HEBT Geometry Options

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HEBT crosses the LTB line. Recent radiations calculations shows if the one BLIP Pulse is lost at the cross over location it will produce about 44 mrem on linac side of the wall, which is considered presently unacceptable [1]. There were attempt to separate these two line vertically. In this note we considered two options

(1) Start linac 6' high instead of 5' and then place a -5 degrees vertical bending magnet about 30 cm long just after the wall and second -4.135 degrees vertical magnet which correct the residual angle and establish beam height at 5', after the second dipole.
(2) Start linac at 6.5' and rotated first dipole about -9 degrees and second dipole about -3.7 degrees which establish beam height at 5' after second dipole

The Table I summarizes the beam parameters at the booster injection for the booster injection match for the usual twiss parameters

Table I; Summary of the beam parameters at the booster input, Twiss parameters being same for both options

Parameter	Option 1	Option2
Eta_x	-1.7m	-1.5m
Etap_x	3.1	3.7
Eta_y	0.74m	-0.03m
Etap_y	0.71	-0.55
Coupling	2.8 deg	12.7 deg

Appendix 1; Transport input file for option 1
Appendix2: Transport output file for option 1
Appendix3: Transport input file for option 2
Appendix4; Transport output file for option 2

References

[1] J. Alessi, Private Communication