

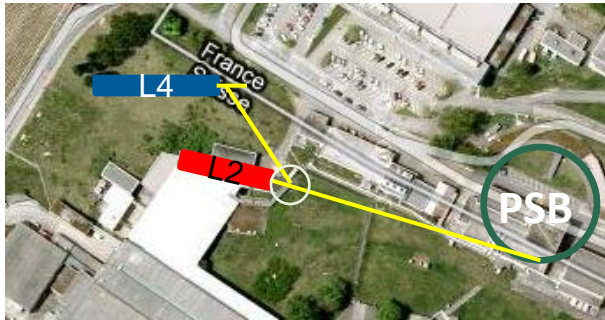
Debuncher Cavity

Beam Dynamics Point of View

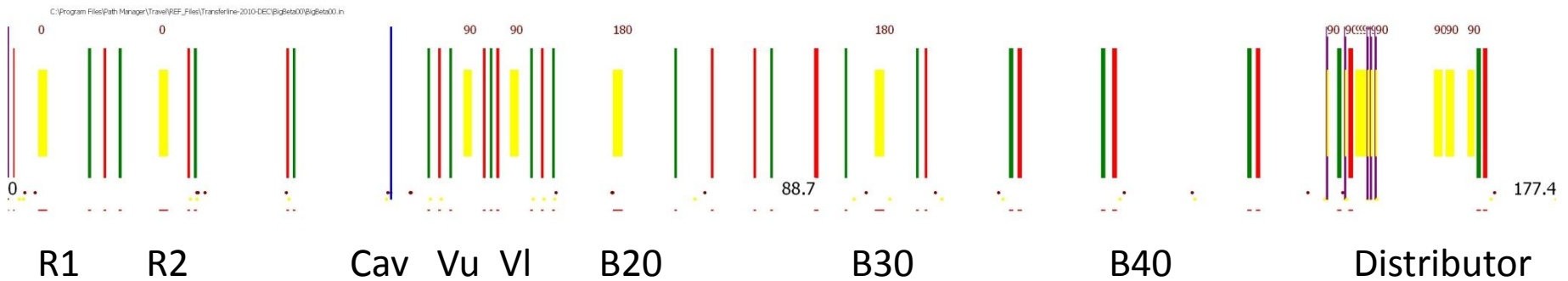
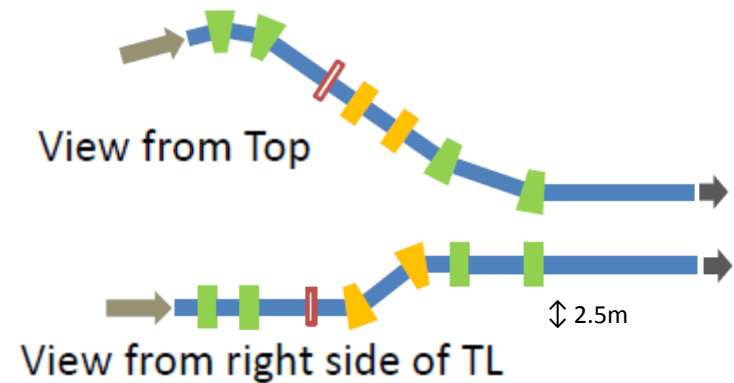
Lutz Hein 24.03.2011

Cavity Positions

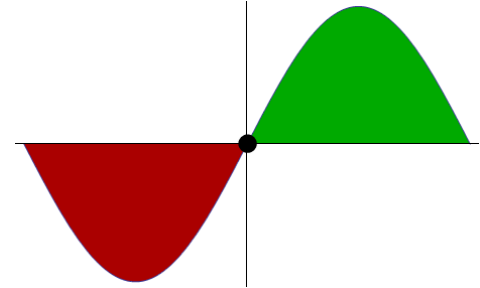
Introduction



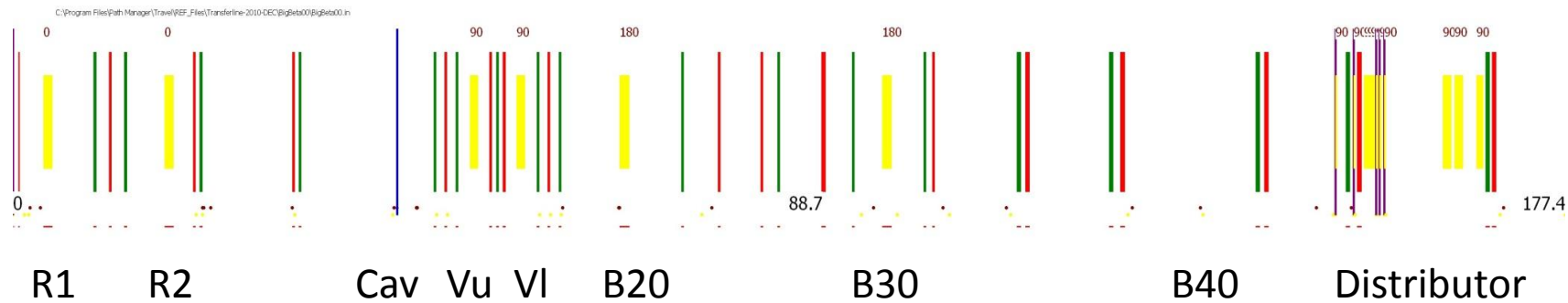
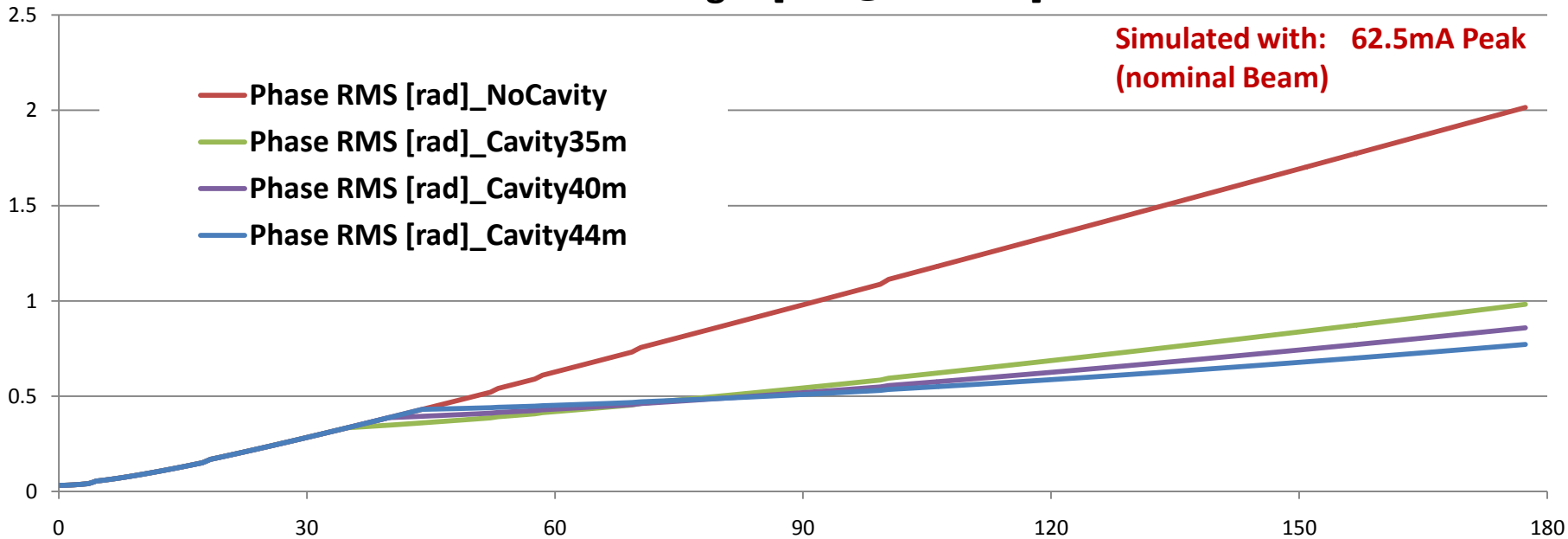
Total length ~ 180m



Cavity Positions



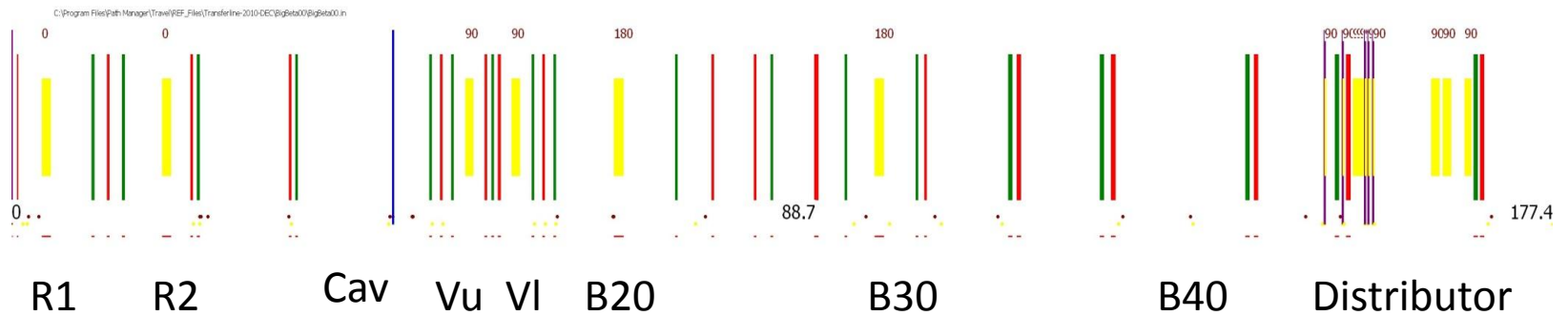
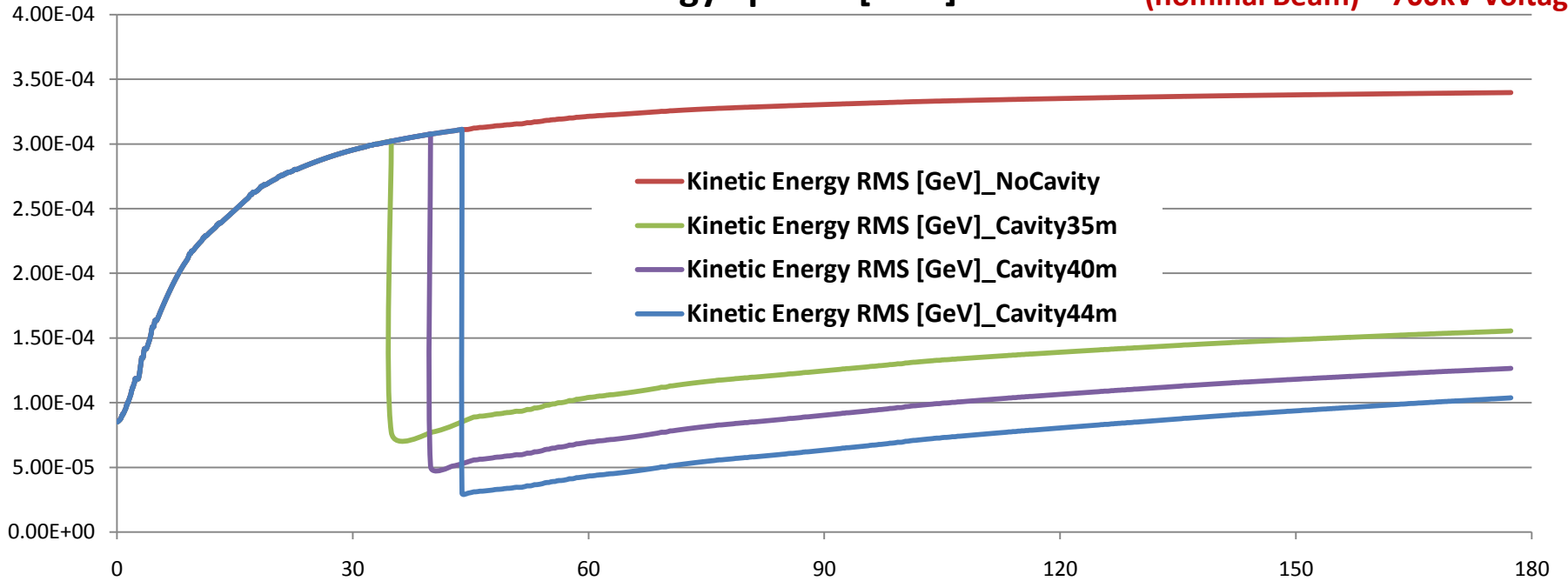
Bunch Length [rad @352MHz]



Cavity Positions

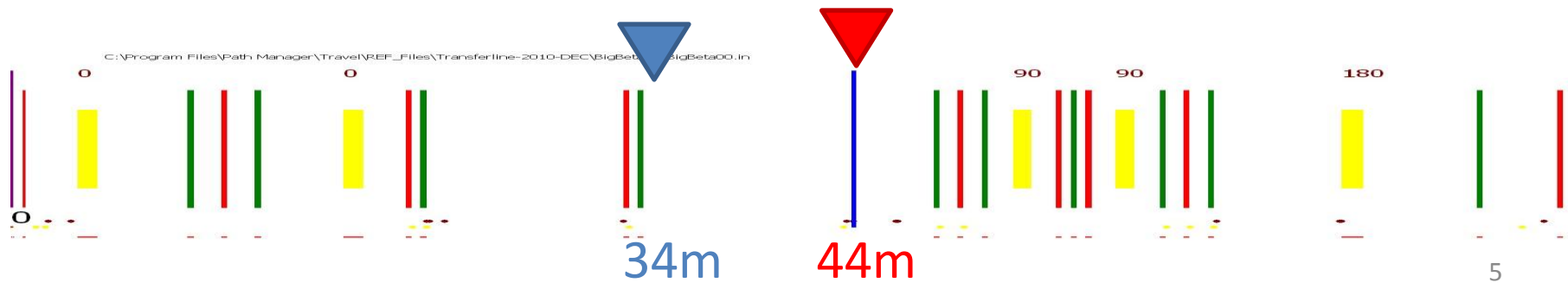
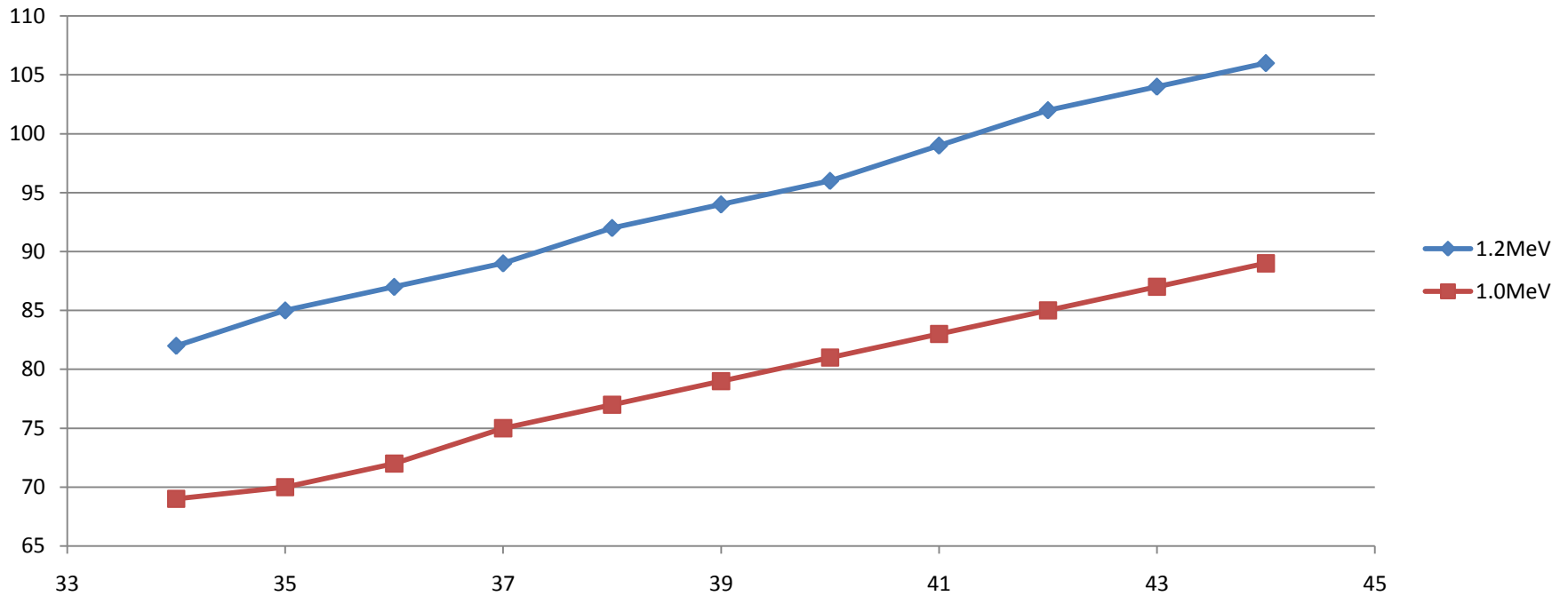
Simulated with: 62.5mA Peak
(nominal Beam) – 700kV Voltage

Energy Spread [GeV]



Debuncher Phase – Position – Voltage

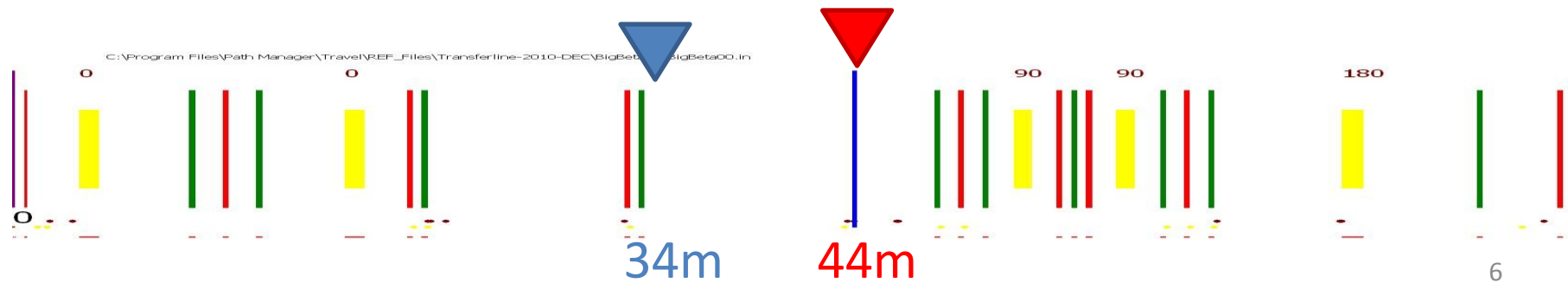
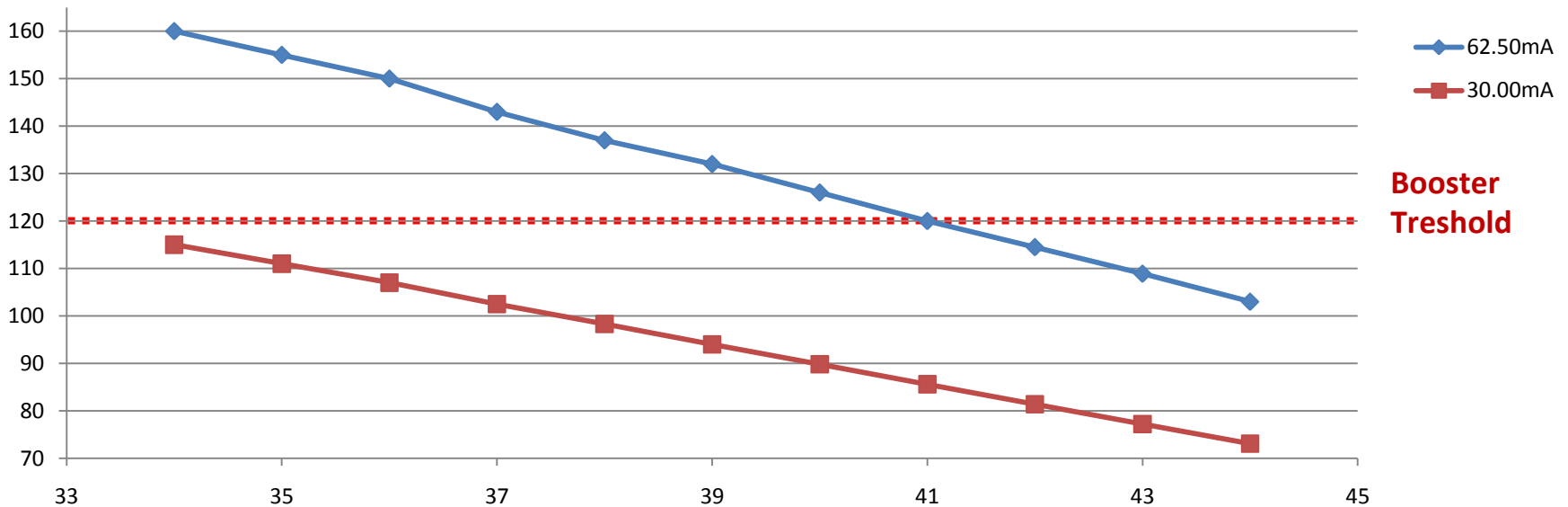
Phase Swing[deg]



Debuncher Phase – Position – Voltage

Maintain 700kV Cavity Voltage

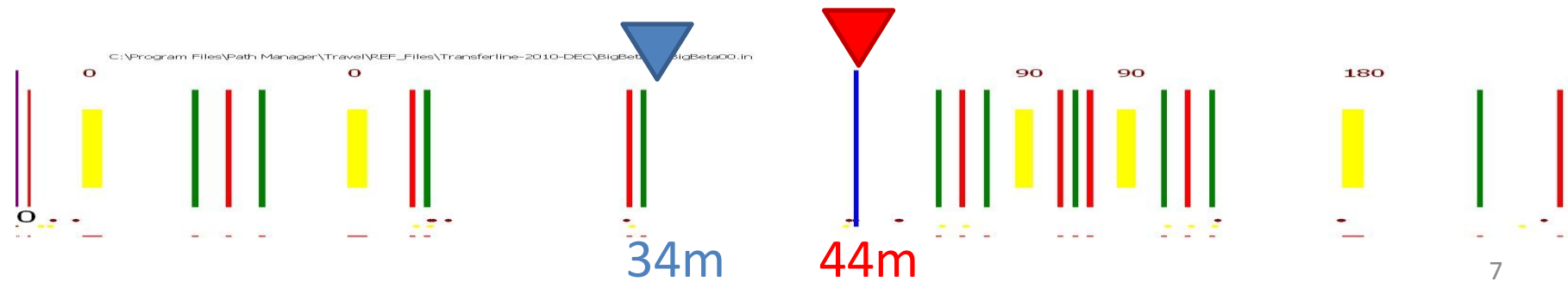
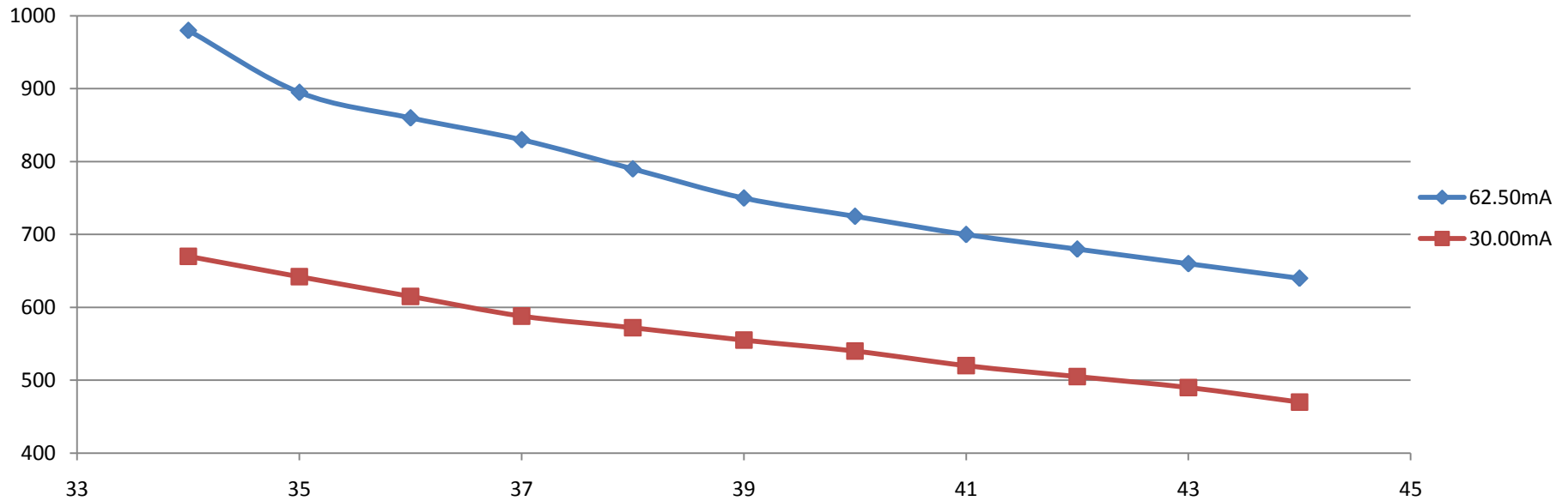
Espread [keV]



Debuncher Phase – Position – Voltage

Maintain 120keV for PSB

Voltage [kV]



Summary

A downstream position of the debuncher cavity is preferred by the beam dynamics, as

- less sensitive to bunch characteristics
- less remaining space charge impact
- better use of RF-Voltage slope