

SANE: Beam Line Status

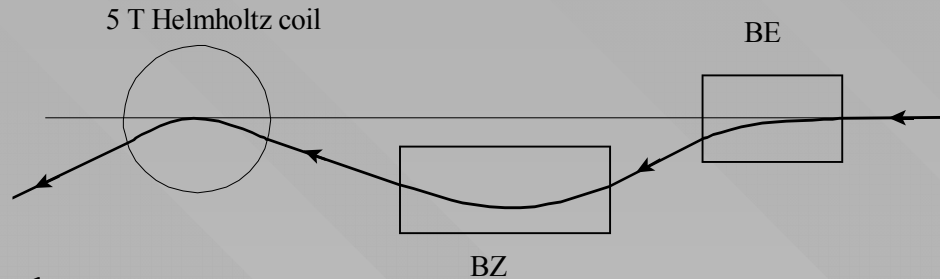
- Upstream beam line
 - Chicane
 - SEM
 - BPM's
 - BCM's
 - Rasters
 - Radiator
- Downstream beam line
 - Helium bag
 - Extension piece
 - Beamdump



06/25/07



Upstream Beam Line: Chicane



- BE dipole magnet
 - Maximum current: 300 A
 - Effective Length: ~ 1 m
 - Gap: 2.54 cm
- BZ
 - Maximum current: 500 A
 - Effective Length: ~ 2 m
 - Gap: 3.81 cm

Power Supplies:

● 40V/320A PS

● 40V/500A PS



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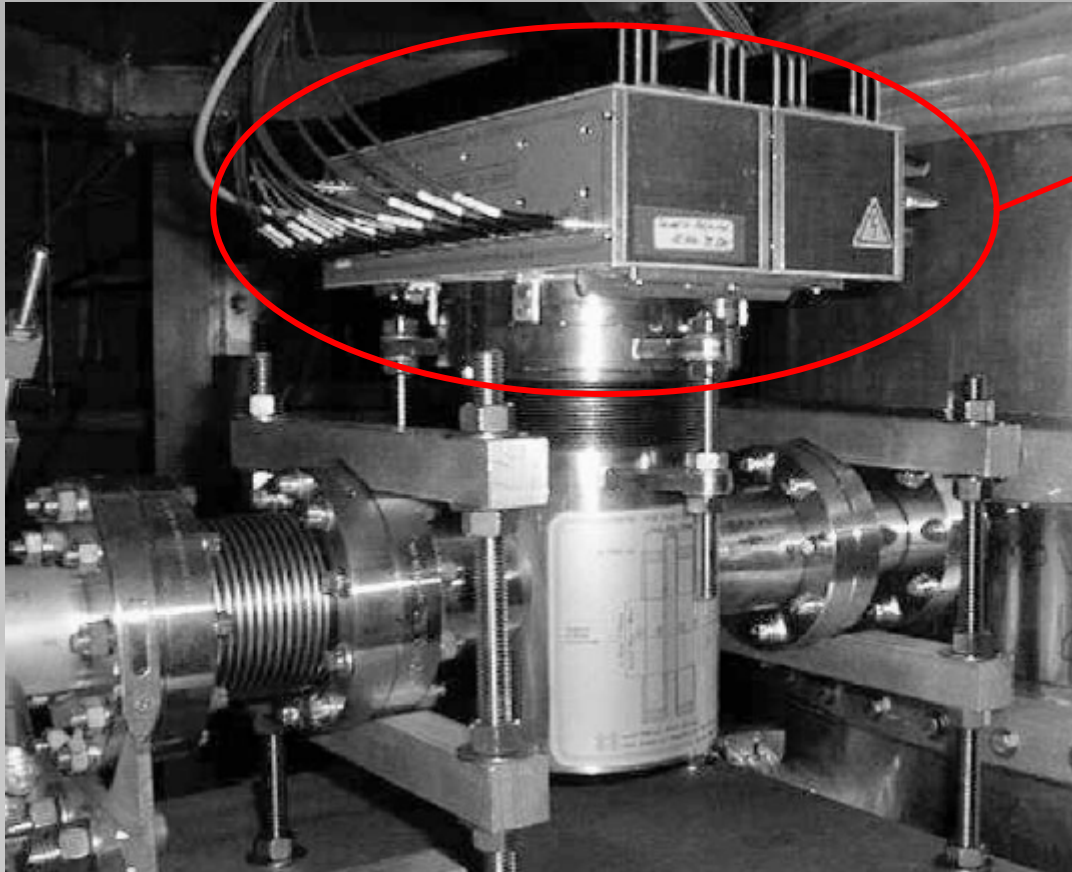


Mississippi State University Department of
PHYSICS AND ASTRONOMY

Upstream Beam Line: Chicane

- Need to coordinate with Accelerator about magnet controls
- Beamline protection: BPM's ensure proper magnet setting.
- Collaboration calculates deflection angle and coordinates of beam for different orientations of target field axis.
- Accelerator optics calculates chicane fields and positions.
- Surveyors position.

SEM

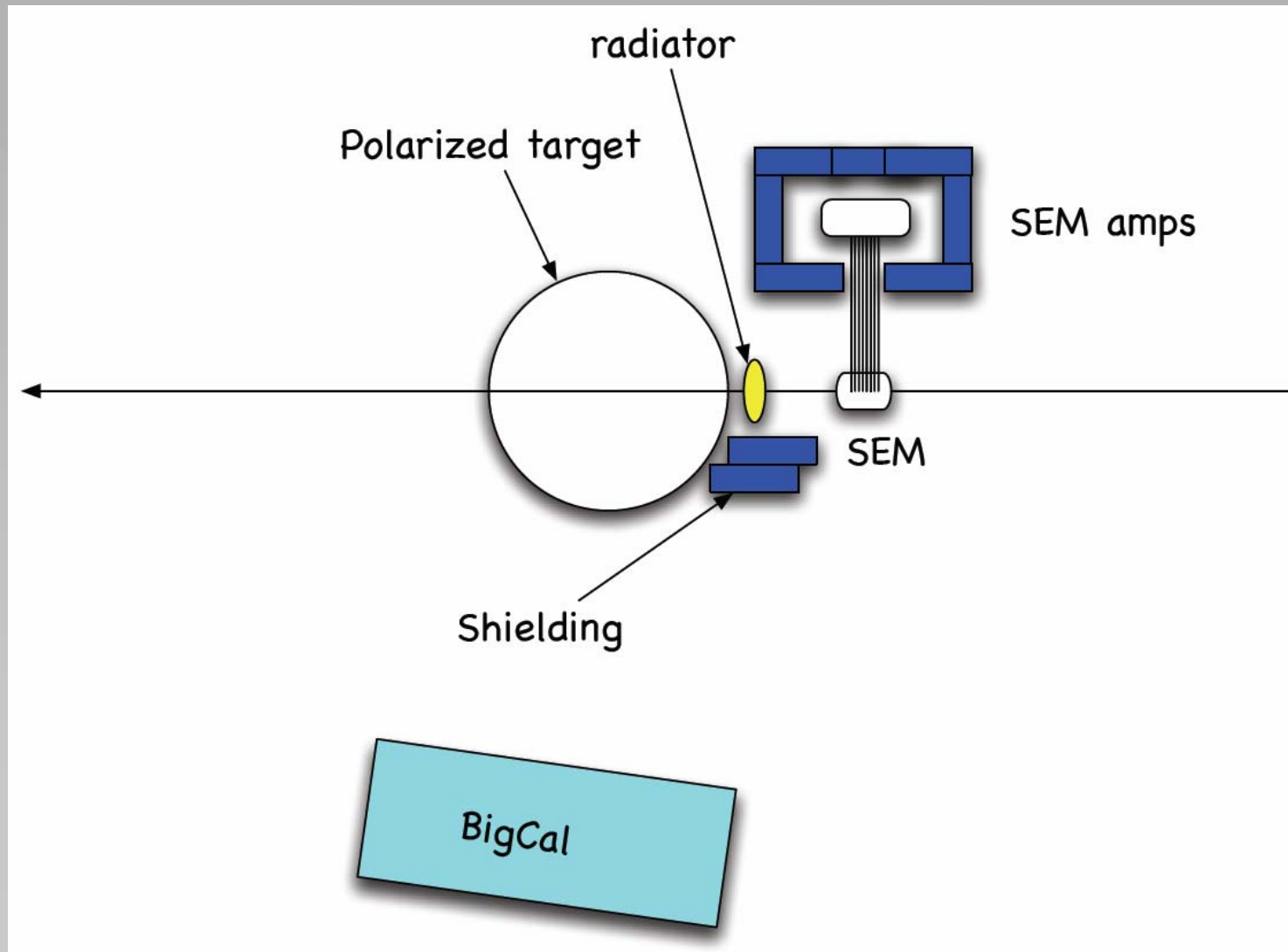


Electronics moved
away from beam line

SEM to run in event
mode with new
faster driver for slow
raster.

Stienacher, M. and Sick, I.,
NIM A 455 (2000) 759-768

SEM Electronics



BPM's

- Hall C beamline instrumented with “hand picked” BPM's for low current operation.
- Last girder used two BPM's with oversized cans to accommodate raster



Beam Current

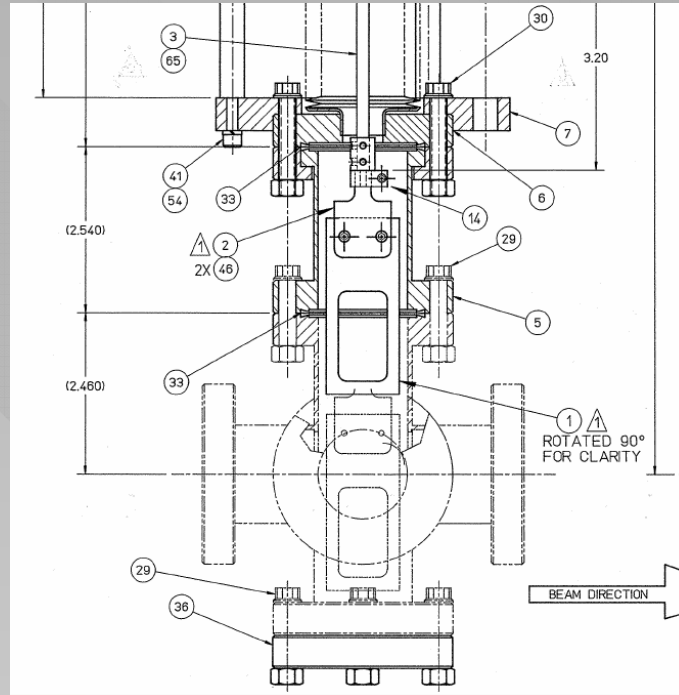
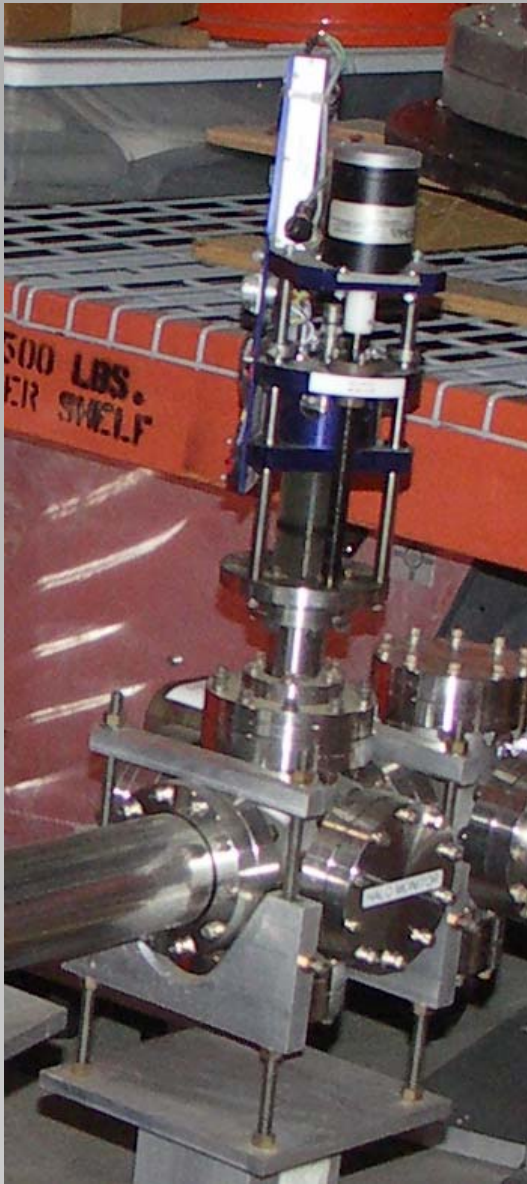
- Hall C BCM1 and BCM2
- SEM current restriction makes calibration difficult
 - Relative I^+ vs. I^- good
 - Absolute $\sim 5\%$

Rasters

- Fast Raster: 2 x 2 mm
- Slow Spiral Raster
 - Re-installed this summer
 - X and Y \sim 100 Hz
 - Amplitude modulation 30 Hz synchronized[†]
 - » See Chen Yan's progress report Jan. 2004 Hall C meeting
 - » Re-commissioning this summer

[†]Needed for SEM to run in event mode.

Radiator



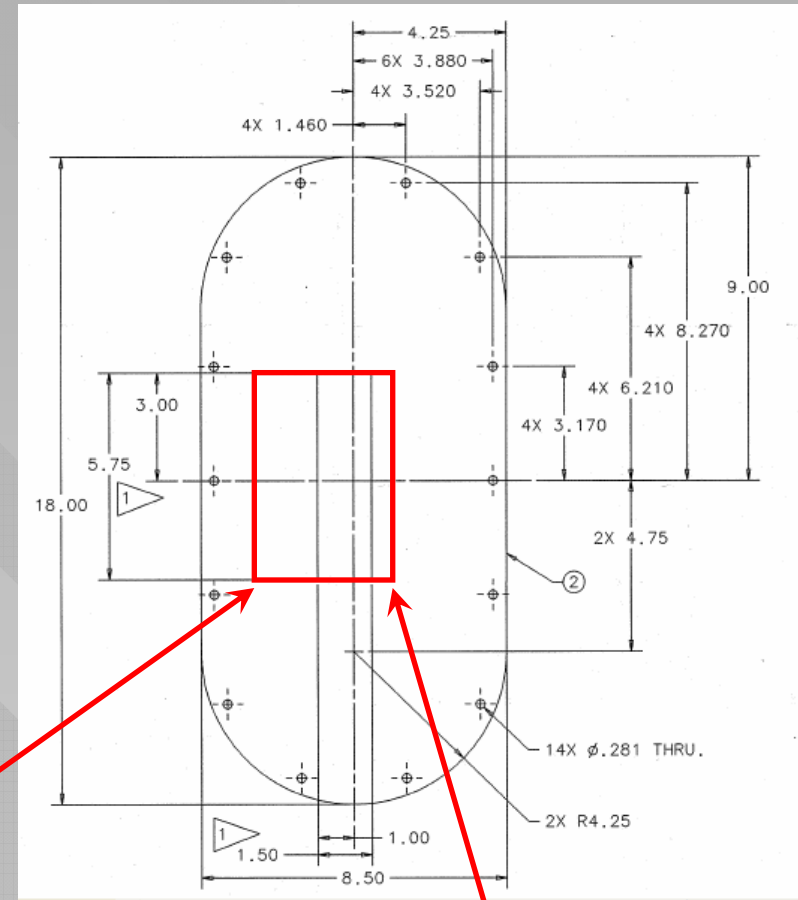
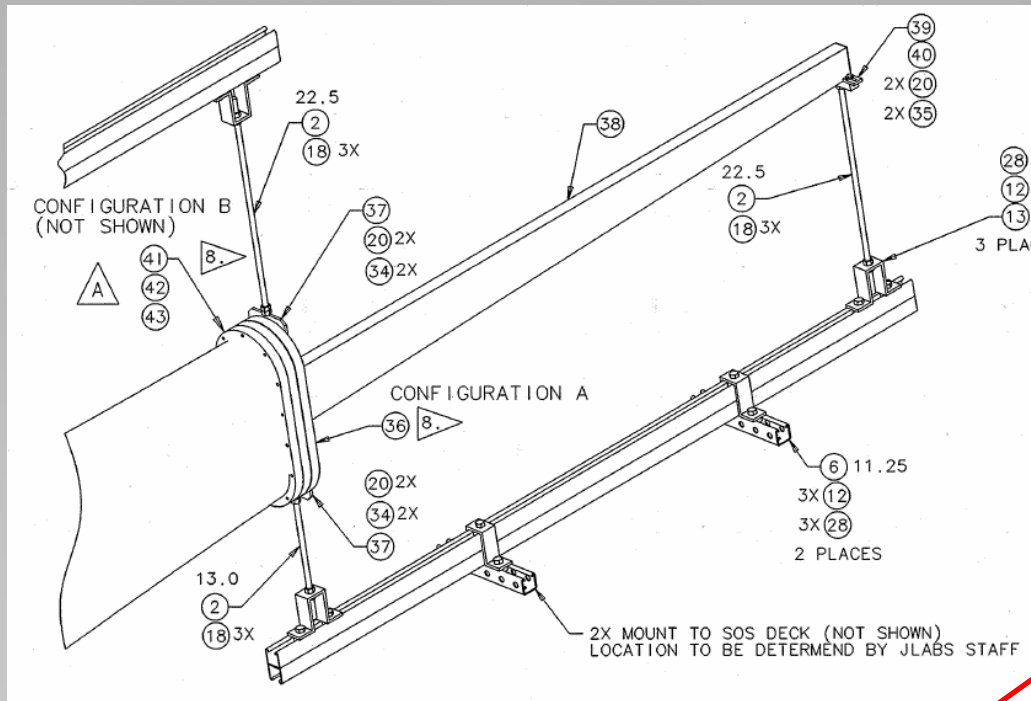
Modify the G0 halo monitor.

- Do not need water cooling
- 3 positions: No foil and two foils with different thickness



Downstream Beam Line: Extension Piece

Modify extension piece:



Free to make large

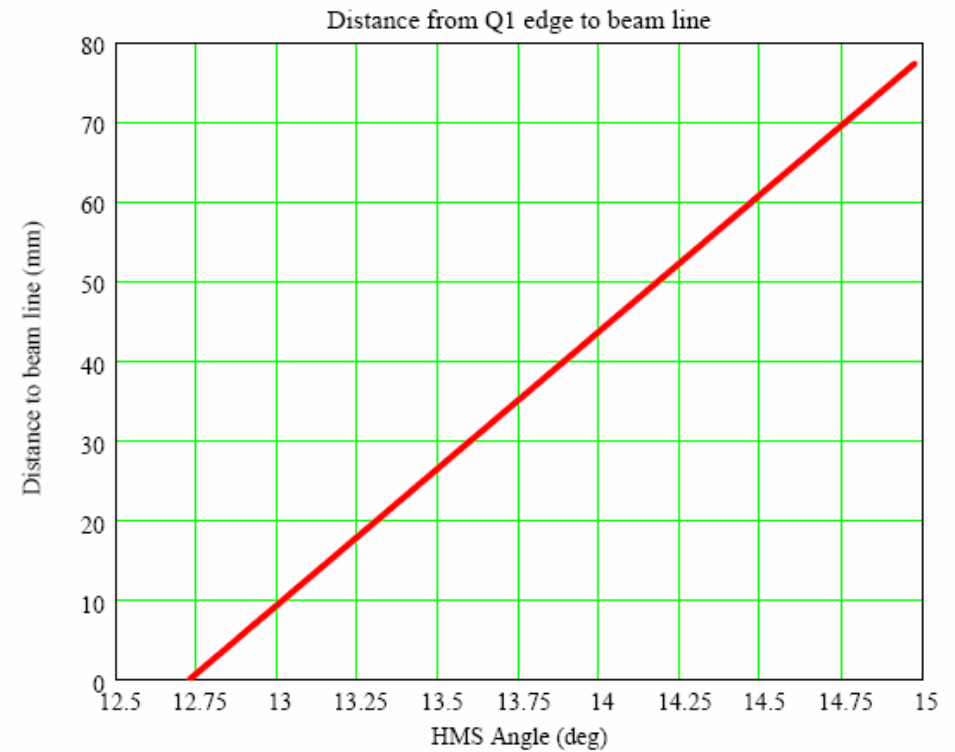
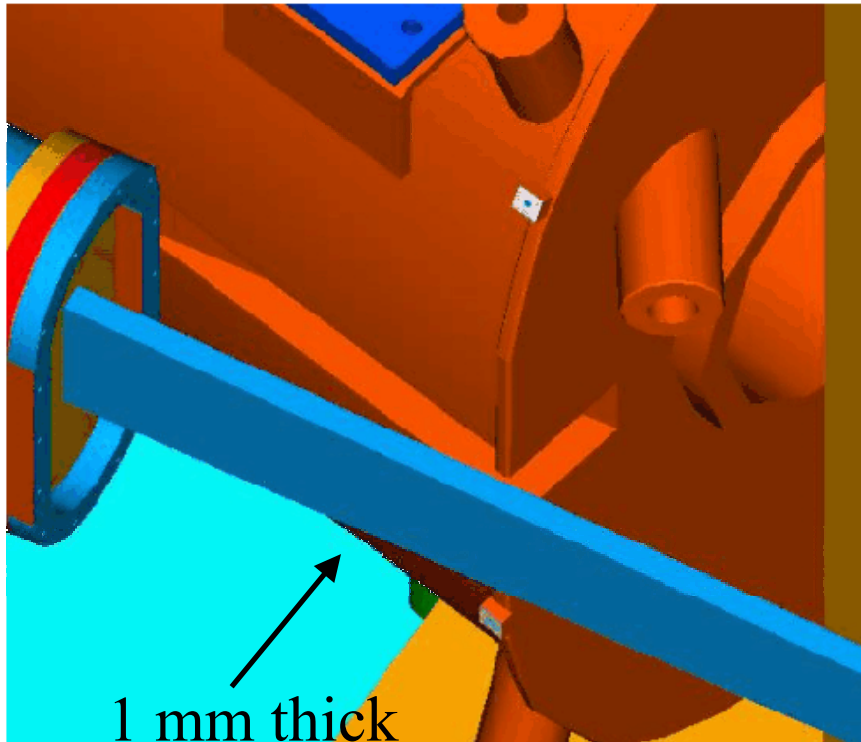
Affects HMS
minimum angle



06/25/07

J. Dunne SANE Readiness Review

Extension Piece: HMS θ_{\min}

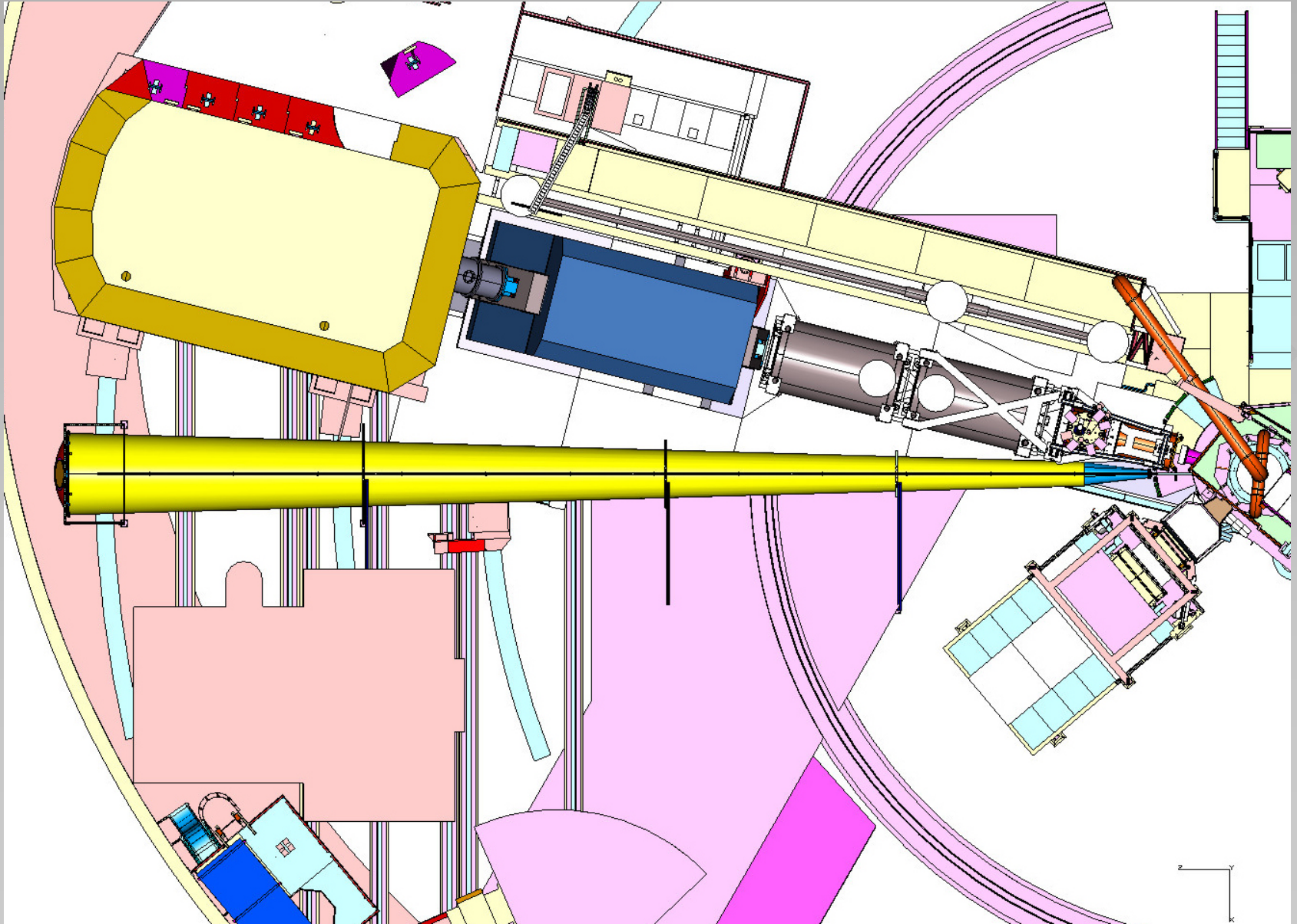


Effective radius of beam envelope
at Q1 edge: 14 mm

θ_{\min}	Beam Clearance
13.5°	~ 11 mm
14.0°	~ 29 mm



Shield Wall



Beam dump

- Same beam dump that was used in RSS

Manpower

- Chicane Magnets
 - Settings/position: Accelerator/O. Rondon
 - Controls: Accelerator
 - Connections: B.Vulcan
- SEM/BPM: Basel/Accelerator
- BCM: D. Mack
- Rasters: C. Yan/Accelerator
- Radiator: J. Dunne
- He Bag/ext. piece: J. Dunne
- Beam dump: W. Kellner