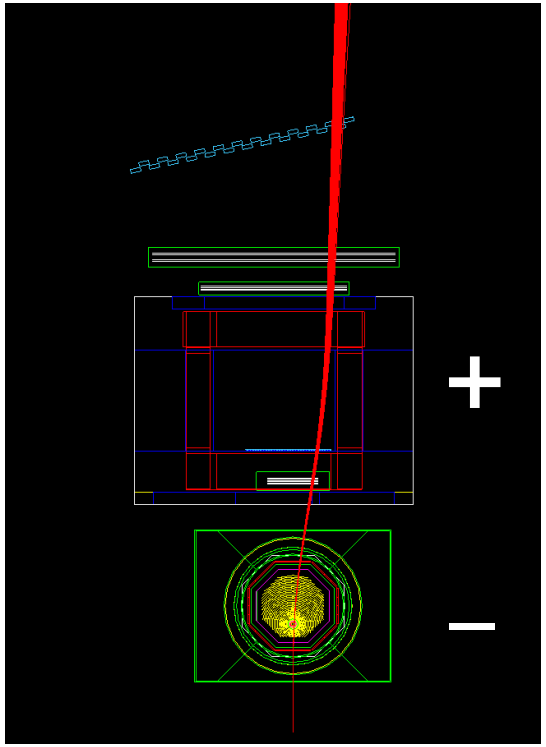
The strange hit pattern disappeared.

Beam Through

Beam: 1.8 GeV/c in z-direction, (0, 0, -1000 m) from center of SC.

Original directions of magnetic fields: both -.



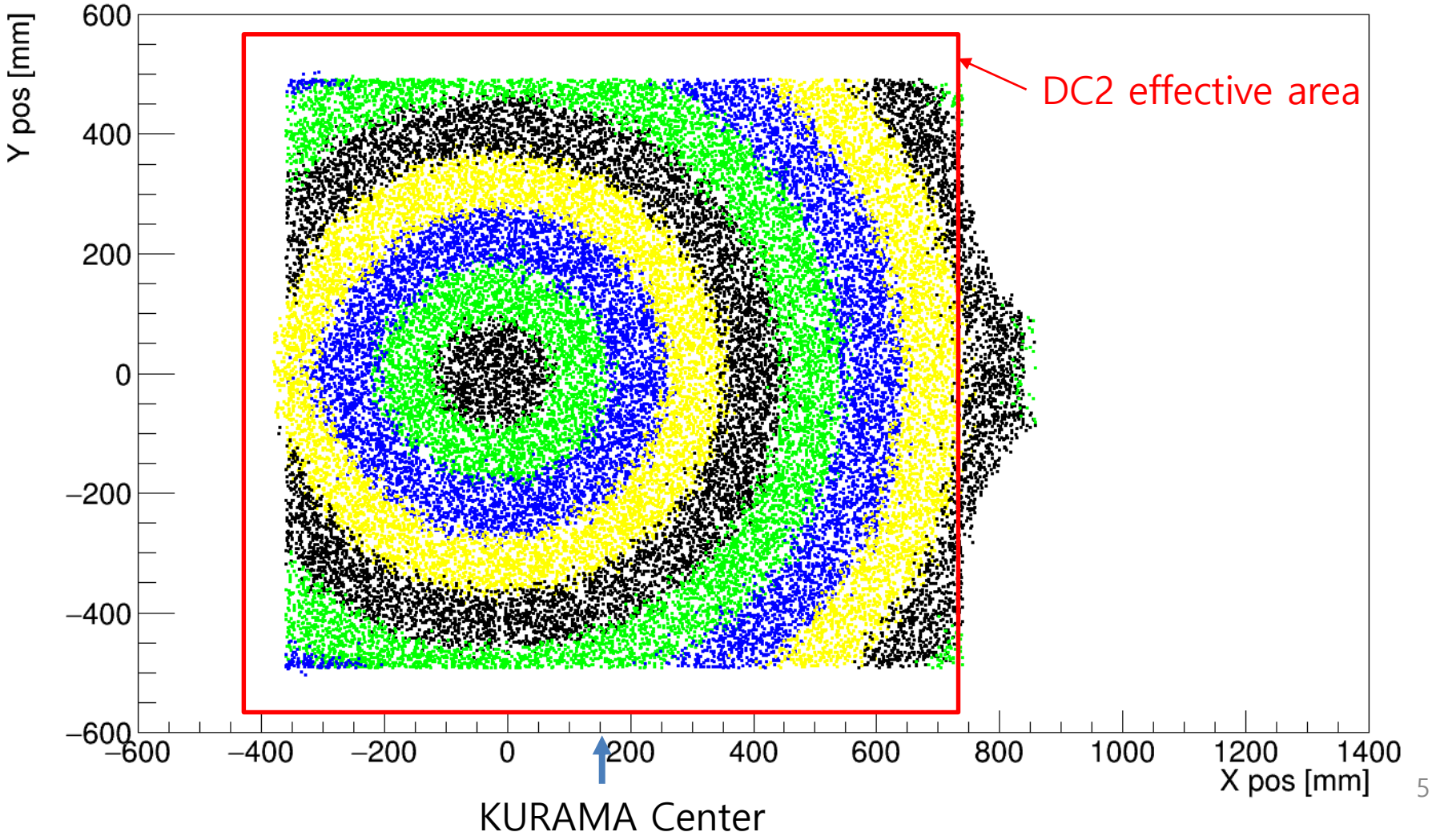


→ In both cases, the beam passes through the KURAMA.

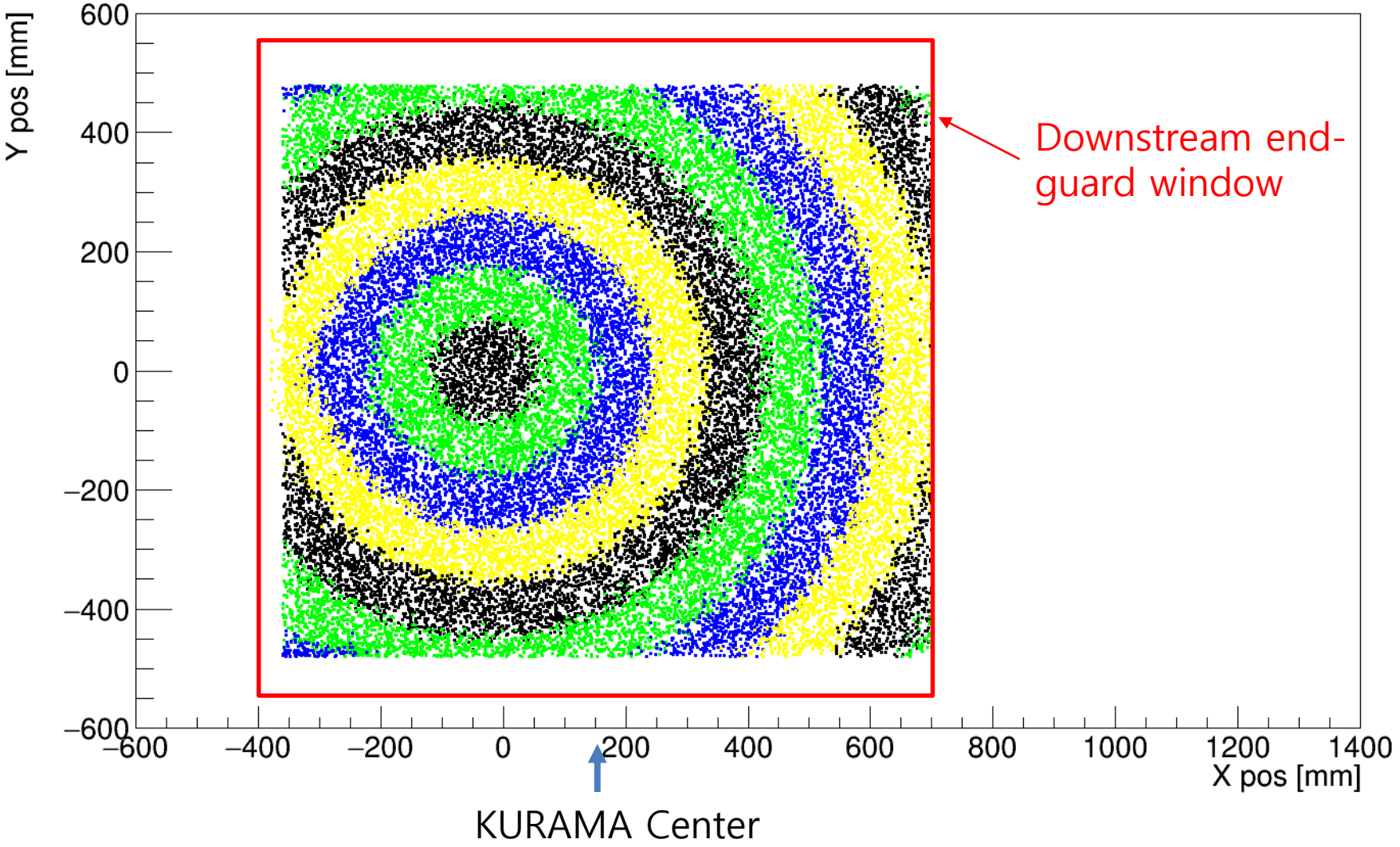
SC Field Reversed (+, -)

DC2 hit pattern w/o end-guards and any detectors

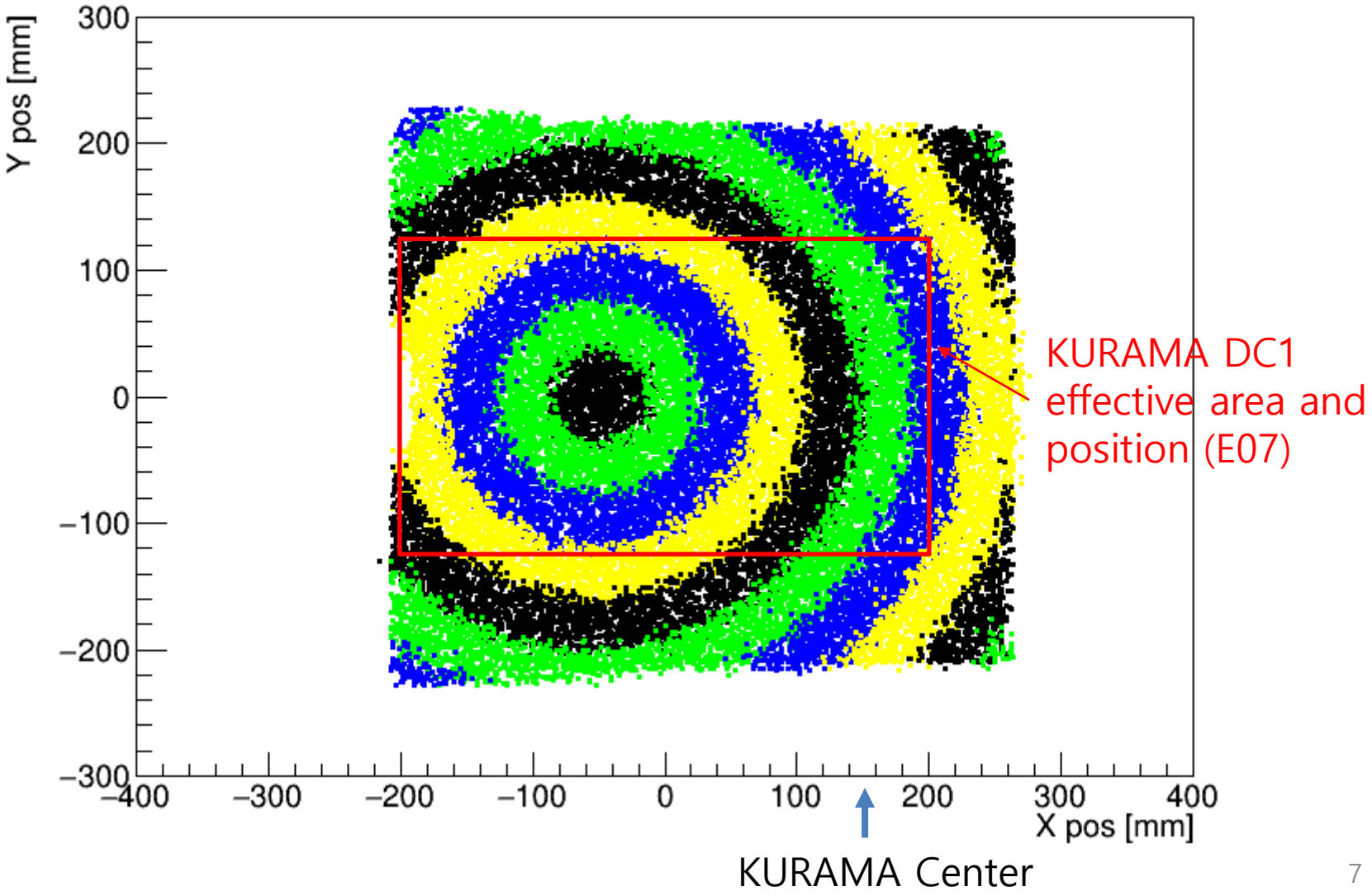
→ Only KURAMA SC magnets sizes affect.



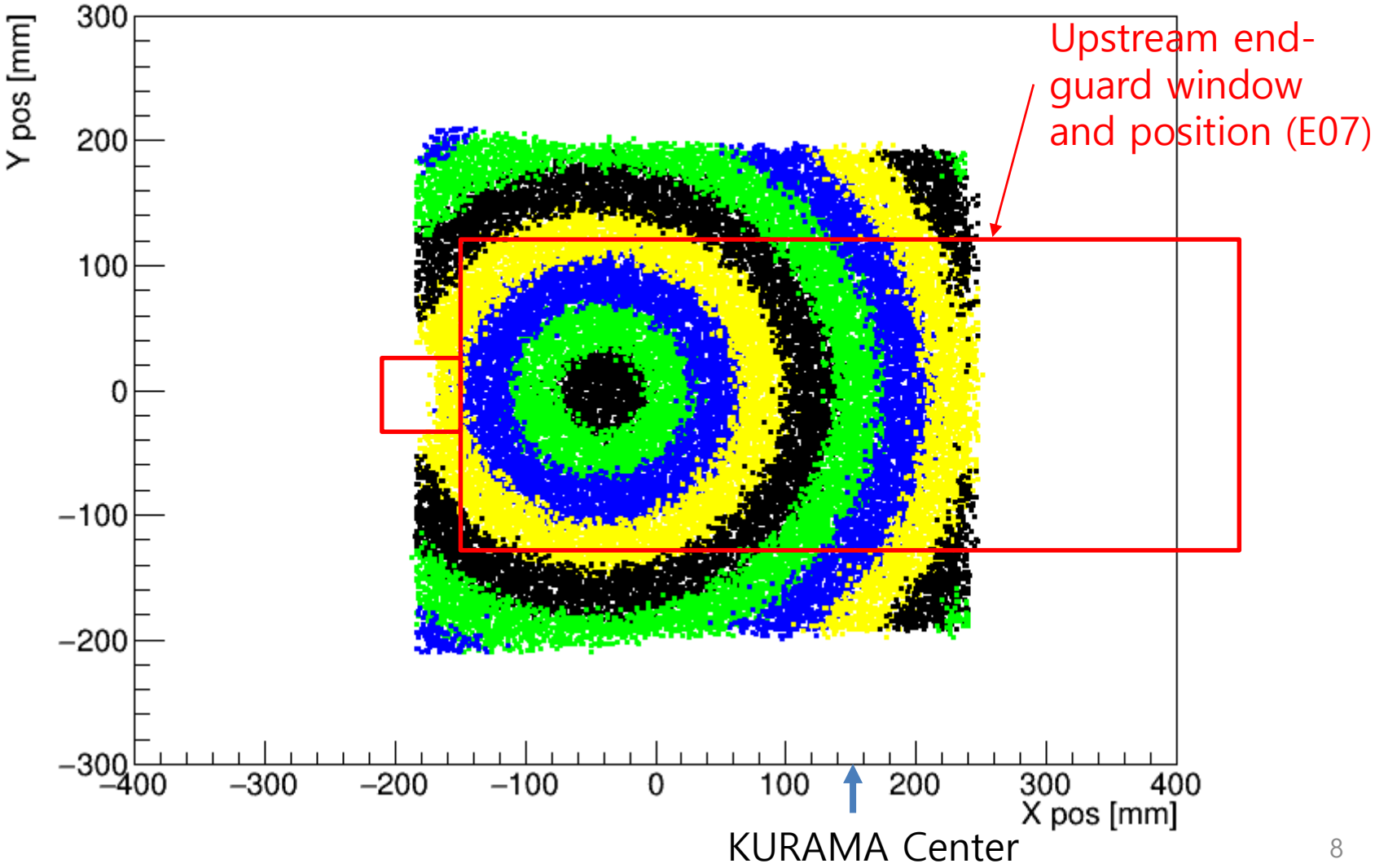
Hit pattern at the downstream end-guard w/ the DC2 cut (page 5)



DC1 Hit pattern w/ the DC2 cut (page 5)

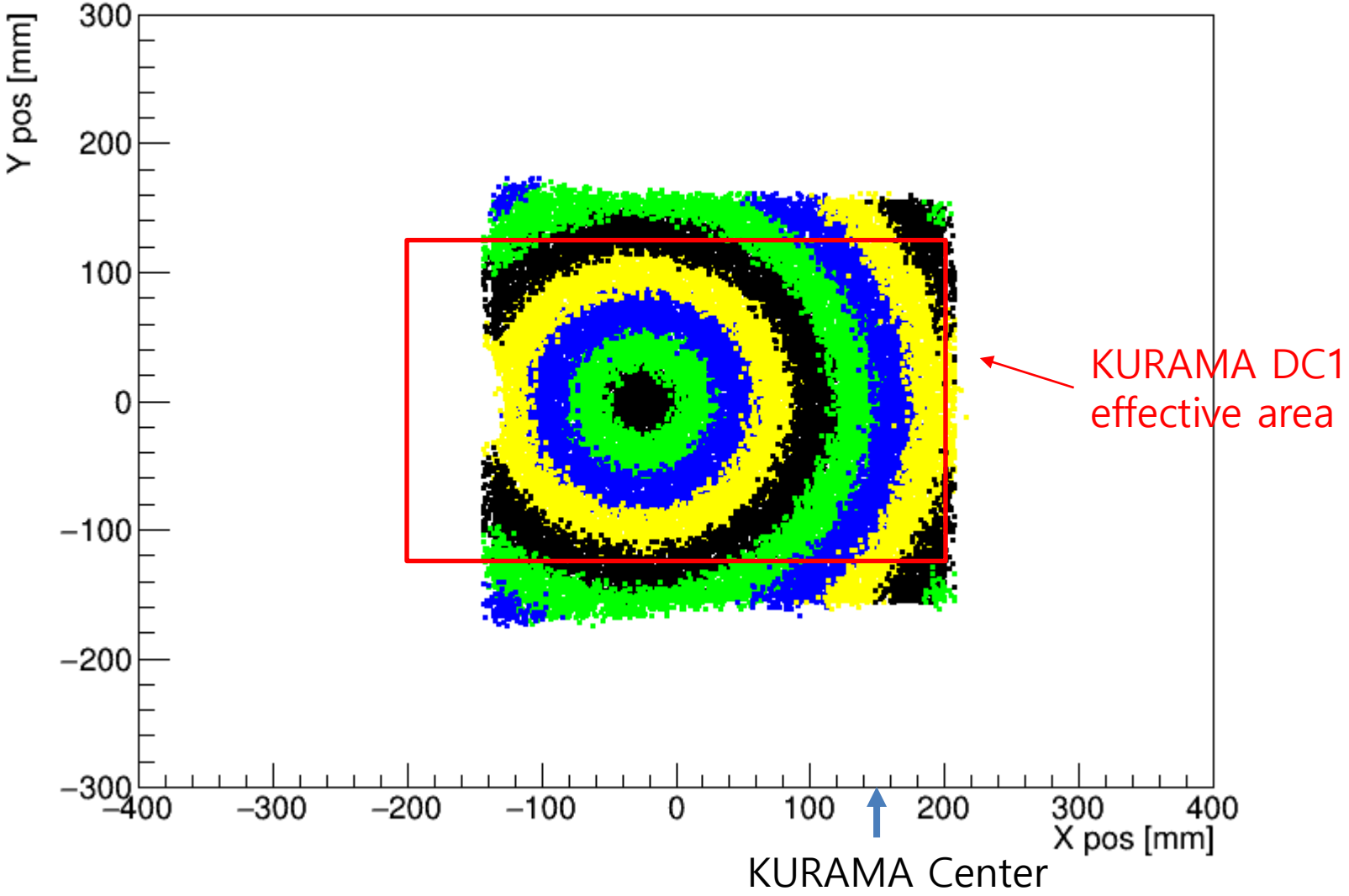


Hit pattern at the upstream end-guard
w/ the DC2 cut (page 5)

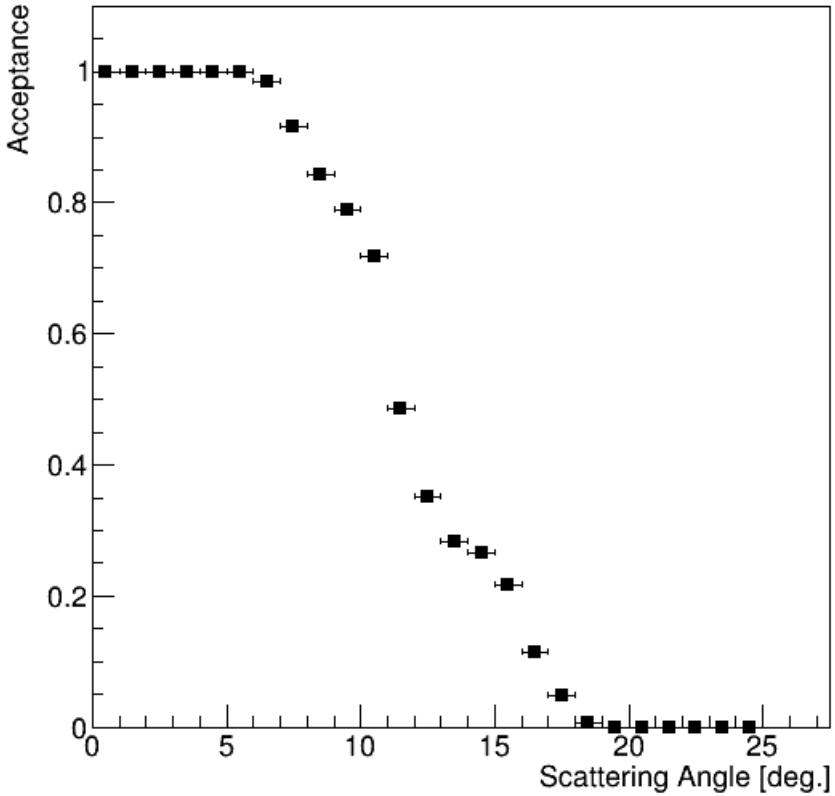


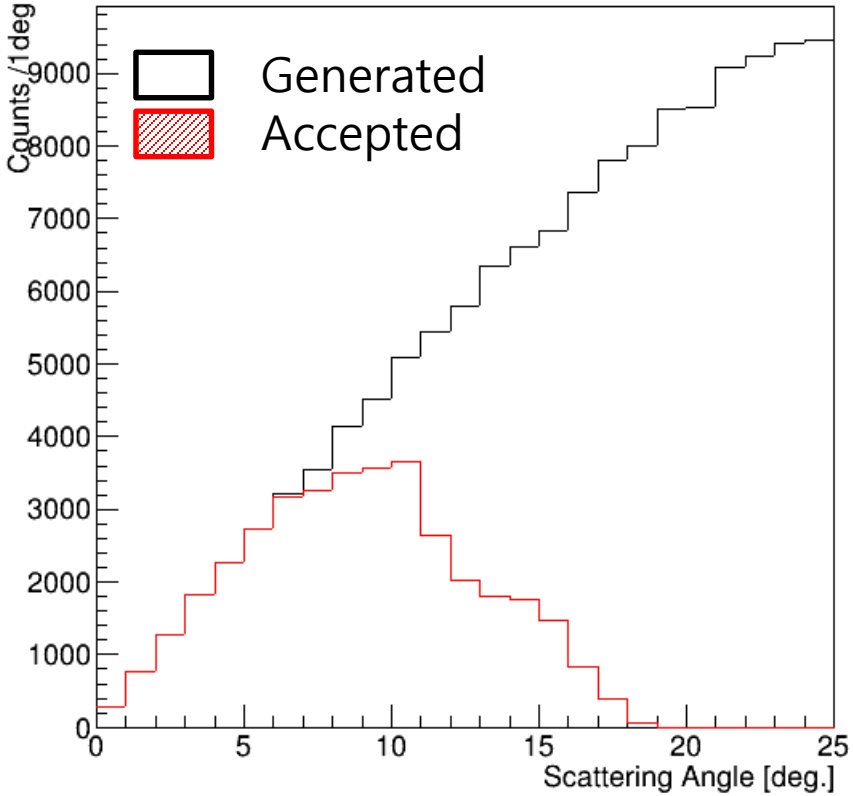
Hit pattern between SC and KURAMA (700 mm from the SC center)

w/ the DC2 cut (page 5)



Acceptance: Request only DC2 hit



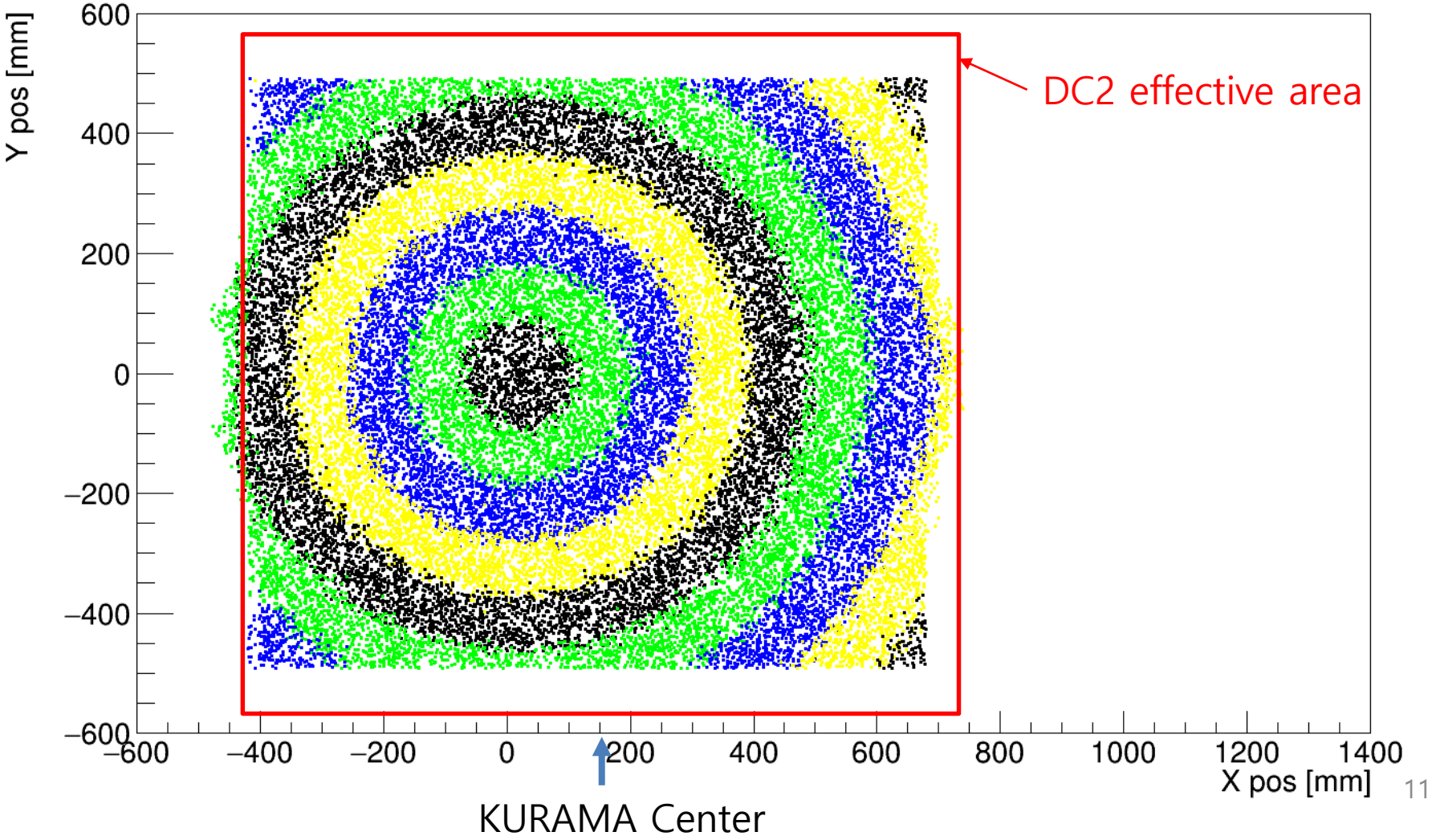


→ 0.147 sr.

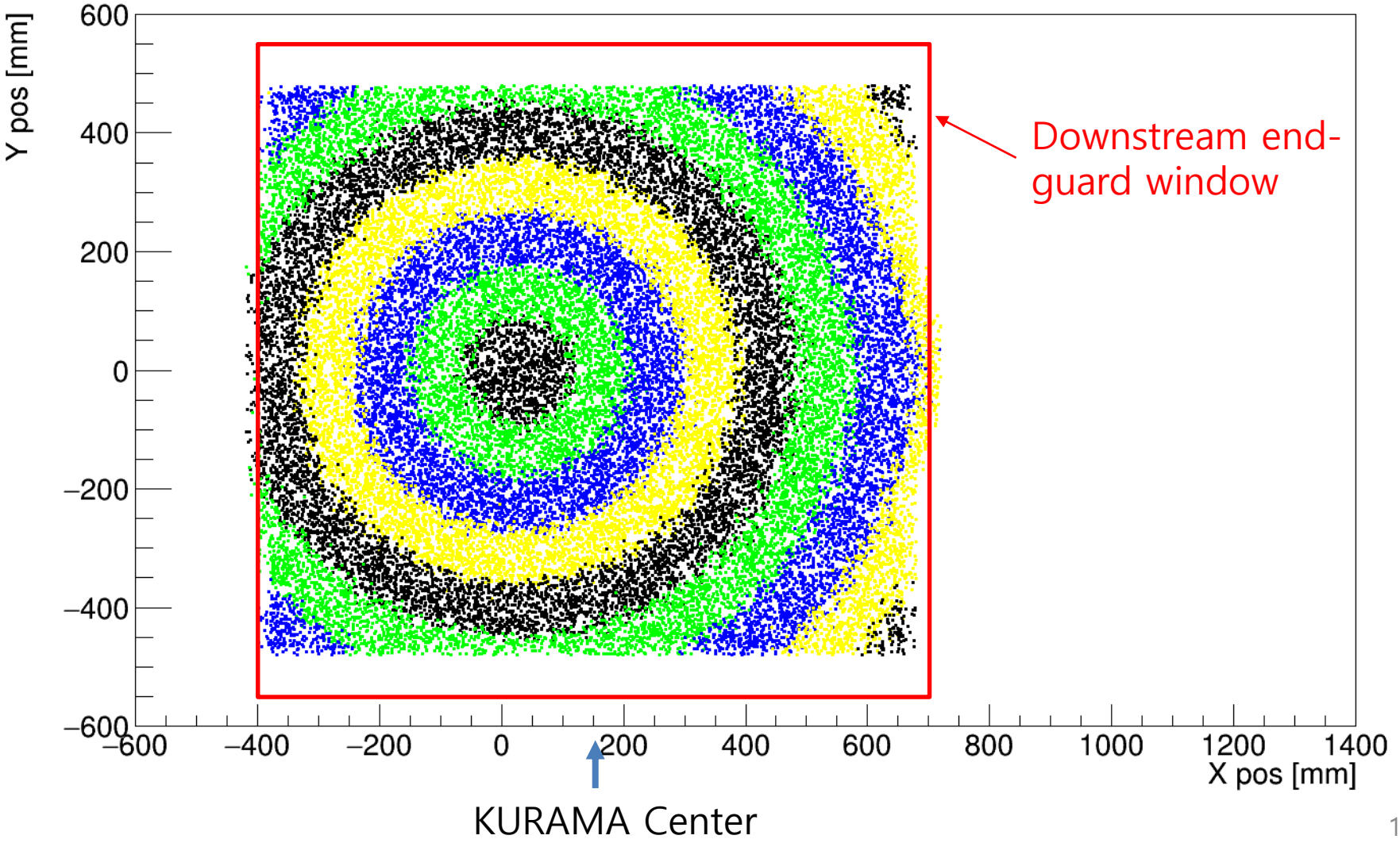
SC Field Reversed (-, +)

DC2 hit pattern w/o end-guards and any detectors

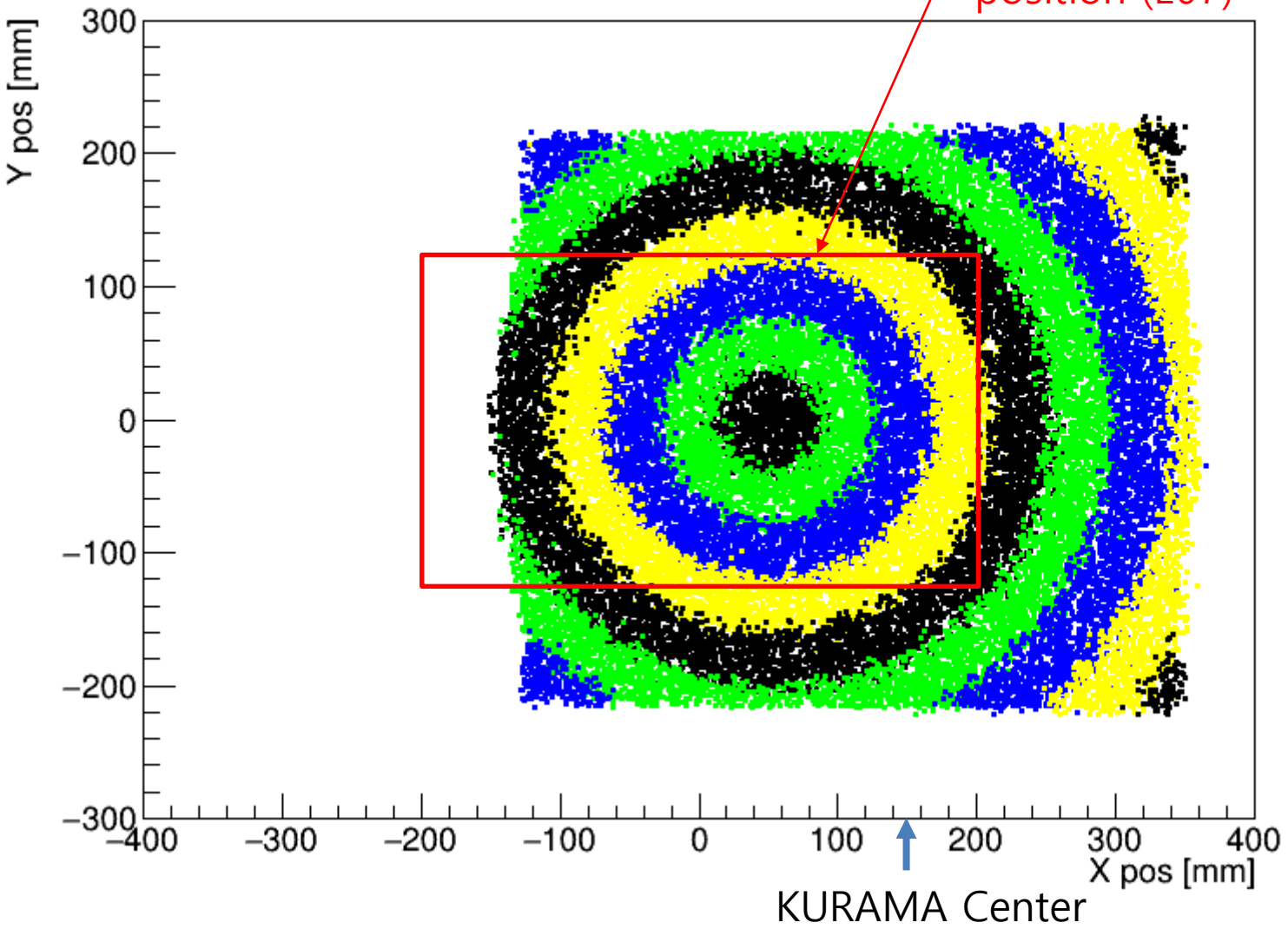
→ Only KURAMA SC magnets sizes affect.



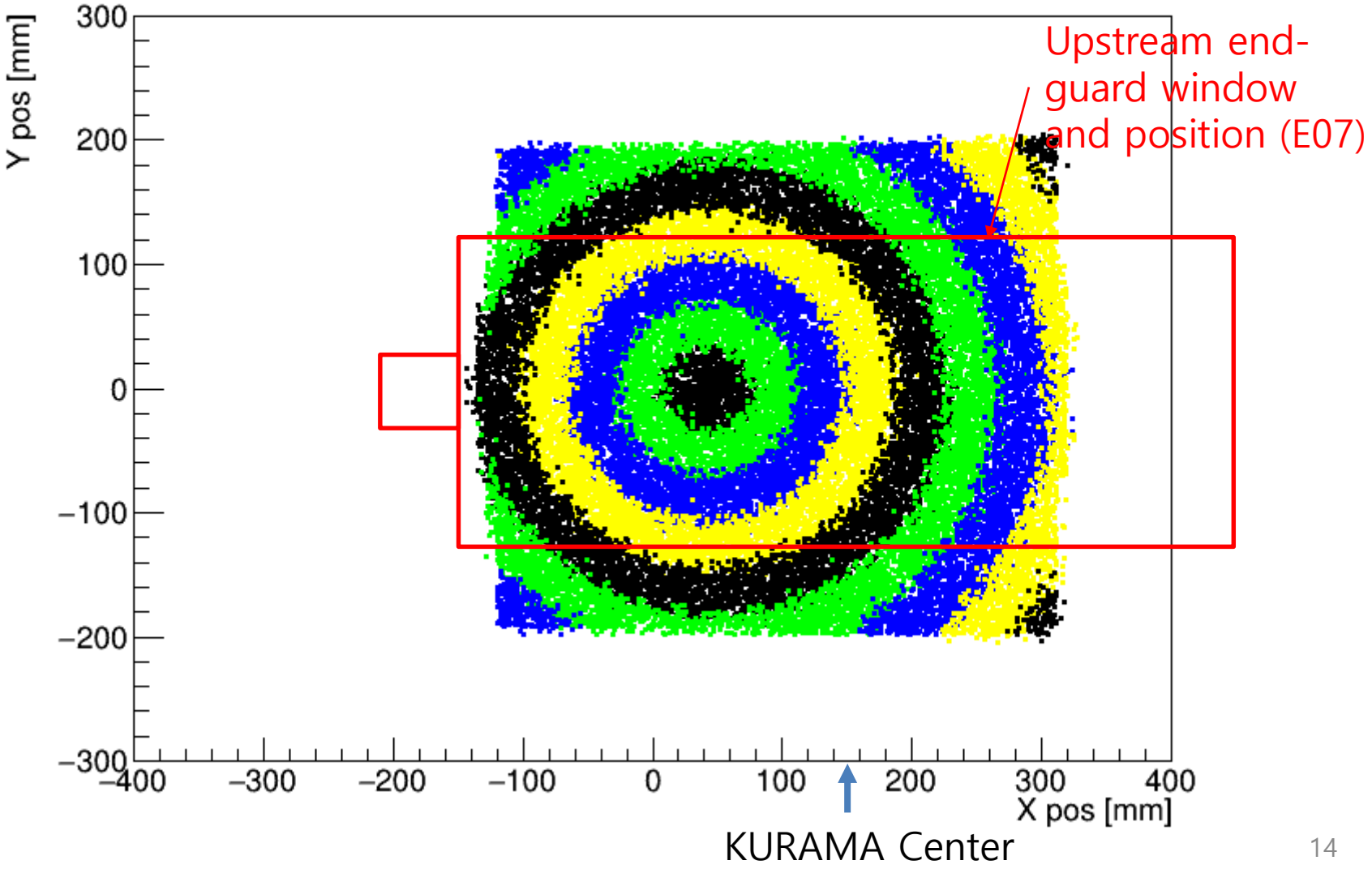
Hit pattern at the downstream end-guard w/ the DC2 cut (page 5)



DC1 Hit pattern w/ the DC2 cut (page 5)

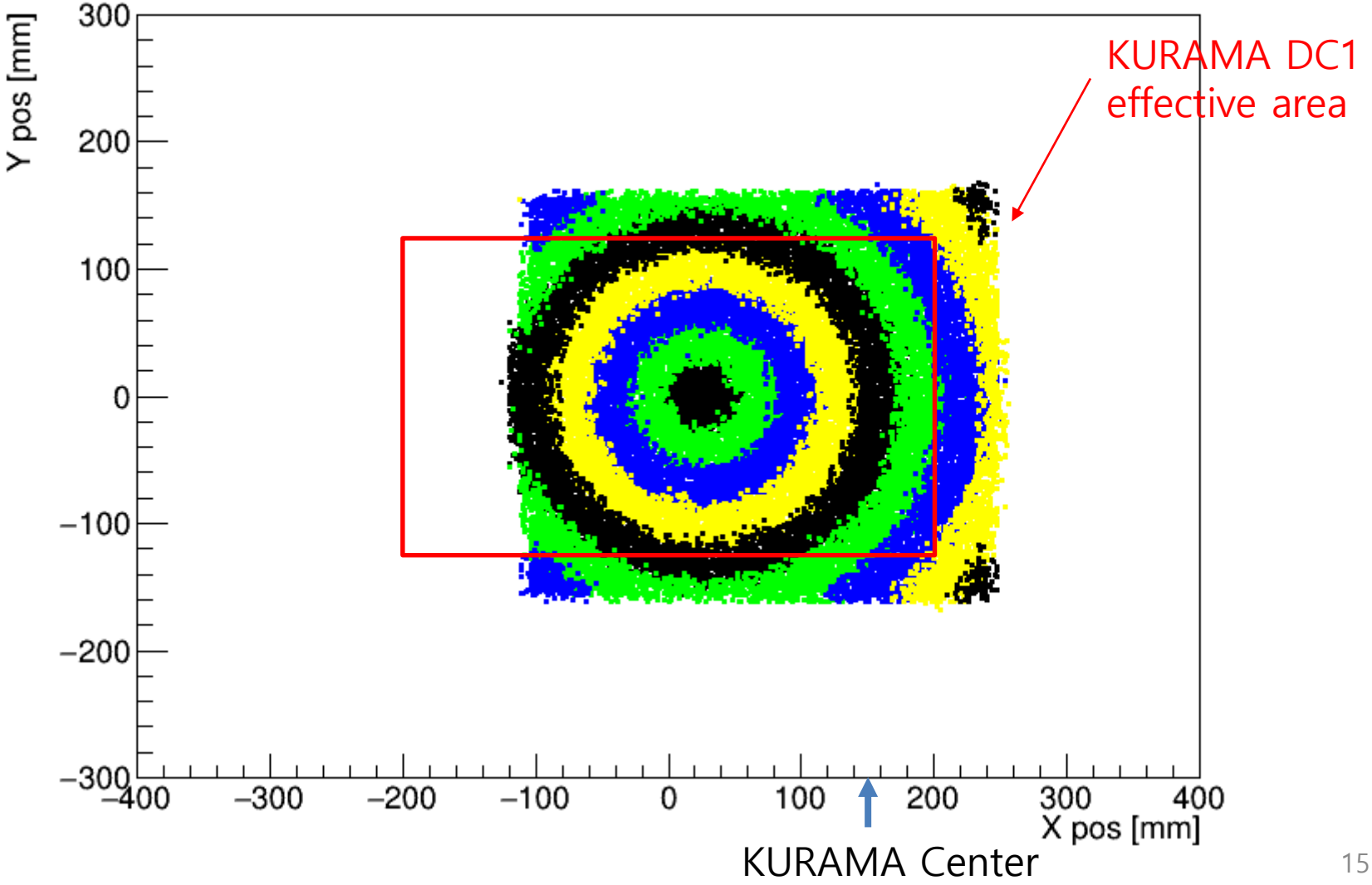


Hit pattern at the upstream end-guard
w/ the DC2 cut (page 5)

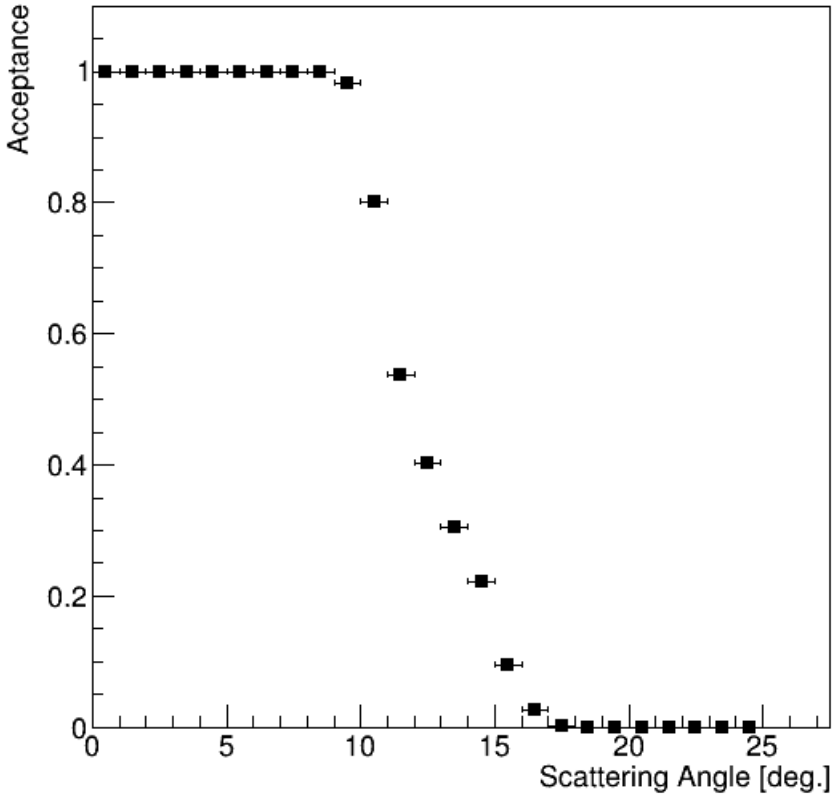


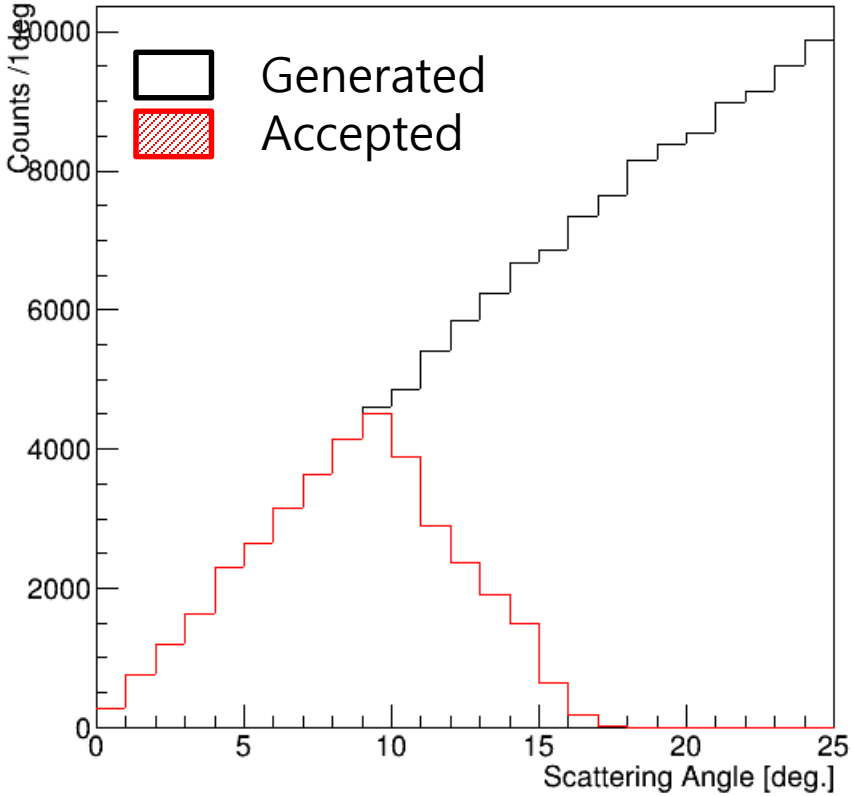
Hit pattern between SC and KURAMA (700 mm from the SC center)

w/ the DC2 cut (page 5)



Acceptance: Request only DC2 hit





→ 0.150 sr.

Required Detectors' Sizes

Distance between SC and KURAMA: 200 mm

Name	Distance from Target [mm]	Window or Effective Sizes [mm]	Required Size 1 [mm]	Required Size 2 [mm]
SC Magnet Window	743	± 150	± 167	-
Upstream End-Guard	1043	± 150	± 235	± 211
DC1	1127.5	± 126	± 254	± 228
Downstream End-Guard	2440	± 550	-	± 493
DC2	2505	± 576	± 565	± 506
Between SC and KURAMA	843	± 126 (DC1)	± 190	± 170

Required size 1: Based on size of downstream end-guard

Required size 2: Based on size of SC magnet window