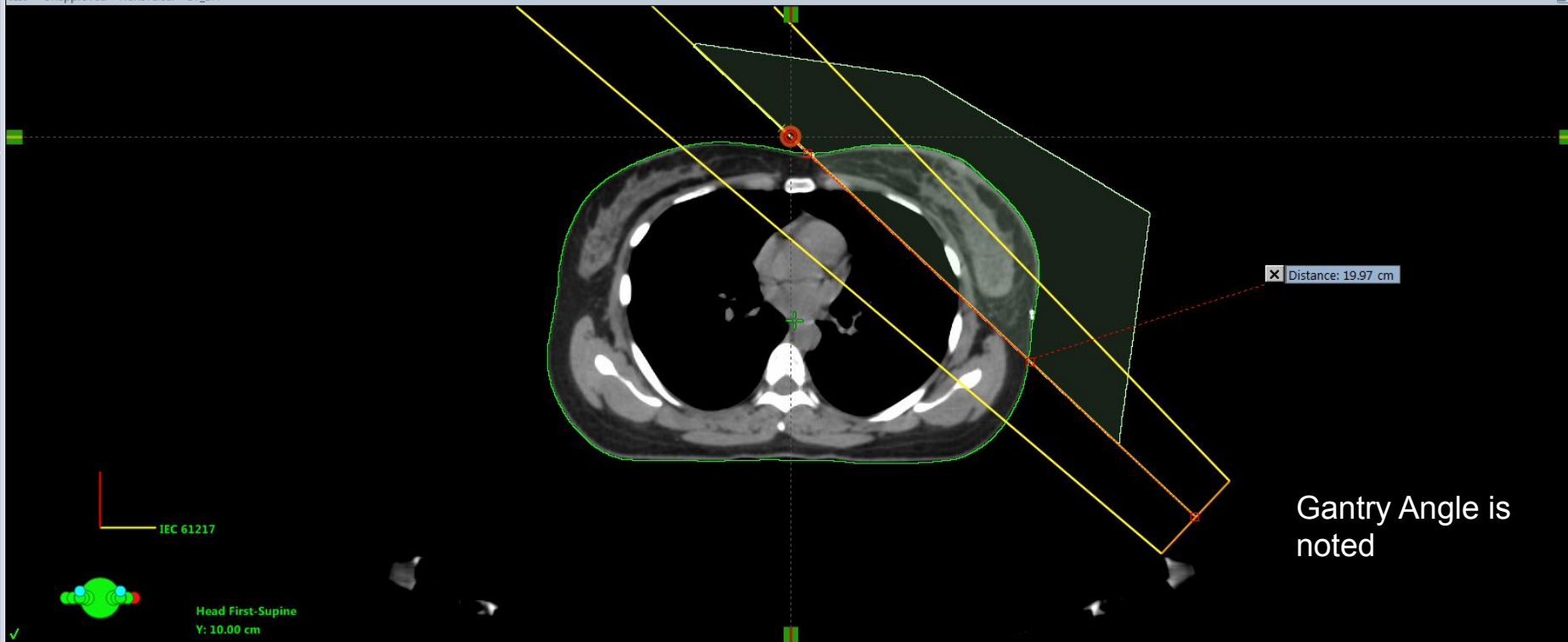


Breast Cancer Planning Using hybrid Casebow technique FiF Tangential IMRT and VMAT SIB

Department of Radiation Oncology
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The beam is placed such that collimator angle matches the slope of the sternum (alpha angle). The gantry angle is rotated such that the lateral tangent enters and exits matching the mid-slice (beta angle). Shown also in this figure is measurement of the separation of the entry and exit points on the chest wall. Additionally half of the length of the tangent field is also measured.



Shown in this figure is how the isocenter is set along a perpendicular line midway between the entry point and exit points midway between the skin and the chest wall. The green trapezoid indicates the level of the mid-slice.

Enter values in the grey boxes.

Prosomactbreast-IEC-NCCC-Freeman V.1.1

Patient name:	
Trust ID:	

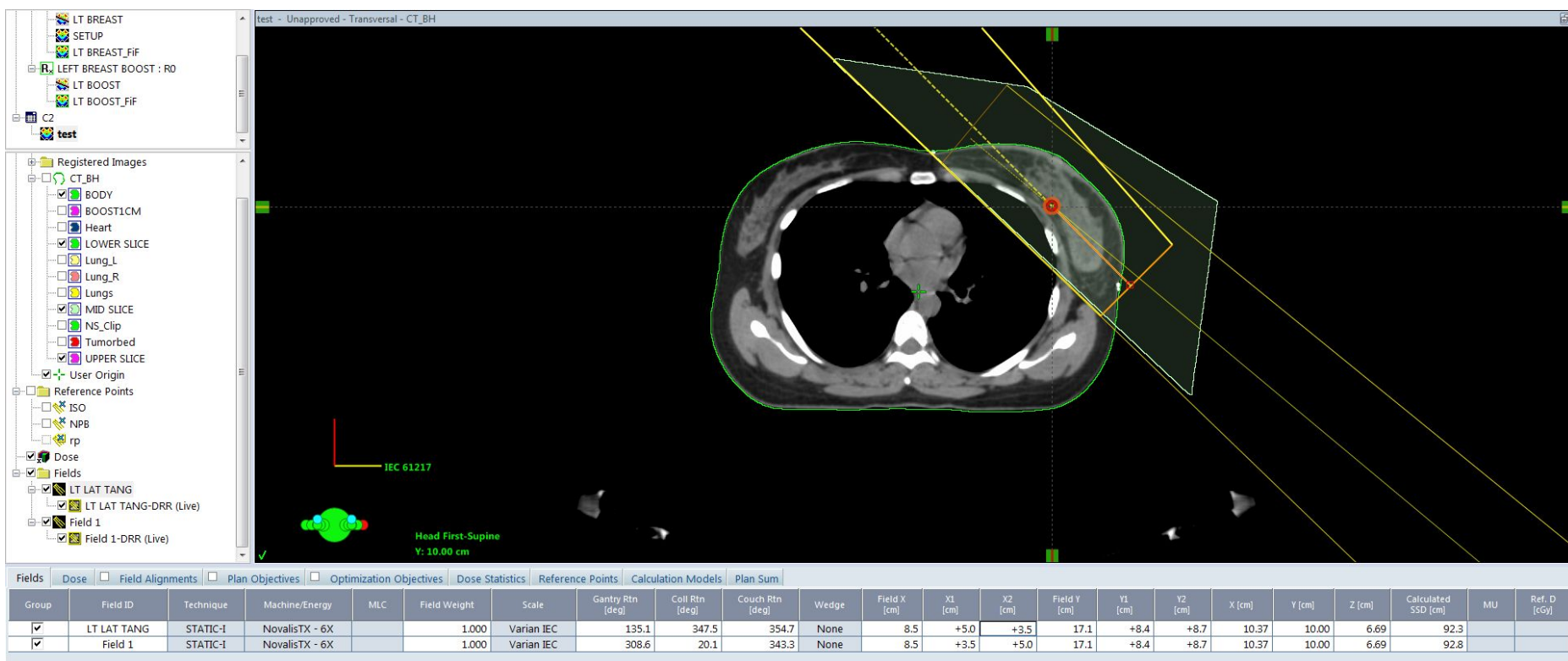
Required for calculation of isocentric angles:

Definition	name	value	units	
Distance isoc from supraclav. edge	<i>half length</i>	8.7	cm	defines length which is then adjusted asymmetrically.
Distance isoc from back edge	<i>half width</i>	3.35	cm	defines width which is then adjusted asymmetrically.
Sternal Slope angle from horizontal	alpha	12.3	degrees	
Put Isoc on medial edge, enter gantry angle required to make beam pass from lat to med marks	"beta"	133.2	degrees	i.e. Left Breast

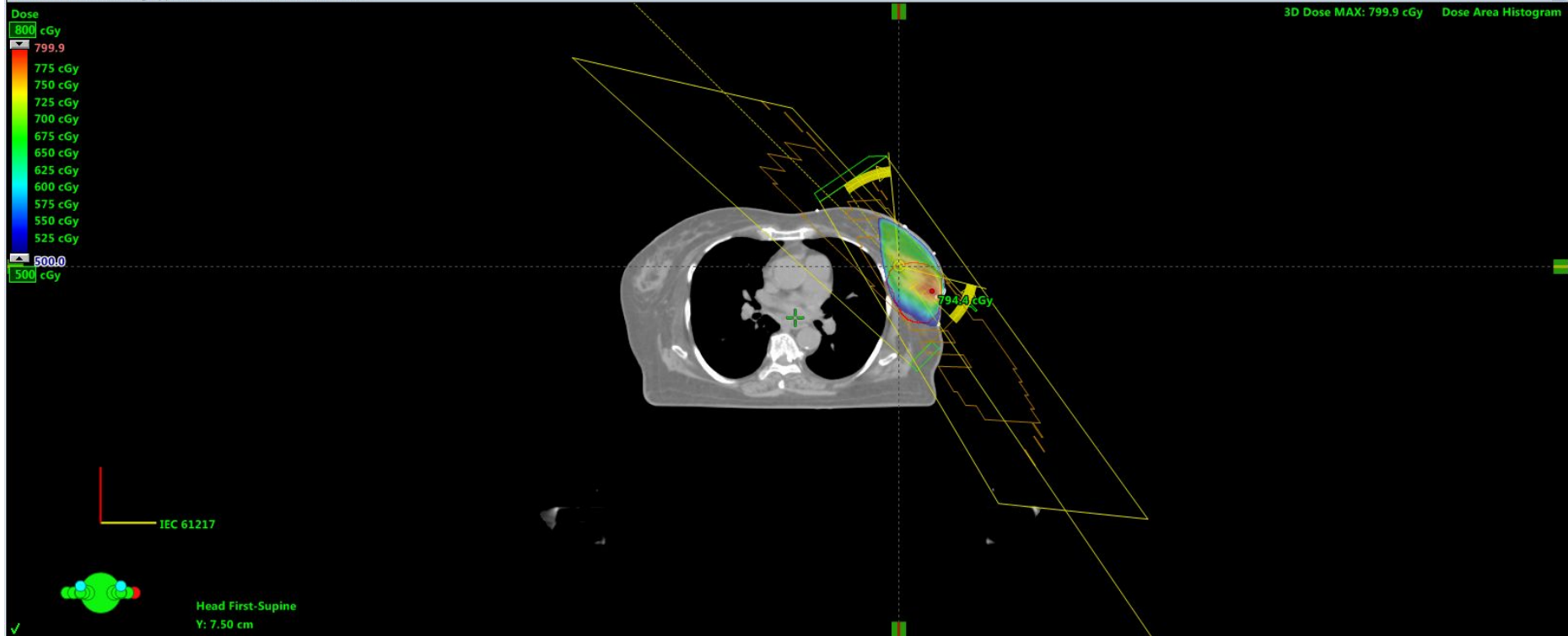
Common angles			
	Lt Med	Lt Lat	
gantry	308.6	135.1	
collimator	110.1	77.5	

Planning angles			
	Lt Med	Lt Lat	
Isocentric couch angle	16.7	5.3	

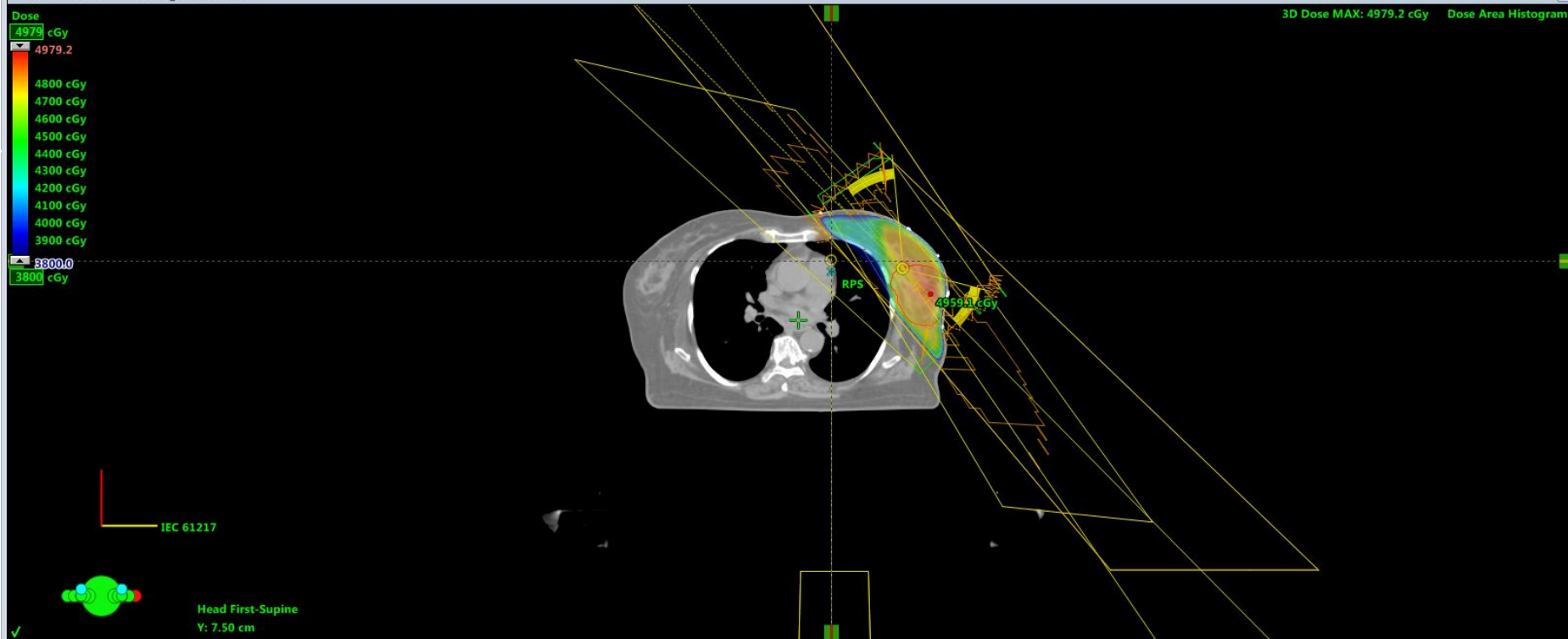
The four parameters viz the angle of the collimator rotation to make the beam parallel to the slope of the sternum or alpha angle, the gantry rotation to align the central axis along the line passing through the tangent entry and exit points (beta angle), the distance of the isocenter from the superior edge of the field and distance of the isocenter from the central axis of the tangent (along the perpendicular line) allow calculation of the gantry, collimator and couch rotation for the lateral and medial tangents



The medial and lateral tangents are aligned such that the divergence into the lungs and opposite breast is avoided. Field in Field IMRT is planned using the tangents and dose distribution is optimized with forward planning inside the breast. Couch and collimator rotations are used to avoid divergence of the supraclavicular and tangential fields.



Dose color wash display of the VMAT SIB plan for the tumor bed. Showing the way the SIB angles are placed such the contralateral low dose scatter can be minimized.



Showing the final dose distribution obtained from the tangents and the SIB VMAT plans. Note the angle of offset between the VMAT SIB plan and the tangents.